1907.

QUEENSLAND.

ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE AND STOCK

FOR

THE YEAR 1906-1907.

PRESENTED TO BOTH HOUSES OF PARLIAMENT BY COMMAND.

BRISBANE:

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1907.

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Presented to both Houses of Parliament by Command.

TO THE HONOURABLE THE SECRETARY FOR AGRICULTURE.

Department of Agriculture and Stock,
Brisbane, 1st September, 1907.

SIR,—I have the honour to submit to you the Report of this Department for the year ending the 30th June, 1907.

The year has been very favourable for agricultural and pastoral operations, excepting for the grain crops, which in some districts, particularly in the Maranoa, suffered severely from excessive moisture and humidity at the time when the crops were approaching maturity. In other respects, the returns have been good and prices obtained have been profitable.

The influx of experienced farmers and their families from the Southern States and elsewhere is having a marked effect upon the agronomy of the districts in which they have settled, and the gain to the farming community through their advent will be considerable. On the other hand, skilled and reliable farm labour has been scarce, and at periods, particularly during harvest time, practically unobtainable for general agriculture as separate from the sugar industry.

In pastoral matters the year has been one of gain in the increase of stock, and of profit in the markets. Grass and water have been plentiful, and the good seasons that have been experienced since the drought have enabled the stock to multiply and resume the normal annual increase of the years preceding that time, a state of affairs that has enabled those of the meatworks that have for some years been shut down to resume operations. Both sheep and horned stock have multiplied, and the lambing was excellent.

The sales of wool have been encouraging, and the quality of that offered for sale has much improved.

Dairying has continued to expand in a very satisfactory manner, and our exports, owing to strict supervision at the port of export, are increasing in favour in the London market. Interest in improving the dairy herds has been shown by the number of first-class dairy cattle that have been imported. In tropical agriculture there is evidence that farmers are inclined to cultivate main crops other than maize and sugar, which have so long dominated the agronomy of those regions. Plantings of rubber have been made, which, though small at present, indicate a commencement, and it is hoped will be the forerunners of Queensland rubber in the market. The success attending the experiments in cigar tobacco on the Northern coast, and the good prices realised for the product, have encouraged several farmers at Bowen and Cardwell to undertake the cultivation of this plant, and it is but a matter of time before the area under cigar tobacco in this State will be considerable.

Agriculture is so extensive in its application and so variable in its circumstances, including as it does all relations of man with the soil, that it is impossible to include every department of so wide a subject within the pages of a report, and so much of the work of the Department during the year must of necessity be omitted.

Two great experiments of considerable value have been commenced during the year—the conservation of fodder by means of silos, and the system of cultivation known as the dry-soil system.

The classification of making silage as an experiment can be explained by the desire of the Department to find out the material most suited to this climate and to the pockets of the man without much capital. Silos of wood, brick, stone, and cement are not new, but new materials are constantly placed upon the market, and it was thought that from some of these a cheaper, and, at the same time, as reliable as the well known but more expensive materials may be found.

It may be that the experiments entered upon will turn out failures, and if so they can be classed as departmental successes, because, by demonstrating the failures, many men will be saved expenses that they might otherwise be induced to incur.

Silos of iron, of fibro-cement, and of iron and malthoid have been erected at the College, and at the State Farms, Hermitage, Roma, and Biggenden, a general description of which will be found elsewhere in this Report. Reference is here made to this matter, but it is desired to emphasise the point that these are experiments with new material, and until the result has been determined the Department does not advise any farmer to follow on the same lines.

An exemplification of this warning will be found in connection with the fibro-cement silo. The material is apparently good, but as manufactured is too light, and it has been found that the specifications supplied for the woodwork skeleton did not require heavy enough timber, and, as a consequence, the heavy weight and expansion of the silage have forced the structure at the corners. Defects of this kind are to be looked for in all experiments, and will be remedied in any specifications submitted to the public.

The experiments in dry soil cultivation are for the present being carried on at the State Farm, Roma, but it will not be until 1908 that anything authoritative can be said of the value of them, and not even then unless a dry season is experienced in the Maranoa district. Arrangements had been made by this Department whereby these experiments should have been commenced at the time of starting the Roma farm, but, owing to the delay on the part of the manufacturers in America, the implement ordered was not ready for export before the sailing of the s.s. "Haversham Grange," which was burned at sea and the implement was lost. A second cultivator was then ordered, but did not arrive until after the grain crop had been planted, and even then the axle was missing on arrival, and a new axle had to be made in Brisbane.

The cultivation of native and exotic grasses likely to be of service to the farmers has obtained attention, and arrangements have been made for the cultivation and propagation of such as are selected upon a business scale at the College and at the State Farm, Hermitage. For several years small plots have been cultivated at both places, but from a practical point of view the subject has been but played with.

The Botanist, Mr. F. M. Bailey, than whom there is no greater authority in Australia, and, I venture to assert, in the world also, and others, have through years been advocating the value of our native grasses in comparison with the grasses that are imported, and the Agricultural Chemist has proved by analysis that Mr. Bailey's opinion is correct, and by the institution of practical experiments with grasses these opinions will be supported.

For the present, 20 acres will be devoted at each place for this purpose, and for the acclimatisation of imported grasses of improved kinds. These areas will be under the charge of men who have a liking for and understand the work, and the results will be at the service of the general public. A beginning has been made at the College, but operations have been delayed at the State Farm, Hermitage, owing to the resignation of Mr. Martin, the manager, who has entered into other pursuits, at a busy time of the year. It is hoped, however, that with the spring the affairs of the farm will allow a commencement.

There is no reasonable doubt that in some quarters of the State some of our best grasses have been fed out of existence through over-stocking and by continual burning off, supplemented by drought, and it is anticipated that by means of these grass gardens our best grasses will be preserved to us, and that an increased interest in this important item in the domestic policy of the farmer and grazier will be evolved. By the information that will be at his service he will be able to understand what is best with regard to feeding quality and quantity, and so avoid the mistakes that he is now subject to without being aware of the cause.

The abridged reports of the inspectors stationed in different parts of the country upon agricultural and pastoral matters and of the different districts, have been published each month in the Press, and are considered, it is understood, to be of some use in spreading information upon those matters.

The circulation of the Agricultural Journal remains about the same—3,000 copies a month—a circulation that should be largely increased. There must be many articles and papers that would be of value to many farmers and others connected with rural life who never see a copy of it, notwithstanding

Subsidy to Local Authorities for dips.

See leading article in Report papers from R'ton Bulletin.

Deputation of Coop Companies others on grading :x:

Deputation on marsupial acts - Rosewood and Armstrong. papers.

Butter at Grocers Exhibition 1st p: Downs Coop. 6.

Quarantining of road Boonah to Killarney.

Froggats Report on his tour in search of a fruitfly parasite re.

Marsupial Boards -- inclusion of Toces and hares - amendments in Act - mention source of suggestions.-

Dairy Produce. Correspondence with Federal Authorities on grading points for flavor.

Deputations on grading.

holes on replies from Sellers compiled during the early part of the year.

:x: Mr Stevens the Managing Director of the Q.M.L. Co. in Asia when in Brisbane in October - stated to Mr Thomson that a good trade in Q. butter was done in Singapore, and that not one case of dissatisfaction with the grading of Q butter was reported to him - N.S.Wales butter was reported to be badly graded and the quality not up to the Standard.

Demonstrations by Cream Inspectors - to Farmers - Milk testing on Farm

Shearing Act. See p. 36

Mr Benson's tour in the North - Sept Oct. - Bananas re.

Diseases in Plants - Reduction of covering Bananas - two months to three weeks - Criticism Victorian & S Ags Regulations

Agricultural classes in Victoria - Total number of Students enrolled in the Farmers Classes (poultry) 1236, while the total number of Students and Visitors at the 27 centres of last season was 16389. Australasian 9.11.7.

Demonstrations by Dairy Inspectors - butter fat testing 17593 Gillies

S. Australia estimated wheat figures 1907/8
area. 1807007 yield 15 782636 Bus
average price 4/4 total value £3 119 571. Daily Mail 4/12/7

Horse breeding now takes rank as one of the first industries in the U.S. The latest Statistics show the number as 19766 583 and their Commercial value £369 315 642 outranking in valuation any other branch of animal industry. Draught horses are the most profitable produced by the average farmer - The horse that weighs from 1100 lbs to 2000 lbs is in the greatest demand. Imported Stallions sell readily at from £300 to £1500 with a few sales of champions in the ring at £5000
Sydney Mail 2.12.7

Benson reports on Southern Tour - Inst. Dec - Interesting points might be obtained

Dairying. Thomson might have letter from London from which interesting extract might be taken.
Petitions from Factories

Cucumber and tomato experiments - Benson by Benson Brunnich & Rainford.

that upon application it will be posted to them for the small sum of 1s. a year. There are, it is assumed, about 16,000 people in Queensland who follow rural pursuits, and upon this calculation only about one in five receive the Journal.

The meatworks are in operation, and though not yet working to their full capacity, the supply of stock has so far recovered from the effects of the drought that the desired state of affairs is in sight. Contracts have been maintained, and new contracts have been secured.

At the instance of the authorities at the War Office in the United Kingdom, Major Long, D.S.O., has visited the meat factories now working, and has reported thereon in a manner which is understood to be entirely satisfactory to the trade generally. He was followed closely by Major Gallagher, of the United States Army, who came here from the Philippines upon a similar mission, and to inquire into other subjects with which trade could be done if supplies are forthcoming.

The application of the Slaughtering Act throughout the State has resulted in a great improvement in the methods of slaughtering and in the kind of meat supplied for consumption. The quiet and persistent efforts of the inspectors in Brisbane and other large centres has resulted in the renovation of the slaughter-yards and the establishment of a system that is in all respects adapted to the utmost requirements of the trade.

The Acts of Parliament of the last session in which this Department was interested were—the Weights and Measures Act (since transferred to the Treasury); the Native Animals Protection Act, to provide a close season for the native bear and the opossum, and to wholly protect the tree-kangaroo, the wombat, the duck mole, the hedgehog, and the flying squirrel. Since this Act came into operation representations have been made to the Department that the native bear, so that it might be protected from virtual extirpation, should be wholly protected for a period up to twelve months. Upon this matter the opinion of Mr. De Vis was sought, and he entirely coincides with the proposition, being of opinion that partial protection will not suffice to save it. The animal is so conspicuous a shot, and so unable to escape pursuit, that even a very short open season, if general throughout the country, would render it liable to extinction. Another Act was the Shearers and Sugar Workers' Accommodation Act Amendment Act, rendered necessary by the omission of power under the principal Act for the making of regulations. Particulars of the working of this Act will be found in another part of this report.

A statement was made during the last session of the Victorian Parliament during the discussion on the Vegetation Diseases Bill that "Bananas came from portions of Queensland where there is a combine so firmly established that no white man can get any bananas for the purpose of exporting them." It was understood that the Geraldton district was referred to, and, as it was considered to be an important statement in connection with the fruit trade, inquiry was made into the matter, and it was found that though the Chinese hold the lease or sublease from Europeans of nearly all the land under bananas, there is but one Chinese owner of freehold land, and he is gradually deserting the banana for the cultivation of sugar-cane. Therefore, if the statement were true, it is not the fault of the Chinese, but of the Europeans; but the statement is not true, because the Chinese merchants and growers have no combine, but act independently. Further, there is no doubt whatever that if any Southern merchants wish to buy bananas in the district, they will have but little trouble in securing offers of half the bananas grown on the rivers; and, as an illustration of this statement, I may mention that shortly after the last cyclone that destroyed the gardens, and when bananas were scarce and at a high price, a West Australian merchant visited Geraldton and obtained all the bananas he wanted at a price presumedly satisfactory to him.

Among the owners of the banana lands there is a Victorian whose property is under the control of a Victorian.

The agricultural and pastoral statistics, compiled by the Government Statistician, which will be found at the end of this Report, include much information on agriculture and pastoral matters generally, and reference to them will furnish all information as to the state of these industries.

The number of dairy and other stock of pure breed that are now being imported have been the cause of an inquiry through the Agent-General for a general ruling price for freight and other charges, in order that the information may be at the service of any who may desire to import. The particulars obtainable are too detailed for inclusion in this Report, but it may be mentioned that they include matters relating to stalls, bedding, fodder, attendants' passages and so on, in addition to the actual freight. A number of breeders of dairy cattle have commissioned Mr. Stewart—who, two years ago, was sent to Great Britain to purchase stock for this Department—to again proceed to the United Kingdom on a similar errand, and it is anticipated that the result of the venture will be greatly to the advantage of this State.

STATE FARMS.

During the year many improvements and repairs have been carried out that have been delayed for many reasons. At Westbrook the shed accommodation has been extended and some much-needed implements purchased. Hermitage has benefited by the erection of buildings for dairying purposes, for

housing the machinery and implements, and by the provision required for the accommodation of the sheep presented by Mr. Slade. Though the operations at this farm have been much broken by the resignation of the late manager, Mr. Martin, matters have now been righted, and the farm is fast resuming the appearance and form of a first-class State farm. At this farm general agriculture in all its branches is carried on, the conservation of fodder being a prominent feature; and, to those interested, a visit would well repay the trouble.

The development of the State Farm at Roma has been continued, and the interest it has aroused among those settlers in the neighbourhood is evident. The regular operations under an organised system that covers all crops likely to be profitable in that district has been an education that will be of great service to the State, and will in a few years revolutionise farming operations in the Maranoa.

The advantages of this farm can be further increased by the adoption of the system of apprentices and improvers as soon as matters have been sufficiently established to enable the manager to give attention to instruction. Visits by farmers are of short duration from force of circumstances, and though information is imparted, the time is not long enough for general instruction, but the employment and education of the sons of the farmers in a two or three years' course will be a valuable medium of spreading information through the district.

The alteration in the policy at Gindie is proving successful, and is carrying out the object in view—the encouragement of mixed pastoral farming and the conservation of fodder against a dry time.

The stock on the farm includes dairy cattle, beef stock, sheep, pigs, and poultry, the produce of which during the year has more than covered actual working expenses, a return which will be still further increased it is anticipated during 1907-08. If the surrounding homestead grazing farmers can be induced by the profitable operations at this farm to depart from the usual custom of following one line of stock only, or, in other words, not to carry all their eggs in one basket, the cost of the farm will be repaid manifold.

Though no material alterations other than necessary buildings were made at the State Nursery, Kamerunga, during the year, arrangements are in progress for laying down 4 acres of cigar tobacco. Beyond this, there are many things that could with advantage be undertaken in connection with it were more space and means available. Nursery plots of many items of tropical products are grown, but as there is a manifest disinclination in the North to go far outside the staple products of maize and sugar, it is a difficult matter to impress on growers unless shown by an object lesson that other tropical crops, which the Instructor in Tropical Agriculture is continually advocating, would add materially to the profits of a farm. This end might, however, be gained by extending the operations of the State Nursery, and by following the innovation at the State Farms at Hermitage and Biggenden, inculcate a knowledge of these subsidiary industries in the younger generations of Northern farmers, a knowledge that once acquired, would be spread to a far greater degree than by the present system of lectures and personal advice.

Among the branches of tropical agriculture favoured by Mr. Newport are cocoa, rubber, fibres, spices, rice, coffee, citrus fruits, cardamoms, oil plants, peppers, &c.

There is also a distinct move in the direction of dairying, and, though there is a reserve at Atherton for a State Farm, the Department has no means available in that district for encouraging that industry. This matter will sooner or later require attention, and it is thought could be arranged in conjunction with Kamerunga.

AGRICULTURAL EDUCATION.

Though the consummation of the proposal made in former reports for agricultural classes of greater or lesser duration in agricultural districts has not yet been attained, much progress has been made during the year in the direction aimed at. The vote upon the Estimates for the Department of Public Instruction for instruction in agriculture has been an important advance. Under it arrangements have been made whereby the officers of this Department will visit the schools where such instruction is carried on, when they happen to be in the district, and give advice and instruction, so far as time permits. The commencement thus made is capable of considerable expansion, and should be of great use in spreading elementary knowledge and inculcating a love of things pertaining to rural pursuits. In addition, this Department purchases such seeds and tools as may be needed. The course at the Agricultural College for teachers during the winter recess has been continued, and from the number of applications from schoolmasters of different degrees for permission to be included it is evident that the instruction given and received is considered to be of some value. The system initiated at the State Farm, Hermitage, under which apprentices for three years are taught the several branches of general farming, has been applied, though in a slightly altered form, to the State Farm, Biggenden. There, in consequence of the limited area, improvers instead of apprentices are taken on. These lads, under the tuition of the manager, are instructed thoroughly in the work carried on there, and for their services are found in board and lodging, and receive payment at the rate of 2s. 6d. per week for the first six months, 5s. per week for the second six months, 7s. 6d. for the third period of similar duration, and 10s. per week up to

Dairying. Extract from Journal 6.11.7.- Letter from Wills & Spurr dated 27.9.7

"As to Australian butters, we have had a few new season butters per Miltiades, and the general quality has been excellent. Victorian New South Wales & Queensland butters all coming up to the best standard particularly in the latter case - We think the Queensland butters landed this week are some of the best that have come to this market. There is a good demand for all choice lots and a more inquiry for cold stored parcels. -(This letter was sent to N.S.W not Q)

It is not altogether the duty of the teacher or Expert to teach the grower how to grow the common or customary crops, but rather how to improve the quality of the crop and how to raise it in the most economical manner - Certainly not to put quantity against quality. Improvement of quality carries with it generally improvement in quantity. It is of greater importance that one acre shall produce a crop of the first quality than that two acres be cultivated to produce a great quantity of inferior stuff - This is the duty that the Specialists of the Dept have undertaken but their action does not seem to meet the appreciation of the Farmers to the extent it should

A paragraph on analyses of butter papers - Mr. Brunnichs report.

Horse population of the World from the "Revue de Cavalerie" Belgium

Total horses				80.000.000
Europe				41000 000
N America				10 000 000
Asia				11 000 000
S & C. America				6 000 000
Australia				2000 000
Africa				1250 000
Europe . Russia	22000000	Roumania	864000	
Germany	4184000	Italy	742000	
		Greece	100 000	
Austria Hungary	4020000	Sweden	525000	
		Switzerland	100 000	
G. Britain	3000 000	Denmark	449000	
		Norway	151 000	
France	2000 000	Turkey	300 000	

Shearers v S.W. Ass. Report from Mr. Reid 22.12.7.

Eddington Station - extract -

Improvements at this place have been carried out in a most satisfactory manner but I regret being compelled to state that the premises were left in a very unclean and in some cases really filthy condition by the occupants.

Fruit from Woolbrook.

Dec. 1906 186 cases 1907 416 cases.

A. N. A. Exhn Feb. - Butter exhibits - Apathy of manufacturers left all work to Dept. own arrangements for shipping

Estimate of wheat crop. 1907 - E & O.E. 1-250000 bushels. R.

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and only two seats, Cockermouth and Brigg, were won by the Tories.

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AGRICULTURAL EDUCATION.

A pamphlet has been issued by the Board of Agriculture and Fisheries dealing with provision made for agricultural education in England and Wales. It is stated that within the last twenty years there has been a great extension in the facilities for such education, and at the present time the colleagues, schools, and courses of lectures which afford opportunities to the farming community for obtaining scientific and technical instruction are numerous and well adapted to modern requirements. For many years the bulk of the board's funds was devoted to assisting educational institutions working for groups of counties, many of them of the type of a university college, but recently grants have also been given to certain other centres acting in a more restricted area. The total amount of the grants thus distributed in 1905-6 was £10,550, while in 1906-7 it was £11,350. There are now nineteen institutions receiving grants from the board.

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MONEY WINDFALL.

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the completion of the second year, after which their service as improvers terminates. The opportunity thus available for the lads in the Wide Bay district will, it is hoped, be valued, for at this farm they will be enabled to learn as much as, if not more than, they would on a private farm, and under much better conditions.

The extension of the system to the tropical part of the State will, it is hoped, be a portion of the policy of the Department during the coming year, for it is manifestly right to encourage in every way possible a knowledge of all kinds of tropical industries, and, under present conditions, the road is difficult to travel. The occupation of the rural portion of the agricultural community in the tropics hitherto may be divided generally into two divisions—the cultivation of sugar-cane and the cultivation of bananas and oranges. For the subsidiary crops that are of use and worth, many of which under the protection of the federal tariff could be cultivated with every hope of a profitable return, there is little or no interest among the older generation, and, to inculcate that interest, the younger or rising generation should be educated. The present uncertainty with regard to the future of the sugar industry is, it is advocated, a sufficient reason alone for the encouragement of different kinds of tropical agriculture and of other rural pursuits that may be followed in the North, that may hinder any possible reversion of land that is now cultivated to its natural state.

At present there is no State farm proper in the tropics, and the Nursery at Kamerunga, near Cairns, is too limited in its area and accommodation to succeed in spreading knowledge as it should do; but, with an extension of its area, and the erection of quarters, a nucleus would be established that in years should bear good fruit.

The agricultural classes in country districts before referred to have now been in operation in Victoria for about three years, and are considered to be of great use and benefit, and evidence of this is to be found in the class recently held at Redesdale, in that State, which is said to have been one of the most successful yet held. At the concluding lecture there was an attendance of 145, and the average at all the lectures was over 87 persons. The object of these classes is to bring under the notice of young farmers who are prevented by circumstances from attending the Agricultural College the principles that govern all operations on the farm, the practical results that have been obtained from research and experiment, as, for instance, selection of seed, improvement in cultivation, fallowing, manuring, diseases in fruit and in stock, management of stock, and so on.

There are many young farmers who cannot be spared for any length of time from their homes, but were there a temporary school at their service in the neighbourhood of their homes they might be encouraged to break away from the grooves in which they have been treading, and, in their spare time, by reading, learn of later methods. It is not to be expected that all who attend a class will profit thereby, but if only one follows the instruction given, the object lesson he will give in a neighbourhood will soon be followed.

Attendance would, of course, be voluntary, but, to encourge that attendance, certificates might be given at the termination of a course of lectures, which might include lectures on animal nutrition, breeding, and management of stock, crops, dairying, poultry, fruit, and vines, the elements of agricultural chemistry, and other subjects, as the focus of the classes enlarged. The cost to the Department would not be large, indeed, it would be mainly limited to the maintenance and travelling expenses of the officers employed, for it is not proposed to employ outside help at the commencement, but to conduct the classes with the help of the instructors already in the Department and of the local agricultural societies—who would be expected, for the benefit that might accrue to the district—to provide a building, lighting, and such other requisites as may be necessary.

CONFERENCES.

Though no Conference on general agricultural and stock matters has been held during the year, the officers of the Department have on three occasions been called upon to take part in what may be termed Departmental Conferences with the officers of other States. These were—

The Conference of Agricultural Chemists, held in Sydney in August last, at which officers from Victoria, New Zealand, New South Wales, and Queensland were present, this State being represented by Mr. Brünnich, the Agricultural Chemist.

The business transacted included—Methods for reports on soils for the instruction of farmers; Methods of different forms of analysis to attain uniformity; legislation regarding adulteration of fertilisers and other agricultural products; soil surveys; field experiments to be carried out under the supervision of chemists, to be supplemented by pot experiments, by means of which certain problems can be best investigated; restriction and prohibition of the use of copies of official analyses for advertising purposes; samples of soil for analysis to be taken under the direction of a chemist; the marking of glass-ware used in dairies and in butter factories; further investigation of Kjeldahl's method for the determination of nitrogen with and without the use of mercury is necessary; that it is desirable in all cases of alleged poisoning of any animal, in which a chemical analysis is required, the *post-mortem* by the veterinary surgeon should precede the analysis.

The foregoing brief headings in no way indicate the many sub-headings included under them, the discussion on which was very valuable and interesting, and if nothing further than uniformity in methods of procedure has been gained the Conference was fully warranted.

The Entomologists' Conference, in Sydney, in the early days of August last, was attended by Mr. Tryon, as the representative of this Department, and at which were entomologists from New South Wales, Victoria, and Tasmania. The subjects discussed covered many issues, viz. :—Naturalised injurious insects of general occurrence in Australia; the possible introduction of additional pests and diseases, particular mention being made of the potato disease and exotic fruit flies. Parasites of injurious insects, including consideration of predaceous insects; also, matters pertaining to interstate commerce in plants and fruits, under which heading there was a discussion on the inspection of imports and exports, the treatment of fruit receptacles, treatment of scale infested and otherwise condemned fruit, the destruction of condemned fruit, plants and fruit fumigation attested by certificates; *Phylloxera vastatrix;* the Codlin moth; Fruit flies; New South Wales and its injurious insects.

The Stock Conference was held in Melbourne during August, and was attended by representatives from New South Wales, Victoria, Tasmania, and Queensland, which was represented by Mr. Orr, the Deputy Chief Inspector of Stock, and by Mr. Cory, M.R.C.V.S. This Conference was purely in relation to matters in connection with the laws regarding stock in the different States, and to formulate some uniform system of inspection throughout the States. The matters discussed were: The existing system of internal inspection of stock in each State, which occupied the greater part of the time of the Conference, and concluded with a motion to the effect that the measures adopted by New South Wales with regard to the introduction of working horses across the border are efficient and an adequate protection to the other States without the imposition of further restrictions by such States. This was followed by resolution that Queensland working horses and dogs should be admitted into Victoria by sea on similar conditions to those imposed by New South Wales, coupled with a recommendation that Victoria might accept working horses and dogs by sea that had been subjected to the preventive measures directed against tick invasion in New South Wales; and that such working horses and dogs be landed in Victoria without further restrictions. Anthrax was discussed, but as this disease is not existent in Queensland, the subject, except from an academical point of view, was not of much interest other than as regards the passage of stock, and this was covered by a resolution requiring the necessary certificates of health of the stock and in the district whence they came. Pleuro-pneumonia, a matter in which the State is much interested, owing to its presence here, was next discussed, but no resolution on the subject was adopted. Swine fever, however, met with a better fate, and a motion that the importation from one State to another might be permitted by special arrangement agreed upon by the States concerned was carried. The Conference was also of opinion that Victoria should pass regulations to enforce compulsory dipping of sheep affected with lice and ticks.

The question of the introduction of foreign diseases—an important subject, in which all the States are particularly interested—was thoroughly discussed, and a motion was adopted to the effect that, in view of the magnitude of the live stock interests in Australia, which interests are threatened by the existence in India, Africa, the Philippines, the Malay States, and the East Indian Islands, including New Guinea, of the following diseases of animals:—E. Dourine, surra, rinderpest, South African horse sickness, nagana; and while recognising the value of the precautions now taken, this Conference recommends that importation of stock from those countries shall be absolutely prohibited. This resolution having been disposed of, it was followed by a motion aiming at the quarantining of all imported stock at one centre, or, as the object is understood, the establishment of a Federal quarantine station; but as Federal matters did not form part of the business of the Conference, the motion was lost.

Warbles in cattle called for a resolution that it was not desirable to admit cattle into the Commonwealth from countries in the northern hemisphere during the months of September, October, November, and December, owing to the risk of introducing the fly, and the business concluded with a recommendation that the reduction of the quarantine of dogs from the United Kingdom, if rabies has appeared there during the ensuing twelve months, be considered; that a foreign ship must be in Australian waters continuously for three months before she should be considered clean for the conveyance of stock; and a motion relative to a Brands Bill in Victoria. These Conferences dealt with departmental matters, and were composed of public servants only, but the Conference on the tick question, held in Brisbane on the 7th May, was under a different constitution, and the honour of the suggestion that brought it about is due to the Rosewood Farmers' Club. The agricultural societies from the border to Rockhampton likely to be interested in the subject, and whose districts are tick infested, were asked to appoint one delegate, and to submit a paper or subject for discussion to the Conference. Forty-two societies responded, and the papers read and the subjects discussed were very helpful in diffusing knowledge of this serious matter in a way that has not before been presented. The resolutions adopted were—

That, in the opinion of this Conference, the local authorities in infested areas do not study the welfare of the stock-owners in the district, in so far that while they have administrative power in their

1765/8 Williams R'ton 3-2-8 reports that a remunerative market has been secured in Sydney for small parcels mangoes properly packed and selected. Instructions that earlier in season mangoes from Northern ports to R'ton were badly packed and selected - Sufficient to kill any trade.
Sydney warns against sending inferior stuff

Paragraph objecting to cutting off Gardens - in conjunction with Electric Light 5666/8

Experiment Stations in N.S.W.

Hawkesbury ag. Coll. Richmond.
Wagga Exptl. Farm Bomen
Bathurst " "
Wollongbar " "
Belindigarbar Exp Farm Grafton.
Glen Innes " "
Coolabah " "
Cowra " "
Berry Stud " "
Pera Bore Exptl. "
Howlong Viticultural Station
Lake Macquarie " "

Victoria

Dookie ag. Coll.
Longerong ag. Coll
Burnley Sch of Hort & Small farm
Whitfields Expt Farm Tobacco
Rutherglen Vitic Station
Cobden Exp Farm
Mt Xavier Exp "
Wyuna Irrig Farm "

hands, cattle are allowed to graze and run loose upon the public roads and reserves, and all cattle so straying should be impounded by the inspector and dipped at the owner's expense.

That dipping only be made compulsory.

That a bacteriologist be attached to the Department of Agriculture and Stock, whose duty shall be the investigation of diseases in stock.

That, in the opinion of this Conference, the Department of Agriculture and Stock should test all dips free twice a year.

The following suggestion was also made:—That as new settlers could not afford to erect dips in many cases, they should be assisted by advances from the Agricultural Bank for that purpose.

The proceedings have been published in pamphlet form for general distribution.

After the conclusion of the Cairns Conference in 1905, it was decided that in future general Conferences should not be held annually as heretofore, but once in every two years instead. Under this rule, a general Conference should, in accordance with former practice, have been held during the first half of 1907, and preliminary matters in that direction were considered to that end; but, in consequence of the general election, arrangements were not proceeded with. It has been the custom to hold the Conference in some town in the Southern, Central, and Northern districts in rotation, the business covering temperate and tropical agriculture and pastoral matters indiscriminately. The break in the continuity of the Conference, and the alteration in the time of meeting, suggests the question for consideration as to whether it would not be better, instead of holding one general Conference in every two years to return to the annual meeting, but in a different form—that is, to hold a Conference in the North one year on purely tropical, agricultural, and pastoral matters, to be followed the following year by one in the South on agricultural and pastoral matters in the temperate districts. Against this suggestion —which is here included for consideration of the agricultural and pastoral societies—there is an important argument. A principal idea upon which these Conferences are based is the interchange of knowledge in different forms between farmers and graziers, apart altogether from the value of the papers read and the discussions upon the different subjects. Farmers from different parts of the State are enabled by these Conferences to see conditions and learn things that they would under other circumstances probably never have a chance of seeing or learning, and for this reason alone there should be hesitation in adopting the doctrine proposed.

EXHIBITIONS.

The Department was represented at the Exhibition of the Australian Natives' Association, held in Melbourne, at the beginning of the year, and was successful in obtaining praise from all sections of the public who visited it, honours that were divided with the Mines Department and the Forestry Department, which, with an Intelligence Office, formed the Queensland Court. The impression upon the Victorians can be fully exemplified by the quotation from the issue of the Melbourne "Argus" at that time:—"It is impossible to be within the Exhibition doors two minutes before the magnificent exhibit of the Queensland Government makes you hurry to look at it more closely," and from the speech of the Prime Minister of the Commonwealth, during the opening ceremony, that "The Queensland exhibit would take some beating."

The object in arranging the exhibit was to show as far as possible the products of this State raw, and as manufactured from the raw material. A particular feature, as our trade in fruit with Victoria is large, was a collection of Queensland fruits, renewed with regularity and under arrangements whereby fresh supplies were forthcoming, so that the fruit stand on no single day during the Exhibition, which lasted more than a month, held fruit that was stale. The variety displayed was tropical and subtropical, and the sources whence the supply was drawn ranged from Port Douglas, Cairns, and Geraldton, to the North Coast Railway and Stanthorpe.

An innovation in exhibition work was the initiation of lectures upon Queensland life, its products, and its possibilities, illustrated with limelight views, delivered daily by the different officers in charge of sections of the Court. These lectures were eminently successful, and encouraged many inquiries at the Intelligence Bureau upon matters relating to this State.

The attendance of the public is estimated to have been about half a million during the time the Exhibition was open, the largest daily attendance being 50,000. The interest in the products new to Victorians was also shown by the applications from schools and from others, for different samples for museums and for the purposes of instruction. At the close, thirty-nine schools were supplied with specimens of sugar-cane, cocoanuts, and such like things for nature study lectures. The distribution of literature for similar objects was also very considerable.

During the last days of the Exhibition, some damage was done by a fire, the cause of which could not be traced, which broke out in the wool and cotton trophy. The fire was speedily extinguished, after

some damage had been done, by the officers connected with the court,. with the willing assistance of bystanders, but had the fire gained a hold, nothing could have saved the building, there being so much inflammable matter in the Queensland Court.

The Department has during the year forwarded a consignment of products for the use of the Agent-General in the new city offices in London, and a further consignment is now being prepared.

The reports received upon some of the articles sent show that were the system extended more use could be made of the material sent to the advantage of those in the different trades in this State. The reports referred to were the result of the opinions of the trades in London upon different articles, and were of great value in making clear points upon preparation and manufacture that should be greatly to the benefit of those here who are interested. Makers here may think they have attained perfection, but, in competition with other markets, it may be found that though the quality of an article may be good, the preparation of it is not such that competition with other countries is possible.

PUBLICATIONS.

During late years for financial reasons the issue of publications other than the "Queensland Agricultural Journal" has been much restricted, and it is submitted that the limitation that has been imposed may be removed, and that literature upon approved subjects may again be used as a means of education. The "Queensland Agricultural Journal," notwithstanding the curtailment of the past years, is valued by the farmer, but more is wanted, especially in the direction of pamphlets on given subjects which are complete in themselves. It is not advocated by the foregoing sentence that the Journal should be stopped; on the other hand, rather it should be increased in volume, but it contains many articles within its covers, some in parts, and it is thought that the value of those articles would be greatly enhanced were selected subjects re-issued in complete form to a greater extent than hitherto to facilitate the study of those interested. The restriction referred to is opposed to a main part of the work of the Department, the diffusion of information for the supply of which its technical officers are eminently capable, and an additional fund is available in the work of and the experiments carried out at the State farms and the other institutions attached to the Department. Much has been done and is being done by the State through the primary and secondary schools to teach the children far more than is covered by the well-known term of the three R's, and much additional useful information could be imparted towards the education of our youths in the science of agriculture, which, as we are not a manufacturing State, will for years to come be the basis of our existence. It is not long since that the professions were few, and those who followed them had to devote long years to studying, but agriculture has now been added to the list, and the education of a boy in ploughing, or any other simple operation of farm life is not the whole history of agricultural knowledge. The rising farmer needs to be taught to think upon the lines where science sheds light upon his art if he wants to be thoroughly successful in after life, and, to this end, I am of opinion that the Agricultural Journal should have increased scope of usefulness, and be supplemented by further publications when necessary.

AGRICULTURAL SOCIETIES.

Under the regulations governing the payment of subsidy to agricultural and pastoral societies subsidy is paid upon members' subscriptions and personal donations in cash to be applied to the purposes of the society; and, as some of the societies include mining and other subjects in their objects, it is clear that sometimes subsidy is paid by the Department of Agriculture and Stock in support of objects with which it has no connection. Moreover, the money paid over is used by the societies for general purposes as a rule, and without direct connection with the improvement of agriculture in the districts covered by the scope of their operations.

By this it is meant that the subsidy money is not directly offered for prizes for particular objects —such as the best cultivated farm, the best draught horse, &c.—but it is spent indirectly for the benefit of mining school exhibits, tradesmen's exhibits, and many other things in addition to agriculture and stock. It may be said that the subsidy advances agriculture in a district—and it is true that the present method helps towards that end—and, moreover, in the earlier days, when the societies were commencing, it would have been unwise to restrict the use of the money voted by Parliament to certain fixed channels, but that time has, it is thought, passed by, and the money available for this purpose should be directed towards a more legitimate object.

A main part of the duty of the Department of Agriculture and Stock is education in agricultural and pastoral matters, and its resources should be expended in that direction. Much more good would be attained and advancement secured were the expenditure of the subsidy controlled by the Department, for if that were so, prizes could be offered for which conditions could be laid down. For instance, much has been written concerning the deterioration of our horse stock, but no society has yet laid it down as a condition for the several classes in their prize schedule that no prize shall be issued unless the animal selected in the ring passes a veterinary examination.

In a like manner all stock could be controlled; prizes could be given for the best cultivated farm, and for other things calculated to advance rural affairs, and so the funds available would be retained for the purpose for which they are granted, instead of, in some measure, being diverted to objects unconnected with the cause for the payment of the subsidy. The argument may be raised that the societies would suffer in the amounts allotted to them, but this need not be so, because subsidy could still be paid in the same ratio as at present, and so the total income of society need not be reduced. Moreover, the Department, if the principle advocated be adopted, would be entirely guided by the local society in the allocation of the prize money.

AGRICULTURAL TRADE.

The following return of some of the factories, and the value of their output, that deal directly with the products of agriculture, for the years 1900 and 1906, will be of interest as indicating the change that has followed a portion of the manufacturing industry since the establishment of the Commonwealth. The figures have been taken from the returns of the Government Statistician:—

—	1900.		1906.	
	No. of Factories.	Value of Output.	No. of Factories.	Value of Output.
		£		£
Biscuits and Bread	9	83,193	10	81,130
Condiments, Spice, Coffee	16	19,153	9	10,223
Confectionery	25	84,272	16	65,333
Flour and Grain Mills	20	256,966	17	248,271
Jam, Fruit-canning, Pickles	31	90,399	11	37,121
Tobacco	6	67,641	2	14,843
Tanneries	40	219,965	32	167,127
Totals	147 97	821,589 624,048	97	624,048
Reduction	50	£197,541		

COASTAL TRADE.

The development in the diversity of our products in the North, and of the trade with the South, moved the Chambers of Commerce on the coast, and others engaged in trading, to seek an arrangement whereby the steamers trading on the coast might be fitted with refrigerating machinery, so that articles of a highly perishable nature, such as custard apples, granadillas, and other soft fruits, might be placed on the Southern market in a better condition than heretofore, and in a similar manner perishable goods might be carried northwards. The importance of this proposal demanded that, in any arrangements that might be made, all ports from the head of the North-east Railway should be included, and in this respect some little initial difficulty was met with, owing to the fact that the shipping companies in a position to handle this trade did not call at all ports. This difficulty was, however, easily overcome, and an arrangement was made with the Adelaide Steam Shipping Company, of which the following are the principal points:—

1. The s.s. "Wollowra" and "Marloo" are to call at Bowen, Mackay, Townsville, Cairns, and Brisbane on each trip, and will also call at Broadmount if notification is given that there is cargo for refrigeration, and that the refrigerated space is not already occupied or reserved.
2. The "Innamincka" and the "Pilbarra," or a substitute, are to call at Bowen on the voyage southwards during the sugar season—July to January.
3. The "Marloo" and "Wollowra" are to cool down at the ports mentioned if cargo for the refrigerated space offers, but the company is not required to provide cold storage on wharves.
4. The s.s. "Marloo" and "Wollowra" to cool down to 50 degrees Fahr. when their chambers are in use under the agreement.
5. Cargo for the refrigerated chamber to the ports mentioned to have preference.
6. The rate for cargo in the refrigerated space to be 10s. per ton in addition to the usual rates from Brisbane northwards, and 5s. a ton from Cairns southwards.

The expansion of the Southern fruit trade, and the fact that Queensland can command the early markets in all the States, make the transport of our fruit of the highest importance, and the installation of the service should have some results in quelling the complaints that are heard during the summer on the subject of the fruit fly.

Up to the end of 1906 the space has been entirely occupied on the downward trip by Bowen, from which port, in nine trips, 3,980 packages, equal to 105¾ tons, were carried in the refrigerated chamber, the contents of which were tomatoes, mandarins, capsicums, cucumbers, mangoes, pines, marrows, &c., and, in addition, 21,387 packages of other fruits were shipped by the Adelaide Company's steamers between the 1st September and the 31st December, with a total for the year of about 100,000 packages. The other ports have not used the facilities provided in the manner which was anticipated from the tone of the letters from the Chamber of Commerce at those ports when advocating the service, the cargo other than fruit being mainly but a few boxes of butter.

The value of this service, which expires on the 31st January, 1908, is great, but it should be but the stepping-stone to a regular service of large steamers that could collect our produce for foreign ports in Asia and elsewhere, where our legitimate markets lie. The facilities now available are small, as those steamers passing our coast that trade to Asiatic ports call at but few places, and there is but little hope of an augmented trade when coastal and transhipment charges have first to be paid.

TRADE WITH ASIA.

Taking the Customs returns as reliable data on which to base an opinion of trade to ports outside Queensland, it would appear from the following table of exports of certain agricultural products to ports in Asia that, in several instances, the trade has diminished rather than increased:—

EXPORTS TO ASIA.

HONGKONG, INDIA, PHILIPPINES, JAPAN, CHINA.

—		1905.	Value.	1906.	Value.
			£	£	£
Animals, Cattle	No.	285	2,456	117	664
„ Horses	No.	9,829	122,797	2,491	35,128
Bones	cwt.	4,320	1,393	3,010	1,211
Hoofs	cwt.	878	389	1,363	638
Leather	...	...	116	...	19
Butter	lb.	353,799	16,029	263,500	11,087
Cheese	lb.	55,575	1,491	29,453	770
Fodder	cwt.	4,500	567	520	148
Fruits	...	...	...	...	120
Glue pieces and sinews	cwt.	605	563	853	829
Barley	centals	52,139	11,066	...	...
Oats	centals	2,301	508	...	...
Wheat	centals	30,642	8,444	...	...
Bran, Pollard	centals	210	33	...	...
Flour	centals	35,772	14,613	...	...
Hay and Chaff	cwt.	2,542	260	...	...
Honey	lb.	1,024	7	...	...
Refined animal fats	lb.	45,619	849	4,826	1,240
Manures	cwt.	10,855	3,063	5,431	1,468
Bacon and Hams	lb.	84,276	3,368	147,568	6,150
Beef	lb.	12,814,600	140,637	10,523,354	114,248
Mutton	lb.	368,799	4,081	64,471	737
Pork	lb.	106,375	1,849	208,403	3,713
Other meat	lb.	336,783	15,921	331,564	*8,597
Milk concentrated and preserved	lb.	3,636	51	...	...
Potatoes	cwt.	508	203	922	412
Skins and Hides	No.	590	846	39	53
Tallow	...	15,919	17,567	15,932	18,902
Wool, scoured	lb.	179,190	13,789	308,509	24,061

* Not including Concentrated and Potted Meat, value £77.

The decrease in the total exports in bacon and hams, meat, and tallow, can, it is thought, be explained by the rise in the price of the raw material, and the consequent inability to compete with the local market.

Another factor, probably, was the close of the Russo-Japanese war, and the diminished demand in that quarter. The position with regard to meat has since undergone a change, and the meatworks are now in full work, and the trade seems to be increasing. Cheese and poultry appear also among the reductions, a place they ought not to occupy, for there is a good market for both of these items in Europe at certain times of the year. It may be that the local demand was sufficient for the supply, and, if that be so, the export connections cannot be maintained if the local demand is to be predominant. Foreign merchants with varied sources of supply at their command are not likely to put up with an intermittent and uncertain inflow of imports. A valued opinion obtained in answer to an inquiry fully corrobcrates that proposition, and states that manufacturers are too inclined to keep their business confined to local demand. If export is to be maintained, manufacturers must work for such markets in which they gain a footing, and be prepared to pass local demand in keeping on such foreign markets.

Those in the Southern States who have gained a footing in the Eastern markets foster their exports; but our experience has been that, although markets were gained in 1905, they were not maintained in 1906, notwithstanding that business awaited them. To a certain extent this falling off may be explained by the difficulty frequently met with as regards space on the ship. It not infrequently happens that Brisbane merchants find that the whole of the space in ships for Asia that call at this port has been reserved in Sydney, and, consequently, are unable to fulfil orders. The obvious result from this situation is, that unless remedies are soon forthcoming, the trade will centre in Sydney instead of in Brisbane, and so, like some of our manufacturing industries, the shipping trade to Asia will go South instead of starting from its legitimate point.

The nature of the information that would be of value to our merchants is well illustrated by a recent paragraph in the *Australasian*, which stated that there is a considerable demand for tinned butter at Shanghai during the summer months; a fair demand for oats, bran, and compressed fodder at Tientsin and Pekin, especially during the winter months. Leather of the cheapest kind is in enormous demand, and blanketing of a certain make and weight will sell well at Tientsin. It is information of this kind that is needed to foster trade—what is required and when to place it. There is a famine now in China, but the supply to remedy the evil is not made prominent here. Merchants may surmise and venture goods probably at an inopportune time, and suffer a loss that might be prevented.

MEAT.

The great volume of business done in this State in the supply of meat of different classes for the supply of the British and other troops in different parts of the world requires that our merchants should receive early advice of any contracts that may be contemplated. Hitherto many complaints have been from time to time received, relative to the shortness of time between the arrival of the information that tenders would be called and the date by which tenders were to be lodged. On several occasions, particulars and tender forms did not come to hand in time to permit those interested to receive the tender forms even, much less to mature their plans and submit their tenders, the possible loss of business to Queensland. Steps have been taken to remedy this inconvenience, and the Agent-General has been asked to arrange that a supply of blank forms may be sent out so that they can be distributed immediately the cable announcing any tenders is received. Another matter that has received the attention of the Department in relation to meat has been in connection with case meats. The War Office forwarded specifications for cases for tinned meat (and jam) for the supply of troops. The specifications differed from the custom of the trade, and it was considered advisable to submit the suggestions made to the War Office so that the Customs here might be interfered with as little as possible, with the result that the Army Council has decided that, provided the necessary internal dimensions are secured, cases need not conform exactly to the home specifications, as, for instance, the nature of the wood used, which is now to be determined by the usage of each locality. Although uniformity of material is not important, the nature of the wood used should be mentioned in each specification. This concession will be of great value to the trade in any contracts that may be obtained.

Major Long, D.S.O., of the Army Service Corps, has, on behalf of the Army Council of Great Britain, inspected the different meatworks, and has reported thereon. The inspection was close and searching, but it is understood that the report was in every way satisfactory.

MARKETS.

The reference made in the last report, concerning an Intelligence Office, as to the need for some means being available whereby information concerning markets in foreign countries, profitable or otherwise, should be at the service of those interested, has been fully borne out by the experience of the last year. Machinery for attaining knowledge of the requirements of foreign markets is essential to the well-being of our trade; but no such machinery is at our service, and, consequently, we suffer. These remarks may be taken to imply the engagement of paid agents at the ports touched by our exports, and though such a system would be an ideal one for the purpose in view, it is feared that the cost would be too great for even a consideration of a project of that kind. But there are other avenues by which, for a beginning, the desired knowledge might be obtained were the nucleus of the service established at this end, and without the cost that would be involved by the creation of a corps of paid agents. Though this Department has for years done a little in the direction of collecting and collating information, much more could be done if it were a part of its duty so to do, and means were at its disposal for that purpose; but up to now the sphere of its action has been necessarily limited. This suggestion coincides evidently with the opinion of some at least in the mercantile world elsewhere, for it is but lately that a suggestion came from London that it would be well were the Australasian Governments to engage a man well versed in the meat trade, who should travel about the United Kingdom, visit the markets, and ascertain the requirements of those markets with regard to the manner in which the carcasses should be dressed and other matters relating to the custom of the trade, customs that are liable to alteration in different districts. It was suggested, amongst other things, that he should also act as a kind of detective in cases

where inferior meat was palmed off as Australian. The last sentence one would think should be quite unnecessary, but it is not so, for it was but last year that a tradesman in the United Kingdom was, at the instance of the Agent-General, prosecuted and convicted of exposing butter that was not made in Queensland for sale in a butter-box that had come from Queensland, and it is feared that until that conviction occurred, there was an industry quietly growing in the United Kingdom, the object of which was to pass off on the public, as Australian, inferior and adulterated butter that had been manufactured in Great Britain, by using butter-boxes branded with Australian brands.

As late as March an intended shipment of cheese lost the market, owing to the space on the ship having been reserved by Victoria, and the efforts of the Department to remove the reservation were not successful.

The foregoing instances would appear to warrant the appointment of someone for the United Kingdom alone with a competent knowledge of the Queensland trade, but it is thought that such an officer should not be absent from the State for, say, more than five years, otherwise he would lose touch with the changes in the methods and customs of trade. The Southern States have officers in London whose duty it is to inspect and report on produce landed there, but the system adopted by Canada would appear to be most complete. Inspectors from that country are stationed in Great Britain at London, Liverpool, Manchester, Glasgow, and Bristol, whose duty it is to report regularly on the condition in which butter, cheese, and agricultural produce generally are landed, and in the case of butter, the time that elapses before delivery is taken by the consignee; where there is dilatoriness or other possible causes for harm to a consignment, the matter is laid before the butter trade, and the interests of the consignors are carefully watched.

An illustration of the need for acquiring information is readily found in some of the exports. During 1905 we exported horses to the value of £123,000 to Hongkong, India, Philippines, &c.; but, in 1906, the export dropped to £35,128. Butter in 1905 exceeded £16,000 in value, and dropped in 1906 to £11,000. The reasons may, to a certain extent, be attributed to a fall in business owing to the close of the Russo-Japanese war, but there may be, and probably are, other reasons, which might have been overcome were a system in vogue; at present they are, if any, known only to those merchants who were directly interested, and they will, of course, divulge nothing. Expansion of trade has ever been a dominating motive with a prosperous people, and an undeveloped trade is a sign of want of vitality in a people; therefore, every means possible should be used to obtain the former and prevent the latter. Oversea expansion, once begun, should never halt, even if it be necessary to temporarily hamper home trade, for the foreigner does not know and understand the domestic affairs of the country whence he draws his supplies, but if that source of supply is once broken, he is quick to seek fresh fields, and slow to return to those who have failed him.

Production of the best to suit the wants of a market is of such importance that it should be the first care of the producer and of the exporter, and in this we should be guided, not by what we think to be the best, but what the buyer considers the article to be. Here we may produce material according to our ideas of what is required, but which is found to be totally unsuitable for the market where it is placed, and so the trade is lost. In this respect alone the cost of obtaining information would be covered many times over by the saving to merchants and others, and an exemplification of this contention will be found in the following short notes on some produce of Queensland that was sent to London for exhibition, and was examined from a trade point of view, and which, when collected, was supposed to be commercially good, and, therefore, suited to the London market:—

Raw Coffee.—Fair quality, but nothing to be enthusiastic about. Before trying this market with a shipment a higher grade should be produced.

Wine (four kinds).—Three kinds were mentioned as being good sound wine, but not suitable for the market.

Cotton.—A good report, but classed as equal to good middling American.

Other items were included in the report, but these will suffice to show that the buyer does not look with the same eyes as the seller upon goods offered for sale.

MARKETING OF FARM PRODUCE.

This is a subject that is continually being referred to by the officers of the Department, and particularly so with regard to the packing of fruits. It is a lesson that should be learned by all who have dealings with markets the customers of which are generally those who have no connection with or knowledge of the raising of the produce offered for sale, and a visit to any of the markets in Queensland will afford ample evidence of the need for improvement in this direction. Those who manufacture from the raw material have learned that it is bad business to offer an unsightly article to the customer, and have introduced science and art into the preparation for market; but, with the sellers of the raw material, be it fruit, potatoes, hay, or what not, there seems to be but little interest in pleasing the eye. It is not wise for the seller to argue that the buyer shall take what he offers, for though such an argument may hold good when the demand exceeds the supply, the reverse is the case when the position is changed,

Crop 1906. 77000 lbs.

Cotton. Kitchen & Sons - handled during 1907. 96000 lbs of raw cotton -. Estimate of crop say 100000 lbs.

Cotton seed is not treated in Q. for oil but is all sent to Melbourne for that purpose -

Imports cotton Seed 1906. in bulk or otherwise £97
662 gallons principally N.Z.
cotton seed when waltylated 2046 - £170

=

Imports 1906.

Cheese - Imports. 133291 lbs £3719 N.Z. £201
Holland 390
N.S.W. 2284
Vic 678

Coffee. 72530 lbs. £2122

14194 667

86724 2789

Earthenware Brownware Stoneware - Imports valued at £20172

Fish £548 . 657 2625 43932 - - £ 47756
330
8541

56627

Grain - July to October dry. in Warwick & Roma districts practically no rain.

and, in the former case even, he who presents his wares in an attractive form holds the sales. Therefore, the wants and desires of the probable customer should be studied with as much zeal as is bestowed upon the cultivation, and though it may appear rank extravagance to use a new bag when an old one would be available were a few holes mended, it will be found from experience that in reality it will be economy, for by it reputation will be secured, and a better price obtained. These remarks are not intended to imply in any sense that in the arrangement of goods for sale anything but honesty should be practised. It will be but poor policy to place the best article on the top of the case or bag, for such dealings will soon bear their own fruit.

CULTIVATION OF QUEENSLAND GRASSES.

Though plots of our native grosses have been cultivated with other fodders at the State Farms, and many analyses have been made and published through the medium of the Agricultural Journal relative to the feeding qualities of them, proper systematic work has not been done in the direction of bringing the best of the grasses before the pastoralist and agriculturist, and so, by rotation, help in bringing about a good supply of natural fodder through the different seasons of the year. Valuable work has been done with regard to wheat cultivation and other forms of farming and dairying, and which has been the means of saving many pounds in value, but hitherto one of the most important problems to the farmer has been but little more than played with, and as years go by, population increases, and competition in matters agricultural becomes more general, the problem of maintaining our pastures in full profit, and the supply of natural fodder under trying conditions will be urgent and keen in the solving. The opinion that some of our best grasses have been lost in certain districts, owing to overstocking coupled with dry seasons, has been heard, and has not been controverted, but no great general move has been apparent to remedy the evil; people seem, instead, to accept the position as inevitable.

Another issue that is worthy of investigation is the nutritive value of our grasses in comparison with those of other countries, and the acclimatisation of those that can be profitably grown here if better than our own. A statement has been made that the cause of the difference of 8d. per stone between Queensland beef and the beef of New Zealand and Great Britain lies in the difference between the value of the natural fodder of these countries; and to the same reason is attributed the deteriorated colour of Queensland beasts in comparison with the beasts of the countries mentioned. Whether these statements are correct or not, there is sufficient ground for a prolonged investigation into an interesting subject which might turn out to be of the greatest value. This Department, in order to help in a slight degree towards encouraging an interest in our grasses, which, in the opinion of the Colonial Botanist, are at least equal if not better than in other countries, has arranged for a plot of ground, of about 20 acres, at the Queensland Agricultural College, to be devoted to the cultivation of Queensland grasses, and, presently, for a garden of a similar area at the State Farm, Hermitage. The garden at the College (which will be of immense instructional value to the students) has been commenced, and the one at Hermitage would have been in a similar position but for the arrears of work consequent on the change of managers. Of summer grasses we have a fair supply, but the want of a grass that will come to maturity during the winter is strongly felt, particularly by the small holder, and it may be that, in a grass grown in a country with a climate similar to that of this State, the desired winter grass may be found, and, if so, the cost of all experiments will be returned manifold.

AGRICULTURE.

It may be interesting at this juncture to inquire into the progress of agricultural and pastoral pursuits since the establishment of Queensland as a separate colony, but in so doing it must be remembered that the conditions have altered considerably. Then, the abundance and cheapness of virgin soil, with the desire to hold a large area of land, added to the primitive means of cultivation then available, makes a comparison with present day opportunities in a certain degree unfair, but, after allowing all possible latitude in that respect, it must, I think, be admitted that during the forty-seven years of existence progress has been greater than what might be considered to be normal.

In 1860 machinery and labour-saving implements were but a small factor in rural pursuits, now they take the primary position, and there are prophets that foreshadow many advances that are yet to be made. Invention and production has abolished much of the muscular effort and drudgery of former generations, with the result that rural pursuits are now followed with more physical comfort and mental culture.

All the other industries of the State, and, indeed, the existence of it, depend so largely upon the agricultural and pastoral community that investigation and experiment towards improvement should be the first care of the people. On the 31st December, 1860, the population of Queensland was estimated to be 28,056, the total acreage of cultivation to be 3,353, and the stock numbered—of horses, 23,504; of cattle, 432,890; of sheep, 3,449,350; and of pigs, 7,147. In 1906 the population was estimated at 535,110, the area under cultivation was 598,777 acres, and the stock numbered—of horses, 452,916; of cattle, 3,413,919; of sheep, 14,886,438; and of pigs, 138,282.

In 1860 there was ·12 of an acre of cultivated land for each head of population as against 1·12 acres in 1906. Put in another way, it will be found that though the population has increased 19 times, the area under cultivation (notwithstanding drought and the other difficulties to be overcome) has multiplied 179 times, horses 19 times, cattle 8 times, sheep 4 times, and pigs 19 times.

It was in 1864, when there were 12,000 acres under cultivation, that sugar-cane statistics were first collected, the total area for that year being 93 acres 2 roods 24 perches, of which Brisbane was credited with 80 acres 3 roods (Hon. Louis Hope's plantation, at Ormiston). The area for 1906 stood at 133,284 acres.

Dairying, again, is another instance of progress. It was not until 1889 that the dairying industry had arrived at a stage of importance to be recognised by the statisticians, the output of hand-made butter for that year (for separators were not in use in Queensland) was approximately 92 tons, and, in addition, 183 tons, to the value of £35,041, were imported. In 1906, besides supplying our own wants, butter was exported to the value of £582,265.

The first appearance of our great meat trade in the statistics was in 1862, when bacon, hams, and beef were exported to the value of £510, an item that had expanded in 1906 to £569,766.

Wool, of which in 1860 we exported to the value of £444,188, appears in the export statistics for 1906 to the value of £3,389,048.

WHEAT.

Taking a retrospective view of the past season, certain features are to be noted which are somewhat unique, inasmuch as there has been a combination of circumstances which individually in former years militated against the actual yields.

First and foremost may be mentioned the extreme lateness of the general sowing, particularly on the Downs proper. Previously it has been customary to see wheat of the Manitoba type—*i.e.*, winter wheats—well above ground early in May, followed by sowings of mid-season wheats in May and early June, and latterly by spring wheats in July. This year advantage was taken on old cultivated areas to sow the wheat, which germinated tardily; in fact, in some instances, much of it had to be resown. No beneficial rains worthy of the name fell till about the first week in August. Occasionally good yields have been obtained, even when sown at this late period of the year, but it is a generally recognised rule, borne out by experience, that certain varieties of wheat must be sown in sufficient time to admit of a natural period of development. Untoward circumstances of this character are certain to limit and hasten the period of growth and render plants soft, succulent, and an easy prey to the wheat-growers' bugbear—rust.

In the Western districts a much more satisfactory state of affairs existed. Sufficient rain fell to ensure a good germination for early sown wheats, and once established they were able to hang on during June and July when the rainfall was very scanty and insufficient. The early August rains were general, and the bulk of the Southern areas were put under crop at that time, although some growers who had land ready were disposed to reserve a portion for early maize. From August on till October most encouraging reports were received from all the wheat-growing districts, and, given favourable weather, there appeared to be every prospect of Queensland making a name for herself, as the appearance of the crops was most alluring.

A late frost was experienced in parts of the Roma district when crops were just coming into ear. Its effect was to destroy the tissue immediately above the second node, causing a number of the stems of each stool of wheat to bend over and wither, but luckily half crops were stripped in nearly every instance. With the warmer spring weather growth was rapid. The earliest report of spring rust noted in the Roma district was on 28th August, but no development of any consequence took place till the latter end of September. Thunderstorms, accompanied by humid conditions, wrought great changes. The most marked were to be observed on the heavy black soils, where a visitation of black rust was experienced, the virulence of which was unprecedented. Forty-eight hours changed the prospect from anticipated yields of eight and ten bags to the acre, to as many bushels, with sometimes a complete destruction of the crop. Some growers took time by the forelock and cut crops for hay. If there was one feature more than another which admitted of a return it was that of the quality of earliness in habit of individual varieties, combined with a corresponding shortness of period between earing and ripening. Quick-maturing wheats usually possess some undesirable features, either that the straw is inclined to be weak or the cuticle not tough enough to resist rust.

Whilst the Western areas were hanging in the balance and the prospect of the late sown areas still undetermined, the Downs wheats were growing apace. The clear crisp nights were decidedly in favour of the crops, proving to be a check on the development of rust.

In the face of an admittedly late sowing it was only to be expected that a proportion of rusty crops was inevitable, and the harvest of 1906 closed after an eventful period, with an average yield for the State of 9·7 bushels to the acre, low figures certainly, but slightly better than last year.

Apart from the reason already noted, others exist which may account for the diminished area under wheat this season. The fallacy of placing dependence on one crop as the main source of

Imports of which par could be made to encourage production in R. 1906.

Cheese	value £	3719	
Coffee		2789	
Earthenware Brownware Stoneware		20172	
Fish		56627	
Fruits dried		13661	88162
Dates		2795	
Raisins Sultanas &c		34340	
Fruits vegetables in liquid		19092	
Fruits N.E.I		18274	
Oranges & Lemons		8897	
Glue Gelatine &c		3520	
Grain - Barley		3535	4856
Beans & peas		5321	
maize		8854	
Wheat		70536	
← Flour.		261784	
Malt		28782	
Maizena & cornflour		5648	
Rice		46179	
Sago & Jellies		74363	
Milk Preserved		16058	
Nuts - all including cocoanuts		7265	
Pickles Sauces &c		36469	
Potatoes		96702	
Mustard		10604	
Pepper		8524	
Tapioca		4953	

income has been brought home to farmers more than once, and there is a decided move in the direction of adopting methods of mixed farming with encouraging results. Stock of all kinds and their products have commanded good prices, and what may now appear to be a diminution of production means, in reality, that energy has been devoted to other lines of production which offer good returns for capital invested, with the assurance that the primary producer will not be at the mercy of and subjected to the vagaries of the labour market.

With the experiences of the past seasons it is patent that unless more attention is given to the selection of varieties, repetitions of the losses suffered from rust will follow as a natural corollary. More than thirty varieties of wheats are more or less in general cultivation, and if the State is to rise to the degree of prominence, which, after development of its lands, is only its natural birthright, it behoves growers to pay careful attention only to those varieties which may reasonably be depended upon to withstand the exigencies of the varied seasons.

From time to time an endeavour is made to investigate, not only the milling qualities of grain grown in the State, but the behaviour of different varieties under varying conditions of season, soil, and situation, information for this purpose being collected from leading growers throughout the State.

Individual cases occur where certain varieties enumerated have given fair yields, but which were, generally speaking, rust liable, and, therefore, doubtful varieties are recognised to be—Dart's Imperial, Newman's Early, Leatherhead, Purple Straw, Sullivan's Early or Steinwedel, Baroota Wonder, Australian Wonder, White Tuscan, Red Straw, Baltic Red, Silver King, Bobs, Marshall's No. 3, Red Fife.

Information as to the behaviour of what are now termed "Hermitage" wheats Nos. 1, 2, and 3, stamp them as varieties well worthy of attention. In some instances in the Hodgson district they succumbed to rust, but it was generally admitted that they stood longer than other varieties where the visitation was acute. Apart from this, many growers, in compiling returns, have drawn attention to the fact that these kinds, when grown side by side with other varieties under equal conditions, have given good returns when the others have been worthless. Differences of twelve to fifteen bushels to the acre are common, some exceeding this, and, when all things are considered, it is assumed that something has been accomplished, when it admits of a farmer getting a payable return when other varieties would hardly be worth handling.

The varieties giving the most uniform returns were:—Gluyas Early, Imperial Pearl, Manitoba bald and bearded, Minnesota, Carmichael, Budd's Early, Free's Abundance, Allora Spring, Petatz Surpise.

MALTING BARLEY.

It is generally admitted that this crop offers a medium for highly satisfactory returns throughout the lighter soils of the Darling Downs proper. Its prolificness and stability should be sufficient to attract more attention than it has done. Representative samples have from time to time been submitted to thorough tests, with satisfactory results, and it has been proved that our malting barley can compete on favourable terms with the best European; but still the acreage sown last year, though better than 1905 by some 2,000 acres, leaves much to be desired. The want of a suitable market cannot now be entertained. Right at the very hub of the Downs, malthouses exist which are equipped with the latest scientific appliances and conveniences for handling large quantities of grain, and it seems unaccountable that such an anomalous state of affairs should exist as a shortage of production when there are so many natural advantages.

It is possible that the want of good soaking rains early in the season has militated against the sowing of crops, but if this industry is to take up the position which its importance deserves, it behoves growers to increase their areas at the earliest opportunity, and whilst doing so, endeavour by attention to the careful selection of seed, preparation of the land, growth, harvesting, and grading of crop, to put an article on the market which will command a most remunerative result. Since 1903 much has been accomplished in the way of a general introduction of improved seed, and it is anticipated that, when growers become fully alive to such advantages, they will soon endeavour to keep pace with an industry that should be very profitable. The area under malting barley in 1905 was 4,670 acres, which produced an average return of 11·42 bushels to the acre. In 1906, 6,696 acres were seeded, for a return of 115,902 bushels, at an average of 17·31 bushels to the acre.

MAIZE.

The area under this crop fluctuates in a degree that should not be, when, in addition to its principal use as feed for horses, there is the great demand in connection with dairying. In 1896, the first year of the decade ending in 1905, the area stood at 115,715 acres. During the two following years it fell to 102,835 acres, and in 1900 rose to 127,974 acres, and to 150,958 acres in 1904. This rise was succeeded by a drop of 31,000 acres, to be followed by an increase in area to 139,806 acres—the largest area in one year, excepting 1904, since 1896. The average returns have seemed to follow the area under cultivation, for, during the decade to 1905 the average for 1896—26·49 bushels to the acre—was not surpassed. In

1906, however, 32·45 bushels to the acre were obtained, and it is to be hoped that we shall not again see a diminishing harvest of this plant, which is valuable as a feed to man and beast, and to the latter in stalk as well as grain.

The use to which maize is put, apart from food in its natural state, in other countries, indicates that greater use could be made of it here with the consequent greater demand. From some varieties cornflour is manufactured. Starch is also produced, which, with the addition of acid, is turned into glucose. The stalks, besides being used for food for stock, are used for thatch and fuel, and produce valuable fibre, which is spun into durable yarn. Stalks of maize are also used for paper-making. They also yield a syrup from which an excellent spirit can be distilled. The grains yield an oil which is much used in industries.

In this State, however, notwithstanding the many uses to which this plant can be put, it is practically condemned to but one of them—viz., feed for stock. In the United States of America it is viewed with a very different interest, for of the world's production of about 3,200,000 bushels, that country produces nearly three-fourths; in 1905 the harvest amounted to more than 2,625,000 bushels, and yet it is probable that, comparatively, Queensland is more adapted to this cereal.

COTTON.

Though the statistics show that, compared with 1905, there is a decrease of the area under crop of 33 acres—from 171 acres to 138 acres—and in production from 113,008 lb. to 77,381 lb., it must not be considered that the cultivation of cotton is retrograding. The crop planted in the latter part of 1906 is being passed through the gins now, and, therefore, cannot have been properly estimated at the time the statistics were made up. During the year Mr. D. Jones has visited all centres where cotton has been grown, and, by instruction and advice, has endeavoured to induce farmers to lay down a larger area, particularly in the drier districts, such as the Maranoa, where the cultivation of grain crops is at present an uncertain industry. The efforts of the Department towards inducing the cultivation of a crop for which there is a full market in Australia alone is meeting with some encouragement, and it is thought that the time has some when this work could be followed in a more regular way than by the spasmodic action hitherto taken. Generally speaking, cotton land can be expected to return from £9 to £17 for seed cotton or £15 to £20 for ginned cotton a year for Upland cotton, and Sea Island considerably more, a harvest that is not beneath notice for a main crop, and is a good return for a subsidiary crop.

For a market there need be no fear, because, in addition to the ginning-mills set up by Messrs. Kitchen and Sons, who have, during 1907, treated upwards of 85,000 lb. of raw cotton, with more in sight, as against 57,120 lb. in 1906, the firm of Messrs. Joyce Bros., of Sydney, have bought the Ipswich Cotton Mills, which are now being put in order, so that, with these opportunities to hand, the growers should rise to the occasion and keep the mills going with Queensland-grown cotton, and not permit it to be said that, in a country particularly adapted to this plant, the mills have to import to keep them going. The deficit in the cotton crop in America this year will be sufficiently serious to affect prices for some considerable time in markets that require annually 1,879,900 tons of raw cotton, to the value of £93,320,000, to meet the demand of which Great Britain alone imports 692,450 tons, of the value of £36,457,000.

The imports into Australia of cotton goods are:—Raw cotton, 1,049,306 lb., of the value of £20,962; and of cotton waste to the value of £35,770; and of candle and lamp wicks to the value of £6,840. Piece goods of cotton linen, of which a proportion could be manufactured by the works at Ipswich, exceed £3,000,000 in all, and of flannelettes, in which cotton largely predominates, to the value of £234,382.

Interest in this product is spreading but slowly, but it is thought permanently, and it was anticipated, with the experience of the two periods when cotton was grown before in the State, that farmers would again cultivate with caution. The conditions now are very different, the plantation system has entirely disappeared, and with increased settlement the chances of losing a crop for want of help to gather the harvest have diminished so much that danger of such an occurrence may be regarded without anxiety.

The cotton crop is an easy one to produce, but requires care in a country where, as Mr. Jones reports, natural cross fertilisation is becoming common. The hybrids may be superior or inferior to their prototypes, and, if the former, valuable discoveries may be made, but, if the latter, the quality and quantity will so deteriorate that the industry will be affected, and, consequently, growers should be careful in the selection of their seed and of the land on which they grow the crop.

FIBRES.

Notwithstanding the fact that there are many valuable indigenous and cultivated fibre plants to be found in Queensland, nothing has been done until within the past two or three years to utilise them on a commercial scale.

15.6.1/7 Kitchen -- quantity seed cotton received quarter to

30.9.7. 50264 lbs

For 1907 up to 15.10.7 8669 "

The indigenous fibre plants for the most part carry the fibre in the bark. The wild hibiscus, so frequently met in our scrubs, is an example of this. The Moreton Bay fig also has a fibrous bark. Excellent fibre is contained in the aerial roots of the Pandanus, or native breadfruit-tree. There are many others which it is not necessary to name here, since the product has not hitherto attracted the attention of any but scientific experimentalists. The rosella plant contains a large amount of valuable fibre, but the shrub is only grown for the sake of the fruit.

Of cultivated fibre plants, the pineapple is most extensively grown, but, as in the case of the rosella, the fruit only is the object of the grower. The leaves contain a quantity of very fine silky fibre, which would work up into very fine textile material if suitable machinery, such as perhaps the Faure machine, were obtained for the purpose. The fibre is worth from £25 to £29 per ton. The rough rind of the fruit also contains a quantity of fibre. A few tons of this were extracted in Ceylon and sent to London, where it was much appreciated, and was valued at about £29 per ton.

Sisal hemp and Mauritius hemp are now being largely planted in many parts of the State, more particularly in the Burnett district, where the formation of future plantations is in full swing. On one or two of the earliest plantations the plants are ready for cutting, and it is probable that very shortly one of the larger types of scutching machines will be introduced by a planter in the North. The Department of Agriculture and private planters have already supplied nearly half a million plants to intending growers, and a fair export trade has been done with New Guinea, the Solomon Islands, and Fiji, whilst orders for plants are coming in from the Northern Rivers of New South Wales. The true Sisal Agave and the Fourcroya or Mauritius hemp plant thrive luxuriantly on all the suitable coast lands of Queensland. It is, therefore, probable that in a very few years large quantities of sisal fibre will be exported to the Southern States, where the few tons lately manufactured in Queensland brought high prices and extensive orders for further supplies. The making of scutching machines for small plantations has been commenced by a Brisbane firm of engineers, the first order being for a New Guinea planter.

Flax and Linseed.—The flax plant, which produces fibre and linseed at the same time, has only been tried in this State experimentally. That it thrives here on suitable soil and under favourable climatic conditions has been abundantly proved. A sample of flax straw, grown by Mr. D. Bain, of Manly, was forwarded to Melbourne, and there valued by experts at £40 per ton. Other samples grown in Queensland were forwarded in 1894 to England, to test the value in the English market. The colour and length of the fibre were favourably commented on, but it was suggested that a shipment of at least 5 tons should be placed before the trade in London. One report from Dundee stated that the fibre content of the Queensland flax straw was very satisfactory, but that it was dry and weak, and unsuitable for fine yarns or sailcloth. The characteristic of flax grown in warm countries is brittleness. Yet the valuation of the sample was from £18 to £22 per ton. It is probable that good flax could be produced in the cooler portions of the State, say in the neighbourhood of Toowoomba, Warwick, and Stanthorpe, especially if the seed be not allowed to mature, as this is said to weaken the fibre, and so lessen its value.

New Zealand Flax.—From time to time attempts have been made to induce Queensland farmers to enter upon the cultivation of this valuable fibre plant. No success has, however, attended the proposals.

The Queensland farmer prefers to raise some crop which will yield a quick return, even though it be less profitable than the slower-growing crop. New Zealand flax requires four years to come to maturity, and four more years elapse before a second crop of leaves can be harvested. The swamp-loving flax would doubtless be valuable in the way of utilising any at present useless swamp lands on some farms, but whilst so much fine sugar, wheat, and lucerne land are to be obtained in Queensland, the former lands are very unlikely to be utilised for flax-growing.

Sansivieria, or Bowstring hemp, also called Murva, is a most valuable fibre plant, which delights in rich soil, although it also grows well on poorer soils. The plant grows very quickly, thickly together, and attains a height of from 5 to 7 feet in suitable localities. It comes to maturity in from eighteen months to two years, and produces a very heavy crop of high-priced fibre. It is only within the last two years that its value as a fibre plant has been made known through the publication in Queensland of the experiments made in Florida by Mr. R. C. Dodge, United States special agent in charge of fibre investigation. These showed that a yield of 5 tons of dried fibre per acre may be obtained when the plant is fully established. Mr. Dodge, however, obtained at the rate of 13½ tons of dry fibre per acre, but considers 5 tons to be a fair general estimate. A plantation of Sansivieria will last ten years without renewal.

TROPICAL PRODUCTS.

I desire to draw attention to the position that will before many years be brought about by the interest that is devoloping in connection with the suitability of British New Guinea—or Papua, in accordance with the Commonwealth designation—with regard to agriculture. The Federal Government is encouraging agriculture there, and investors in the South are turning attention to that country as a profitable field for the investment of capital, and if the interest now shown is maintained, the potentialities

of Papua will soon become a factor in the Australian market, and so will become a competitor with Queensland, to the disadvantage of this State. The people of New Guinea are born agriculturists, and are plentiful, so that when they have become trained in European methods and the use of machinery, cultivation in that Possession will progress rapidly, and, as the rate of wages is but nominal compared with the cost of production in Queensland, it is obvious that the position here will be somewhat serious. Moreover, in the different lines of production that may be followed, the disappointments, failures, and difficulties that have been experienced and overcome here will be avoided, for the growers there will profit by our difficulties and failures. New Guinea is the natural home of the sugar-cane; indeed, some of the varieties that are now most in favour in this State were brought from the Possession by this Department, and when the sugar cultivation on a commercial scale is there undertaken, the effect of it will, owing to the low cost of production, be greatly to the detriment of our manufacturers, with the further disadvantage that this State will not be protected by the advantages it now enjoys. Sugar has been mentioned as an illustration, but a similar danger will exist with all tropical products—coffee, sisal, rice, and such like; indeed, it is but lately that machinery for the manufactre of sisal fibre was purchased in Brisbane for use in Papua. It may be argued that the distance from port to market is in favour of Queensland, because of the facilities that now exist on this coast; but these will soon disappear when the produce is sufficient, and when that time arrives, the difference in freight will be so small, if any, that it will not be worthy of any consideration in connection with the whole question.

QUEENSLAND ARROWROOT.

The export of arrowroot to London was not maintained during the last year, but the inquiries made show that if the arrowroot were produced here on a large scale there would be a market in Great Britain. Messrs. Dunlop Brothers, of 49 Fenchurch street, London, from which firm the information was obtained, state that if a regular supply could be maintained a trade could be made by it, but without a regular supply it is impossible to establish a regular consumption. The Agent-General, who was asked to investigate the reason why Queensland arrowroot (*Canna edulis*) is subjected to a restriction in the British market, is of opinion from inquires made of the trade that, as a result of the decision that the starch of the *Canna edulis* could not be sold as "arrowroot," a certain amount of prejudice exists against the sale of the Queensland article, and further confirms the opinion expressed by Messrs. Dunlop and Co. as to the best means to establish a trade. Arrowroot in London is largely used for mixing with a certain type of cocoa; in fact, it is estimated that three-quarters of the importations to Great Britain are for this purpose, and for this trade it would seem that there are better chances for the Queensland article than for the grocers' trade, and it is suggested that it would sell as well as the product of the Maranta. The points recommended in the information gathered show that the roots should be of the best quality, that an ample supply of fresh water is necessary, otherwise the manufacture cannot be perfect, for the cocoa trade the article must not be specky, as this fault spoils the cocoa. It was further recommended that arrowroot should be packed as it is in the West Indies—viz., in barrels instead of in bags, as the former can be stored with greater reliability, and the arrowroot is not so liable to dirt as it is when packed in bags.

It is possible that now the British Cotton-growing Association is showing so much interest in the cultivation of cotton in the West Indies the production of arrowroot may decline in those islands, and should this become a fact the opportunity of Queensland will come, and it is with this idea that the Department prosecuted these further inquiries, so that they might be at the service of those interested.

PINEAPPLES.

An interesting experiment with the refuse of this fruit, initiated at the suggestion of Mr. A. Bigg, of the Merryfields Orangery, Toowoomba, whereby the waste could be made profitable and possibly more profitable than the fruit itself, has so far approached success that it may be made public.

Mr. Bigg's idea is that instead of feeding pigs with or destroying the waste from canning factories, or even any fruit-fly infested fruit, it should be converted into cider. A commencement in prosecuting this idea was made with pineapples, and 3 cwt. of pines were supplied to him for the purpose of converting them into cider.

The report received was as follows:—

> The fruit was sound and ripe, but very dry, and, exclusive of pulp, contained only about 3 gallons of juice. I, therefore, made only one grade of cider—viz., Grade 2. Approximately, 90 gallons were manufactured, and I have the honour to inform you that a sample case of six bottles has this day been forwarded to your Department. The sugar test of the juice was very low, and, from its peculiar astringent character, acetification had to be guarded against. The sample forwarded is, as a matter of course, new, and will vastly improve with age. Cider, like wine, requires age to properly mature. If any of the bottles sent are kept in a cool place until, say, next Christmas, and then sampled, you will have a really magnificent, sparkling summer drink. The aroma of pineapples will be most marked, and will permeate the whole room when uncorked.

Impressions and Observations.

This cider will keep any length of time, and greatly improve with age, and should be a very powerful rival to beer as a national beverage in this and every other tropical or semi-tropical country. It can be placed on the market and retailed with a good margin of profit at 3d. per pint. I consider that a very profitable industry awaits the development of cider manufacture, either from pines, apples, or pears. No longer should the waste parings of canning works be cast away, or fruit fly infected apples or pears. If converted into cider, the people can rely upon obtaining a truly wholesome beverage. An immense area of the most fertile soil in the whole world awaits development on our coastal districts. The problem of over-production of pineapples is solved if the waste product is converted into cider. Every farm or district should have its cider mill. A Thornward pulping machine, having a capacity of grinding 1 ton per hour, and press combined, can be purchased in America for £4, and after paying freight—shipping and harbour dues, import dues, &c.—should be landed on the farm for £8. They should, however, be manufactured here for this sum, and, if a demand for these mills develops itself, the home supply will respond readily enough.

From 1 ton of waste or small pines the following grades should be manufactured before discarding the pulp:—

1st.—A concentrated essence which could be taken in a small flask by any traveller. One tablespoonful of this essence in a glass of water will make a lovely thirst assuager on a hot day; in fact, it would be a glass of pure, unadulterated cider, possessing invigorating recuperative powers, and should be universally popular.

2nd.—A high-class champagne.

3rd.—A sparkling cider, which should equal or surpass many of the brands of champagne now on the Queensland market.

4th.—Grade 1 cider. A truly luscious drink. A nectar fit for the gods.

5th.—Grade 2 cider. For public consumption. A powerful rival of beer. An invigorating thirst assuager, and can be drunk in large quantities without fear of intoxication; similar to the sample forwarded to your Department.

6th.—Grade 3 cider. For home and field use. Similar to Grade 2, but milder.

A confirmation of these impressions, however, can only be sustained by actual experiment.

The area under pineapples for 1906 was 1,906 acres, and the production was 601,969 dozen; and if this palatable cider obtains favour with the public, the opportunities for cultivation will be increased many times. It has been ascertained as nearly as possible that during the year ending the 30th June last 80,000 cases of preserved pineapples were treated, as against 60,000 during the preceding year, the waste from which returned no profit whatever. In the same manner this principle could probably be applied to other fruits.

RAMIE.

Much has been written on this subject with a view to obtaining supplies for the London market, and there is no doubt whatever that the demand for it is larger and probably profitable, but, so far as Queensland is concerned, growers should hesitate before entering into the cultivation of it on a large scale until they are assured that the crop can be profitably handled with the means at their command. The principal obstacle in countries where cheap and plentiful labour is not obtainable has been a doubt of any of the machines invented for decorticating the stems being able to perform that work satisfactorily. There are, it is understood, machines that will decorticate satisfactorily, but they are not on the market. There is a machine, the cost of which is about £40 in London, which it is claimed will remove the pithy woody matter and the skin, but this does not complete the process required to place a complete fibre on the market.

The best machines, so far, have only turned out from 2 to 3½ per cent. of "dry ribbons," whilst the yield of dry "fibre," on a given weight of green stems, is 5 per cent. Present means of decortication generally give about 3 per cent., of which one-third is green, leaving 2 per cent. of pure fibre. Experiments at Pandalur, India, resulted in a return of from 3½ to 6 per cent. of ribbons, and it is recorded that "the fibre obtained at the price ruling did not pay for the cost of production, and the cultivation was given up."

On the Reading Rhea Estate, the experiment was made on a fairly extensive scale by Messrs. Finlay, Muir, and Co. The highest yield of green stems was 64 cwt. 3 qr. per acre from one cutting, from which 7 per cent. of dry ribbons were obtained, but this was found to be an unprofitable return, and the experiment was abandoned. Thus if the cultivation of ramie has proved so unprofitable in a country where cheap coolie labour is plentiful, it is clear that the cultivation of it here is a question for consideration and caution. The Governments of India and of France have held several competitions, for which valuable prizes have been offered for machines capable of successfully overcoming the degumming difficulty, but the principal prize was not awarded. The product of ramie is without doubt a most valuable material, and in time to come will be very largely used in the manufacture of dress material and for other purposes, such as ropes, cordage, nets, tent cloth, &c. It is stated in a circular of the Ramie-growing Association that used as a tunic in the South African war, it outwore three cotton tunics served to the men in the same company, and, with slight repairs to collar and cuffs, was serviceable for a long time after the war had ceased. The fibre is beautifully lustrous and retains its lustre undiminished after washing.

RUBBER.

The demand for indiarubber and gutta-percha is so great that more interest should have been shown in the cultivation of it than has been the case. The cultivation of it in this State is not of the last few years, a plantation having been laid down on the Johnstone River by Messrs. Seymour and Allan about 1890. The plantation consisted of about 2,000 trees, that were devastated by a hurricane before the trees were sufficiently developed to withstand such trials, since when little real interest has been taken in the matter until within the last year or so.

In 1898, the Department imported a wardian case of 100 West African rubber plants, which travelled safely, and were reported upon after planting as doing well, so that there would seem to be no difficulty in transporting plants from long distances.

The annual value of the trade can be estimated from the fact that the average annual consumption of indiarubber and gutta-percha in the principal countries is:—

	Cwt.
The United States of America	520,890
Germany	251,770
United Kingdom	217,000
France	81,330
Austria	25,960
Holland	23,670
	1,120,620 cwt. or 56,031 tons.

The average annual exports from the countries exporting rubber, gutta-percha, and balata is 1,243,000 cwt., or 62,150 tons, of the value of £15,938,000, or £256 a ton. The countries mentioned, it will be seen, absorb nearly the whole of the rubber produced, a portion of which trade should before this have belonged to Queensland. It has been estimated that, apart from the rubber growing wild in Africa and elsewhere, 150,000 acres have been planted in different parts of the world, of which 40,000 acres are in Ceylon, a country that has evidently appreciated the position and accepted this valuable product as a substitute for the coffee industry that was destroyed by the leaf disease.

The rubber-tree is not like maize or wheat, which require replanting annually, and it serves as a breakwind to other areas of cultivation, so it would seem to be no reason why every farmer in the North should not have a certain area under cultivation even if it is not the main product.

Although the coastal districts, from, say Bowen northwards, are eminently suited for the cultivation of it, there are, in the opinion of the Instructor in Tropical Agriculture, only about 5,000 trees in the State, of which 1,000 are in the Mourilyan district, and, excepting the trees in cultivation at the State Nursery, none are in bearing.

The cultivation of the rubber-tree is so simple and the demand so enormous that it is hoped that before long the statistics of rubber will take an important place in the agriculture of Queensland; and, to facilitate cultivation, arrangements have been made, whereby, under certain restrictions, the importation of seeds and plants will be permitted from the Malay Peninsula.

CONSERVATION OF FODDER.

To encourage the preservation of fodder in a green state, so that succulent food may be available for our stock, and particularly dairy stock during the winter months or when there is a scarcity of green feed of the natural kind, experiments were undertaken during the year to ascertain the cheapest and best material, other than that already in use, out of which a silo in a profitable form could be constructed. At the time of writing this Report the silos constructed have not been emptied of their contents, therefore nothing can be reported at the present time of the results obtained, and, as the operations have been entirely of the experimental kind, it must be understood that those who do copy or have followed the lines adopted, have done so at their own risk.

When selecting the different forms of silos and the materials for them, it was natural that the Department should include the circular galvanised-iron silo, so highly recommended by the Victorian Department of Agriculture. Opinions upon this material differ greatly, and the result of this experiment will be watched with great interest. The rapid transition from heat to cold and *vice versâ*, and the action of the acids in the ensilage on the iron, have been argued by those whose opinions are highly worthy of respect against the use of iron; but, on the other hand, farmers in this State, who are equally intelligent, have so far pinned their faith to iron, that they have erected huge silos of this material.

It has, therefore, been decided, pending the publication of the results of the experiments, to include in this Report a short description of the silos erected at the College and the State Farms, Hermitage, Roma, Biggenden, and the Hospital for the Insane at Willowburn.

The silos at the College are constructed, one of fibro-cement and hardwood, and one of galvanised iron and hardwood.

At the State Farm, Hermitage, the silo is of fibro-cement and hardwood.
At the State Farm, Roma, the silo is of galvanised iron and hardwood.
At the State Farm, Biggenden, the silo is of galvanised iron with a lining of malthoid and hardwood.
At the Hospital for the Insane, Willowburn, the silo is of galvanised iron with a lining of malthoid and hardwood.

At the Hermitage State Farm and at the Agricultural College, the materials of construction are a combination of hardwood and fibro-cement for the walling, built up on a concrete floor; the plan is octagonal with a strong framework of 7-inch by 2-inch and 7-inch by 3-inch hardwood studs, double at angles, and bolted together every 4 feet apart. These are tenoned into a stout hardwood sill at bottom and into a strong plate at top, and are 24 feet in height. They are braced together with double hardwood ties placed at intervals in the height and thoroughly well bolted together. The roof is octagonal in shape, converging to a point in the centre, with timbers of pine, and covered with plain galanvised iron soldered at all joints. The interior is lined with a material known as fibro-cement in sheets 8 feet by 4 feet by $\frac{1}{8}$-inch in thickness, said to be a combination of asbestos fibre with the best Portland cement, coloured or otherwise, with a slight addition of the mineral oxides; the combination of asbestos and cement is said to favour its resistance to high temperatures, and is impervious to moisture and air. Moreover, the acids developed in the process of curing, it is thought, will have no injurious effect on the material, and no other internal lining is necessary.

At the Agricultural College a silo of the type recommended by Dr. Cherry, of Victoria, has also been erected, for comparative purposes. It is circular on plan, without any special kind of floor. In construction it is a modification of what is known as the "stave" silo. Studs are set up at regular distances representing staves. These are firmly bound together with 6-inch by $\frac{1}{2}$-inch hoops of wood, bent round in circular form on the outside and well bolted to the studs, making the framework strong and rigid. It is then lined on the inside with 24-gauge plain iron sheets, made to lap over at all joints, so as to prevent the penetration of water from the outside, and well painted on the inside, so as to prevent injury from the development of acidity in the ensilage, with a special composition. It is found that the pressure from the inside is sufficient to keep the lap joints close enough to prevent the admission of air to any great extent. It is covered with a galvanised-iron roof, with fairly good projections. This form of silo is economical in first cost, and will prove whether the iron lining is likely to be durable under such conditions in the Queensland climate.

At Biggenden State Farm and at Willowburn Asylum, near Toowoomba, 60 and 100 ton silos have also been erected of the type differing somewhat in detail and construction from the galvanised-iron silo designed by Dr. Cherry, but differing somewhat in detail and in the mode of construction. A light concrete wall, circular on plan, forms the foundation of the structure, the internal diameter of which is equal to the internal diameter of the superstructure. The object of this is to afford better protection and greater stability, and at the same time to permit of increasing the capacity by sinking any depth into the ground and lining up with $4\frac{1}{2}$-inch brickwork or concrete under the present foundation. Eight foundation posts of hardwood, well strutted, braced, and bolted together are embedded in concrete at regular intervals round the circumference and carried to a height of 7 feet above the ground line. To these posts, after being well tarred, are bolted the three first hoops, which are built up of three thicknesses of 6-inch by $\frac{5}{8}$-inch spotted gum, carefully bent round, bolted to the posts, and covered at joints with fishplates of the same materials placed on the outside. Four-inch by 2-inch studs are then set up perfectly plumb at equal distances round the circumference, and other hoops made of 6-inch by $\frac{5}{8}$-inch spotted gum, single, are well bolted to the same, two bolts being placed in each to ensure perfect rigidity. The roof timbers are of pine, covered with corrugated galvanised iron, with gables, which are left open for convenience of loading. The interior is lined horizontally with 4-inch by $\frac{1}{2}$-inch spotted gum with shot edges, carefully bent round, and well nailed to each stud, and as closely jointed as possible. This is then covered with two-ply malthoid laid vertically, care being taken to ensure that all the joints are made perfectly air-tight.

POULTRY.

The Poultry Instructor has throughout the year visited the districts where there is interest in this class of stock, and there is every evidence that the continued teaching is having a good effect on the class of bird to be found on the farms, and that the time when any kind of bird was considered good enough is fast passing away. The competitions in egg-laying that have been held at the College during the past three years have also had a beneficial influence on the subject.

Encouragement to the industry has also been given by supervision and classification of birds that have been exported, and the results have been eminently satisfactory from a commercial point of view, and from the instruction gained as to the class and kind of bird that will find a good market in Europe. It is yet early to say that we can handle a regular export trade for the reason that, according to the statistics of the Government Statistician, there are but 753,424 head of poultry, in which are included turkeys, ducks, and geese, &c., at a proportion of say $1\frac{1}{2}$ birds to each head of population. These figures

for the greater part in all probability refer to farm stock, and if it were possible to obtain full returns also of the poultry in towns and the environs of towns, the number would be considerably increased. There are seasons of the year, however, when an export can be favourably maintained in competition with the local market. The returns from the small lots sent to the United Kingdom indicate that there is a good market awaiting the exporter at the proper season, as is evidenced by the fact that 4s. a bird was obtained. The value of eggs in the London market is another means of profit at the service of the poultry-farmer, and, as with birds, there are times when eggs can profitably be exported, and the Poultry Instructor reports that there is a very decided improvement in the average laying and in the quality of the eggs. There would seem to be no reason, as this State is probably well adapted for poultry-raising, why Queensland should not take a prominent place in the trade.

The eggs exported in 1904 amounted to 228,889 dozen; in 1905, 422,254 dozen; and in 1906, 218,348 dozen, principally, however, to the other States, which in their turn exported them to the United Kingdom, to the loss of trade to this State. Victoria and South Australia have proved the benefit to be derived from exporting to London, by realising a net gain of 4d. per dozen over the local prices. Queensland can easily comply with the requirements of the London market, and, as the time of scarcity there is a period of plenty here, advantage should be taken of the opportunity.

As a guide the following table of values of eggs in different markets will, it is hoped, arouse enthusiasm in this subject:—

WHOLESALE PRICES OF EGGS IN VARIOUS MARKETS.

—	Brisbane. (Special.)	Sydney.	Melbourne.	LONDON.		
				French. Per doz.	Danish. Per doz.	Canadian. Per doz.
	s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
January ...	0 5	0 8	0 7	0 11	0 8	0 10	1 $2\frac{1}{2}$	1 $6\frac{3}{4}$	1 $2\frac{1}{2}$	1 $7\frac{1}{4}$	...
February	0 $7\frac{1}{4}$	1 4	0 10	1 1	0 10	1 1	1 $1\frac{1}{4}$	1 $8\frac{1}{2}$	1 0	1 $6\frac{1}{2}$	...
March ...	0 $8\frac{1}{2}$	1 4	1 0	1 6	1 0	1 6	0 $11\frac{1}{2}$	1 $2\frac{1}{2}$	0 $9\frac{3}{4}$	1 $3\frac{3}{4}$	...
April ...	0 $11\frac{1}{2}$	1 $5\frac{1}{2}$	1 1	1 4	1 2	1 6	0 $9\frac{3}{4}$	1 $0\frac{3}{4}$	0 $8\frac{1}{4}$	0 $11\frac{1}{2}$	...
May ...	0 $8\frac{3}{4}$	1 2	1 0	1 9	1 1	1 4	1 0	1 $0\frac{3}{4}$	0 9	1 0	...
June ...	0 8	1 $1\frac{1}{2}$	0 11	1 9	1 3	1 8	0 $10\frac{1}{2}$	0 $11\frac{1}{2}$	0 $8\frac{1}{4}$	0 $9\frac{3}{4}$	...
July ...	0 6	1 $0\frac{1}{2}$	0 11	1 4	1 0	1 6	0 $10\frac{1}{2}$	0 $11\frac{1}{2}$	0 $8\frac{1}{4}$	0 $9\frac{3}{4}$	...
August ...	0 $5\frac{1}{2}$	0 6	0 7	0 10	0 11	1 3	0 $10\frac{1}{4}$	0 $10\frac{1}{2}$	0 $8\frac{1}{4}$	0 11	...
September	0 $4\frac{1}{2}$	0 6	0 $6\frac{1}{2}$	0 $9\frac{1}{2}$	0 9	1 0	...		0 $10\frac{1}{4}$	1 $0\frac{1}{2}$	...
									Fresh.	Preserved.
October ...	0 $4\frac{1}{2}$	0 6	0 $5\frac{1}{2}$	0 $6\frac{3}{4}$	0 7	0 10	1 $1\frac{1}{4}$	1 $2\frac{1}{2}$	1 2	1 $5\frac{1}{2}$	1 0	0 11
November	0 $4\frac{1}{2}$	0 $6\frac{1}{2}$	0 $6\frac{1}{2}$	0 9	0 7	0 11	1 3	1 6	1 $3\frac{3}{4}$	1 $6\frac{3}{4}$	1 $1\frac{3}{4}$	1 $0\frac{3}{4}$
December	0 $5\frac{3}{4}$	0 9	0 10	1 1	0 9	0 11	1 $3\frac{3}{4}$	1 8	1 5	1 8	1 $1\frac{1}{4}$	0 $11\frac{1}{4}$

OSTRICHES.

The recent importation of ostriches from South Australia calls for consideration as to whether this profitable bird could not be cultivated in the drier regions of the Central and other districts. This bird has been acclimatised in New South Wales, and there seems to be no reason why more should not be done in this direction in Queensland. As far back as the early eighties ostriches were held on the Burdekin River country, but for reasons quite apart from the question of their suitability to this country the breeding was not prosecuted, and until now the matter appears to have been lost sight of. The value at which they are held in their natural habitat of South Africa, where an export duty of £100 a bird is imposed, is alone a sufficient reason for inquiry into the probable results from breeding them in Queensland, and it will be found also that they are highly esteemed in countries to which they are exotic. In America, where they have existed but a few years, according to the Annual Report of the Department of Agriculture, they are held in such value that, excepting for extraordinary reasons, it is practically impossible to make a purchase, and where sales are made the prices run somewhat thus:—For chicks six months old £20 a piece; one-year-old birds, £30; two-year-old birds, £40 to £50; and at four years—when they pair—at about £160 for a pair. It is estimated that there are now in the United States some 2,200 ostriches, which can be traced to a troup of thirteen that were brought from California in 1888, but of these eleven died on the journey or shortly after, so that the present flock are really the progeny of two birds. The main question is, of course, one of profit, and in this connection it may be said that an acre of lucerne will yield sufficient for the annual maintenance of four birds, and the yield is given at $1\frac{1}{2}$ lb. of feathers from each ostrich, of a value of about £5 for each pound, and from thirty-six to ninety eggs in each year. Now, as ostriches are extremely long-lived, some people affirming that they live to 100 years, and as their food—maize, wheat, barley, oats, and lucerne—is not of an epicurean order, it would appear that there is little room for doubt as to whether the breeding of ostriches is a profitable occupation if the returns mentioned will apply to Queensland and the birds will thrive here. Though grain is mentioned as being part of their food, it is but a subsidiary part, for if an ostrich is on good flesh and has plenty of green feed, it will need no grain. Moreover, it is the experience in America that if fed with much grain they become cross and are hard to manage. In the ordinary way

they need but little grain, excepting perhaps at breeding time. It would appear, therefore, that a fair trial might reasonably be made of this kind of stock-breeding, and to encourage the industry a commencement might well, it is thought, be made at one of the State Farms—for instance, Roma or Gindie.

The Principal of the Hawkesbury Agricultural College, in courteously replying to an inquiry relative to the birds at that institution, states that it is about six years ago since the first pair were introduced there. The results have been so far satisfactory, though some trouble was at first experienced in getting the birds to mate. They are easily managed, and any class of poultry food suits them when grazing is not available. The latter is the cheapest, because the birds are better for the exercise in looking for the food.

It has been found that much depends on environment to secure a high percentage of feathers, for which there is always a payable market for feathers of a high class. As much as from £3 to £4 has been obtained from the annual picking of three-year-old cock birds.

The climate suits them admirably at Hawkesbury, the birds are rarely sick or ailing, and the losses with mature birds have been very light. Such testimony is incontrovertible, and, if ostriches can be profitable in New South Wales, there would seem to be no reason why they should not be more so in this State, which has a climate in all probability more suited to their requirements.

HORSES.

The opinions advanced in the reports of the two preceding years upon the increasing need for action being taken in some manner to improve the breed of horses in this State has been confirmed by the information that has from time to time reached the Department since the report of last year was presented to you. Information was there given of the price at which stallions are sold for public service, from which table the implication was obvious that either the animals were not of a sufficiently high class to maintain a good breed, or that the fee charged was too low. The former, in my opinion, is what is resulting, and this is also the opinion of a farmer, who, in writing on other subjects connected with horses, states:—"I see in your annual report for 1904-5 a piece about horses, and where it says that the farmer could raise a better class of horses than the pastoralist. Quite so, but they will not do it while they can get the service of mongrel stallions standing at 15s. and £1 per mare. I have a draught stallion, and it takes me all my time to get about forty mares at £1 15s. and £1 10s., while there are others standing at £1 per mare, and can get 100 mares. The farmers look at the money and not at the horse, and although they are saving a few shillings now—in about two years time they will be losing pounds." This unsolicited opinion covers the whole question, and it is from this standpoint that it is submitted supervision is important. The grazier who keeps stallions is on an entirely different plane, for they form part of his stock-in-trade, and he can, therefore, be trusted to see that the best results are attained. Not so the farmer, who cannot afford to keep an entire idle the greater part of the year, and who must depend upon what is offered during the season. The Bill providing for a tax on stallions that was presented to Parliament last session did not receive approval, for the reason apparently that a tax was contemplated, rather than from an objection to the principle of supervision. This supervision, it is thought, could be achieved by permission to offer a stallion for public service being subject to an examination by a veterinary surgeon, and the issue of a certificate for the information of the public; and secondly, that in the future no Government grant shall be given to an agricultural society that awards prizes to an uncertificated stallion. Premiums, under certain conditions, to the best horses would be a great incentive to improving the class that we should breed for market, and which, owing to the constant drain, is not showing increase or improvement, but development rather in the direction of deterioration. In all European countries—and a commencement has been made in Victoria—the Government occupy a leading position in the horse-breeding industry; but in Queensland no more has been made, notwithstanding that the great Asiatic trade to the Philippines, to India, and other places is in our hands, and will remain so if we have the common sense to retain it; but the drain that is now being made on the class of horse required for these markets will soon jeopardise the supply if the source of supply is not maintained. The value of sustaining the breed as understood in Europe is best exemplified by France, which may be classed as the least "horsey" of the Greater Powers. There it has been realised that the racecourse, and especially the steeplechase course, is the fountain whence to obtain horses of strength, speed, and quality. In various parts of the provinces large stud farms have been established, and over 200 stallions have been bought from the racecourses to serve mares. So directly is the breed considered in that country that the racecourses are under the control of the Minister for Agriculture, and no races are permitted that do not have for their aim the improvement of the breed of horses, and prizes are even given under the condition that the Government has the right to claim the winner under certain circumstances. Germany, Austria, Russia, Italy also work upon similar lines, and so the standard of the horse stock is kept up in a manner in which it is impossible under present conditions to attain in Queensland, because, in the closely-settled district it is impossible for the owner of mares, who may, and is probably, unable to use the few really good horses in the district in which he lives, to have any confidence in the horses that he is by force of circumstances bound to be satisfied with. The conditions for the production of sound, healthy, and

hardy horses of the class required for our markets are so favourable that it would seem to be not out of place to suggest the formation of associations for horse-breeding, on lines similar to those found in other countries. These associations might be co-operative or otherwise, but whatever foundation is favoured, the basis should be upon a particular class of horse, for it would not be a wise thing for the members of it to indulge in or permit any stamp of horse other than that for which the association was formed. To do so would soon destroy its reputation, and possibly endanger the class of horses in the district in which the association is situated. The advantage is obvious, for it will not be long after the stallions have been at work before uniformity is produced, and the district will become known for a definite type. As it is now, no buyer can go to, say, Toowoomba for 100 head of draught horses reared in that district, or to Roma for the same number of the cavalry stamp reared in that locality. Horses of different sorts are to be found in all districts, but they have to be collected and sorted without any reputation surrounding them. All growers should be educated to see the advantages of adhering to what is best for their district, and to the disadvantages of selling mares to export buyers. It is well known that foreign agents when buying will give a higher price for a mare that is inferior to a gelding offered at the same time. It would be a good thing if such be possible to prohibit the export of mares from this State for at least ten years, so that the danger of a diminished supply of breeding stock may be prevented. It is a short-sighted policy to supply buyers with the means of providing themselves with the article Queensland has to sell.

MULES.

Attention was last year drawn to the possibilities that might eventuate were mule-breeding followed in this State to a greater extent that it now is. Since the last report, some inquiry has been made with regard to a market, and it has been ascertained that in Bengal, though the importations naturally vary considerably, numbers are annually required for the Army Remount Department.

The ages most favoured at time of purchase are from four to six years, with a height for ordnance purposes of from 13·2 hands to 14·1 hands, and for transport from 12·2 hands to 13·2 hands. The girth measurements are from 60 to 63 inches, and from 54 to 58½ inches respectively. These figures are given to indicate the size required for army purposes, but beyond these there is the animal required for agricultural purposes, to the size of which there is no limit, the bigger the better. The respect with which the mule is held in places outside of Australia is shown by the fact that there are some 65,000,000 mules in the world held principally by the following countries:—South America, 687,000; Europe, 1,488,461; British India, 55,641; Africa, 281,000; United States of America, 3,600,000; Mexico, 335,000; and amidst these great numbers Australia figures with 1,048. The average value of a mule on a farm in the United States is £21, but this figure rises considerably in time of war, and it is then the harvest is reaped. In Queensland, there are about thirteen people who breed mules; two in the South, one in the Central, and ten in the North, but, with systematic effort to obtain the market that obviously belongs to this State—the market of Eastern Asia, where the demand is continuous, not only in the Bengal Presidency before mentioned, but in Bombay, Madras, the Philippine Islands, China, Japan, and other countries—it would seem that the breeding of mules should be followed in this State to a far greater extent than it now is. His life is longer than that of the horse, and the current idea that obtained in past years that the mule is ill-tempered, has long been exploded, for he will respond to good treatment in the same manner as will a horse.

CATTLE.

This stock has now passed the troublous effects of the drought, and has recovered the normal state of increase common to the years preceding that disastrous period. Compared with 1905, the figures show that the increase has been 450,224, the numbers for the two years being 2,963,695, and 343,919 respectively.

In all the principal cattle-raising districts the drop of calves was high, the Toowoomba district having the highest percentage with 90 per cent., followed by Springsure with 84 per cent.; Nanango, Brisbane, and Townsville, returned 80 per cent.; Roma, 67 per cent.; Charleville, 62½ per cent.; Bowen, Rockhampton, Beaudesert, 60 per cent.; Longreach, 55 per cent.; Cunnamulla, 50 per cent.; Cloncurry, 27½ per cent.; and Chinchilla, 65 per cent.

The health of the cattle has been good, and no epizoötic disease has broken out. The tick has, of course, pursued the even tenor of its way, and many losses have been experienced, especially in the coastal districts among small holders, by whom loss is more keenly felt than amongst larger herds. Though no actual means have yet been found for arresting this disease, it is felt that its progress is, to a considerable extent, hastened by the people who are feeling its ravages so badly. The habit in the more closely-settled districts of permitting cattle to graze upon the public roads and reserves is a manifest means for transmitting the pest, and it often happens that those who cry out most at the losses experienced are among the worst offenders in this respect. The mortality among calves in dairying districts, caused by want of knowledge of the treatment that should be given to them after having been taken from their

Reports on prevalence of ticks - See Inspr reports.

mothers, has been greater than it should be. Inexperience has, no doubt, been the main factor, but there is no reason why that inexperience should exist. Information on this as on many other subjects has been disseminated by means of the "Queensland Agricultural Journal," and the officers of this Department are every ready to give any advice and instruction that is in their power. The College and the State Farms are also object-lessons at the command of those who wish to learn, but these opportunities are sought by but a small percentage of those who ought to inquire. It may be that they have not time, but surely at present prices a female calf is worthy of some energy in that direction.

Contagious abortion occurs to some extent in the more closely settled dairying districts. Farmers should make themselves acquainted with the nature of this disease, and so avoid introducing it into their herds. Articles dealing with the cause, nature, treatment, and prevention of this disease have appeared from time to time in the Agricultural Journal, and the Department is continually giving advice as to the best means of treating infected herds.

Blackleg makes its appearance periodically in some districts, as it does in every other part of the world, but the losses from it are comparatively slight. It is the custom with most Queensland farmers to immediately burn the carcass of any young animal dying suddenly, thus to a great extent avoiding further contamination of the soil. Moreover, in the districts where the disease has annually claimed a number of victims, preventive inoculation has for some time been practised and favourably reported on.

A few cases of bovine pleuro-pneumonia have been reported, but the losses appear to have been greatly increased owing to the use of bad virus for inoculating purposes, which had set up septicæmia. Many stockowners are under the impression that inoculation for pleuro-pneumonia confers a life-long immunity, whereas the protection conferred is of much shorter duration, being estimated by Theiler, the Veterinary Bacteriologist to the Transvaal Government, as about one year. Others, again, are labouring under the delusion that inoculation has a curative effect on those already infected where it has exactly the opposite effect. Moreover, inoculated animals do not possess any immunity until the reactionary period has nearly passed. Hence, it is necessary to warn owners of stock liable to infection to endeavour to inoculate before the disease appears amongst their herds, also to see that the virus is fresh, that the vessels containing it, the hands of the operator and his instruments are clean, so as to avoid, as far as possible, any losses from septicæmia.

The high value obtaining of late years has developed a custom dangerous to the maintenance of the herds and to the reduction of the number of female cattle available. Speying and fattening female cattle for sale for slaughter has greatly increased, and should be prevented.

TICKS.

The losses from ticks have undoubtedly been great, and have weighed heavily upon the many holders of small lots of cattle around Brisbane and to the south of it on the coast; but it must be remembered that those living in the districts mentioned have not been without warning, and it is feared that the preparations for the enemy have not been so complete as they might have been, with the result that the consequences have been greater than if the pest had not been looked upon with so much indifference. It has been well known and advertised that the tick has been slowly but surely advancing southwards, and that the efforts to stop its progress have been unavailing. The departmental officers have everywhere been vigilant, but their numbers are few, and though help was expected from the local authorities who, at their own request, received power to deal with the pest within their own borders, that help has not been forthcoming to the extent it should have been. Stockowners, especially those owning small herds of cattle, have been much to blame for the spread of the pest, in so far that the majority of them having but small holdings—in some cases but one or two 16-perch allotments—permit the stock to stray on the roads and reserves, and so become a medium for spreading the disease.

To better cope with the pest in the closer settled districts, the staff has been increased by inspectors, of whom three will be experienced inoculators, who will be at the service of all who may wish to have their cattle inoculated. In addition, research into the diseases to which cattle are subject, which was stopped by the transfer of the Stock Institute (now Bacteriological Institute) initiated by this Department to the Home Secretary's Department, will be resumed, the principal part of the work of which will be investigation into this pest. Inquiries are also being made for a veterinary surgeon with bacteriological qualifications of the highest order, and who has made the study of this disease a specialty, to take charge of the work generally. It is recommended, in order to minimise the trouble as far as possible, that—

1. The Diseases in Stock Acts be amended to enable an inspector to order the dipping of stock at such intervals as he may think fit;
2. To enable an inspector to order inoculation; and
3. In districts where the tick has been declared a pest, the local authorities be required to keep the roads and open places clear of wandering cattle, with the alternative that if they do not do so the work of clearing the roads and open places may be effected at their cost. In addition, the local authorities should be held responsible for the cleanliness of stock within their boundaries.

SHEEP.

Queensland happily is, and has been, remarkably free from diseases amongst this kind of stock, which are the most valuable asset of all our stock, and produce the item in our export trade that is greatly in advance of any other. Excepting for some minor ills, caused by eating poisonous weeds, worms (to which all sheep are liable), and other temporary drawbacks, the sheep of this State are wholly clean, and the manner in which the numbers have recovered from the losses caused by the drought proves the value of this country for sheep-raising.

Their aptitude for taking advantage of good seasons can best be illustrated by a comparison of numbers during the last ten years. In 1897 there were 17,797,883 sheep in this State, and from that year there was a steady annual decline until the minimum was reached in 1902, with 7,213,985. The turning point had then been reached, for from that year the annual increase has been heavy; for the last three years in round numbers at the rate of 2,000,000 a year, the number for 1906 being 14,886,438.

In the stud merino sheep presented to the Government by Mr. W. B. Slade, of Glengallan, there is the opportunity of maintaining a pure line of merinos, which in future years should be of great value towards improving the quality of our wool, and in keeping the reputation that it has already gained. These sheep have lambed well this year, and are apparently thriving at their location on the State Farm, Hermitage. In order that the best supervision and advice may be at the service of this Department in this connection, a Board of Advice of those well-known sheep men Messrs. A. Dowling, H. Bracker, P. R. Gordon, and Mr. W. B. Slade, has been appointed.

The flock has been established on fifty selected stud ewes from the Glengallan flocks.

The Glengallan flock was established in 1855 by the late Mr. John Deuchar, on pure Spanish merino blood, and has been maintained, unalloyed, as that blood ever since. In 1828 a number of Saxon merino sheep were selected for the late Mr. J. Brindley Bettington, of Brindley Park, Merriwa, New South Wales, and brought to Australia by the late Mr. Frederic Bracker in 1829. A draft of their direct descendants was purchased by the North British Australasian Company, and placed on their Rosenthal Run, near Warwick. From the increase of that flock the late Mr. Deuchar in 1855 selected 100 ewes. These were by a pure imported Saxon merino ram, purchased in Sydney by the late Mr. John Gammie, of Talgai. Mr. Deuchar secured a son of that ram from one of the Brindley Park ewes, which developed into one of the best rams on the Darling Downs, and was long and widely known under the familiar name of "Billy." He proved unapproachable at every show at which he entered an appearance. He was described by those who had seen him as a fine, deep-set sheep, with superb aristocratic head, and covered with a faultless fleece of remarkable evenness and quality.

"Billy" was coupled in 1855 with the 100 ewes above mentioned, and thus was laid the foundation of the Glengallan flock. Subsequently, when in Europe, Mr. Deuchar personally selected ten rams and ten ewes from the flock of Baron von Maltzahn, in Mecklenburg, and these arrived at Glengallan on the anniversay of her late Majesty's birthday in 1860. Baron Maltzahn's flock was directly descended from a Spanish royal flock. These imported ewes were mated with "Billy," and the rams with his progeny. The late Mr. C. H. Marshall, senior partner of the firm of Marshall and Deuchar, made a further importation in 1862 of ten rams and fifteen ewes from the same flock, and of precisely the same blood as the previous importation. Since the last-named year—1862—the flock has been bred entirely within its own blood. The matured judgment of Mr. Deuchar was universally acknowledged, and to his judicious formation and personal close attention may be attributed the fixed type of the Glengallan stud flock, and which has been successfully preserved by Mr. W. B. Slade since he acquired the direction of it in 1872.

The almost unprecedented showyard successes of the flock, and its triumphs at competitive wool shows, are widely known.

It may be mentioned that this year's drop of lambs from the Government flock are the progeny of the pure Glengallan sire, 0GA0, born in 1900—a ram the weight of whose fleece yielded in 1904 23 lb. of wool, and in 1905 20 lb. of wool of eleven months' growth.

Throughout the State the last lambing has been good, the percentages in certain districts, as reported by the different inspectors, being—for Bowen, 70 per cent.; Roma, 75 per cent.; Toowoomba, 80 per cent.; Cunnamulla and Springsure, 77 per cent.; Clermont, 40 per cent.; Cloncurry, 51 per cent.; Chinchilla, 50 per cent.; Hughenden, 55 per cent.

WOOL.

The consumption of wool in this State, being but a small item in comparison with the quantity grown, it need not be considered with regard to the statistics which are of sufficient interest for publication in this connection.

From the returns kindly supplied by the Brisbane Wool and Grain Buyers' Association the wool catalogued for sale during the year ending the 30th June last has been 87,678 bales, of which up to the date mentioned 79,370 bales were sold.

1907.

Export of wool 1907. 92167 bales Value £L 133 130

Bales sold 1 Jan to 12 may 28381 bales.

Export of

Bacon & Hams	value £L 79370	
Pork	12070	
Meat	782 460	
Tallow	235 824	1109 728
Butter	£L 503576	
Cheese	10 695	514271
Sugar		1779628

Live Stock.

Horses	488000	
Cattle	3 892 000	
Sheep	16 738 000	
Pigs	* 113 000	E & OE

To show a comparison of the trade in wool with the other States of the Commonwealth, the following figures for 1906 will be interesting:—

	£	£
Queensland exported oversea wool to the value of ...	1,874,755	
Other States	1,514,283	
		3,389,038
New South Wales—total value of exports of wool		12,306,944
Victoria		6,046,189

Upon analysis of the figures, it would seem that wool to the value of about £1,000,000 has been credited in the export figures to New South Wales and not to Queensland. Of the interstate wool sent from this State, New South Wales received wool to the value of £1,341,137 and Victoria £173,037, a balance of £109 being left, which probably went to other States. Of the wool exported from New South Wales, the value credited to Queensland is £469,369; and from Victoria nothing has been credited, so that as virtually the whole of the wool is exported to Europe and elsewhere, this State has not received credit in the Commonwealth statistics for wool exported during 1906 to the value of over one million and a-half pounds sterling, which has gone to swell the returns for New South Wales.

Highest prices realised for scoured and greasy wools at Brisbane wool sales for twelve months ended 30th June, 1907:—

	Scoured, per lb.	Greasy, per lb.
	d.	*d.*
1906—July	25	... 12½
August	No sale	... No sale
September	22¾	... 13
October	22½	... 13½
12th November	23¼	... 14¼
26th November	22¼	... 13¼
December	22½	... 14
1907—January	24	... 13¼
February	No sale	... No sale
March	25	... 13
April	24	... 12½
May	No sale	... No sale
June	24	... 13¼

PIGS.

This item in the statistics of live stock, instead of showing an increase as in the case of horses, cattle, and sheep, presents a decrease in numbers compared with the preceding year that is somewhat serious, and calls for some investigation. The expansion of dairying, with which pig-keeping is now considered to be included, would seem to induce expansion in the number of pigs in a corresponding ratio, but that is not the case. In 1904, when the export butter trade increased abnormally owing to the recovery after the drought, there were 185,141 pigs in the State, in 1905 the number was reduced by 21,054, and in 1906 there was a further falling off of 26,292; thus in three years the number of pigs has been reduced by 47,346.

Inquiry has been made as to the cause of this declension, and the market in Toowoomba has been taken as an indication of the trade.

In 1904 the pigs passed through the saleyards there numbered 15,829 of all classes, which, excepting the first three months of that year, when prices ruled high, brought a general average value for baconers and porkers of £1 12s. 6d. each.

During 1905 the number passed through the saleyards was 26,938 of all classes, the average value of which during the second half of the year fell to £1 9s. for baconers and porkers.

During 1906, the pigs sold in that market numbered 21,164 for baconers and porkers, the average value for the first three months being £1 12s. a head, during the second quarter £1 10s., and during the last six months of the year £1 16s.

For the first five months of this year the average value for the same class of animal has been £1 15s. The lowest value was, therefore, reached in the second half of 1905, since when there has been a recovery, and average values are higher than during the preceding three years. This advance will, of course, stimulate the industry, and it is anticipated that the statistics for 1907 will show that the pig-keeping industry has also advanced.

A factor in the decline may have been the limited or local market, for it has been but within the last few months that a regular export trade has been attempted, and, if it be continued, an unlimited demand will be set up, and a means provided for dealing with a surplus during any one year.

The principal causes for the decline may be, however, attributed to two causes:—

The high price of feed from a pig-keeper's point of view.

The high price of cattle.

The first reason may at first sight seem somewhat anomalous when the expansion of the dairying industry has been referred to in connection with pig-keeping, and the consequent extra supply of skim milk, &c.; but when the price of maize is anything but at its lowest, many people do not think it pays to feed maize to their pigs in order to fatten them off, and instead sell them to the best advantage. The high price of cattle also has induced farmers to rear all their young cattle, and to pay less attention to pig-keeping.

So much was the shortage felt by the factories that the Department was approached with the view of allowing the importation of pigs for slaughter from the coastal districts of New South Wales, but great as was the desire to comply with the request, a refusal was necessary, owing to the districts from which the supply to be profitable would have to be drawn being afflicted with swine fever.

Excluding pigs killed by farmers for their own consumption in one form or another, the quantity of pig products in 1906 was—

Bacon and hams—10,846,959 lb.

Pork, salt and fresh—1,814,670 lb.

Of which were exported oversea and interstate—

Bacon and hams—value £93,588.

Pork, salt and fresh--value £26,803.

COMMERCE ACT.

The Regulations under this Act, when published, were not acceptable to the merchants in this State, in so far that they did not maintain the standard that had been made compulsory in Queensland under which our products had gained a footing in the European markets, and the feeling culminated in a resolution arrived at during a meeting of the Queensland Butter Manufacturers' Association, the centre of the dairy produce trade, to the following effect:—"That this Association deprecates the attempted interference of the Commonwealth Government in the regulation of the butter industry of Queensland which is amply provided for by the State Government." In this sentiment the meat trade coincided.

The laws in force in Queensland prior to the Commerce Act dealing with imports and exports of products covered fertilisers, diseases in plants, live stock and meat for export, dairy produce, so that, excluding the minor articles under the Act, such as maize, onions, potatoes, the legislation of this State included all that the Commerce Act includes, and as the Queensland Acts are compulsory in contradistinction to the Commonwealth Act, which is voluntary and below our standard, the position was, naturally, dubious for those merchants who had endeavoured to raise the reputation of our products. The fact, however, that the Queensland laws for meat, cheese, butter, condensed milk, are compulsory, saved the situation, because they were not superseded by the Commerce Act, and are still in force up to the point of what may be explained as the Customs part of the Commerce Act, as, for instance, the trade description. An arrangement was made whereby the Commonwealth forms and stamps are to be used, and for the purposes of the Act the officers of the Department likely to be connected with export business have been appointed officers of the Federal Government, otherwise the inspection, grading, &c., remains as heretofore. Upon these lines the Commerce Act has been worked by the Department since it came into operation, and no difficulty has been found in working the two Acts in conjunction.

BRANDS ACTS.

The number of three-piece brands registered during the year 1906 was 1,593, and the total number registered up to the end of that year was 46,240.

There have been 291 symbol and cheek brands registered under "*The Brands Act*, 1898," 53 of which were registered during the year.

The total number of brands transferred was 13,571, of which 1,059 were transferred in 1906. During the same period 31 brands were cancelled, and 142 cancelled brands were reallotted, making a total of 1,189 brands reissued.

The registrations and transfers of cattle brands show a considerable increase on those for the previous year.

DAIRY PRODUCE ACTS.

The period during which these Acts have been in operation, and the effect of them, permit the statement that they have revolutionised the dairying industry, and that they have provided an organised system, the result of which has given Queensland butter a reputation not enjoyed before, and has forced the standard of manufacture to a plane that satisfies the London trade, with the consequence that the popularity of our butter in that market is daily increasing. The skeleton of these Acts may be described as supervision of all matters connected with dairying up to a point of export, and the framework is built upon three classes of inspection—the dairy farm inspection, the factory inspection, and the grading

Canada

Date 1907		Australia	China	Japan	Africa	London	Other	Totals Boxes	Value per lb.	Total Value
									d	£
July	1	544	35			480	10	1069	11½	2718
	8	537						537	11½	1441
	15	585	8			467	210	1270	11¼	3321
	22	272	95		833	833	5	1205	10¾	3023
	29	313	6			1808		2124	10½	5228
Aug	5	743			35			778	10¼	1873
	12	611				1941		2552	10¼	2507
	19	534	25					559	10½	1370
	26	519	35		677	1518		2739	10½	6710
Sep	2	374	55					429	10¾	1031
	9		Nil							
	16	75	62					137	11	352
	23	150				2427		2577	11	7128
	30	40			623			663	11	1740
Oct	7		140		31	2680		2851	11½	5982
	14				152		6	158	11½	484
	21		165			3318		3483	11½	3308
	28		Nil.							
Nov	4	219			150		1300	1669	11½	4478
	11	90			228		20	338	11½	905
	18		320			3897		4217	11	11808
	25	Nil.								
Dec	2				100	2329		2429	11	6234
	9	12	100					112	11	287
	16		x	1	190	4147		4338	10½	10628
	23	Nil				9997	3	3		7
	30	25	10		10	9097		9142	10½	22398
1908 Jan	6	2				700		702	10½	1720
	13	80				7997		8077	10¾	20260
	20	70	25	73			712	880	10½	2272
	27					20315	705	21020	10½	51499

Date		Afar	China	Japan	Africa	London	Other	Totals Bales	Value per Bale	Total Value
						63114				
Feb	3	324			1000	9256		10580	10 3/4	26538
	10					6405		6405	10 1/2	15692
	17	680	245			7095 ~~6950~~		8657	10 3/4	25766
	24	581			1375	4480	500	6936	11 1/2	18611
								32,578		86,607
Mch	2					3609	2	3611	10 1/2	8847
	9	262					200	462	10 1/2	1132
	16	96	6	40	2024		120	2286	10 1/4	5467
	23	260			2046	20288	300	22894	10 1/4	54755
	30	589	170		1612	3246	320	5937	10 1/4	14237
		416 }						35,190		84,438
Apl	6	2573 }				8308		11297	10 1/4	27019
	13	2164				7490	100	8764	10 1/4	20960
	20	1522	110	55	3998 }	6073	319	11967	10 1/4	28621
	27	1411	80				100	1591	10 3/4	3991
								33,619		80,591

13 | 9368
12000
15 13 68

inspection. The first-named see that the cows are healthy, the yards clean, separating machines are in good order, surrounding conditions are healthy, and so on, the object being to endeavour, by encouragement and advice, to attain a higher ideal of dairying. The cream inspectors attend to the factory side of the question, urge cleanliness, sanitation, maintenance of the standard of cream, improved methods of manufacture, &c. The grading inspectors weigh, test, and decide upon the classification of butter for export. During the year the operations of the Act have been extended to the Rockhampton district, and it is, therefore, too soon to write of results there, but the imposition of it has generally been well received by the factories and dairymen in the district. Of the older districts the inspectors all report that though their work is by no means finished, there is a great improvement in buildings, methods of handling milk and cream at the farm, and in the feeding of the stock. Probably the greatest advance is in the direction of improvements to the buildings, though the other branches of dairying have advanced proportionately. Attention is also being given to the improvement of dairy stock, and the day has passed when any cow is good enough for a milker. A complete definition of the present state of affairs is aptly summed up by the statement in a report that the position can be fully realised only by those who were familiar with the conditions prevailing on many dairy farms prior to legislative action.

There is yet much to be done, and an obstacle to securing the desired end is the competition between factories for the trade of a district. Under the methods now in vogue there is a considerable want of discrimination in the quality of the cream accepted from suppliers, with the consequence that factories are, in some instances, compelled to manufacture second grade butter instead of first grade. The long distances over which cream is carted may have a great bearing on the subject, but this difficulty would, to a great extent, be minimised were cream graded and purchased by the factories according to quality. This proposition is, I am aware, somewhat difficult of attainment, and may meet objections, but the difficulties in the way will be overcome, and the purchase of cream will, in the future, be by quality, with a more frequent delivery in a better form of transit, and with a better class of utensils.

The regulations requiring cream to be delivered according to the standard has been discreetly enforced during the year, and where reports have been received of supplies to factories being below that standard, those concerned have been communicated with. During the year four examinations for certificates for testing milk and cream have been completed, and one partially finished. The candidates in 1906 numbered 393, in all of whom 198 satisfied the examiners, and received their certificates. The total number of certificates issued to the 30th June is 335.

During the early days of the operations of the Acts there was much opposition from those who did not quite understand the objects aimed at, but these have now passed, and it can be said that, with few exceptions, dairymen accept the Regulations as advice for their personal benefit, and now this position has been secured, the coming year will show a still greater improvement upon the elementary training that has been given in the handling of the raw material.

With regard to the export trade, the work of the year can be looked back upon with every sense of satisfaction, the work of grading has been carefully carried out, and the reports from London indicate that the Queensland system meets with favour from the buyers. This system differs from that of the Southern States, in so far that here flavour is regarded as paramount in determining the grade or classification, but in the Southern States flavour is on a par with other conditions when points are awarded. The retention of our system has been possible owing to the fact that the Dairy Produce Acts have not been superseded by the Commerce Act, but, so far as the allotment of points is concerned, there is no difference in the scale of points under that Act and under the Dairy Act.

The following extract from a circular distributed by Messrs. Mills and Sparrow, of Tooley street, to the trade generally, is a manifest appreciation of the lines followed in this State, which places flavour first :—

> If it is decided by the Australian Commonwealth that butter is to be graded, we strongly recommend the grading to be done in a different way to that which has been adopted hitherto. Under the present system butter grading 86·93 points is termed "first class," and that grading 94 points and over "superfine." Accepting the fact that a loss of 14 marks still enables the butter to be graded "first class," the fault, in our opinion, is the manner in which these points have been allotted. It is ridiculous to imagine that a butter which can get the full percentage of points on texture and condition can still lose 28 per cent. of points on FLAVOUR, and then be called "first-class" butter.
>
> We are strongly of the opinion that a butter which loses 15 per cent. of the maximum marks in any one of the three categories should not be termed "first class," and there is no doubt that the main trouble in the grading this season is caused through the majority of the butters easily obtaining the maximum points on condition and texture, and then having such a large margin on flavour.
>
> Yours truly,
>
> MILLS AND SPARROW.

Queensland is thus enabled to stand on a different plane, and the opportune presence in Great Britain of Mr. G. S. Thomson, the Dairy Expert, has greatly helped the improvement of the reputation of our butter, for he has been enabled with his knowledge to make facts known to the buyers there, and to advise this Department of faults that could not be known at the port of shipment. Queensland butter has, for the years during which it has been exported, been looked upon with a kindly air of indifference in comparison with Victorian and New South Wales produce, but the time is approaching when it will be quoted on an equality, if not in advance. Throughout the year the Department has kept in touch with London with regard to the condition of the butter on arrival there, and factories have been duly advised of any reports in which they might be interested, and amongst the matters dealt with is the question of fishiness in butter on arrival in London, a question that is exercising the whole of the Australian States. This taint is seldom detected in butter at the time of shipment, but develops during the voyage to the damage of the grade on arrival, in competition with other exporting countries, such as Denmark, Argentine, and Siberia. The Dairy Expert, in a report advocating an exhaustive inquiry into the question, estimates that fishiness is costing the Commonwealth some thousands of pounds annually. In his opinion, fishiness and the Commonwealth system of grading have done much harm to the confidence of London buyers, but the latter reason does not affect Queensland, excepting by inference, because grading here is under the State Acts, and is based on a different system. Under the Commonwealth system, the aggregate number of points decides the grades, in this State flavour is the deciding factor. Fishiness, however, is a different matter, and no stone should be left unturned in the effort to attain a remedy. An eminent firm of butter merchants in Tooley street, London, Messrs. Mills and Sparrow, write that this question has arisen for years past, particularly where new countries of new sources of supply have been opened up, and all sorts of theories have been put forward as to the cause of this unpleasant flavour in the butter, but so far as is known no scientific or actual decision has been arrived at. Butters which on coming out of the steamer in a hard frozen condition open up fairly well, the fishy flavour being then scarcely perceptible, but immediately the cold is out of the butters, and they are placed on the table for consumption, the fishiness develops rapidly and is most objectionable. It is, however, generally conceded that detection at the time of grading is practically out of the question. In butters submitted to inspection prior to shipment the fishy flavour is imperceptible, but the taint develops rapidly at a low temperature, and when the butter reaches its destination the fishy flavour is most pronounced.

The weight of butter in a box at the time of despatch and on arrival in London has been the source of much correspondence with Great Britain and with merchants here, but the difficulty has been overcome by the institution of a system of weighing by the Department of a certain proportion of each consignment, and the action taken has been favourably received by the trade. Factories whose butter is found to be short weight are informed of the fact, and the shipment is delayed until the weight has been adjusted, or the consignment is stamped as being under weight. By this course, owners are protected from complaints from consignees, and from innocently breaking the description sections of the Commerce Act Regulations.

The administration of the Act has during the year been continued on educative lines, but the time is fast approaching when that period should be considered to be at an end, and those who do not, through ignorance of its provisions or from wilfulness, will not comply with its provisions, should be made to do so, and it is pleasing to find that this opinion is also held by those who have the greatest interest and risk in the business—the manufacturers. Cleanliness from the time of milking is the watchword of the dairy business, and if this is not followed to the uttermost, the trade will soon have but a secondary reputation. The scope of the Act has during the year been extended to the Rockhampton district, where an inspector is now stationed; but as his work has been but lately commenced much cannot yet be said of the prospects there. The area to be covered is, however, immense, there being a butter factory as far west as Emerald, and no other until Rockhampton is reached.

The extension of the export has caused the appointment of an extra grader. These officers have been fully occupied, and have done their work well under many difficulties—evidence of which is to be found in the reports received from London.

The total number of boxes of butter examined for the year to the 30th June last was 244,379, of which 154,661 were stamped first class, 65,588 second class, and 24,130 third class—63·2, 26·8, and 9·3 per cent. respectively.

For the previous fourteen and a-half months, which, including the period under review, practically covers the whole time during which compulsory grading of butter has been in force in Queensland, 248,212 boxes were inspected and classified as follows:—190,296, No. 1; 38,963, No. 2; and 18,953 "not approved"—the last corresponding with "third class" under the Commerce Act. The percentage of No. 1 was 76·6; of No. 2, 15·6; and of No. 3, 7·6 per cent.

In comparing the figures, it will be seen that the number of boxes for 1906-7 was only 3,833 less than that for the previous fourteen and a-half months, and 40,105 boxes more for the corresponding twelve months of that period, while the percentage of first class has decreased, and that for second and

Advised by Shipping companies.

Shipments of bananas from N. Q'ld to Sydney & Melb. for 11 m/s to 30.11.7.

			Shortlanded or condemned		Percentage
H Howard Smith	Bunches shipped	286554		22999	7 loss
Adelaide S.S. Co.		203197		15402	
A.U.S.N.		94466		10435	
		584197		48836	8.35

Shipments from Geraldton 12 m/s to 31.12.7.

Melbourne - Bananas	Bunches	385751	cases 33918	crates 17
Sydney.		98867	94	
Adelaide			36997	
Queensland			130	1035
Sydney	Oranges	24 cases		
Queensland	"	4483. "		

Total Bananas 1028466 Bunches reckoning 4 bunches to a case and 25 to a crate

Fruit Insp. Victoria 1.10.7 Operations 5.10.7 – Three ops in ten undergo inspection.

Adelaide Regulations.

Deputation of Fruit Growers Conference to Mr. Swinburne which obtained a reduction in the charge for inspection of pineapples picking over and admission by rail consigned to Melb. - Strawberries 1 truck loads of citrus fruit – ? pineapples.

- Export regulations - Citrus fruits seven days before packing
Merchants buying market and export

third class increased considerably. This fact can be attributed to the closer inspection that has been possible owing to the additional grader. The blending of good and inferior cream, the most fruitful cause of the large proportion of second-class butter, which is still practised by many manufacturers, has been another cause.

Reports from London on a number of shipments have amply proved the necessity for the greatest caution in grading butter showing signs of weakness prior to shipment, and the increased vigilance involved is really the only difference in the system of grading adopted all along. The alarming increase of "fishy" butter this season, too, has still further augmented the responsibilities of the graders, and it is hoped that some light may soon be thrown on the origin of this peculiarly malignant taint.

The export trade continues to increase, and the following figures, kindly supplied by the Butter Manufacturerers' Association, will be of interest, as indicative of the export trade by weight during each month :—

Month.	Boxes of 56 lb. net. 1905.	Boxes of 56 lb. net. 1906.	Boxes of 56 lb. net. 1907.	Remarks.
January		25,596	27,357	Of the total number exported during the year to 30th June last, 192,417 boxes went to London direct.
February	...	30,013	33,391	
March	...	30,180	27,965	
April	...	26,013	24,305	
May	...	23,649	8,769	
June	...	14 221	1689	The total value of the butter exported oversea from the 1st July, 1906, to the 30th June, 1907, approximated £500,000.
July	23,094	10,748		
August	4,299	1,538		
September	6,854	4,109		
October	7,547	10,995		
November	11,121	12,154		
December	17,748	35,964		

The Customs return covers the year to the 31st December, and for that period the exports during the past three years have been :—

		Oversea.	Interstate.	Total.
1904	value	£290,253	£54,918	£345,171
1905	„	290,294	165,569	455,863
1906	„	508,397	73,868	582,265

The operations of the Dairy Produce Acts also show that for the year ending the 14th April, 1907—

The number of factories registered was	64
The number of dairies registered was	9,141
Number of dairy cows	193,275
Number of dairy cows milked at the time of application (or on an average during March, as the case might be)	130,386

DISEASES IN PLANTS ACTS.

It may be said that Queensland is the principal purveyor of fruit to the other States of Australia, but of late years the trade has been subject, at certain periods of the year, to recurrent obstacles, increasing in their intensity to the free prosecution of the trade. The main trouble has been with Victoria and South Australia, who, in their fear of the introduction of the fruit fly into those States, have each year made the regulations under the Vegetation Diseases Act more stringent. South Australia has even gone so far as to prohibit certain fruits altogether. The introduction of Queensland fruit into Victoria, which during the last eighteen years has bought fruit from us to the value of over half a million sterling, has been the subject of much correspondence of late years.

In 1906 Victoria proposed to exclude Queensland bananas unless they were packed in crates or cases, but upon remonstrance from this Department, there was no change made, and this import of bananas in bunches is still allowed.

It is not considered here that either Victoria or South Australia have any real cause to fear the Queensland fruit fly, though it is possible that there may be danger to those States from the Mediterranean fly, which is present in New South Wales. As before mentioned, fruit to the value of over half a million has been sent to Victoria, of which the greater part was bananas, and from which many million of the larvæ of the Queensland fly must of necessity have been dropped in Melbourne, but as it has not yet been formally announced that the Queensland fruit fly has become established, it may reasonably be argued that the fly will not exist there.

The Entomologist is of opinion that the range of the Queensland fly under natural conditions must have long since been determined, and any further spontaneous distribution would be frustrated by physical barriers. Emphasis is laid upon this point, because, in the numerous articles that have lately appeared in the Victorian Press, consequent on the panic that seems to be prevalent there, and from the

deputations that have been gathered to advocate measures for the protection of the Victorian orchards, it is the Queensland fruit fly that, by outright charge and by implication is credited with the possible damage to the Victorian orchards. The argument applied to Victoria concerning the range of this insect applies also to South Australia, because, if that State were climatically favourable to it, the fly would have long before this have been manifest in the southern part of that State.

Though there is no ground for cavilling at protection by other States of their orchards, it is felt—from the experience of consignments reinspected after return to this port—that in some instances at least the inspection in Victoria has been more stringent than the need for protection warranted.

Every effort is made to properly inspect fruit for export, and by that inspection to facilitate the entry of it into Southern ports, but, in the absence of a sufficiency of properly trained men, the supervision that should be extended by the Department is not possible. Trained men should, in my opinion, be stationed at all the ports, and fumigating chambers, under the control of the Department, should likewise be established at the avenues of issue. The cost of so doing, and of properly administering the Act with regard to the local trade, orchards, and nurseries, would mean a considerable sum of money annually, but the fruit trade is an important item in our commerce, and is increasing year by year. Our fruit comes in much earlier than the fruit of the Southern States, and if attention is paid to the trade, no other State in the Commonwealth can compete with Queensland. It is somewhat curious that though many thousand consignments of fruit have passed South during the past years, which it may be assumed carried millions of the larvæ of the fly, it is in this year when the inspectors report that the stone fruits brought forward for inspection have shown less fly than in the previous three years, that the Southern States should have evinced so much anxiety. Scale diseases have also been less in evidence, but, notwithstanding, fruit has to be fumigated to ensure entry into the Southern markets.

Two regulations have recently been issued, which will have a great effect upon the trade, one requiring that all citrus fruits shall not be packed for export until seven days have passed from the time of picking, and the second that bananas shall be covered for two months prior to export. Both of these regulations have a relation to the fruit fly, and it is hoped by them the losses by condemnation after arrival in Melbourne will be greatly minimised. Under the first-mentioned, the presence of the fly, if any, will be easily detected by the owner before fruit is packed for export, and, in addition, the fruit will be in a better condition to travel than if, as is often now the case, citrus fruits are packed in a moist state that will surely lead to deterioration before arrival at the port of destination.

The covering of bananas is somewhat more difficult to attain, in so far that it will impose certain expenditure. The Department has long advocated this course, and has been in search of a suitable material. This has now been found in a material made for the purpose of covering meat for export, and manufactured in the form of a long stocking. By cutting off above and below the fruit, and tying with twine a satisfactory protection from the fly is secured. The cost, too, is trifling, it having been estimated, excepting cyclones and such-like disturbances, that three successive bunches of bananas can be covered for the cost of about one penny. To encourage this protection, this Department has purchased 12,500 yards of netting to be distributed amongst the growers in Geraldton and Cairns, in order to educate them in the process. In this experiment the Department have been helped by the shipping companies interested in the trade, who have on their own account imported a quantity of netting for free distribution.

Although close inspection has done a great deal towards reducing the condemnation of fruit in other ports, and particularly with bananas, it is felt that the means of transport do not satisfy the requirements of such perishable products. The trade with the South is large and increasing, but the accommodation on the ships trading on the coast does not improve with the trade. The cargoes that offer sometimes exceed the space available, and in bad weather the fruit suffers to such an extent that on arrival in Melbourne it is forthwith condemned for being over-ripe, but not for disease.

The quantity of fruit that passes through the hands of the inspectors during the year is enormous, and an indication can be obtained from the figures relating to the principal ports.

During the year, to the 30th June last, the bunches and cases totalled—

At Brisbane	436,066
At Rockhampton	42,631
At Cairns	142,725
At Geraldton	670,533

Internally, through lack of officers, the control contemplated by the Act of the cleanliness of orchards, and of the fruit grown therein has not been possible. Ipswich is visited as opportunity offers, and occasionally Toowoomba, but beyond this nothing has been attempted.

The great breeding ground of the unoccupied lands makes it hopeless to expect that by any statute this State can be freed from plant diseases, but by a careful watch in the orchards and in the markets, the evil might be minimised, and the introduction of new diseases prevented. To effect this, however, a large staff of inspectors would be required.

MARSUPIALS DESTRUCTION ACTS.

The following is a table of operations in respect of marsupial destruction since legislation was first introduced on the subject in 1877 until 30th June, 1906, with the exception of the years 1891 and 1892, when no Marsupial Act was in force:—

PARTICULARS OF DESTRUCTION.

Year.	Kangaroos and Wallaroos.	Wallabies.	Bandicoots, Paddamelons, and Kangaroo Rats.	Dingoes.	Total.	Bonus Paid.	Government Endowment.
1877-1878-1879...	1,171,427	595,531	...	...	1,766,958	£ 31,056 s. 0 d. 5	£ 21,967 s. 15 d. 8
1880-1881 ...	...	No Returns.					
1882	424,651	551,276	...	...	975,927	19,272 2 0	4,429 4 5
1883	361,450	684,554	...	...	1,046,004	24,550 4 6	18,322 14 9
1884	380,625	570,290	...	...	950,915	24,140 4 9	12,912 2 8
1885	312,139	486,913	2,113	74	801,239	21,846 12 10	11,088 8 2
1886	284,897	449,656	13,207	9,833	757,593	*20,500 0 0	11,143 18 3
1887	175,363	316,946	8,925	11,525	512,759	17,542 18 4	12,844 14 0
1888	275,729	445,080	24,377	19,552	764,738	27,235 11 2	13,193 4 0
1889	312,476	353,994	27,424	19,570	713,464	26,741 1 11	14,617 9 10
1890 to 1 Feb., 1891	259,208	375,269	38,776	14,220	687,473	21,596 4 3	17,697 2 0 7,231 13 3
1891-1892 ...	...	No Act in force.					
1893-1894-1895...	...	No Returns furnished.					
1896	288,658	522,653	24,449	16,782	852,542		
1897	717,717	601,307	177,811	26,000	1,522,835	Estimated at 106,450 0 0	16,959 4 1
1 Jan. to 30 June, 1898	290,163	298,078	6,505	11,090	605,836		
1898-1899 ...	823,700	851,022	36,138	24,447	1,735,307	44,392 6 8	13,030 8 9
1899-1900 ...	634,223	620,109	29,912	20,331	1,304,575	35,318 16 10	15,155 10 6
1900-1901 ...	413,992	816,300	40,517	24,939	1,295,748	33,118 13 0	15,329 12 2
1901-1902 ...	281,445	751,061	30,684	21,289	1,084,479	29,613 13 7	11,163 1 7
1902-1903 ...	282,770	636,856	48,768	18,148	986,542	22,922 0 10	11,775 15 8
1903-1904 ...	53,301	190,353	9,279	12,477	265,410	9,901 6 2	5,819 8 0
1904-1905 ...	81,892	208,631	36,164	10,176	336,863	11,272 16 2	4,176 15 8
1905-1906 ...	109,349	339,815	84,887	19,420	553,471	13,964 19 1	4,699 18 9
Total ...	7,935,175	10,665,694	639,936	279,873	19,520,678	£541,435 6 6	£243,558 2 2

* Estimated.

From the above table it will be seen that there has been an increase in the number of scalps of marsupials and dingoes paid for during 1905-6 of 216,608 on the number for the previous year, with a corresponding increase in the amount of bonus paid by the various boards of £2,692 2s. 11d. The amount of Government endowment granted during the same period shows an increase on the figures for the previous year of £734 15s. 11d.

It will not be long before foxes will have to be included under this Act. Their presence has already been felt by sheep-owners in the South-west corner of the State, into which they have penetrated from New South Wales.

"THE MEAT AND DAIRY PRODUCE ENCOURAGEMENT ACTS, 1893 TO 1904."

Advances and Repayments.—During the year the only advance actually made has been a further payment of £187 to the Port Curtis Co-operative Dairy Company, Limited, on the security of their butter factory at Gladstone. The Peak Downs Butter Factory Company, Limited, has removed its factory from Capella to Emerald, and an advance of £300 towards the cost of removal has been authorised, while an application has been received from the Ayr Co-operative Dairy Company, Limited, for an advance towards the cost of the erection of a cool room in connection with their factory.

All repayments have been duly made by companies, with the following exception:—The Selma Meat Extract Company, Limited, has had another year's extension. The Charleville Refrigerating, Preserving, and Boiling-down Company, Limited, has asked to be allowed to discontinue payments of redemption for some time, while still keeping up the interest payments, and the question of the first instalment of interest by the Peak Downs Co-operative Dairy Company, Limited, has been allowed to stand over till January, 1908. No satisfactory arrangement regarding the Broadsound Meatworks having been arrived at, the Board entered into possession, and negotiations are now proceeding with respect to the disposal of the works. The buildings and land of the Mount Walker Creamery have now been sold, and it is expected that the machinery will before long be realised on at a satisfactory figure. The Wallumbilla Creamery and the Mackay Meatworks are still on the Board's hands, though it is expected that the former will soon be disposed of.

During the year the whole advance of £1,200 from the Southern Dairy Fund on the Gympie Butter Factory was repaid, the Wide Bay Co-operative Dairy Company, Limited, which purchased the concern from the Silverwood Dairy Factory Company, Limited, being granted a loan of £600 from the vote for Loans in Aid of Co-operative Agricultural Production.

The amounts now available for advances from the funds are:—

	£	s.	d.
Meat Fund	Nil.		
Dairy Fund—			
Southern District	Nil.		
Central District	1,000	0	0
Northern District	2,000	0	0
Carpentaria District	400	0	0

The total amounts advanced to companies are:—

Meat Fund.

	£	s.	d.
Southern District	30,582	0	0
Central District	28,852	15	0
Northern District	38,102	10	0
Carpentaria District	2,900	0	0
Total	£100,437	5	0

Dairy Fund.

	£	s.	d.
Southern District	10,763	8	8
Central District	2,587	0	0
Northern District	1,821	0	0
Carpentaria District	Nil.		
Total	£15,171	8	8

The total amounts of advances outstanding on the 30th June, 1907, were:—

Meat Fund.

	Interest. £	s.	d.	Principal. £	s.	d.	Totals. £	s.	d.
Southern	138	6	7	15,044	7	4	15,182	13	11
Central	1,068	6	7	16,585	18	5	17,654	5	0
Northern	1,093	9	9	16,272	17	4	17,366	7	1
Carpentaria	34	11	4	2,145	19	4	2,180	10	8
Totals	£2,334	14	3	£50,049	2	5	£52,383	16	8

Dairy Fund.

	Interest. £	s.	d.	Principal. £	s.	d.	Totals. £	s.	d.
Southern	24	0	2	2,618	2	8	2,642	2	10
Central	307	14	11	2,587	0	0	2,894	14	11
Northern	112	11	11	1,792	10	6	1,905	2	5
Carpentaria	...			...			...		
Totals	£444	7	0	£6,997	13	2	£7,442	0	2

Expenditure of £1,115 9s. 11d. on the Mackay Meatworks and of £200 on the Broadsound Meatworks, since they were taken possession of by the Board, is not included in above statements.

The amounts repaid by companies during the year were:—

Meat Fund.

	Interest. £	s.	d.	Principal. £	s.	d.	Totals. £	s.	d.
Southern	623	8	6	2,391	2	2	3,014	10	8
Central	472	0	6	2,178	15	0	2,650	15	6
Northern	510	2	1	2,479	14	5	2,989	16	6
Carpentaria	96	5	8	261	5	4	357	11	0
Totals	£1,701	16	9	£7,310	16	11	£9,012	13	8

Dairy Fund.

	Interest.			Principal.			Totals.		
	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*
Southern ...	144	7	9	1,450	16	0	1,595	3	9
Central ...	...			...			...		
Carpentaria ...	...			...			...		
Northern ...	...			...			...		
Totals	£144	7	9	£1,450	16	0	£1,595	3	9

REFUNDS TO CERTIFICATE HOLDERS.

No further refunds to certificate holders were made during the year, the total now repaid being:—

	£	*s.*	*d.*
Southern District ...	32,081	16	10
Central District ...	29,307	1	2
Northern District ...	16,880	10	2
Carpentaria District ...	3,407	17	1
Expenses ...	522	8	2
Totals ...	£82,199	13	5

A refund has been authorised as from the 1st of August, at the following rates:—

Meat Fund.

Southern District ...	3s. in the £1.
Central District ...	3s. „
Northern District ...	4s. „
Carpentaria District ...	3s. „

Dairy Fund.

Southern District ...	7s. „

This latter being the first payment from the Dairy Fund.

Statements showing receipts and expenditure from the inception of the funds and details of the outstanding loans on the various works are included in the Auditor-General's Report for this year.

VOTE FOR LOANS IN AID OF CO-OPERATIVE AGRICULTURAL PRODUCTION.

The following advances have been made to companies during the past year:—

£160 to the Bundaberg Co-operative Dairy Company, Limited, to cover half the cost of the installation of a new boiler.

£600 to the Wide Bay Co-operative Dairy Company, Limited, on account of the butter factory at Gympie, which they have purchased from the Silverwood Dairy Factory Company, Limited, as previously mentioned.

£1,000 to the Maryborough Co-operative Dairy Company, Limited, on the security of their new butter factory at Kingaroy, while a further advance of £750 is at present being made on the same works.

Particulars of advances from this vote are as follows:—

	£	*s.*	*d.*	£	*s.*	*d.*
Total amount advanced to date ...		...		8,584	0	0
Amounts repaid this year—						
Interest	57	0	0			
Redemption	142	13	1	199	13	1
Total amounts at present outstanding are—						
Interest	24	0	11			
Redemption	3,038	13	2	3,062	14	1

It is with considerable regret that it has to be reported that Mr. Robert Ferguson, who has been the Board's surveyor since 1894, died in August last, the Board thereby losing the services of an able and esteemed officer. Mr. Arthur Morry, formerly an inspector of the Works Department, was appointed to the vacant position.

The vacancy on the Board caused by the resignation of Mr. James Kemp, which was referred to in the last report, was filled by the appointment of Mr. W. D. Lamb, of Yangan. In February last, the Hon. W. Villiers Brown, M.L.C., tendered his resignation as a member of the Board, owing to inability, caused by absences from Brisbane, to attend the meetings.

NATIVE ANIMALS PROTECTION ACT.

A measure of protection for certain native animals—the native bear, opossum, tree-kangaroo, wombat, platypus, hedgehog, and the flying squirrel—has, after many years, come into operation; but in its present form it is somewhat of a negative protection in so far that the machinery at hand is not directly sufficient for a proper protection, and in this respect the native animals come within the same category as the native birds. The trade in skins is very profitable, and the prosecution of it is becoming a noticeable industry, as is evidenced by the sales in the markets. It is estimated that before the Act came into operation and enforced a close season for opossums and bears, the skins of these two animals that were bought and sold in twelve months numbered nearly 3,500,000, of the value of about £131,000; one firm alone having transactions to the number of 850,000 skins, of the value of £36,000. Queensland would appear to be the general source of supply for these skins, as it has been ascertained that during three months of the year about 2,000,000 opossum skins were sold in London, of which about two-thirds came from this State. Information concerning the sale of native bear skins in London is meagre and somewhat difficult to obtain, but during April some 46,000 skins were sold, practically all from Queensland. Consideration of these figures indicates that this Act has not come too soon, otherwise these animals, like the bison of North America, would before many years have become extinct, and I venture the opinion that a similar measure of protection for other of the native fauna will be needed before many years are past. The kangaroo and the rock wallaby have now been excluded from the benefits of the Marsupials Destruction Acts, principally because their numbers have been seriously decreased, and partly because their skins are of sufficient value to warrant the exclusion of them from a bonus; but so long as skins remain at the present price, so long will destruction proceed, and unless steps are taken for the protection of these and other native animals by the enactment of a close season, the native animals of Queensland will come within the same class as the moa of New Zealand, and the observations made by those who are in a position to know the extent of the destruction of the native bear have caused the further protection of this animal to the 31st December next, and it is intended to continue the protection during 1908 at least. The easy method of the destruction of the bear and the opossum by poisoning, and the easy living to be obtained by following the calling, is having an effect on the quality of labour offering in some of the country towns, and it is not an uncommon thing for farmers to be unable to obtain local help owing to the inducements of opossum hunting. The calling has also a weakening influence in so far that it unfits those who are enamoured of it for regular work. The Act has only been in operation for six months, so the value of it cannot yet be properly estimated.

SHEARERS' AND SUGAR WORKERS' ACCOMMODATION ACTS.

The obstacle to the proper administration of this Act having been removed by the legislation enacted during last session, the general exemptions granted during 1906 have not been continued for 1907, exemptions for this year having been given in exceptional cases only. The reports received from the inspectors, as required by the principal Act, show that, notwithstanding the delay caused by the incompleteness of the principal Act, employers as a whole, as soon as their position was made clear by the Amending Act and the Regulations, have endeavoured to fulfil what is required of them with as little delay as possible, and, in so doing, are following the spirit of the Acts, rather than the strict letter of the law. This excellent result from the one portion of those amenable will, it is hoped, be fairly met by excellent results from those whom the Acts were framed to benefit, and that those buildings which have and are being erected for the benefit of the employees will be treated with care, and be kept in a proper and cleanly order. The increase in the cubic space for each person in the sleeping-rooms from 240 cubic feet to 360 cubic feet, and the requirement that the walls shall be 9 feet in height has removed an opportunity for minimising the comfort of those occupying the rooms, for under the first-mentioned area, it was possible to comply with the Act and yet provide rooms that during the hot nights in some parts of the State would be almost unbearable. The provision permitting the use of a portable plant has been availed of to a considerable extent, and is without doubt a great benefit not only to the smaller owner but to others; but a tendency has been observed, in order to get a shearing done quickly, to evade the Act by the employment of more shearers than are allowed. In one instance, nothwithstanding that the provisions of the Act were fully explained, the owner of a portable plant commenced work with five shearers in excess of the proper number, and it was necessary, in order to enforce the provisions of the Act, to proceed against him; but this, happily, was the only prosecution during the year.

From the reports of the inspectors there would seem to be a feeling that shearers receive advantages under these Acts that are or may be denied to those who are regularly employed, and that, consequently, the latter should be brought under their provisions. With sugar workers it is different, because the definition of the term includes all who are employed in or about a sugar plantation. If, therefore, the whole of those employed in one industry receive the benefits of the Acts, it would seem but fair that those benefits should be also shared by those employed in or about a holding on which sheep are carried, and where men are employed in excess of the minimum provided.

IL 354/7 Connolly - Report on Mayers Farm - Interesting to shows the difficulties of working the Act.

All applications during 1907 for exemption have been dealt with upon their merits after investigation into the reasons advanced for the request made.

The whole or partial exemptions numbered 245.

The applications for whole or partial exemption numbered 250.

SPECIAL AGRICULTURAL SELECTIONS ACT, 1905.

It is probable that no body of men in Queensland, with their families, have started farming with the advantages that those who were selected as members of this group commenced their life upon the land allotted to them. The rent of their land has been paid on their account, money has been advanced for rations, clothing, tools, and other necessaries, and an overseer has been appointed to direct and guide them through the difficulties that must inevitably be met in the early stages of farm life in virgin country. The first contingent left Brisbane in July, 1906; but, notwithstanding the advantages offered, and the many claimants for those advantages, it was not until June, 1907, that all the selections, twenty-three in number, were occupied.

As soon as the land was ready for occupation, seventy-five families were selected from the applicants at that time, from whom, after due inquiry, the members of the group were chosen. The difficulties in finally filling the selections will be more readily understood from the following:—

The families who were invited to join the group numbered	61
The families who refused the invitation after having made application numbered	22
The applicants who, after accepting, declined numbered	9
Families that have left the group after joining numbered	7

The reasons given in the last report for refusals after acceptance may be taken as an index of the generality of reasons given, or, in other words, that the applicants, on closer investigation of the circumstances as defined by the agreement the members are called upon to sign, did not find the promised land as easy a job as they expected.

At one time there were signs that some of the members residing on the area appeared to think that there was no need to work hard, and, as a result of an inquiry into the matter, two members were required to withdraw, and a third cautioned as to his future conduct. The warning had an effect upon the man, but, as his family abandoned the selection, he was perforce required to retire also, because the essence of this Act being the settlement of families, single men or men living apart from their families are debarred.

The experience of the year has shown that the difference between those who have received the advantages of this Act and the ordinary selector, who works and tries hard until he has turned the corner, is very wide indeed. The man who has to fight his own way makes the best of what he has or what he can fashion or produce without murmuring, in the hope that by hard and continuous labour fortune will smile upon him, and his home will be secured for himself and his family. With some of those who have received assistance from the Government, on the other hand, it would seem that they consider themselves badly treated if anything they ask for is refused. Meetings to raise agitation to secure certain ends that were desired, but which could not be allowed, were held for attaining the objects desired. If that which was asked for was not granted, a meeting would be held denouncing the overseer for his refusal.

I do not wish in the statements made to include the whole. A certain proportion, though without much knowledge, have been and are still trying their best to overcome difficulties, and become by experience farmers.

Under the Regulations a selector is allowed to borrow £80 towards the purchase of clothing, rations, and means of living generally, and £60 for tools, implements, stock, &c.; but he is not allowed, unless under exceptional circumstances, to actually disburse the money. An order is given, subject to the overseer's approval, for whatever the selector may require, and he has the option of choosing the tradesman from whom the goods are to be purchased if he so desires. Experience has shown that it has been impossible to work on the exact limit of the Regulations. Families differ in number and are of various ages, and what may be ample for one family may be very short allowance for another, therefore it has been necessary to somewhat exceed the limit in some cases.

The facilities for sending cream to the factory at Maryborough has been another reason for increasing the individual indebtedness with the view of shortening the time when the members of the group would be self-supporting. Bulls and cows have been purchased and sold at cost price, and members receiving them have to sign an agreement that as soon as five cows are in milk they will cease to receive rations and clothing. The efforts in this direction have been somewhat hindered by a disastrous outbreak of redwater among 100 head of heifers bought for the group. Unfortunately, the mob arrived at Wetheron, on their way to Gayndah, just at the time when the river and the creeks were in high floods, and the cattle could not cross. They were placed in a paddock that offered grass and water, but very soon developed tick fever and were decimated. The position of affairs at the present time can be best summed up in the following manner: In July, 1906, the group entered into possesion of an area

of 4,391 acres, that was in a virgin state, and had been used as part of a cattle station. In July, 1907, this land was occupied by 23 families, numbering 174 souls, consisting of 23 men, 23 women, and 128 children. The stock consists of 22 horses, 111 cattle, 15 pigs, and 20 poultry.

The improvements effected are:—

Fencing Wire Fence—Chains.	Acres Cleared.	Acres Cultivated.	Acres Ringbarked.	Dam—Square Yards.	Houses.	Dairies.	Piggeries.
874	59	50	708	164	19	6	10

Cow Yard.	Posts Erected, Bored — Chains.	Posts Erected, not Bored—Chains.	Fowlhouses.	Slabs.	Paling Fence—Chains.	Posts Split.
7	97	130	1	1,415	54	750

The total cost of accomplishing this is £4,445, or £193 for each family, if all charges, such as debts incurred by those who left the group after joining, are included, otherwise £176 for each family.

Whether all those included in the group will become successful farmers remains to be seen. Some of them will certainly try hard so to do, but the majority have no practical experience and initiative, and their wives equally are lacking in knowledge of dairying matters. For example, there have been seventeen families on the land for over six months, and it would have been expected that in a small matter like poultry the returns would have shown more than twenty head, or an average of about one bird for a family. Horses, cattle, and pigs cost more money than was probably at the command of those forming the group; but in such a small, and yet valuable, matter as poultry, with an unlimited run for the birds, it was thought greater individual effort and progress would have been made towards supplying this means of existence.

The serious illness of Mr. Howard Newport at the time he was preparing his report as Instructor in Tropical Agriculture has prevented the inclusion of the report on that subject for this year.

Appended are reports from—

The Principal of the Agricultural College.
The Chemistry Division.
The Instructor in Fruit Culture.
The Colonial Botanist.
The Entomologist and Vegetable Pathologist.
The Tobacco Expert.
The Manager of the State Farm, Westbrook.
The Manager of the State Farm, Hermitage.
The Manager of the State Farm, Biggenden.
The Manager of the State Farm, Gindie.
The Manager of the State Farm, Roma.
The Manager of the State Nursery, Kamerunga.
The Director of the Botanic Gardens.
The Trustees of the Queensland Museum; and
The Report of the Government Statistician on Agricultural and Pastoral Statistics for 1906.

The report required by "*The Sugar Experiment Stations Act of* 1900" and "*The Agricultural Bank Act of* 1901" are in course of preparation and will be tabled in both Houses at an early date.

I have, &c.,

ERNEST G. E. SCRIVEN,

Under Secretary.

REPORT, QUEENSLAND AGRICULTURAL COLLEGE.

SIR,—I have the honour to submit the following report on the work carried out at this institution for the year ending 30th June, 1907, and in compiling this report it is intended to deal briefly with the many subjects connected with the general work of the College.

It is pleasing to note that the year's work has been the most successful during the history of the institution. No sickness or accidents of any importance occurred. It is also a noticeable fact that there has been a greater desire to acquire knowledge; this has been brought about to a great extent by the raising of the age of admission. The results of the examinations, as shown on the grade sheets, are highly creditable. The following examinations were conducted by independent examiners:—Agriculture (Mr. W. Lamb), Dairying (Mr. R. Winks), Chemistry (Mr. Brünnich).

There have been four changes in the teaching staff during the year. Mr. Graham, Dairy Instructor, severed his connection with the College in order to fill the more remunerative position of manager of the Farmers' Co-operative Dairy Company, Booval. Mr. Cory, the Veterinary Surgeon, has also resigned his position, and has left the State; his work is now entrusted to Mr. Veterinary Surgeon Tucker. Mr. Jordan, the carpenter, has also resigned his position, and has been succeeded by Mr. Aberdeen. It is a well-known fact that frequent changes in the staff are certainly not conducive to good results, and students must suffer.

A great deal of important work has been carried out during the period under review, such as clearing land, drainage work, irrigation, road-making, erection of silos, &c.

The number of students in attendance has equalled that of past years. In June, 1906, we closed with an attendance of fifty-six, of these, fifteen, including Student Philp (temporarily disabled through accident), did not rejoin. We gained in July and throughout the term seventeen, making an enrolment of fifty-eight for the last half of 1906. We lost eighteen in December, and have since enrolled seventeen (including Student Philp, rejoined), making the number at present on our books fifty-seven.

Mr. Pitt, the English and Mathematical Master, who conducts the entrance examinations, reports that, of the thirty-three new students who joined during the year he conducted examinations in the case of twenty-three; ten, being bursars or adult students, were not examined. Among the new comers, there were a few really brilliant lads, others were of very moderate attainments. The subjects dealt with during the year were—English, arithmetic, book-keeping, mensuration, and surveying (with instruments). In the first two subjects the lads dealt with were either newcomers or backward lads who had joined during the previous term. The progress made was consequently varied, being regulated by the standard of education attained by the students prior to joining the College. Some have done excellent work, as shown by the grade sheet, while others have done very poorly indeed. In the last three subjects the work has been more satisfactory, as in them the lads handled had been with us twelve months or two years, by which time most of the incompetents had dropped out of the classes, consequently there are not many instances in which fairly good results have not been obtained. Mensuration and surveying, except for boys who have a taste for figures and calculations, are not very popular subjects. The results obtained therein are not, therefore, so good as in the case of book-keeping, which is a favourite subject with almost all. Owing to the necessity for laying out roads, drainage, and irrigation works during the year, we were enabled to make the course, so far as surveying was concerned, of a far more practical nature than in past years. When students see actual work carried out as the result of levels taken and data obtained by them, they take a much greater interest in the work done than is the case when the surveys are made for a purely imaginary object.

Mr. J. F. Bailey, Lecturer in Botany, reports—

> That the students, as a whole, have evinced a great interest in the botany lectures, especially those which related to field work. The improvement made by the second and third years students was very noticeable, as the results of the examinations show.

In regard to the chemical laboratory, the Chemist reports as follows in connection with the work performed during the year under review:—

> The usual lecture work was carried out, the final examination for second and third year students in agricultural chemistry being set by Mr. Brünnich. The marks obtained by the students in this examination were very satisfactory, and Mr. Brünnich mentions that the classes had a good knowledge of the subject. Attached is a copy of the examination.
>
> In connection with the students' diaries, it must be mentioned that a decided improvement took place in the way they were kept towards the end of the last term.
>
> The conduct of the students while in the laboratory has been good.
>
> The following analyses have been conducted between lecture hours:—Soils, 4; water, 3; dairy salt, 1; fodders, 8; ensilage, 2.
>
> The analyses of the fodders were made in order to note the change in them when converted into ensilage in the three silos. The attached analyses refer to the ensilage made in the wooden silo. The bottom portion of this structure was filled with maize, the upper containing a mixture of maize and cowpea. These figures show very plainly the total percentage of carbohydrates when the fodder is converted into ensilage, though there is an increase in the soluble carbohydrates in the silage. The analyses also show the conversion of a considerable portion of the original proteid nitrogen into amide

nitrogen, and, though this is generally considered as showing a loss in feeding value, it may be stated that the feeding value of amide substances has not yet been determined. The very much "narrower" ration of the ensilage made from maize and cowpea shows the improvement gained by mixing cowpea with maize when making ensilage.

	Ensilage made from Maize.		Maize.		Ensilage made from Maize and Cowpea.		Cowpea.	
	Ensilage.	Dry Matter.	Green Maize.	Dry Matter.	Ensilage.	Dry Matter.	Green Cow-pea.	Dry Matter.
Moisture	78·75	...	78·46	...	77·50	...	78·97	...
Acetic Acid	·80	...	...	...	1·20	...	...	...
Lactic Acid	1·57	...	..	...	1·10	..	...	...
Total Proteid	·97	4·59	1·85	8·59	1·42	6·34	2·62	12·46
Soluble Proteid	·27	1·28	·62	2·88	·37	1·65	1·10	5·21
Insoluble Proteid	·70	3·31	1·23	5·71	1·05	4·69	1·52	7·25
Starch	·55	2·63	3·47	16·10	·67	3·00	1·43	6·79
Soluble Carbohydrates (Sugars, etc.)	1·75	8·23	1·23	5·71	1·89	8·44	·86	4·08
Digestible Fibre	5·84	27·48	6·22	28·87	4·99	22·17	3·87	18·40
Woody Fibre	5·75	27·07	5·31	24·65	6·31	28·05	5·77	27·46
Total Ash	1·35	6·39	1·24	5·75	1·99	8·86	2·16	10·27
Soluble Ash	·93	4·38	·48	2·22	1·28	5·71	1·14	5·42
Insoluble Ash	·42	2·01	·76	3·53	·71	3·14	1·02	4·85
Ether Extract	·26	1·26	·21	·98	·33	1·47	·50	2·39
Amides, Chlorophyl, etc. (by difference)	3·21	...	2·01	9·35	3·80	...	3·82	18·16
Total Nitrogen	·319	1·505	·385	1·787	·425	1·890	·610	2·905
Proteid Nitrogen	·156	·735	·295	1·369	·228	1·015	·419	1·995
Amide Nitrogen	·163	·770	·090	·418	·197	·875	·191	·910
Nutritive Ratio	1 : 12·3	...	1 : 7·2	...	1 : 8·5	..	1 : 4·2	...

AGRICULTURE.

The work in this division has been carried out under favourable conditions, which with the exception of during the months of April and May, continued throughout. The land for the various crops was thoroughly cultivated, and, in nearly every instance the moisture contained in the soil permitted the planting of the seeds in their proper seasons. Taken on the whole, the yields from the various crops raised was very satisfactory. The following is the rainfall for the twelve months:—

	Inches.		Inches.
1906—July	·41	1907—January	2·62
August	3·73	February	6·44
September	3·54	March	2·71
October	2·25	April	nil
November	2·01	May	2·80
December	3·45	June	1·85
		Total	31·81

In dealing briefly with the different crops raised, it may be mentioned that daily records are sent to the office, thus saving all complication in the compiling of the figures. The following are the particulars of the crops grown:—

Maize.—Sixty-seven acres were planted with corn. Of this area 34 acres were cut for ensilage. The varieties grown for the latter purpose comprised the following:—Golden King, Improved Horse-tooth, and Early Mastodon. These were planted on 14th December, with the "Tiger" double-row corn drill, the seeds being dropped every 12 inches, and the rows being 4 feet apart. Harvesting operations were carried out with the maize-binder from the 10th to the 23rd March. The green material was conveyed to the silos in the ordinary farm wagons, and there chopped up with a No. 17 Ohio ensilage cutter, at the rate of about 8 tons per hour. The following varieties were grown for grain:—Sydney Red (yield, 18 bushels per acre), Early Red Hogan (26 bushels), Balderman, Early Mastodon, Piasa Queen (last three not yet shelled), Improved Horsetooth (12 bushels), Golden King (18 bushels). The yield from the two last-mentioned varieties was considerably lessened through want of rain during the flowering period. The experiment carried out last year in connection with the manuring of maize on Section 2 was repeated this year. The object of this was to test the efficacy of the manures on the second crop. Early Red Hogan maize was used for the experiment. Details will be found elsewhere.

Hay Crops.—Altogether nearly 50 acres were occupied with oats and wheat, which were converted into hay. With the exception of a small patch of 2 acres, the crop was a very satisfactory one. The quality was good, and, moreover, it was secured in first-class order.

Lucerne.—The season proved somewhat erratic for this crop. During spring and early summer moisture was abundant, and heavy cuttings were obtained; the latter portion of the year was, however, unfortunately, dry, consequently light cuttings were the result. Irrigation was resorted to during the month of May, 15 acres of Creek Paddock No. 1 being treated. Water was applied at the rate of 4 inches per acre, at an approximate cost of £1 5s. Fortunately, operations were stopped by a fall of over 2 inches of rain, consequently the full effect of the watering could not be seen. An experiment to test the efficacy of the various manures in connection with lucerne-growing was carried out in the Gatton

Paddock. Some interesting data were obtained, which will be found in a tabular form in another portion of this report. The area of the respective plots was 1 acre. Only a small area of a little over 4 acres was laid down in lucerne during the year. This is being used for pig-grazing purposes.

Barley.—Six acres of malting barley was grown in Creek Paddock No. 2. The yield was at the rate of 20½ bushels per acre. The grain was plump, of good colour and quality. Several varieties of both Cape and malting types were experimented with in Section 13. The yield from the respective sorts was fairly satisfactory, although colour and quality varied somewhat. Details as to yield will be found amongst the experiments.

Setaria.—Only 6 acres were put under Panicum. This was planted on 2nd November, in Creek Paddock No. 2. The weather after planting was not too favourable for germination. The crop was, consequently, somewhat irregular. Unfortunately, wet weather was experienced when in the stook; this spoiled the material for hay. It was, however, run through the thresher, and yielded 48 bushels of seed. The straw is being pressed and put on the market at a very satisfactory price.

Sorghums and Millets.—Nine varieties of green fodders were planted on 21st December, Section 9. Although the yield was not quite so heavy as in the previous year, still the quality was much better. The bulk of the crop was harvested on 26th March, for ensilage, together with 6½ acres of maize. A small area (1-5th-acre) was reserved for seed. This was secured on 24th April, the heads being cut off and put through the thresher. The following table gives the weight of green stuff and the yield of seed per acre:—

	Green Stuff. Tons	cwt.	qr.	Seed. Bushel.
Black Sorghum	30	12	2	20
Early Orange Cane	33	10	1	26
Planters' Friend	34	5	3	24
White Kafir Corn	16	18	0	34
Red Kafir Corn	31	14	3	45
Mazzagua	46	19	0	Nil
Bottle-brush Pearl Millet	22	4	1	30
Bullrush Pearl Millet	21	18	2	31
Mazzagua (second year's crop)	35	11	1	Nil

Root Crops.—*Mangels.*—The variety grown was the Long Red, the keeping qualities of which are exceptionally good. They were planted at the latter end of May, at the rate of 5 lb. of seed per acre, and lasted well into February, when they showed signs of rotting. They were used mostly for pig-feeding purposes.

Swede Turnips (Laing's Purple Top).—These were planted at the same time as the mangels, at the rate of 3 lb. of seed per acre. Before reaching maturity the crop was infested with aphis, which checked the growth and lessened the yield. The weight of roots per acre was 10 tons.

Rape.—This is one of the most easily raised crops of the Brassica family, producing, as it does, large quantities of green stuff, which is relished by cattle, sheep, and pigs. This crop was mostly used up by the latter during the months of August and September. It was grown in rows 3 feet apart, 3 lb. of seed being used to the acre.

Sweet Potatoes.—Two and one-half acres of cuttings were planted out during the second week in November. The result has been very satisfactory, the tubers being large and of good quality. The weight of yield per acre of the four sorts grown is as follows:—

	Tons	cwt.
Rosella	8	2
Spanish Giant	10	4¾
Yellow Spanish	10	5
White Maltese	11	17½

English Potatoes.—On 29th September, 1½ acres of Brownell's Beauties were planted in the Garden Paddock. This area gave a yield of 6 tons 15 cwt. Another area of 6½ acres was planted in the Sheep Paddock on 15th February. The dry conditions prevailing during the months of April and May had a detrimental effect on the crop. The yield in this case was 12 tons 16¾ cwt. Five sorts were planted in Section 3. The quality of the seed was not too good, and the returns suffered in consequence.

Pumpkins.—12½ acres of pumpkins were grown, comprising the following varieties:—Mammoth Cattle, Big Tom, Ironbark, Crown, Rio, Japanese, Large and Small Button, and Silver Nugget. Most of the sorts did well, the average yield being 7 tons per acre.

Sunflower.—The variety experimented with was the Large Russian. The seed was planted in rows 4 feet apart on 15th December. The returns were most satisfactory, 45 bushels of clean seed being secured from the 1 acre grown.

Broom-Millet.—A small area was planted on 31st December, in rows 3 feet apart, thinned out to 6 inches between the plants. The brush was of good length, the fibre strong and of good quality. The weight of the fibre, after cleaning and grading, was 530 lb. to the acre; 3½ cwt. of clean seed was also secured.

Canary Seed.—A trial plot was sown on 31st May, on Section 4. A very fine even crop was the result. Harvesting took place on 15th November, when it was stored in the hayshed. It has not yet been threshed out.

Upland Rice.—An unsuccessful attempt has been made to grow this crop. During the month of September, trial plots were planted in different parts of the farm, but, notwithstanding the fact that irrigation was resorted to, only a small quantity of seed has been saved for planting next year. Although the crop grew very well, and reached a height of 18 inches, it did not mature, with the exception of a few

plants. The results obtained do not warrant my reporting favourably or otherwise regarding the growth of rice in this district. It is intended, however, to make a further trial with this crop.

Cotton.—No fresh planting was done during the year. The results obtained last season from allowing the crop to stand over were so satisfactory that it was decided to again prune the bushes and attempt a third crop. During the winter a few plants died out in several of the varieties. One variety was conspicuous in not being affected in this manner—viz., Culpepper—in fact, it appeared just as robust and healthy after bearing the third crop as when it bore the first. Several points seem to be in favour of allowing this crop to stand over—viz., it matures much earlier than the plant cotton, minimising the risk of early frosts; the bolls open more regularly, most of the cotton being secured in two pickings; no replanting has to be done. The yield from the eight varieties grown is as follows:—

	Lb.
Culpepper	230
Tool's Early Improved	160
Lewis Prize	157
King's Early Improved	156
Jones's Reimproved	151
Peterkin	146
Griffin	112
Russell's Big Boll	108
Total yield from an area of 1 acre ...	1,220

There is still a small picking to be removed, which will bring the total yield per acre to at least 12 cwt.

English and American Grasses.—Planted 16th May, 1907:—

Cocksfoot (*Dactylis glomerata*).
Perennial Rye Grass (*Lolium perenne*).
Annual Sweet Vernal (*Anthoxanthium odoratum*).
True Sweet Vernal (*Anthoxanthium odoratum*).
True Golden Oat Grass (*Avena flavescens*).
Woolly Softgrass (*Holcus lanatus*).
Knotted Hairgrass (*Aira flexuosa*).
Turfy Hairgrass (*Aira coespitosa*).
Wood Meadowgrass (*Poa nemoralis*).
Roughstalk Meadowgrass (*Poa trivialis*).
American Creeping Bentgrass (*Agrostis vulgaris*).
German Creeping Bentgrass (*Agrostis stolonifera*).
Field Brome Grass (*Bromus arvensis*).
Meadow Brome Grass (*Bromus pratensis*).
Tall Meadow Oat Grass (*Avena elatior*).
Reed Canary Grass (*Phalaris arundinacea*).
Pine-leaved Fescue (*Festuca ovina augustifolia*).
Hard Fescue (*Festuca duriuscula*).
Meadow Fescue (*Festuca pratensis*).
Red Fescue (*Festuca rubra*).
Sheep's Fescue (*Festuca ovina*).
Various-leaved Fescue (*Festuca heterophylla*).
Timothy Grass (*Phleum pratense*).
Italian Rye Grass.
Canary Grass (*Phalarium canariensis*).
Crimson Clover (*Trifolium incarnatum*).
Yellow Trefoil (*Medicago lupulina*).
Common Birdsfoot Trefoil (*Lotus corniculatus*).
Simple Sainfoin (*Hedysarum onobrychis*).
Giant Spurry (*Spergula maxima*).
Kidney Vetch (*Anthyllus vulneraria*).
White Dutch Clover.
Red Clover.

The above grasses are in the experimental stage only, and, therefore, nothing definite can be written regarding them.

Irrigation.—A plant, with a capacity of 70,000 gallons per hour, has been installed and utilised with a considerable amount of success. As it was not till the latter part of the season that the erection of the plant was completed, very little can be said further, save that the machinery is working satisfactorily. There is ample water in the Lockyer Creek to keep the plant in constant work, and, now that we have irrigation drains prepared, we should be able to successfully demonstrate good work in this direction, especially in the line of lucerne growing.

Drainage.—A considerable amount of surface drainage has been carried out in connection with the farm work. The land drained is already showing beneficial results from the work done.

Road-making.—A good deal of time has been spent in the direction of road-making and repairing roads within the College property. It may now be claimed that we have a good road from the College

railway siding to the Tarampa road. The work of formation was done by the College bullock team with the "American Champion Road-maker." The low cost of road-making by the use of this machine is an object lesson not only to students but also to farmers.

Clearing and Making Additional Land Ready for the Plough.—Durig the year 100 acres of additional land have been cleared and made ready for the plough, at a cost of about £1 12s. 6d. per acre. The object of having this land put under cultivation is to lay down a large area of the land on the creek bank under grasses, with a view to testing their value for grazing purposes. The students enrolled during the year have had a good opportunity for learning and getting an insight into the work a new selector is likely to have to perform, especially in connection with the clearing of land, road-making, &c. Attached is the examination-paper on agriculture set by Mr. Lamb, together with his report on the results achieved.

CROPS REMOVED, 1st JULY, 1906—30th JUNE, 1907.

Paddock.	Plot.	Crop.	Area. A.	R.	P.	Yield.
Farm	3	Cotton	1	0	0	1,220 lb. cotton
	3	English potatoes	3	2	0	3 tons 10 cwt.
	4	Canary seed	0	2	6	2 tons 16 cwt. hay
	6	Swedes (Laing's Imperial) ...	3	1	35	
	7	Dwarf Essex rape	1	1	26	9 tons 3 cwt.
	8	Long Red Mangolds	4	2	0	62 tons
	8	Dwarf Essex rape	0	2	0	3 tons 5 cwt.
	11	Lucerne	15	0	0	38¼ tons (four cuttings)
	12	Pumpkins (Sil. Nugget) ...	3	0	30	5 tons 2 cwt.
	13	Varieties barley	4	3	10	125 bushels seed barley
	14	Manitoba wheat	10	3	0	30 tons 7 cwt. hay
	15	Baltic red wheat	4	3	0	17 tons 11½ cwt. hay
	16	Allora spring wheat	4	3	0	11 tons 1¼ cwt. hay
	17	New Zealand oats	2	1	0	6 tons 13½ cwt. hay
	18	Algerian oats	1	3	0	5 tons 1 cwt. hay
	21	Maize	12	0	0	165 bushels
	5	Cattle pumpkins	3	0	0	20 tons
	5	Clay cowpeas	2	0	0	ploughed in for green manure
	1	Imp. Horsetooth maize ...	3	3	5	33¼ tons ensilage
	2	Early Red Hogan maize ...	4	0	0	167½ bushels
	3	Popcorn	0	1	35	not yet shelled
	3	Clay cowpea	0	2	22	23 bushels seed
	6	Sunflower	1	0	0	45 bushels seed
	9	Sorghums and millets ...	4	2	3	80 tons ensilage
	9 and 10	Broom millet	0	3	35	515 lb. fibre, 420 lb. seed
	12 and 13	Maize	18	0	0	87 tons 7 cwt. ensilage
	14	Amber cane	6	2	10	22 tons 18 cwt. ensilage
	15	Big Tom pumpkins	2	0	0	18 tons
	16	Mammoth Cattle pumpkins ...	2	2	0	22½ tons
	18	Panicum	1	0	0	4 bushels seed
	5	Cattle pumpkins	2	0	0	14 tons
	3	Varieties of potatoes	2	2	25	5 tons 18½ cwt.
Bull	4	Root crops (mixed)	1	0	0	9 tons 12 cwt.
Garden	1	Sweet potatoes	3	0	0	26 tons, 8¼ cwt.
	2	English potatoes	1	2	28	6 tons 15 cwt.
	3	Maize	6	0	15	140 bushels
	4	Sweet corn	1	2	0	Used as vegetable
	5	Sweet potatoes	2	2	0	25 tons 5¾ cwt.
	2	Silver Nugget pumpkins ...	1	2	28	13 tons 9 cwt.
Creek 1	1	Algerian oats	18	0	8	25 tons 17¼ cwt. hay
	2	Lucerne	20	2	18	76 tons 11½ cwt. (five cuttings)
Creek 2	1	Lucerne	17	2	0	Ploughed ont
	2	Malting barley	6	0	0	123 bushels seed and 4 tons straw bedding
	3	Algerian oats	6	0	0	8½ tons hay
	1	Panicum	6	0	0	48 bushels seed and 6 tons straw bedding
Calf	1	Lucerne	4	3	22	4 tons 17½ cwt. hay (two cuttings)
Sheep	1	English potatoes	6	2	0	12 tons 16¾ cwt.
Gatton	1	Lucerne	28	1	14	84 tons 9 cwt. hay (five cuttings)
Hill	...	Vines	1	0	0	Ploughed out
Garden	6	English potatoes (Exp.) ...	1	0	0	1 ton 14½ cwt.
		Crops that failed.				
Farm	1	Velvet beans	0	2	0	
	1	Rice	1	0	35	
	3	Millets (varieties)	0	2	0	
	3	Pumpkins	1	0	0	
	4	Rice	2	1	30	
	4	Flax	0	2	24	
	6	Cape barley	2	0	0	
	7	Rice	2	0	28	
	20	Oats	6	3	36	
Garden	...	Rice	0	2	12	
	...	Sweet corn	0	2	0	
	...	Experimental potatoes ...	1	0	0	

SUMMARY.

	A.	R.	P.
Area from which crops were obtained	262	2	15
Area on which crops failed	19	2	5
Total area placed under farm crops	282	0	20

STANDING CROPS, 30TH JUNE, 1907.

Paddock.	Plot.	Crop.	Area. A.	R.	P.
Farm	1	Rye	3	1	10
	3	Cotton	1	0	0
	4	Skinless barley	1	1	14
	4	Mangolds	1	0	20
	4	Rice	2	2	6
	5	Cape barley	5	0	0
	6	Cape barley	5	0	0
	7	Swede turnips	2	0	36
	7	Canary seed	2	0	30
	8	Swede turnips	1	3	10
	8	Rape	0	3	7
	8	Mangolds	2	1	23
	9	Mazzagua	0	0	37
	9	Sorghums (second crop)	3	2	19
	10	Mazzagua	0	1	30
	10	Grasses	1	2	0
	11	Lucerne	15	0	0
	11A	Paspalum	0	1	30
	12	Tartarian oats	46	2	27
	13	New England (Sidling's) Tartarian oats	2	1	13
	14	Experimental grasses	0	3	0
Garden	1	Malting barley	6	0	0
	2	"Maltster's" N.Z. barley	0	3	0
	3	Varieties barley	2	2	0
	4	Paspalum	2	0	31
	5	Vegetables	6	2	14
	6	Orchard	3	2	1
	7	Vines	0	2	17
Bull	1	Paspalum	30	1	6
	2	In preparation for vegetables	4	3	6
Creek No. 1	1	Lucerne	20	2	18
	2	Piasa Queen maize	2	0	0
	3	Balderman maize	6	0	0
	4	Early Mastodon maize	6	0	0
	5	Sydney Red maize	1	3	0
	6	Hawkesbury Champion maize	1	0	0
	7	Panicum	1	1	8
Creek No. 2	1	Paspalum	6	0	0
Calf No. 1	...	Lucerne	4	3	22
Gatton	...	Lucerne	28	1	14
Hill	1	Orchard	2	0	0
	2	Sisal hemp	2	2	10
			239	1	19

SUMMARY OF STANDING CROPS.

	A.	R.	P.
Lucerne	68	3	14
Oats, varieties	49	0	0
Barley, varieties	20	2	14
Maize	16	3	0
Paspalum	38	3	27
Mangolds	3	2	3
Swede turnips	4	0	6
Orchards	5	2	1
Vegetables, planted and in preparation	11	1	20
Vineyard	0	2	17
Rye	3	1	10
Cotton	1	0	0
Panicum	1	1	8
Rice	2	2	6
Canary Seed	2	0	30
Rape	0	3	7
Mazzagua	0	2	27
Sorghums	3	2	19
Experimental grasses	2	1	0
Sisal hemp	2	2	10
Total	239	1	19

YIELD OF VARIETIES OF BARLEY, SECTION 13.

English Chevalier	at the rate of	27	bushels per acre	
Kinvers Chevalier	"	28	"	"
Halletts Chevalier	"	27·2	"	"
Californian Brewing	"	27·6	"	"
Danubian	"	25·1	"	"
Golden Grain	"	24	"	"
Hungarian Chevalier	"	21·7	"	"
Carter's Malting	"	30·1	"	"
Chilians Chevalier	"	29·2	"	"
Webb's New Golden Giant	"	23·8	"	"
Invincible	"	23·1	"	"

YIELD OF VARIETIES OF POTATOES, SECTION 3.

		Tons	cwt.	qr.	
Brownell's Beauty (13 rows)	at rate of	2	3	1	per acre
Early Rose (9 rows)	"	1	12	2	"
Northern Star (7½ rows)	"	1	14	3	"
Snowflake (½-row)	"	1	2	0	"
Sussex Champion (9 rows)	"	1	1	3	"
Blueskins (13 rows)	"	3	18	1	"

LUCERNE EXPERIMENTS, GATTON PADDOCK.

Treatment.	YIELD PER ACRE. First Cutting.	YIELD PER ACRE. Second Cutting.
	Cwt. qr.	Cwt. qr.
Pig manure (20 tons per acre)	22 3	10 0
Bonedust (1 ton per acre)	15 0	4 1
Disc cultivated	17 3	5 0
Untreated	16 2	4 3

The smaller yields in each case in the second cutting may be attributed to the fact that it was preceded by a period of exceedingly dry weather.

MANURIAL EXPERIMENTS WITH MAIZE, FARM PADDOCK, SECTION 2.

Variety grown: Early Red Hogan. Planted in plots of ¼-acre each, four rows in each plot, 4½ feet apart, 6½ feet between the plots. The manures were applied 24th Ocetober, 1905. Maize planted 17th December, 1906. This was the second crop planted under this treatment. Details of the first crop will be found in last year's report. The following are the results:—

Plot.	Manures Used.	Cost per Acre.	Yield per Acre.
		£ s. d.	Bushels.
1	Unmanured	Nil	40
2	Nitrate of Soda (7½ lb.), blood (25 lb.), superphosphate (100 lb.), sulphate of potash (28 lb.)	2 12 3	40·8
3	Superphosphate (28 lb.)	0 7 0	41·3
4	" (56 lb.)	0 14 0	42·7
5	" (14 lb.)	1 1 0	44·5
6	Unmanured	Nil	40
7	Superphosphate (28 lb), sulphate of potash (10 lb.)	0 12 4	43·8
8	Superphosphate (56 lb), sulphate of potash (20 lb.)	1 4 8	44·5
9	Unmanured	Nil	41
10	Superphosphate (56 lb.), sulphate of ammonia (14 lb.)	1 3 0	45·9
11	Superphosphate (56 lb.), nitrate of soda (14 lb.)	1 2 0	45·9
12	Unmanured	Nil	37·6
13	Blood (40 lb.), bonedust (31 lb.), superphosphate (50 lb.), sulphate of potash (18·7 lb.)	2 1 6	43·6
14	Unmanured	Nil	39·3
15	Thomas's phosphate (56 lb.)	0 9 0	40·5
16	Unmanured	Nil	39

Average yield, 41·9 bushels per acre.

EXPERIMENTS WITH ENGLISH POTATOES.—Variety: "Blueskins." Area of plots: ⅛-acre each.

Plot.	Manure Used.	Yield. Tons cwt. qr. lb.
1	Unmanured	0 3 2 24
2	Superphosphate (22½ lb.), sulphate of ammonia (5½ lb.)	0 3 3 0
3	Superphosphate (22½ lb.), sulphate of potash (5½ lb.)	0 3 3 24
4	Sulphate of potash (5½ lb.), sulphate of ammonia (5½ lb.)	0 5 0 15
5	Superphosphate (22½ lb.), sulphate of potash (5½ lb.), sulphate of ammonia (5½ lb.) ...	0 4 2 23
6	Unmanured	0 4 0 8
7	Superphosphate (45 lb.), sulphate of potash (11 lb.), sulphate of ammonia (11 lb.) ...	0 4 2 25
8	Lime (2 cwt.)	0 4 2 19
	Total yield	1 14 1 18

DAIRY DEPARTMENT.

The usual deep interest has been shown by students in this branch of our work, and, notwithstanding the fact that (as has already been pointed out) two instructors have severed their connection with the College, very good progress has been made. This statement is borne out by the results of examinations, as shown on the grade sheets. With the exception of the actual work of milking, dairying is the most popular subject taught here; such being the case, good results must naturally be expected. It is pleasing to know that, with few exceptions, every student who has followed this calling after graduating through the College has made a success of the business, not only as managers of factories or

farms, but also on their own or their parents' farms. The College dairy is not only a channel through which the students acquire a knowledge of the business, but also a medium by which much information is imparted by correspondence and by observation on the part of visiting farmers. Moreover, since the sale of purebred stock commenced, 1,027 pedigreed animals have been disposed of and despatched to various parts of the State. These animals are all spoken of very highly, and must surely have a great tendency towards the improvement of the dairy herds and piggeries of Queensland. The annual sale of cattle and pigs was, I consider, a great success, especially when it is taken into consideration that the animals were not hand-fed or pampered in any way. In submitting the milk returns from individual animals, I may mention that the system of feeding and general treatment of the herd was conducted on lines that might reasonably be followed in the case of any herd in Queensland. It has been found that, by rugging the animals during the winter months, the yield of milk was increased by at least 50 per cent. The figures given below will show the returns of milk and butter from each animal. In this connection, I might point out that much consideration must be given to the ages of the animals enumerated. In regard to the feeding experiments, particulars of which are given, it may be observed that they were conducted on lines that might reasonably be followed with much profit to Queensland dairymen. It is also a noticeable fact that when ensilage was fed as a whole ration the quantity of milk diminished considerably; this, as a matter of fact, has been our experience in the past, and is a well-known law with all who have had any practical experience in the feeding of silage. In regard to the different breeds of animals, it will be observed from the figures given that there are good and bad milkers amongst all breeds; at the same time, one cannot depart from the recognised fact that, with the crossbreds, the Ayrshire-Shorthorn cross takes the first place:—

MILKING RECORDS OF AYRSHIRE COWS.

Name of Cow.	Age of Cow on 30th June, 1907.	Date of Calving.	Date Dried-off.	Number of Days Milking.	Lb. Milk.	Lb. Butter-fat.	Remarks.
Annie Laurie ...	13 years 0 months	24 Feb., 1905	13 June, 1905	110	2,479	103·80	Annie Laurie was taken sick on 13th June, and turned out.
Auntie	4 „ 8 „	18 April, 1906	30 Mar., 1907	347	5,197	220·66	
Beauty	5 „ 1 „	10 Dec., 1905	25 April, 1907	502	8,472	335·24	
Blanche ...	6 „ 3 „	18 Nov., 1906	6 May, 1907	170	3,306	160·21	
Blink	11 „ 6 „	6 Mar., 1904	25 Nov., 1904	265	4,013	177·19	
Bonnie	9 „ 9 „	7 Oct., 1905	25 Dec., 1906	445	5,887	253·20	
College Lass ...	4 „ 4 „	27 Feb., 1906	25 April, 1907	423	6,813	298·89	With first calf.
Conceit	3 „ 6 „	6 May, 1906	6 May, 1907	366	5,152	205·26	With first calf.
Lass	8 „ 8 „	15 Mar., 1906	20 Mar., 1907	371	7,467	333·91	
Laura	9 „ 0 „	2 Jan., 1906	31 Mar., 1907	454	7,919	295·00	
Lavinia	13 „ 0 „	14 Dec., 1905	14 Oct., 1906	305	5,789	257·71	
Leesome... ...	12 „ 0 „	10 Oct., 1905	27 Nov , 1906	413	6,491	292·35	
Lena	13 „ 0 „	29 Nov., 1903	23 Sept., 1904	299	4,285	188·62	
Lily	3 „ 10 „	21 Sept., 1906	Still milking on 30 June, 1907	283	3,943	162·75	With first calf.
Linda	4 „ 4 „	23 April, 1905	22 May, 1906	395	6,222	318·78	With first calf.
Linnet	13 „ 0 „	12 May, 1906	30 April, 1907	354	6,983	257·50	
Lot	5 „ 6 „	12 Nov., 1905	25 Nov., 1906	379	4,928	211·72	
Lowla	8 „ 1 „	12 Dec., 1905	25 April, 1906	135	3,407	136·84	
Lulu	6 „ 6 „	26 Oct., 1903	9 Dec., 1904	411	5,845	243·17	
Renown ...	9 „ 0 „	8 Mar., 1906	29 Dec., 1906	297	4,306	170·28	
Rosalie	5 „ 3 „	5 July, 1906	25 April, 1907	295	5,614	255·60	
Rosebud ...	13 „ 0 „	30 Dec., 1903	13 Aug., 1905	603	10,671	485·16	
Ruby	9 „ 1 „	15 Feb , 1906	3 Nov., 1906	262	3,644	134·51	

MILKING RECORDS OF JERSEY COWS.

Beatrice... ...	9 years 10 months	22 Jan., 1906	6 May, 1907	470	6,273	367·74	
Bee	4 „ 6 „	11 Nov., 1905	11 Aug., 1906	254	3,262	182·62	
Bell	8 „ 0 „	4 Oct., 1905	25 Aug., 1906	326	4,585	275·55	
Bliss	7 „ 1 „	3 May, 1906	25 April, 1907	358	5,874	305·49	
Careless	4 „ 9 „	3 Sept., 1905	11 July, 1906	312	4,154	233·48	
Carrie	9 „ 0 „	13 Nov., 1905	18 Sept., 1906	310	5,147	265·14	
Clare	5 „ 9 „	22 April, 1906	25 April, 1907	369	5,221	280·44	
Cocoa	7 „ 0 „	9 Oct., 1905	25 Aug., 1906	321	5,663	313·78	
Connie	13 „ 0 „	19 June, 1905	13 July, 1906	390	4,424	228·09	
Cuckoo	4 „ 2 „	1 Dec., 1905	21 Oct , 1906	325	3,962	216·29	With first calf.
Effie	11 „ 10 „	6 May, 1905	24 Nov., 1905	203	2,734	137·85	
Evileen	13 „ 0 „	29 July, 1904	23 May, 1905	299	4,092	217·65	
Ivy	9 „ 10 „	13 Nov., 1905	14 Sept., 1906	306	4,402	230·93	
Jersey Belle ...	14 „ 0 „	27 Mar., 1906	5 Jan., 1907	285	3,169	138·78	
Tiny	7 „ 9 „	24 Sept., 1905	25 June, 1906	275	3,646	194·88	

MILKING RECORDS OF HOLSTEIN COWS.

Daisy	4 years 11 months	25 Jan., 1906	6 May, 1907	467	7,074	219·94	With first calf.
Damsel	9 „ 10 „	9 Dec., 1905	10 Dec., 1906	367	4,853	189·36	
Donah	7 „ 6 „	5 Mar., 1906	31 Mar., 1907	392	4,738	193·24	

Milking Records of Guernsey Cows.

Name of Cow.	Age of Cow on 30th June, 1907.	Date of Calving.	Date Dried-off.	Number of Days Milking.	Lb. Milk.	Lb. Butter-fat.	Remarks.
Lady Rose ...	7 years 11 months	20 Jan., 1906	18 Aug., 1906	211	2,193	127·31	
Lady Ring ...	6 „ 2 „	17 Nov., 1905	25 April, 1907	525	6,499	434·48	

Milking Records of Shorthorn Cows.

Bangle	3 years 9 months	13 Jan., 1906	3 Oct., 1906	264	3,109	127·99	With first calf.
Burton Whitefoot	5 „ 1 „	16 Jul., 1906	6 May, 1907	2:5	4,760	200·68	
Butter	4 „ 6 „	13 Aug., 1906	6 May, 1907	267	5,374	219·98	
Chocolate ...	6 „ 9 „	27 Oct , 1905	4 Dec., 1906	404	8,115	340·52	
Count	6 „ 6 „	19 Dec., 1905	20 Sep., 1906	276	4,580	199·29	With first calf.
Dolly	6 „ 9 „	31 Jul., 1906	6 May, 1907	280	4,851	206·20	
Dora	9 „ 0 „	29 May, 1906	6 May, 1907	343	7,277	311·86	
Dott	9 „ 0 „	18 Aug., 1906	23 Apr., 1907	249	5,208	276·72	
Friz	6 „ 10 „	31 Jul., 1905	25 Jan., 1906	179	2,988	135·20	With first calf.
Gem	6 „ 8 „	29 Jul., 1906	6 May, 1907	282	5,722	225·92	
Gin	5 „ 1 „	26 Jan., 1906	29 Nov., 1906	308	5,213	214·03	With first calf.
Gurney	6 „ 0 „	14 Oct., 1905	6 May, 1907	570	8,993	369·23	
Honeycomb ...	4 „ 4 „	19 Jul., 1906	6 May, 1907	292	5,486	275·52	
Jewel	5 „ 1 „	31 Jul., 1906	6 May, 1907	280	4,677	191·28	With first calf.
Kit	10 „ 9 „	17 Apr., 1906	31 Mar., 1907	349	6,288	252·10	
Lady Vixen ...	9 „ 0 „	29 Jul., 1906	6 May, 1907	282	5,502	203·65	
Maud II. ...	4 „ 0 „	28 Jul., 1906	25 Apr., 1907	272	3,707	145·63	
May	11 „ 0 „	6 Oct., 1905	31 May, 1906	238	4,377	181·04	
Nellie II. ...	4 „ 4 „	29 Jul., 1906	6 May, 1907	282	4,864	209·63	
Nestor	11 „ 4 „	9 Dec., 1905	2 Jul., 1906	206	3,202	144·71	
Nettle	4 „ 11 „	18 Apr., 1906	22 Mar., 1907	339	5,695	226·74	
No. 1	4 „ 6 „	11 May, 1906	6 May, 1907	361	6,548	239·58	
No. 6	3 „ 9 „	3 Jul., 1906	24 Apr , 1907	296	4,364	201·93	
Olga	9 „ 0 „	20 Aug., 1906	6 May, 1907	260	4,040	161·03	
Patch	4 „ 2 „	14 Jun., 1906	6 May, 1907	327	6,261	221·88	With first calf.
Pleasant ...	7 „ 0 „	7 Oct., 1905	9 Jul., 1906	276	4,396	176·10	
Princess ...	9 „ 0 „	28 Jul., 1906	6 May, 1907	283	5,074	225·20	
Queenie	11 „ 2 „	19 Jun., 1905	22 Sep., 1906	461	6,707	284·15	
Restive	6 „ 10 „	3 Aug., 1906	6 May, 1907	277	5,231	236·61	
Rose	9 „ 0 „	11 Jun., 1905	20 Mar , 1906	283	7,211	309·51	
Winnie	8 „ 0 „	2 Oct., 1905	20 May, 1906	231	4,735	204·90	

Milking Records of Grade Cows.

Name.	Breed.	Age on 30th June, 1907.	Date of Calving.	Date Dried-off.	Number of Days Milking.	Lb. Milk.	Lb. Butter-fat.
Magpie	Holstein-Shorthorn	7 years 4 months	8 Feb., 1906	6 May, 1907	453	9,837	380·21
Mona	„ „	8 „ 6 „	16 Jan., 1906	6 May, 1907	476	11,737	456·72
*Nambour ...	„ „	4 „ 10 „	18 Aug., 1905	3 July, 1906	320	5,501	203·86
Peawee	„ „	5 „ 8 „	27 Nov., 1905	5 Jan., 1907	405	7,067	292·05
Reanie	„ „	8 „ 4 „	5 Sep., 1905	6 May, 1907	609	10,872	484·85
Whitefoot ...	„ „	7 „ 3 „	11 July, 1905	28 May, 1906	322	6,521	275·18
Angel	Holstein-Devon ...	7 „ 9 „	11 April, 1906	6 May, 1907	391	7,824	330 14
*Blackbird ...	„ „ ...	4 „ 5 „	23 July, 1906	6 May, 1907	288	3,707	139·24
Dripping ...	„ „ ...	5 „ 6 „	18 July, 1905	21 July, 1906	369	6,321	279·35
Night	„ „ ..	7 „ 9 „	30 Dec., 1905	9 Feb., 1907	407	7,031	299·13
*Rum	Holstein-Ayrshire	4 „ 5 „	25 Dec., 1905	2 Nov., 1906	313	4,621	190·34
Haze	Ayrshire-Shorthorn	7 „ 9 „	17 Aug., 1905	8 Mar., 1906	204	3,167	141·69
Hetty	„ „	5 „ 4 „	28 Jan., 1906	8 Dec., 1906	315	5,214	265·22
No. 48	„ „	7 „ 7 „	11 July, 1905	19 June, 1906	344	7,023	309·80
*Glen	Guernsey-Shorthorn	4 „ 6 „	6 Feb , 1906	6 May, 1907	455	6,965	325·23
Blank	Jersey-Ayrshire ...	7 „ 2 „	7 Dec., 1905	17 Oct., 1906	315	6,378	327·93
No. 112	Grade Jersey ...	5 „ 8 ,	13 June, 1906	24 April, 1907	316	5,103	210·64
Poppie	Grade Guernsey ...	5 „ 8 „	13 Feb., 1906	24 Jan., 1907	346	5,452	276·23
Lemon	Grade Shorthorn	8 „ 0 „	1 Aug., 1906	6 May, 1907	279	5,249	202·19
Rhoda	„ „	6 „ 2 „	13 Oct., 1905	30 Oct., 1906	383	6,235	275·25
Sue	„ „	5 „ 7 „	3 Oct., 1905	5 Jan., 1907	460	6,309	282·99
Grace	South Coast ...	8 „ 10 „	19 Nov., 1905	19 Sept., 1906	305	5,975	265·72

* With first calf.

FEEDING RECORDS.

BLANK (JERSEY-AYRSHIRE); CALVED 4TH FEBRUARY, 1907.

Date.	LB. OF MILK.			Total Quantity Produced for Week.	Average Test. Per cent.	Lb. Commercial Butter per Week.	Ration.	Temperature.		Remarks.
	Morning.	Evening.	Total.							
1907.								Max.	Min.	
May 8	9	6	15	...	...	...	Natural pasture	81·0	50·4	
9	9	6	15	...	...	...	...	83 0	49·8	
10	10	6	16	...	...	...	...	78·5	54·6	
11	9	6	15	...	...	...	...	75·0	46·5	
12	10	6	16	...	...	...	...	76·3	44·5	
13	9	6	15	...	...	...	...	77·2	47·5	
14	9	5	14	106	4·6	5·47	...	76·5	49·2	
15	9	5	14	...	...	...	60 lb. maize ensilage per day	75·3	54·5	
16	9	6	15	...	...	...		77·6	56·0	
17	9	7	16	...	...	...		74·7	57·4	
18	10	8	18	...	...	...	...	68·8	58·2	
19	11	8	19	...	...	...	...	73·0	50 6	
20	11	6	17	...	...	...	...	74·4	55·8	
21	11	6	17	116	4·4	5·72	...	74·0	59·5	
22	11	7	18	...	...	...	30 lb. oaten chaff and 10 lb. bran per day	71·0	56·6	
23	10	7	17	...	...	...		77·2	51·4	
24	9	7	16	...	...	...		75·4	48·0	
25	9	8	17	...	...	...		74·9	40·5	
26	11	7	18	...	...	...	...	70·0	38·5	
27	10	6	16	...	...	...	...	72·8	49·6	
28	10	7	17	119	5·4	7·29	...	61·8	48·0	
19	11	6	17	...	...	...	30 lb. lucerne chaff and 10 lb. bran per day (dry weight)	71·3	48·6	
30	11	7	18	...	...	...		74·8	52·6	
31	12	7	19	...	...	...		77·5	55·0	
June 1	12	10	22	...	...	...		63·3	58·0	
2	12	7	19	...	...	...		70·6	61·5	
3	13	10	23	...	...	...	...	70·0	52·5	
4	10	10	20	138	4·7	7.24	...	72·3	47·0	
5	11	9	20	...	...	...	20 lb. oaten and 20 lb. lucerne chaff, and 6 lb. molasses per day	71·0	47·0	
6	11	8	19	...	...	...		72.0	52·0	
7	12	9	21	...	...	...		74·4	50·5	
8	11	8	19	...	...	...		67·6	56·8	
9	11	5	16	...	...	...		71·0	47·4	
10	10	7	17	...	...	...	...	74·6	40·8	
11	12	6	18	130	3·8	5·50	...	73·8	51·2	
12	10	6	16	...	...	...	Grazed for two hours on lucerne patch	73·4	44·2	
13	8	5	13	...	...	...		73 8	51·6	
14	11	6	17	...	...	...		62·5	56·7	
15	10	8	18	...	...	...	...	70·8	46·5	
16	10	6	16	...	...	...	...	67·8	47·5	
17	11	8	19	...	...	...	...	68·3	48·5	
18	13	7	20	119	4·5	6·05	...	63·9	46·6	

POPPIE (GRADE GUERNSEY); CALVED 24TH FEBRUARY, 1907.

May 8	8	4	12	...	...	...	Natural pasture	81·0	50·4	Sick
9	9	7	16	...	...	...	...	83·0	49·8	
10	12	8	20	...	...	...	...	78·5	54·6	
11	12	8	20	...	...	...	...	75·0	46·5	
12	12	8	20	...	...	...	...	76·3	44·5	
13	11	5	16	...	...	...	...	77·2	47·5	
14	9	7	16	120	4·2	5·64	...	76·5	49·2	
15	9	7	16	...	...	...	60 lb. maize ensilage per day	75·3	54·5	
16	8	7	15	...	...	...		77·6	56·0	
17	11	7	18	...	...	...		74·7	57·4	
18	10	9	19	...	...	...	...	68·8	58·2	
19	11	9	20	...	...	...	...	73·0	50·6	
20	11	8	19	...	...	...	...	74·4	55·8	
21	10	8	18	125	3·4	4·69	...	74·0	59·5	
22	13	10	23	...	...	...	30 lb. oaten chaff and 10 lb. bran per day	71·0	56·6	
23	10	7	17	...	...	...		77·2	51·4	
24	12	6	18	...	...	...		75·4	48·0	
25	11	7	18	...	...	...		74·9	40·5	
26	12	7	19	...	...	...	...	70·0	38·5	
27	12	7	19	...	...	...	...	72·8	49·6	
28	11	8	19	133	5·4	8·18	...	61·8	48·0	
29	13	9	22	...	...	...	30 lb. lucerne chaff and 10 lb. bran per day (dry weight)	71·3	48·6	
30	13	9	22	...	...	...		74·8	52·6	
31	13	9	22	...	...	...		77·5	55·0	
June 1	14	8	22	...	...	...		63·3	58·0	
2	14	7	21	...	...	...		70·6	61·5	
3	14	12	26	...	...	..	...	70·0	52·5	
4	15	8	23	158	4·7	8·34	...	72·3	47·0	

FEEDING RECORDS—*continued.*

POPPIE (GRADE GUERNSEY); CALVED 24TH FEBRUARY, 1907—*continued.*

Date.	LB. OF MILK.			Total Quantity for Week.	Average Test. Per cent.	Lb. Commercial Butter per Week.	Ration.	Temperature.		Remarks.
	Morning.	Evening.	Total.							
1907.								Max.	Min.	
June 5	14	7	21	...	...	...	20 lb. oaten, 20	71·0	52·0	
6	14	7	21	...	...	...	lb. lucerne	72·0	50·5	
7	13	12	25	...	...	...	chaff, and 6	74·4	56·8	
8	14	8	22	...	...	...	lb. molasses	67·6	45·4	
9	12	6	19	...	...	...	per day	71·0	47·4	
10	13	10	23	...	...	...	...	74·6	40·8	
11	11	7	18	149	3·5	5·80	...	73·8	51·2	
12	11	6	17	...	...	...	Grazed for two	73·4	44·2	
13	8	8	16	...	...	...	hours on lu-	73·8	51·6	
14	12	7	19	...	...	...	cerne patch	62·5	56·7	
15	11	7	18	...	...	...	...	70·8	46·5	
16	11	7	18	...	...	...	...	67·8	47·5	
17	14	8	22	...	...	...	...	68·3	48·5	
18	15	8	23	133	4·4	6·56	...	63·9	46·6	

CHOCOLATE (DURHAM); CALVED 5TH MARCH, 1907.

May 8	14	13	27	...	...	...	Natural pasture	81·0	50·4	
9	13	10	23	...	...	...	...	83·0	49·8	
10	15	9	24	...	...	...	...	78·5	54·6	
11	13	9	22	...	...	...	...	75·0	46·5	
12	14	9	23	...	...	...	...	76·3	44·5	
13	14	9	23	...	...	...	...	77·2	47·5	
14	15	10	25	167	3·6	6·68	...	76·5	49·2	
15	15	10	25	...	...	...	60 lb. maize	75·3	54·5	
16	14	10	24	...	...	...	ensilage per	77·6	56·0	
17	14	10	24	...	...	...	day	74·7	57·4	
18	13	12	25	...	...	...	...	68·8	58·2	
19	14	10	24	...	...	...	...	73·0	50·6	
20	14	10	24	...	...	...	...	74·4	55·8	
21	15	14	29	175	3·6	7·16	...	74·0	57·5	
22	14	11	25	...	...	...	30 lb. oaten	71·0	56·6	
23	14	12	26	...	...	...	chaff and	77·2	51·4	
24	15	10	25	...	...	...	10 lb. bran	75·4	48·0	
25	14	10	24	...	...	...	per day	74·9	40·5	
26	15	10	25	...	...	...	...	70·0	38·5	
27	16	12	28	...	...	...	...	72·8	49·6	
28	17	12	29	182	6·0	11·98	...	61·8	48·0	
29	16	12	28	...	...	...	30 lb. lucerne	71·3	48·6	
30	20	12	32	...	...	...	chaff and 10	74·8	52·6	
31	16	13	29	...	...	...	lb. bran per	77·5	55.0	
June 1	16	10	26	...	...	...	day (dry	63·3	58·0	
2	18	10	28	...	...	...	weight)	70·6	61·5	
3	17	12	29	...	...	...	...	70·0	52·5	
4	16	12	28	200	3·6	8·0	...	72·3	47·0	
5	18	10	28	...	...	...	20 lb. oaten,	71·0	52·0	
6	17	10	27	...	...	...	20. lb. lu-	72·0	50·5	
7	17	10	27	...	...	...	cerne chaff,	74·4	56·8	
8	15	12	27	...	...	...	and 6 lb. mo-	67·6	45·4	
9	17	10	27	...	...	...	lasses per	71·0	47·4	
10	16	9	25	...	...	...	day	74 6	40·8	
11	17	9	26	187	3·0	6·15	...	73·8	51·2	
12	14	9	23	...	...	...	Grazed for two	73·4	44·2	
13	12	7	19	...	...	...	hours on lu-	73·8	51·6	
14	11	7	18	...	...	...	cerne patch.	62·5	56·7	
15	14	10	24	...	...	...	...	70·8	46·5	
16	12	8	20	...	...	...	...	67·8	47·5	
17	16	12	28	...	...	...	...	68·3	48·5	
18	18	9	27	159	3·1	5·45	...	63·9	46·6	

RHODA (GRADE SHORTHORN); CALVED 12TH MARCH, 1907.

May 8	12	8	20	...	...	...	Natural pasture	81·0	50·4	
9	12	8	20	...	...	...	...	83·0	49·8	
10	10	8	18	...	...	...	...	78·5	54·6	
11	11	7	18	...	...	...	...	75·0	46·5	
12	11	7	18	...	...	...	...	76·3	44·5	
13	11	7	18	...	...	...	...	77·2	47·5	
14	10	7	17	129	3·6	5·16	...	76·5	49·2	
15	10	7	17	...	...	...	60 lb. maize	75·3	54·5	
16	11	7	18	...	...	...	ensilage per	77·6	56·0	
17	11	8	19	...	...	...	day	74·7	57·4	
18	13	10	23	...	...	...	...	68·8	58·2	
19	9	9	18	...	...	...	...	73·0	50·6	
20	9	10	19	...	...	...	...	74·4	55·8	
21	12	7	19	133	3·0	4·36	...	74·0	59·5	

FEEDING RECORDS—*continued.*

RHODA (GRADE SHORTHORN); CALVED 12TH MARCH, 1907—*continued.*

Date.	LB. OF MILK.			Total Quantity for Week.	Average Test per cent.	Lb. Commercial Butter per Week.	Ration.	Temperature.		Remarks.
	Morning.	Evening.	Total.							
1907.								Max.	Min.	
May 22	13	9	22	...	...	...	30 lb. oaten	71·0	56·6	
23	13	10	23	...	...	...	chaff and 10	77·2	51·4	
24	12	10	22	...	...	...	lb. bran per	75·4	48·0	
25	13	11	24	...	...	...	day.	74·9	40·5	
26	14	10	24	...	...	...	...	70·0	38·5	
27	15	10	25	...	...	...	...	72·8	49·6	
28	12	10	22	162	4·3	7·80	...	61·8	48·0	
29	15	9	24	...	...	...	30 lb. lucerne	71·3	48·6	
30	14	10	24	...	...	...	chaff and 10	74·8	52·6	
31	13	10	23	...	...	...	lb. bran per	77·5	55·0	
June 1	15	8	23	...	...	...	day (dry	63·3	58·0	
2	15	10	25	...	...	...	(weight)	70·6	61·5	
3	18	8	26	...	...	...	...	70·0	52·5	
4	16	10	26	171	3·9	7·40	...	72·3	47·0	
5	15	10	25	...	...	...	20 lb. oaten, 20	71·0	52·0	
6	17	8	25	...	...	...	lb. lucerne	72·0	50·5	
7	15	10	25	...	...	...	chaff, and 6	74·4	56·8	
8	12	9	21	...	...	...	lb. molasses	67·6	45·4	
9	13	7	20	...	...	...	per day	71·0	47·4	
10	13	9	22	...	...	...	...	74·6	40·8	
11	13	9	24	162	3·4	6·06	...	73·8	51·2	
12	11	9	20	...	...	...	Grazed for two	73·4	44·2	
13	11	6	17	...	...	..	hours on lu-	73·8	51·6	
14	12	8	20	...	...	...	cern patch	62·5	56·7	
15	13	8	21	...	...	...	...	70·8	46·5	
16	13	8	21	...	...	...	...	67·8	47·5	
17	14	9	23	...	...	...	...	68·3	48·5	
18	14	9	23	145	3·0	4·76	...	63·9	46·6	

DEWDROP (HOLSTEIN); CALVED 24TH MARCH, 1907.

May 8	6	9	15	...	...	...	Natural pasture	81·0	50·4	
9	9	7	16	...	...	...	...	83·0	49·8	
10	9	7	16	...	...	...	...	78·5	54·6	
11	8	7	15	...	...	...	...	75·0	46·5	
12	8	6	14	...	...	...	...	76·3	44·5	
13	7	6	15	...	...	...	...	77·2	47·5	
14	10	5	15	106	3·4	3·98	...	76·5	49·2	
15	10	5	15	...	...	...	60 lb. maize	75·3	54·5	
16	9	6	15	...	...	...	ensilage per	77·6	56·0	
17	10	6	16	...	...	...	day	74·7	57·4	
18	11	8	19	...	...	...	...	68·8	58·2	
19	11	7	18	...	...	...	...	73·0	50·6	
20	9	8	17	...	...	...	...	74·4	55·8	
21	9	6	15	115	2·0	2·44	...	74·0	59·5	
22	10	7	17	...	...	...	30 lb. oaten	71·0	56·6	
23	10	9	19	...	...	...	chaff and 10	77·2	51·4	
24	11	7	18	...	...	...	lb. bran per	75·4	48·0	
25	13	9	22	...	...	...	day (dry	74·9	40·5	
26	12	9	21	...	...	...	weight)	70·0	38·5	
27	13	6	19	...	...	...	...	72·8	49·6	
28	13	8	21	137	3·8	5·79	...	61·8	48 0	
29	12	10	22	...	...	...	30 lb. lucerne	71·3	48·6	
30	11	8	19	...	...	...	chaff and 10	74·8	52·6	
31	13	11	24	...	...	...	lb. bran per	77·5	55·0	
June 1	10	10	20	...	...	...	day (dry	63·3	58·0	
2	11	9	20	...	...	...	weight)	70·6	61·5	
3	11	7	18	...	...	...	...	70·0	52·5	
4	15	6	21	144	2·4	4·0	...	72·3	47·0	
5	10	9	19	...	...	...	20 lb. oaten,	71·0	52·0	
6	11	8	19	...	...	...	20 lb. lu-	72·0	50·5	
7	12	7	19	...	...	...	cerne chaff,	74·4	56·8	
8	12	10	22	...	...	...	and 6 lb mo-	67·6	45·4	
9	11	8	19	...	...	...	lasses per	71·0	47·4	
10	11	8	19	...	...	...	day	74·6	40·8	
11	12	9	21	138	2·0	2·98	...	73·8	51·2	
12	11	7	18	...	...	...	Grazed for two	73·4	44·2	
13	9	7	16	...	...	...	hours on lu-	73·8	51·6	
14	10	8	18	...	...	...	cerne patch	62·5	56·7	
15	7	6	13	...	...	...	...	70·8	46·5	Sexual excite-
16	13	8	21	...	...	...	...	67·8	47·5	ment
17	12	10	22	...	...	...	...	68·3	48·5	
18	12	10	22	130	3·0	4·27	...	63·9	46·6	

FEEDING RECORDS—*continued.*

LOWLA (AYRSHIRE); CALVED 25TH MARCH, 1907.

Date.	LB. OF MILK.			Total Quantity for Week.	Average Test. Per cent.	Lb. Commercial Butter per Week.	Ration.	Temperature.		Remarks.
	Morning.	Evening.	Total.							
1907.								Max.	Min.	
May 8	12	9	21	...	...	...	Natural pasture	81·0	50·4	
9	14	9	23	...	...	...	...	83·0	49·8	
10	12	8	20	...	...	...	...	78·5	54·6	
11	12	9	21	...	...	...	...	75·0	46·5	
12	14	7	21	...	...	...	...	76·3	44·5	
13	11	7	18	...	...	...	...	77·2	47·5	
14	13	8	21	145	3·4	5·44	...	76·5	49·2	
15	13	8	21	...	...	...	60 lb. maize	75·3	54·5	
16	12	8	20	...	...	...	ensilage per	77·6	56·0	
17	11	9	20	...	...	...	day	74·7	57·4	
18	12	9	21	...	...	...	...	68·8	58·2	
19	11	9	20	...	...	...	...	73·0	50·6	
20	12	8	20	...	...	...	...	74·4	55·8	
21	12	7	19	141	3·2	4·96	...	74·0	59·5	
22	13	8	21	...	...	...	30 lb. oaten	71·0	56·6	
23	12	9	21	...	...	...	chaff and 10	77·2	51·4	
24	12	8	20	...	...	...	lb. bran per	75·4	48·0	
25	12	9	21	...	...	...	day (dry	74·9	40·5	
26	13	11	24	...	...	...	weight)	70·0	38·5	
27	12	11	23	...	...	...	...	72·8	49·6	
28	15	11	26	156	5·8	10·37	...	61·8	48·0	
29	16	9	25	...	...	...	30 lb. lucerne	71·3	48·6	
30	14	11	25	...	...	...	chaff and 10	74·8	52·6	
31	14	10	24	...	...	...	lb. bran per	77·5	55·0	
June 1	14	10	24	...	...	...	day (dry	63·3	58·0	
2	13	9	22	...	...	...	weight)	70·6	61·5	
3	16	11	27	...	...	...	...	70·0	52·5	
4	15	8	23	170	3·4	6·39	...	72·3	47·0	
5	15	10	25	...	...	...	20 lb. oaten,	71·0	52·0	
6	16	10	26	...	...	...	20lb. lucerne	72·0	50·5	
7	13	10	23	...	...	...	chaff, and 6	74·4	56·8	
8	14	8	22	...	...	...	lb. molasses	67·6	45·4	
9	15	7	22	...	...	...	per day	71·0	47·4	
10	15	7	22	...	...	...	...	74·6	40·8	
11	12	8	20	160	3·0	5·26	...	73·8	51·2	
12	11	8	19	...	...	...	Grazed for two	73·4	44·2	
13	12	7	19	...	...	...	hours on lu-	73·8	51·6	
14	11	8	19	...	...	...	cerne patch	62·5	56·7	
15	12	7	19	...	...	...	...	70·8	46·5	
16	10	8	18	...	...	...	...	67·8	47·5	
17	14	10	24	...	...	...	...	68·3	48·5	
18	15	9	24	142	3·7	5·83	...	63·9	46·6	

RENOWN (AYRSHIRE); CALVED 27TH MARCH, 1907.

May 8	10	7	17	...	...	...	Natural pasture	81·0	50·4	
9	10	6	16	...	...	...	...	83·0	49·8	
10	7	6	15	...	...	...	...	78·5	52·6	
11	10	5	15	...	...	...	...	75·0	46·5	
12	11	7	18	...	...	...	...	76·3	44·5	
13	10	7	17	...	...	...	...	77·2	47·5	
14	10	7	17	115	3·4	4·31	...	76·5	49·2	
15	10	7	17	...	...	...	60 lb. maize	75·3	54·5	
16	10	6	16	...	...	...	ensilage per	77·6	56·0	
17	10	6	16	...	...	...	day	74·7	57·4	
18	12	9	21	...	...	...	...	68·8	58·2	
19	12	10	22	...	...	...	...	73·0	50·6	
20	12	9	21	...	...	...	...	74·4	55·8	
21	12	8	20	133	3·4	4·99	...	74·0	59·5	
22	11	7	18	...	...	...	30 lb. oaten	71·0	56·6	
23	11	10	21	...	...	...	chaff and 10	77·2	51·4	
24	11	9	20	...	...	...	lb. bran per	75·4	48·0	
25	13	9	22	...	...	...	day (dry	74·9	40·5	
26	12	10	22	...	...	...	weight)	70·0	38·5	
27	13	8	21	...	...	...	...	72·8	49·6	
28	10	9	19	143	4·8	7·80	...	61·8	48·0	
29	15	8	23	...	...	...	30 lb. lucerne	71·3	48·6	
30	14	8	22	...	...	...	chaff and 10	74·8	52·6	
31	14	8	22	...	...	...	lb. bran per	77·5	55·0	
June 1	12	10	22	...	...	...	day (dry	63·3	58·0	
2	14	11	25	...	...	...	weight)	70·6	61·5	
3	14	10	24	...	...	...	...	70·0	52·5	
4	13	10	23	161	3·6	6·44	...	72·3	47·0	

FEEDING RECORDS—*continued.*

RENOWN (AYRSHIRE); CALVED 27TH MARCH, 1907—*continued.*

Date.	LB. OF MILK. Morning.	Evening.	Total.	Total Quantity for Week.	Average Test. Per cent.	Lb. Commercial Butter per Week.	Ration.	Temperature. Max.	Min.	Remarks.
1907.										
June 5	13	9	22	...	...	...	20 lb. oaten,	71·0	52·0	
6	12	7	19	...	...	...	20 lb. lucerne	72·0	50·5	
7	11	9	20	...	...	...	chaff and 6	74·4	56·8	
8	11	8	19	...	...	...	lb. molasses	67·6	45·4	
9	11	8	19	...	...	...	per day	71·0	47·4	
10	12	6	18	...	...	...	...	74·6	40·8	
11	12	10	22	139	2·9	4·52	...	73·8	51·2	
12	9	6	15	...	...	...	Grazed for two	73·4	44·2	
13	9	7	16	...	...	...	hours on lu-	73·8	51·6	
14	12	7	19	...	...	...	cerne patch	62·5	56·7	
15	10	9	19	...	...	...	...	70·8	46·5	
16	12	8	20	...	...	...	...	67·8	47·5	
17	9	9	18	...	...	...	...	68·3	48·5	
18	14	8	22	129	3·4	4·88	...	63·9	46·6	

HETTIE (AYRSHIRE-SHORTHORN); CALVED 27TH MARCH, 1907.

							Natural pasture	Max.	Min.	
May 8	12	8	20	...	...	...	...	81·0	50·4	
9	10	9	19	...	...	...	...	83·0	49·8	
10	9	8	17	...	...	...	...	78·5	54·6	
11	10	9	19	...	...	...	...	75·0	46·5	
12	11	7	18	...	...	...	...	76·3	44·5	
13	11	7	18	...	...	...	...	77·2	47·5	
14	11	7	18	129	4·0	5·76	...	76·5	49·2	
15	11	7	18	...	...	...	60 lb. maize	75·3	54·5	
16	10	7	17	...	...	...	ensilage per	77·6	56·0	
17	11	8	19	...	...	...	day	74·7	57·4	
18	10	10	20	...	...	...	...	68·8	58·2	
19	12	9	21	...	...	...	...	73·0	50·6	
20	11	10	21	...	...	...	...	74·4	55·8	
21	10	9	19	135	4·9	7·45	...	74·0	59·5	
22	13	8	21	...	...	...	30 lb. oaten	71·0	56·6	
23	11	7	18	...	...	...	chaff and	77·2	51·4	
24	11	8	19	...	...	...	10 lb. bran	75·4	48·0	
25	11	7	18	...	...	...	per day (dry	74·9	40·5	
26	12	10	22	...	...	...	weight)	70·0	38·5	
27	10	7	17	...	...	...	...	72·8	49·6	
28	12	8	20	135	5·8	8·94	...	61·8	48·0	
29	13	9	22	...	...	...	30 lb. lucerne	71·3	48·6	
30	12	11	23	...	...	...	chaff and	74·8	52·6	
31	12	12	24	...	...	...	10 lb. bran	77·5	55·0	
June 1	12	10	22	...	...	...	per day (dry	63·3	58·0	
2	14	9	23	...	...	...	weight)	70·6	61·5	
3	15	10	25	...	...	...	...	70·0	52·5	
4	14	12	26	165	4·5	8·33	...	72·3	47·0	
5	15	12	27	...	...	...	20 lb. oaten,	71·0	52·0	
6	14	12	26	...	...	...	20 lb. lucerne	72·0	50·5	
7	14	9	23	...	...	...	chaff, and	74·4	56·8	
8	12	11	23	...	...	...	6 lb. molasses	67·6	45·4	
9	12	9	21	...	...	...	per day	71·0	47·4	
10	12	9	21	...	...	...	...	74·6	40·8	
11	12	7	19	160	3·1	5·45	...	73·8	51·2	
12	10	8	18	...	...	...	Grazed for two	73·4	44·2	
13	11	8	19	...	...	...	hours on lu-	73·8	51·6	
14	10	8	18	...	...	...	cerne patch	62·5	56·7	
15	12	5	17	...	...	...	...	70·8	46·5	
16	11	8	19	...	...	...	...	67·8	47·5	
17	11	10	21	...	...	...	...	68·3	48·5	
18	13	9	22	134	4·6	6·83	...	63·9	46·6	

PEAWEE (HOLSTEIN-SHORTHORN ¾); CALVED 6TH APRIL, 1907.

May 8	13	11	24	...	...	...	Natural pasture	81·0	50·4	
9	14	10	24	...	...	...	...	83·0	49·8	
10	14	10	24	...	...	...	...	78·5	54·6	
11	13	9	22	...	...	...	...	75·0	46·5	
12	14	10	24	...	...	...	...	76·3	44·5	
13	13	9	22	...	...	...	...	77·2	47·5	
14	13	9	22	162	3·8	6·85	...	76·5	49·2	
15	13	9	22	...	...	...	60 lb. maize	77·6	54·5	
16	13	10	23	...	...	...	ensilage per	74·7	56·0	
17	14	12	26	...	...	...	day	68·8	57·4	
18	13	13	26	...	...	...	...	73·0	58·2	
19	13	9	22	...	...	...	...	74·4	50·6	
20	13	8	21	...	...	...	...	74·0	55·8	
21	13	9	22	162	3·4	6·08	...	71·0	59·5	

FEEDING RECORDS—*continued.*

PEAWEE (HOLSTEIN-SHORTHORN ¾); CALVED 6TH APRIL, 1907—*continued.*

Date.	LB. OF MILK.			Total Quantity for Week.	Average Test. Per cent.	Lb. Commercial Butter per Week.	Ration.	Temperature.		Remarks.
	Morning.	Evening.	Total.							
1907.								Max.	Min.	
May 22	14	9	23	...	...	...	30 lb. oaten	71·0	56·6	
23	14	11	25	...	...	...	chaff and 10	77·2	51·4	
24	14	10	24	...	...	...	lb. bran per	75·4	48·0	
25	14	10	24	...	...	...	day (dry	74·9	40·5	
26	14	11	25	...	...	...	weight)	70·0	38·5	
27	14	10	24	...	...	...	...	72·8	49·6	
28	14	11	25	170	5·4	10·52	...	61·8	48·0	
29	17	11	28	...	...	...	30 lb. lucerne	71·3	48·6	
30	17	12	29	...	...	...	chaff and 10	74·8	52·6	
31	15	14	29	...	...	...	lb. bran per	77·5	55·0	
June 1	15	11	26	...	...	...	day (dry	63·3	58·0	
2	17	11	28	...	...	...	weight)	70·6	61·5	
3	18	12	30	...	...	...	...	70·0	52·5	
4	18	12	30	200	3·3	7·29	...	72·3	47·0	
5	17	12	29	...	...	...	20 lb. oaten,	71·0	52·0	
6	17	10	27	...	...	...	20 lb. lu-	72·0	50·5	
7	18	14	32	...	...	...	cerne chaff,	74·4	56·8	
8	16	12	28	...	...	...	and 6 lb. mo-	67·6	45·4	
9	17	10	27	...	...	...	lasses per	71·0	47·4	
10	16	11	27	...	...	..	day	74·6	40·8	
11	16	10	26	196	2·8	6·25	...	73·8	51·2	
12	16	9	25	...	...	...	Grazed on lu-	73 4	44·2	
13	15	11	26	...	...	...	cerne patch	73·8	51·6	
14	16	9	25	...	...	...	for two hours	62·5	56·7	
15	15	10	25	...	...	...	...	70·8	46·5	
16	17	10	27	...	...	...	...	67·8	47·5	
17	18	13	31	...	...	...	...	68·3	48·5	
18	16	12	28	187	4·3	9·00	...	63·9	46·6	

SUE (GRADE SHORTHORN); CALVED 22ND APRIL, 1907.

May 8	12	9	21	...	...	...	Natural pasture	81·0	50·4	
9	13	10	23	...	...	...	...	83·0	49·8	
10	13	10	23	...	...	...	...	78·5	54·6	
11	14	10	24	...	...	...	...	75·0	46·5	
12	15	10	25	...	...	...	...	76·3	44·5	
13	13	9	22	...	...	...	...	77·2	47·5	
14	15	9	24	162	3·8	6·85	...	76·5	49·2	
15	15	9	24	...	...	...	60 lb. maize	75·3	54·5	
16	14	10	24	...	...	...	ensilage per	77·6	56·0	
17	14	11	25	...	...	...	day	74·7	57·4	
18	15	11	26	...	...	...	...	68·8	58·2	
19	15	11	26	...	...	...	...	73·0	50·6	
20	14	11	2[illegible]	...	...	...	...	74·4	55·8	
21	14	14	28	178	3·8	7·52	...	74·0	59·5	
22	16	11	27	...	...	...	30 lb. oaten	71 0	66·6	
23	16	12	28	...	...	...	chaff and	77·2	51·4	
24	17	11	28	...	...	...	10 lb. bran	75·4	48·0	
25	18	11	29	...	...	...	per day (dry	74·9	40·5	
26	18	12	30	...	...	...	weight)	70·0	38·5	
27	18	13	31	...	...	...	...	72·8	49·6	
28	16	15	31	204	6·0	13·86	...	61·8	48·0	
29	18	12	30	...	...	...	30 lb. lucerne	71·3	48·6	
30	20	13	33	...	...	...	chaff and	74·8	52·6	
31	19	14	33	...	...	...	10 lb. bran	77·5	55·0	
June 1	18	12	30	...	...	...	per day (dry	63·3	58·0	
2	20	12	32	...	...	...	weight)	70·6	61·5	
3	20	13	33	...	...	...	...	70·0	52·5	
4	21	13	34	225	3·9	9·74	...	72·3	47·0	
5	22	13	35	...	...	...	20 lb. oaten,	71·0	52·0	
6	22	12	34	...	...	...	20 lb. lu-	72·0	50·5	
7	19	13	32	...	...	...	cerne chaff,	74·4	56·8	
8	16	12	28	...	...	...	and 6 lb. mo-	67·6	45·4	
9	20	12	32	...	...	...	lasses per	71·0	47·4	
10	20	12	32	...	...	...	day	74·6	40·8	
11	21	10	31	224	3·2	7·89	...	73 8	51·2	
12	16	10	26	...	...	...	Grazed for two	73·4	44·2	
13	16	8	24	...	...	...	hours on lu-	73·8	51·6	
14	16	10	26	...	...	...	cerne patch	62·5	56·7	
15	15	10	25	...	...	...	...	70·8	46·5	
16	17	11	28	...	...	...	...	67·8	47·5	
17	19	11	30	...	...	...	...	68·3	48·5	
18	20	13	33	192	3·7	7·89	...	63·9	46·6	

SUMMARY OF THE INFLUENCE OF DIFFERENT FODDERS ON TEN COWS AT QUEENSLAND AGRICULTURAL COLLEGE—TRIAL EXTENDING FROM 8TH MAY TO 18TH JUNE, 1907.

Cow's Name and Breed.	Date of Calving.	First Period.	Ration.	Total Milk Yield.	Average Test.	Commercial Butter.	Temperature.	Second Period.	Ration.	Total Milk Yield.	Average Test.	Commercial Butter.	Temperature.	Third Period.	Ration.	Total Milk Yield.	Average Test.	Commercial Butter.	Temperature.	Fourth Period.	Ration.	Total Milk Yield.	Average Test.	Commercial Butter.	Temperature.	Fifth Period.	Ration.	Total Milk Yield.	Average Test.	Commercial Butter.	Temperature.	Sixth Period.	Ration.	Total Milk Yield.	Average Test.	Commercial Butter.	Temperature.	Remarks.
	1907.			Lb.	%	Lb.				Lb.	%	Lb.				Lb.	%	Lb.				Lb.	%	Lb.				Lb.	%	Lb.				Lb.	%	Lb.		
Blank (Jersey-Ayrshire) ...	4 Feb.			106	4·6	5·47				116	4·4	5·72				119	5·4	7·29				138	4·7	7·24				130	3·8	5·50				119	4·5	6·05		
Poppie (grade Guernsey) ...	24 Feb.			120	4·2	5·64				125	3·4	4·69				133	5·4	8·18				158	4·7	8·34				149	3·5	5·80				133	4·4	6·56		
Chocolate (Shorthorn) ...	5 Mar.			167	3·6	6·68				175	3·6	7·16				182	6·0	11·98				200	3·6	8·00				187	3·0	6·15				159	3·1	5·45		
Rhoda (grade Shorthorn) ...	12 Mar.			129	3·6	5·16				133	3·0	4·36				162	4·3	7·80				171	3·9	7·40				162	3·4	6·06				145	3·0	4·76		
Dewdrop (Holstein)	24 Mar.			106	3·4	3·98				115	2·0	2·44				137	3·8	5·79				144	2·4	4·00				138	2·0	2·98				130	3·0	4·27		
Lowla (Ayrshire)	25 Mar.			145	3·4	5·44				141	3·2	4·96				156	5·8	10·37				170	3·4	6·39				160	3·0	5·26				142	3·7	5·83		
Renown (Ayrshire)	27 Mar.			115	3·4	4·31				133	3·4	4·99				143	4·8	7·80				161	3·6	6·44				139	2·9	4·52				129	3·4	4·88		
Hettie (Ayrshire-Shorthorn)	27 Mar.			129	4·0	5·76				135	4·9	7·45				135	5·8	8·94				165	4·5	8·33				160	3·1	5·45				134	4·6	6·83		
Peawee (Holstein-Shorthorn)	6 April			162	3·8	6·85				162	3·4	6·08				170	5·4	10·52				200	3·3	7·29				196	2·8	6·25				187	4·3	9·00		
ue (grade Shorthorn) ...	22 April			162	3·8	6·85				178	3·8	7·52				204	6·0	13·86				225	3·9	9·74				224	3·2	7·89				192	3·7	7·89		
			Week of seven days	Maximum, 83·0	Minimum, 44·5				Week of seven days	Maximum, 77·6	Minimum, 50·6				Week of seven days	Maximum, 77·2	Minimum, 38·5				Week of seven days	Maximum, 77·5	Minimum, 47·0				Week of seven days	Maximum, 74·6	Minimum, 40·8				Week of seven days	Maximum, 73·8	Minimum, 42·5		
			Natural pasture						60 lb. maize ensilage per day each cow						30 lb. oaten chaff and 10 lb. bran per day (dry weight)						30 lb. lucerne chaff and 10 lb. bran per day (dry weight)						20 lb. oaten, 20 lb. lucerne chaff and 6 lb. molasses per day						Grazed for two hours on lucerne					All bran and chaff fed to cows was weighed before being steamed and given in two rations, and cows had run of natural pasture during whole trial. In case of sixth period, cows had to be driven 1 mile to lucerne patch, which seemed to affect milk yield in first three days.

DAIRY RETURNS—1ST JULY, 1906, TO 30TH JUNE, 1907.

	£	s.	d.	£	s.	d.
Sundry Sales—						
Milk (1,504¼ gallons)	25	1	5			
Butter (4,927½ lb.)	205	10	7			
Cream (33½ lb.)	0	14	7			
Cheese (51 lb.)	1	8	11			
				232	15	6
Dining Hall—						
Milk (5,059 gallons)	105	7	11			
Butter (3,625 lb.)	159	17	7			
Cream (17 lb.)	0	7	1			
Cheese (230 lb.)	6	14	2			
				272	6	9
Fed to Calves, new milk, 5,303 gallons				88	7	8
Total				£593	9	11

SALES OF DAIRY CATTLE—1ST JULY, 1906, TO 30TH JUNE, 1907.

	£	s.	d.	£	s.	d.
Ayrshires—						
Bulls (15)	179	11	0			
Cows (5)	68	5	0			
Heifers (6)	62	9	6			
				310	5	6
Jerseys—Bulls (7)				45	13	6
Shorthorns—						
Bulls (9)	75	1	6			
Heifers (7)	69	16	6			
				144	18	0
Holstein Bull (1)				15	15	0
Grade Holstein Bulls (3)				21	0	0
Grade Cows (2)				24	0	0
Grade Heifers (4)				22	12	0
Steer (1)				2	10	0
				£586	14	0
Service of Bulls—						
10 Cows at 10s.	5	0	0			
5 „ at 5s.	1	5	0			
				6	5	0
				£592	19	0
Killed for Dining Hall—						
2 Bullocks	11	0	0			
4 Cows	27	1	3			
1 Heifer	4	0	0			
				42	1	3
Total returns from Stock				£635	0	3

SUMMARY.

Total returns from Dairy Produce	£593	9	11
Total returns from Dairy Stock	635	0	3
Returns from all sources	£1,228	10	2

CATTLE ON HAND, 30TH JUNE, 1907.

Ayrshires—			
Stud bulls	2 head		
Young bulls	5 „		
Stud cows	25 „		
Heifers	16 „		
			48 head
Jerseys—			
Stud bulls	2 head		
Young bulls	4 „		
Stud cows	19 „		
Heifers	8 „		
			33 head
Shorthorns—			
Stud bulls	2 head		
Young bulls	14 „		
Stud cows	36 „		
Heifers	24 „		
			76 head
Holsteins—			
Stud bull	1 head		
Young bulls	2 „		
Stud cows	4 „		
Heifer	1 „		
			8 head
Guernseys—			
Stud bull	1 head		
Stud cows	2 „		
			3 head
South Coast—			
Stud cow			1 head
Grades—			
Bulls	13 head		
Cows	30 „		
Heifers	42 „		
			85 head
Working bullocks			14 „
Steers			38 „
Total number of Cattle now at College			306 head

HORTICULTURAL DEPARTMENT.

This department is controlled by Mr. James Carew, an officer whose work and instruction are much appreciated by students, school teachers, and visitors.

The following is a brief report on the work carried out:—During the year a good supply of vegetables was maintained, and disposed of to the dining-hall and resident officers. Insect pests were very troublesome, especially grub and aphis (cabbages, cauliflowers, &c.), and sady bug (pumpkins and marrows). For the former, sprays of resin, caustic soda, fish oil, and Paris green were used with good results; while, for the latter, dusting with wood ashes, lime, and Paris green proved most successful. The young cabbage plants in the seed beds were regularly treated with resin-water and black-leaf tobacco extract, to prevent the attacks of the cabbage moth and aphis. Considerable difficulty has been experienced in keping the land clear of weeds and grass, the year having been, until the latter part, favourable to their growth; the principal cause of this trouble may be attributed to the want of frosts during the early portion of the winter. A new area of land, 4 acres in extent, has been broken up and fenced-in for gardening purposes; this, with a good water supply, should be of great value. Rhodes and Wonder grasses have been planted in a portion of the land formerly devoted to gardening purposes, and more land is under preparation for further plantings of grasses. About half an acre has been manured for cabbages and cauliflowers; this has been irrigated, and the plants are now making good growth; this plot was also mulched with farmyard manure. Quarter of an acre has been treated for onions, a mixed manure being applied, half consisting of sawdust (well decomposed), farmyard manure, and ashes; for the other half fowlyard manure and ashes were employed. Irrigation has been employed for the different vegetables as required, in each case with good results.

The following is a list of vegetables which have been successfully grown during the year, including many varieties of each:—Asparagus, cabbage, cauliflower, borecole, kohl-rabi, tomatoes, lettuce, leeks, turnips, rhubarb, melons, sweet potatoes, cucumbers, beans, beetroot, carrots, pumpkins, chicory, capsicums, squashes, radishes, vegetable marrows, peas, parsnips. Swede turnips, onions, and rock melons were also grown, but did not yield well. Small plots of herbs—viz., parsley, sage, thyme, marjoram, and mint were also sown, and are doing well; also, horseradish, sea kale, eschalots, chicory, salsify, tree-onions, and ginger. A number of varieties of English potatoes were also grown, but, owing to the amount of rain at the time of planting, a number of the tubers rotted; this was followed by a period of very dry weather during growth, consequently the yield was not great, although some of the varieties were very productive. The following are the names, placed in order of merit:—Snowflake, White Rough, Sutton's Abundance, Clarke's Main Crop, Maule's Early Thoroughbred, Beauty of Hebron, Vicars, Sussex Champion, Carmen's No. 1, Daniels' Sensation, Satisfaction, Manhattan, Excelsior, Duck Molly Champion, La Brittany, Fiddler's Reading Giant, Chancellor, White Elephant, Sutton's Flour Ball, Magnum Bonum,

Early Puritan, Acme, Flounder, Lapstone Kidney (failed). The garden is now in good condition, and the young vegetables are looking well. The number of hours worked by students was 3,931; by horses, 2,580.

ORCHARD.

The following fruit trees carried good crops in the old orchard (on the creek):—Peaches, pears, plums, quinces, mandarins, persimmons, and figs. With the exception of the early-maturing peaches and plums, however, the four first-named suffered badly from the fruit fly. Some peaches of very good quality came to maturity. The late varieties (with the exception of the fruit harvested while green for stewing and jam-making) had to be destroyed, being for the most part boiled and fed to the pigs. The gathering and destroying of the affected fruit takes up a great deal of time, and, although absolutely necessary, has not been productive of good results. The fruit fly did not make its appearance so early this year, due, I think, to the mild summer before the New Year. The fig crop was considerably damaged by wet weather at the time of maturing, the fruit bursting open. Flying foxes were also very destructive, being more destructive this year than usual. The apricots, apples, and almonds did not bear well. With the assistance of the students, all the trees were pruned, and nearly all sprayed. The young trees in the creek orchard were treated with sulphur, lime, and salt wash, this being found very effective for scale and general purposes. The figs were sprayed with lime wash, while for the old plum and pear trees resin, caustic soda, and fish oil were used. The mandarins and oranges were cyanided, in each case with satisfactory results. Owing to the wet weather in the early spring, and pressure of work during the summer, the trees on the College Hill were not sprayed this year. With a view to keeping couch grass in check and loosening the surface soil, a crop of cowpea was grown between the trees during the summer; this has now been ploughed in. Cowpea was also grown between the young trees in the creek orchard. The old trees were chipped around and cultivated constantly during the year, and are now in good condition. The number of hours worked in the orchard by students was 1,665, while horses were employed on it for 878 hours.

VINEYARD.

The work of pruning, training, and spraying the vines was carried on in the early spring. The wet weather at this time caused the black-spot disease to put in an appearance, with the result that, although the vines were powdered with sulphur and sprayed regularly with Bordeaux mixture, most of the berries on the Black Prince, Monnuka, and Lady Down varieties fell off. Among the varieties that matured good crops were the Golden Champion, Black Hamburg, Black Morocco, Ferdinand de Lesseps, Goethe, Alvey, and Isabella. The Royal Ascot and Black Portugal were affected by fruit fly and wet weather, consequently they did not give a good return. The land in this area was ploughed and harrowed three times, and cultivated several times; it is now in a good state of cultivation. Hours worked by students, 324; horses, 148.

SISAL HEMP.

This plot has been ploughed and harrowed twice during the year. The rows were chipped, and all vacancies filled. The plants are healthy, and making steady progress.

ORNAMENTAL GROUNDS.

The principal work in this branch was cleaning up, mowing grass, weeding, and keeping the grounds in order generally. Good rains fell in the early spring, causing a vigorous growth of grass, necessitating a large amount of work. Ninety-six trees were planted on the Siding road, most of which have made good growth, although about twenty have died. Hours worked by students, 2,044; by horses, 244.

Lectures to students were delivered on gardening and fruit and vine culture, also practical demonstrations were given of digging, seed-sowing, planting, budding, and grafting fruit trees and grape vines, and preparing and planting cuttings. The students throughout have conducted themselves creditably, and good progress has been made.

Returns.—Garden, £95 10s. 8d.; orchard, £11 2s. 10d.; vineyard, £4 12s. 8d. Total, £111 6s. 2d.

PIG-RAISING.

This industry is entrusted to a very capable man, in the person of Mr. H. Hillier, whose careful attention to his duties is worthy of praise. From the figures embodied in the report, it will be observed that profitable results have been obtained in every branch of the business. The quality of the animals now kept is much superior to that of the pigs kept in the past. The demand for our pedigreed stock for breeding purposes is much greater than the supply. The pigs disposed of are highly thought of, and have been despatched to various parts of the State. We have not received a single complaint during the year. The greatest demand exists for the Berkshire; next in favour comes the Middle Yorkshire; the latter is largely used for crossing purposes. Our experience goes in favour of the Middle Yorkshire, animals of this particular breed being a quick-growing, small food consumers, prolific breeders, and producing unsurpassable bacon. The next in order of merit is the Middle Yorkshire cross—Yorkshire boar with Berkshire sow. This breed is also prolific and quick-growing; the Yorkshire blood, moreover, gives size and quality to the hams. The Berkshire boar crossed with the Tamworth sow produces very good results; the animals so produced are very lengthy, slow-maturing, large food consumers, and with small, light hams. The pigs, being the scavengers of the place, cost but little to maintain; the refuse from the kitchen, waste products from the dairy, farm, and slaughter-yards, are all sources from which the greater part of their food is drawn. Students are taught the business of breeding, selection, mating, and feeding of the animals, together with the methods of bacon-curing. Much information on the subject has also been disseminated by correspondence amongst farmers and others requiring same.

PIGS ON HAND, 30TH JUNE, 1907.

Berkshires—			
Stud boars	2 head		
Young boars	9 „		
Stud sows	16 „		
Young sows	14 „		
			41 head
Middle Yorkshires—			
Stud boars	2 head		
Young boars	1 „		
Stud sows	8 „		
Young sows	6 „		
Suckers	12 „		
			29 head
Large Yorkshires—			
Stud boar	1 head		
Stud sows	4 „		
Suckers	4 „		
			9 head
Tamworths—			
Stud sows			34 head
British Large Black—			
Stud boar	1 head		
Stud sow	1 „		
			2 head
Store pigs			31 head
Total number of pigs now at College			115 head

SALES OF PIGS—1ST JULY, 1906, TO 30TH JUNE, 1907.

	£	s.	d.	£	s.	d.
Berkshires—						
Boars (37)	76	10	0			
Sows (43)	48	0	0			
				124	10	0
Mid. Yorkshires—						
Boars (30)	57	4	0			
Sows (24)	33	7	0			
				90	11	0
Large Yorkshires—						
Boars (3)	5	16	0			
Sows (18)	18	14	0			
				24	10	0
Tamworth—Sow (1)				1	10	0
Berks.—Sows in pig (4)				12	19	0
Stores (21)	8	15	0			
Baconers (33)	66	3	9			
				74	18	9
				£328	18	9
Service of Sows (23 at 5s.)				5	15	0
				£334	13	9
Killed for Dining Hall (33)				81	1	0
Total returns from piggery				£415	14	9

DISPOSAL OF SHEEP.

On hand 30th June, 1906	14	head
Purchased 16th October, 1906	38	„
Purchased 23rd January, 1907	40	„
	92	head
Killed for Dining Hall during year	91	„
Died	1	„
	92	head

Wool to the value of £3 12s. 9d. was obtained from the above 14 head.

POULTRY.

We have now thirteen breeding pens at the College, the number of breeds represented being ten. The present is the best collection we have ever had, both as regards exhibition and also utility qualities. We have also for disposal about forty pullets, the same number of young hens, and a few cockerels, these being all that are left after the year's sales. Three hundred chickens were hatched during the year. The fertility of the eggs was good, and the mortality amongst the young birds small. I am pleased to be able to report that, so far, we have had no contagious diseases amongst our poultry. The laying

competition still continues to be a success, and great interest is shown in this and the poultry generally by the many visitors that come to the College. Details of sales and particulars of the laying competitions are given below.

SALES OF POULTRY AND EGGS DURING YEAR, 1ST JULY, 1906—30TH JUNE, 1907.

	£ s. d.	£ s. d.
Black Orpingtons—		
9 Cockerels, 1 pullet	6 13 6	
Eggs, 4½ settings	2 5 0	
		8 18 6
Buff Orpingtons—		
4 Cockerels, 5 pullets	4 5 0	
Eggs, 1 setting	0 10 0	
		4 15 0
S. L. Wyandottes—		
5 Cockerels, 5 pullets	6 7 0	
Eggs, 5 settings	2 10 0	
		8 17 0
W. Wyandottes—		
3 Cockerels, 5 pullets	4 15 0	
Eggs, 1 setting	0 10 0	
		5 5 0
W. Leghorns—		
11 Cockerels	5 2 6	
Eggs, 14 settings...	7 0 0	
		12 2 6
B. Leghorns—		
6 Cockerels, 2 pullets	4 7 0	
Eggs, 1½ setting	0 15 0	
		5 2 0
Dorkings—		
7 Cockerels, 5 pullets		6 15 0
Plymouth Rocks—		
4 Cockerels, 3 pullets	3 10 0	
Eggs, 1 setting	0 10 0	
		4 0 0
Minorcas—		
3 Cockerels, 3 pullets	3 5 0	
Eggs, 1½ setting	0 15 0	
		4 0 0
Old English Game—		
Eggs, 1 setting		0 10 0
Turkeys—		
2 Gobblers, 4 hens	6 6 0	
Eggs, 3⅔ settings...	2 15 0	
		9 1 0
Sold College officers, 38 dozen eggs		1 15 2
Sold Government Stores, for Goodna, 180 dozen eggs		5 12 1
Total		£76 13 3
Supplied dining-hall—		
Eggs, 1,111 dozen	43 0 10	
Fowls, 136 head	13 1 6	
Ducks, 4 head	0 8 0	
Turkey, 1 head	0 6 0	
		56 16 4
Total returns from poultry		£133 9 7

EGG-LAYING COMPETITIONS.—The third egg-laying competition came to an end on 31st March last. It may, I think, be considered to have proved a decided success. The total number of eggs laid was 31,960—75 in excess of that obtained during the previous year from the same number of pens, their value being £98 11s. 11d. The cost of feed amounted to £35 5s. 5d., thus leaving us with a net profit, exclusive of the cost of labour, of £63 6s. 6d. The records in many instances would have been higher if competitors had sent birds of a more suitable age, many were too young for laying during the first month or more of the competition. Taken all through, however, the birds were splendid layers, this largely accounts for the excellent results obtained, for without good material it is impossible to get good results. A few of the pens were most inveterate sitters, and, during the summer months, lost much time through being broody. The weather nearly all through the competition was favourable for egg production. The grass runs supplied an abundance of green feed throughout, there being a failure in this respect during one month only of the summer. The competition demonstrates what can be done in the way of profitable egg-production if good laying hens are employed, and there is no doubt that this and similar competitions have been very largely instrumental in inducing breeders to give more attention to the laying qualities

of the different breeds. The following pens were awarded the prizes offered by the Department of Agriculture:—

	Number of Eggs.	Value. £	s.	d.
Range Poultry Farm, Toowoomba (White Leghorns)	1,480 ...	4	16	7½
Wharepaka Poultry Yards, Wahroonga, N.S.W. (White Leghorns) ...	1,340 ...	4	4	5
Chas. Brasch, Gympie (Black Orpingtons)	1,279 ...	4	2	2

The pen of White Leghorns owned by Mrs. Craig, of Miriam Vale, laid 1,285 eggs, value £4 1s. 6¾d.; but, as prizes were awarded for value, the third place was given to Mr. Brasch.

The fourth competition commenced on 1st April. The call for entries met with a very poor response, only twenty-five being received. As there were several unoccupied yards, three pens of College-bred birds were placed amongst the competitors, for the sake of comparison. A far better start has been made this time, the total for the three months to the end of June being 4,996 eggs (from 28 pens), as against 4,548 (from 29 pens) for the same period last year.

APIARY.

The bees have not done so well since the paddocks were ringbarked, the average per hive for the season being only 80 lb. of honey.

Honey, sundry sales, 51 lb. at 3d.	0	12	9
Honey, dining-hall, 2,420 lb. at 3d.	30	5	0
Comb honey, dining-hall, 28 lb. at 4d.	0	9	4
Total returns from Apiary	£31	7	1

ENGINEER'S DEPARTMENT.

Mr. Lyle, the officer in charge of this branch, reports that the steam-power working plant which comes directly under his supervision comprises:—

One portable steam engine and boiler, used for farm work;
One portable steam boiler, used for auxiliary work;
One vertical cross-tube steam boiler, used for water supply;
One vertical Duplex steam pump, used for water supply;
One return tubular steam boiler, used for dairy and electric light;
One horizontal steam engine, used for dairy and electric light;
One ammonia compressor, used for refrigeration;
One dynamo (75 amp.), used for electric light;
One return tubular steam boiler, used for irrigation;
One vertical steam engine, used for irrigation;
One 8-inch centrifugal pump, used for irrigation;
One Duplex steam pump, used for circulating cooling water and boiler feed at dairy;
One Duplex steam pump, used for auxiliary purposes at pumping station.

In addition to the ordinary attention and maintenance repairs incident to the working of the above plant, a considerable portion of Mr. Lyle's time has been taken up with imparting instruction in applied mechanics to the students, who are being constantly passed through his department, also in supervising students on such practical work as they may have become capable of being entrusted with, such as the following:—Steam-boiler attendance and engine-driving, attending electric-lighting plant, water-supply pumping plant, irrigation water supply plant, refrigerating plant. Special instruction has also been given to students who were desirous of becoming candidates for certificates as boiler-attendants or engine-drivers. During the past year students have had many opportunities of observing and assisting the engineer in carrying out work of such a nature that it should greatly benefit them in their future careers. The following are the principal works performed during the year in connection with this department:—Cleaning and repairing boilers and engines; overhauling and rearranging the water system for refrigerating purposes, to secure greater efficiency and cleanliness in and around the dairy; overhauling the refrigerating plant for cooling-room repairs.

SMITHY WORK.

This department is under the control of a very competent officer—W. Strath—who takes much interest in the welfare of the students assigned to him. The work in connection with this department is very popular, and consists of shoeing the College horses, repairs to vehicles and implements, and general work that requires to be done by the farmer. Many of our lads can shoe horses in a creditable manner, and are proficient in the repairing of farm implements, &c.

CARPENTRY WORK.

The carpenter, together with the students from time to time assigned to him, has been kept busy throughout the whole year. The work consisted of keeping buildings, wagons, drays, and other farm implements in repair, also making gates, culverts, fencing, and other necessary work. Some of our students who take an interest in the work are very efficient in the use of tools.

CONSERVATION OF FODDER.

During the year two new silos were erected—one of galvanised iron (capacity, 60 tons), the other of fibro-cement (120 tons). These, together with the wooden one built ten years ago, give us three silos, with a total capacity of 220 tons. The cost of erecting the iron silo was £63, and the fibro-cement £141.

The wooden silo, which is oblong in shape, was filled on 23rd March, and contained 39 tons—viz., 33 tons 15 cwt. of maize and cowpea, 4 tons 5 cwt. sorghum, and 1 ton lucerne. After filling, the temperature was taken at various periods, as follows:—

	Deg. Fahr.		Deg. Fahr.		Deg. Fahr.
25 March ...	115	8 April ...	128	22 April ...	128
27 „ ...	117	10 „ ...	128	24 „ ...	128
29 „ ...	120	13 „ ...	128	27 „ ...	128
2 April ...	122	15 „ ...	128	1 May ...	127
4 „ ...	124	17 „ ...	128	4 „ ...	127
6 „ ...	127	20 „ ...	128	7 „ ...	127

This silo was opened on 27th May, when the silage was found to be in excellent condition, with the exception of 4 per cent. loss at the corners, where it had been found difficult to trample down closely. The ensilage was readily eaten by the animals. For feeding results, see feeding experiments contained in this report. In the case of the round galvanised-iron silo, filling was commenced during the first week in April, and concluded in four days from the date of starting. The fodder used included 50 tons 16 cwt. of sorghum and 1 ton of green lucerne. During the filling, six students and one man were occupied the whole of the time in trampling the stuff down. One ton of green lucerne was placed on top for the purpose of forming a surface for the exclusion of air. As in the case of the wooden silo, the temperature was recorded at different times, with the following results:—

	Deg. Fahr.		Deg. Fahr.		Deg. Fahr.
6 April ...	112	24 April ...	132	27 May ...	128
8 „ ...	116	27 „ ...	132	3 June ...	128
10 „ ...	121	29 „ ...	131	10 „ ...	128
13 „ ...	126	1 May ...	130	17 „ ...	128
15 „ ...	130	4 „ ...	130	24 „ ...	128
17 „ ...	132	7 „ ...	129	8 July ...	126
20 „ ...	132	13 „ ...	129	22 „ ...	123
22 „ ...	132	20 „ ...	129		

Three weeks after filling this silo, a gradual decay was observed to take place in the material which came in contact with the iron wall, to such an extent that at the present time there is 24 inches of rotten material all round the structure. This is an occurrence similar to what I have seen in the case of two iron silos on the Darling Downs and one in Victoria. The trouble is brought about, in the first place, by reason of the structure not being airtight; and it cannot, therefore, in the proper sense of the word, be termed a silo. Secondly, the thinness of the material of which it is built allows a too great variation of temperature for the conservation of sound ensilage. It is a recognised fact that, in other parts of the world, it has been found necessary to build double-lined wooden silos within the walls of barns or other buildings, in order to prevent the deterioration of the silage. We have had the same experience here in connection with a single-lined silo. The fibro-cement silo was filled on 19th April. It contained 87 tons 7 cwt. of maize and 19 tons 5 cwt. of lucerne, or a total of 106 tons 12 cwt. As in the case of the other silos above referred to, the temperature was recorded on various occasions, results being as follow:—

	Deg. Fahr.		Deg. Fahr.		Deg. Fahr.
10 April ...	96	27 April ...	114	3 June ...	109
13 „ ...	98	29 „ ...	114	10 „ ...	108
15 „ ...	102	1 May ...	114	17 „ ...	107
17 „ ...	106	7 „ ...	114	24 „ ...	105
20 „ ...	110	13 „ ...	114	1 July ...	104
22 „ ...	112	20 „ ...	113	8 „ ...	102
24 „ ...	114	27 „ ...	111	22 „ ...	100

Success cannot be claimed for this class of silo. In the first place, it is costly—more so than a permanent structure such as brick and cement; secondly, the loss of silage is too great to commend such a silo to the favourable notice of farmers. It is also a fact that the life of the fibro-cement silo is but a short one. The cement in ours has already broken in several places, it has bulged in the middle, and the ruberoid used in the corners has completely collapsed, allowing the air to enter the silage, with the result that a considerable loss has taken place. The fibro-cement being thicker than the galvanised iron, the loss at the sides has not been so great, although it is too great to warrant this class of silo coming into favour. The loss of food material is 21 inches all round—this is greater than in the case of stack silage. In connection with these two new silos, I may point out that the greatest care was taken in the filling and trampling down of the stuff. All results were carefully recorded. I have, therefore, to state with regret that both are an utter failure.

During the year the usual display of products from the College was made at the Brisbane Exhibition, and, it is thought, did much credit to the institution.

STUDENTS' PROGRESS AND CONDUCT.

I am pleased to be able to report that good progress has been made all round, and keen interest has been displayed by the students, with few exceptions, in acquiring knowledge. During the year twenty-nine students passed examinations in milk and cream testing, and twenty-two were successful in obtaining certificates as boiler attendants. The conduct of the young men has been, on the whole, exceptionally good.

SCHOOL TEACHERS' COURSE.

A winter course of ten days' instruction for school teachers was conducted, and, I am pleased to be able to state, was a great success. The sixty teachers who took part were, without exception, most desirous of acquiring knowledge. I may further point out that the knowledge gained from this source

has already been productive of good results. The teachers impart the knowledge gained at the College, not only to the school children, but also to the farmers and dairymen. The knowledge acquired is also demonstrated in a practical manner by the fact of experimental plots being cultivated, and grasses and fodder plants being grown, thereby enabling the farmer to know the varieties best suited for the different districts. With these short courses, it is not claimed that we turn out experts, but we do claim that useful knowledge is imparted, and from this the man on the land derives the benefit.

CORRESPONDENCE.

As usual, a large amount of information on farming and kindred matters has been asked for and supplied by letter. Over 2,400 letters on various matters have been dealt with. This, together with the keeping of records of work actually carried out, involves much office work.

VISITORS.

During the year we have had 1,027 visitors, including several large parties of farmers, whose visits were for the purpose of acquiring information to assist them in the working of their own farms. Every effort has been made to enable such parties to derive benefit from their visit.

It is to be regretted that many of the farmers and others living in the neighbourhood of the College do not make better use of the opportunities for instruction than they do. Some of them have never been within the College, and know nothing of the work done; others are entertained only at long intervals; and the fact remains that farmers and others residing at a distance know more than some of those in the district.

In conclusion, I may point out that loyalty and good feeling has existed among the teaching staff at the College, all of whom are desirous of doing good work and maintaining the dignity of the institution.

JOHN MAHON, Principal.

REPORT OF THE AGRICULTURAL CHEMIST.

SIR,—I have the honour to submit to you herewith my tenth Annual Report, relative to the work of the chemistry division of your Department, for the year ending 30th June, 1907.

STAFF.

During the year another cadet assistant was added to our staff, which increase was necessary in order to deal with the large amount of work added to our duties in connection with the Dairy Act.

The whole staff deserves great credit for the carrying out of their respective duties, and the cadets made very fair progress.

LABORATORY.

Our laboratory accommodation is hardly sufficient for our requirements, and more particularly the large sand-blast machine, which was purchased for the official branding of dairy glassware, requires more room. An addition to our laboratory building will be sooner or later absolutely necessary, as I like to see our work expand in various directions and thereby increase the commercial value of our laboratory work.

WORK PERFORMED.

On the table following I give a summary of the analytical and other work performed during the year, enumerating at the same time for comparison the work done previous years:—

—	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.
Soils and Rocks	36	48	15	2	...	...	13	14	18
Waters	6	1	5	...	...	1	3	28	15
Dipping Fluids	...	3	...	4	6	10	49	117	181
Milk and Cream	11	...	...	...	...	...	14	213	201
Butters	2	...	...	1	...	3	67	95	57
Cheese	...	...	...	2	...	...	12	3	16
Manures	6	4	11	...	...	1	...	16	26
Food Grains	...	3	...	...	34	40	31	6	
Wheats, Milled	...	...	...	...	...	...	...	38	42
Green Manures	12	...	...	...	27	22	7	25	
Fodders and Grasses	...	...	4	4	35	23	8	47	13
Sugar-canes	...	2	...	1	...	252	76	65	227
Leathers, Hides	...	...	...	...	...	...	...	25	24
Tanning Materials	...	...	12	7	...	3	3	5	10
Various	6	5	18	16	60	24	41	35	18
Total Analyses	79	66	65	37	162	379	324	732	848
Glassware tested	...	...	...	...	...	...	24	57	6,940

In connection with this table it must be clearly understood that the actual number of analyses gives in many cases hardly a fair criterion of the analytical work performed, and I can mention as an instance soil analyses alone, which for several of the soils were carried out by a large number of different methods.

MILLING OF WHEATS.

This important work, the method of which was fully explained in last year's annual report, was continued, and the remainder of the wheats of the season 1905-6 put through. The results of these millings and of the full analyses of the flours obtained are reported on Table I.:—

TABLE I.—Wheat Analyses.

Variety of Grain.	Locality—Season.	Appearance of Grain.	Weight in lb. per Bushel.	Nitrogen in Wheat.	Total Proteids in Wheat.	Milling Products.			Gluten in Flour.			Appearance of Gluten.	Strength of Flour. Quarts per Sack.	Colour and Texture of Flour.	Moisture in Flour.	Ash in Flour.	Nitrogen in—			Proteids in Flour.	True Gluten in Flour.	Gliadin in Flour.	Ratio between Proteids, Gluten, and Gliadin in Flour.	Judging of Wheat by Points—Maximum Marks, 100.	Milling Notes.
						Flour.	Pollard.	Bran.	Wet.	Dry.	Ratio Wet to Dry.						Flour.	Gluten.	Gliadin.						
				%	%	%	%	%	%	%						%	%	%	%	%	%	%		
Budd's Early	J. Kates, Clifton, 1905	Poor sample, shrivelled, immature grain	65·8	1·990	12·44	68·0	7·5	24·5	27·9	9·2	3·04	Light in colour, soft, elastic, rather incoherent	43·0	·2 Br., ·5 R., ·9 Y., 39·0	13·46	·524	1·436	1·229	·685	8·98	7·67	4·28	116·8 100 55·7	80	1 coarse break, 3 fine breaks, 4 reductions
Steinwedel ...	ditto ...	Poor sample, shrivelled, immature grain	62·4	2·240	14·00	70·1	10·9	19·0	..	..	...	...	44·0	·5 Br., ·5 R., ·85 Y., 38·0	11·87	·660	1·893	...	·905	11·83	...	5·65	...	78	1 coarse break, 3 fine breaks, 4 reductions
Steinwedel ...	Roma—Roma Co-operative Milling Co., 1905	Poor sample, shrivelled	61·3	2·940	18·37	71·4	12·0	16·0	44·9	14·3	3·14	Soft, elastic, adherent	44·5	·02 Br., ·6 R., 1·6 Y., 34·6	11·33	·696	2·137	1·844	1 027	13·35	11·53	6·42	115·7 100 55·7	77	1 coarse break, 4 fine breaks, 4 reductions
Ward's Prolific	ditto ...	Poor sample, shrivelled	65·2	2·071	12·95	69·2	10·6	20·2	44·7	15·3	2·92	Very soft, elastic, coherent, and adhesive	45·0	·03 Br., ·5 R., ·8 Y., 33·5	12·47	·600	1·932	1·719	1·010	12·08	10·74	6·31	112·4 100 58·8	83	1 coarse break, 3 fine breaks, 4 reductions
Allora Spring	ditto ...	Poor sample, shrivelled	62·0	2·548	15·91	69·6	6·2	24·2	44·4	13·9	3·18	White, soft, elastic, and adherent	44·0	– ·4 R., ·9 Y., 35·6	12·61	·544	2·142	1·886	1·161	13·40	11·79	7·25	113·5 100 61·6	81	1 coarse break, 3 fine breaks, 4 reductions
Gluyas ...	ditto ...	Poor sample, shrivelled	60·9	2·955	18·47	69·9	10·9	19·2	...	...	...	...	47·0	– ·8 R., 1·1 Y., 32·7 ; fairly dark colour	11·32	·916	2·796	...	1·088	17·48	...	6·80	...	79	1 coarse break, 3 fine breaks, 4 reductions; too much conditioning with steam, had to dry products after breaks
Marshall's No. 3	ditto ...	Poor sample, shrivelled, immature grain	65·4	2·983	18·65	75·0	9·4	14·6	39·9	13·1	3·04	Soft, elastic, adherent	47·0	·1 Br., ·5 R., ·9 Y., 37·0	12·44	·748	2·089	1·793	1·038	13·05	11·21	6·49	116·5 100 57·6	80	1 coarse break, 3 fine breaks, 4 reductions; pollard very clean
Dart's Imperial	ditto ...	Poor sample, shrivelled	63·1	3·010	18·80	70·3	7·1	22·6	65·6	21·4	3·08	Soft, very elastic	45·0	·02 Br., ·5 R., ·8 Y., 34·4	12·02	·608	2·794	2·528	1·584	17·47	15·80	9·89	110·7 100 62·5	83	1 coarse break, 3 fine breaks, 4 reductions

TABLE I.—Wheat Analyses—*continued.*

Variety of Grain.	Locality—Season.	Appearance of Grain.	Weight in lb. per Bushel.	Nitrogen in Wheat.	Total Proteids in Wheat.	Milling Products.			Gluten in Flour.			Appearance of Gluten.	Strength of Flour, Quarts per Sack.	Colour and Texture of Flour.	Moisture in Flour.	Ash in Flour.	Nitrogen in—			Proteids in Flour.	True Gluten in Flour.	Gliadin in Flour.	Ratio between Proteids, Gluten, and Gliadin in Flour.	Judging of Wheat by Points—Maximum Marks, 100.	Milling Notes.
						Flour.	Pollard.	Bran.	Wet.	Dry.	Ratio Wet to Dry.						Flour.	Gluten.	Gliadin.						
				%	%	%	%	%	%	%					%	%	%	%	%	%	%	%			
Newman's Early	Roma—Roma Co-operative Milling Co., 1905	Poor sample, shrivelled	63·0	1·83	11·43	71·6	12·8	15·6	31·8	10·3	3·08	Soft, elastic, coherent, and adhesive	43·0	·2 Br., ·5 R., ·7 Y., 40·0	12·3	·612	1·608	1·334	·741	10·05	8·34	4·63	120·5 100 55·5	80	1 coarse break, 3 fine breaks, 4 reductions
Purple Straw	ditto ...	ditto	61·5	2·182	13·65	69·1	13·1	17·8	42·3	13·5	3·13	Soft, adherent, not very elastic	42·0	·06 Br., ·5 R., ·8 Y., 35·6	11·31	·660	2·033	1·784	·960	12·72	11·15	6·00	114 100 53·8	76	1 coarse break, 3 fine breaks, 4 reductions
Australian Wonder	ditto ...	ditto	63·2	2·925	18·27	70·5	10·6	18·9	65·4	21·1	3·11	Very soft, elastic, and adherent	45·0	– ·6 R., 1·1 Y., 34·5	12·83	·520	2·655	2·254	1·390	16·58	14·73	8·68	112·6 100 59	82	1 coarse break, 3 fine breaks, 4 reductions
Leatherhead	Roma—Roma, Henry Waldron, 1905	ditto	64·2	1·667	10·48	72·1	6·6	21·3	30·4	9·8	3·23	Soft, elastic	43·0	·01 Br., ·5 R., ·8 Y., 34·1	13·20	·572	1·499	1·289	·746	9·36	8·06	4·66	116·3 100 57·9	76	1 coarse break, 3 fine breaks, 4 reductions
Crossbred No. 12	State Farm, Hermitage, 1905	Very even plump grains. Good sample	64·5	2·495	15·59	66·5	10·0	23·5	36·8	13·7	2·69	Adhesive, coherent	48·6	– ·4 R., ·6 Y., ·1 Blue, 30·0	13·40	·568	2·300	2·018	1·851	14·37	12·60	11·56	114 100 60·7	84	1 coarse break, 3 fine breaks, 4 reductions; fairly hard to mill
Crossbred No. 24	ditto ...	Uneven grains, slightly pinched. Fair sample	61·0	2·907	18·15	67·8	21·6	10·6	53·3	17·7	3·15	Soft, adhesive, coherent	41·0	– ·3 R., ·8 Y., 36·3	11·20	·892	2·862	2·300	1·460	17·88	14·37	9·12	124·5 100 75·9	75	1 coarse break, 3 fine breaks, 5 reductions; fairly hard to mill
Crossbred No. 25	ditto ...	Uneven grains, pinched	61·4	2·745	17·15	69·3	5·2	26·5	51·4	17·7	2·91	Coherent, sticky, and elastic	41·0	·1 Br., ·4 R., ·8 Y., 40·0	12·27	·676	2·568	2·250	1·251	16·01	14·06	7·82	114 100 75·9	79	1 coarse break, 4 fine breaks, 4 reductions; easy to mill
Crossbred No. C 33	ditto ...	Good sample; plump grains, rather small	63·0	2·655	16·60	68·3	7·8	23·9	43·9	16·7	2·76	Elastic, adhesive	41·2	– ·4 R., ·7 Y., 34·3	15·67	·568	2·368	2·084	1·291	14·77	13·02	8·07	112 100 81·6	80	1 coarse break, 4 fine breaks, 3 reductions; easy to mill

TABLE I.—WHEAT ANALYSES—*continued.*

Variety of Grain.	Locality—Season.	Appearance of Grain.	Weight in lb. per Bushel.	Nitrogen in Wheat.	Total Proteids in Wheat.	MILLING PRODUCTS.			GLUTEN IN FLOUR.			Appearance of Gluten.	Strength of Flour. Quarts per Sack.	Colour and Texture of Flour.	Moisture in Flour.	Ash in Flour.	NITROGEN IN—			Proteids in Flour.	True Gluten in Flour.	Gliadin in Flour.	Ratio between Proteids, Gluten, and Gliadin in Flour.	Judging of Wheat by Points—Maximum Marks, 100.	Milling Notes.
						Flour.	Pollard.	Bran.	Wet.	Dry.	Ratio Wet to Dry.						Flour.	Gluten.	Gliadin.						
				%	%	%	%	%	%	%					%	%	%	%	%	%	%	%			
Crossbred No. 37	State Farm, Hermitage, 1905	Uneven, pinched grains. Fair sample	61·4	2·530	15·75	72·4	10·4	17·2	50·2	17·4	2·89	Elastic, coherent, and soft	43·4	– ·5 R., ·6 Y., 31·5	12·12	·804	2·525	2·192	1·336	15·78	13·70	8·37	115·2 100 78·4	79	1 coarse break, 3 fine breaks, 4 reductions
Crossbred No. 91	ditto ...	Uneven grains, shrivelled and pinched	61·1	2·485	15·55	68·5	13·1	18·4	52·8	17·9	2·95	Soft, elastic, adhesive	43·2	·14 Br., ·4 R., ·85 Y., 38·8	12·00	·706	2·470	2·150	1·375	15·45	13·43	8·59	115·4 100 64·8	81	1 coarse break, 3 fine breaks, 4 reductions
Crossbred No. 53	ditto ...	Large, fairly even grains, slightly pinched	62·0	2·780	17·34	70·3	10·1	19·6	54·7	18·6	2·94	Soft, elastic, coherent	44·6	– ·3 R., ·7 Y., ·15 Blue, 31·4	11·63	·852	2·714	2·442	1·409	16·99	15·27	8·18	111 100 70	83	1 coarse break, 3 fine breaks, 4 reductions
Crossbred No. 121	ditto ...	Very small, uneven grains, slightly pinched	62·4	2·702	16·90	67·6	10·3	22·1	51·3	17·5	2·93	Soft, sticky, elastic	43·8	– ·4 R., ·7 Y., 34·3	12·35	·736	2·951	2·297	1·295	18·49	14·35	8·95	128·6 100 75·8	79	1 coarse break, 4 fine breaks, 4 reductions
Crossbred No. C 343	ditto ...	Very uneven, pinched grains. Poor sample	62·0	2·535	15·84	69·1	7·1	23·8	47·7	17·1	2·78	Soft, coherent	41·6	·08 Br., ·5 R., ·9 Y., 36·5	10·70	·840	2·470	2·140	1·250	15·43	13·37	7·85	115·4 100 58·7	79	1 coarse break, 4 fine breaks, 3 reductions
Crossbred No. 181	ditto ...	Very small, uneven grains, pinched	62·0	2·597	16·23	70·3	10·9	18·8	45·6	16·0	2·84	...	37·9	– ·4 R., ·6 Y., ·08 Blue, 30·6; poor colour, speckled	12·22	·728	2·540	2·184	1·454	15·88	13·65	9·08	116·5 100 79·2	77	1 coarse break, 4 fine breaks, 5 reductions; very easy to mill; very little break flour; flour gritty
Crossbred No. 347	ditto ...	Good grains, fairly plump and even	63·5	2·723	17·01	68·9	13·4	17·7	55·3	18·3	3·02	...	47·7	– ·4 R., ·8 Y., 32·9; fair colour, speckled	11·56	·924	2·340	2·311	1·380	14·62	14·42	8·62	101·5 100 74·6	87	1 coarse break, 3 fine breaks, 4 reductions
Crossbred No. 349	ditto ...	Fairly even grain, shrivelled, medium sample	60·3	2·902	18·13	69·4	9·1	21·5	53·6	17·9	3·00	...	41·9	– ·5 R., ·85 Y., ·05 Blue, 32·9; fair colour, speckled	11·40	·800	2·648	2·464	1·386	16·5	15·5	8·66	107·5 100 69·6	78	1 coarse break, 4 fine breaks, 4 reductions

TABLE I.—Wheat Analyses—*continued.*

Variety of Grain.	Locality—Season.	Appearance of Grain.	Weight in lb. per Bushel.	Nitrogen in Wheat.	Total Proteids in Wheat.	Milling Products.			Gluten in Flour.			Appearance of Gluten.	Strength of Flour, Quarts per Sack.	Colour and Texture of Flour.	Moisture in Flour.	Ash in Flour.	Nitrogen in—			Proteids in Flour.	True Gluten in Flour.	Gliadin in Flour.	Ratio between Proteids, Gluten, and Gliadin in Flour.	Judging of Wheat by Points—Maximum Marks, 100.	Milling Notes.
						Flour.	Pollard.	Bran.	Wet.	Dry.	Ratio Wet to Dry.						Flour.	Gluten.	Gliadin.						
				%	%	%	%	%	%	%	%						%	%	%	%	%	%			
Crossbred No. 353	State Farm, Hermitage, 1905	Slightly pinched, fairly even. Medium sample	62·0	2·689	16·80	72·3	10·2	17·5	42·3	16·0	2·65	Sticky, coherent	39·5	·07 Br., ·4 R., ·85 Y., 37·2; good colour, speckled	11·89	·628	2·353	2·012	1·167	14·70	12·56	7·28	117 100 85	8	1 coarse break, 4 fine breaks, 4 reductions
Crossbred No. 504	ditto ...	Very uneven grains, pinched. Poor sample	60·1	2·456	15·35	70·4	15·3	14·3	41·9	14·6	2·86	Soft, sticky, coherent	38·0	– ·5 R., ·9 Y., ·13 Blue, 31·5; poor colour, very speckled	11·56	·812	2·202	1·936	1·179	13·76	12·10	7·37	114 100 88·4	77	1 coarse break, 3 fine breaks, 4 reductions
Hermitage No. 1	ditto ...	Very uneven, small, pinched, and immature	57·3	2·155	13·47	68·5	6·7	24·8	39·5	14·3	2·77	Very elastic, light in colour	40·1	– ·6 R., ·85 Y., 32·9; fair colour, speckled	11·97	·820	2·338	1·884	1·235	14·60	11·75	7·22	124·2 100 51·5	74	1 coarse break, 4 fine breaks, 3 reductions
A "New" Crossbred	ditto ...	Very small, uneven, pinched	62·0	2·769	17·30	69·5	9·0	21·5	42·4	15·3	2·78	Tough, non-coherent, dark in colour	46·4	– ·4 R., ·75 Y., 34·6; very speckled, very fair colour	12·23	·682	2·923	1·978	1·283	18·25	12·35	8·20	137·6 100 66·3	80	1 coarse break, 3 fine breaks, 5 reductions
Battlefield ...	ditto ...	Uneven, immature, shrivelled. Very poor sample	63·5	2·495	15·60	66·2	20·6	13·2	42·0	14·8	2·87	Soft, elastic, coherent	45·7	– ·4 R., ·85 Y., 32·9; fair colour, very speckled	11·80	·724	2·245	1·997	1·121	14·25	12·47	7·10	114·2 100 85·1	80	1 coarse break, 4 fine breaks, 4 reductions
Yandilla ...	ditto ...	Uneven grains, small and pinched	61·5	2·733	17·09	73·2	10·7	16·1	55·6	18·5	2·99	Soft, elastic, coherent, and adhesive	47·0	– ·45 R., ·75 Y., 34·0; very speckled, very fair colour	10·30	·752	2·965	2·301	1·194	18·51	14·45	7·44	128·3 100 73·9	85	1 coarse break, 3 fine breaks, 5 reductions
Kubanka ...	ditto ...	Fairly good sample, plump even grains	62·8	2·635	16·45	71·8	13·7	14·5	49·8	17·1	2·91	Soft, elastic, coherent	43·8	– ·5 R., ·95 Y., ·05 Blue, 33·7; fair colour, speckled	11·65	·974	2·940	2·360	1·252	18·36	14·75	7·85	124·5 100 72·4	82	1 coarse break, 3 fine breaks, 5 reductions; bran very clean, transparent, hard to mill
Black Don ...	ditto ...	Good sample, even grains, very few immature	63·5	2·621	16·39	66·6	12·0	21·4	50·8	18·9	2·86	Tough, non-coherent, rather crumbly	51·2	– ·4 R., ·7 Y., ·12 Blue, 30·9	9·62	1·22	2·745	2·334	1·311	17·15	14·57	8·20	120 100 73·6	75	1 coarse break, 3 fine breaks, 4 reductions; very little break; flour very fine; flour very gritty.

TABLE I.—WHEAT ANALYSES—*continued.*

Variety of Grain.	Locality — Season.	Appearance of Grain.	Weight in lb. per Bushel.	Nitrogen in Wheat.	Total Proteids in Wheat.	MILLING PRODUCTS.			GLUTEN IN FLOUR.			Appearance of Gluten.	Strength of Flour. Quarts per Sack.	Colour and Texture of Flour.	Moisture in Flour.	Ash in Flour.	NITROGEN IN —			Proteids in Flour.	True Gluten in Flour.	Gliadin in Flour.	Ratio between Proteids, Gluten, and Gliadin in Flour.	Judging of Wheat by Points—Maximum Marks, 100.	Milling Notes.
						Flour.	Pollard.	Bran.	Wet.	Dry.	Ratio Wet to Dry.						Flour.	Gluten.	Gliadin.						
				%	%	%	%	%	%	%					%	%	%	%	%	%	%	%			
Petatz Surprise	State Farm, Hermitage, 1905	Very uneven, immature grains and pinched	59·5	2·797	17·45	72·1	7·5	20·4	54·6	19·9	2·75	Sticky, coherent, non-elastic	43·8	– ·05 Br., ·55 R., 1·05 Y., 35·9; very fair colour, speckled	9·88	·842	2·842	2·170	1·290	17·75	13·56	8·79	131 100 79·5	81	1 coarse break, 3 fine breaks, 4 reductions
Budd's Early	ditto ...	Fairly even, slightly shrivelled, medium sample	63·0	2·295	14·34	74·0	8·9	17·1	43·2	15·0	2·88	Soft, coherent, adhesive, light in colour	41·7	– ·60 R., ·95 Y., ·04 Blue, 33·1; fair colour, speckled	12·34	·676	2·215	1·931	1·140	13·82	13·07	7·12	113·8 100 58·9	84	1 coarse break, 3 fine breaks, 4 reductions; bran large and clean; pollard clean; easy to mill; over-milled
Baroota Wonder	ditto ...	Very uneven grain, slightly shrivelled	60·1	2·420	15·11	70·0	9·0	21·0	42·6	15·9	2·66	Tough, adhesive	44·4	– ·50 R., ·85 Y., 33·9; very fair colour, speckled	13·45	·730	2·230	1·941	·657	13·92	12·13	4·11	114·5 100 33·8	76	1 coarse break, 3 fine breaks, 4 reductions; large bran fairly clean; pollard fairly clean; easy to mill
John Brown	ditto ...	Very uneven, shrivelled, pinched	59·0	2·168	13·51	69·4	9·9	20·7	47·2	18·1	2·60	Tough, rather loose in texture	49·4	– ·5 R., ·85 Y., ·05 Blue, 32·9; fair colour, speckled	11·40	·636	2·572	2·210	1·252	16·10	13·80	7·83	116·6 100 56·8	80	1 coarse break, 3 fine breaks, 4 reductions; bran not very clean; pollard clean; fairly easy to mill
Cumberland	ditto ...	Uneven grain, immature, pinched	63·2	2·450	15·30	70·1	9·5	20·4	42·0	14·5	2·90	Soft, elastic, coherent, and adhesive	48·9	·08 Br., ·60 R., 1·05 Y.; fair colour, speckled	10·8	·764	2·235	1·927	1·225	13·90	12·04	7·66	115·5 100 63·6	84	1 coarse break, 3 fine breaks, 4 reductions; bran fairly clean; pollard clean; easy to mill
Schnider ...	ditto ...	Very uneven, slightly pinched. Poor sample	61·1	2·235	13·95	71·0	8·6	20·4	39·5	14·4	2·72	Tough, coarse, dark	44·5	– ·50 R., 1·00 Y., ·07 Blue, 33·6; fair colour, speckled	10·8	·796	2·098	1·805	·914	13·12	11·27	6·76	116·5 100 60	76	1 coarse break, 3 fine breaks, 4 reductions; bran fine, not very clean; pollard clean; fairly easy to mill
Manitoba ...	ditto ...	Fairly even grain, slightly shrivelled	62·5	1·995	12·46	72·4	11·5	16·1	39·2	13·9	2·84	Elastic, coherent, tough	52·6	– ·60 R., ·85 Y., 33·9; very fair colour, speckled	10·15	·648	2·155	1·82	1·263	13·46	11·36	7·92	118·5 100 69·6	...	1 coarse break, 3 fine breaks, 4 reductions; bran clean and small; pollard clean; fairly easy to mill

At present it is quite impossible to come to any conclusions from the work so far done, and more particularly for the value of "strength," on which the commercial value of flour from the baker's point of view, is chiefly based, no law can be formulated. As a matter of fact, so far, no generally satisfactory reasons have been brought forward to explain to which factors the strength of a flour is really due; it seems that strength may vary in the same variety of wheat if grown in a different locality, and in different climatic conditions, and again if milled differently.

FODDERS AND GRASSES.

I was very much disappointed that during the year not more samples of fodders, grasses, and green manures were received from the different State Farms, and more particularly so because the series of analyses carried out this year show a striking difference compared with last year's samples. Some of the grasses which turned out particularly well last year are not so nutritious this year, and *vice versâ*. It is also very noticeable that the undetermined portion of the fodder, entered as *chlorophyll, amides*, &c., is in all cases very much higher this year than last year, whereas the amounts of fibre are on the whole very much lower, although the analytical methods employed were in all cases exactly the same.

This year's sample of Mazzagua Chaff is very poor in nitrogenous matters, and it is not to be wondered that, as reported by the manager of Biggenden State Farm, cattle did not thrive on this feed.

Canary Grass (*Phalaris commutata*) was obtained from two of the State Farms, and the two analyses agree very closely, and prove the grass to be a highly nutritious fodder. It is interesting to note that this grass contains small amounts of a prussic acid yielding glucoside, which was determined quantitatively in a second sample of the green fodder obtained from Westbrook State Farm, and was found to yield ·0023 per cent. or ·16 grains of hydrocyanic acid per pound of green material. This amount is about the same as usually found in fairly ripe sorghum and in maize, and the grass may, therefore, be used, even when young, with perfect safety as a cattle food.

Rather interesting is the analysis of Sheeps Burnett, which is analysed for the first time. This hardy perennial herb grows from 1 to 2 feet high; it has a very long tap root, and, therefore, withstands droughts well; it grows well on a light calcareous soil. From the analysis can be learned that the fodder is very nutritious, and deserves a much more extensive cultivation.

The composition of Rib Grass, another hardy perennial, is also very satisfactory. The complete analyses of the grasses and fodder analysed are given on Table II.

TABLE II.—Analyses of Grasses: Fodder Plants, Ensilage, Etc.

Variety and Locality.			Tons per Acre.	Moisture.	Total Dry Substance.	Proteins or Albuminoids.			Woody Fibre (König's Method).	Pentosans.	Starch.	True Starch.	Sol. Carbohydrates or Sugars.]	Crude Fat.	Chlorophyl, Amides, etc., by Difference.	Crude Ash.	Watery Extract.			Total Nitrogen.	Proteid Nitrogen. (Stutzer's Method.)	True Digestible Albuminoid Ratio.	Remarks.
						Soluble.	Insoluble.	Total Proteins—Prot. N × 6·25.									Total Sol. Matter.	Soluble Nitrogen.	Soluble Ash.				
Prairie Grass (*Bromus uniloides*)	Grown in Laboratory Yard	...	...	*71·50*	*28·50*	*·18*	*2·55*	*2·73*	*6·78*	*4·66*	*4·18*	*·40*	*1·09*	*·51*	*6·56*	*2·02*	*5·15*	*·284*	*1·97*	*·695*	*·435*	1÷6·9	
			...	8·86	91·14	·57	8·15	8·72	21·65	14·90	13·35	1·30	3·50	1·62	20·95	6·45	16·45	·905	6·30	2·204	1·390		
Canary Grass ... ... (*Phalaris commutata*)	Westbrook State Farm	...	...	*76·52*	*23·48*	*·10*	*2·65*	*2·75*	*5·30*	*3·53*	*2·70*	*·23*	*·57*	*·43*	*6·09*	*2·15*	*5·42*	*·228*	*1·52*	*·646*	*·434*	1÷5·2	This analysis agrees very closely with the next analysis of the same fodder grown in different locality. Both are excellent fodders.
			...	11·25	88·75	·39	9·92	10·31	20·00	13·34	10·20	·87	2·16	1·64	23·00	8·10	20·50	·863	5·75	2·440	1·640		
Ditto	Biggenden State Farm	1st cut	*19·0*	*75·50*	*24·50*	*·11*	*2·80*	*2·91*	*4·72*	*5·15*	*1·88*	*·17*	*1·18*	*·70*	*6·02*	*1·87*	*6·03*	*·215*	*1·59*	*·664*	*·466*	1÷5·2	89 days' growth; crop was set back by cutting, but eventually the cut part outstripped the growth on portion not cut, yielding 16 tons per acre.
			...	9·01	90·99	·41	10·28	10·69	17·34	18·92	6·94	·65	4·36	2·58	22·18	6·88	22·15	·793	5·85	2·441	1·714		
Rhodes Grass ... ... (*Chloris vergata*)	ditto	1st cut	*6·0*	*82·90*	*17·10*	*·21*	*·57*	*·78*	*4·43*	*3·82*	*1·46*	*·24*	*·22*	*·20*	*4·14*	*2·04*	*3·06*	*·163*	*·98*	*·239*	*·124*	1÷14·2	62 days' growth; crop was set back, but cut portion was eventually as good as uncut portion, 2nd crop growing nearly 12 tons per acre.
			...	7·39	92·61	1·13	3·08	4·21	24·00	20·70	7·90	1·30	1·20	1·20	22·42	10·98	16·55	·891	5·30	1·348	·670		
Lucerne	ditto	1st cut	*6·5*	*76·20*	*23·80*	*·59*	*3·32*	*3·91*	*4·30*	*2·75*	*·70*	?	*·89*	*·26*	*8·15*	*3·12*	*7·92*	*·550*	*1·69*	*1·078*	*·623*	1÷2·5	55 days' growth; crop was not set back by 1st cutting.
			...	8·60	91·40	2·27	12·74	15·01	16·50	10·56	2·70	...	3·40	1·14	31·30	11·96	30·39	2·112	6·50	4·410	2·390		
Ditto	ditto	2nd cut	*7·5*	*78·08*	*21·92*	*·03*	*2·71*	*2·74*	*3·46*	*3·16*	*·93*	*trace*	*1·19*	*·33*	*8·28*	*1·84*	*6·77*	*·234*	*1·59*	*·672*	*·443*	1÷3·7	78 days growth, etc.
			...	7·40	92·60	·13	11·45	11·58	14·60	13·36	3·95	ditto	5·00	1·40	34·95	7·76	28·55	·985	6·70	2·836	1·870		
Sheep's Burnett ... (*Poterium sanguisorba*)	ditto	1st cut	*4·3*	*76·95*	*23·05*	*·15*	*2·94*	*3·09*	*3·35*	*1·96*	*2·42*	*trace*	*1·82*	*·63*	*5·40*	*4·27*	*5·90*	*·240*	*1·22*	*·712*	*·492*	1÷3·8	62 days' growth; crop was not set back by 1st cutting.
			...	8·85	91·15	·59	11·65	12·24	13·27	7·74	10·00	ditto	7·20	2·50	21·33	16·89	23·35	·950	4·80	2·816	1·960		
Ditto	ditto	2nd cut	*6·4*	*80·40*	*19·60*	*·16*	*1·96*	*2·12*	*3·41*	*1·71*	*2·11*	...	*·82*	*·48*	*5·54*	*2·62*	*4·54*	*·128*	*1·02*	*·440*	*·337*	1÷4·4	89 days' growth.
			...	8·89	91·11	·78	9·51	10·29	16·50	8·25	10·22	...	3·95	2·40	26·85	12·65	22·00	·624	4·94	2·135	1·635		
Rib Grass ... ... (*Plantago lanceolata*)	ditto	1st cut	...	9·20	90·80	1·62	7·48	9·10	10·85	8·80	10·74	...	7·60	1·66	35·35	16·60	34·75	·410	8·56	1·600	1·360	1÷6·6	89 days' growth; 2nd cut yielded 13 tons per acre.
Mazzagua	ditto	... ...	*4·4*	*71·80*	*28·20*	*·46*	*·38*	*·84*	*6·36*	*5·68*	*7·60*	?	*·74*	*·18*	*5·29*	*1·16*	*2·64*	*·073*	*·66*	*·134*	*·134*	1÷27·9	Crop was thoroughly matured and slightly frosted. Stock ate chaff readily, but did not thrive on it. This is borne out by very poor analysis.
			...	8·75	91·25	1·49	1·23	2·72	20·65	18·34	24·64	...	2·40	·60	17·12	3·78	8·55	·238	2·16	·435	·435		
Paspalum dilatatum ..	ditto	1st cut	*4·4*	*72·78*	*27·22*	*·42*	*1·66*	*2·08*	*9·62*	*5·93*	*2·87*	...	*1·94*	*·36*	*1·05*	*3·39*	*5·03*	*·175*	*1·60*	*·470*	*·334*	1÷6·1	62 days' growth; was very long in getting a start after cutting.
			...	8·05	91·95	1·41	5·58	6·99	32·50	20·00	9·68	...	6·57	1·20	3·55	11·46	17·10	·592	5·40	1·586	1·120		
Maize Ensilage from Golden Nugget	ditto	*wet*	*26·5*	*78·40*	*21·60*	*·73*	*·46*	*1·19*	*5·17*	*3·84*	*2·70*	*trace*	*trace*	*·33*	*9·34*	*2·56*	*4·75*	*·210*	*1·20*	*·285*	*·190*	1÷11·3	Total acidity, ·180 per cent. lactic acid; free volatile, ·020 per cent. acetic acid; combined, ·060 per cent. acetic acid.
		dry	...	...	100·00	3·38	2·13	5·51	23·90	17·77	12·50	...	...	1·53	43·25	11·85	22·00	·970	5·55	1·319	·880		
Sorghum Ensilage from Collier	ditto	*wet*	*30·0*	*76·40*	*23·60*	*·41*	*·34*	*·75*	*6·65*	*5·25*	*2·47*	...	*trace*	*·44*	*8·46*	*2·05*	*4·80*	*·126*	*·48*	*·182*	*·121*	1÷22·1	Total acidity, ·223 per cent. lactic acid; free volatile, ·019 per cent. acetic acid; combined, ·007 per cent. acetic acid.
		dry	...	...	100·00	1·74	1·44	3·18	28·18	22·24	10·46	...	...	1·86	35·84	8·69	20·33	·534	2·03	·771	·513		

NOTE.—*All figures printed in italics refer to the fresh green material.*

For comparison, I give on Table III. the analyses of the same fodders as still frequently reported in other journals, in the old conventional method, in which the *crude albuminoids*, or proteins, are calculated from the total nitrogen in the fodder, which, of course, will make the nitrogenous matters too high and the albuminoid ratio too favourable.

TABLE III.—Analyses of Fodders after Old Method.

—	Dry Substance in Green Material.	Moisture.	Ash.	Fibre.	NUTRIENT MATTERS.			Total Nutrients.	Albumin Ratio.	Fibre by Old Acid Alkali Method.
					Carbohydrates by Difference.	Fat and Oil.	Proteins N × 6·25.			
	%	%	%	%	%	%	%	%	%	%
Prairie Grass	28·5	8·86	6·45	21·65	49·52	1·62	13·75	64·89	1 ÷ 4·8	...
Canary Grass (Westbrook)	23·5	11·25	8·10	20·00	46·93	1·64	15·23	63·80	1 ÷ 4·2	...
Ditto (Biggenden)	24·5	9·01	6·88	17·34	49·94	2·58	15·25	67·77	1 ÷ 4·4	...
Rhodes Grass	17·10	7·39	10·98	24·00	48·01	1·20	8·42	57·63	1 ÷ 7·0	...
Ditto 1905-1906	45·4	9·19	12·00	27·24	42·15	1·00	8·42	51·57	1 ÷ 6·0	...
Lucerne ... ... 1st Cut	23·8	8·60	11·96	16·30	34·45	1·14	27·55	63·14	1 ÷ 2·3	24·40
Ditto ... ... 2nd Cut	21·9	7·40	7·76	14·60	51·04	1·40	17·70	70·14	1 ÷ 4·0	...
Sheeps Burnett ... ... 1st Cut	23·1	8·85	16·89	13·27	40·92	2·50	17·57	61·99	1 ÷ 3·5	16·66
Ditto ... ... 2nd Cut	19·6	8·89	12·65	16·50	46·24	2·40	13·32	62·96	1 ÷ 4·7	...
Rib Grass	?	9·20	16·60	10·85	51·69	1·66	10·00	63·35	1 ÷ 6·3	...
Mazzagua	28·2	8·75	3·78	20·65	63·60	·60	2·72	67·92	1 ÷ 25	...
Ditto 1905-1906	25·5	9·27	7·88	27·38	45·67	1·05	8·74	55·46	1 ÷ 6·3	...
Paspalum	27·2	8·03	11·46	32·50	36·85	1·20	9·94	47·99	1 ÷ 4·8	32·50
Ditto 1905-1906	26·0	8·87	11·88	28·71	43·57	·99	5·98	50·54	1 ÷ 8·5	...
Maize Ensilage	21·6	...	11·85	23·90	54·48	1·53	8·24	64·25	1 ÷ 8·0	...
Sorghum Ensilage	23·6	...	8·69	28·18	55·45	1·86	4·82	63·12	1 ÷ 13·	...

In our more complete analysis we differentiate between proteid nitrogen and amide nitrogen, as amides are considered to possess less feeding value. Fibre is determined after König's acid glycerine method, which gives a purer fibre than the old acid-alkali method. In a sample of paspalum hay the fibre was determined by both methods, giving exactly the same results; in a sample of lucerne and a sample of Sheeps Burnett, König's method gave lower amounts of fibre.

I hope that analyses of grasses and other fodder plants will be carried out on a much larger scale the coming year, and for this purpose the co-operation of all the managers of our State Farms is particularly requested. The method employed by Mr. Macpherson, of the Biggenden State Farm, of cutting square yards at different ages of growth, taking note how the growth on the plot cut compares with others, should be generally adopted. It is very noticeable that the feeding value of the second cuts is much lower than that of the first cuts. A sample of ordinary bush hay was also sent from Biggenden, in order to compare with other grasses; but, unfortunately, the quantity (only a few ounces) was too small for analysis. If the crop of one square yard is not big enough, two or more square yards should be cut, as at least material corresponding to about 2 lb. of green material should be sent for analysis.

SOIL ANALYSES.

A complete series of soil analyses of the various plots of the pineapple-manuring experiments, referred to later on, were carried out, and particular attention was paid to proposed modern methods of determining the available plant foods, not only with the 1 per cent. citric acid solution, but also with water saturated with carbonic acid gas. At the same time different methods of mechanical analyses were tried, and amongst others the *sieve-sediment method* adopted by the chemical committee of the Agricultural Education Association (*Journal of Agricultural Science*, Vol. I., March, 1906), but, as far as I can gather from the results obtained, this method does not seem to offer any advantages over *Schöne's elutriation*, usually employed in our laboratory, although it differentiates the "*Klay*" into more classes of finer particles. The work of carrying out some more mechanical analyses after different methods will be continued the coming year. The results of the analyses are given on Table IV., and it will be noticed that the analyses of these pineapple soils show them to be of rather poor quality, only fairly rich in phosphoric acid, which was supplied in quite unnecessary quantities by manuring with bone meal in previous years:—

TABLE IV.—Analyses of Soils from Pineapple-manuring Experiments.

Field: Name and Locality.	J. Atthow—Nudgee.						Gallagher—Nundah.			Corbett—Nundah.			Mrs. Stuckey—Clayfield.		
	From Cultivation.			From Headland.											
Description of Soil.	Red Sandy Loam.			Red Sandy Loam.			Grey Sandy Soil.			Grey Sandy Soil.			Brown Sandy Loam.		
Physical Properties.															
Reaction	Very faintly acid			Very faintly acid			Neutral			Neutral			Slightly acid		
Appar. spec. gravity	1·345			1·359			1·579			1·626			1·360		
Weight of soil, 6″ deep, tons per acre	817			826			959			988			826		
Capacity for water	33·66			39·98			31·4			22·0			38·4		
Absorbed weight water, 6″ deep, tons per acre	275			330			301			217			317		
Capillary power: Height in inches	9¼ – 12 – 15⅝ – 17¾ inches			9⅜ – 12 – 15¾ – 18¼ inches			15 – 15½ inches			12¼ – 12½ inches			15¾ – 16½		
After number of hours	3 – 6 – 24 – 48 hours			3 – 6 – 24 – 48 hours			20 – 24 hours			20 – 24 hours			20 – 24 hours		
Absorpt. power for salts: cc. of nitrogen abs. p. 100 gr.	40 cc.			40 cc.			24 cc.			28 cc.			48 cc.		
Mechanical Analysis.	Schöne's Elutriation.	Sieve-Sedim. Method of Agr. Educ. Ass.													
	Elutriation.	Sieve-Sedim. of A.E.A.	Schlösing's Mechanical Chemical Analysis.	Elutr.	S.-S.	Schl. Mech. Chem. Anal.	Elutr.	S.-S.	Schl. Mech. Chem. Analys.	Elutr.	S.-S.	Schl. Mech. Chem. Anal.	Elutr.	S.-S.	Schl. Mech. Chem. Analysis.
Stones and gravel over 2 mm. diameter	Nil	Nil	...	Nil	Nil	...	Nil	Nil	...	Nil	Nil	...	Nil	Nil	...
Fine gravel from 1 to 2 mm.	2·8	1·7	...	4·2	3·5	...	8·3	4·7	...	4·5	2·9	...	4·8	4·7	...
Coarse sand ·5 to 1 mm.	14·6	...	...	26·0	...	...	51·2	...	...	40·3	...	...	21·0	...	...
Coarse sand ·2 to 1 mm.	...	34·9	...	...	36·6	...	...	72·0	...	...	59·8	...	...	23·0	...
Fine sand ·1 to ·5 mm.	32·2	...	...	5·6	...	...	18·6	...	...	23·0	...	...	6·6	...	...
Fine sand ·04 to ·2 mm.	...	29·5	...	...	29·1	...	...	12·6	...	...	23·1	...	...	27·0	...
Very fine sand ·05 to ·1 mm.	5·4	...	Sand, 56·54	18·8	...	Sand, 55·10	2·20	...	Sand, 83·98	4·9	...	Sand, 80·45	19·8	...	Sand, 48·20
Silt ·02 to ·05 mm.	9·6	...	...	11·8	...	...	2·0	...	...	5·9	...	...	13·0	...	...
Silt ·01 to ·04 mm.	...	17·3	...	...	17·0	...	...	4·2	...	...	6·2	...	...	24·2	...
Silt ·01 to ·02 mm.	3·4	...	...	4·0	...	...	1·2	...	...	2·4	...	...	3·2	...	...
Very fine silt ·002 to ·01 mm.	...	7·6	...	...	7·0	...	...	4·3	...	...	5·0	...	...	12·2	...
Clay incl. sol. humus	23·5	·1	Clay, 37·60	22·3	·2	Clay, 39·90	14·6	·1	Clay, 13·12	16·0	·1	Clay, 17·16	24·4	·3	Clay, 44·08
Moisture %	2·03		2·03	2·42		2·42	·41		·41	·67		·67	1·53		1·53
Combined water %	3·29		...	1·12		...	·37		...	·43		...	1·66		...
Humus %	3·22		3·75	3·73		2·51	1·40		2·48	1·85		1·69	4·04		5·10
			CaO ·08	...		CaO ·07	...		CaO ·01	...		CaO ·03	...		CaO ·09
Chlorine % Cl	·010		...	·003		...	·001		...	·003		...	·007		...
Carbonic acid % CO_2	·048		...	·094		...	·034		...	·008		...	·064		...
Nitrogen % N	·084		... ·00364	·098		... ·00196	·054		... ·00196	·055		... ·00196	·121		... ·00224
,, as nitrates % N	...		... ·0006	...		... ·0002	...		... ·0010	...		... ·0010	...		... ·0030
Chemical Analysis of Soil.	Method of Analysis.														
	Agric. Meth. soluble in HCl of 1·1 sp.gy.	Absolute Analysis.	Available Soluble in— 1 % Citric Ac. / CO_2 Water.	Agr. M.	Absolute Anal.	Available. 1 % Citric Ac. / CO_2 Water.	Agr. M.	Absol. A.	Avail. 1 % Cit. Ac. / CO_2 Water.	Agr. M.	Abs. An.	Avail. 1 % Cit. Ac. / CO_2 Water.	Agr.M.	Absol. A.	Avail. 1% Citr. / CO_2 Water.
Sol. Silica % SiO_2	·41	77·38	... ...	·53	77·81	... ...	...	94·02	... ...	...	92·57	... ...	...	81·08	... ...
Sulphuric acid % SO_3	...	...	... ...	...	...	... ...	...	...	... ...	...	...	... ...	...	...	... ...
Phosphoric acid % P_2O_5	·081	·088	·011 ·0007	·071	·075	Trace ·0001	·132	·140	·0306 ·0012	·142	·170	·039 ·0014	·190	·210	·030 ·0003
Iron % Fe_2O_3	12·36	3·26	... ...	12·35	3·17	... ...	...	·59	... ...	...	·59	... ...	...	1·53	... ...
Alumina % Al_2O_3		11·01	... ...		10·67	... ...	...	2·43	... ...	...	3·01	... ...	...	8·45	... ...
Lime % CaO	·11	·23	... ·0086	·23	·23	... ·0083	·057	·20	... ·0038	·072	·08	... ·0056	·115	·23	... ·0060
Magnesia % MgO	·15	·20	... ...	·14	·20	... ...	...	·14	... ...	...	·12	... ...	...	·15	... ...
Manganese % MnO	...	Nil	... ...	...	Nil	... ...	...	Nil	... ...	...	Nil	... ...	...	Nil	... ...
Potash % K_2O	·079	·098	·038 ·0072	·066	·203	·023 ·0042	·030	·152	·0072 ·0032	·030	·227	·014 ·0042	·032	·355	·024 ·0072
Soda % Na_2O	·09	·20	... ...	·05	·38	... ...	...	·15	... ...	...	·17	... ...	...	·77	... ...
Insoluble in HCl %	79·75	...	... ...	79·69	...	... ...	...	...	... ...	...	...	... ...	...	...	... ...
Remarks:—	Land is dry, and sets very hard when dry. The land is high and fairly level, and has a natural drainage. The subsoil is rather heavy, and sets very hard. The land was originally heavily-timbered forest land.						The land is very dry, sandy, with a very porous sandy subsoil, giving very good natural drainage. A high sandy ridge, originally well-timbered forest land. Has grown pines for 35 to 40 years, and was manured with stable and meatworks' manure.			The land is a dry, sandy ridge, with indifferent natural drainage, as subsoil has narrow bands of clay, causing wet pot-holes, which were broken up by our thorough subsoiling. Previous crops grown: Pine-apples, tomatoes, and sweet potatoes.			Land is fairly dry, level, but rather low-lying. The natural drainage is rather poor, due to heavy sub-soil. Has, like the rest, been very deeply cultivated for our experiments. Has grown pines for a very long number of years, showing disease badly of late years. Manured with stable manure and bonemeal.		
	This ground was under pines for a great number of years, and was manured with stable manure principally.			This sample was taken from the headland, near the road, and seemed to be rather heavier nature.											

A very valuable indication of the exhaustive nature of a pineapple crop with regard to taking up of potash, corroborating the exhaustive experiments made in 1903-4, and published in my annual report of that year, is given by the absolute analysis, which shows that the cultivated portion of a pineapple field contained only ·098 per cent., or about 16 cwt. of potash per acre, to a depth of 6 inches, whereas the soil from the uncultivated headland of this field contained ·203 per cent., or 33·5 cwt. of potash per acre. The result of the analyses for available plant foods by either method does not show much difference, which seems to indicate that the pineapple plant is rather a gross feeder, and is able to assimilate mineral plant foods not easily soluble.

On the whole, the present situation with regard to the value of soil analyses to the agriculturist is very unsatisfactory.

American investigators, like Whitney and Cameron, maintain that the chemical analysis of a soil can tell very little about its fertility, and that manures, when added to a soil, if they have any effect of increasing the crops, do so by altering the physical texture of the soil. For their analyses they make watery extracts of the soils. R. D. Hall, the present director of the celebrated Rothamstead Experiment Station, clearly demonstrates, on the strength of the numerous and most valuable manuring experiments carried out on that station, that the views of the American investigators cannot be considered as generally applicable.

The secretion of strong organic acids by the tips of plant rootlets, aiding in the assimilation of mineral plant foods, is now generally disbelieved, and the solvent action of the plant roots on soil particles is attributed to the action of water saturated with carbonic acid. Still, just as small bacteriæ help the plants in the assimilation of nitrogen, it is also very probable that some of the lower forms of plant life, like fungi, which excrete strong organic acids, may help the higher plants in the assimilation of mineral plant foods.

MANURING EXPERIMENTS.

In conjunction with the Instructor in Fruit Culture, Mr. A. H. Benson, a new series of manuring experiments with pineapples were started during the year, and plots showing a great diversity in the quality and appearance of their soil, but which all had grown pineapples for years, were chosen. One of the plots in Clayfield was practically abandoned for pineapple culture, as the pineapple disease was very apparent when pines were last grown. In all cases the land was very thoroughly prepared by very deep cultivation, breaking up any pans which may have been formed by the previous shallow working, and incomplete and complete manures were applied to all the blocks, the blocks measuring from one-twentieth to one-fiftieth of an acre. The complete analyses of the soils of the experimental blocks is given on Table IV. The result of the experiments has already been very promising, and has attracted a good deal of attention, as the growth of the plots with the complete manures is quite phenomenal.

FERTILISERS.

Under the Fertilisers Act, twenty-six analyses of manures were made during the year. A great number of samples were taken under the Act during the month of June, and the result of these analyses will be published when complete in the *Agricultural Journal*. The dealers report a considerable increase in their sales of fertilisers, which is very gratifying, as it shows that our farmers take advantage of the protection afforded under the Act.

PINEAPPLE CANNING EXPERIMENTS.

Early in February of this year fresh pineapples were purchased in the open market and prepared for canning, which was done at a comparatively low temperature; at the same time pineapple juice was prepared and pasteurised. The samples have so far kept very well, and the result of the experiment will be published as soon as samples are opened.

TESTING OF DAIRY BABCOCK GLASSWARE.

Under the Dairy Act and its regulations all glassware used in factories in connection with the testing of milk and cream has to be submitted to the Department to be tested, and, if found correct, to be provided with an official brand. The necessity of such work is well shown by the large number of bottles and pipettes which had to be condemned. In fair justice to the makers, I have to state, however, that the percentage of glassware condemned decreased very rapidly after the Act had been in force for some time, and at present it amounts to only about 2 per cent.

In milk bottles the error in the graduation of the neck has to be less than ± ·2 per cent. of fat or ± ·04 cc., for cream bottles less than ± ·5 per cent. fat or ± ·1 cc., in pipettes the error must be under ·05 cc.

—	Number Submitted.	Number Approved.	Number Condemed.	Percentage Condemned.
Cream flasks	4,938	4,282	656	13·3
Cream pipettes	808	680	128	15·8
Milk flasks	868	659	209	24·1
Milk pipettes	235	176	59	25·1
Acid measures	89	89	Nil	Nil
Skim milk bottles	2	2	Nil	Nil
Total	6,940	5,888	1,052	15·2

WATERS.

A small number of water analyses were carried out, the results being as follow:—

TABLE V.—ANALYSES OF WATERS.

Date.	Locality.	GRAIN PER GALLON.				PARTS PER MILLION.		Remarks.
		Total Solids.	Loss on Ignition.	Chlorine.	Equivalent to Salt	Ammonia.	Albuminoid Ammonia.	
15-8-06	Kingston	11·5	5·5	2·9	4·4	0·8	·56	Taste, colour, and odour good; no charring.
17-8-06	Bungeworgorai State Farm ...	97·0	18·4	9·4	15·5	1·03	·64	Slight salty taste, no odour, slightly muddy.
5-9-06	Maleny Butter Factory ...	6 8	2·7	1 9	2·8	·15	·19	Taste, colour, and odour good, and no charring.
9-10-06	Stanley River Butter Factory, Lagoon Creek	9·7	2·7	1·5	2·5	·04	·60	Yellow colour, leafy taste.
		17·1	4·6	4·7	7·8	·06	·28	Good colour and taste.
13-11-06	Dugandan	716	207	278	458	·88	·07	Dirty, brackish taste, slight charring.
1-2-07	Isisford Bore	176·5	18·2	63·0	105	...	...	Very brackish taste.
23-3-07	Bowen Butter Factory ...	58·8	13·3	14·7	24·5	·05	·06	Taste, colour, and odour good; no charring on ignition.
20-5-07	Bundaberg Butter Factory ...	74·8	8·7	11·0	18·0	·07	·09	Taste, colour, and odour good; very slight charring.
30-5-97	Glencoe	976	578	335	554	...	...	Extremely hard and brackish.

BUTTER ANALYSES.

The analyses of butter exported were continued, but more particularly such samples as were sent in by the inspectors which seemed to be suspicious, and it is gratifying to note that only four samples contained over 15 per cent. of moisture.

Of the fifty-seven samples analysed—

3	contained from	9 to 12 per cent. of water
10	,,	10 to 11 ,,
17	,,	11 to 12 ,,
11	,,	12 to 13 ,,
10	,,	13 to 14 ,,
2	,,	14 to 15 ,,
4	,,	15 per cent. and over, or showing that our butter contained in an average 12·30 per cent. of water.

The samples were also tested for preservatives, and they contained in average ·163 per cent. of boracic acid, only in some of the unsalted butters the limit allowance of boracic acid was exceeded, one sample containing ·8 per cent.

Rather interesting is the analysis of a sample of "*butyrin margarin,*" of Javanese manufacture, which was submitted for analysis, and which was found to consist of a mixture of oleo-margarin, cotton-seed oil, and cocoanut oil, but containing no sesame oil. The product gave the following analytical constants, which clearly distinguished it from genuine butter:—

	Butyrin Margarin—Javanese.	Butter.	Pure Margarin—Merck's.
Saponificatiou ... ... No.	204	230	192 to 200
Reichert Meissl ... ... No.	1·10	27	·1 to ·9
Iodine Absorption ... ... No.	71·6	37	48 to 64
Oleo-Refractometer, at 36° C	46·0	46·0	50 to 52
Moisture	11·1%		

MILK ANALYSES.

During the year a large number of milk analyses for the testing of cows in connection with shows and the Dairy Herd Book Society were carried out.

EXAMINATION IN MILK AND CREAM TESTING.

During the absence of Dairy Expert I had to conduct the theoretical and practical examination of candidates in the proficiency in milk and cream testing. On the whole, the results of the first theoretical examination were very satisfactory, but the papers of the second theoretical examination, recently held, showed, in the great majority of cases, a great want of attention to details, important questions being answered with generalities; and, as every candidate should thoroughly master the details and the why and wherefore of every operation before he is allowed to present himself for the practical examination, it was quite unavoidable that about one-third of the second lots of candidates failed.

TOBACCO.

A series of analyses of Queensland grown tobaccos were carried out for the Tobacco Expert. Light coloured and dark coloured leaves were chosen and analysed before and after curing. Samples A1 and B1 are dark coloured leaves, samples A2 and B2 are light coloured leaves, and C1, D1, C2, and D2 are the same samples after curing. In order to make the analytical figures strictly comparable, they are calculated on the dry substances, and given on Table VI. :—

TABLE VI.—Analyses of Queensland Tobacco.

—	From Texas State Farm.				From Yangan-Texas.			
	Dark.		Light.		Dark.		Light.	
	A1. Raw.	C1. Cured.	A2. Raw.	C2. Cured.	B1. Raw.	D1. Cured.	Raw.	D2. Cured,
Moisture ... ... %	10·48	10·34	10·40	10·11	17·92	9·70	19·64	11·72
in percentage of dry substance.								
Nicotin (Kehler's meth.) ... ... %	8·48	8·29	9·29	5·87	6·82	7·18	8·68	7·23
Total Nitrogen	4·97	3·81	3·91	3·38	4·82	3·78	4·86	3·87
Ammonia	·49	·64	·28	·55	·66	·58	·25	·59
Malic Acid	7·04	9·43	10·42	8·06	10·86	5·03	12·15	8·36
Citric Acid	2·49	8·17	3·61	5·30	3·39	8·49	2·71	7·20
Oxalic Acid	3·73	3·03	4·13	3·03	2·64	2·36	2·52	2·75
Pectic Acid	3·75	8·37	6·61	8·80	7·94	5·68	7·50	9·31
Petrol Ether Extr.—Wax, Chlorophyl, etc.	4·67	4·14	5·08	5·60	5·66	4·33	4·34	6·36
Ether Extract—Resins insol. in H_2O	1·17	1·05	1·07	1·04	1·24	·98	2·08	·99
Alcohol Extract—Resins, etc.	3·52	3·09	5·51	4·45	4·60	2·57	4·86	2·56
Ditto sol. in H_2O—Nicotin Salts, Tannic Acid, etc.	7·99	12·35	10·90	13·12	10·25	13·33	11·92	14·10
Water Extract—Mucilag., Proteids, Carbohydr., etc. ...	34·80	33·12	31·42	32·50	41·55	27·37	43·25	31·95
Soluble Ash	9·66	7·81	9·02	8·46	13·12	9·64	11·97	11·32
Pure Ash	14·60	16·15	15·14	16·18	16·88	16·25	17·76	19·37
Ditto containing SiO_2	1·07	1·33	1·05	2·85	·65	1·40	1·68	2·21
Cl	·48	1·77	·50	·57	·41	·47	·60	·26
SO_3	1·27	·92	1·28	·96	1·33	1·01	1·14	·68
P_2O_5	·82	·65	·80	·66	·87	·51	·82	·82
Fe_2O_3	·12	·18	·17	·21	·33	·29	·29	·24
CaO	5·50	4·46	5·48	4·60	6·68	5·92	6·61	6·66
MgO	1·89	2·43	3·16	1·94	1·78	1·86	1·79	2·26
K_2O	3·39	3·71	2·53	3·87	4·66	3·94	4·76	4·96
Na_2O	·30	·97	·40	·77	·43	·94	·35	1·54

HOPS.

A sample of Queensland-grown hops was submitted for analysis, and, in order to compare the sample with some of the best imported hops, we obtained such samples by favour of one of our leading brewers. The results of the analyses, given on Table VII., show that the amount of soft resins and tannins, which are generally considered of special importance in the valuation of hops, are rather low in our locally-grown product. The total resins also give a value indicating the maturation and development of the aromatic and bitter principles, and the total resins are also low in our Downs hop. Otherwise aroma, appearance, and other physical properties of the sample were very fair :—

TABLE VII.—Analyses of Hops.

—	Moisture.	Resins.			Total Acidity as Lactic Acid.	Tannin.	Total Benzene Extract.	Ash.	
		Soft.	Hard.	Total.				Total.	Potash.
	Per cent.	Per cent.	Per cent.	Per cent.		Per cent.		Per cent.	Per cent.
Queensland (Downs)... ...	9·87	11·08	1·38	12·46	2·25	·8	12·54	11·44	2 36
Tasmanian, last season ...	8·86	14·20	2·74	16·94	1·98	4 4	17·64	10·27	2·27
ditto this season ...	10·93	14·92	1·22	16·14	1·53	1 6	18·34	8·56	1·96
Kentish	9·42	12 96	1·22	14·18	2·61	1·2	17·26	8·36	2·17
Californian	9·22	17·38	3·22	20·60	1·87	6·4	19·14	8·57	1·82
Bohemian	9·79	15·70	2·10	17·80	1·80	1·6	14·26	9·64	2·95
From Journ. Chem., Ind., 1902, Hops (Haatke and Rohde).									
Bohemian (1st Gaay)... ..	9·0	12·74	3·92	16·66	2·83	2·12	?	?	?
Californian	9 0	11·26	3·33	14·57	1·74	3·48	?	7·5	?
According to Coez	....	...	...	...	...	3·4 to 4·8	12·9 to 19.1	—	—

LEATHER.

Under the Commonwealth Commerce Act all leather for export must be accompanied by a certificate stating that they are free from loading or otherwise; so far no standards for the composition of leathers have been fixed, and a certain number of analyses were carried out with a view to fix such standards, and at the same time gain a general insight in the composition of our locally manufactured leathers.

TABLE VIII.—Analyses of Leather.

No.	Kind.	Moisture.	Fat.	Water Soluble.		Total Ash.	Nitrogen.	True Hide Substance.	Sugar.
				Total Ext.	Sol. Ash.				
1	Harness	11·41	19·03	7·53	·25	·31	6·25	35·2	1·06
2	Harness	17·87	9·17	21·70	·76	·66	...	...	4·60
3	Harness	...	...	...	...	...	...	...	6·40
4	Harness	14·61	2·29	13·05	·33	·54	7·62	43·0	1·60
5	Sole	15·45	1·86	17·85	·37	2·58	7·56	42·6	2·40
6	Harness	14·20	8·42	8·93	·19	1·97	...	...	1·20
7	Harness	15·95	3·87	7·81	·26	3·88	8·40	47·4	1·20
8	Black harness...	11·20	2·55	13·38	·46	·45	...	...	·40
9	Black harness...	12·40	21·35	6·85	·25	·36	6·86	38·7	1·40
10	Skirt	16·20	3·31	18·24	·36	1·01	...	...	·80
11	Kip	9·02	3·52	9·42	·42	·23	...	...	·40
12	Brown harness	10·95	3·27	12·86	·50	·54	...	...	Nil
13	Black harness...	11·55	2·92	17·35	·63	·51	5·10	31·5	Nil
14	Sole I.	14·50	·37	24·86	·56	·60	7·06	39·8	1·20
15	Skirt	16·20	3·31	18·24	·36	1·01	...	...	·80
16	Tweed	10·20	31·15	6·84	·47	·55	...	...	·60
17	*Sole II.	14·30	2·88	17·80	·42	2·93	7·40	41·7	·38
18	Sole	13·50	3·73	18·80	·67	·58	...	...	4·20 } as cane
19	Sole E	14·05	3·57	15·35	·59	·61	6·63	37·4	2·20 } sugar
20	Sole K	13·00	2·97	15·88	·42	·47	6·87	38·7	Nil
21	Sole	?	2·82	19·46	·75	·75	...	...	...
22	Sole	?	2·63	28·80	1·96	1·53	...	...	...
23	Sole	?	2·92	18·40	·99	1·00	...	...	...
24	Sole	?	1·78	20·15	1·89	1·98	...	...	...
	*Sample 17 extracted with 3 portions water at 50° C.								
17	Sole II.	..	...	14·86	·36	...	...	..	·29

From the table of analyses (Table VIII.) given, it will be noticed that the composition varies very considerably, and that in many cases the soluble extract is far too high. The amount of soluble extract varies in accordance to the method employed, our usual method of extracting—once with cold water, standing for twenty-four hours, and twice with boiling water—gives results rather too high, as some of the combined tannins may also be hydrolised. For comparison, on Sample 17 another method of extracting the finely-shredded leather with three successive treatments with water at 50 degrees C., was tried, giving 14·86 instead of 17·80 per cent. of soluble extracts.

All analyses carried out in connection with the Commerce Act showed that the samples were in accordance to the sworn declaration free from loading.

Simple standard methods of analysis of leathers and also standards of composition will have to be fixed.

DIPPING FLUIDS.

A greatly increased number of dipping fluids and dipping concentrates were analysed, and the owners of the dips were not only informed if their dipping fluids were of the right strength, but also what quantities of arsenic or dipping concentrate had to be added to the reported quantiy of fluid in order to make it the right strength of 8 lb. arsenic per 400 gallons. Of the 173 fluids analysed—

4 contained from 0 to 2 lb. of arsenic per 400 gallons.
8 „ 2 to 4 lb. „ „
24 „ 4 to 6 lb. „ „
44 „ 6 to 8 lb. „ „
52 „ 8 to 10 lb. „ „
41 „ 10 lb. and over.

On an average the fluids contained 8·80 lb. arsenic per 400 gallons of fluid.

For the estimation of the arsenic in the dipping fluids the old method of treating the liquid with strong hydrochloric acid and filtering, and precipitating and weighing the arsenic in the filtrate as sulphide, was replaced by the method of distillation as arsenious chloride, originally proposed by Fischer and modified by Clark, Gibb, and others. Two distillations, however, are necessary, and practically all arsenic is obtained in the two distillates, a third operation giving only slight traces of arsenic.

At present we use 10 c.c. of the dip, add to it 25 c.c. cuprous chloride solution (containing 62 grammes of cuprous chloride dissolved in 400 c.c. strong hydrochloric acid), 25 c.c. of a saturated solution of calcium chloride, and 25 gr. copperfoil; the liquids are distilled until about 10 c.c. of liquid remain in the fractionate distillation flask, and the distillation repeated after adding 25 c.c. strong HCl. The distillates are collected in bulbed U-tube containing a little distilled water, and kept cool in a water trough. To the distillates one drop of methyl orange solution is added, the liquid made slightly alkaline with NaOH sol., acidulated again with HCl and a conc. $NaHCO_3$ solution added in excess, and titrated with iodine with starch solution as indicator.

CONFERENCE OF AGRICULTURAL CHEMISTS.

During the year a conference of agricultural chemists was held at Sydney, at which New South Wales, Victoria, Queensland, and New Zealand were represented by their official agricultural chemists. Important matters with reference to uniformity of analytical methods, legislation dealing with agricultural matters, as Fertiliser Acts, Dairy Acts, &c.; the carrying out of soil surveys; reciprocity between the chemists of the various States of the Commonwealth and of New Zealand, were discussed and partially agreed upon. An association of official agricultural chemists was formed, and a few important questions of general importance were referred to some of the delegates for further investigation and report at a future meeting.

PUBLICATIONS.

During the year a few more lessons on the chemistry of farm, dairy, and household were published in the *Agricultural Journal*.

I have, &c.,
J. C. BRUNNICH, Agricultural Chemist.

REPORT OF THE INSTRUCTOR IN FRUIT CULTURE.

SIR,—Fruit-growing in Queensland has continued to make steady progress during the year ending 30th June, 1907, not only in the increase in the area of land devoted to this purpose, but also as regards the quality of the fruit that is being grown and the manner in which it is put on the market.

The weather during the year under review has, on the whole, been favourable for the production of fruit as the winter of 1906 was a mild one, and there was no serious damage to tropical fruits from frost. Late spring frosts, that do such damage to the stone fruit and grape crops of the Stanthorpe district were very local, and did no serious damage, with the result that this district produced the largest and finest crop of plums, peaches, and nectarines that it has yet grown. The apple crop was also good, the fruit being of large size and excellent quality. The grape crop throughout the State was below the average, the season being too good for the production of this fruit, the succession of spring and summer rains resulting in the production of black spot and oidium to a serious extent, and the grapes that escaped these pests in the spring were seriously injured by the summer rains.

Mangoes generally had an off-season—they blossomed freely, but the rainy weather at the time of flowering prevented the fruit from setting.

Bananas, which suffered so severely in the North from a cyclone during the beginning of 1906, have now recovered to such an extent that a crop of 1,250,000 bunches will be taken off during the next few months. New land is being opened up in the Geraldton district, and a tram line is being built from Mourilyan to the upper part of Liverpool Creek, which will enable a large area of rich scrub land to be put under this crop.

The culture of bananas is also extending on the Tully River, and some fine fruit has been grown on the Daintree River and Bailey's Creek, to the north of Port Douglas, where there is a large area of suitable country available.

In the South the culture of this fruit remains about the same, though, owing to the fact that the fruit fly does not attack the fruit here, the bunches are allowed to develop properly, instead of being cut half ripe, with the result that the Southern-grown fruit is very superior to that of the North, and sells readily in our local markets.

Pineapple culture is extending steadily in the Southern part of the State and also in the Cairns district, and a market is found for the increased yield without difficulty, as our local canneries are able to absorb any surplus.

The quality of our canned pines is superior to that of the Singapore article, and our get-up is improving.

During the year we have conducted experiments for the purpose of determining whether we can turn the waste material from our pineapple canneries, as well as the small and crippled pines, to a profitable use, and, as far as can be judged, we have succeeded in doing so. A quantity of small pines were crushed and made into cider, which shows promise of becoming an excellent drink for this climate, though, until it is properly matured, it is hardly fair to pass any definite opinion on it. An attempt has also been made to preserve the juice of the fruit in a fresh state, without fermentation, and in this we have succeeded. The juice is pressed from the skins and waste pines, filtered, pasteurised, bottled, and hermetically sealed, and has kept perfectly sound for some six months. The juice is not boiled, but pasteurised, so that it retains its full flavour, and it can be used as a drink, either alone or in conjunction with ærated water, or for cooking—flavouring, &c. This utilisation of the waste products of the pine-apple should enable us to extend the industry to a practically unlimited extent, as the quality of our fruit is such that it will sell on any market.

In conjunction with Mr. Brünnich, I have also conducted a series of pineapple-manuring experiments, reports of which have been submitted to you from time to time. The experiments have been successful, and this result is due, in my opinion—first, to the very thorough manner in which the soil was prepared; and, secondly, to the manner in which the manures were applied to the soil.

The citrus crop of 1906 was a record one for this State, and the bulk of the fruit was marketed in good order, and realised satisfactory prices. The crop of 1907 is also a good one, the quality being excellent—in fact, the exhibit of citrus fruits at the Maryborough, Rockhampton, and Gayndah shows was equal in quality to anything I have seen, either in this or the Southern States; Washington Navel Oranges and Lisbon Lemons grown at Barcaldine, and shown at Rockhampton, being the best I have seen in Australia.

There is a great improvement in the handling of the fruit, and, taken as a whole, it is of remarkably good quality and free from disease.

A start will be made this year in raisin culture in the Barcaldine district, Gordo Blanco and sultana grapes being planted for this purpose. The soil is suitable, and the water required for irrigation is available, so that if the initial work is well carried out there is every chance of success.

During the year a fruit fly has made its appearance in the State of Victoria, with the result that very stringent action has been taken, both by Victoria and South Australia, to prevent the further introduction of fly-infested fruits. This, though at first sight a great blow to our fruit-growing industry, will, in my opinion, prove of considerable assistance to us, as now that we are compelled to send nothing but clean fruits to the Southern markets our growers will recognise the necessity for keeping this State clean, as we must have a Southern outlet for our fruits and vegetables. In the past we have taken no serious action to keep the fruit fly in check, but have allowed it to breed undisturbed year after year, till in certain parts of the State it has become so numerous that it is useless to attempt the culture of any stone or pip fruits under existing conditions. I am strongly of opinion that the future of the fruit-growing industry in such districts, and even in those that are not so badly infested, is a very uncertain one unless strenuous action is taken to keep this pest in check, and I am in favour of making such action general and compulsory. There are thousands of useless trees throughout the State that do not return their owners one penny, which are simple breeding grounds for this pest. They are not only valueless to their owners, but are a menace to every orchard in the State, and the sooner they are destroyed the

better for the fruit-growing industry of the State, as if a tree does not pay to look after it should be got rid of. Any tree that is worth keeping will pay to look after, so that if we get rid of the useless rubbish and confine our attention to those trees that will bring in a profitable return, we will not only decrease the breeding grounds of the fly, and thus greatly diminish its production, but the trees that are worth keeping will be systematically looked after, and the fly will be fought whenever it makes its appearance. This action will quickly tend to reduce the numbers of the pest, as if steps are taken as suggested to prevent its natural increase, it will be reduced to such an extent that the damage caused by it will be insignificant as compared to that which we experience now.

Steps have already been taken to protect our great banana industry, an industry that is of the first importance to the Northern part of the State, by bringing in a regulation under "*The Diseases in Plants Act of* 1896," making it compulsory to cover every bunch of bananas with a cheap netting, which has been proved to be an effectual protection against the ravages of the fly. This mechanical method of protection will enable the growers to allow the fruit which is now cut in a very immature condition to fill out properly, with the result that there will be a great improvement in the quality. Our Northern bananas, as sold in the Southern markets, do not at present compare favourably with the island fruit, owing to their immature condition, but when allowed to be fully developed before being cut they will be equal to any island-grown fruit.

In order to obviate any possible chance of fly-infested citrus fruits being sent to Southern markets, a regulation has been framed compelling growers to keep their fruit for at least seven days after gathering before packing, so as to give time for any fly-infested fruit to be easily detected, so that the diseased fruit is kept in the orchard and destroyed, instead of going rotten in transit or on arrival at its destination. It is better for the loss to be in the orchard than to pay for cases and freight on fruit that will be rotten on arrival at its destination, and which, even if not condemned forthwith, will entail a heavy loss on the grower, as it will have to be picked over and repacked.

These two regulations will prove beneficial to the industry, and, if followed up as suggested by systematic and combined action in the orchard, I feel certain that the culture of fruit will be extended and be more profitable in the future.

During the year I have paid a visit to most of the fruit-growing districts in the State, have acted as judge at a number of shows, have delivered a number of illustrated lectures on Queensland fruits, have written several articles for the "Queensland Agricultural Journal," and have given general information on matters connected with fruit culture to many, both within and without the State.

ALBERT H. BENSON, Instructor in Fruit Culture.

REPORT OF THE COLONIAL BOTANIST.

SIR,—As usual, I have the honour to present the annual report of my doings for the year 1906-7. As heretofore the greater part of my time has been taken up in the determination of plant specimens sent to me for that purpose, and giving the information required by the senders regarding them, either by letter or word of mouth. I am, however, sorry to say that the specimens forwarded are generally in a state quite unsuited for the herbarium or for the purpose of exchange. I have, however, still among my correspondents valuable helpers, who continue to send specimens from various parts of the State which are all that one could wish for. No special collecting has been carried out during the year, nevertheless, several new plants have been brought to our knowledge, and as these have been recorded in the Journal of the Department there seems no need to particularise them here. From the large number of plant specimens received from the various schools, I am glad to find that the Nature study instituted by the present Minister for Education has taken a strong hold both of teachers and pupils, particularly those of the country schools; this may lead to a prominent want being supplied—namely, a vernacular name being given by the children to each of the plants they meet with—for, up to the present, very few of our indigenous plants possess such names. I may remark that the vernacular names given by the children are in many instances far more suitable than those sometimes given to plants or flowers by their elders.

I hear from all sides that the financial position of the State has much improved; therefore, I hope that the show-cases for the museum and cabinets for the herbarium asked for in former reports may be allowed, such being greatly needed, and in an educational point of view are constantly consulted by students as other exhibits are by artisans.

Books for the Botanic Library are badly wanted, for only a few periodicals and donations have been added to this department for the past six years, during which time several volumes have been published completing works the former parts of which are in the library, and it is necessary that such works should be completed.

The book mentioned in my former reports—"The Weeds and Suspected Poisonous Plants of Queensland"—was finished and issued complete in March last, and it has been kindly spoken of in the Press and by the people generally, and I hope it will soon be in the hands of all interested in plant life. Principally, however, its use will be to the schoolmaster, the cultivator, and pastoralist, and I may reasonably expect to find the money expended upon its production returned to me.

In concluding this brief annual report, I may state that the young assistant granted me on my former assistant assuming the directorship of the Brisbane Botanic Gardens has given me, so far, every satisfaction.

I have, &c.,

F. MANSON BAILEY, Colonial Botanist.

REPORT OF THE ENTOMOLOGIST AND VEGETABLE PATHOLOGIST.

SIR,—I have the honour, with reference to the work of this Office for the year ending 30th June, 1907, to report as follows:—

CORRESPONDENCE AND REPORTS.

The following matters, omitting reference to the more common topics, have formed objects of written communication and reports:—

I.—ECONOMIC ENTOMOLOGY.

AGRICULTURAL CROPS.

SUGAR-CANE.—Cane Grub (*Lepidiota albo-hirtum*, larval condition), Mossman River district. The application to the soil of bisulphide of carbon, involving the use of a special injector, referred to at length, in my treatise on "Grub Pest of Sugar Cane," in 1895, and in an earlier Annual Report, as a practicable means for destroying this injurious insect, recently recommended for this purpose also by the Government Entomologist of Victoria—C. French—having been employed in the Mossman River district, the question of subsidising funds locally raised to meet the cost of its administration has been reported on. The proposal to use salt for the same purpose, submitted by a Mulgrave district correspondent, also touched upon in the memoir referred to, has, too, been similarly dealt with. In this connection it may be added that experiments, having for their object the ascertainment of the efficacy of a particular vapour-yielding body named "Vaporite-Strawson," recently imported in bulk by the Department at the suggestion of the Instructor in Fruit Culture, and to which has been assigned by the manufacturers the property of exterminating soil-frequenting grubs, are being projected. Grasshoppers: prevalent in canefields in some portions of the Isis district.

MAIZE.—The Maize Plant Hopper (*Perkinsiella maidis*), at Bowen and elsewhere further North.

(*Note.*—A lecture, entitled "The Maize Plant," was delivered before the members of the East Moreton Teachers' Association, and was well received.)

WHEAT.—No injurious insects affecting this cereal were submitted; but a correspondent at Amby, in the Maranoa district, drew attention to a visitation to his crop of "thousands of small beetles—three or four in nearly every head of wheat." These proved to be the Lady Birds (*Verania frenata* and *Coelophora inæqualis*), principally the former, and accordingly serviceable insects. The Verania referred to has been exceedingly common throughout the coastal districts of Southern Queensland, feeding on the young of grass-frequenting Jassids and Delphacids.

OATS.—An insect not hitherto enumerated amongst cereal-destroying plants received from the Alton Downs district: a small scarabæid grub (*Melonthidæ*), reported as gnawing through young plants of oats at a depth of about 1½ inch from the surface.

LUCERNE.—A beetle (*Heteronychus piceus*), Fam. Scarabæidæ, a stout-bodied dark-coloured chafer, received from the Westbrook district as an example of an insect that was destroying freshly sown lucerne.

POTATO.—The 28-spotted leaf-eating Lady Bird (*Epilachna 28-punctata*), reported as very destructive, especially in its grub condition, to the foliage of potatoes in the Maryborough district in September, in the Redland Bay district in December, and at Woodridge and elsewhere; also, the Potato Miner (*Gelechia solanella*), Strathpine district, &c.

TOBACCO.—The last-mentioned insect (*i.e., Gelechia solanella*), in the Roma District, reported in January, in one instance of its attack, as destroying 80 per cent. of young plants.

COTTON.—Rose-tipped Beetle (*Monolepta rosea*), causing considerable havoc amongst cotton grown in the experiment plots at Chatsworth, Gympie. Cotton-stainer (*Dysdercus sidæ*), "getting into the bolls as soon as they are open, with the result that they do not mature properly," Mackay district, and "causing discolouration of the fibre," Roma district; (*Oxycarenus Frenchii*), Roma district and elsewhere; Harlequin Bug (*Tectacoris Banksii*), Strathpine and Harrisville; Stem and Boll Borer, caterpillar of *Dichocrocis punctiferalis* (Fam. Pyralidæ), Lawnton, Yandina, &c.

(*Note.*—A noteworthy instance of erroneous teaching may be here mentioned. In the absence of entomological knowledge, it has been presumed that the caterpillar of the last-mentioned insect is identical with one occurring in the cotton-growing belt of the United States, and known there as the boll worm, a species of Heliothis (*i.e., H. obsoleta*, Fabr.), that is not met with in Australia, although having a congener here (*H. armigera*) partial to a number of different plants, including maize, but rarely affecting the cotton plant. As the outcome of this false identification, it has been further assumed that a procedure applicable for the repression of the American Heliothis in cotton, or "boll worm," is efficacious also for coping with the Queensland insect, the caterpillar of *Dichocrocis punctiferalis;* both attack with equal virulence maize and cotton alike, and may have suggested this identity, but the two insects have little else in common—they belong to distinct moth-families, and are endowed in many respects with quite different habits. In keeping with this mistake it has been further recommended that growers here should, in dealing with the local "boll worm," adopt the method of "trap crops," in which growing maize is employed as the "trap," because the procedure is followed in contending with the insect with which it has been wrongly identified. This error finds expression in reprints of a large portion of two bulletins, issued by the United States Department of Agriculture, by Quaintance and Bishop and by F. W. Mally, respectively, following a short article by D. Jones, entitled "Value of Trap Crops"—*vide* "Qd. Agr. Journal." Vol. XVIII., p. 181-184 and p. 250-256.*

From a perusal of the article, "Value of Trap Crops," it would appear that a second Queensland cotton-injuring caterpillar has been confounded also with the American insect. Thus, when referring to the employment of maize as a trap crop, D. Jones states, writing concerning his observations in the Western cotton-growing area:—"At no place where mixed farming was carried on did I find evidence

* The inclusion of any article on entomology or plant pathology in this publication is not to be regarded as implying that this Office regards its teaching as applicabie to Queensland conditions or, indeed, accurate, unless it bear the explicit endorsement of the writer or obviously emanates from him.

of marked depredations." A fact not explicable from the circumstance that we have here an instance of the value of maize as a "trap crop"; but arising from the circumstance that the insect, that feeds on maize and cotton alike, does not at present occur there, its presence being supplied by the caterpillar of an arctiid moth named *Earias fabia*, on the degree of whose virulence the fact of maize being grown or not could not have the slightest influence, seeing that it never subsists thereon. It is again, an insect strikingly dissimilar to the American pest. Disastrous consequences to the cotton industry may follow teaching such as this; for maize has a special attraction for the Queensland pyralid insect. It does not, however, attract it from cotton sown with it, but from the country all around; and, having established itself in the maize plant, the insect leaves it in due course for whatever cotton or other suitable food plant may be at hand. An understanding of the life history of *Dichocrocis punctiferalis* would indicate that this were inevitable. And this movement has been seen in progress and frustrated. In another instance advice could not be tendered in time; the movement took place, and a large proportion of the cotton crop was sacrificed.

Cucurbitaceous Plants (Pumpkins, Melons, &c.).—The Banded Pumpkin Beetle (*Aulacophora Olivieri*), Brisbane and other districts. Pumpkin Aphis, Nundah district. (*Note.*—In October, 1906, the Government Entomologist of Victoria—C. French—reported the discovery of Fruit Fly Maggots (*Tephritis Tryoni*), variety, in cucumbers from Bowen district, no less than fifty-seven occurring in a single fruit.)

HORTICULTURAL CROPS.

Deciduous Fruit Trees.—Fruit Fly Maggot (*Tephritis Tryoni*), unusually prevalent in several districts during summer of 1906; San José Scale Insect (*Aspidiotus perniciosus*), Toowoomba, Goombungee, and elsewhere; Apricot Soft Scale Insects (*Lecanium sp.*), Crow's Nest; injury to fruit of pear probably caused by Bower Birds (*Ptilonorhynchus violaceaus*), but erroneously attributed to elaterid beetle (*Alaus sp.*), Pine River; also, injurious insects specified in previous reports.

Citraceous Plants.—Leaf-eating Caterpillars (*Papilio erectheus* and *P. anactus*), Roma district; Red Scale Insect (*Aspidiotus aurantii*), Bowen, Ipswich, and other places; Fulvous Mussel Scale Insect (*Mytilaspis Beckii:* syn., *M. fulva* and *M. citricola*), Woombye district; Fruit Mining Caterpillar (*Dichocrocis punctiferalis*, Fam. Pyralidæ), North Coast Railway districts, &c.; Fruit Fly Maggot (*Tephritis Tryoni*), several instances; Spotted Fruit Fly Maggot (*Tephritis psidii*), Maryborough; Green Bug (*Cuspicona forticornis*, Breddin), Clump Point; Bronze Bug (*Oncoscelis sulciventris*), Brisbane and elsewhere; Red Mite (*Brevipalpus sp.*), North Coast Railway districts and Tinana. [An instance of a small Brown Mite (*Leiosoma sp.*, Fam. Oribatidæ) occurring in large numbers on orange trees, in the Montville district, was shown to be without significance, the acarus being a fungus-consumer.] (*Note.*—(1.) Fruit Fly: The apparent exigencies of commercial procedure that involve the detention of citrus fruit in the orchards for many weeks subsequent to the time of its arrival at maturity is responsible in great measure for the fact that our oranges harbour in some instances fruit fly maggots and are, accordingly, when this is the case, rejected by the Southern States. This detention, moreover, in addition to prejudicial results of a different character, admits of a far larger number of flies overwintering than would otherwise be the case. A report that the Fruit Fly, erroneously spoken of as the Mediterranean Fruit Fly, had occurred in oranges emanating from Maryborough, especially inquired into by the writer, still lacks confirmation. The Government Entomologist of New South Wales—W. W. Froggatt—has also informed the writer that he has not yet found it in fruit of Queensland origin. (2.) Fruit Mining Caterpillar (*Dichocrocis punctiferalis*): This has been more prevalent than in past years. It is an insect especially difficult to cope with, since it does not attack the fruit until this is ripe or nearly so, is an internal feeder, and so many different plants—by affording it sustenance—present the opportunities for its numerical increase. There are indications that its range of occurrence will be confined to tropical and sub-tropical districts. (3.) The Fulvous Mussel Scale (*Aspidiotus Beckii*), introduced formerly on citrus plants from Florida, has firmly established itself in the Brisbane and, to some extent, the Woombye districts. This is greatly to be deplored, since it is a very harmful insect. The parasite that was formerly reported by the writer as operating to lessen its numbers is not endowed with the degree of usefulness exhibited by other members of its class, since it largely confines its attention to the male individuals, that in the case of this scale insect are apparently super-abundant. In the interests of citriculture, its dissemination further afield should, if practicable, be frustrated [*vide* Diseases in Plants Act]. (4.) The Red Mite, alluded to, is responsible for a condition of the ripe fruit that might be denominated "brown scab." The symptoms due to its attacks were recognised several years since in some citrus fruit from New South Wales, submitted with a view to eliciting an opinion as to the origin of the appearances presented. During the season 1905-6 they were detected in some oranges from Palmwoods, North-east Coast line; and more recently this "brown scab" has occurred wider afield, a discovery due to the assiduity of Mr. W. H. Knowles, an inspector under the Diseases in Plants Act, whose opportunities (arising from his inspection of fruit-exports) for defining the range of diseases are fully availed of.)

Olive.—Circular Black Scale Insect (*Aspidiotus ficus*), Broadwater.

Custard Apples.—Long Soft Scale Insect (*Lecanium longulum*), Rockhampton; Fruit Mining Caterpillar (*Dichocrocis punctiferalis*), Brisbane.

Passion Fruit.—Spotted Fruit Fly (*Tephritis psidii*), Blackall Range district.

Fig.—Leaf-eating Beetles (*Monelepta rosea* and *Galerucella australis*), Isis district.

Coffee.—Green Slug Caterpillar (*? Belippa sp.*, Fam. Limacocidæ), Geraldton district.

Fruit Trees.—Generally White Ants (Termitidæ), Burketown district; Leaf-eating Beetle (*Lepidiota sp.*, Fam. Melonthidæ), damaging foliage and young nuts of cocoanut and shoots and fruit of both mango and of orange, Daru district, British New Guinea.

Cabbage.—Cutworms (*Agrotis ignobilis*, W.), Beenleigh district. (*Note.*—The poisoned-bait method of coping with cutworms in cabbage is, at the instigation of the writer, being experimentally compared with the use for the same purpose of the insecticidal manure, "Vaporite-Strawson.")

Leguminaceous Plants (Pulse).—Bean Fly (*Agromyza phaseoli*), Brisbane district; especially harmful during the months of February and March, 1907.

Tomatoes.—Fruit-eating Caterpillar (*Heliothis armigera*), Brisbane and other districts; Fruit Fly Maggot (*Tephritis Tryoni*), the same; Lonchæa Fly Maggot (*Lonchæa splendida*), several instances. This fly, that is included in a distinct family (Lonchæidæ) from that which embraces the true Fruit Flies (Trypetidæ), does not attack sound fruit, whether ripe or green; when the fruit is, however, fissured at the base, or has any other injury involving the rind, the fly avails itself of this circumstance, depositing its eggs in the wound already present, inducing decay as the maggots—arising from these—pass to maturity. Notwithstanding it is grouped by writers elsewhere with the Fruit Flies proper—*cf.*, Broun (Cap. T.) "Descriptions of Three Species of Fruit Flies," Bull. No. 4, Divis. Biology, N.Z. Dep. Agr., 1905.

Chillies.—Fruit Fly Maggots (*Tephritis Tryoni*).

Garlic.—Beetle damaging stored roots (*Alphitobius piceus*).

Pineapples.—Mealy Bug (*Dactylopius bromeliæ*), Tungamal and elsewhere. This insect and its association with the pineapple plant have been the object of many inquiries, as the outcome of the stringency of the procedures in the Southern States relative to fruit importations. (*Note.*—The assertion, by the Victorian and New Zealand authorities, that Queensland pineapples harbour the maggot of the so-called Queensland Fruit Fly has not as yet been corroborated by evidence locally obtained. It was made a subject for a special report.)

Strawberries.—Aphides and attendant unproductiveness, Brisbane district.

Miscellaneous Garden Plants.—A small weevil (*Otiorhynchus sp.*), probably introduced, injuring seedlings of numerous plants at "Harrow," Cambooya.

Timber Trees and Ornamental Plants.—(1.) A report on Termites or White Ants, and the injuries to railway sleepers resulting from their attacks, suggested by samples received from the Railway Department, is in progress. (2.) Cossid Caterpillar (*Endoxyla boisduvali*), injuring Grey Gums (*Eucalyptus saligna*), in the Brisbane district. (3.) Lerp Insects (Psyllidæ), damaging the foliage of Broad-leaved Iron Bark (*Eucalyptus hemiphloia*), and so injuring this tree as a source of honey for bees, Warwick district. (4.) Leaf Hoppers (*Macropsylla fici*), injuring Moreton Bay figs, Brisbane and Sandgate district: the report in the latter case the outcome of a special municipal inquiry. (5.) A Mealy Bug (? *Dactylopius sp.*), injuring introduced *Pinus sp.* in the Brisbane district, very prevalent during 1906. (*Note.*—An insect, regarded both by Brisbane and Toowoomba as injuriously related to Bunya Trees (*Araucaria Bidwilli*), proved on examination to be the larva of the Lady Bird Beetle (*Cryptolæmus montrouzieri*), and to be serviceable insomuch as it was feeding on a true enemy of this tree, *Dactylopius aurilanatus*. (6.) The Tick Scale Insect (*Cryptes baccatus*), on garden acacias, Brisbane district. (7.) Ross's Circular Scale Insect (*Aspidiotus rossi*), on naturalised Ivy (*Hedera sp.*).

Special Insects.—Reports have been made on Mealy Bugs (*Dactylopius spp.*), their life-history and extermination; Mealy Bugs (*Dactylopius*), and their action in repressing weeds—Portulaca and Nut Grass (*Cyperus*); Fruit Flies (Trypetidæ), the "Queensland Fruit Fly" (*Tephritis Tryoni*); views regarding the latter held in South Australia; the Bombardier Beetle (*Pheropsophus verticalis*); on Fleas; the Carpenter Bee (*Xylocopa bryum*); the Emerald Moth (*Thalassodes pieroides*); and other insects.

In response to applications received from primary school teachers, series of insects submitted by them have been identified, classified, and the points of interest arising from their structure and habits pointed out. This is in furtherance of the Nature Study movement, a recent feature characterising our system of public instruction. Dipterous Fly Larvæ (*Ephydra sp.*), frequenting latrines, and possibly, therefore, serving as disseminators of disease, were reported on at the instance of the Railway Department. Methods of exterminating ants formed subjects of report.

Parasites and Predaceous Insects.—The Hair Worm (*Gordius*), its habits and life-history. Ecto-parasites of the Common House Fly (*Musca domestica*), viz.:—(1.) A Gammasid Mite (*Holastaspis sp.*), that had been deemed to possess affinity with the Fowl Mite (*Dermanyssus gallinæ*); (2.) Hypopial Stage (*Hypopus muscæ*) of a tyroglyphid mite, using the fly as a means for its transportation; (3.) Book Scorpion (*Chelifer sp.*), Toowoomba district. Fly Parasite (Tachinidæ) of the Grape-vine Hawk Moth (*Chærocampa celerio*). Fly Parasite (*Sturmia sp.*, Tachinidæ) of the larger Grape-vine Hawk Moth (*Chærocampa erotus*). Lady Birds (*Verania frenata*, *Cryptolæmus montrouzieri*, &c.), Brisbane and other districts. The Scrub Itch Mite and its relation to *Trombidium*.

Insecticides and their Application.—"Cyaniding": On the question of varying the amount of the hydro-cyanic acid yielding bodies in inverse proportion to the space occupied by the matters being fumigated—an adverse opinion; particulars regarding fumigation chambers in New South Wales and the procedure of cyaniding as conducted there; the general conditions to be observed in the construction of fumigating chambers; the nature of experiments tending to the improvement of the system. Reports suggested by the proposition that injury to fruit and plants fumigated might result from the procedure as given effect to in Queensland. The preparation of arsenite of lead. "Milk of lime" as an insecticide. The question of employing "tobacco waste" for destroying the Beetle Grubs (*Lepidiota spp.*) of sugar-cane. The use of sulphocarbolate of potash for destroying soil-frequenting insects.

Apiculture.—Inquiries have been instituted in South Australia and Victoria respectively to elicit an explanation of what has been referred to as "eucalyptus flavour" in the honey of the latter State, and of the cause and nature of "winter dwindling" remarked in the former. In the Report of the Entomologist for 1905-6, the State in relation to Apiculture was fully treated of.

INSECTS, Etc., AFFECTING STOCK.

1. Ticks.—Cattle Tick (*Rhipicephalus annulatus, var. australis*). Numerous reports have been submitted for the information of the Stock Branch of the Department dealing with the question of the identity of ticks found by the inspectorial staff in various parts of the State, and under varying circumstances, with "the genuine cattle tick." Reports have similarly been furnished touching the age of ticks and the duration of the parasitic life that they have manifested when secured. A paper by

the writer, entitled "The Cattle Tick—a Summarised Account of its Life-history," has been printed in more than one newspaper, and distributed as a "separate" by the Department. Again, special reports have embraced the following determinations:—

(1.) *Rhipicephalus sanguineus.*—Dogs at Runnemede, at Wandovale, at Bluff Station, at Bowen, and at Brisbane. (*Note.*—Probably two tick species are confounded in this list, the Brisbane dog tick reported on being apparently *R. bursa.*)

(2.) *Rhipicephalus sanguineus.*—On goats at Bowen.

(3.) *Ixodes holocyclus* (usually styled "the scrub tick").—On horse, Toowoomba; on cattle at Crow's Nest; on dogs at Brisbane.

(4.) *Amblyomma triguttatum.*—Host and locality uncommunicated (probably occurring on cattle).

(5.) *Ixodes* [*T'asmani,* Neumann]?.—On opossum, Logan district.

(6.) *Argas miniatus,* Koch.—On fowls at Woothaminna Station; at Warwick, &c. (*Note.*—This serious poultry parasite is becoming increasingly prevalent, and measures for preventing its further dissemination and for dealing with fresh outbreaks will form the subject of a report to be submitted.)

Several applications have been received for series of the ticks occurring associated with the native animals of the State; in fact, specimens of all kinds other than the cattle tick are in demand. These are required for scientific investigation. Requisitions have been issued, both by the Stock and by the Entomological Branches of the Department, to correspondents residing in different parts of the State for such specimens. This want being further made through the medium of this Report may provoke response from the more public-spirited amongst its readers.

2. Sand Flies (*Ceratapogon sp.*, Fam. *Chironomidæ*).—Having learnt how prejudicial "sand flies" are to stock in the Dawson River district, especially after floods, inquiries have been instituted in order to establish the identity of the insects concerned, and thus have some grounds on which to base preventive or remedial measures.

3. Blow Flies (*Muscidæ*).—Similarly, inquiries have been instituted with regard to "blow flies" attacking sheep in the Western parts of the State, and so giving rise to the necessity of special dipping being suggested.

4. Lice.—(*a*) The large blood-sucking Louse of Cattle (*Hæmatopinus megacephalus*), Darling Downs. (*b*) A louse "occurring in close colonies from the tail down to the udder of cows, and, when removed, leaving bare patches," a second species of *Hæmatopinus*, apparently undescribed, Warwick district. (*c*) Fowl Louse (*Lipeurus variabilis*), Brisbane district. (*d*) Fowl Mite (*Dermynassus gallinæ*), attacking canaries, Brisbane district.

5. Nasal Fly of Sheep (*Œstrus ovis*).—An instance of the occurrence of this parasite in sheep recently imported from New Zealand was reported on. The outbreak being quite local admitted of being stamped out.

6. A report on the nature and origin of a *post-mortem* product, found within the heart of a defunct cow and pronounced by its contributor to be a parasite, has been tendered.

Applications through the Colonial Office for collections of blood-sucking insects—other than Culicidæ—to be "worked up" in connection with the comprehensive investigations relating to disease-disseminating insects for some time past in progress at the British Museum (Natural History), London, has been met with by the despatch of a series of our local Tabanidæ. It is a matter of regret that the exigencies of the work of the Office has not admitted of this undertaking having been more promptly and adequately accomplished.

NATIVE BIRDS AND ANIMALS' PRESERVATION.

Little or no progress has been made in studying our local insectivorous birds since the issue of the last Annual Report of the work of the Office. A few additional specimens have been incorporated in the official departmental collection.

It is gratifying to have to record that in some districts the useful members of the bird tribe have become more numerically present. This may in part be attributed to our enlightened public opinion concerning the value of birds and a knowledge of the provisions of our Native Birds Protection Acts generally called into existence through the work of the Society for the Prevention of Cruelty in offering prizes for essays on these subjects throughout the whole of the primary schools of the State.

Having in view the probable local extermination of the opossums, as well as that of many of our interesting marsupial animals, a recommendation was made that their protection should be secured at least during the breeding season, provided that agriculturists or dwellers within agricultural districts were empowered—with respect to opossums—to destroy them at any time for the *bonâ fide* preservation of their crops. It is satisfactory to know that this recommendation, having found favour, has been given effect to by the Legislature in the Act entitled "*The Native Animals Protection Act of* 1906."

II.—VEGETABLE PATHOLOGY.

AGRICULTURAL CROPS.

Sugar-cane.—Few pathological questions only, arising from the condition of this crop, were submitted. What will evidently prove a local outbreak of some root disease was brought under notice in December, at a time inopportune for investigation; and a "North Coast Railway" correspondent sought information regarding an abnormal variegation exhibited by the foliage.

Maize.—Leaf blight, caused by the parasitic fungus, *Helminthosporium inconspicuum,* Broadsound district and elsewhere.

Wheat.—(1) "Rust": The season 1906 was one exceptional for the prevalence of rust affecting this and other cereals. In October it was suggested that it was expedient, for the future guidance of wheat-growers, to secure precise data relating to the particular kind of rust fungus concerned in each local instance of attack, its degree of prevalence, and the extent of the injury for which it was responsible; also, with respect to each, the influence of such conditions as were constituted by time of seeding, physical state of soil, local climate, &c.; also, the degree of resistance exhibited towards different rust fungi by each variety of the wheats grown, and especially so far as this was affected by the above conditions of cultivation and growth. As the outcome of this suggestion, a visit was made during the period 20th November to 12th December to the following districts successively:—Maranoa (Western division), Oakey, Aubigny, Mount Russell, Pittsworth, Clifton, Freestone Creek, Killarney, and Canning Downs. Unfortunately, the visit was ordered too late to admit of the full data referred to being secured, for the crop was already being harvested, but, notwithstanding, much valuable information was obtained connected with each of the foregoing topics of inquiry. This, for want of time and opportunity, has not been consolidated into a systematised bulletin. However, a report on the subject by the Agricultural Inspector (Mr. Quodling), that anticipated the inquiry deputed to this Office, and that has been already published, supplies in part this omission. This prevalence of rust, and this allusion to investigations partly prosecuted concerned therewith, suggests that the occasion might have been deemed opportune for reviving the Interstate Rust in Wheat Conferences, that in past years achieved results of such far-reaching importance to Australian wheat-growers—results that, as they have gained a world-wide reputation for the able workers associated with them, so will attach to their names the merit of high accomplishment. Yet it must not be overlooked that, in some respects, they laid only the foundations for superstructures, the outcome of further labours. (2) "Flag Smut" (*Urocystis occulta*): This, as indicated by Professor McAlpine, was very prevalent during the season 1906 in parts of the Southern States. In Queensland only a single instance of its occurrence was brought under notice, afforded by the Amby Downs district. Investigations locally conducted during October, or even prior to this, might have brought to light others.

Rice.—A disease was referred to as affecting a plot of this plant being grown in the Cairns district. The material available, however, was not adequate to pronounce on its nature. It appeared to represent the outcome of insect attack.

Lucerne.—A partial failure of this plant in the Burrum district was found to be attended by the presence of two leaf-blight fungi—a species of *Uromyces*, producing minute rusty-red spots, sparingly present, and *Sphærella destructiva*, occasioning larger brown spots with pale borders.

Cow-pea.—A conspicuous instance of Nematode Root Gall (*Heterodera radicola*) was discovered in the Mount Gravatt district, and was provocative of a comprehensive report. Correspondence with an Egyptian investigator, V. Mosseri, has led to a knowledge of a variety of this plant that has the reputation of resisting the attacks of the parasite alluded to.

Potato.—The season 1906 brought to light several instances of leaf blight, caused by the parasitic fungi *Macrosporium solani* and *Alternaria solani*, apparently forms of one organism. These were afforded by occurrences at Yandina, Beenleigh, and Mount Gravatt. They appear capable of proving quite injurious during seasons conducive to their manifestation. The disease, however, will yield to preventive treatment, consisting in the early application of a Bordeaux arsenite mixture.

Tobacco.—(1.) A slight development of a tobacco disease, that took the form of black areas of decay on the stem at the origin of the older leaves, was reported from the Bowen district. This was found to be occasioned by an *Alternaria* fungus parasite, that has usually with respect to the tobacco a saproptytic habit. An opinion was expressed that the malady would not become a permanent feature in any plantation where the plants were otherwise healthy.

(2.) The disease spoken of as Blue Mould (*Peronospora hyoscyami*) has proved more or less disastrous to early-sown tobacco whilst still in the seed bed. No instances of its attacking the mature plants were reported; this proneness on its part to exhibit this habit must not be overlooked. Instances of its attacking two garden flowers—fully matured plants—both afforded by varieties of *Nicotiana*, were reported from the Brisbane district. This blue mould disease still awaits the methodical investigation suggested and designed by this Office some few years since.

(3.) Nematode Root Gall, caused by *Heterodera radicola*, occurred in the Bowen district and elsewhere. This is competent to produce considerable trouble in plants during dry seasons, not only by its direct action, but also as conducing to a condition congenial to the attacks of fungus parasites. A lengthy report thereon has been submitted for the guidance of our Tobacco Expert, Mr. Nevill.

Cotton.—(1.) Leaf Spot, caused by *Cercospora gossypina*, Lawnton, prevalent in cotton-growing on an ill-drained site; comparative observations indicated that its presence was the outcome of constitutional derangement due to defective soil conditions.

(2.) A second Leaf Spot, caused by a species of *Macrosporium*, Lawnton; little developed, and where occurring presenting scarcely more than scientific interest.

(3.) Purple Vein.—A disease sufficiently described for the time being by this designation, although involving the leaf-stalks as well as the leaves, victimised isolated plants of a Sea Island variety of cotton. Whenever it occurred it exerted a characteristic effect in bringing the growth of the branch supporting the purple-veined leaves to a standstill. At present the cause of the malady has not been ascertained. It is not due to the attack of any fungus-parasite. Its appearance, as well as the tissue alterations underlying it, suggest the action of a mite or similarly minute puncturing insects. It has been recommended that plants evincing signs of it be excluded from use as seed producers. A similar malady, affecting, too, Sea Island cotton, has been noticed elsewhere in previous years. (*Note.*—The foregoing cotton maladies are mentioned in connection with the locality Lawnton, South Queensland. It must not, however, be assumed that disease was a special feature in cotton grown there. Observations in other cotton-growing districts would probably reveal the presence of ailments in this plant also. The position of honorary scientific member of the Queensland Acclimatisation Society prompted the investigations into the diseases above alluded to, it being the proprietor of the Lawnton Cotton Estate.)

Sisal Hemp (*Agave sisalana*).—What from its external features and mode of onset appeared to be a parasitic disease, reported from the Isis and Childers district, has been shown to be due to sudden meteorological conditions affecting the plant when in a special physiological condition, and to exert no permanent effect on the plant, the symptoms spontaneously disappearing with its further growth. It has been termed by the writer "leaf blast," and has been the object of a detailed report. It is experienced in several countries in which sisal hemp cultivation is a feature.

Vegetables (Tomatoes, Beans, &c.).—Nematode root galls, due to the attacks of *Heterodera radicola*, Charleville and other districts. (*Note.*—The disease nematode root gall, affecting so many economic plants, is becoming widely disseminated through commerce in already affected plants: potatoes—exhibiting surface pimples, as a characteristic feature—especially. Those who receive plants on to their land should always examine their roots as a preliminary procedure by first washing them and then seeking for the presence of small or even minute tuber-like bodies or knotty growth. On their discovery, the plants harbouring them should be burnt. An exception might be made in favour of legumes, since bacterial nodules, a normal feature, are generally present in these; still they are subject to nematode galls as well (*vid.* Cowpea, *ante*). However, leguminous plants are not of common occurrence in nursery stock. Neither "pimply potatoes" nor the peel thereof should ever be thrown on the manure heap for subsequent conveyance to the land.

Citraceous Plants (Orange, &c.)—*Leaf Speck*, with numerous minute, slightly raised dark-brown spots on foliage and young wood alike, producing structural features suggestive of mite attack, Glasshouse Mountain district.

Leaf Scab, attended by the presence of the fungus *Ramularia citri*, on mandarin orange, Woowoonga Scrub. (*Note.*—This disease, very prevalent in some varieties of lemon, is of uncommon occurrence in association with the kind of orange named.)

Leaf Blight, caused by the fungus parasite *Glœosporium tenuisporum*, Tinana district. In this affection the foliage becomes dead and discoloured from the tips of the leaf backwards; an uncommon disease; fortunately, no instance of its having occasioned conspicuous damage has yet been brought under notice in this State.

Bark Fungus.—Gray patchings of bark caused by a fungus *Corticeum sp.*, Buderum Mountain district and elsewhere. This has little, if any, pathological significance.

Black Patch and *Brown Scale*, North Coast Railway line district. This affection, that may be confounded with the disease named "Maori" (caused by *Phytopus oleivorous*), is characterised by the discolouration or scab occurring in spots or patches that are very distinctly defined. It is due to a special mite (*Tydeus sp.*) that frequents the obscure interspaces between oranges in contact one with another, or between oranges and leaves similarly placed. It is becoming increasingly prevalent. (Also referred to under Entomology, page 79.)

Chlorosis.—Indicated by a paleness of the foliage, thinness, and lack of turgidity in this and in some cases "die back," Glasshouse Mountain district and elsewhere; due to defective nutrition, and usually indicating the application of a complete fertiliser as a requirement. This conclusion, that is arrived at from considerations pertaining to plant physiology, receives confirmation on the soil itself being analysed.

Root Disease, Tinana district, &c. In January, 1907, a special investigation of such an occurrence was made, with a lengthy report as the outcome thereof. It is concluded that when the ordinary orange is grown on our red volcanic soil its roots will, under certain conditions, penetrate into the dense and compact subsoil, where conditions favourable to root respiration and food assimilation and to the development of plant nutrients are defective, with the result that various constitutional symptoms—"die back," shedding of foliage and of fruit, &c.—result. In the instance referred to, the report was submitted to the Instructor in Fruit Culture (A. H. Benson), who devised a special and rigorous soil culture based on its conclusions and on the lines of the advice contained therein.

Decay of Fruit.—Instances of decay exhibited by oranges, usually when *en route* to outside markets, have on more than one occasion been referred to this Office. My observations indicate that, through this, growers experience serious losses, especially when they have been extended to the state of fruit arriving in the Southern markets. Such decay may originate in fruit-fly attack; hence it is that in some instances every form of decay may be regarded as so originating—for this question of the origin of the rottenness exhibited is not always easy to dispose of—and thus consignments, comprising sound and decayed oranges alike, may be condemned on presentation for admission in the Southern States. The matter is then one of no small importance, and, accordingly, the following excerpt from a report furnished for the behoof of a single orange-grower may be regarded as having a general interest to the horticulturist:—

"Decay in oranges in transit to distant markets is not a speciality that Queensland growers and fruit-packers alone experience; they are, however, exceptional in taking few precautions to obviate its occurrence.

"In the first place, they do not make it their aim to pack—even if they grow them—the class of oranges the least prone to decay: those with a thin peel, with very fine, densely distributed cells. They gather fruit at all times, irrespective of the weather. They injure fruit in picking or after this has been accomplished. They leave the fruit too long on the trees when once ripe. They make no attempt to cure it; and, in packing, they include sound and unsound in the same receptacle.

"In a report before me on marketing of oranges in Porto Rico, and which involves a journey of from six to twelve days, the following points are insisted upon:—

(1) Carefully cutting off each fruit from the tree, clipping the stem about $\frac{1}{8}$-inch above the fruit.

(2) Gathering the fruit in a cloth-lined basket, and transferring it in the orchard to shallow boxes or other baskets, handling the fruit as carefully as possible, remembering that every bruise may cause decay.

(3) Always pick before fully coloured up, but never so early that the fruit will not ripen *en route.*

(4) Never pick on a rainy day, nor in the morning before the dew has dried.

(5) The fruit should *always* be cured (that is, the surplus water in the rind should be allowed to evaporate). If the surrounding air (in the packing-house) is fairly dry, two or three days will usually be sufficient for curing, otherwise more time will be required.

"The 'Californian Cultivator' last year, under the heading 'Causes of Citrus Fruit Decay,' devoted considerable space to investigations having for their aim the discovery of the cause and prevention thereof; and it was found that 'an examination of hundreds of boxes in different representative orange sections of the State indicated that from 15 to 20 per cent. of the fruit is made susceptible to rot by puncturing or injury with clippers when the fruit is picked, not to mention other forms of mechanical injury, and that in a given time, in moist air and a temperature of 70 degrees Fahr., the decay of fruit free from cut averaged about 2·5 per cent., whilst the decay in cut fruits averaged 36·9 per cent., and that a wide variation was found in the percentage of the decay of fruits picked by different pickers, the percentage ranging from 7 to 72 per cent.'

"Again, that 'the brush may be another source of injury to the fruit,' evidence of which is afforded.

"I may mention that the rot referred to is that known here as 'blue mould' (due to *Penicillium*), the principal cause of decay that our oranges undergo.

"In Italy oranges and lemons are always picked into padded baskets, and never thrown from the tree into them. There, too, in cutting the fruit a longer stalk is left on than is necessary to detach it, the butt of the stalk being cut off by a second operative, who, in removing it, places the fruit on straw to prevent injury. There, too, the fruit is always cured and picked over, decaying examples or injured specimens being eliminated, often more than once before it is finally cased. Meanwhile it is classed. Ultimately it is wrapped in paper.

"When such precautions are not taken, oranges, all the world over, decay in transit.

"These remarks apply especially to ordinary round oranges. Those of the Mandarin type, excepting the Beauty of Glen Retreat and its class, of course, must be handled and packed with exceptional precautions, as they are not so suitable for distant markets as are the ordinary citrus fruits.

"Over-feeding the tree with organic nitrogen produces fruit especially susceptible to develop rottenness.

"Oranges of a suitable class and properly cared for will dry up before they decay. This applies to fruit received both from the United States of America and even to some local fruit." [10-7-6.]

Of course, these remarks are not to be taken as applicable universally, for, of course, some growers and packers are fully alive to the requirements that should be complied with.

Since the foregoing was written, the origin of decay in oranges has not been lost sight of.

It has been found that when fruit is suffered to remain on the tree after it is fully mature, especially when the ground has been generously treated with fertilisers, the peel becomes softer and weaker. The fruit also in all cases, under this circumstance, gathers a greater number of air-borne fungus spores on its surface to avail themselves of any slight skin injury that may arise as an opportunity for infecting it with decay. If an orange with this weak and soft peel is dropped or thrown to the ground, it almost invariably is ruptured or otherwise injured. When packed, the presence of case bruises and the indents arising from the butt ends of stems attached to neighbouring fruits serve as starting points for decay. Apart from these matters, wherein growers and packers are in default, there may be the injury arising from improper handling and from exposure on shipboard. This has formed a subject on which also a report has been submitted.

Mango.—Anthracnose of fruit—arising from an alteration of and flux in the resinous gum-like substance that is ordinarily present in the specially constituted tissue composing the rind, Moreton and other districts.

Vine.—Anthracnose was unusually prevalent during the summer of 1906, in consequence of the generous rainfall. This was even true of the Maranoa district, where ordinarily it is but little manifest. Instances of its transference from place to place per medium of infected cuttings were reported on.

Passion Fruit Plant.—Wilting of the fruit and gradual death of the vine supporting it, due to overbearing and excessive demand on a limited root system.

Coffee.—Grey incrustation of foliage, due to the growth of an epiphytic Lichen (*Strigula sp.*), Johnstone River district. Burning of fruit (sun scale) and leaf-shedding, arising from exposure and absence of shade, Buderum Mountain district. Leaf spot, caused by *Cerospora coffeicola*, with consequent shedding of foliage, Buderum Mountain district. (*Note.*—A special inspection of some of the coffee plantations of the Buderum Mountain district was made during Easter, 1906. This was concluded with a lecture thereat on "The Insect and Fungus Enemies of the Coffee.")

Miscellaneous Plants.—(1.) Mildew of the rose caused by the oïdium condition of *Sphærotheca pannosa*, Brisbane district; very prevalent during the last two winters. (2.) Pimple bark of rose, the surface becoming shagreened with numerous low reddish-brown pimples, a physiological disease, Brisbane district.

ENTOMOLOGISTS' CONFERENCE.

During the period 30th July to 8th August, 1906, a Conference of Government Entomologists sat at Sydney under the presidency of the official representative of Queensland. The States of New South Wales, Victoria, South Australia, as well as this one, were represented thereat. In the case of South Australia, the Acting Entomologist attended; in that of Western Australia, the Government Entomologist, being engaged in duties in a foreign country, was unavoidably absent.

A visit to the principal fruit-growing areas of New South Wales, as well as to the metropolitan markets "fumigation chambers," was included in the work undertaken, problems involving local legislation having to be dealt with.

A comprehensive programme was drawn up, the matters for discussion submitted by the several Departments of Agriculture respectively being embodied therein.

It embraced (*Vid.* "Report of the Conference," pp. 2-4):—(1.) Legislative measures affecting interstate commerce in plants and fruit and their administration, considered under twelve different propositions. (2.) The method of dealing with specific injurious insects whether involving the application of definite enactments or otherwise—especially *Phylloxera vastatrix*—under two propositions: Codling Moth, one; Fruit Flies, seven. (3.) Parasites and their utilisation in repressing injurious insects—six. (4.) The injurious insects of New South Wales—two. (5.) The status of Government Entomologists in relation to Vegetation Diseases Acts administration—one. (6.) Registration of qualified operatives to assist in the Vegetation Diseases Acts administration—one.

The conclusion of the Conference were expressed in thirty-two resolutions, some of which were very fully debated; and, as indicative of the unanimity of the delegates, and the weight, therefore, that attached to their opinions as expressed therein, it may be added that no less than twenty-eight of the resolutions, referred to, were carried unanimously.

GENERAL.

Summarising these thirty-two resolutions, the Conference was of opinion that when injurious insects ("pests") were widely distributed ("cosmopolitan") [*e.g.*, Codling Moth, Pernicious and other Scale Insects, Potato Worm, &c., &c.], and liable to occurrence in all the States, they should be dealt with in an identical manner, legal provision being made to secure this end, such identical action having special reference to insect-infested and disease-affected objects—fruit especially—occurring in markets, warehouses, factories, and shops, or in process of distribution; and to cover inspection, seizure, and penal measures generally.

It was further agreed to give effect to this uniformity:—(1.) That inspection of Australian fruit figuring in interstate commerce should take place, on import and export, at such place in the case of any State as it might appoint; that all diseased be rejected or disinfected as might be deemed necessary; and that charges for such inspection—in no case to exceed 3d. per bushel—should be imposed. (*Note.*—New South Wales and Tasmania dissent.) (2.) That should—as the result of such inspection—fruit be condemned to destruction, this destruction must be conducted with the utmost despatch, the same provision to be applied to plants. (*Note.*—This, in the case of fruit, contemplated especially the necessity of preventing fruit-fly maggots in diseased fruit from escaping therefrom, and so becoming at large.) (3.) That, when fruit or plants were covered by certificates of fumigation for scale insects, granted by the exporting State, these certificates should be recognised by the importing one, provided that the right of inspection be reserved. (*Note.*—South Australia and Tasmania dissented.) (4.) That all plants about to be imported to any State, but not covered by a certificate implying their disinfection, be subjected to this treatment as a condition for their admission. (5.) That traffic in "second-hand" fruit cases and bags be prohibited, unless on their having been subjected to an effective method of disinfection, the use of boiling water and soda for the purpose being recommended.

SPECIFIC INSECTS AND DISEASES.

(1.) Phylloxera Vastatrix.—That the precautions now being taken in South Australia to obviate the introduction of *Phylloxera vastatrix* meet with approval, and that they be extended to (or be complied with in) other States in which this grape vine pest does not already occur. (*Note.*—This especially contemplated adherence to the resolution of the Phylloxera Conference, held at Melbourne in 1899, and expressed in Part D, Reg. 1, Nov. 1903, Vine Fruit and Vegetation Act of 1885, South Australia.)

(2.) Codling Moth.—That, the means of combating the ravages of Codling Moth in the States of Victoria, South Australia, and Tasmania having proved satisfactory, they be compulsorily continued and be extended to the other States in which they are not in force; that these means, than which no more effective have yet been proved in Australia, are the following:—

(1) The distribution of the insect, and of the fruits that have been affected thereby, being prohibited by a clearly worded law, and this strictly enforced.

(2) That in the orchard the following measures be executed that have proved effective to the extent of saving up to 90 per cent. of the fruit, when consistently applied in accordance with the breeding habits of the insect in the different localities:—

(*a*) Spraying from three to six times after the setting of the fruits with arsenite of soda (Kedzies' formula) or Paris green of standard quality.

(*b*) Clearing away all natural refuge for the caterpillars, such as rough bark, knot holes, stakes, rubbish, &c.

(*c*) Using bandage traps around the stems of the trees, which in turn are frequently cleansed.

(*d*) Making all fruit stores moth tight, and destroying the winged insects as they emerge from time to time.

(*e*) All infested and fallen fruits collected from the ground as frequently as possible, and destroyed by boiling.

(*f*) The use of second-hand fruit cases or bags for handling fruit, without their being effectively disinfected, discouraged.

(*Note.*—The foregoing recommendations for dealing with Codling Moth emanated from a committee consisting of the representatives of the States of Victoria, Tasmania, and South Australia, to whom the matter had specially been referred.)

Fruit Flies (Australian).—That it was not desirable, in order to exclude the fruit flies of New South Wales, Queensland, and Western Australia from Victoria, Tasmania, and South Australia respectively, to prohibit the importation of fruit from the former to the latter until improved methods of inspection had been tried and proved ineffectual.

As corollaries to this decision, it was further resolved:—

(1) That the inspection referred to should embrace both inspecting fruit at the port of shipment and critically examining it also at the port of entry.

(2) That a rigid inspection of all fruits liable to carry fruit flies in any stages should be made, and that when fruits were seen to be affected by such pests the whole of the same, together with the packages containing them, should be destroyed by boiling or burning, as the case might require.

(3) That, to lessen the risk of bananas infested with fruit flies being imported into the States of Victoria, Tasmania, and South Australia, this fruit should be packed in cases prior to shipment. (*Note.*—Queensland dissented; the procedure advocated was already followed in the case of importations to Tasmania, South Australia, and Western Australia. New South Wales advocated on grounds irrelevant to question under consideration—"the fruit would probably be landed in Sydney and there cased and reshipped.")

The Conference also affirmed that, with regard to the possibility of subjugating fruit flies by the agency of introduced parasites, such information was not yet forthcoming to admit of hope of anything being accompliished in this direction. The representative of Queensland especially sought counsel from his colleagues at the Conference as to the measures to be pursued in States wherein fruit flies occurred in dealing with these injurious insects. Accordingly, it was affirmed in discussion with him that no more effective means than the following had yet been proved:—

(*a*) All infested and fallen fruit should be gathered and destroyed, at least once a week, either by boiling or burning.

(*b*) The fruit of valuable trees may be economically protected from fly infestation by being covered in hessian, cotton netting, or other suitable fabric.

(*c*) The destruction of infested fruit should especially contemplate measures of this kind carried out early in the season before the fruit fly, in the course of natural production, has become especially numerous.

(*d*) Neglected and abandoned orchards should be destroyed.

(*e*) Where the pest has first appeared in an orchard or district, the ground under the fruit trees should be sprayed with kerosene or other mineral oil, and all fruit picked and destroyed.

(*f*) Rigid inspection of markets should be made, and infested fruit seized and at once destroyed.

(*g*) Success could only be expected by uniform and compulsory action.

(*h*) All market refuse, being liable to comprise fly-infested fruit, should be regarded as disease-infested and treated accordingly.

(*i*) We are aware, in making these recommendations, that no evidence has been placed before the Conference to show that these precautionary measures have yet been fully put into practice with anything approaching combined and thorough action in any district, much less in (throughout) any State.

(*j*) No contact insecticide, so far, is known to be effective against fruit flies.

(*k*) Bandages, as for Codling Moth, are useless against fruit flies.

(*Note.*—The method, emanating from Western Australia, of capturing the fruit fly (*Ceratitis capitata*), consisting in the use of kerosene, had not at the time been propounded.)

Fruit Flies (Extra Australian).—That provision for the exclusion of certain fruit flies be extended so as to include those of the Indian Peninsula, East Indies, New Guinea, and the islands of the South Seas.

Potato Disease.—That all the States represented should totally prohibit the importation of potatoes into the Australian Commonwealth from all countries known to be affected by Potato Disease (*Phytophthora infestans*).

(*Note.*—With this exception, the Conference did not take into consideration plant diseases other than those due to insect attacks.)

STATUS OF GOVERNMENT ENTOMOLOGIST.

It was resolved that it was "both desirable and necessary in the public interest that in each State the Official Entomologist, or officer acting in that capacity where no entomologist is provided for, be closely identified with the administration of the Vegetation Diseases Acts, directing the work of the various inspectors."

PARASITES—THEIR UTILISATION FOR INSECT DESTRUCTION.

It was affirmed that already the majority of destructive insects—both native and naturalised ones—in all the States were already generally victimised by parasitic and predaceous members of the same class, but that in no instance have these proved adequate to exterminate these pests, although in some instances they check their virulence.

It reaffirmed the convictions postulated by the chairman, determining the efficacy of introducing parasites or predaceous insects, in order that too sanguine expectations might not be entertained regarding the possible benefit to be derived from the use of any one, viz.:—

"(1) The parasite must be one whose inherent rate of increase is high, and its parasitic habit must involve the destruction, or suppression of reproduction, of its host.

"(2) The insect whose destruction is contemplated through its agency must constitute its exclusive or well-nigh exclusive food, and must be freely accessible to its attacks.
"(3) The climatic conditions of its new home must not be detrimental to its existence and development.
"(4) It must be introduced without previous simultaneous or subsequent introduction of its own natural enemies (hyper-parasites) especially being accomplished.
"(5) The country to which it is introduced must not already possess any insect in its fauna that will act towards it as a formidable parasite, or any other form of natural enemy."

That with respect to the alleged favourable Californian and Western Australian experiences, and to those of elsewhere, of the efficacy of introduced parasitic and predaceous insects that, except as regards those employed in subjugating the Cottony Cushion Scale (*Icerya purchasi*), the Pink Wax Scale (*Ceroplastes rubens*), and Mealy Bug (*Dactylopius vastatrix*), authenticated facts to enable the Conference to arrive at a definite conclusion as to their genuineness have not, as far as can be ascertained, been published.

It was also resolved, accordingly: that this being so, it was desirable that a Government Entomologist should be sent to California to investigate internal parasites, especially those of the codling moth.

Further, that it was also expedient that a Government Entomologist should be despatched to Western Australia to investigate the status of introduced parasites, especially of those of fruit flies, in that State.

With regard to the Californian inquiries, it was finally resolved, on the motion of the writer, that, in view of the important issues connected with them, the Government Entomologist of New South Wales, possessing the special high attainments needed for the inquiry, be delegated to prosecute the same.

The desirability of conducting investigations with a view to rendering the services of certain parasites that victimised the Cabbage Aphis on the one hand and the Peach Aphis on the other, continuous, instead of seasonal only, as at present, was also affirmed.

As the outcome of personal investigation conducted in the orchards and orangeries of New South Wales, and representations made by proprietors of those, it was decided that it was expedient that a Vegetation Diseases Act be at once introduced in New South Wales, it being modelled on the lines of those adopted by the other five States of the Commonwealth of Australia.

Also, that it was desirable to encourage the existence of skilled operatives to apply insecticides and fungicides, and perform methods of fumigation as required by the different Vegetation Diseases Acts, and to provide for the registration of those operatives, and also scheduled rates for their services.

CONCLUSION.

The Conference afforded the opportunity for the Government Entomologists to confer together with reference to matters of common interest, especially in connection with scientific inquiries on hand and with profitable lines of research to be entered upon; facilities in this regard being accorded by the Secretary for Agriculture of New South Wales and its official Entomologist (W. W. Froggatt), whose kind offices were fully appreciated by his visiting confrères.

REPORT OF THE CONFERENCE.

The Report of the Conference has been printed by two of the States represented thereat—viz., New South Wales and Tasmania—in the latter case with a noteworthy omission (viz., the Chairman's contribution to the discussion on Fruit Flies).

OUTCOME OF THE CONFERENCE.

So far the recommendations of the Conference have been carried out to the following extent:—

New South Wales has passed the Act to amend the Vine and Vegetation Diseases Act, 1901 (Act 37, 1906), providing, when read in connection with Parts II. and III. of the principal Act, to which it is supplementary, for the repression of insect pests and diseases throughout the State.

It has given due weight to the Conference's opinion with regard to the status of Government Entomologists in relation to the administration of the Vegetation Diseases Act by imposing this responsible duty on its Government Entomologist, allowing him to nominate the inspectors to work under him, thus falling into line with Victoria, South Australia, Tasmania, and New Zealand, &c.

Victoria has improved its method of inspecting imports and orchards in the direction of greater thoroughness.

Queensland has similarly moved in the direction of improving its method of inspecting fruit exports and plant imports.

All the States represented at the Conference have combined in despatching the Government Entomologist of New South Wales (W. W. Froggatt) to investigate the status of introduced parasites in California, and incidentally into methods of coping with fruit flies and other injurious pests there and elsewhere. (*Note.*—By special request of the Secretary of Agriculture of New South Wales, the writer was requested to tender to Mr. Froggatt suggestions tending to secure the success of his mission. Accordingly, in addition to advice accorded in the course of personal interview, suggestions bearing on his inquiry regarding fruit fly repression were formulated for his guidance.)

III.—DISEASES IN PLANTS ACT.

Prior to the commencement of March of the present year (1907), the duties of my post were restricted—(1) To the examination of plants on their arrival from oversea countries whenever submitted for this purpose; (2) to serving in the capacity of scientific accessor to the Department and to individual inspectors, in reducing difficult questions arising in the course of administration; and (3) to filling the post of Chairman at the Interstate Conference of Government Entomologists, to which questions bearing on the administration of the different Vegetation Diseases Acts of Australia had been referred.

Since the date referred to the responsibility of examining, disinfecting, and certifying to the condition of all the plant importations received at our principal port of entry (Brisbane), with the exception only of the herbaceous ones entering through the parcels branch of the Post Office and plants addressed to the Botanic Gardens, Brisbane, has also been assigned to my Office, together with similar duties with respect to plant exportations. The extent and nature of these undertakings will appear from the following summary:—

Plants and Interstate Commerce.—May, June, July, and August are the principal months for plant importations. During the former two of these that fall within the period embraced in this Report, 172 packages (exclusive of those that entered through the Parcels Branch of the Post Office) of plants were examined, and, where necessary, also disinfected. These were in most instances large packages, some of them, indeed, of such size as required the labour of two or three men to move them.

The position of the Australian States as contributors to these importations may be estimated from the following tabulated statement:—

New South Wales—number of consignments,	50;	packages comprised therein,	88
Victoria	,,	,,	14	,,	,,	82
Other States	,,	,,	2	,,	,,	2

Insomuch, however, as the packages from Victoria comprised more commonly the bulkier examples, the plants imported therefrom were largely in excess of those from the mother State; a remark especially applicable to deciduous fruit trees. In many instances single bundles of plants comprised the importations of quite a large number of individual settlers sent to a single local agent for distribution thereto. Rather more than half the total number of consignments from all sources were to local nurserymen. The consignees embraced ten New South Wales, six Victorian, and two South Australian professional plant-raisers.

During the months mentioned—*i.e.*, May and June—only thirty-one consignments, comprising thirty-two packages, destined for export were submitted for inspection and disinfection, receiving an official certificate importing the same. These packages, moreover, were usually quite small, and, in most instances, comprised ornamental plants only. More than half of the consignments found their destination in New South Wales. This small volume of plant exportations thus brought under notice might suggest that many consignments are sent away without official scrutiny. This, however, does not appear to be the case. Considering the large sums of money involved in the commerce relating to living plants, this state of things should not be ignored when the interests of the State as a primary producer is under consideration. It suggests a deficiency in training in a branch of technical education beyond the limits of a very small circle that probably might be easily, and with advantage, remedied.

Insects and Plant Importations.—The condition of plants imported, so far as has related to their freedom from disease, has, generally speaking, been exceedingly satisfactory. The many numerous consignments of deciduous fruit trees—emanating from Victoria especially—have been singularly free from disease. Indications of Peach Aphis on some of these have been exceptionally encountered, but no instance of the presence of Scale Insects has been met with. The Victorian consignments are all covered by certificates importing official nursery inspection; the New South Wales ones by like documents certifying to fumigation by Government inspectors themselves or by nurserymen acting under their supervision. This condition, whilst conducive to trade, bespeaks the valuable public services discharged by Government supervision; the labours of the Government Entomologist of Victoria—Mr. C. French—reflected in the condition of its orchards and nurseries alike, in his capacity of chief inspector under the Vegetation Diseases Act of that State, meriting the highest commendation. The citraceous trees, principally raised in New South Wales, also figuring largely in our plant imports, have on arrival harboured only two of the different scale insects incidental to these plants, with *Aphis* and *Siphanta* in addition. These have been, almost without exception, dead at the time of arrival, as the outcome of the fumigation process. The scale insects referred to are the Black Scale Insect (*Lecanium oleæ*) and the Red Scale Insect (*Aspidiotus aurantii*); the latter—when present at all—occurring, however, always very sparingly. Both of these insects are already prevalent—the latter especially—in many of our citrus orchards; although the *Lecanium* is bereft of its harmfulness, thanks to the operation of internal parasites.

Amongst the destructive insects met with in the course of examining imported plants, the following may be mentioned:—

(1.) Fulvous Mussel Scale Insect (*Mytilaspis Beckii*, synonymous *M. citricola* and *M. fulva*). This "scale," injurious to all kinds of citraceous and to many other plants, and the most pernicious enemy of our orangeries, in which it is locally prevalent—that was brought here on plants from Florida prior to the enactment of the Diseases in Plants Act, 1896—occurred on a consignment of special citrus trees from Florida. These trees, on being well fumigated and "cleaned," were planted under conditions of quarantine. The same insect occurred at the base of the twin needles composing the foliage of *Pinus densifolius* from Japan. In many cases they were concealed within the scarious sheath that occurs in this situation. These plants were destroyed. The Fulvous Mussel Scale Insect was next met with, numerously, on a large consignment of camelias, on their way from New South Wales to one of our nurseries at Toowoomba, a district in which this pest has not yet become established. These disease-bearing plants were returned to Sydney with the concurrence of the consignee. In a further instance of its association with the same plants, afforded again by a consignment from New South Wales, the plants were fumigated a second time, and only admitted on an undertaking that after an interval had elapsed they would again be subjected to the process. This insect has also been met with on crotons and the flowering shrub, *Murraya exotica*; that in the Brisbane district harbours it freely and may serve as a ready means for its dissemination.

(2.) The Burrowing Scale Insect (*Pseudoaonidia trilobiformis*).—This was found thickly infesting an azalea plant brought by a passenger from Japan. It is elsewhere an enemy of coffee, and was encountered on a plant of this received from New South Wales some years since. It is not known to occur in the State. The azalea referred to was, of course, burnt. A previous consignment of azaleas from the same region, received here in January, 1907, also harboured the same injurious insect.

Phylloxera-resistant Vine Stocks.—With the reconstitution of the French vineyards, the discovery of some outlet for American vines of French origin, to be used as phylloxera-resistant stocks, has become desirable. It is not surprising, therefore, that the Ambassador of France should have—in the interests of his country—approached the Foreign Office to urge that Australia should open its ports to receive the immense stocks in the hands of French syndicates. The attitude to the proposal alluded to will be found in the appended paragraph taken from a report that its consideration was provocative of.

After meeting therein the suggestion that the prohibition with regard to the importation of these vines was based on ignorance of the phylloxera situation in France, the following statements were made:—

"The reasons why vine plants styled 'American,' of French origin, should be embraced in any Regulations providing for the exclusion of *Phylloxera vastatrix*, or in ones postulating restricted importation only, if any, are as follows:—

(1.) No American vine has been found on which *Phylloxera vastatrix* will not subsist and multiply; the term 'resistant,' as applied to these types of grape vines, having exclusive reference to the pernicious influence that their presence may exert (*c.f.*, J. M. Guillon. Revue de Viticulture, Tom. x., 1898, p. 555, &c.)

(2.) This being so, these American vines may operate in an especially insidious manner in the introduction of the injurious insect in question. It was through their agency, and in spite of precautions, that these 'resistant vines' served as the agents for the introduction of *Phylloxera vastatrix* to the Cape of Good Hope; and Pierre Viala, the greatest of French authorities on 'Les Maladies de la Vigne,' was fully justified in the following pronouncement:—'Il est certain que, dans la plupart de cas, ce sont les vignes Américaines qui ont été la cause des invasions phylloxeriques et que l'on ne peut qu' approuver l'interdiction de l'importation des vignes Américaines des pays phylloxerés dans les régions indemnes.'

(3.) Moreover, these American vines being almost the exclusive ones on which are developed the 'Gallicole' or 'forme multipicatrice' of the insect, this dissemination may be spontaneously effected, through their agency, in a much more pronounced degree than might happen with forms of any other species of *Vitis* than these that they represent."

"Queensland's relation to this question of American vine importation is summed up in the following propositions:—

(1) A country in which *Phylloxera vastatrix* is not known to exist, and that is not immediately threatened by its visitation, is not interested in the cultivation of these American vine types, or, indeed, justified in embarking in it, except by way of experiment undertaken for the purpose of testing their use as resistant stocks under local conditions of soil and climate. This is laid down by European authorities on the *Phylloxera* question (cf., Dr. Gustavo Leonardi—'Gli Insetti Nocivi,' t. 4, p. 361).

(2) Queensland already possesses some of the vines in question, and, should it need more, they could be obtained from other of the Australian States (Phylloxera-free South Australia excepted), to which they have already been introduced under stringent safeguards.

(3.) Direct importation from France cannot be recommended even under the restrictions already in force, for measures directed against the importation of *Phylloxera* are not necessarily efficacious in excluding these virulent 'maladies cryptogamiques' of the French vineyards, 'le Mildion' and 'Black Rot,' whose presence with respect to either, Australia as yet—fortunately—can lay no claim to."

Grape Vine Destruction.—A consignment of grape vines emanating from New South Wales was destroyed by order under the provisions of "*The Diseases in Plants Act*, 1906."

Para Rubber.—That the agricultural potentialities of our Northern scrub areas might be further exploited, and the cultivation of so commercially valuable a plant as Para Rubber (*Hevea Braziliensis*) undertaken to this end, a special Regulation, under the Diseases in Plants Act, was submitted, providing for the admission of seeds of this plant from the Straits Settlements, under the conditions would exclude the possibility of their serving as the vehicle for the introduction of the spores of the Coffee Leaf Fungus (*Hemileia vastatrix*)—a disease that has been conveyed in more than one instance through commerce in seeds of plants (not themselves liable to its attacks), or with packing connected therewith to which the seeds of the parasite have become attached. At the same time, the propagation of the Para Rubber by cuttings derived from trees already growing at the Kamerunga State Nursery, agreeable to the practice of similar institutions elsewhere, has been suggested as a matter for consideration.

Cocoa.—At the same time, with regard to Cocoa cultivation in the North, the suggestion to import seed in seed-pods from Ceylon has been unfavourably entertained. The care that has to be exercised in an application of this kind will appear from the following excerpt from the report embodying the opinion referred to, that also will, by inclusion here, serve the purposes of future reference:—

"The importation of cocoa plants or of cocoa seed in the pod is a work that, if undertaken, must be entered upon with especial precaution, and accordingly I am of opinion that neither should be introduced unless by the Department itself, in order that proper safeguards against the introduction of disease incidental to cocoa may be taken. . . .

"These precautions are not alone called for for the purpose of excluding coffee-leaf disease, which exclusion might be accomplished either (1) by procuring plants or pods from countries in which it is not endemic, or (2) by adapting measures similar to those that Mr. —— recommends; but they are rendered especially necessary by the fact that almost everywhere the cocoa plant, including the fruit thereof, is subject to very serious disease. Thus official reports with regard to Ceylon state that the cultivations there have been visited by a disease that has 'proved a very serious menace to cocoa cultivation,' that in 1902, in one instance of its occurrence there, 14 to 63 per cent. of the pods were attacked, and that this 'disease spreads to the beans' within them.

"In the West Indies the same thing happens to some extent, and the authorities there advise in consequence that 'seeds from diseased pods should not be used for raising seedlings.'

"Again, 'in consequence of serious disease having broken out in the cocoa plantations in South America,' the 'importation of any parts of a cocoa-tree, other than the cured beans, into some of the West Indian Islands—Trinidad, at least—has been legally inhibited'; and this experience, it is understood, extends to other cocoa-growing regions also.

"The cocoa plants already growing in Queensland:—Kamerunga [it is presumed, in the absence of evidence to the contrary] are, on the other hand, perfectly healthy.

"The exercise of the greatest care in this matter being thus imperative, I should advise that Ceylon or the West Indies be alone drawn on for a supply under the following conditions only:—In the case of the former, Dr. J. C. Willis', D.Sc, Director of the Royal Botanical Gardens, Peradenuja, counsel and co-operation for the work must be secured, and be invited to state—(1) If, in his opinion, cocoa pods can, in view of the presence of cocoa and coffee diseases there, be safely introduced therefrom; and, if so, to select suitable pods, and to order the carrying out the measures with respect to them under which such introduction should take place.

"With respect to the West Indies, the seeds of cocoa, quickly perishing, could not probably be imported therefrom so as to arrive here in a living state, and, accordingly, plants alone should be introduced therefrom. Coffee leaf disease does not exist there. In the case of this region, application, modified as the outcome of the foregoing circumstances, should be made to the Honourable Sir Daniel Morris, K.C.M.G, D.S.C., &c., Imperial Commissioner of Agriculture for the West Indies, Barbados; and in applying to this latter source, plants of the Grenada Cocoa (*Amelonada*), as well as of the Trinidad Cocoa (*Forastero*), should be requisitioned, since they appear to be adapted to different climatic conditions. And, by getting both, a cocoa suitable to Queensland climatic peculiarities would with greater likelihood be procured. I have refrained from indicating other sources of supply (*e.g.*, Java), as I am not aware of anyone resident therein on whom the responsibility of undertaking the work contemplated could be imposed, or the countries in view are too remote from Queensland to admit of the certain receipt of living plants therefrom."—10-10-06.

LIBRARY.

To reproduce a paragraph from the Annual Report, 1905-6, it may be stated as follows:—

"With the exception of certain publications of periodical issue, no works have been acquired by purchase. In order, however, to keep the Office abreast of recent discoveries in the domains of entomology and plant pathology—a matter regarded as of great importance, and one held constantly, therefore, in view—some recent works of reference should be acquired. Donations have, however, as in the past, formed a not inconsiderable element in the list of works added to the official library, and the generosity of their respective givers is gratefully acknowledged." The desiderata referred to have not yet, however, been made the object of specific requisition.

IMPORTANT PUBLICATION.

The conclusion of the period embraced in this Report has witnessed the issue of a work by W. W. Froggatt, the accomplished Government Entomologist of New South Wales, entitled "Australian Insects." The expectations that my acquaintance with the author and his scientific attainments led me to form regarding this work when first projected, and that resulted in a suggestion that several copies should be secured by this Department on its being published, are found to be more than fulfilled, now that it is available for reference. No compendium dealing so comprehensively with a regional insect fauna as does this one is, perhaps, extant; the descriptive matter is excellently arranged; and the illustrations, that adorn the text, being originally prepared in the majority of instances to illustrate memoirs relating to local economic entomology, will lend to it an added interest in the eyes of those of the class to whom the reports of my Office are usually indirectly addressed.

COLLECTIONS.

The exacting nature of the duties devolving on the writer have rendered it impracticable to bestow the attention on the Departmental collections that they necessitate. This fact, together with the dampness of the Office in which they are stored, has led to the serious impairment of their condition. The same reason has operated to prevent any requisition being submitted, or personal effort being made, with a view to their augmentation.

CONCLUSION.

Occupying the combined posts of Entomologist, Vegetable Pathologist, and Inspector under the Diseases in Plants Act, and discharging responsible duties constantly in connection with each, and being unprovided with any assistant whatsoever, the work of my Office is seriously in arrear, and my knowledge, moreover, cannot be adequately placed at the disposal of the public interested in my investigations.

Recently the Bureau of Entomology of the United States Department of Agriculture, that sympathetically co-operates in technical investigations here conducted, in preparing for publication a summary of the present status of applied entomology (it is not officially interested in the other divisions of the duties of the office), has required at my hands "the exact data concerning the present organisation of your [my] office, the number of assistants, the annual budget, and—if your care to do so—the amount of salaries paid, laboratory facilities, and so on." No great difficulty has been experienced in complying with this request, but it has suggested the preparation of a report on the work proper to the Office, and how it can be met by further provision of facilities for its conduct; and this it is proposed to tender as an independent document.

HENRY TRYON,

Vegetable Pathologist, Entomologist, and Inspector, Diseases in Plants Act.

24th July, 1907.

REPORT OF THE TOBACCO EXPERT.

SIR,—I herewith have the honour to submit my annual report on the tobacco industry of Queensland for the year 1906-7.

Since discontinuing the State Farm at Texas, we have sold the product of our last year's operations at fairly satisfactory prices.

The character and quality of the tobacco grown in the Texas and Inglewood districts has greatly improved within the past three years, and we are now not only producing a much better tobacco than heretofore, but a real good and useful article, and our growers are making an effort to still further improve it.

This desirable result has been obtained by the introduction of some of the very best varieties of the plant, by the improvement of field work, and by greater care in curing and handling.

Buyers have also stimulated this by paying a better price for the well-cured and well-handled crops than for those that are not so well looked after.

As corroboratory evidence of the above, the demand for Queensland-grown tobacco is now fully three times as great as it was five years ago, and at prices averaging fully 1d. per lb. higher; it now averages about 7d. per lb.

We know that it is growing in favour with the manufacturers, and if we continue to improve the quality the next three or four years should see the demand more than doubled and the crop worth to the farmers of the State from £80,000 to £100,000, and we must endeavour to be able to supply the demand regularly. The introduction of new and unacclimatised seed has accentuated our difficulties with blue mould, as the plants from these do not recover so readily from its ravages as the old variety; but, after a year or two, we hope to find that they will be to some extent mould resistant. From this cause, and a later plague of grasshoppers, the crop of 1906-7 was materially shortened.

CIGAR TOBACCO.

We have progressed far enough with our efforts to stimulate the production of cigar tobaccos to have every confidence in its future. The prices realised have yielded an average of something like £60 per acre, and there is now a prospect of several farming centres becoming principally tobacco-growing. If we succeed in producing as good an article as our efforts indicate, these tobaccos will return handsome profits to growers for export, and they will not have to depend altogether upon local markets. In the meantime, the local demand will take all we can produce for several years to come, and at prices that will be more remunerative to the small farmer than any other crop he can grow.

There is practically no limit to the soils suitable for the growing of this tobacco in our State, and this should, in time, become a large and profitable industry.

I have, &c.,

R. S. NEVILL, Tobacco Expert.

REPORT OF THE STATE FARM, WESTBROOK.

SIR,—I have the honour to submit the annual report of this farm, as follows:—

The meteorological conditions were not favourable in the early part of the year for green spring crops, but a better aspect appeared as the summer advanced. The rainfall during September and October was particularly serviceable to the early varieties of fruit, and also gave a good start to early maize and other crops; but by the end of the year everything received a check. The latter months, however, have been the most genial we have experienced for years. Total rainfall, 29·14 to 14th June.

ORCHARD.

The fruit crop, on the whole, was good. The apricots were finer, but not so abundant, as in former years. Of this class of fruit the Royals (the earliest main cropping variety), the Blenheims, and Moorparks were particularly good, especially on the trees that were dwarfed by hard pruning, and the financial results were very satisfactory. It may be mentioned that the apricot crop in the State generally was poor.

Amongst the peaches, the Lady Palmerston, Foster, and Globe varieties in particular were of first-class quality.

Plums did not yield up to the average; Evans' Early proved the best of the early varieties, being of good quality and cropping well. I consider this the best of the early plums in our collection, as it is a heavy bearer of good quality fruit. Angelina Burdette and Burbank were the best of the second early varieties, and Wickson, Golden Prune, Diamond, and Prune D'Argen of the later kinds.

Pears, on the whole, bore well—

Bartlett's	Flemish Beauty	Vicar of Winkfield
Jargonelle	Winter Nelis	Smith's Hybrid.
Clapp's Favourite	Beurre D'Anjou	
Beurre Clairgeau	Mousulard	

were particular in this respect.

Neither the climate or soil here is quite suitable for producing the best results from apples, although the crop was up to expectation. Out of fifty varieties growing here those which have proved to be good bearers of marketable fruit are—

Lady Sudley	Emperor Alexander	Lady Carrington
Caroline Red June	Early Richmond	Prince of the Pippins.
Irish Peach	Ribston Pippin	
Chenango Strawberry	Lord Nelson	

Figs have always done well and borne good crops, but this fruit is difficult to market, especially at long distances. They are not eatable if packed when hard, whereas a light shower of rain will spoil the fruit at a riper stage. The following varieties do well, and should find a place in all collections, viz. :—

Col de Signora Nero	Brown Turkey	Black Province
White Genoa	Violette Gross	White Adriatic

Quinces, medlars, persimmons, and almonds bore fair crops of good fruit, but the olives yielded only moderately.

In the orchard everything has been satisfactory. Pests, whenever detected, have received attention, and the treatment which was thought best for their eradication. I may mention here that the trees have been sprayed every winter since planting with the sulphur, lime, and salt wash, consequently they have remained clean during summer, with the exception of attacks from aphides, which ravage the young green shoots as they appear. To overcome and prevent pests of this family we find it necessary to spray two or three times during spring with tobacco water. The fruit fly was not troublesome until the second week in January. The apricots and early peaches were marketed quite clean before that time. When the invasion came it was quite sudden and disastrous, and a large quantity of fruit had to be consigned to the boiler. The dwarfed trees, which we were able to net in, were the only ones, at this period, free from the scourge. Pears that were gathered early and stored were safe, but most of the late pickings of these and other fruits had to be destroyed. It is pleasing to note that plums, both early and late, were but slightly affected, while figs were immune.

The land between the trees was ploughed and cross-ploughed, also scarified ten times.

Vineyard.—Growth in this department has been vigorous, whereas in the orchard it was not so. The land has been kept clean by thorough cultivation, and the vines in good order by systematic summer pruning and training. The winter pruning was completed by the middle of September, and the vines were then dressed with sulphuric acid wash, and followed up during spring and summer with liberal sprayings of Bordeaux mixture. In consequence of this treatment we have been able to keep "black spot" thoroughly in check, although the disease has been disastrous in the district. Upon certain vines where the acid wash was omitted the wood was destroyed by the "spot," and was absolutely void of fruit.

The quantity and quality of the crop this year was the best we ever had, and the weather was perfect at the time of gathering. Rain did not fall in such quantity as to do any damage, and the result was, that a good market was found for the crop. Wine grapes sold at £5 per ton, and table varieties, per case of 25 lb, at 1s. 6d. to 4s. 6d. wholesale. The following varieties were the most profitable, viz. : —

Snow's Muscat	Black Prince	Cinsaut
Black Hamburg	Malvoise de Sitzes	Servant
Mrs. Pince's Muscat	Clairette Rose	Roussalet
Gros Coleman	Madresfield Court	Bicane
Madaline Royal	Centennial	Chaouch
Mataro	Hermitage	Dolcetto
Mondeuse	Malbec	Lunoir
Pedro Ximenes	Grand Noir	Merlot
Ferret Noir	Counoise	Freau.
Goetha	Wilder	

Most of the grafted vines have done well, but many of the old stocks will have to be rooted out as good unions have not been formed by the scions worked upon them. The cuttings in the nursery rows have made a good strike, and some hundreds will be ready for planting out this season. A strong demand for cuttings still continues.

Maize.—Three plantings of our Early Star Leeming were made. The first and second did well, the former yielding nine bags and the latter six bags to the acre. The late planting suffered so from the dry weather in April that the crop was cut and made into stover. There is quite a lively demand for this variety; being of the ninety-day type, it stands drought better than the longer-growing sorts. The seed has been carefully selected after each crop was taken off, and the centre grains of the best cobs only are distributed to applicants. This variety has been kept pure and further improved by the following method. Starting three years ago, 200 of the best cobs were picked from a crop of Leeming. The middle grains of the best of these cobs were then planted in the centre rows of the plot; the second and third pick was planted in gradation on either side of these rows; the tops and bottoms of the cobs were then mixed together, and used to plant as a border, several rows wide, around the block, to protect the inner rows from foreign pollen.

Pumpkins.—The Silver Nugget variety still maintains its character as a table vegetable. The crop was fair, and the fruits from small to medium. The yield was very much reduced owing to dry weather at the time of blossoming and setting.

Asparagus.—One-third of an acre is under this crop. The last spring cutting was not so heavy as might have been had sufficient rain fallen at the time (winter) the plant should have increased its root system for the purpose of strengthening the succulent shoots. The beds were thus considerably weakened, and have not made a very robust growth since the cutting ceased. The plantation, however, yielded over 1,000 bundles, and netted about £17 wholesale. This fact alone should be an inducement for the farmer to make asparagus culture a side branch of his operations.

Mangels and *Sugar Beets*, as usual, were grown to a considerable extent. These crops are found to be a great standby when grass is scarce. Where large areas are not available, the sugar beet is preferable to the mangel wurzel, because they can be grown much closer, and they come in quicker for a food supply.

Grasses.—The following are a few leading varieties experimented with. To the dairy farmer the exotics are more important than the native grasses :—

Phalaris commutata (Canary grass)—exotic.—I first saw this grass three years ago, and it struck me at once that it might prove to be what was needed on every farm—viz., an all-the-year-round grass. I obtained a small plant to experiment with in August, and planted it in a very dry situation. After one or two waterings it became thoroughly established, and I carefully watched its behaviour through the summer. Being satisfied thus far, the first pinch of seed obtainable was sown, and a nice batch of seedlings was the result, and during the following spring they were pricked out; after receiving one good watering further attention was not required. The original stool was divided into one hundred rootlings, and planted in February, eighteen months ago. They never looked back, and have produced a great quantity of feed since. Last summer the grass grew 5 feet high, and was cut in February for seed. In consequence of the seed not setting well, the supply is limited. At the present time (June) each of these plants are bearing an enormous amount of dense, rich, succulent feed, 4 feet in diameter and 2 feet high. I know of no other grass to equal it for continuous growth and hardiness during summer and winter. In his report on the analyses of this grass, the Agricultural Chemist states:—"It seems to be an exceptionally valuable fodder plant, more particularly for dairy stock, as the albuminoid ratio is very favourable." From practical observation, the preference shown by all kinds of stock is conclusive. The plant is easily propagated by division of the root, but, so far, I have not found it a very free seeder. When established it will bear any amount of grazing, from January to December, and, owing to its upright growth, is good either for cutting green or making into hay. It is evident its popularity and the existing demand will increase, and, in order to supply further applicants, three-quarters of an acre more has been planted.

Chloris virgata (Rhodes grass)—exotic.—A rampant grower, covering a large area in a short time. It thrives in the driest weather, trailing over the ground like Giant Couch, and throwing up its robust stems in a dense mass of good fodder, 4 feet in height. It is not particular to situation or soil, as it produces abundant feed on dry or wet land, sand, clay, or amongst rocks. It is a free seeder, and is also easily increased by division of the roots. This grass does not produce green feed on open downs country during winter, as it will not grow in frosty weather.

Paspalum dilatatum (Crown grass)—exotic.—This is another robust grass, but of a more recumbent nature than the above, and is increased as easily in the same manner. I have a small patch of this grass growing together with Phalaris, and both seem to enjoy one another's company. Paspalum provides good picking for stock during mild winters, and even in frosty weather, where it is protected by rocks or timber, but will not do so on open country where it is closely fed. Good rough meadow hay can be made from this as well as Rhodes grass if cut before the seed ripens.

Astrebla pectinata (Mitchell grass)—indigenous.—A small plot was sown broadcast in November, and has done very well. This is said to be one of the best fattening grasses of the West, but does not impress me as being of so much value to the dairy farmer.

Festuca elatior (Tall Fescue)—exotic.—This is the first season of trying this grass, and, up to the present, I have not formed any great opinion of its character. The experiment will, however, be continued.

Awnless Brome grass—exotic.—This is purely a winter and spring grass, an annual of remarkably quick growth. If sown early in autumn it may be constantly grazed off during the winter, and a splendid crop of the finest meadow hay can be taken off in October.

Phalaris arundinaca and *Bromus enermis* are also being tried, but nothing definite can be stated until the experiment is further advanced.

The unfavourable nature of the early part of the season was not conducive to the best results of many farm and garden crops, although a crop of Panicum did well, yielding 450 lb. of seed to the acre; the straw was also saved, and is being used for bedding. Sorghums, Kafir corn, &c., were fair crops, but the types are losing their distinctive character, and a fresh supply of true seed will be required. Mazzagua, which the previous season grew 18 feet high, this year only reached the height of 10 feet. Field peas, cowpeas, and other pulse were sown, mainly for green-manure crops. Two cuttings of lucerne and 9 tons of oaten hay were taken off and stacked for home use. Twenty varieties of potatoes were planted, but, in most instances, the crop failed, the exceptions being Robin Adair, Avoca, Sussex Champion, and Vicar, which did well in spite of the uncongenial weather.

During the summer many other farm and garden crops were grown for experimental purposes, of which the following were quite successful—viz., squashes, 10 varieties; melons, 6 varieties; cucumbers, 6 varieties; tomatoes, 2 varieties; dwarf and runner beans, 5 varieties; sweet potatoes, 5 varieties; and Jerusalem artichokes.

The following crops have been put in this autumn:—14 acres of Algerian oats, for hay; and 2 acres of Cape barley, for green feed, have been sown on corn stubble.

The winter vegetable plots are looking splendid; the bountiful rains of May and June came in good time to give everything a start. Six acres are cropped with the following subjects:—

Cabbage.—Giant Leader, Tender and True, Succession, Autumn King, and Blood Red.

Cauliflower.—Purity, Early Giant, Autumn Giant, Autumn Mammoth, and Metropole.

Savoy.—Best of All, Perfection, Tom Thumb, and Dwarf Green Curled.

Brussels Sprouts.—Matchless and Exhibition.

Borecole or *Kale.*—Extra Curled Scotch, Drumhead (for table use), Improved Hearting, The Arctic, and the Sutton. Sheep-feeding kales are represented by the Thousand-head and Jersey.

Turnip.—Early Snowball, White Milan, Yellow Perfection, and White Perfection.

Parsnip.—Tender and True and Student.

Carrot.—Inimitable, Early Gem, New Intermediate, and Long Red Surrey.

Also peas, onions, leeks, beets, endive, cardoons, and other vegetables.

Improvements.—A commodious building, 50 feet long and 20 feet wide, has been erected in connection with the stable block, to serve as a barn and store-house. The lucerne patch has been fenced off from the rest of the cultivation.

Exhibitions.—The products of the farm were displayed at three Queensland shows—viz., Brisbane, Toowoomba, and Pittsworth. Several cases of peaches and grapes were also despatched to, and exhibited at, the A.N.A. Exhibition recently held at Melbourne.

In conclusion, I desire to inform you that throughout the year the farm has been inspected by many visitors from all parts, seeking information on various agricultural matters, and which was given. We have also given instruction and practical demonstrations of farm work to interested parties, and the students of the local schools; besides this, much correspondence has been dealt with upon all branches of agriculture.

C. ROSS, Manager.

REPORT OF THE MANAGER OF THE STATE FARM, HERMITAGE, WARWICK.

Sir,—I have the honour to submit the following report on the work of this Farm for the year ended 30th June, 1907. My duties as manager commenced on 1st April, 1907, and the short time elapsing between that date and this report has of necessity curtailed much of the information which it would have been possible otherwise to give.

The year was, on the whole, a very satisfactory one so far as climatic conditions were concerned. July, 1906, was dry, but from the middle of August right through the spring and summer the Hermitage district had copious rains, which promoted a very rank growth of vegetation. This made it an ideal season from the dairyman's point of view, but one rather too moist to suit the wheat farmer, particularly about harvest time. A mild and open autumn was experienced, with the exception of an early frost on the 23rd of April last, which occasioned considerable damage to the late maize and pumpkins. This satisfactory comparative freedom from excessive cold has been continued till the time of writing (1st July), and the rainfall has been good during this latter period, although a few more showers would at present be acceptable. Altogether, the winter, so far, has been one of the best seasons that has been experienced here for some years past.

FARM CROPS.

Wheat.—The past cereal season cannot be said to have been a favourable one throughout, as the early part of the year proved too dry to ensure a successful germination of the wheat seed that was sown at that time, and many growers preferred to wait for rain before putting in their main crop. June and July passed by, and yielded only a scanty fall, but the rains that fell during the first week in August gave a plentiful downpour. On a previous occasion good yields were secured from spring wheats sown at this time, but it proved the exception rather than the rule. The weather during August, September, and October was favourable for rapid development, but the growth made was necessarily soft and succulent, and when rust did appear in the latter month it progressed rapidly throughout the most susceptible varieties. Owing to the length of time which elapsed till the stacks were threshed, they were subjected to considerable damage from mice and rainy weather which was detrimental to the yields and quality of the grain. The following varieties proved to be fairly rust resistant, but the balance cannot be recommended:—Crossbreds Nos. 504, 353, 349, 121, 25, and 12; Hermitage Nos. 1, 2, and 3.

The following are the results of the threshing of last season's wheats:—

Variety.	Area.	When Sown.	When Up.	Harvested.	Yield per Acre.
Bread Wheats—	Acres.				Bushels.
Crossbred No. 353	1	2 July	16 July	3 Dec.	16¼
,, 349	1	2 ,,	16 ,,	3 ,,	14
,, 347	1	2 ,,	16 ,,	3 ,,	8¼
,, 121	1	2 ,,	16 ,,	3 ,,	14¼
,, 181	1	2 ,,	16 ,,	1 ,,	13½
,, 504	1	2 ,,	16 ,,	1 ,,	16¼
,, 33	1	3 ,,	16 ,,	29 Nov.	5½
,, 25	1	3 ,,	16 ,,	4 Dec.	11
,, 12	1	3 ,,	16 ,,	4 ,,	11½
Hermitage No. 1	1	3 Aug.	10 Aug.	6 ,,	10¾
,, 2	1	3 ,,	10 ,,	6 ,,	13
,, 3	1	3 ,,	10 ,,	6 ,,	10¼
Bobs	1	4 July	18 July	5 ,,	8
John Brown	1	4 ,,	18 ,,	5 ,,	8¼
Schneider	1	4 ,,	18 ,,	5 ,,	7¼
Plover	1	4 ,,	18 ,,	5 ,,	6¼
Cumberland	1	3 Aug.	10 Aug.	4 ,,	4½
Rymer (1 drill	13½ ch.)	3 July	13 July	12 ,,	10 lb. in all.
Macaroni Wheats—	Acres.				Bushels.
Medeah	0½	5 ,,	18 ,,	13 ,,	25¼
Black Don	0¼	6 ,,	15 ,,	14 ,,	17½
Velvet Don	0¼	6 ,,	15 ,,	14 ,,	17½
Kubanka	0¼	6 ,,	15 ,,	14 ,,	17½
Farrer's Durum (1 drill	13½ ch.)	3 ,,	13 ,,	12 ,,	20 lb. in all.
Belotourka	do.	3 ,,	13 ,,	13 ,,	20 ,,

A field of 19½ acres of Budd's Early was sown on 12th June, and 12 acres of Red Fife (Manitoba) on the following 25th. Both lots failed to germinate satisfactorily, much of the grain malting in the ground, which perished during the dry period in July. A portion of this wheat which grew was fed off.

Barley.—This had to remain in stack for fully five months after harvest, and deteriorated somewhat in quality and yield. The yields, however, as will be seen from the following table, were fairly satisfactory :—

Variety.	Area Planted.	When Sown.	When Up.	Harvested.	Yield per Acre.
	Acres.	1906.	1906.	1906.	Bushels.
Danubian	1	August 4	August 10 ...	November 30	34¼
Invincible	1	„ 4	„ 10 .	„ 30	30¾
English Chevalier	1	„ 6 ...	„ 10 ...	December 1	31¼
Kinvers „	1	„ 4 .	„ 10 ..	„ 1	27½
Halletts „	1	„ 4 ...	„ 10 ...	November 30	27
Chilian „	1	„ 6 ...	„ 10 ...	„ 29	33
„ „ (improved) ...	1	„ 6 ...	„ 10 ...	„ 29	30
Golden Grain	1	„ 6 ...	„ 10 ...	„ 29	31½
Californian, Brewing, or Cape ...	1½	...	...	...	38

The Danubian (an excellent yielder and an apparently good malting barley) and the Californian Brewing are both six-rowed barleys, while the balance of the above are two-rowed. The Invincible included in the latter class is known as Windproof, one of the battledore barleys.

Oats.—The Sixty-day Oats originating from drought-resistant seed imported from Southern Russia again proved to be quick maturing and of excellent quality for making into a fine class of hay, but the grain is small and of little value for feed purposes. The Belgak Oats, which, like the Sixty-day, had also originally come from Southern Russia, was not successful, as it had been the previous year; for, owing to the appearance of rust, it had to be cut for hay.

Maize.—The experiments enumerated in the last annual report have been continued, and a satisfactory yield from 16 acres planted with the Golden Superb variety resulted. As no threshing machine has yet been procurable, in the district, however, the actual figures cannot yet be given.

Forage Crops.—Two sorghums (Imphee and *Sorghum saccharatum*) were sown, the area aggregating 10 acres. The principal portion of the crop was made into ensilage, and a minor area of some 2 acres saved for seed, which yielded 2 tons 2 cwt. of seed of excellent quality. Four hundredweight of Red Kafir corn seed was also harvested. An area of 30 acres was put under barley and rape, grown for a rotation for feeding off and ploughing in. This was sown in April, 1906, and germinated irregularly, lying on the ground till the August rains. The combination afforded a variety of good fodder throughout the winter months, and proved valuable for the live stock on the farm. It was finally ploughed under in December, and the land has since been sown with the wheat crops for the coming harvest. An area of 1½ acres of Californian Brewing barley was given for green feed, and, after affording good forage, the second crop was allowed to mature, and yielded, as stated above, 38 bushels of grain suitable for feed purposes. The lucerne paddocks have given some good cuttings of hay for the farm, and the farm stock have grazed on them on and off during the year with good results. These paddocks are at present in an excellent condition.

Grasses.—Of the indigenous grasses the following did well during the summer:—*Andropogon intermedius* (a blue grass), *Panicum decompositum* (Australian millet), *Panicum trachyrrachis* (Coolibar grass), *Chrysopogon parviflorus* (scented golden beard), and *Agropyrum scabrum* (wheat grass). All these are excellent summer grasses producing large quantities of good fodder which would be capable of conversion into excellent hay for winter feed purposes. Among a number of grasses the seed of which was obtained from America and planted on the 5th September, 1906, the following have survived and certainly appear worthy of further trial:—*Phalaris augusta*, *Festuca scabrella*, *Elymus hirsutiglumis*, *Agropyrum tenerum*, and *Hordeum bulbosum*. It is true these five have been favoured with a moist season, but they have done very well and promise to be good winter grasses, especially the first mentioned, while the *Elymus hirsutiglumis* appears to be a grass suitable for sheep and one not unlikely (if it shows itself a drought resister) that will prove a valuable addition to the grasses for the Darling Downs climate. We have a small patch of Canary grass (*Phalaris commutata*) which endorses the favourable reports made of it by the manager of the Westbrook State Farm in his report of last year. Of the practically self-sown grasses on the farm paddocks, the Prairie upholds its reputation as a winter feed. The few saltbushes we have continue to do well, but the *Paspalum dilatatum* has not done as well with us here as it does on the coastal districts of the State.

Mangels.—Two varieties (Mammoth Long Red and Champion Yellow Globe) were planted on 4th September in drills, and produced an excellent crop, which was utilised for the stud ewes during the lambing season. This succulent and prolific root crop is one that is eminently suited for the Downs country.

Cucurbitacea.—Several varieties of this class of crop were grown, for pig feeding principally, and gave fair returns, but the moist weather interfered with their keeping qualities.

Vegetables.—Cabbages, cauliflowers, lettuces, peas, beans, carrots, parsnips, onions, beets, swedes, radishes, capsicums, celery, &c., were successfully grown, and were utilised in the apprentices' quarters.

Fruit.—It is regretted that the past season proved a poor one, so far as the orchard was concerned. The fruit fly was in evidence, and destroyed a good deal of the crop.

SILOS.

A new octagonal fibro-cement silo has been erected with an approximate capacity of 130 tons. This was filled with sorghum grown in No. the 3 paddock, where about 9 acres were cut and chaffed, the yield being about 14 tons per acre. This silo was filled during the early part of April, and the result is that we now have a fine supply, available at any moment, of good nutritious feed, which otherwise could not have been preserved. The old and smaller silo was filled at the same time with about 30 tons of Red Kafir corn and a few tons of lucerne.

LIVE STOCK.

Cattle.—We have at present on the farm 10 milking Shorthorn heifers, 3 aged crossbred cows, 1 milking Shorthorn bull, 5 heifer calves, and 2 steers. The milk has been used for the apprentices' quarters, or has been separated and converted on the farm into butter which has also been used for the apprentices. After the next calving of the heifers, arrangements will be made for the keeping of a correct record of all milk and butter fat yields. Judging from our experience, the milking Shorthorn seems to be well adapted to the requirements of this district.

Horses.—There is now on the farm 14 draughts, 1 harness mare, and 1 hack.

Sheep.—The pure Glengallan stud Merino ewes presented by Mr. W. B. Slade, and to which reference will be made, I understand, in your report, have done well since their arrival here in December last. These sheep are now quartered in the No. 5 or Middle Grass paddock, but arrangements have been made for their transfer to the northern side of the railway line, about 300 yards beyond the students' quarters, where there is a nicely sheltered ridge. Here three small paddocks, with shelter shed accessible to two upper ones, will be laid down with a small hurdle yard adjoining, where the necessary drafting, classing, and lamb-marking can be carried on. With these three paddocks and the scavenging work that there will be for the sheep, there should be more than sufficient food for these animals for some years. Since their arrival the ewes have been remarkably healthy, and the result of the recent lambing from 36 ewes was 22 ewe lambs and 13 ram lambs. Of the 50 ewes so generously donated by Mr. Slade, 14 missed. All the lambs have thriven, and, judging from present appearances, there should be no necessity for any culling.

Pigs.—We have at present, including young stock, 24 Berkshires and 37 Middle Yorkshires. Both of these breeds have done well with us, particularly the Berkshires, and there is a good demand for our young stock. The services of both of our boars are made use of by many of our neighbours.

Poultry.—In addition to Buff Orpington fowls, we have a nice flock of young turkeys, which have thriven on the farm. These latter birds, however, owing to their roaming habits, are somewhat of a trouble on a farm where cultivation is the chief object.

IMPROVEMENTS.

In addition to the new silo already mentioned, there has been erected during the year under review a new milking-shed with concrete floor, while the necessary yards have been constructed on substantial and suitable lines. These yards have been enclosed with a two-rail fence, to which has been added in the case of the bull paddock a barb cap. The calf paddock and dairy yard have been surrounded with a ten-cable cyclone fence, so arranged that the strainers are independent of the gate-posts. Under the same roof as the cowshed, suitable calf and bull boxes have been constructed. A new dairy, fitted with a hand separator and an end-over barrel churn has been completed, and this new dairy accommodation may be considered as an instructive acquisition to the conveniences of the Farm, besides providing facilities for the manufacture of a good class of butter for the students.

Fencing.—A new line of substantial fencing has been erected between paddocks Nos. 5 and 6. This fence is fitted with two barb and five plain wires. A new fence has been constructed along the road frontage of that portion of the State Farm property north of the railway line, while the students' quarters have also been fenced in.

Water Supply.—A wire-netted yard, 1½ chain by 1 chain, has been erected in No. 5 paddock, and in this yard a suitable water-trough for sheep has been placed with ball tap connection. A trough for watering horses and cattle has been placed outside of the yard between it and the tank. This has also been supplied with ball tap and suitable railing to prevent stock getting between it and the fence. The object of this enclosure is to ensure that the sheep may have an independent watering-place, and thus do away with the chance of their being hurt by horses and cattle; also, that should they require to be hand-fed at any time there will be room for that purpose. Instead of using tanks, a line of distribution piping has been run directly from the pipe near the pig yards direct to the dairy, from thence to the calf paddock, through the cowshed to the bull paddock, and then to the proposed vegetable garden, suitable connections having been made *en route*.

Among the new farm implements procured during the year were a two-horse mower and a horse rake, both of which have already proved their usefulness. The purchase of a new spring cart and harness may also be reported.

It was considered desirable to line the old wooden silo with ruberoid in order to make it more airtight.

Arrangements have been made for the early connection of the Farm with the Warwick telephone exchange, which will enable us to be brought into direct telephonic communication with Brisbane and Toowoomba—a convenience which is likely to prove of considerable value to the working of the Farm.

In order to more fully meet the requirements of the district generally, a quarter of a chain of the State Farm's property fronting the railway station was granted to the Railway Department to provide a road to the passenger platform, which, with the width of 24 links already used as a road, will now give, for the benefit of the general public, a roadway 50 links in width.

APPRENTICES.

By the system established by the Department, the Farm now takes as apprentices lads between the ages of sixteen and eighteen, who are taught such branches of farming as are practicable on the farm. These youths are paid nothing for the first twelve months, £12 for the second, and £24 for the third. The number of vacancies is, of course, limited, and the production of certificates of health and character are necessary before admission. A building of ten rooms, suitably furnished, has been erected for their accommodation, and the nucleus of a small agricultural library has been started for their instruction. There are at present on the farm four of these apprentices or students, and another three are expected within the course of a few days. It is satisfactory to be able to report that the boys we have at present are of an excellent class who show an intelligent interest in their work, and that the system promises to be successful.

FUTURE OPERATIONS.

The recent plantings have consisted of the sowing of 37 acres of wheat (41 varieties) and a field of "Maltster" barley, the seed of which was obtained from Mr. Vavasour, of Marlborough, New Zealand. Arrangements are now being made for the sowing of some 20 acres with nine different varieties of barley, 6 acres of Sixty-day and other oats, 3 acres of potatoes, 6 acres of mangels, and possibly 27 acres of maize. A supply of 175 shade trees have been ordered from the Brisbane Botanic Gardens, and it is proposed to plant 28 of these round the students' quarters, 12 in the dairy paddock, 6 in the bull paddock, 9 in the calf paddock, and 120 in the middle or grass paddock in clumps of about twenty.

As soon as time can be found and suitable ground prepared, it is intended to devote special attention to the further testing of promising indigenous and imported grasses.

Arrangements are being made for the laying on of water from the supply tank to the sheep paddocks on the northern side of the railway line. This will necessitate the laying down of nearly 1,200 feet of 1-inch piping, with the necessary troughing, joints, elbows, ball taps, &c.

GENERAL.

Exhibitions.—During the year the Farm contributed exhibits to the Brisbane, Warwick, and A.N.A. (Melbourne) Shows. These contributions entail considerable work on the staff, but it is satisfactory to note that they are appreciated as a means of illustrating the agricultural resources and possibilities of the State and of the Darling Downs in particular.

Visitors.—Visits to the Farm from persons from other parts of the State, as well as from the South, are almost of daily occurrence, and on holiday occasions the numbers are usually very large. For instance, during the last Easter holidays the visitors must have numbered over one hundred. Every effort is made to supply them with such information as they may desire.

Free Distributions of Seeds.—These have chiefly been confined to the supply of seed wheats and barleys for the experimental plots at State schools.

J. LIVERSEED, Manager.

REPORT OF THE STATE FARM, BIGGENDEN.

Sir,—I have the honour to submit my annual report for the year ending 31st June, 1907.

The seasons throughout the year have been good; but for some of the finer crops, the intervals between the rains, and the excessive rainfall when it did come, have been rather trying, and on many occasions the long-continued wet weather interfered with harvesting and cultivation.

During the year considerable alterations and improvements have been made at the farm. Quarters have been erected to receive improvers. A silo and dairy have been built, and some alterations made to the outbuildings so as to enable a small dairy herd to be kept and worked. Eight heifers and a bull were sent up, and these, with the cattle already on the farm, were to be the foundation of a herd. Unfortunately, the tick fever broke out, and I lost the bull and four of the heifers.

I was unable to get the silo, which it was originally intended should be finished in January, completed till the middle of March. Crops of sorghum, which were planted to be ready for the earlier date, were therefore overripe when cut, and so lost considerably both in bulk and weight, the result being that there was not enough to fill the silo. Tarred hessian and about 2 inches of soil were put on the top of the silage that was got in, and it was left like that till shortly before I was ready to resume filling with the second crop of sorghum, just two months later. When opened it was found that the silage had kept very well, that there was very little waste, and that the stock relished it. We fed the stock for a fortnight from the silo, and then filled up with the second growth. Sorghums for siloing were planted in October and November. The later maturing varieties were planted earliest, so as to bring them all in together for the silo. This arrangement worked out well so far as the sorghums were concerned, as by the end of January they were all ready for cutting. Yields running from 12 tons per acre for quick maturing varieties to 30 and, in the case of giant Honduras and Mazzagua, 35 and 40 tons per acre. There is a vast difference in the quality of the different varieties, some of them being very sweet, while others, particularly the heavy croppers, have a tendency to run to wood.

Early Orange is the variety that has so far given the best results here considering the quality as well as the bulk of the crop. Saccharatum, Teosinte, and Penicillaria, should be avoided as, though very heavy croppers, stock do not relish them.

Mazzagua is, I am afraid, indigestable. My stock eat it well if chaffed fine, but do not seem to thrive on it.

Giant Honduras I only had a small plot of, and allowed it to ripen seed before feeding it. At that stage it was practically useless, as the stock would not eat it.

Negrosence Hackel Ined, a sorghum procured by the Department from Manila, was very disappointing, the seed having evidently been badly hybridised with broom millet. About half the plants grew 16 to 18 feet high and threw inferior broom-like heads, while the stalk was dry and pithy The remaining plants grew to a sorghum with a distinct head and seeds, which, for the want of further information, I must consider true to name. If so, it is very poor stuff both for quality and quantity.

Branching Red Kafir has been the crop of the year. I have been carefully selecting the seed of this from year to year, and this year from the first cutting from the fifth of an acre I threshed and bagged 14 bushels of seed, or at the rate of 70 bushels per acre. The stalks that were left after removing the seed heads were all turned into silage, after being tested to see that they were palatable to stock. A second crop has also been taken from this plot and siloed along with the second growth from the other sorghums.

Eight bushels of seed of the green manure beans were distributed this year, and the amount could have been doubled had it not been that the rain while harvesting caused the pods to burst and spill their contents on the ground.

I have about 900 lb. of cowpea seed, and a nice little stack of cowpea straw (which makes excellent fodder) saved from a little over an acre of ground.

The value of the various tropical legumes can hardly be overestimated. Even in good years, sharp spells of dry weather may be experienced that curl up the usual hay crops, but these legumes will continue to grow even in a small drought, and can be either fed green or turned into hay; while as soil-renewers they cannot be beaten. For hay purposes, the Naricó, the poor man's beans, and the Perennial cowpea are easily first; while as green manure they are as good as any of the others.

Owing to the trouble of getting sweet potatoes out of the cultivation once they have been planted there, I now only plant them in land temporarily fenced and prepared in the grass paddocks. After the potatoes are dug the land will be sown with Rhodes grass and Paspalum, and when these are established he fences will be removed. So far the plan promises to work out well.

The Kumera, or New Zealand sweet potato, a few tubers of which were sent me by the Department, have done very well, the tubers being of good size, sound, and, to my mind, better eating than any of the other varieties we have. They gave a yield of 11 tons 2 cwt per acre, while the White Maltese, which has been the best yielder on the farm for the past two or three years, gave 12 tons 3 cwt. The next best cropper out of the six varieties on the farm was the Spanish Giant with a yield of only 8 tons 7 cwt.

Algerian oats gave a fine crop of hay, and almost escaped the prevailing rust. Potato and Tartarian oats were badly rusted.

The wheat crop was a total failure, so far as grain was concerned, owing to rust. Twenty-six varieties of wheat were planted, and nearly all came away well, but sooner or later were taken by rust. None of them set grain worth mentioning, but the Medeah withstood the rust longer than any of the others.

Peas, both field and table, grew well, but owing to continuous rain when they should have been harvested, I was unable to save any seed of the latter.

Vetches sown in March did well, but later sowings were not much good.

Maize has not done as well as might have been expected, Hickory King giving 35 bushels per acre, and Golden Nugget 45 bushels per acre. The fault was more in the sample than in the yield, the grain being very short and not well filled.

It has been a poor season for pumpkins, but Grammas planted away from the maize did well. Among the maize they have done very little good.

Vineyard.—Two of the worst varieties, Reisling and Elsinbro, were grafted with Fontanac de Madeira. Grafting on the Reisling, which suffers from oidium, was nearly a failure, while almost every graft on the Elsinbro (a hardy but otherwise very inferior grape) took, and some of them bore fruit.

Five thousand six hundred and twenty-five grape cuttings were distributed, all of which were dipped in sulphate of potassium before being sent out. Bordeaux mixture was used for the spring dressing of the vines, instead of dusting with sulphur and sulphate of iron, as has been previously done.

Taking the season, which was an exceptionally bad one, into consideration, I think the Bordeaux mixture did better work than the dusting. The crop of grapes was very poor, the mild wet winter probably being responsible, the vines not having been properly dormant, while black spot, oïdium, and the sucking moth did a lot of damage. Royal Ascot did the best this season, with Chouch Aramon and Goethe following in the order named. Teneron was destroyed entirely by black spot, and the Muscat varieties gave very light crops.

Grasses.—Paspalum and Rhodes grass still divide honours. The latter, however, seems to stand dry snaps on hard ground better than Paspalum. I hope soon to have a small paddock of Rhodes grass that I can turn stock into, and it will then be possible to give a more reliable opinion as to the stock-carrying powers of this grass. That stock cannot eat it out I am sure, but they will prevent isolated plants from spreading. Where it has been planted in the paddocks the stock hunt it out, and eat it down to the last, so that one would think it was all gone; but remove the stock for a week or so of growing weather and it will show up again strongly.

Fresh grasses taken under observation this year.—The *Chloris Babata*, seed of which Mr. Benson, Fruit Expert to the Department, kindly gave me; Mouse grass, seed of which was procured from the Botanical Gardens, Brisbane; Sago or Shot grass, sent from Gindie State Farm.

None of these have been through a winter yet, but so far none of them compare with Rhodes or Paspalum.

Of the true winter fodders, the only ones that have stood the test of time are Sheeps Burnet, Rib grass, and Kentucky blue.

Other winter fodders, such as Phalaris, Prairie, Clovers, and Cocksfoot, suffer so much during the summer months that they cannot recover themselves when the cooler weather comes on.

D. MACPHERSON, Manager.

REPORT OF GINDIE STATE FARM.

Sir,—In submitting my annual report, I have the honour to inform you that 30 of the 36·16 acres of wheat that was sown was attacked by grasshoppers. Previous to this there was every prospect of a good crop of hay, and, in order that some benefit might be derived from it, the sheep were turned into the paddock to share it with the hoppers. The same remarks apply to the 6·5 acres of Setaria. 3.94 acres of cowpeas planted in September did splendidly. A further 2 acres were sown in December, and did equally well. These crops were converted into hay, which was mostly fed to the horses.

A small quantity of cowpea seed of the following varieties were obtained from the South and sown in December:—New Era, Warner's Extra Early, Warner's Hybrid, Iron, Whip-poor-Will, Chinese Mottled, Chinese Red, Early Black Eye, White Upright, Clay Coloured, and Black.

For yield of seed the New Era was easily first. Warner's Hybrid and Extra Early come next, but I was unable to distinguish any difference between these two varieties. For green feed or for converting into ensilage, I should place them in the following order:—Iron (a very robust grower, sending out runners 8 or 9 feet long), Whip-poor-Will, and Black.

As a vegetable, to be used green or dry in place of haricot beans, the White comes easily first.

Comparatively speaking, the Upright is of little value. It made poor growth, and what there was of it was harsh and woody.

The Chinese varieties did very well, but the loss in harvesting them would be great, as the seed sheds very freely.

The 11·13 acres of maize planted in September, also 3 acres sown in December, suffered from the attacks of grasshoppers, but, owing to the favourable weather, it did very well and yielded a better crop than I expected. A portion of that sown in September was planted in check rows. This enabled us to work it both ways. I wished to see what effect this would have, compared with that planted in the usual way. Owing to a heavy wind and rain storm, the whole of the maize crop became too badly lodged to allow of it being worked, and, in consequence, I was unable to draw any conclusion from this experiment.

A small plot of Mazzagua was sown. The seed was very bad, and came up very irregularly. What did come has done well. It appears to take kindly to our black soil, and I am of the opinion that this plant will be a welcome addition to our fodder plants. It is hoped that we may have an opportunity of testing its value as ensilage during the coming season. I have had many inquiries for seed, and particulars of this plant, from different parts of our State and also from India.

Pumpkins were planted repeatedly, but the "ladybirds" destroyed the plants as soon as they were through the ground. A few vines that escaped them did remarkably well, one in particular measured 66 feet across and 100 good pumpkins, weighing 2,233 lb., were taken from it.

Unfortunately, the months of April and May have been dry. This has prevented us from sowing wheat as early as could be desired. The land has been well worked, and some 20 acres of wheat and barley will be sown by the end of the present month, and we must trust for a fall of rain later on to bring it up.

Pigs.—The Berkshire sows received here in March have had young, and they are being sent away to different parts of the district, and no doubt the benefit of their introduction will be shown in the near future.

Cattle.—14 bull calves have been sold and distributed about the district. There appears to be a strong inclination amongst settlers here to go into the dairying industry, and, should we be favoured with reasonably good seasons, I am of the opinion that it will be a paying business here in the near future.

Lambs.—With respect to the raising of fat lambs for the home market, I may state that, as far as my experience goes, it is not likely to be a success. Our rainfall is so uncertain, and the margin in the weight required so small, that it would be a mere chance to get them in the required condition and weight at the proper age.

Some cross-bred lambs have been sold for local consumption, and they gave satisfaction to the purchasers, but they were too old and heavy for the home trade.

Cattle.—During the year a number of young cows have been broken in. Most of these are by the Ayrshire bull, Bruce. The greater number of them show fair promise of turning out good cows. There is also some very promising looking young stock by the milking shorthorn bull, Richmond Lad. I have many inquiries from would-be purchasers for some of these young female cattle, but I do not think it advisable to part with them yet, as we are understocked. Apart from that fact, they will be required to form the foundation of a good dairy herd that we hope to build up.

Owing to the favourable season that we have experienced, stock of all descriptions are in excellent condition. There is an abundance of grass, and, though it is getting somewhat dry, the quantity and quality is sufficient to keep stock in condition for many months to come.

Turkeys.—Our Bronzewing turkeys have done very well. Orders for them have been received and executed from distances extending from Blackall to Dingo, including the branch lines.

Improvements.—The permanent improvements carried out during the year consist of the fencing in of a small pig paddock. This is situated on a somewhat stony piece of ground, so that the pigs might have sound ground to get about on during wet weather. The paddock is surrounded with a substantial netting fence—the netting being lashed to a barb wire 6 inches below the surface. Sties have also been erected, the floors of which are formed of concrete. The roof is of iron. Most of the timber used was bush stuff. A dairy has also been built. The roof is composed of Malthoid laid on 6 x 1 rough pine boards. At present I cannot say how this roofing will answer, but it has a very neat and serviceable appearance. The walls of this building are made of 6 x 1 grooved and tongued boards, and the floor is of cement. All the framing and roof timber has been hand dressed. This gives the interior of the building a neat and cleanly appearance. Though no skilled labour was employed, I do not think there is much cause for complaint as far as the workmanship is concerned. Ample ventilation has been provided, and as soon as the time can be spared a trellis will be put up 8 feet from the walls, on which some quick-growing creepers will be trained. This will keep the sun's rays from the building during the summer. Another necessary improvement has been the conversion of one of the sheds into a proper milking-shed. It has been divided into twelve stalls, with a feed box to each. A 4-feet passage has been left in centre of the shed for the conveyance of feed to the cows when required. The floor of the shed is formed with concrete, and provision is made for carrying the drainage from the stalls clear of the shed and the yard. It is anticipated that in the near future a 60-ton silo will be put up, which will be placed at the end of the cowshed. This will make the labour of feeding very light.

In conclusion, I may say that I have endeavoured to the best of my ability to take advantage of the means that have been latterly employed to make the farm self-supporting, and it is a matter of gratification, at least to myself, to be able to state that for the past year this has been accomplished. and I trust that the year upon which we have just entered may be a prosperous one for the whole State, and this district in particular.

	Head.
Number of cattle returned 30th June, 1905	194
Increase	90
	284
Sold—	
Steers	28
Cows	1
Calves	15
Died	4
	— 48
Number of cattle on hand 30th June, 1907	236
Number of sheep shorn November, 1906	995
Sold during year	186
Number of sheep on hand 30th June, 1907	789
Number of horses on hand	16
Number of Bronzewing turkeys	100
Number of fowls	60
	Acres.
Area under crop, present date	20

Revenue for year—	£	*s.*	*d.*
Cattle	225	14	3
Wool and sheep	234	11	4
Dairy produce	63	10	1
Pigs and farm produce	8	13	11
Poultry	20	15	6
Total revenue for year	553	5	1

Rainfall for Year.

	Inches.
July	0·000
August	1·460
September	4·660
October	3·200
November	2·950
December	1·450
January	6·130
February	0·580
March	10·100
April	0·000
May	0·000
June (up to 7th)	0·400
Total rainfall	30·930

ROBERT JARROTT, Manager.

REPORT OF THE STATE FARM, ROMA.

Sir,—With the exception of the last three months, the period under review has been one of ample rainfall, of even distribution, as the following records show :—

	Wet Days.	Inch.
July	4 ...	1·48
August	4 ...	1·87
September	12 ...	3·68
October	8 ...	2·91
November	2 ...	0·17
December	9 ...	3 81
January	7 ...	4·36
February	7 ...	3·30
March	8 ...	2·57
April	4 ...	0·57
May	4 ...	0·24
June 12	1 ...	0·73

The result of the above was that all vegetation in cultivation and otherwise made exceptional growth.

In the wheat fields in the spring the prospects were splendid, never better in fact; but, with the advent of warm weather, rust made its appearance, and under the supervening conditions reproduced and spread with amazing rapidity, with dire results.

Of the estimated yield, based on the prospects in September, only 25 per cent. was garnered, and of this very little was first-class grain.

The vinegrowers also experienced a loss through the presence of "Black spot" in their vineyards, which either destroyed or rendered unmarketable 50 per cent. of the table grapes.

For the initiatory work of such an institution as this, the conditions could not have been more favourable, as the ensuing reports will testify, especially those relating to the orchard and vineyard.

WHEAT.

This, the staple crop of the Maranoa farmers, is also the chief one grown at this Farm. Of 125 acres under cultivation last year, 100 were devoted to the growing of cereals.

The following is a complete report in connection with the same, viz.:—

Sowing was commenced on virgin soil on 27th April, and completed by the end of May.

All crops were above ground by the second week in June. Up to the middle of August the growth of them on the whole was slow.

Rust, which has proved so disastrous all over the district, was first noticed on the Farm on the 28th August.

Ripening was considerably delayed through the continued wet weather in the latter part of the season. First crop was fit to harvest about the last week in October.

RESULTS.

Series A.

This comprises twenty-three ¼-acre blocks, sown at rate of ¼-bushel to acre, accomplished by stopping up every other tube in the drill. The wheat came up very unevenly, some not until three weeks after first made its appearance; consequence, ripened unevenly.

Had it all come through in the first place, the effects of the rust would not have been nearly so bad, as in the early patches the grain was only slightly pinched.

The soil in the blocks is splendid; but the situation is not a desirable one for a season like this, as it receives all the drainage from the vineyard ridge.

Hermitage No. 1.—Earing, September, first week. Harvested, November. Yield, 12·2 bushels per acre. This block was sown with seed grown in the Marmon. Rusty, grain pinched; did not fall down. Nice clean straw, good stooler.

Hermitage No. 1.—Earing, September, first week. Harvested, November. Yield, 13·8 bushels. This block contained at least five varieties of wheat, so that the grain garnered is only useful for feed. Good grain in forward places, rest pinched.

Hermitage No. 2.—Earing, September, first week. Harvested, November. Yield, 11·06 bushels. Nice clean straw, a little open in glumes, strips well, and thrashes well. Grain pinched excepting in forward places. Stooled fairly well.

Hermitage No. 3.—Earing, September, first week. Harvested, November. Yield, 11·8 bushels. Similar to preceding wheat. Stooled fairly well.

Bobs.—Earing, September, first week. Good stooler. Rusted very badly, was cut with binder, 15th October.

Cumberland.—Earing, September, second week. Harvested November. Yield, 8·8 bushels. Fine straw, medium height. Good to strip and thrash. Susceptible to smut (loose). Good grain, forward places. Rusty.

J. Brown.—Earing, September, second week. Harvested, November. Yield, 14·2 bushels. Grain fair. Good forward places. (*See* Series B.)

Schneider.—Earing, September, second week. Harvested, November. Yield, 13·4 bushels. Stooled well. Fine straw, medium height, fair grain, good in forward places. Worthy of further trial, as it strips and thrashes well also.

Moulds.—Earing, September, second week. Harvested, 9th November. Yield, 13·4 bushels. Stooled well, fine straw. Good grain, forward places, fair in others. Rusty. Strips and thrashes well. Well worthy of further trial.

Plover.—Earing, September, first week. Harvested, 12th November. Yield, 11·4 bushels. Stooled well. Fine, clean, erect straw. Good grain, forward places. Rusty. Worthy of further trial.

C. 12.—Earing, August, last week. Harvested, 9th November. Yield, 14 bushels. Stooled well. Medium straw. Grain fair. Rusty in places. Gave better return than where sown at rate of half-bushel.

C. 25.—Earing, September, second week. So badly affected by rust as to be worthless.

C. 33.—Earing, August, last week. Worthless through ravages of rust.

C. 50.—Earing, September, first week. Worthless.

C. 53.—Earing, August, last week. Could not be harvested on account of plant not having sufficient root hold to keep it erect. Worthless.

C. 91.—Earing, September, second week. Harvested, 10th November. Yield, 6·06 bushels. Fair stooler, short straw, very badly infested with flying smut. Badly rusted. Some fell down and could not be harvested. Fair stripper and thrasher. Good grain forward places.

C. 121.—Earing, September, second week. Harvested, 10th November. Yield, 6·9 bushels. Fair stooler. Short straw. Rusted badly. Fair to strip, good to thrash. Good grain forward places.

C. 175.—Earing, August, last week. Fell down apparently owing to having a poor hold of the ground. On this account could not be harvested.

C. 181.—Earing, September, second week. Harvested, 10th November. Yield, 8 06 bushels. Fair stooler, straw medium height. Good stripper, does not shed. Grain good in forward places. Remainder pinched.

C. 343.—Earing, September, second week. Harvested. 10th November. Yield, 7·4 bushels. Fair stooler, long straw, not too good to strip (pulls up), grain pinched. Rusty.

C. 346.—Earing, September, first week. Harvested, 10th November. Yield, 4·8 bushels. Very rusty, grain very pinched. Worthless in such a situation, did much better in larger area sown later.

C. 349.—Earing, August, second week. Harvested, 10th November. Yield, 8·8 bushels. Good stooler, fairly long straw, every appearance of being heavy yielder under more favourable condition, medium quality straw. Root system a little deficient, as it pulls up in stripping. Good to thrash, does not shed. Worthy of further trial. Grain good in forward places.

C. 504.—Earing, August, second week. Harvested, 3rd November. Yield, 16·6 bushels. This wheat's characteristics embody all those that are essential in a wheat for this part in a season like the present. It is a good stooler, medium height and thickness of straw, strong, remains erect, does not shed, easy to strip, firm hold of the ground. An early wheat without much flag A little open in the glumes. Sample of grain good considering. Little weathered. In the early part of the season, which was dry, the nice healthy appearance of this wheat was commented on by many. Numerous inquiries for seed of it have been made. Would recommend it for consideration when selecting a wheat for sowing in permanent blocks.

All the foregoing wheats were sown on the 4th and 5th of May. Yield rate per acre weighed bushel of 60 lb.

Series B.

These blocks each have an area of 3·24 acres, which was seeded at the rate of ½-bushel per acre.

J. Brown.—Sown, 8th May. Earing, September last. Harvested, 15th November. Good stooler. Yield, 10 bushels to acre. Grain very fair. Medium late, nice clean straw, erect, strong, even, good to strip, does not shed, not bad to thrash, a handsome crop. Slightly rusty. This is a wheat eminently suitable for here. Would recommend it with 504.

C. 12.—Sown, 8th May. Earing, September first week. Harvested, 14th November. Yield, 8 03 bushels to acre. Good stooler; short slender straw; grain small pinched; one of the first to be badly affected by rust.

C. 12.—Would recommend that only a small sowing be made for comparison.

C. 25.—Sown, 8th May. Earing, September, first week. Harvested, 13th November. Yield, 7·6 bushels to acre. Good stooler, v. medium length straw. This wheat has shown itself to be worthless for a season such as the one just experienced.

C. 348.—Sown, 8th May. Earing, September, first week. Harvested, 12th November. Yield, 10·2 bushels. Grain fair. Good stooler, slender straw, medium height, nice even crop. Rusty. Good stripper, does not shed easily. Well worthy of further trial.

C. 353.—Sown, 9th May. Earing, September, second week. Harvested, 9th November. Yield, 9·56 bushels to acre. Good stooler, medium straw, fair height, was a handsome crop. Medium late. Rust attacked flag straw and ear, grain very pinched. Stood up well to be harvested, fair to strip and thrash. This wheat, although growing under same conditions, was only 6 inches high in August, when 504 was 18 inches high.

C. 504.—Sown, 9th May. Earing, August, second week. Harvested, 2nd and 3rd November. Yield, 17·6 bushels. Remarks, *see* Series A 504.

Series C. (1.)

These blocks, containing an area of $\frac{1}{15}$-acre each, were sown with seed obtained from New South Wales, Department of Agriculture. Rate, ½-bushel to acre.

The situation was not of the best, and the clay was within an inch or two of the surface in some places. Had these plots been placed in any other position of the farm, the results would perhaps have been better, as besides the two aforementioned detrimental qualities the ground was very poorly ploughed, the seed being put in practically on the surface, which was very hard.

Bobs.—Sown, 30th May. Earing, September, third week. Harvested, 28th November. Yield, 2·5 bushels to acre. Grain frightfully pinched. This wheat, in three different situations and soils, has proved itself at least this season a rust-liable wheat, being one of the first and worst affected here, falling down after visitation of fungus.

Bunyip.—Sown, 30th May. Earing, September, second week. Harvested, 28th November. Yield, 4·75 bushels to acre. Grain, medium, pinched. Did not stool too well owing to poor cultivation. Short strong straw. Slightly rusty. Erect. Early. Good stripper and thrasher. Would recommend for further trial.

Cumberland.—Sown, 30th May. Earing, September, second week. Harvested, 27th November. Yield, 3·25 bushels per acre. Remarks: Series A did not stool quite so well here.

Federation.—Sown, 30th May. Earing, September, third week. Harvested, 27th November Yield, 2·75 bushels to acre. Poor wheat throughout. Very rusty, grain worthless.

Glover ?—Sown, 30th May. Earing, September, second week. Harvested, 27th November. Yield, 7·25 bushels to acre. Stooled fair, very nice crop medium length straw, medium fine, erect, and clean straw. Good stripper and thrasher, does not shed. Grain, fair quality. Recommend for further trial. This is very similar to wheat called Plover, medium late.

J. Brown.—Sown, 30th May. Earing, September, third week. Harvested, 27th November. Yield, 6·25 bushels to acre. Did not stool as well here as in other places.

Jonathan.—Sown, 30th May. Earing, September, third week. Harvested, 27th November. Yield, 1·50 bushels to acre. Worthless.

Rymer.—Sown, 30th May. Earing, September, third week. Harvested, 27th November. Yield, 8·5 bushels to acre. Grain, fair. Stooled fairly well, medium tall, clean, erect, strong straw. Nice even crop, easy to strip. Does not shed. This is a wheat well worthy of further trial, medium season.

Schneider.—Sown, 30th May. Earing, September, third week. Harvested 28th November. Yield, 5·5 bushels to acre. Grain poor, rust affected late portions very badly; stooled fair medium thick straw, medium late. Good stripper, little difficult to thrash.

Sussex.—Sown, 30th May. Earing, September, third week. Harvested, 29th November. Yield, 8·25 bushels. Grain fair. Stooled fair, nice, clean, medium fine straw of medium length. Not too rusty. Good to strip. Remained erect. This wheat is on a par with Rymer.

Tarragon.—Sown, 30th May. Earing, September, fourth week. Harvested, 28th November. Yield, 1·75 bushels. Grain worthless. Splendid stooler; erect, flaggy, fine straw, splendid for hay. Requires to be sown early. Very rusty, ear does not get well away from shot blade. Splendid root system, does not pull up in stripping.

Series C 2.

Comprises the "Durum" wheats, which are said to be eminently adapted for growing in situations having a limited rainfall, and by the results this season are as well suited for those having an excessive, as on the whole, when taken into consideration with wheats growing adjacent to them, they were, excepting on the outside drill of eack block, found to exhibit very little rust. Seed obtained from New South Wales.

Cretan.—Sown, 9th May. Earing, September, fourth week. Harvested, 28th November. Yield, 23·75 bushels to acre. Grain long, very hard, stooled fairly well, handsome crop, beautiful clean bright straw, good height, thick at base, thin at bottom of ear, which is close, well filled, and bearded. Splendid stripper, good to thrash, difficult to winnow with ordinary wheat sieves. Not so bad as barley. Awns not too coarse. These are shed to a great extent if crop is permitted to get dead ripe. Perhaps by selection this (shedding of awns) may become a fixed characteristic, which would mean a great saving of time and labour at harvesting. No rust.

F. Durum.—Sown, 9th May. Earing, September, fourth week. Harvested, 28th November. Yield, 21·75 bushels to acre. The remarks noted on Cretan apply to this wheat.

Belotourka.—Sown, 9th May. Earing, September, fourth week. Harvested, 28th November. Yield, 20·75 bushels to acre. Grain hard, flinty, red, long. Good stooler. Straw coarse at base, tapering up to ear; clean, erect. Splendid to strip and thrash. Awns troublesome when winnowing. This variety does not shed them to such an extent as the two preceding ones. Rust in evidence on flag in places, such as stump holes, where growth was rank.

Kubanka.—Sown 9th May. Earing, September, fourth week. Harvested, 28th November. Yield, 16·50 bushels to acre. Good stooler: grain fair, hard, flinty, long. This variety developed more rust than the preceding variety, and more flag. Other qualities similar.

Velvet Don.—Sown, 9th May. Earing, September, fourth week. Harvested, 28th November. Yield, 16·0 bushels to acre. This wheat is not quite so tall as the aforementioned varieties, is a little thicker in the straw, beard is coarser, therefore more troublesome to winnow. Has a white chaff. Others, reddish, creamy tinge. Did not show so much rust as Kubanka and Macaroni. Stripped and thrashed well.

Macaroni.—Sown, 9th May. Earing, September, fourth week. Harvested, 28th November. Yield, 11·25 bushels to acre. Stooled well. Grain, fair, pinched, coarse straw, flaggy, rust on stalk, flag, and ear. This is the least desirable variety in this class.

Series D.

Small sowings were made on loamy soil of the following varieties, viz. :—Morocco. Black Don, Kubanka, Velvet Don. The situation was a very wet one, and the seed so mixed that the results are practically worthless for future reference. An endeavour has been made to obtain pure seed of Morocco and Black Don; the others we have.

RESULTS.

Morocco.—Sown, May, first week. Earing, September, second week. Harvested, 29th November. Yield, 13·8 bushels to acre. Grain, long, very hard, flinty, good stooler, short, coarse, straw, flaggy, very compact head, awns very coarse, pulled up in stripping. Heads selected for future sowings from least rusty plants. Variety sown was slightly mixed with other wheats.

Black Don.—Sown, May, first week. Earing, September, second week. Harvested, 29th November. Yield, 17·6 bushels to acre. Grain fair; not so large as Morocco; of same quality. Longer in the straw, good stooler, beard very coarse; pulled up in stripping, perhaps owing to the light soil. Rusty. Mixed. A selection made on similar lines as in the last.

Kubanka.—Sown, May, first week. Earing, September, second week. Harvested, 29th November. Yield, 15·50 bushels to acre. (See Kubanka, Series C 2). Too mixed to obtain records from.

Velvet Don.—Sown, May, first week. Earing, September, second week. Harvested, 24th, November. Yield, 20·1 bushels to acre. Grain pinched. Difficult to winnow, more so than other block of Velvet Don, owing most probably to the mixed crop.

SERIES D 2.

Bald Wheats.—Tarragon. Russian Ulka. Soil and situation same as Series D 1.

Tarragon.—Sown, May, first week. Earing, September, fourth week. Harvested, 29th November. Yield, 1·75. Grain very pinched, worthless. Late wheat, very rusty, good root system. Too late in maturing for this part. Good for hay.

Russian Ulka.—Sown, May, first week. Earing, September, fourth week. Harvested, 29th November. Yield, 4·25 bushels to acre. Very late wheat. Not so rusty as Tarragon, but has all its other characteristics.

N.B.—*Series* D 1 and 2. Sown at rate of ¼-bushel to acre. Yields in weighed bushel of 60 lb.

Manitoba Imp. (40 acres; 25 lb. to acre).—Sown, 7th and 29th May. Earing, September, fourth week. Harvested for grain, 3 acres. Yield, 6 bushels to acre. Grain very pinched and light. Splendid stooling wheat, very mixed, very flaggy (erect) fine straw, very suitable for hay. Appears to be too late for here, for grain purposes. Requires to be sown early. Seed to hand too late this season. Remainder of block was cut with binder for hay, on account of backward condition and presence of rust being felt, and causing it to dry up.

Manitoba. (Roma Mill seed, 25 lb. to acre.)—Sown, 11th May. Earing, September and October. Harvested, 30th November. Yield, 5·5 bushels to acre. Grain very pinched and very light. Remarks used Imp. Manitoba apply to this. Block was sown with a view to ascertaining by analysis whether the quality of the grain from a milling and nutritious point of view. Deteriorated under the conditions experienced in the Maranoa after a few years. Samples of grain after each harvest to be submitted for analysis this season; the grain will have to be picked.

Budd's Early. (Area (3·57), ½-bush.)—Sown, 28th April. Earing, September, first week. Harvested, 24th November. Yield, 4·7 bushels. Grain very fair. Stooled fair. This block contains three classes of soil—loamy, gravelly, and stiff black. It was from the former of the three that the grain was garnered. The seed came up directly, and grain was well forward when affected by rust. Heavy soil, the wheat did not come up until late in the season, then it was caught by rust and all fell down. A large ironbark, making its influence felt over fully an acre, is situated in this block.

Budd's Early. (11·84, ½-bush.)—Sown, 1st May. Earing, September, first week. Harvested, 23rd November. Yield, ·96 bushels. Grain fair. Came up very thin and irregular. The early ears are the only ones that grain was garnered from, as the rust caused the others to tumble down by its action of the straw. This wheat showed the effects of rust worse than any crop harvested for grain on the farm. It is worthless as a rust-resister, and is not esteemed in the district as a drought-resister.

N.B.—A few heads have been selected from a number of varieties, viz.:—Manitoba, Durum wheats, Hermitage, for sowing separately next year, on account of some good characteristics which they may have had, such as earliness, freedom from rust, shedding of awns, &c.

BARLEYS.

Three blocks, each having an area of 2 65 acres, were sown with this cereal. The soil contained in each was ideal barley ground, being new and of loamy character. The season has been an ideal one for the growth of this crop, as the surface soil has been moist throughout the latter part, which is essential, it being practically a surface feeder. During the dry spell, in the early stages of its growth, it began to turn yellow, and show that it could not withstand the same amount of dry weather as wheat. It came up unevenly and also ripened unevenly, some being ripe four weeks earlier than others. A good deal of the early grain was lost, more especially was this the case with "Carter's Malting." Californian Brewing barley was badly infested with rust.

Invincible Barley (Malting)—Sown, 3rd May. Harvested, 6th November. Yield, 20·1 bushels to acre. Good to strip and winnow. Fair amount of grain shed.

Carter's Malting.—Sown, 3rd May. Harvested, 6th November. Yield, 20·7 bushels to acre. Good to strip, thrash, and winnow. Fully ¼-bushel to acre shed prior to harvesting owing to unequal ripening. Both these barleys shed awns a good deal when dead ripe.

Californian Brewing (*Barley*).—Sown, 3rd May. Harvested, 7th November. Yield, 27·8 bushels. Grain pinched. Rusty. Good to strip and thrash; difficult to winnow.

All crops germinated unevenly, and all seed in any block was not through until the end of the first week in June.

A feature which is unavoidable in growing wheats in small blocks is that the outside drill grows taller, ranker, and is later in ripening than the other portion of the crop. The plants in these situations are more liable to have their yields reduced by wind, rust, &c. Again, the main portion of yield in a variety liable to shed, may be influenced by having to wait for this fringe to ripen.

VINEYARD.

Area, 7⅕ acres (about). Cuttings of eighty-one varieties of vines, totalling about 3,600, were planted; a fairly good strike resulted. The growth made on the whole is phenomenal, canes 20 feet in length, and stout in proportion, being the rule rather than the exception.

All classes of wine grapes are represented, as well as table and drying varieties.

ORCHARD.

Contains 300 trees, chiefly varieties of citrus and stone fruits, although figs, apples, and pears are represented. The peaches, apricots, and Japanese plums have made splendid progress. The apples, pears, and prunes have not made anything like the headway of the afore-mentioned.

MISCELLANEOUS CROPS.

Planters' Friend.—Ten acres sown in November produced 13 tons of green fodder to the acre. In February 60 tons were converted into silage, the remainder being cut and dried, and is now being fed to the horses.

Sowings were also made of red and white Kafir corn, Broom and Japanese millets. All made splendid growth, but with the exception of the latter no seed was obtained, as parrots prevented it ripening.

Mazzagua.—Grew well, produced two cuttings, 6 feet in length, second flowering. Owing to the exceptionally mild season, one or two stalks matured seed. Uncut stools attained a height of 15 feet on light sandy soil.

Maize.—A small sowing was made of locally-grown Ninety Day, some good cobs being produced, the best of which have been selected for further sowings. The parrots also destroyed a large proportion of this crop.

Cotton.—Seed was received and sown of the following varieties:—Seabrook, S.I., Jones', Russell's Big Boll, Griffin, King's Early, Hybrid S.I., Caravonica, Egyptian.

Russell's Big Boll, Griffin, and Jones' being by far the largest producers of fibre, Seabrook S.I. yielded a fair quantity, as also did King's Early; Hybrid S.I., Egyptian, and Caravonica made a large quantity of growth, but matured very few bolls. The yields of fibre, in seed obtained from a selected plant after each of the first three mentioned, were as follow:—

Russell's Big Boll	18 ounces
Jones'	17 „
Griffin's	22¼ „

Grasses.—Seeds of 20 American varieties were received and sown last spring. The period which has elapsed is too short to form any definite idea as to the value of any of them, but two at least appear to be of some promise, as they stool well, grow quickly, furnishing a fair quantity of feed, and the seed, which would not prove injurious to wool, germinates freely.

Tobacco.—Two small sowings were made. From the first, made in beds, very few plants were obtained; the second, made in boxes, resulted more satisfactorily. After transplanting, the plants were attacked by grubs, the final result being that only three reached maturity. Next year it is intended to again try it, as the seed was received too late this year for success to be met with at transplanting time.

Cow Peas.—Three kinds, Black and Clay colour, as well as Black-eyed Susan, being grown. Only a small sowing, enough to produce seed for the coming season, was made. All did remarkably well, covering the ground with marvellous rapidity. The seed required was picked by hand, the remaining portion of the plants afterwards being cut and preserved for horse-feed.

Sweet Potatoes —Four varieties were planted—namely, Yellow, Spanish, Spanish Giant, White Maltese, and Rosella. A fair quantity of tubers of good quality were obtained, individual specimens weighing 21 lb. were met with.

Pumpkins.—A number of table varieties sown did well. A small area sown with cattle pumpkins yielded at the rate of 17 tons to the acre.

Jerusalem Artichokes.—These grew splendidly, producing a great quantity of tubers.

Vegetables.—Small sowings from time to time have been made. Owing to the congenial weather success has attended each time. A planting of cabbages was kept growing throughout the recent dry spell by cultivating the ground, not watering.

IMPROVEMENTS.

A sixty-ton circular "silo" has been erected and filled, the latter operation being witnessed by a number of interested persons. The contents are still intact.

Water Supply.—In order to supplement the present supply of water, a well is being sunk. A depth of 120 feet has been reached, without any useful quantity of water being encountered.

Shed.—A large shed capable of holding all the implements, &c., with a big room at each end, has been erected.

Fencing.—About 3 miles of sheep-proof fencing have been erected on the boundary adjacent to the public roads.

The trellising of the vineyard was proceeded with immediately the cuttings were planted therein, 4¾ miles being erected before the work was complete. It was very fortunate that staking was not resorted to the first year, as is usually the case; if it had been, a good deal of the wood that will be laid down this season would have been rendered worthless.

Implements.—All the harvesting and cultivating implements necessary have been acquired.

A four-horse power portable engine has also been purchased.

ENTOMOLOGY.

Insects infesting various crops have been submitted to the Entomologist, who has identified them, and where necessary, suggested methods for their destruction.

CEREAL SOWING FOR 1907.

Sowing was commenced the end of April. No serviceable rain was experienced until the 1st of the present month. The result is that the season is a fortnight later than last, thongh very mild conditions prevail. which should partly remedy this. Seventy acres have been seeded, and are apportioned as follows, viz. :—Twenty blocks, each containing 2 acres, have been set apart for the permanent experiments, with different fallowings, cultivation, seedings, &c., as drawn up in the original place. Eleven have been subdivided into half-acre blocks for the propagation of 22 varieties of wheat, and eighteen have been sown

which were cultivated according to the system advocated by Professor Campbell for the semi-arid districts of America. Previous to carrying out this work the necessary implement, the sub-surface packer, had to be obtained from America. Small sowings have been made of twenty-five (25) "wheats," other than those included in the abovementioned experiments, as well as of three (3) "barleys."

All the above are now above ground.

R. E. SOUTTER, Manager.

REPORT OF THE KAMERUNGA STATE NURSERY, CAIRNS.

SIR,—I have the honour to submit my report of the Kamerunga State Nursery for season 1906-07.

The season, climatically, has been a favourable one for tropical agriculture. While last season was rather exceptionally dry for a part of the year, this season has been the reverse. The distribution of the rainfall throughout every month of the year has been more like the seasons experienced years ago, previous to the days of drought and depression; albeit a month or two of dry weather, or at anyrate a time in which but little rain falls, during the harvesting season is a boon appreciated by farmers within the rainy belt, and wished for in a season such as has been experienced this year. While many tropical crops can stand a heavy or continuous wet season, there are many that must have a dry harvesting season, as can be understood, in which to ripen. This was experienced this year with the custard apple family—except the sour sop and the tamarinds. A rather wet week at a critical time of the development of the former caused a cessation of growth of fruit and the turning of the energies of the tree towards the off-season making of wood, with the result of an almost total loss of crop, which turned black, and ultimately fell off. With the tamarinds, the wet weather just as ripeness was approaching caused a fermentation and mouldiness within the shell, which rendered the whole crop quite useless, except for seed. This tamarind crop was especially wanted this season, too, for experiments in curing and packing, arrangements having been made with two firms in the Southern States for the trial of experimental consignments.

Otherwise, but little loss was occasioned, and everything tropical grew well. The planting season was greatly protracted, and practically at no time was the growth of weeds stayed, so that it was a constant struggle, especially while so much extraneous work (building extensions and improvements, &c.) had to be done, occupying the hands to keep the Nursery clean.

The mean temperature for the season was 74·96 degrees Fahr.—exactly the same as last season—and the range from 51·0 degrees Fahr., the lowest minimum, to 103 degrees Fahr., the highest maximum.

The rainfall amounted to 78·840 inches, which fell in 193 days, as against 53·840 inches, with 123 wet days last year.

The applications for plants were, on account of the favourable planting weather, to a greater extent spread over the whole year than is usual, no especial rush being experienced; on the whole, these have increased somewhat. The distributions were as follow:—Plants, 1,585; seeds, 1 cwt. 1 qr. 15 lb. 10½ oz.; cuttings, 686; bulbs or rhizomes, 36 lb. 12 oz.; grass roots 346; suckers, 189; fibre plants, 4,560; sundries, 1 bag of divi-divi; and besides this three large exhibits of tropical products were prepared and despatched. The first was in August, for the Agent-General's office, London, and consisted of 25 items, in 3 cases; the second was for the A.N.A. Exhibition in Melbourne—50 items, including 6 large growing plants of various tropical products, despatched in November, 1906; and the third, for the annual show of the National A. and I. Association, Brisbane. The preparation of exhibits for these distant shows, &c., as well as the fairly large list of local shows at which this Nursery has to exhibit, involves a great deal of work, especially as most of the items require preparation by hand, as, for instance, fibres, which have to be beaten out; root crops (arrowroot, cassava, &c.) grated, cleaned, and dried; seed collected, shelled, husked, or threshed by hand, cleaned, and bagged or bottled; rubber samples especially, collected, coagulated, and matured, &c. As a rule all hands have to be taken from the (legitimate) Nursery field works for many days previous to the despatch of such consignments.

Trophies from the Nursery were exhibited at five shows during the year—at Atherton, in July; Cairns, in August; Port Douglas, in September; Ingham, in September; and Mareeba, in June. These, as were the exhibits sent away unaccompanied, were much appreciated, and gave universal satisfaction.

The correspondence, including applications for advice and information, was slightly in excess of last year, and gave totals of 1,937 items incoming, and 2,185 outgoing.

The collections by sale of seed, plants, &c., during this season amounted to the sum of £57 7s. 2d., again a material increase on last season's work. Besides this, the cash account shows the sum of £23 13s. received on account of coffee-grading (£12 13s.), and by sale of an old draught mare and old dray (£11), making a total of receipt of £81 0s. 2d., which, in view of the fact that no farm produce is for sale as in other State Farms, indicates a material increase of interest in the work and advantage taken of the existence of tropical plants and seed for distribution.

The general expenditure in connection with the working of the Nursery has been, as anticipated last year, rather more than usual. Besides the usual expenditure, however, a special grant of some £500 was made, and which was expended in various permanent improvements, roughly as follows:—New water supply, £300; new buildings, £100; and new implements, £100.

The labour employed—an overseer and three hands—was increased by the employment of one temporary hand for periods aggregating three months in the year; this was required mostly in connection with the extra work involved in carting water previous to the completion of the water scheme, &c., and the unusual amount of weeding and cleaning due to the continued wet weather.

The new buildings above referred to include the addition of a floored barn, 30 feet by 20 feet, as a lean-to to the stables; the addition of new men's quarters—two rooms and verandas—known as No. 2 Men's Quarters; and the addition of one room (making three), a veranda, and stove to the No. 1

Men's Quarters, which now accommodates one married man with his wife and another hand who boards with them. Alterations and general repairs, coming under the same heading, show the raising of the overseer's kitchen on to 6-feet piles (level with the house), the moving of the potting and implement sheds to make room for the barn, the alteration of the small room adjoining the stable—previously used as quarters for the ploughman—to a seed room, flooring of the chaff and corn room, and purchase of three new double gates and posts, and two single gates and material for the concrete drain for waste water from the manager's house, bathroom, kitchen, men's bathroom, tank overflow, &c. The erection of the gates and laying of the concrete drain have not yet been effected, owing to pressure of work, but it is anticipated will be completed during July.

The new machinery supplied includes a new tip-dray (the old one having seen, it is estimated, nearly twenty years' of service, and being quite worn out); one John Deere disc plough; one W. A. Woods' one-horse mowing machine; one Deere's corn and fertiliser drill; one Green's Silent Messor lawn mower, and one arrowroot machine. Other items obtained during the year are a fine pair of young draught horses, at a cost of £44, in the place of one old grey mare sold for £8; set of harness for dray, buggy, ploughing, &c.; 100 feet armoured garden hose; and 63 dozen assorted flower pots.

The purchase of these implements, &c., and the erection of the extra buildings, were urgently needed, and by their addition to the Nursery equipment its efficiency is materially enhanced. Of these, the disc plough was badly needed for the ploughing in of green manures, which was quite impossible with the ordinary plough, but it was of no use obtaining it, of course, unless the extra horse-power could at the same time be obtained. With the extra stock in the small horse paddock has come the necessity for extra pasture, and, though the area has not been increased, its efficiency has been enhanced by the use of the Woods' mowing machine, by which it has been possible to quickly and cheaply remove the growth of burrs, *Sida retusa*, and weeds referred to last season, and not merely to remove them, but, by mowing before they seeded, to largely exterminate them.

The arrowroot machine, made locally, was not obtained in time to be made use of for the exhibits for the Agent-General's or the Melbourne A.N.A. Exhibition, but was used for those for the Brisbane show. The lawn mower was required, and is proving itself most useful, in Field 1, Section I. This is the oldest portion of the Nursery, and is planted with permanent trees and hardy plants in beds, the space between which it was found required less labour if under grass than chipped clean. This grass was at one time scythed, but it was thought that if kept shorter, and a good lawn mower were used, it would require still less labour, and, at the same time, look better—and so it has proved.

General repairs during the year included the painting of the verandas of the office and part of the manager's cottage, by contract, other repairs being more or less trivial. The Nursery fence has now been standing for some twelve to fifteen years, and in many places the wire is supporting the posts. The whole of the fencing requires overhauling, and a considerable number of posts will have to be replaced this coming season.

One of the most important works this season has been the inauguration of the new water scheme. The system hitherto in use was the pumping by steam from the river, which was not only inadequate, but had many disadvantages. The plant was old, and, on the 6th September, 1906, the boiler was condemned utterly by the inspector of boilers. Meanwhile, the matter of the new scheme had been mooted and discussed, and final sanction and direction to proceed with it was received in October. By the 22nd December this was completed, and the Nursery tanks filled from the new source of supply for the first time. Since then there has been an unlimited and unfailing supply of splendid water.

This scheme involved the building of a small concrete dam across the bed of a small creek (Rocky Creek), some mile or so away from the Nursery, among the hills at the back, above the railway line. From there 2-inch galvanised-iron pipes were laid down along the line for half a mile, and the rest of the way down a spur through the scrub to the Nursery. The fall from the dam to the Nursery is some 460 feet, and the supply is maintained, and a very considerable pressure therefore.

Although the cost of this scheme in the first instance was a somewhat heavy one, it is calculated that it was but little if any more than the replacing of the boiler and supplying a new pump would have been, while the advantages of water that can never become brackish, absence of cost of pumping, wear and tear of machinery, and upkeep, are obvious. This work also involved the taking up and relaying of certain portions of the recticulation pipes, and the addition of an automatic ball-tap to No. 2 supply tank; water was also laid on to both labourers' quarters.

The field work carried out during the year in the various plots is as follows:—

Field 1, Section I.—Already planted with permanent trees, &c. Trees pruned up, lawns cut close and put in order, and a few failures supplied.

Field 2, Section I.—Buildings, office, coffee-room, residence, &c., and mostly permanently planted up.

Field 3, Section I.—Containing germinating-house, vine frame, sisal hemp plot, &c. Work: Hand-digging plots, weeding by hand. Planted: Cardamoms and vanilla under mango trees. Small plots of cereal crops, &c.; 1 row each eleusene, Bambara ground beans (failed), Russian Giant sunflower, dwarf okra (failed), teosinte (failed), gingelly, Red pigeon pea, White Sword bean, white maize, mazzagua (failed), sweet potatoes, and buckwheat.

Field 3A, Section I.—Opened last season, contains cotton plot. Work: Trenched and hand-dug, kept clean with hoe. Planted: 3 plots (manurial experiment) sweet potatoes, 5 varieties; 3 plots, 3 varieties, cassava; 4 rows, 4 varieties, yams; 3 rows Bermuda arrowroot; 1 row each Jamaica ginger, turmeric, Queensland arrowroot, and ramie; beds of citrus seedlings.

Field 1, Section I.—Contains croton and palm walk, permanent trees round headlands. Work: Field ploughed, cross-ploughed, and harrowed. Planted: 10 rows of Green Mauritius beans, 6 rows Narico bean, 6 rows Tonga bean, 10 rows Mottled Mauritius bean, 6 rows Small Madagascar bean, 23 rows Black Mauritius beans—kept for seed.

Field 2, Section II.—Contains stables, barns, potting-shed, implement-shed, bush-houses, also Pará and Central American rubber plots, and mostly permanently planted with bearing trees. Planted: Beds of seedling mangoes, jackfruit, longans, bunya pines, cherry guava, *Castilloa elastica*, *Ficus elastica*, teak, mahogany, Pará rubber cuttings, &c. Work: Field scarified, chipped, and beds dug as required.

Field 3, Section II.—Contains citrus orchard, Manila hemp, and banana plots, and certain permanent trees. Work: Scarified frequently, ploughed twice, harrowed and chipped. Planted: 2 grape fruit trees added to orchard (10th December), 4 plots grasses, varieties cowpeas for seed. A stormwater drain in the field was lined and built up with stones remaining from the fields in course of alterations.

Field 1, Section III.—Planted with permanent trees round the borders, ploughed, and cross-ploughed, harrowed, and sown with 12 rows Italian Upland rice, 8 rows of White Java rice, and balance Japan rice—mostly failed to germinate. Field reploughed, and sown with manurial (Mauritius) beans, and subsequently ploughed in with the disc plough.

Field 2, Section III.—Contains West African and African rubber plots, sugar-cane plot, and certain permanent trees. Work: Field ploughed, cross-ploughed, and harrowed, subsequently scarified and chipped. Planted: 20 beds sisal hemp bulbils, 6 rows pineapples, 4 varieties (manurial experiment); several rows cowpeas, sorghums, teosinte, and tobacco.

Field 3, Section III.—Contains main water supply tank, and is partly planted up with permanent trees. Work: Old pineapple plot grubbed out, double ploughed, harrowed, and sown with leguminous beans, which were subsequently ploughed in with the disc plough. Young trees scythed round and chipped clean.

The use of the new one-horse mowing machine in the horse paddock involved considerable levelling, filling of holes, and the removal of stumps and stones, as the paddock has never been ploughed.

The number of items of plants and seed dealt with during the season is as follows:—Plants potted, 1,500; plants set out in Nursery beds, 3,000; boxes of seed set, 56; pots of seed set, 61; permanent trees planted out during the year, 48; plants in pots, 860.

Besides a very large quantity of seed propagated to meet the usual demands for distribution raised from existing plants and trees at this Nursery, the overseer submits the following lists of special items, mostly obtained from outside sources. Special seed set during the season includes:—

Funtumia elastica, African Rubber-tree, 26-7-06; germinated freely; about 80 plants available.
Hevea braziliensis, Pará Rubber; at various times; about 50 germinated.
Lagenaria villosa, Butter Gourd, 30-7-06; did well; seed available.
Hibiscus esculentus, Okra; a vegetable; did fairly well.
Laurus camphora, Camphor Laurel; only few germinated.
Tectona grandis, Teak; timber; only few germinated; plants available.
Strychnos nux vomica, Nux Vomica Plant; failed.
Datura stramonium, Datura; failed.
Aralia ginseng, Ginseng, 15-11-06; no signs of germination.
Backhousia citriodora, 21-11-06; failed.
Diplothemium martimum, Wine Palm, 2-1-07; not germinated yet.
Trachylobium, sp. Copal, 5-1-07; few plants.
Ananas sativa, Pineapple (seed), 11-1-07; germinated; plants promising well.
Anacardium occidentale, Yellow Cashew Nut, 15-1-07; few plants.
Anacardium occidentale, Red Cashew Nut, 15-1-07; few plants.
Achras sapota, 15-1-07; not yet germinated.
Mangifera indica, Special White Mango, 21-1-07; two plants.
Tapeinocheilos pungens, 21-1-07; failed.
Chrysophyllum cainito, Star Apple, 31-1-07, and later; failed.
Sterculia fœtida, 31-1-07; plants available.
Drymophlœus Normanbyi, Black Palm, 12-3-07; failed.
————————Yellow Jersey Sweet Potato, 12-3-07; doing well.
Flacourtia ramontchii, Madagascar Plum, 2-4-07; not germinated yet.
Diospyros khaki, Japanese Date Plum; plants available.
Voandzeia subterrenea, Bambara Ground Bean, 9-4-07; failed.
Hibiscus esculentus, Dwarf Okra, 9-4-07; failed.
Cananga odorata, 15-4-07; no signs yet.
Punica granatum, Pomegranate, 3-5-07; not germinated yet.
Martinezia caryotifolia; not germinated yet.
Phœnix dactylifera, 8-5-07; few plants.
Crotalaria juncea, Sun Hemp, 9-5-07; not germinated yet.

Sesamum indicum, Gingelly; seed available.
Ravenala madagascariensis, Traveller's-tree, 20-5-07; plants available.
Manihot sp., Manicoba Rubber, 7-6-07; growing well; few plants available.
Bombax malabaricum, Wild Kapok, 13-6-07; not germinated yet.
———— Japanese Buckwheat, 15-6-07; doing well; seed available.

Final results of last season's special sowings—
Mussænda frondosa, 2 plants in Field 1, Section I.; plants available.
Benincasa cerifera, Condols; creeper; planted on vine-frame; seed available.
Quassia amava; all died.
Calamus tenuis; all died.
Crotalaria juncea; failed to germinate.
Psophocarpus tetragonolobus; failed.
Gliricidia maculata; germinated freely; plants available.
Gynocardia odorata; from India; failed to germinate.
Sicana odorifera, Melocoton, Red Wax Gourd; did well; seed available.

List of permanent trees that died out during the year—
2 Ivory Palms, Field 2, Sections II. and III.
1 Camphor Laurel, Field 1, Section I.
1 *Cedrus deodara*, Field 1, Section I.
1 Persimmon, Field 2, Section II.
2 *Catalpa hybrida*, Field 3, Section III.
2 *Catalpa kæmpheri*, Field 3, Section III.

List of permanent trees planted out during the year—
5 plants Cypress sp., in Field 1, Section I., 17th August, 1906.
4 „ Custard Apple, in Field 2, Section I., 19th June, 1907.
1 „ White Mango, in Field 3A, Section I., 24th May, 1907.
1 „ King Cocoanut, in Field 1, Section II., 21st November, 1906.
1 „ Traveller's Tree, in Field 2, Section II., 17th August, 1906.
1 „ *Eugenia inophylla*, in Field 2, Section II., 6th March, 1907.
1 „ Allspice, in Field 2, Section II., 21st November, 1906.
2 „ Grape Fruit, in Field 3, Section II., 10th February, 1907.
26 „ *Funtumia elastica*, in Field 2, Section III., 6th December, 1906.

Tropical Citrus Fruits.—The citrus orchard in Field 3, Section II., now consists of 35 trees of 17 different species. All are doing well. Two plants of the grape fruit have been added this season. The Emperor mandarins, navel oranges, Tahitan limes, and variegated lemons bore a few fruit for the first time. The orchard is clean, and free from scale and insect pests. Owing to the large demand for seedling stock this season, and pressure of work with buildings, water scheme, &c., no budding has yet been possible.

Tropical Fruits other than Citrus.—These have been planted throughout the Nursery generally, and are not in one orchard. It might perhaps have been better were they in one orchard, but as they were obtained at different times, and are still being added to from time to time, and are, therefore, of all ages and sizes, it is not now possible. Of these, the breadfruit all bore well this season. The new varieties from Samoa bore for the first time. The large jackfruit-tree is recovering from effects of the cyclone of last year, the other trees have borne fairly well, and seed has been set, supplying plenty of plants for distribution. The Anona family (custard apples) are doing well. Four new trees of a special variety were added this year. The star apple fruited for the first time, but of the seed obtained none have, so far, germinated. A very poor crop of mangoes was obtained this season, but plants of the choice table variety of this useful and handsome fruit tree are available. The tamarinds bore well, but the crop was lost, as stated above. The persimmons fruited for the first time, but, being seedless, and not big enough for grafting or inarching, no plants are yet available. Vi-apple (*Spondias dulcis*), bore a very poor crop, and the Chinese longan (*Nephelium longanum*) did not bear at all. The carambolia, commonly called "five corners," bore for the first time, and the climbing plants, such as the granadilla, monstera, &c., bore heavy crops. The pineapples were transplanted this season to a new plot, for especial experimental work. A long list of smaller fruits did fairly well during this season.

Fibres.—Sisal hemp continues to do well, and bulbils and plants are distributed as fast as obtainable, and the supply does not meet the demand. Bulbils from the poling plants in Field 3, Section I., were collected and set in beds in Field 2, Section III., whence they are distributed as applied for. Fourcroya (Mauritius hemp), Bombay hemp (*Agave vivipara*), Murva hemp (*Sansevieria sp.*), Manila hemp (*Musa textilis*), Kitool fibre (from *Arenga saccharifer*), and ramie (*Boehmeria nivea*), &c., are other fibres that thrive well in the tropics, and of which seed or plants are available.

Tobacco.—The especial tobacco experiments carried out last year and fully reported on was not repeated in the season just closed. The tobacco obtained—of the cigar variety—was very favourably reported on, however, and these experiments have amply demonstrated that, with judicious working, an excellent quality of cigar tobacco can be grown in the North. As a result, therefore, it has been decided that a practical experiment on a reasonably large scale shall be conducted, and for which purpose an area of 7 acres of selected land is being fenced in on the banks of the Barron River, and arrangements made for a tobacco-curing shed to be erected under the direction of the Tobacco Expert of the Department.

Cotton.—The cotton plot in Field 3A, Section I., planted on the 19th February, 1906, with nineteen varieties of cotton, has done well, and the following particulars have been recorded. This has proved a most useful experiment in determining the comparative value of the varieties grown and the behaviour under extra tropical conditions. The whole plot, including the varieties usually grown as annuals, is being retained and pruned back, with a view of testing the bearing in subsequent seasons of the perennial varieties (usually greater than that of the first season), and the behaviour of other varieties under conditions that tend to induce perennial characeristics in the usually annual species:—

Cotton Experiments—1 Row of 8 Plants of each Variety.

Variety.	Characteristics.	Yield to December, 1906.		Representing Acres, at 4 by 4 feet. About lb.	Percentage of Lint.
		lb.	oz.		
1. Christopher	Upland, medium bush	3	4	1,100	39·14
2. Doughty	Upland, medium bush	4	2	1,395	39·20
3. Caravonica	S. Island, tall, perennial	4	6	1,490	—
4. Truit's Big Boll ...	Upland, small, annual	4	6	1,490	Not determined
5. Culpepper	Upland, medium, annual	6	14	2,320	Not determined
6. Matafifi	S. Island, medium, perennial ...	3	10	1,225	37·5
7. Lewis's Prize	Upland, small, annual	6	12	2,280	42·73
8. Jones's Big Boll ...	Upland, small, annual	6	10	2,235	44·63
9. Barbadiense	S. Island, small bush	4	2	1,395	34·50
10. Russel's Big Boll ...	Upland, small, annual	8	8	2,870	35·04
11. Seabrook	S. Island, small bush	5	2	1,730	26·62
12. Chicquitas	S. Island, very tall	1	2	380	—
13. Santa Anna	S. Island, small bush	4	8	1,520	Not determined
14. Ditto	Upland, medium, annual	8	6	2,830	31·25
15. Matafifi Sport	Upland, large bush	5	12	1,940	Not determined
16. Eldorado	Upland, small, annual	5	12	1,940	Not determined
17. Kidney	S. Island, tall, large bush	8	12	2,950	31·25
18. Egyptian	Upland, medium bush	2	4	755	33·76
19. Parker	Upland, small, annual	6	4	2,110	43·75

In the foregoing the plot planted was new soil, and the cultivation given merely weeding and loosening of the surface with hoes; no special manuring. The Uplands mostly were found to produce their crops within a lesser period of time (harvesting season) than the Sea Island varieties. The tree or tall bush cottons were not only later coming into crop, but were found to have, on the whole, a very much smaller crop in comparison with the size of the bushes, but these may be expected to materially increase the returns per acre in the second and third seasons. The best returns are obtained in the North by thumb-pruning or nipping back the young shoots of these cottons as soon as they reach a height of 4½ to 5 feet; this induces not only a more uniform cropping, but a somewhat earlier harvest. The returns per acre above are computed as taken from a standard distance of 4 feet by 4 feet. The different-sized bushes would, of course, in reality require to be planted at differing distances; the perennials, notably, would require more space than this. These figures can only as yet be taken as a guide to the distances and methods of cultivation, and not as returns that can be expected from any appreciable area of the variety.

SUNDRY VALUABLE TROPICAL PRODUCTS.

Cocoa.—The cocoa-trees in the Nursery proper are doing well, and bore a large crop this season. A few of the trees in the cocoa block are bearing for the first time. Plenty of plants of this valuable product are available for distribution.

Coffee.—All the trees are looking very well, notably the *C. arabica* (Ceylon variety), under the shade of the *Erythrina indica*. Maragogipe is bearing an unusually heavy crop for this variety. The Liberian and Mocha are also doing well.

Tea.—This grows well in North Queensland, but, on account of the labour necessary for picking, must remain as a curiosity rather than a plant of commercial value to the country.

Kola Nuts.—These trees continue to thrive, but require a richer soil, more humid climate, and protected situation for payable returns than is found at the Nursery. Four trees in Field 1, Section I., fruited this season, and some 200 healthy seedlings are available for distribution.

Kapok.—These trees do well here, and should prove a valuable auxiliary crop. The trees here are not yet in bearing.

Copal Gum.—This tree is also a valuable one, producing, with but little trouble in the direction of cultivation, the gum from which copal varnish of commerce is made. The plants are somewhat slow-growing, however.

Divi-divi.—These trees are some of the hardiest imaginable, and continue to bear a fairly regular crop, whether the season be normal, unusually dry, or unusually wet. They will grow in poor soil, and with but small rainfall, and require no attention. The harvesting of the pods as they drop is the easiest imaginable, and their value from 6s. 6d. to about 10s. per bag of 1 cwt. The divi-divi would seem to prefer the drier situations or seasons, for this season the crop, which usually averages 1 cwt. per tree, dropped to some 700 lb. from the eight trees growing here.

Want of space and time prevents detailed mention of every useful and valuable plant that may be included under this heading.

Spices and Drugs, Etc.—Cinnamon, coca, allspice, &c., are doing well. The cinnamon bore but a poor crop of seed, and but few plants are, in consequence, available. The cardamoms in the propagating bush-house are doing remarkably well, but are not fruiting yet. Vanilla is thriving, and is recovering from the effects of last year's cyclone. A comparatively small crop is being harvested, but a heavy one is anticipated during the coming season. Other minor spices and drugs continue to do well, and seed and plants are available.

Cereals.—The following sorghums were grown during the past season:—White Kafir, Red Kafir, Jerusalem Corn, Imphee, *S. saccharatum*, Giant Honduras, and Colemans American variety; also new varieties received from the Philippine Islands named *S. vulgare Negrosene*—a sub-variety—and *Negrosene Hackel Ined.* These were only grown in small quantities, and all did fairly well. Teosinte does fairly well here, but maize does not. The soil of the Nursery is not generally suited to such cereals and their culture is being largely dropped.

Rice.—This staple also, owing to the nature of the soils here, does not do well at this institution, though this district as a whole is eminently suited for rice culture. On 3rd January, Field 1, Section II., was sown with 12 rows of Italian Upland, 8 rows of White Java, and the remainder of this 1-acre plot with Japan seed rice. The Italian Upland (called locally Cairns rice), came up, but the rest failed to germinate. The Japan rice was portion of the seed obtained by the Department from Japan last year. It was received too late in the season last year, and evidently does not retain its vitality more than one season. Later (11th January) 10 rows of indifferent, but fertile, seed, obtained from the out-of-season planting of this rice last year was sown; this came up fairly well, but did not thrive. A few pounds of inferior paddy was saved. This rice looks and behaves in the field as though it required inundation rather than being, as required for this country, a dry-cultivation or mountain rice.

Manurial Crops.—The following leguminous plants were sown during this season, and seed, albeit in small quantities, is always kept in stock:—Mauritius beans, 3 varieties; Velvet beans; cowpeas, 5 varieties; Tonga beans; Narico beans; Poorman's bean; and Pigeon pea. All these do well, especially the Mauritius beans. The foregoing are especially useful for the renovation of fallow lands, and for cereal and annual crops where they can be ploughed into the soil. Other leguminous plants that stand in the same relation to perennial or permanent crops such as coffee, cocoa, kola nuts, &c., as the foregoing does to cereal or annual crops, exist; and in this direction the erythrinas, albizzias, and such trees may be quoted, the planting of which in the vicinity of gardens or plantations where shade or protection is required results in a very distinct and noticeable benefit to the permanent crop-producing trees instead of the obvious exhaustion of the soil found near trees of non-leguminous species.

Tropical Vegetables.—The choko (*Sechium edule*), a climber, continues to do well in the tropical and semi-tropical localities, and is gradually coming into more favour. Of the same class of plants—climbers—condols (*Benincasa cerifera*) have done remarkably well here, proving hardy, quick-growing, prolific, and eminently palatable. Several of the gourds have also proved useful in this manner, notably the Red Wax Gourd (*Sicana odorifera melocoton*), and the Butter Gourd (*Lagenaria villosa*). Of other vegetables worthy of attention are okra, the ladies' finger vegetable of India; the eggfruit, or brinjall, of India; and the green pods of the horseradish-tree (*Moringa pterygosperma*), or drumstick vegetable of India.

Root Crops.—No pumpkins, squashes, &c., were grown this year, though it has been shown that these grow as well in the tropics as elsewhere. Certain experiments were, however, conducted in connection with the manuring of other, and what may be called the more essentially tropical, root crops. Five varieties of yams, 3 varieties cassava, 2 rows of Bermuda arrowroot, and 1 row each of Queensland arrowroot, Jamaica ginger, turmeric, in Field 3A, Section I., did very well indeed this year. These crops are not yet quite mature, and will, therefore, not be harvested until during the next official season. A special planting of yams was made in Field 2, Section III., on 25th November, 1905, harvested on the 6th September, 1906. These were planted in 3 plots, each 33 feet by 4 feet, but the returns, owing to bad growing season in 1905, were very unsatisfactory. The results were as follow:—

Plot 1.—Unmanured, harvested 6 lb. tubers.

Plot 2.—Bonedust 4 cwt., dried blood 1½ cwt. per acre, harvested 16 lb. tubers.

Plot 3.—Bonedust 4 cwt., dried blood 1½ cwt., and sulphate of potash 1 cwt., at rate of —— per acre, harvested 20 lb. tubers.

For the same reason the experimental manuring plots of ginger, planted about the same time, were equally unsatisfactory.

Planted 23rd November, 1905, harvested 15th October, 1906, 3 plots of 33 feet by 4 feet each—

Plot 1.—Unmanured, harvested 4 lb. 4½ oz. tubers.

Plot 2.—4 cwt. bonedust, 1½ cwt. dried blood, per acre, harvested 5 lb. 2½ oz. tubers.

Plot 3.—4 cwt. bonedust, 1½ cwt. dried blood, and 1 cwt. sulphate of potash, at rate of —— per acre, harvested 6 lb. 2½ oz. tubers.

The field overseer who had charge of these experiments explains this want of success by stating that the season of 1905 was too dry for a satisfactory experiment in this direction. The sweet potatoes planted in May, 1906, benefited by the more favourable season, and with the same experiment disclosed the following results:—

Planted 18th May, in Field 3A, Section I., in 3 plots, each 1-20th-acre, subdivided into 11 rows, 3 varieties of sweet potatoes, each plot carrying manure at the rate per acre as under—

No. 1 Plot.—Unmaured.

No. 2 Plot.—Bonedust, 4 cwt., dried blood, 1½ cwt.

No. 3 Plot.—Bonedust 4 cwt., dried blood 1½ cwt., sulphate of potash 1 cwt.
Results—

				Lb.		Tons per Acre.
Plot 1.—Spanish Giant	sweet potato,	1 row	(average)	63,	equal to	6·18
„ White Maltese	„	„	„	100½	„	9·87
Plot 2.—New Guinea Red	„	„	„	71½	„	7·02
„ Spanish Giant	„	„	„	57½	„	5·60
„ White Maltese	„	„	„	90½	„	8·88
Plot 3.—New Guinea Red	„	„	„	62	„	6·09
„ White Maltese	„	„	„	90	„	8·84
„ New Guinea Pink	„	„	„	83½	„	8·20

The field overseer carrying out this experiment explains the above somewhat extraordinary result, indicating a slight decrease rather than that increase of productivity that may be expected on the application of admittedly stimulating manures, by saying that the soil of the unmanured plot was naturally richer than that of the manured portions; but, as the whole plot was only 3-20ths of an acre, it would seem there must either have been some error in carrying out the experiment or the spot must have been curiously and extraordinarily patchy in quality. Similar experiments in another plot with ground-nuts, arrowroot, and yams, it is stated, failed entirely, owing to dry weather.

Rubber.—The species of rubber-producing plants of the better varieties now under cultivation are—

Pará Rubber (*Hevea brasiliensis*).
Central American Rubber (*Castilloa elastica*).
Rambong or Assam (*Ficus elastica*).
Ceara Rubber (*Manihot glaziovii*).
African Rubber (*Funtumia elastica*).
Maniciba Rubber (*Manihot sp.*)
New Guinea Rubber (*Ficus rigo*).

Other small plants, more or less rubber-producing, might be mentioned, but require considerable further experiment before it can be shown that they are likely to be of use to the country. Those above mentioned, on the other hand, are admittedly so, and are growing well. As yet only the first four mentioned have attained maturity. The Ceara Rubber has only been spasmodically tapped. While young —*i.e.*, under ten years or so—experiments have been unsatisfactory, but as they increase in years the flow of latex, or milky sap-like exudation that contains the rubber, seems to increase, and to flow for a longer period after the bark is cut. On the Rambong trees experiments have indicated that, with cultivation, a size may be attained rendering it both possible and worth while to commence tapping operations at nine years or so of age, and possibly earlier, in this country.

The large trees here are some sixteen years of age, and will give as much as 5 lb. of dry rubber per annum. The Castilloa rubbers are now over six years of age, and are rubber-yielding, but want of time and staff has prevented any regular experiments in tapping and treating the latex of these. It is hoped that this season the staff will be sufficiently increased to admit of the working of all these rubbers, the more especially as it is amply shown that they will live, thrive, and attain a tappable size at an early age under the climatic and soil conditions obtaining in tropical Queensland. This work, however, to be properly done, requires the undivided attention of an officer at the same time of day—the morning by preference—regularly for a considerable period. Any discontinuance might create a break in the work that would involve starting afresh; nor with such work, in which exact and careful record must be kept, can any casual hand or labourer be employed.

As indicated last year, this season, as far as it was possible, tapping operations were systematically carried out on the small plantation of Pará rubber-trees which are now eight years old. The growth of these trees, owing to the indifferent soil of the Nursery, and coupled with the fact that they experienced the seasons of drought that was so detrimental to agriculture in the State generally, is by no means remarkable, and, indeed, such as could not readily be exceeded by private growers. For these reasons I am of opinion that equally good results could be obtained from trees at least one year younger in selected localities and on better soil.

These tapping experiments were carried out by myself and the office assistant under my direction, and were commenced about the middle of February; but, by the middle of May, owing to pressure of office work and the necessity of my being away on lecturing tours, inspecting, or attending shows, &c., it had to be discontinued.

These first tapping operations were carried out under certain difficulties also, due to the absence of many of the requisite appliances, interruptions by visitors, &c., but, as may be seen by the tabulated results attached, were, on the whole, very satisfactory.

RESULTS OF PARA RUBBER TAPPING EXPERIMENTS AT KAMERUNGA, CAIRNS, SEASON 1907.

No. of Tree.	Date of Tapping.	Circumference at Base.	Circumference 3 ft. from Base.	Circumference at Highest Point Tapped	Highest Point Tapped.	Number of Tappings.	Method of Tapping.	Age at time of Tapping.	WEIGHT OF DRY RUBBER OBTAINED.			Remarks.
									Biscuit.	Scrap.	Total.	
	1907.	In.	In.	In.	Ft in.			Yrs mos.	Oz.	Oz.	Oz.	
1	19 Apl. to 23 May	31½	20	16	6 0	14	Two right-hand half herring-bone cuts	8 0	3½	2¾	6¼	Fair flow. Started in dry weather. If moist atmosphere had prevailed, probably larger yield. Rubber good amber colour.
2	19 Feb. to 23 May	32½	21	17	6 8½	55	Double spiral—*i.e.*, two cuts running parallel round tree	7 10	16	3½	19½	For some time scrap could be easily removed, but later became brittle, involving loss of time. Subsequently drip-tins used, which, if used all through, would have shown better returns. Average dry rubber, tapping ·354 oz.
4	19 Feb. to 23 May	32½	22½	18½	5 2½	54	One full herring-bone	7 10	7½	4	11½	Latex coagulated very quickly. 8th to 19th March flow decreased, but improved again subsequently.
24	19 Feb. to 23 May	36½	22	19	4 10½	52	Five V cuts	7 10	14¼	6½	20¾	At first only one V cut was made, and five were tapped only in latter, ninety cuts or so. If five from commencement results would have been even better, or if double spiral. This is best tree. Rubber good. Scrap very strong. Average dry rubber, tapping, ·399 oz.
30	20 Feb. to 14 May	35	24	20½	4 6	49	Four V cuts	7 10	10½	2½	13	Scrap brittle. Started with one V cut, also; therefore, not the best possible returns. Rubber strong, but dark-coloured.
43	26 Feb. to 14 May	29	18	16	5 1	40	One spiral cut	7 10	7½	1¾	9¼	Drip tins used, as on No. 2. Not much scrap in consequence. Latex, at first cream colour, subsequently changing to white.
45	26 Feb. to 23 May	33	23	19	5 5½	49	One full herring-bone	7 10	12¼	3	15¼	Always a good flow. Scrap sometimes brittle. Some fine samples of biscuit from this tree.
52	26 Feb. to 23 May	32½	21½	18½	4 9	44	Double spiral	7 10	6¾	1¼	8	Drip tins used. Sometimes fair flow from this tree, but often poor.
53	26 Feb. to 23 May	34	21	19	4 8½	41	One full herring-bone	7 10	7¾	4½	12¼	Fair flow. Good rubber. Strong scrap. Latex from this tree coagulated noticeably quickly.
61	9 Apl. to 14 May	31½	20	19½	5 8½	17	Single spiral	8 0	4¼	0¾	5	Drip-tins used. Fair flow. Rubber biscuits of a very light amber colour.
		Av. In.	Av. In.	Av. In.	Av. Ft. in	Av.		Av. Yrs. mos	Total. Oz.	Total. Oz.	Total. Oz.	
10 trees	19 Feb. to 23 May	32·8	21·3	18·3	5 3	41 5	...	8 0	90¼	30½	120¾	Averages of Totals.

It will be seen from the foregoing that, out of ten trees tapped, seven different methods were tried. This, coupled with the fact that the biscuit of each separate tapping of each separate tree for purposes of experiment had to be separately coagulated, matured, marked, and labelled, prevented any possibility of recording time, and, therefore, cost of collecting. The first tappings, moreover, seldom produce as large a flow of latex as later ones, owing to the absence of wound response in the early cuttings. Had it been possible to continue the experiment until at least 90 or 100 cuts per tree had been made, the average would have been noticeably higher. Tapping was commenced on the 19th February, when three trees were tapped—No. 2, by the double spiral method; No. 4, by the herring-bone (eight arms); and No. 24, by one V-shaped cut, which was extended to five Vs. As these were extended other trees were tapped—viz., No. 30, one V, afterwards increased to five, on the 20th February; No. 43 (single spiral), on the 26th February; No. 45 (herring-bone, eight arms), on the 26th February; No. 52 (double spiral), on the 26th February; No. 53 (herring-bone, seven arms), 26th February; No. 61 (single spiral), 9th April; and, last of all, No. 1 (on the 19th April), which was tapped by two half herring-bones with five rows on each.

The best results were obtained from No. 24—viz., 20¾ oz. dry rubber—which would have been much more if five V-cuts instead of one had been made at first. The next was No. 2, with 19½ oz., then No. 45 with 15¼ oz., No. 30 with 13 oz., No. 53 with 12¼ oz., and No. 4 11½ oz. The smallest quantity obtained was 5 oz., from No. 61; this tree, however, was not tapped until the 19th April. The total amount of rubber obtained was 7 lb. 8¾ oz., for an average number of 41½ tappings or cuts per tree, representing—at six days per week—about seven weeks' continuous tapping, or, since the usual time to continue tapping trees is three months, about one half-season's work; for one whole season at the same rate 15 lb. of rubber would, therefore, have been produced from the ten trees, or 300 lb. per acre of 200 trees, representing a return (at 5s. per lb.) of £75 per acre in the eighth year.

The best method of tapping would seem to be the double spiral—*i.e.*, two cuts running parallel round the tree from some 5 or 6 feet up the stem to the base—for, although No. 24 with five Vs gave the best results, No. 2 double spiral, which is not such a large tree, gave, while nearly as good a total, 50 per cent. less scrap. The herring-bone method comes next in order of advantage. Other methods have yet

to be proved, but it would seem difficult to improve on the double spiral, for, besides being easier of operation, drip-tins can be used, which, placed at the top, furnishes a small but constant stream of water, preventing coagulation of the latex on the cut in the form of scrap rubber that takes a long time to collect, but which must be removed to enable subsequent cutting to be done.

During these experiments it has been noticed that in dry weather the latex coagulates in the cut, forming this scrap rubber very quickly, both preventing the full flow and retarding subsequent tapping, especially if the tapping is done late in the morning. In dry weather also cuts higher up the stem give less latex than those low down, the flow from which latter was apparently not much affected by the weather or time of day.

Some of the trees started with a good flow, which went off, though not stopping entirely, after ten or twelve cuttings, but increased again subsequently. This was noticeably so with Nos. 4, 24, 30, 43, and 52. The rest kept a more even flow, and all were flowing far better at the time the experiments had to be discontinued than at any time previous.

The rubber from the various trees differed a great deal in appearance, some being very pale (as No. 1), some dark (No. 30), and some of a medium amber colour (Nos. 2 and 24); some also seemed more sticky than that from other trees, and took longer to coagulate. The latices also differed at first, that from trees Nos. 2 and 43 being of a creamy colour, the rest being pure white, but after a week or two the colour of the latex was noticeably more uniform.

In coagulating the latex several methods were tried. Natural coagulation in pans was found to take one to three days, and, in wet weather, to encourage mould and mildew; if water was mixed with the latex it took even longer. When acetic acid was added, coagulation took place in four or five to ten hours, particularly if the atmosphere was dry. Coagulation by means of churning took place in fifteen to twenty minutes with acid added, and seemed thorough and in every way satisfactory. The churn used was a small glass one, holding about one quart of latex and water. The drying of the resulting biscuits was troublesome until a small set of ordinary "wringer" rollers was obtained, after being washed and passed through which the biscuits were readily matured in wire trays in a dark place and dry, or even smoky, atmosphere. Some good samples of clean, clear, amber-coloured biscuit rubber were obtained. There is not enough yet to test a market with, and it is being used for exhibitions and illustrations. During the coming season it is hoped this useful work may be materially extended, and it is confidently anticipated even better results will be obtained.

Some new apparatus has been obtained, including tapping-knives, drip-tins, larger coagulating-pans, &c.

On the whole, and under the circumstances, the Pará rubber-trees have yielded very well indeed, and the experiments indicate that in rubber culture may be found an industry suited at the same time to our climate, soils, and conditions of labour in tropical Queensland.

The demand for Pará rubber plants and seed this season has quite exhausted the supply. Owing to windy weather experienced in January last, a large proportion of the seed crop was, unfortunately, lost by being blown off before mature. Of other varieties the following are available:—

Rambong or Assam Rubber (*Ficus elastica*), about 50 plants.
African Rubber (*Funtumia elastica*), about 50 plants.
Central American Rubber (*Castilloa elastica*), about 280 plants.
Maniciba Rubber (*Manihot sp.*), about 20 plants.
Ceara Rubber (*Manihot glaziovii*). Seed in quantity.

HOWARD NEWPORT, Instructor in Tropical Agriculture.

SCHEDULE A.

METEOROLOGICAL RETURNS FOR SEASON 1906-7, AS RECORDED AT KAMERUNGA STATE NURSERY, CAIRNS.

Thermometer Readings,	1906.						1907.						Totals and Averages.
	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mch.	Apr.	May.	June.	
Mean maximum	78·11	77·69	81·48	83·90	84 78	86·01	88 29	86·83	88·32	84·45	80 69	77·36	Mean average maximum, 83·15
Extreme maximum ...	82·00	83·00	88·00	86·50	92 00	89·00	99·00	93 00	103 00	88·00	85·00	84·00	
On date	11th	27th	17th	22nd	6th	24th	15th	11th	25th	8th	1st	13th	On 25th March, 1907.
Mean minimum	63·35	60·74	66 53	64·53	70·33	70·25	72·30	70·85	68·59	67·16	64·50	61·6	Mean average minimum, 66·72.
Extreme minimum ...	51·00	52·00	56·00	57 00	65·00	64·00	66·00	68·00	65·00	63·00	56·00	52·00	
On date	4th	27th	1st	2nd	28th	20th	2nd	25th	30th	25th	2nd	17th	On 4th July, 1906.
Mean temperature ...	70·73	69·21	74·00	74·18	77·40	78·13	80·29	78·84	78·95	75·80	72·58	69·48	Mean average temperature, 74·96.
Rainfall	2·490	2·025	2·560	0·720	0·995	8·170	5·780	14·820	4·870	2·800	9·330	5·290	Total rainfall, 1906-7, 78·840 in. ditto 1905-6, 53·840 in.
Wet days	11	17	11	9	18	22	20	21	14	14	23	13	Total wet days, 1906-7, 193. ditto 1905-6, 123.

REPORT OF THE DIRECTOR, BOTANIC GARDENS.

SIR,—I have the honour to submit the following report for the year 1906-7 :—

WEATHER.—The conditions for the growth of plants have been very favourable. We have been fortunate as regards rainfall, rain having fallen on 92 days. The following list shows the amount registered each month, the figures in brackets representing the amounts registered during the corresponding months of the previous year. The periods registering the least rain were from 19th June, 1906, to 10th August, 1906 (·35 in.) ; and 23rd March, 1907, to 6th May, 1907 (·04 in.) :—

1906.	In.	In.	1907.	In.	In.
July	0·35	(0·26)	January	2·55	(2·71)
August	4·27	(0·56)	February	4·84	(11.46)
September	3·37	(1·47)	March	4·34	(4·10)
October	3·73	(2·98)	April	0·04	(0·31)
November	0·69	(3·71)	May	4·36	(2·81)
December	2·73	(10·14)	June	2·52	(1·33)

Totals—1907, 33·79 in. ; 1906, 41·84 in.

RETAINING WALL.—The retaining wall along the river frontage of the Gardens was completed in November last by the Harbours and Rivers Department, and it is hoped that the work of filling in the space between the wall and the bank will be proceeded with at a not far distant date.

RIVER BANK.—As the sloping banks were very uneven in places, several contractors for excavation works in the city were allowed to use this part for a "tip," with the result that some thousands of loads of soil were carted in, and, so soon as the filling-in work above referred to is completed, this material will be used for grading the bank.

REPAIRS TO BUILDINGS.—Thanks to the grant which was voted for the purpose, the following necessary repairs were effected to the buildings within the Gardens :—

(*a*) The whole of the upper portion of Glass House No. 1 was replaced by new material.

(*b*) Glass House No. 2 was repaired, and the outside painted ;

(*c*) The old roof of the building used for a toolshed and men's messroom was replaced by a new one ; and

(*d*) The woodwork of the roofs of the stables and cartshed was replaced with new material.

VISITORS.—During holidays the Gardens are largely availed of as a pleasure resort, especially by children ; indeed, the space available is taxed to the utmost on occasions. During the past three months a large number of visitors from the South has visited the Gardens, and are greatly impressed with the richness of our vegetation, many of the plants luxuriating in the open here requiring the protection of a house with them.

LABELLING.—A little has been done towards labelling the plants, and it is hoped that money will be available during the coming year to continue this good work, and thereby add to the educational value of the Gardens, which are constantly visited by students studying for examinations in botany.

SEATS.—Several seats have been added during the year, but many more are required for the convenience and comfort of the large number of persons who visit the Gardens.

PLANTS DISTRIBUTED.—The number of plants distributed to schools, charitable institutions, &c., was 3,737 as against 2,407 for the previous twelve months. The distribution was as follows :—Schools, 885 ; other Government institutions, 2,069 ; hospitals, 321 ; local authorities, 87 ; cemeteries and churches, 107 ; schools of arts, 30 ; reserves, 142 ; railway stations, 96. Quantities of buffalo grass were also supplied to various Government Departments, and a number of bamboo poles to H.M.S. "Powerful," when here in August last, and also to the local gunboats.

EXCHANGES.—A large number of plants and seeds has been acquired by way of exchange with kindred institutions within and beyond the Commonwealth, and I am being constantly applied to for seeds of our indigenous plants, especially those of economic value, from foreign correspondents.

AVIARIES, ETC.—Several additions have been made to the collection of animals. It is to be regretted that the loss by death of one of the emus has to be recorded. An item of interest is that eight eggs were laid in August last by one of the emus. A portion of the gardens near the emu run has been fenced in for the marsupials, a change much appreciated both by animals and public, the former being now seen to much better advantage than in their former location.

BAND CONCERTS.—I regret that only on a few occasions were band concerts held, a striking contrast to the previous year, when, thanks to the military authorities, numerous concerts were given.

BEDS, ETC.—Most of the beds have been thoroughly overhauled, and in the majority of cases replanted with young stock, quite a considerable portion of which included plants new to the Gardens which I was fortunate enough to secure by means of exchange. A "succulent" bed has been formed on the hill near the bush-houses.

WEEDS.—Owing to the copious rainfall, a great growth of Rag Weed (*Erigeron linifolius*) made its appearance in the Domain, but it was cut down with a two-horse mower, and burned before it had time to mature its seed. The Noogoora Burr (*Xanthium strumarium*) and Castor Oil Plant (*Ricinus communis*) also made their appearance in large numbers, but were also taken in hand before reaching a dangerous condition. At the time of my appointment in November, 1905, I found that Nut Grass (*Cyperus rotundus*) had taken possession of the flower-beds, but by constant use of the fork it has been placed under control. In fact, very little trouble was experienced with the pest during the past summer

STRAY ANIMALS.—Owing to the stringent measures adopted with regard to stray dogs, this nuisance has greatly abated; but while the large gates at the Edward-street entrance are allowed to be open all day, complete security cannot be hoped for.

BUSH-HOUSES.—The plants in the bush-houses have received a good overhauling during the year, and luxuriant growth has resulted. A number of fresh plants has been added, including choice specimens of our beautiful epiphytical ferns and orchids which previously were poorly represented. The house, which for some years prior to my appointment was used as an aviary, is a source of pleasure to visitors, owing to the fine display of plants which is constantly kept up there. This was especially the case during the summer months when the Caladiums were on view.

STAFF.—Several changes have been made in the staff, one of which was the appointment of E. W. Bick to the position of gardener at the Government Domain, in place of B. McIvor, who resigned in order to start business as a nurseryman. The staff now includes one foreman, one propagator, one gardener, ten labourers, one caretaker, and three boys.

LIBRARY.—The following publications are received regularly for the library :—

The Natal Agricultural Journal;
The Agricultural Journal of the Cape of Good Hope;
The Transvaal Agricultural Journal;
The Journal of the Board of Agriculture (England);
The Journal of Agriculture of Victoria;
The Agricultural Gazette of New South Wales;
The Reports of the New Zealand Department of Agriculture;
The Board of Trade Journal (England);
The Hawaiian Forester and Agriculturist;
The Bulletin of the Botanical Department, Trinidad;
The Bulletin of the Royal Botanic Gardens, Kew;
The Bulletin of the Department of Agriculture, Jamaica;
The Journal of the Royal Horticultural Society;
The West Indian Bulletin;
The Agricultural News (West Indies);
The Publications of the Imperial Department of Agriculture, West Indies;
The Agricultural Bulletin of the Straits and Federated Malay Straits;
The Foreign Office Diplomatic and Consular Reports;
The Bulletin of the Virginia (United States of America) Agricultural Experiment Station;
Experiment Station Records (United States Department of Agriculture);
The Bulletin of the Department of Agriculture, Madras;
Agricultural Journal of the Royal Botanic Gardens, Ceylon;
The Agricultural Ledger (India);
Proceedings and Journal of the Agricultural and Horticultural Society of India;
Reports of various botanic gardens.

BOTANY LECTURES.—I have paid weekly visits to the Agricultural College for the purpose of delivering lectures on botany to the students.

J. F. BAILEY, Director.

REPORT OF THE TRUSTEES OF THE MUSEUM FOR 1906.

SIR,—Owing to the smallness of our staff we have had some difficulty in keeping the Museum in that state of strict cleanliness and order which is absolutely necessary, and in preserving its contents from deterioration.

We are in great need of field collectors to assist us in obtaining such additional knowledge as will enable us to further illustrate the natural history and resources of the State.

An alteration in the mode of exhibiting the birds native to Queensland has been considered advisable, and new showcases have been provided in which to separate them into their natural groups, more especially for the information of students.

We have, during the year, registered 59,292 visitors—on Sundays 22,752, and on week days 36,540. Donations numbered 502, and were very varied in character, the greater part consisting of scientific literature.

An increase in the vote for the Library is necessary in order that we may procure those scientific works which are mostly required for the use of the Museum Staff, and by those persons whose pursuits lead them to consult works of reference.

As we receive from many societies a number of valuable literary contributions, it is desirable that we should make them some slight return, and we recommend that our Annual Report be printed, as in former years, with those Appendices which have been frequently asked for.

So far as our means have justified expenditure, we have continued to develop the industrial branch of the museum.

Twenty-three copyrights were registered during the year.

The Standard Weights and Measures, which have been in our charge for a number of years, were lately removed to the Treasury.

We cannot conclude this Report without very strongly urging the Government to recommend such an addition to the sum voted by Parliament as will assist in placing the Queensland Museum in a position not inferior in scientific and educational value to similar institutions in other Australian States.

Signed on behalf of the Board.

We have, &c.,

A. NORTON, Chairman.

REPORT OF THE GOVERNMENT STATISTICIAN ON AGRICULTURAL AND PASTORAL STATISTICS FOR 1906.

LIVE STOCK.

The improved conditions with respect to the pastoral industry which were experienced during 1904 and 1905 continued throughout last year as regards the greater portion of the State, although in a few isolated localities, especially in the North-west, drought was to a considerable extent in evidence, and this state of things has extended into the early months of the present year.

The Appendix tables attached to this Report contain detailed particulars respecting all classes of live stock kept in each petty sessions district of the State, and of which many of the tables in the body of the Report are extracts and summaries.

The following table compares with 1905 the numbers of live stock returned as depastured at the end of 1906:—

A.

Year.	Horses.	Cattle.	Sheep.	Pigs.
1905	430,565	2,963,695	12,535,231	164,087
1906	452,916	3,413,919	14,886,438	138,282
Numerical Increase in 1906	22,351	450,224	2,351,207	...
Numerical Decrease in 1906	...	...	...	25,805
Centesimal Increase in 1906	5·19	15·19	18·76	...
Centesimal Decrease in 1906	...	...	...	15·73

The only class of live stock not showing an increase last year was that of pigs. These decreased by 25,805, or a number equal to 16 per cent. on the figures for 1905. On the 31st December, 1906, there were 452,916 horses in this State, or 22,351 more than in 1905, an increase of 5 per cent. Cattle numbered 3,413,919, or 450,224 more than in the previous year, an increase of 15 per cent.; and sheep numbered 14,886,438, a numerical increase of 2,351,207, and a 19 per cent. ratio one. My advance estimate published some months ago was: Horses, 450,675; cattle, 3,390,421; sheep, 14,872,413; and pigs, 137,797. It will be seen that these figures agree very closely with, though in each instance somewhat below, the final results.

The following table shows the fluctuation in the number of live stock during the last decennium:—

Aa.

SHOWING the NUMBER OF HORSES, CATTLE, SHEEP, and PIGS in the STATE—RETURN for TEN YEARS.

Year.	Horses.	Cattle.	Sheep.	Pigs.
1897...	479,280	6,089,013	17,797,883	110,855
1898...	480,469	5,571,292	17,552,688	127,081
1899	479,127	5,053,836	15,226,479	139,118
1900...	456,788	4,078,191	10,339,185	122,187
1901...	462,119	3,772,707	10,030,971	121,641
1902...	399,122	2,543,471	7,213,985	77,202
1903...	401,984	2,481,717	8,392,041	117,553
1904...	413,165	2,722,340	10,843,470	185,141
1905	430,565	2,963,695	12,535,231	161,087
1906...	452,916	3,413,919	14,886,438	138,282

As horses have, with slight exception, hitherto been bred for local use, their numbers do not fluctuate to any great extent; the difference between the maximum and minimum numbers during the period amounting to 17 per cent. on the former only. Cattle have much lost ground yet to recover

before attaining to the numbers depastured in 1897, when there were in the State 6,089,031—almost double the number returned last year. Much less prolific than sheep, the number required for export and local consumption prevents so rapid a return to the numbers existing before the drought. Sheep had at the end of 1906 attained to within less than 3,000,000 of the numbers returned in 1897, and in all probability at the end of the present year there will be from 18,000,000 to 20,000,000 depastured in this State.

The following table, which gives the ratio of decrease or increase :—

A b.

Year.	Horses.	Cattle.	Sheep.	Pigs.
1897	5·99	— 6·43	— 9·17	13·77
1898	0·25	— 8·50	— 1·38	14·64
1899	— 0·28	— 9·29	— 13·25	9·47
1900	— 4·66	— 19·31	— 32·10	— 12·17
1901	1·17	— 7·49	— 2·98	— 0·45
1902	— 13·63	— 32·58	— 28·08	— 36·53
1903	0·72	— 2·43	16·33	52·27
1904	2·78	9·70	29·21	57·50
1905	4·21	8·87	15·60	— 11·37
1906	5·13	15·19	18·76	— 15·73

— Decrease.

well shows the effects of the drought of 1897-1902, and the rapid recovery made under the recent more favourable seasons.

Table No. 2 in the Appendix gives the number of stock returned from each pastoral district for the years 1905 and 1906, together with centesimal ratio of increase or decrease in each. In cattle, the greatest proportionate increase was 40 per cent. in Gregory South, followed by 32 per cent. in Maranoa, 30 per cent. each Leichhardt and Warrego. Although some of the increases were very small, in no pastoral district was a decrease recorded.

In Gregory North sheep increased from 465,917 to 1,034,721, a relative increase of 122 per cent. Passing Wide Bay, where the total numbers were small, other large proportionate increases were: Warrego and Cook, 23 per cent. each; Gregory South and Maranoa, 20 per cent. each. Mitchell also returned an increase of 16 per cent. on a large number of sheep; indeed, the largest in any pastoral district—namely, 4,009,347 in 1905, and 4,639,950 in 1906.

Horses.—As previously stated, horses are but little in demand except for local use, the number and value exported beyond the Commonwealth being inconsiderable. The value of interstate transfers, it is true, aggregates a substantial sum, but although a considerable number of Queensland horses sent specially there for sale are disposed of at the Kapunda yards, in South Australia, at satisfactory figures, yet the bulk of the interstate trade is a side issue attending the sale of other forms of live stock, drovers of sheep and cattle disposing of their plant after delivery in the South and returning by sea to Queensland.

The imports and exports of horses during 1906 are shown in the following statement :—

A c.

Horses Imported during 1906.

—	Number.		Value.	
Oversea—			£	£
United Kingdom	3	3	710	710
Interstate—				
New South Wales	1,402	...	30,748	
South Australia	567	...	5.525	
Victoria	35	...	4,017	
		2,004		40,290
Total	...	2,007	...	41,000

Horses Exported during 1906.

Oversea—				
United Kingdom	4	...	200	
British New Guinea...	6	...	109	
Cape Colony	50	...	1,000	
India	2,398	...	33,861	
Straits Settlements	3	...	60	
China	84	...	1,160	
Japan	8	...	72	
Java	148	...	1,716	
Philippines	1	...	35	
German New Guinea	4	...	20	
		2,706		38,233
Interstate—				
New South Wales	7,708	...	88,216	
Victoria	64	...	1,280	
South Australia	2,973	...	37,767	
Western Australia	4	...	120	
		10,749		127,383
Total	...	13,455	...	165,616

The export exceeded the import by 11,448 in number and £124,616 in value. These figures are, of course, insignificant when the half-million horses in the State are considered. The oversea trade declined for some reason, for, whilst 9,946, of a value of £124,358, were shipped in 1905—chiefly to Hongkong and India, and some to the Philippines—only 2,706, worth £38,233, were sent foreign in 1906, principally to India.

Entire Horses.—These have now been collected for three years, and the compilation is now, no doubt, fairly complete. The number given on the schedule for last year was 4,975—Rockhampton, 278; Mackay, 236; Gladstone, 147; Bowen, 137; Toowoomba, 135; Warwick, 112; Charters Towers, 109; Brisbane, 101; and Dalby, 100; all other districts, 3,620. Although it does not appear that the breeding of horses for export affords sufficient inducement to graziers to cause them to expand operations, it might be well worth their consideration whether the rearing of mules would not prove more remunerative. These animals are almost unknown in Australia, and yet their usefulness has been demonstrated beyond question. For endurance, economy, and longevity the mule has established a record as a farm worker wherever tried. In America its value has long been recognised, and is still in increasing demand for purposes of agriculture. A recent return shows that in the State of Kansas mules and asses number 115,362, or about one-eighth of the total number of horses. With the object of keeping in view the relative number of live stock depastured, compared with the area of the State and the number of the population, the following table is prepared annually:—

A d.

IN CONVERTING HORSES AND CATTLE TO TERMS OF SHEEP, TEN HEAD OF SHEEP ARE TAKEN AS EQUAL TO ONE HORSE OR HEAD OF CATTLE.

——	Horses.	Cattle.	Sheep.	All kinds in terms of Sheep.	Pigs.	All kinds, including Pigs, in terms of Sheep.
Per Square Mile	0·68	5·09	22·20	79·87	...	...
Per Capita of Population	0·85	6·38	27·82	100·08	0·26	100·34

As the grazing capacity and the value for food of the different kinds of live stock varies so greatly, a summary column is added to the table giving the value on a definite basis of all kinds of stock in terms of sheep. According to this reduction to a common denominator, there were 70 sheep to each square mile of area in 1905, whilst this proportion had risen to 80 in 1906. There were last year 6 head of cattle and 28 head of sheep to each individual of the population.

CATTLE.—A larger number of individual owners of horned cattle furnished returns last year than ever before—namely, 27,309. This exceeded by nearly 4,000 the number who returned the 6,089,013 head in 1897, showing a much wider distribution. There were some important increases in Cape River, Etheridge, Richmond, Winton, and in the eastern and southern districts of the State, whilst the extreme north-western districts show considerable decreases.

A e.

SIZES OF HERDS OF CATTLE.

Petty Sessions District.	1 to 100.		101 to 300.		301 to 1,000.		1,001 and upwards.		Totals.	
	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.	Owners.	Cattle.
Bowen	191	4,020	11	2,385	14	6,655	20	77,548	236	90,608
Burke	15	326	4	721	6	3,667	16	115,032	41	119,746
Charters Towers ...	261	5,514	24	3,970	4	2,459	22	97,743	311	109,686
Cloncurry ...	42	987	5	1,023	4	2,032	7	95,794	58	99,836
Esk	398	14,046	96	16,175	34	17,803	11	31,348	539	79,372
Etheridge ...	57	1,911	17	3,102	15	8,365	12	106,542	101	119,920
Gladstone ...	336	9,423	38	6,822	42	24,032	22	59,615	438	99,892
Norman ...	15	273	5	997	7	4,293	21	164,184	48	169,747
Richmond ...	54	1,810	10	1,642	6	2,955	11	90,769	81	97,176
Rockhampton ...	836	19,613	106	18,211	53	27,361	35	88,388	1,030	153,573
All other Districts	22,221	500,405	1,364	232,191	451	246,969	390	1,294,798	24,426	2,274,363
Totals ...	24,426	558,328	1,680	287,239	636	346,591	567	2,221,761	27,309	3,413,919

2,221,761, or 65 per cent. of all cattle, belonged to 567 owners only, held in herds of over 1,000 head. There were 636 graziers, each with 301 up to 1,000, having between them 346,591 cattle, an average of 545 each.

The following table gives the average for ten years:—

A f.

Year.	Number of Owners.	Number of Cattle.	Average Size of Herd.
1897	23,442	6,089,013	260
1898	24,244	5,571,292	230
1899	24,689	5,053,836	205
1900	25,180	4,078,191	162
1901	25,650	3,772,707	147
1902	24,399	2,543,471	104
1903	23,610	2,481,717	105
1904	24,615	2,722,340	111
1905	25,693	2,963,695	115
1906	27,309	3,413,919	125

It will be seen that in 1897 the average size of herd was 260 head; this fell during the drought to 104 head in 1902, and has now risen again to 125 head to each owner.

The principal increases in the more important districts were—Bowen, from 77,450 in 1905 to 90,608 in the following year; Charters Towers, 88,325 in 1905 to 109,686 in 1906; Cloncurry, 94,815 to 99,836; Esk, 66,608 to 79,372; Etheridge, 105,324 to 119,920; Gladstone, 85,316 to 99,892; Richmond, 76,170 to 97,176; and Rockhampton, 122,117 to 153,573. The chief decreases were—Normanton, 17,516; and Burke, 6,795.

The position with regard to sheep last year was even more satisfactory than with respect to cattle, the actual increase being 2,351,207, and the proportional one 19 per cent. The following table gives the number of owners and of sheep in the more important petty sessions districts:—

A g.

SIZES OF FLOCKS OF SHEEP.

Petty Sessions District.	50 and under.		51 to 1,000.		1,001 to 5,000.		5,001 to 20,000.		20,001 and upwards.		Totals.	
	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.	Owners.	Sheep.
Adavale	1	30	1	124	2	5,500	3	41,700	4	399,896	11	447,250
Aramac	3	34	3	1,204	7	21,427	5	50,417	4	142,060	22	215,142
Augathella	4	152	9	5,405	7	21,569	4	44,392	3	220,068	27	291,586
Barcaldine	6	77	8	4,197	17	43,551	13	128,966	7	447,176	51	623,967
Blackall	5	86	7	3,805	8	21,990	9	93,574	10	489,162	39	608,617
Bollon	5	50	7	2,297	7	24,171	10	100,964	8	375,957	37	503,439
Charleville	15	285	13	5,170	14	30,425	15	168,501	6	281,824	63	486,205
Clermont	12	350	17	5,315	13	40,101	2	22,337	7	332,165	51	400,268
Cloncurry	6	73	1	98	1	4,150	4	35,000	4	226,376	16	265,697
Cunnamulla	4	111	3	1,184	22	64,253	22	240,015	12	687,525	63	993,088
Dalby	24	548	101	49,402	63	145,206	11	111,618	6	336,612	205	643,386
Eulo	1	50	4	2,350	3	6,821	7	67,691	3	101,745	18	178,657
Goondiwindi ..	11	268	15	6,207	21	60,981	11	96,981	5	223,600	63	388,037
Hughenden	4	89	3	893	9	24,683	10	114,871	4	161,012	30	301,548
Isisford	3	19	8	4,695	3	8,002	2	21,100	7	467,258	23	501,074
Longreach	6	65	12	4,899	27	81,719	28	244,588	13	832,651	86	1,163,922
Mitchell	9	200	29	13,581	14	38,289	4	32,341	2	113,260	58	197,671
Muttaburra	5	59	3	537	15	49,941	24	260,151	12	759,960	59	1,070,648
Richmond	...	...	6	2,620	5	13,568	23	238,754	8	461,699	42	716,641
Roma	20	421	29	11,993	16	35,189	6	56,355	3	153,997	74	257,955
St. George	5	104	14	5,400	14	42,676	24	225,401	10	480,586	67	754,167
Springsure	5	117	12	7,414	12	24,782	5	44,682	3	137,150	37	214,145
Surat	2	90	8	3,849	24	65,697	8	65,476	4	187,631	46	322,743
Tambo	..	...	5	2,264	5	11,434	7	95,631	6	305,805	23	415,134
Toowoomba	19	412	139	65,392	49	120,801	12	98,629	6	306,680	225	591,914
Warwick	21	677	67	25,417	23	49,146	5	50,633	1	33,287	117	159,160
Winton	5	159	4	658	8	24,128	12	141,582	11	772,362	40	938,889
All other Districts	359	7,299	350	103,241	94	208,003	35	347,883	17	569,062	855	1,235,488
Totals	560	11,825	878	339,611	503	1,288,203	321	3,240,233	186	10,006,566	2,448	14,886,438

There were 2,448 owners only of the 14,886,438 sheep returned. Of these, 10,006,566, or 67 per cent. of all the sheep in the State, were returned by 186 persons; 3,240,233 by 321 persons; 1,288,203 by 503 owners, and the remainder, numbering about one-third of a million, were owned in flocks of 1,000 or under by 1,438 persons. The following statement gives for ten years the number of owners, the number of sheep, and the average number of the latter to each owner:—

A h.

Year.	No. of Owners.	No. of Sheep.	Average Size of Flocks.
1897	1,793	17,797,883	9,926
1898	1,835	17,552,608	9,565
1899	1,897	15,226,479	8,027
1900	1,950	10,339,185	5,302
1901	2,018	10,030,971	4,970
1902	2,052	7,213,985	3,516
1903	1,914	8,392,044	4,385
1904	1,993	10,843,470	5,441
1905	2,269	12,535,231	5,525
1906	2,448	14,886,438	6,081

More people were shown to be owning sheep last year than ever before, the average number to each being 6,081. The like number in 1897, or ten years previously, was 9,926.

Reverting to Table Ag, it will be seen that in 27 petty sessions districts there were upwards of 150,000 sheep. In two—Longreach and Muttaburra—the number exceeded 1,000,000; Cunnamulla and Winton approaching closely thereto. The following are the more important increases:—Winton, 570,052; Longreach, 402,300; Isisford, 180,564; Richmond, 178,941; Charleville, 151,736; Cunnamulla, 124,501; Adavale, 106,501; Augathella, 91,011; Muttaburra, 84,437; Bollon, 82,305; Dalby, 81,498; Roma, 77,827; Mitchell, 71,682; Surat, 59,821; St. George, 55,098; and Goondiwindi, 45,508.

The more important decreases were—Hughenden, 104,833; Aramac, 49,887; and Cloncurry, 13,482.

It is satisfactory to learn that Australian merino sheep are likely to be in demand in South Africa, with a view to improving the wool production of that portion of the Empire. The Government of the Orange Free State, in co-operation with a number of local farmers, are arranging for a commission of practical men to purchase sheep in Australia, and to investigate the possibility of replenishing and improving their flocks from here. In view of the source from which Australia drew some of her earlier studs of merinos, it appears to be a strange irony of fate that Australia should at this time be in a position to return the favour then accorded. It is, nevertheless, an incident very flattering to these States.

The import and export trade in live stock frequently has a marked effect in the increase or decrease of live stock depasturing, as will be seen from the following statement:—

A i.

Year.	Cattle.		Sheep.	
	Inwards.	Outwards.	Inwards.	Outwards.
	Number.	Number.	Number.	Number.
1897...	13,197	176,329	289,768	1,114,270
1898...	13,867	194,648	158,843	641,177
1899...	16,972	205,213	200,523	463,276
1900...	9,370	69,979	103,967	487,934
1901...	32,439	74,066	297,628	277,738
1902...	11,593	35,299	193,243	140,030
1903...	56,175	78,988	272,948	277,725
1904...	41,086	139,745	94,117	294,496
1905...	25,099	75,044	148,163	529,602
1906...	63,157	63,089	469,526	742,281

Thus, in the three years 1897-99, whilst only 44,036 cattle were brought alive into the State 576,220 were deported, leaving to be made up by natural increase a deficit of over half a million head. During 1906 the imports and exports were about equal, there being just 68 more cattle brought into the State than were despatched from it. In 1897 the excess of exports of sheep over imports was considerably over three-quarters of a million head; last year 469,526 sheep entered Queensland, whilst 742,281 departed, leaving a drain of 272,755 sheep to be made good.

But import and export alive is only one of the factors of disturbance, the meat trade and the requirements for home consumption have also to be met out of the natural increase before there is any surplus towards an accession to the numbers depastured.

Last year these methods of disposal accounted for a quarter of a million cattle and three-quarters of a million sheep.

A k.

—	Cattle.		Sheep.	
	1905.	1906.	1905.	1906.
Preserved, frozen, and boiled down	80,759	77,534	287,499	119,533
Exported, less number imported	49,945	— 68	381,439	272,755
Estimated number killed for food for home consumption*	134,257	150,989	306,289	341,444
Totals put to profit	264,961	228,455	975,227	733,732

* N.B.—Based on Slaughter-house returns. — Excess of Imports.

Both with regard to cattle and sheep there were fewer put to profit last year than in 1905—namely, 228,455 cattle and 733,732 sheep in the former against 264,961 and 975,227 in the latter year. During 1906 there were 77,534 cattle and 119,533 sheep either preserved, frozen, or boiled down; 272,755 sheep exported alive in excess of imports; there being, as already stated, 68 more cattle imported than exported, whilst for home consumption 150,989 cattle and 341,444 sheep were utilised.

Although the animals preserved and frozen are so treated chiefly for export, yet a considerable quantity of canned goods are consumed within the State, which has to be borne in mind when considering the number of live stock slaughtered for home consumption.

In the Appendix will be found a table—No. III.—giving full particulars as to the packing and freezing industry. There was considerable reduction, both in the number of establishments in operation and also in the number of animals dealt with. The fall in business in 1906 as compared with 1905 was largely due, as regards cattle, to the fact that prices ruled higher, owing to paucity of numbers available,

and the competition in London from the Argentine prevented Queensland freezers and packers working profitably at the values demanded by the grazier. As regards sheep, there was also the fact that 1905 was an exceptional year, the mutton exported being greatly augmented as a consequence of supplying a special contract to South Africa.

The following table gives information as to the factories employed in the slaughter of live stock and the preservation of the carcasses for food:—

A l.

No. of Establishments.	Kind of Establishments.	No. of Hands Employed.	Value of Machinery and Plant.	Value of Land and Premises.	Value of Output.
			£	£	£
4	Bacon Curing	171	46,851	8,174	199 826
7	Meat Preserving	879	187,362	214,530	1,003,718
11		1,050	234,213	222,704	1,203,544

The works engaged in treating cattle and sheep, actually in operation, were fewer by four in 1906 than in 1905; the hands employed were reduced from 1,343 in the latter to 879 in the former year. The value of the output was £1,103,547 in 1905 and £1,003,718 in 1906, a decrease of £99,829 only, a regrettable but not a serious decline. There were 80,759 horned cattle killed in these factories during 1905 and 77,534 in 1906; of the latter, 60,807 were frozen, the carcasses weighing 42,362,283 lb.; 15,936 head were slaughtered for canning, yielding 10,293,794 lb. The sheep, including lambs, slaughtered in 1905 numbered 287,499, and 119,533 in 1906; of the latter, 107,527 were frozen, and weighed 4,251,216 lb.; 11,994 were preserved, and 486,377 lb. tinned therefrom. In addition to the foregoing from the live stock slaughtered, 33,295 lb. of essence and 3,237 tons of tallow were also obtained.

The other products of these factories, totalling as they do to a value of £118,297, are necessarily of much importance to the industry. Particulars as to them will be found in Table No. V., in the Appendix. They included, for 1906—Hides: No. 83,690, value £102,141; skins: No. 155,357, value £35,769; and edible fats 1,539,004 lb., value £23,796.

There were four factories engaged in the conversion of hogs into food products, but as a large number of pigs are killed and preserved by farmers, the figures of the four establishments would be far short of the total. The former are, therefore, included in the following table:—

A m.

Petty Sessions District.	Hogs Slaughtered.	Fresh Pork.	Salt Pork.	Bacon and Hams.
	Number.	lb.	lb.	lb.
Beaudesert	486	11,045	4,093	41,575
Brisbane	94,794	671,457	29,448	6,914,651
Bundaberg	991	11,967	39,941	33,563
Childers	392	4,082	9,279	20,357
Clifton	381	4,705	12,080	31,796
Crow's Nest	439	620	4,290	51,812
Dalby	690	9,832	6,226	54,849
Gatton	6,913	156,112	10,706	601,575
Gingin	375	7,345	17,420	10,850
Gympie	794	19,532	1,525	43,197
Highfields	668	3,894	585	81,191
Ipswich	593	26,925	16,186	15,592
Laidley	755	6,333	27,372	60,392
Logan	682	22,148	4,340	70,930
Mackay	387	7,293	11,083	19,445
Maroochy	502	2,978	16,965	34,537
Maryborough	473	11,147	12,189	21,024
Nanango	586	2,570	11,754	51,174
Rockhampton	7,033	21,093	133,636	245,824
Roma	712	6,840	21,075	40,679
South Brisbane	23,577	46,117	3,032	1,611,282
Tiaro	422	7,466	11,950	19,293
Toowoomba	2,689	13,687	9,619	228,821
Warwick	928	2,705	6,345	93,345
All other Districts	7,656	133,813	181,825	449,205
Total, 1906	153,918	1,211,796	602,964	10,846,959
„ 1905	153,136	1,466,632	816,249	10,500,335

N.B.—Returns received from Inspectors of Slaughter-houses for 1906 account for 34,615 pigs killed, producing 2,742,254 lb. of fresh pork in addition to the above. In a few instances it is possible that some of these have been also included in the returns from which this table is compiled, but to what extent it is impossible to determine.

There were 782 more pigs killed for food in 1906 than in the previous year. There was a smaller quantity of the product disposed of in the form of pork, whilst the output of bacon and hams in the former year exceeded that for 1905 by 346,624 lb. The bulk—79 per cent.—of the output of bacon and hams was from the Metropolitan district; Gatton, Rockhampton, and Toowoomba being also large producers.

There were thirteen establishments engaged in the meat industry liable to the State under the provisions of the Meat and Dairy Produce Encouragement Act; the following are the particulars:—

An.

"MEAT AND DAIRY PRODUCE ENCOURAGEMENT ACT."

Number of works to which advances have been made	13		
	£	s.	d.
Amount advanced to 31st December, 1906)	100,437	5	0
Indebtedness (including interest on 31st December, 1906)	56,107	5	1
Number of works in operation under Act on 31st December, 1906	10		
Amount advanced on the said works	95,305	5	0
Balance owing on the said works on 31st December, 1906	53,752	13	10
Interest accrued but not due to 31st December, 1906	607	18	11
Interest due by three companies but not yet paid	1,746	12	4

Wool.—A direct collection of the wool production of this State for 1906 was made in conjunction with the other pastoral statistics. This had not been previously attempted, the export giving a sufficiently close indication hitherto, as the local consumption was fractional only. In consequence of the changed conditions obtaining under federation with respect to the compilation of trade statistics, it was thought advisable to adopt this course. In accordance with the experience invariably attending first collections, the results for 1906 have proved too imperfect for publication, although sufficiently satisfactory to justify the hope of securing reasonably reliable figures with the next collection. For 1906, therefore, the export (including interstate transfers) must once more be accepted as the measure of the production.

The following table shows, for 1905 and 1906, the export of wool, both weight and value:—

Ao.

Exports.	Quantity.			Value.		
	Interstate.	Oversea.	Total.	Interstate.	Oversea.	Total.
	lb.	lb.	lb.	£	£	£
Wool (scoured)	8,596,245	10,576,500	19,172,745	699,196	766,066	1,465,262
Wool (greasy)	19,562,902	28,202,454	47,765,356	814,978	1,108,689	1,923,667
Total, 1906	28,159,147	38,778,954	66,938,101	1,514,174	1,874,755	3,388,929
Total, 1905	25,973,433	27,099,294	53,072,727	1,322,135	1,327,616	2,649,751
Increase, 1906	2,185,714	11,679,660	13,865,374	192,039	547,139	739,178
Decrease, 1906	—	—	—	—	—	—

There were 66,938,101 lb. exported in 1906, against 53,072,727 lb. in the previous year, an increase of 13,865,374 lb., a proportional increase of 26 per cent. It is satisfactory to find that the proportion of oversea export showed a distinct, if not a large, increase in 1906. There were 25,973,433 lb. of wool returned in 1905 as interstate transfers, although it was beyond dispute that the bulk of this subsequently left the Commonwealth, and figured as an export oversea from some other State, chiefly that of New South Wales. In 1906 the interstate transfers amounted to 28,159,147 lb., or an increase of 2,185,714 lb. only. On the other hand, oversea shipments amounted to 27,099,294 lb. in 1905, and to 38,778,954 lb. in 1906, an increase of 11,679,660 lb. These figures give ratio increases of interstate transfer 8 per cent., oversea export 43 per cent. The proportions of oversea export to total export being—1905, 51 per cent.; 1906, 58 per cent.

There is no doubt that the bulk of the wool shipped through the other States is at once sent on to Europe, and much of this should be counted as Queensland oversea trade, being shipped on oversea boats on oversea bills of lading, and are only transhipped in Sydney for the convenience of the shipowners, if even that.

The increased export of wool last year meant an added money value to the producers of £739,178, being relatively somewhat more than the weight increase, the average price having slightly advanced. The average value of wool exported for each of the last five years, as declared at the Customs, was—

Ap.

	1902.	1903.	1904.	1905.	1906.
Greasy wool (average)	8d. per lb.	$8\frac{1}{2}$d. per lb.	$8\frac{5}{8}$d. per lb.	$9\frac{1}{2}$d. per lb.	$9\frac{3}{4}$d. per lb.
Clean ,, ,, ...	$14\frac{1}{4}$d. ,,	$16\frac{1}{2}$d. ,,	$16\frac{1}{6}$d. ,,	17d. ,,	$18\frac{1}{3}$d. ,,

Except for a slight drop in clean wool in 1904, both greasy and scoured have shown an advance each year, the improvement between 1902 and 1906 being $1\frac{3}{4}$d. for greasy and 4 1-12d. for clean.

The quantity of wool utilised in the State is very small, and fell in 1903 to 84,117 lb. only. Each year since has witnessed a slight increase.

A q.

—	1902.	1903.	1904.	1905.	1906.
Wool used in manufacture ...	lb. 109,646	lb. 84,117	lb. 92,901	lb. 112,430	lb. 126,921

The relative contribution of the pastoral industry to the export of articles of home production for 1905 and 1906 was as follows:—

A r.

—	1905.		1906.	
	—	Percentage, Total Exports (Home Produce).	—	Percentage, Total Exports (Home Produce).
	£		£	
Agricultural	2,488,998	21·31	2,725,078	21·78
Pastoral	5,096,350	43·62	5,638,520	45·07
Mineral	3,564,718	30·51	3,602,940	28·80
Other	532,220	4·56	544,679	4·35
Total	£11,682,286	100·00	£12,511,217	100·00

These exports (including, of course, interstate transfers) for 1906 amounted to a value of £12,511,217. Of this the pastoral industry furnished £5,638,520, or 45 per cent. The individual items are shown in the following statement;—

A s.

—	1905.	1906.	Increase or —Decrease, 1906.
Pastoral—	£	£	£
Wool	2,649,751	3,388,929	739,178
Live stock	1,132,081	1,122,138	— 9,943
*Meat (all kinds, including Extract)	711,831	556,424	—155,407
Tallow	202,258	181,388	— 20,870
Hides and skins	304,642	295,425	— 9,217
All other	95,787	94,216	— 1,571

* Exclusive of Bacon, Poultry, &c., these being treated as products of Agriculture.

Every item but wool showed a decrease. The latter, as previously quoted, contributing a much more than countervailing increase of nearly three-quarters of a million.

Angora Goats.—Angora goats, kept for the production of mohair, do not appear to increase in number. Goats of all kinds, kept for milk and meat, are of great value in many places, particularly for the relief of young children, whose lot is too frequently a hard one. It appears that a few persons, with an eye to the milk and meat, try a few purebred or grade animals with a view to making at the same time a little profit. Those who keep flocks for the sake of the production of the mohair as a business undertaking might be counted on the fingers.

In 1906 twenty-three owners were returned as keeping goats that were said to be more or less Angoras; they had between them 2,512 animals, and obtained 1,358 lb. of mohair of, evidently, very varying quality, being valued at from 5d. to 2s. 6d. per lb. Skins to the number of 160, valued at from 6d. to 2s. 3d. each. Some owners complain of difficulty with spear grass. Such figures as these, after a collection of several years, can hardly be considered as relating to an "Industry." In view of the importance which the production of mohair has attained in South Africa, it is unfortunate that more progress has not been made here. In Cape Colony they have 2,776,000 goats, with an annual output of 8,956,000 lb. of mohair.

DAIRYING, Etc.

The industry exhibited a fair amount of progress during 1906, although not in quite so great a ratio as in the previous year. The requirements for home consumption having been met long since, the whole of the increase became available for export. On the North Coast Line not only are considerable areas being planted with paspalum and other grasses for dairying purposes, but in some instances the orchards are being abolished in favour of what is considered a better paying industry; to some extent the same remarks apply to the district of Gatton, whilst in Esk, Nanango, Nerang, and elsewhere considerable activity in the industry is apparent. Cheese-making received more attention than in 1905; one district in particular, situated some little way from a line of railway, and thus somewhat handicapped for butter production, making marked advancement in this direction.

The export to the United Kingdom has been well maintained, and the system of official grading inaugurated by the Government has proved exceedingly beneficial in sustaining the excellent quality of Queensland butter. Quite recently a shipment from this State secured top prices for colonial butter, 96s. being obtained. During 1906 over eleven hundred more producers engaged in this industry than in the previous year, mostly farmers who embarked in this work in conjunction with other forms of agriculture; 234 of these dealt with cream only, and 896 also made butter to some extent. The table published below gives particulars respecting all districts where the industry holds an important position:—

B.

RETURN of BUTTER and CHEESE FACTORIES and the RESULTS OBTAINED therefrom during the YEAR 1906; also PRODUCTION by PRIVATE MAKERS.

PETTY SESSIONS DISTRICT.	ESTABLISHMENTS HANDLING		MILK, CREAM, AND BUTTER.					CHEESE.		
	Cream Only.	Cream and Butter.	*Milk dealt with.	*Cream Produced.	BUTTER MADE. At Central Factories.	By Farmers.	Total.	Producers.	Milk Dealt with.	Cheese.
			Gallons.	Lb.	Lb.	Lb.	Lb.		Gallons.	Lb.
Allora	142	64	1,555,959	1,247,991	...	30,805	30,805	...	...	...
Beaudesert	68	345	3,598,774	3,231,633	1,003,559	85,107	1,088,666	...	...	...
Brisbane	81	107	612,899	513,993	3,234,680	43,578	3,278,268	...	...	...
Bundaberg	35	295	909,883	770,120	292,531	97,148	389,679	...	...	...
Caboolture	78	13	567,368	508,311	...	15,672	15,672	...	...	...
Clifton	139	27	1,117,306	970,367	46,648	11,078	57,726	4	535,520	494,807
Crow's Nest	45	274	1,407,375	1,188,684	530,295	31,859	562,154	2	25,420	25,420
Dalby	48	287	1,075,823	936,212	234,024	40,081	274,105	...	...	...
Dugandan	257	114	2,536,887	2,194,155	889,166	15,538	904,704	...	...	...
Esk	243	26	2,258,069	1,920,988	760,119	4,739	764,858	...	...	...
Gatton	297	372	3,196,993	2,869,547	726,371	58,037	784,408	1	672	672
Gympie	87	177	918,564	806,662	558,341	43,103	601,444	...	...	...
Harrisville	285	22	2,177,452	1,789,586	31,996	5,287	37,283	1	13,640	12,600
Highfields	185	230	1,801,897	1,517,281	...	28,126	28,126	1	76,703	85,442
Ipswich	192	108	1,770,653	1,573,007	2,328,451	16,421	2,344,872	...	...	...
Killarney	37	67	679,119	628,237	...	15,836	15,836	3	253,451	262,736
Laidley	250	176	1,780,527	1,644,773	594,811	23,783	618,594	...	...	...
Logan	227	94	1,112,209	821,879	...	19,082	19,082	...	...	...
Marburg	235	12	1,890,760	1,728,946	557,094	1,637	558,731	...	...	...
Maroochy	31	248	482,162	418,293	113,157	41,898	155,055	...	...	...
Maryborough	79	111	749,530	614,480	1,014,470	52,180	1,066,650	...	...	...
Nanango	80	155	856,226	814,384	119,252	20,433	139,685	...	...	...
Nerang	31	161	1,348,824	a1,212,523	...	44,705	44,705	...	...	...
Redcliffe	143	91	1,368,190	1,159,344	500,734	35,880	536,614	...	...	...
Rockhampton	120	209	1,676,891	1,158,453	741,551	89,040	830,591	...	...	...
Rosewood	285	18	2,258,306	2,121,882	6,286	5,540	11,826	1	33,840	32,000
South Brisbane	33	54	236,163	199,739	674,127	36,143	710,270	...	...	...
Taroo	87	127	1,633,073	1,221,802	429,683	24,537	454,220	3	3,772	3,772
Toowoomba	447	315	3,612,476	3,301,882	3,760,677	76,807	3,837,484	8	1,076,188	1,123,427
Warwick	163	230	2,062,973	1,831,066	1,754,346	56,129	1,810,475	5	643,405	622,140
Woodford	131	46	865,629	808,499	154,840	7,652	162,492	1	17,000	17,630
Other Districts...	210	916	3,869,788	b2,833,243	215,866	395,647	611,513	7	225,791	240,494
Totals, 1906	4,771	5,491	51,990,548	44,588,077	21,273,085	1,473,508	22,746,593	37	2,905,402	2,921,140
Totals, 1905	4,537	4,595	45,983,323	38,588,154	18,910,455	1,409,521	20,319,976	28	2,626,371	2,682,089
Increase, 1906 ...	234	896	6,007,225	5,999,923	2,362,630	63,987	2,426,617	9	279,031	239,051
Decrease, 1906 ...	...	...	...	...	...	...	...	...	...	...

a Includes 264,259 lb. sent to New South Wales for manufacture. *b* Includes 5,659 lb. sent to New South Wales for manufacture.
* N B —The quantities of milk and cream in any district bear but little relation to the butter made in that district, as much of the milk and cream is conveyed elsewhere from the place of production for manufacture.

It will be noticed with gratification that the increase was general throughout the State. Milk increased by 6,000,000 gallons, and cream by a like number of pounds; over a quarter of a million pounds of the latter, however, found its way to the adjoining State of New South Wales for manufacture. No great increase is noticeable in the quantity of butter made by farmers; this is chiefly made for home use, with a little for local sale, but at the present time large centres of population depend on the output of central factories. From these the satisfactory increase of nearly two and a-half million pounds was obtained, all of which went to swell the quantity sent out of the State. The expansion in the cheese industry was not so marked, although considerable, and, judging from the experience of past years, it will be some time before increase in cheese production is sufficient to cause this commodity to assume importance as an export, although a few shipments have been placed on the London market. The average yields obtained from the milk secured for the last five years is quoted below:—

	1902.	1903.	1904.	1905.	1906.
1 gallon of milk yielded lb. cream ...	0·72	0·73	0·76	0·84	0·86
1 gallon of milk yielded lb. butter ...	0·35	0·41	0·40	0·44	0·44
1 lb. of cream yielded lb. butter ...	0·49	0·56	0·57	0·53	0·51
1 lb. of butter was made from gallons milk	2·84	2·43	2·50	2·26	2·28
1 lb. of butter was made from lb. cream	2·05	1·78	1·75	1·90	1·96

The quality appears to be fairly constant, a very slight improvement being shown in 1906 as compared with 1905, but still well maintaining the advance on earlier years. The increased quantity obtained, however, was most satisfactory. A large amount of labour and time is expended by officers of this Department in checking-off cream sent to factories to identify them with the place of production. It is found that some suppliers change the establishment to which they send cream several times in the year, and cream is frequently despatched long distances for manufacture; for instance, from Warwick, Clifton, and Killarney to Brisbane; it would, therefore, appear that once loaded on trucks the additional cost of railage for increased distance does not affect the question of profit to an appreciable extent. The district of Toowoomba holds the pride of place for 1906 as to the quantity of butter made—viz., 3,837,484 lb.—being an increase of 379,790 lb. The district of Brisbane exhibits a considerable reduction, only returning 3,278,268 lb., against 3,954,681 lb. in 1905; but this is accounted for by Brisbane proprietories having established several branches, in order to relieve the pressure on the metropolitan centre. A similar condition is found to exist in Ipswich, and for like reason; but the additional quantities made at the branch establishments resulted in augmentation, as already stated, of the total manufactured to the extent of 2,426,617 lb.

The export of butter during the past five years is tabulated below:—

B a.

—	1901.	1902.	1903.	1904.	1905.	1906.
Quantity (lb.)	2,085,998	552,625	1,223,414	9,520,921	11,773.182	14,034,332
Value	£86,171	£24,610	£49,801	£344,943	£455,863	£582,326

The increase in quantity during 1906 on the figures of the previous year amounted to 2,261,150 lb., and in value £126,463. The price per lb., as shown by exporters, was, however, a fraction (about three-fifths of a penny) less than in the previous year. The butter factories have in a good many instances taken advantage of the Government assistance towards their establishment, as will be seen by the following statement:—

B b.

BUTTER.

—	Number.	Amount.
		£ s. d.
Number of works to which advances have been made	14	...
Number of works now in operation	8	...
Amount advanced up to 31st December, 1906	...	13,582 12 6
Amount advanced to works now in operation to 31st December, 1906	...	8,034 0 3
Indebtedness to State on 31st December, 1906	...	7,414 9 6
Including interest due, but not paid	...	290 4 4
And interest accrued, but not due	...	109 17 1

A large proportion of the loan has already been repaid—viz., £6,168 3s., out of £13,582 12s. 6d. advanced—a result sufficiently satisfactory to justify the conclusion that the balance will shortly be met.

Creameries have also been assisted in a similar manner, particulars of which are given below:—

B c.

CREAM.

—	Number.	Amount.
		£ s. d.
Number of factories to which advances have been made	19	...
Number of factories now in operation	5	...
Amount advanced up to 31st December, 1906	...	1,909 16 2
Amount advanced to works now in operation to 31st December, 1906	...	426 0 0
Indebtedness to State on 31st December, 1906	...	291 16 2
Including interest due, but not paid	...	26 5 5
And interest accrued, but not yet due	...	...

It will be seen that the balance of indebtedness is small, and this amount is decreasing year by year.

Cheese.—Although there was an increase of nine establishments on the figures of 1905, these did not all consist of large factories, but were owned by farmers making small quantities. The centre of cheese-making is on the Darling Downs—Clifton, Toowoomba, Killarney, and Warwick being the districts in which the industry is principally carried on. These districts made 2,503,110 lb. out of a total of 2,921,140 lb., or 86 per cent. of the total. The average quantity of milk required to make 1 lb. of cheese was 0·94 gallons in 1903; 1·02 gallons in 1904; 0·98 gallons in 1905; and 0·99 gallons in 1906.

The advances made by the Government to assist manufacturers of cheese are as follow:—

B d.

CHEESE.

—	Number.	Amount.
		£ s. d.
Number of factories to which advances have been made	5	...
Number of factories now in operation	1	...
Amount advanced up to 31st December, 1906	...	2,086 0 0
Amount advanced to works now in operation to 31st December, 1906	...	700 0 0
Indebtedness to State on 31st December, 1906	...	483 17 6
Including interest due, but not paid	...	...
And interest accrued, but not due	...	...

Preserved Milk.—Particulars respecting this industry cannot be published, as there are not three proprietories engaged in the trade. The outlook is, however, promising, and the quality of the manufactured article leaves little to be desired. This industry has also received Government assistance, as shown below:—

Be.

MILK.

—	Number.	Amount.
		£ s. d.
Number of factories to which advances have been made	2	...
Number of factories now in operation	2	...
Amount advanced up to 31st December, 1906	...	2,175 0 0
Amount advanced to works now in operation to 31st December, 1906	...	2,175 0 0
Indebtedness to State on 31st December, 1906	...	1,950 2 1
Including interest due, but not paid	...	...
And interest accrued, but not due	...	...

During the year all arrears and a considerable portion of the principal loan, amounting in all to nearly £650, have been paid off, so that there is every indication of success in this direction.

POULTRY.

The returns show an increase as compared with 1905, but not to any appreciable extent. The proportion of eggs to the number of birds was somewhat larger, and, as a consequence of the time when the collection is made, would be in excess of the true average, as the number of poultry is as exists at the time of collection, which would be immediately after the large demand for the Christmas trade has been met, whereas the eggs would be the result of the year's transactions. The table does not purport to include poultry kept by other than agriculturists, and, as town denizens are, therefore, outside the limits of collection, the figures must fall far short of actuality. Particulars of the result of the collection are contained in the following table:—

Bf.

Petty Sessions District.	Fowls.	Ducks.	Geese.	Turkeys.	Other.	Eggs.
	No.	No.	No.	No.	No.	Doz.
Allora	11,749	151	9	284	...	41,529
Beaudesert	14,111	743	142	666	10	27,448
Brisbane	17,483	1,390	58	190	2	76,853
Bundaberg	18,457	602	59	170	54	62,019
Cairns	14,484	344	73	164	3	68,998
Clifton	16,722	546	41	529	15	47,836
Crow's Nest	13,842	187	322	166	5	25,970
Dalby	17,172	690	145	2,217	...	35,358
Dugandan	28,394	1,494	538	504	19	119,277
Esk	13,726	1,505	769	980	45	75,970
Gatton	41,122	1,829	1,191	887	28	171,168
Gympie	14,219	549	58	137	22	40,406
Harrisville	18,582	1,072	209	592	10	80,511
Highfields	23,070	287	197	439	15	76,394
Ipswich	13,671	1,176	129	532	6	46,459
Laidley	23,949	1,982	1,343	622	7	90,996
Logan	16,299	335	270	84	...	55,411
Mackay	21,575	889	154	239	86	66,267
Marburg	17,244	1,257	610	99	...	63,654
Maroochy	11,370	375	55	105	19	38,266
Maryborough	10,303	367	36	118	38	37,360
Nanango	11,389	53	46	167	...	27,671
Nerang	9,814	1,028	39	34	40	30,910
Redcliffe	11,260	872	159	83	66	30,856
Rockhampton	18,763	986	158	483	36	84,235
Roma	10,038	223	...	893	...	43,392
Rosewood	17,305	972	220	734	40	75,511
Toowoomba...	56,875	1,229	192	2,568	7	213,545
Warwick	27,723	1,151	305	2,400	18	78,116
All other Districts	147,565	7,233	1,177	6,108	426	485,616
Totals, 1906	688,276	31,511	8,704	23,194	1,019	2,417,942
Totals, 1905	683,809	28,687	7,542	18,112	855	2,209,598
Increase, 1906	4,467	2,824	1,162	5,082	164	208,344
Decrease, 1906	...	...	...	...	...	...

The export of poultry in a chilled state was but little in evidence in 1906. Only 970 pairs were sent to the United Kingdom; 64 pairs to South Africa; 291 pairs to Straits Settlements; and 350 pairs to Siberia. Reports as to the results of shipments made point to a reasonable profit being securable by export. This has not, apparently, been sufficiently brought home to the farmer to induce the requisite expansion in numbers to maintain large and regular shipments to Europe.

APICULTURE.

The year under review proved an unfortunate one for the bee-keeper; the frequent rains which were so welcome to the agriculturist acted as a bar to the collection of honey. Young colonies at the end of 1905 were unable to obtain enough food, and, in many instances, died out, whilst the established hives failed to collect a high surplus. Particulars are given below:—

B g.

Petty Sessions District.	No. of Hives.		Honey.	Average per Productive Hive.	Wax.	District.	No. of Hives.		Honey.	Average per Productive Hive.	Wax.
	Productive.	Non-Productive.					Productive.	Non-Productive.			
			Lb.	Lb.	Lb.				Lb.	Lb.	Lb.
Allora	63	8	4,160	66	118	Mackay	94	...	5,600	60	330
Beaudesert ...	214	19	7,766	36	155	Marburg	7	80	130	19	10
Brisbane	570	253	24,546	43	376	Maroochy ...	836	370	51,778	62	681
Bundaberg	205	237	11,086	54	205	Maryborough ...	278	49	9,974	36	172
Caboolture ...	930	87	22,310	24	947	Nerang	856	192	51,738	60	125
Cleveland	45	...	1,752	39	23	Redcliffe	148	92	6,620	45	125
Clifton	138	1	3,018	22	112	Rockhampton ...	860	121	62,832	73	1,017
Cook	286	..	2,870	10	300	Rosewood ...	272	230	14,707	54	385
Crow's Nest ...	286	196	14,680	51	170	South Brisbane ...	680	274	20,945	31	605
Dugandan	98	107	1,365	14	93	Tenningering ...	3	8	120	40	10
Esk	52	67	2,206	42	69	Tiaro	67	41	1,687	25	50
Gatton	301	158	8,571	28	308	Toowoomba ...	391	98	23,708	61	614
Gayndah	40	...	200	5	40	Townsville ...	110	30	3,887	35	47
Goodna	190	22	8,320	44	132	Warwick	362	56	23,040	64	515
Gympie	548	115	11,992	22	585	Woodford ...	119	46	3,092	26	74
Harrisville ...	170	88	6,145	36	162	All other Districts	664	227	27,180	41	1,091
Herberton	137	...	1,465	11	27						
Highfields	83	81	1,046	13	1	Total for 1906...	11,853	4,064	498,920	42	12,103
Ipswich	158	97	4,673	30	118	Total for 1905...	11,029	4,524	559,886	51	12,694
Killarney	450	184	12,812	28	272						
Laidley	188	105	4,375	23	208	Increase for 1906	824	...	...	...	...
Logan	954	325	36,524	38	1,000	Decrease for 1906	...	460	60,966	9	591

From the above it will be seen that there were 60,966 lb. less honey obtained than in 1905, which itself was an unusually poor year. The average yield per productive hive was only 42 lb., a decrease on the average of the previous year of 18 per cent.

As a natural sequence of the failure of the season, the export of this article was very small.

B h.

HONEY EXPORTED.

Country.	1902.		1903.		1904.		1905.		1906.	
	Lb.	£	Lb.	£	Lb.	£	Lb.	£	Lb.	£
United Kingdom ...	224	2	648	5	15,730	143	6,116	40	2,328	16
Australasia... ...	208,504	2,398	140,011	1,556	346,032	3,509	184,628	1,967	78,849	909
Elsewhere	7,560	74	346	13	2,937	42	11,464	97	272	5
Totals	216,288	2,474	141,005	1,574	364,699	3,694	202,208	2,104	81,449	930

Most of the trade is with the other States of the Commonwealth. With a few exceptions, the interest in bee-keeping is confined to the possession of a few hives near the farm for home use. No attempt has yet been made in Queensland to establish the industry on anything like the scale that is common in the United States of America, and, without co-operation of a considerable number of large growers or collectors of honey to enable a blend to be maintained at a uniform quality year after year, it is to be feared that it will be difficult to establish a permanent European trade.

IMPORTS OF PRODUCTS OF AGRICULTURE.

The failure of any of the crops which form an important part in the dietary of man or beast necessitates importations from elsewhere. From this cause—*e.g.*, the poor wheat harvest—the value of agricultural products brought into Queensland during 1906 was considerably augmented. Information as to the value of such importations during each of the past five years is furnished in the following table:—

C.

Value of—	1902.	1903.	1904.	1905.	1906.
	£	£	£	£	£
Grain, &c., and various Products thereof ...	843,621	829,232	380,627	394,463	488,958
Fruit, and various Products thereof ...	186,521	318,667	221,582	351,840	390,952
Vegetables, Fresh and Preserved	203,640				
Other Products of Agriculture	628,531	403,632	210,701	222,699	234,945
Total	1,865,313	1,551,531	812,910	969,002	1,114,855

In 1905 wheat was sent away from the State to the value of £28,053, whereas during 1906 £69,902 worth was imported. There was also a considerably greater quantity of flour brought in to provide further for the deficiency. Fruit and vegetables will probably always comprise an important factor of net imports, as the mutual exchange due to the seasons falling earlier or later in the different States must always ensure a considerable trade. The year 1906 was not a successful year for stone fruits, whilst the importation of certain descriptions in a dried or preserved state is gradually increasing. The position in which the State stands respecting the trade in principal articles of food is shown in the following statement:—

C a.

WHERE IMPORTS EXCEED EXPORTS.

PRINCIPAL ITEMS OF FOODSTUFFS.	IMPORTS.		EXPORTS.		NET IMPORTS.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
		£		£		£
Barley	10,660 centals	3,535	1,024 centals	342	9,636 centals	3,193
Barley (Pearl)	90,029 lb.	535	...	...	90,029 lb.	535
Biscuits	838,534 ,,	27,724	61,172 lb.	1,194	777,362 ,,	26,530
Coffee (all kinds)	243,898 ,,	7,475	29,353 ,,	1,085	214,545 ,,	6,390
Flour	629,045 centals	241,784	5,437 centals	2,132	623,608 centals	239,652
Hay and Chaff	284,010 cwt.	35,629	18,417 cwt.	3,072	265,593 cwt.	32,557
Maizena and Cornflour ...	579,564 lb.	5,648	4,041 lb.	43	575,523 lb.	5,605
Malt	37,766 centals	28,782	1,753 centals	1,160	36,013 centals	27,622
Milk and Cream (Preserved)... ...	925,211 lb.	16,150	621,081 lb.	11,832	304,130 lb.	4,318
Oatmeal (including Wheatmeal) ...	3,051,198 ,,	23,119	6,206 ,,	77	3,044,992 ,,	23,042
Oats	35,628 centals	11,448	107 centals	40	35,521 centals	11,408
Onions	81,733 cwt.	23,360	591 cwt.	202	81,142 cwt.	23,158
Potatoes	267,386 ,,	96,702	11,881 ,,	4,282	255,505 ,,	92,420
Preserves	5,677,213 lb.	74,363	350,469 lb.	5,513	5,326,744 lb.	68,850
Rice	81,559 centals	43,091	1,658 centals	573	79,901 centals	42,518
Wheat	263,965 ,,	70,536	2,567 ,,	634	261,398 ,,	69,902
Total Values	...	709,881	...	32,181	...	677,700

WHERE EXPORTS EXCEED IMPORTS.

PRINCIPAL ITEMS OF FOODSTUFFS.	IMPORTS.		EXPORTS.		NET EXPORTS.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
		£		£		£
Arrowroot	...	...	491,771 lb.	3,949	491,771 lb.	3,949
Bacon and Hams	163,991 lb.	4,765	2,879,478 ,,	93,588	2,715,487 ,,	88,823
Butter	49,384 ,,	1,458	14,034,333 lb.	582,326	13,984,949 lb.	580,868
Cattle, Sheep, and Pigs	...	671,224	...	956,595	...	285,371
Cheese	133,291 lb.	3,719	418,491 lb.	10,143	285,200 lb.	6,424
Eggs	8,776 doz.	281	218,348 doz.	6,970	209,572 doz.	6,689
Fruit and Vegetables	...	139,332	...	172,867	...	33,535
Honey	2,522 lb.	45	81,449 lb.	930	78,927 lb.	885
Lard and Refined Animal Fats ...	47,604 ,,	825	1,012,753 ,,	16,698	965,149 ,,	15,873
Maize	24,124 centals	8,854	487,508 centals	111,729	463,384 centals	102,875
Meat (all kinds, including Extract)	...	12,209	...	581,757	...	569,548
Molasses	32 cwt.	33	36,386 cwt.	11,840	36,354 cwt.	11,807
Oysters	...	...	29,190 ,,	15,856	29,190 ,,	15,856
Sugar	1,223 cwt.	918	2,832,682 ,,	1,615,719	2,831,459 ,,	1,614,801
Total Values	...	843,663	...	4,180,967	...	3,337,304

The diminution in the export of meat, alive and dead, was, to a very considerable extent, compensated for by a substantial increase in that of butter, sugar, and maize. Although the loss in the meat trade is much to be regretted, yet the pecuniary benefit by the increase in the items mentioned above would reach a larger number of individuals. The effect of the cyclone in the North is shown in the reduced value of fruit and vegetables exported—£45,000—and this notwithstanding the record citrus crop obtained. Amongst the items of net imports is the sum of £42,518 for rice, which, although grown in a small way in the Northern part of the State, does not appear likely, at present at least, to be able to compete successfully with the foreign-grown grain.

LABOUR MACHINERY AND IMPLEMENTS ON FARMS.

The year 1906 again witnessed a satisfactory increase in the number of persons engaged in agriculture, as well as in the value of machinery and implements employed thereon.

This is set forth in detail in the subjoined table:—

Cb.

PETTY SESSIONS DISTRICT.	LABOUR.				VALUE OF MACHINERY AND IMPLEMENTS.			
	Farming.		Dairying.		Farming.	Dairying.	Irrigation.	Total.
	Males.	Females.	Males.	Females.	£	£	£	£
Allora	386	20	124	315	30,067	3,325	390	33,782
Ayr	1,644	...	24	8	10,570	250	26,135	36,955
Beaudesert	380	...	329	311	8,553	6,051	120	14,724
Brisbane	816	14	122	154	8,856	2,638	82	11,576
Bundaberg	2,372	26	91	152	34,719	3,539	54,152	92,410
Cairns	1,406	33	17	10	9,738	583	320	10,641
Childers	1,642	9	32	25	13,264	708	80	14,052
Clifton	627	37	133	166	42,222	3,830	...	46,052
Dalby	746	9	122	148	33,952	5,214	...	39,166
Dugandan	647	33	439	330	16,577	6,780	...	23,357
Gatton	1,255	112	561	649	38,936	10,066	930	49,932
Gympie	492	11	219	172	13,228	4,574	360	18,162
Harrisville	596	28	485	295	13,373	7,171	135	20,679
Highfields	728	78	231	480	18,827	6,072	...	24,899
Ingham	1,336	9	2	3	11,285	50	200	11,535
Killarney	366	...	116	76	20,144	2,417	...	22,561
Laidley	854	213	341	360	27,990	6,898	50	34,938
Logan	960	33	15	272	11,882	3,360	140	15,382
Mackay	3,179	160	42	40	43,704	1,009	1,200	45,913
Marburg	437	75	105	297	11,634	4,006	...	15,640
Maroochy	861	3	87	204	6,096	2,048	200	8,344
Mourilyan	1,404	...	...	...	7,034	...	...	7,034
Redcliffe	410	7	256	261	9,502	3,924	...	13,426
Rockhampton	408	21	413	214	14,990	6,550	2,225	23,765
Roma	486	132	16	75	37,863	1,363	...	39,226
Toowoomba	1,878	61	456	464	94,453	11,440	491	106,384
Warwick	1,015	22	335	200	62,049	6,021	630	68,700
All other Districts	8,989	267	2,912	2,614	163,430	56,825	18,849	239,104
Totals, 1906	36,320	1,413	8,025	8,295	814,938	166,712	106,689	1,088,339
Totals, 1905	35,344	1,990	6,757	7,085	782,153	146,929	98,931	1,028,013
Increase in 1906	976	...	1,268	1,210	32,785	19,783	7,758	60,326
Decrease in 1906	...	577	...	...	...	...	...	...

The only decrease shown in the table as compared with the figures for 1905 is the number of females engaged in general farming. This would, in part, be due to the exodus of Pacific Islanders, but to a greater extent to the expansion of the dairying industry, which, when conducted in conjunction with general farming, is frequently relegated to the female members of the family. It is satisfactory to note that 976 more males were engaged in agriculture proper than in the previous year, whilst the impetus in dairying employed 1,268 more males and 1,210 more females than in 1905, a somewhat larger increase than the output of the industry appears to warrant; but, in some cases where mixed farming was previously done, dairying has practically taken charge, with the result that classification of workers has varied.

There was an outlay of £60,000 on new machinery and implements during 1906, of which general farming claimed £32,785, dairying £19,784, and irrigation £7,758, and the total value of machinery and implements amounted to the large sum of £1,088,339. The total number of hands returned as being employed in agriculture during 1906 was 54,053, of whom 9,708 were females.

FORESTRY.

A State Forests Act has been passed providing for the permanent instead of the temporary reservation of forests.

The State has been divided into four forest districts, and a District Forest Inspector appointed to the charge of each, under the control of the Director.

I am advised by the Director, Mr. Mac Mahon, that the forest revenue has shown an increase of £2,739 on that of the previous year, being the largest increase known in any one year.

An active demand has arisen in the South for Queensland timbers, due to the exposition of their excellent qualities made by the Director at the Melbourne Exhibition of the Australian Natives' Association.

AGRICULTURE PROPER.

The 1906 season was, speaking generally, a most favourable one. The results secured with sugar, all grain crops except wheat, citrus fruits, and hay were exceptionally good, both as regards increased areas cultivated and production, both actual and relative, obtained therefrom. Although cotton had not made the advance which was anticipated, yet there appears every prospect that for the current year a greatly increased area will be cropped. The want of a mechanical picker has been the chief obstacle to progress in connection with cotton production. Sugar would also have a better prospect as a Commonwealth export if harvesting by machinery were an accomplished fact.

Inventors are still zealous and hopeful in both directions, and success may yet attend their efforts.

Selection continued with unabated vigour throughout 1906, Crown lands being taken up as agricultural farms, homesteads, and unconditional selections, as shown in the following statement:—

	1902.	1903.	1904.	1905.	1906.
Acres	302,555	223,512	224,555	362,246	560,428

Such progress must speedily increase the aggregate production of the State. A number of private proprietors also subdivided large holdings, thus facilitating further close settlement.

The areas under cultivation and under crop for each of the last five years were as follow: —

	1902. Acres.	1903. Acres.	1904. Acres.	1905. Acres.	1906. Acres.
Under cultivation	478,121	621,693	577,896	622,987	598,777
Under crop ...	275,383	566,589	539,216	522,748	559,753

SIZE OF CULTIVATED AREAS.

Although the area cultivated was less than in the previous year, the reduction was in the fallow, with which is included land sown with seed, but which failed to germinate. In some seasons this amounts to a large area, but such was not the case in 1906. The land under crop was greater by 37,005 acres in 1906 than in 1905. Particulars as to area under cultivation last year are given in the following table:—

C c.

Petty Sessions District.	ACRES UNDER CULTIVATION.									
	Under 5 Acres.		5 and under 20 Acres.		20 and under 50 Acres.		50 Acres and Over.		Totals.	
	Owners.	Acres.	Owners.	Acres.	Owners.	Acres.	Owners.	Acres.	Owners.	Acres.
Allora	1	4	13	166	37	1,380	187	25,836	238	27,386
Ayr	5	16	29	336	39	1,347	44	6,496	117	8,195
Beaudesert	45	117	186	2,127	98	2,838	10	751	339	5,833
Biggenden	13	43	88	1,014	43	1,222	2	102	146	2,381
Bowen	23	61	96	934	76	2,331	18	1,272	213	4,598
Brisbane	165	491	276	2,938	43	1,375	2	451	486	5,255
Bundaberg	49	125	183	2,092	191	5,931	103	17,797	526	25,945
Cairns	28	78	116	1,353	71	2,139	63	9,972	278	13,542
Childers	19	53	59	679	101	3,423	117	12,913	296	17,068
Clifton	...	...	10	141	59	2,055	284	33,579	353	35,775
Crow's Nest	7	21	138	1,811	177	5,361	30	2,128	352	9,321
Dalby	33	62	134	1,498	133	3,937	128	16,064	428	21,561
Douglas	8	25	28	323	28	912	56	6,335	120	7,595
Dugandan	9	29	151	1,971	240	7,122	22	1,353	422	10,475
Esk	43	115	110	1,156	94	2,854	14	1,056	261	5,181
Gatton	31	89	259	3,083	435	13,589	92	6,862	817	23,623
Gin Gin	7	20	50	581	85	2,729	52	4,021	194	7,351
Gympie	82	221	178	1,825	65	1,866	9	535	334	4,447
Harrisville	19	55	112	1,474	150	4,496	32	2,034	313	8,059
Herberton	39	99	29	288	39	1,244	64	6,118	171	7,749
Highfields	15	34	130	1,655	242	7,478	79	6,641	466	15,808
Inglewood	13	35	38	415	17	473	11	792	79	1,715
Ingham	6	14	12	162	29	1,066	108	12,964	155	14,206
Ipswich	66	169	130	1,432	80	2,179	11	778	287	4,558
Kilkivan	18	56	49	584	46	1,321	9	614	122	2,575
Killarney	15	38	35	402	67	2,327	106	12,559	223	15,326
Laidley	7	17	109	1,540	340	10,661	96	6,595	552	18,813
Logan	134	373	310	3,615	52	1,436	3	161	499	5,585
Mackay	98	261	408	4,666	382	11,949	163	15,334	1,051	32,210
Marburg	22	58	93	1,233	180	5,169	21	1,278	316	7,738
Maroochy	184	462	328	3,362	75	2,043	6	478	593	6,345
Maryborough	84	242	199	1,893	57	1,487	4	247	344	3,869
Mitchell	2	7	8	117	19	614	40	5,199	69	5,937
Mourilyan	3	10	35	432	63	1,906	60	9,430	161	11,778
Nanango	33	99	132	1,544	132	3,903	45	3,516	342	9,062
Nerang	42	115	108	1,141	59	1,692	17	1,195	226	4,143
Redcliffe	34	100	143	1,532	79	2,146	7	505	263	4,283
Rockhampton	123	292	161	1,839	61	1,947	3	242	348	4,320
Roma	10	30	26	339	74	2,284	257	30,582	367	33,235
Rosewood	14	43	95	1,141	180	5,638	30	1,840	319	8,662
South Brisbane	62	156	117	1,076	34	859	2	133	215	2,224
Tiaro	45	109	115	1,369	64	1,865	13	867	237	4,210
Toowoomba	255	497	312	3,356	340	11,128	503	57,677	1,410	72,658
Warwick	34	94	119	1,261	158	5,079	305	32,126	616	38,560
Yeulba	...	...	3	20	3	111	20	1,799	26	1,930
Other Districts	573	1,389	650	6,473	174	5,050	48	4,775	1,445	17,687
Totals, 1906	2,518	6,424	6,110	68,389	5,211	159,962	3,296	364,002	17,135	598,777
Totals, 1905	2,584	6,601	6,138	68,249	4,925	152,360	3,267	395,777	16,914	622,987
Increase, 1906 ...	...	...	...	140	286	7,602	29	...	221	...
Decrease, 1906 ...	66	177	28	...	...	...	...	31,775	...	24,210

One great factor in causing the smaller number of holdings was the failure of the wheat harvest. In the Maranoa district, where little other cultivation is attempted, there was a decrease of about 10,000 acres of land placed under the plough. The destruction of banana plantations in the North is accountable for there being a smaller number of planters in Mourilyan, whilst the climatic conditions debarring planting out of tobacco, owing to the paucity of plants surviving in the nurseries, is reflected in a reduced number of farms in Inglewood. Passing by the small holdings of under 20 acres, many of which are private

grounds or market gardens, it is satisfactory to note a large increase in the small farm section—*i.e.*, 20 to 50 acres—there being 286 more of these. Altogether there were in this class 5,211 farms, aggregating 159,962 acres, or an average of 31 acres each. Farms of 50 acres and upwards are chiefly planted with wheat, hay (generally lucerne), or sugar; 3,296 holdings of this category were returned, with a total acreage of 364,002, or an average of 110 acres each. Notwithstanding the notable reduction in the number of holdings in certain districts, there were in the aggregate 221 more holdings returned, but the area under cultivation was 24,210 acres less than in 1905. Reference to the Appendix Table No. VI. will show that, as already stated, the area under crop increased by 37,005 acres, which was, of course, a fact of much greater importance than that of a smaller quantity being ploughed, but not returning any produce.

IRRIGATION.

As is, of course, invariably the case with the occurrence of a more favourable season, the quantity of land to which irrigation was applied last year became greatly reduced.

In 1906 there were 9,922 acres irrigated, and 13,693 in the previous year. The area thus treated for each of the last ten years is shown in the following statement:—

D.

Year.	Acres Irrigated.	Year.	Acres Irrigated.
1897	5,647	1902	14,344
1898	9,648	1903	14,786
1899	6,311	1904	13,360
1900	6,969	1905	13,693
1901	6,526	1906	9,922

Notwithstanding the decline in area of land irrigated, the returns show a steadily growing desire to prepare for and to utilise this invaluable aid to cultivation whenever the seasons prove unsatisfactory. The foregoing statement shows that, even with the favourable rainfall obtaining during 1906, the area to which water was artificially applied exceeded that for any of the first five years of the decade, and greatly exceeded that for all but one of those years. It is also satisfactory to note that an increasing number of persons are adopting irrigation in connection with agricultural pursuits.

The following table furnishes detailed information for 1906 as to irrigation and the principal districts in which it was employed:—

D a.

IRRIGATION.

Petty Sessions District.	Number of Irrigators.	Acres Irrigated.	Original Source of Water Supply.	Means Employed for Procurement and Utilisation.	Crops Treated.
Allora	2	72	Dalrymple Creek	Steam pumps, gravitation	Wheat, vegetables, lucerne
Ayr	57	4,978	Lagoons, Burdekin River	do.	Sugar-cane
Barcaldine	14	120	Bore	Drains	Fruit and vegetables
Bowen	48	295	Wells, creek, and river	Steam pumps, windmills, &c.	Mostly fruits
Brisbane	16	64	Creek and wells	Windmills, hot air and horse pumps	Mostly vegetables
Bundaberg	10	2,526	River and wells	Steam pumps, windmills	Sugar-cane, fruit, &c
Charters Towers	19	61	Wells	Oil, steam, and hot air pumps, &c.	Market gardens
Cunnamulla	1	55	Bore	Drains	Wheaten hay
Gatton	3	14	Creek and wells	Steam pumps, windmills, &c.	Market gardens, &c.
Hungerford	2	120	Bore	Drains	Wheaten hay
Ingham	1	21	River	Steam pumps	Sugar-cane
Laidley	1	15	Creek	Steam pumps	Potatoes, lucerne
Mackay	5	127	River, bore, and wells	Steam and hot air pumps, windmills	Sugar-cane, fruit, &c.
Maryborough	8	46	Artesian wells and lagoons	do.	Fruit and vegetables
Rockhampton	26	383	Wells, river, and creeks	Steam pumps, windmills, horse pumps	Mixed gardens and fodder
Townsville	47	390	do.	Steam and horse pumps	Market gardens
Warwick	6	99	Wells, river, and creeks	Hot air and steam pumps	Market gardens, lucerne
41 other Districts	135	536	Various	Various	Mostly market gardens
Totals	401	9,922			

In two localities systematic and extensive schemes of irrigation have been established, based upon scientific methods, and a considerable amount of capital expended upon them. The sites of these enterprises are respectively situated at Ayr, on the Burdekin Delta, and in the Bundaberg district. In the latter case, however, one large plant was not in operation during 1906. At both places the irrigation has been practically confined to the cultivation of sugar-cane; the areas coming under their influence last year embraced about two-thirds of the total area irrigated in the State.

GRAIN CROPS.

Although the seasons of 1906 were unfavourable to the wheat crop, all other grain, with the exception of rice, showed a considerable increase, maize in particular recording the largest area and production in the history of the State.

WHEAT.

The student of history realises that the lasting and substantial prosperity of a country is generally in direct proportion to the extent to which its population is engaged in agricultural production. Mines and forests may prove of great value in a country but recently occupied by a civilised race, by attracting population and inducing pioneer work, so essential to the opening up of unknown territory. These have done, and are doing, good work for Queensland, but it is the farmer that will prove the source of the most permanent prosperity. The enormous areas of rich soil, and great range of climate, proclaim Queensland an essentially agricultural country, and its proved capacity for the production of wheat points to the State ultimately taking a promient position as an exporter of this staple breadstuff.

Unfortunately, the results of the wheat crop for 1906 were hardly satisfactory, the area and the production being both below those for 1905, and although the average yield was greater in the former than in the latter year, yet the increase in this respect was fractional only. Rust, mainly due to heavy rain at an unseasonable period of the year, was the chief disturbing factor. Perhaps the importation a few years ago of large quantities of seed wheat, rendered necessary by the drought then obtaining, may have resulted in the introduction of varieties less resistant to rust than the acclimatised seed in use in previous years.

The results of the wheat harvests for the past ten years are given in the following table:—

E.

WHEAT (GRAIN) RETURNS.

RETURN FOR TEN YEARS.

—	FREE FROM RUST.			AFFECTED WITH RUST.			TOTAL.		
	Area.	Produce.	Average per Acre.	Area.	Produce.	Average per Acre.	Area.	Produce.	Average per Acre.
	Acres.	Bushels.	Bushels.	Acres.	Bushels.	Bushels.	Acres.	Bushels.	Bushels.
1897	33,856	632,883	18·69	23,932	376,410	15·73	57,788	1,009,293	17·47
1898	43,342	573,000	13·22	2,877	34,012	11·82	46,219	607,012	13·13
1899	46,917	550,702	11·74	5,610	63,712	11·36	52,527	614,414	11·70
1900	79,227	1,193,193	15·06	77	895	11·62	79,304	1,194,088	15·06
1901	77,162	1,516,779	19·66	10,070	175,443	17·42	87,232	1,692,222	19·40
1902	1,875	6,122	3·27	5	43	8·60	1,880	6,165	3·28
1903	102,062	1,926,712	18·88	36,034	510,087	14·16	138,096	2,436,799	17·65
1904	145,948	2,090,947	14·33	5,010	58,716	11·71	150,958	2,149,663	14·24
1905	119,141	1,135,410	9·53	215	1,911	8·89	119,356	1,137,321	9·53
1906	51,195	638,279	12·47	63,380	470,623	7·43	114,575	1,108,902	9·68
Average of Ten Years	70,073	1,026,403	14·65	14,721	169,185	11·49	84,794	1,195,588	14·10

There were 114,575 acres under wheat for grain in 1906, which was below that for either of the three immediately preceding years, slightly below that of 1905, and much below the other two years, the areas for these being—1904, 150,958 acres; 1903, 138,096 acres; and 1905, 119,356 acres. Of the area reaped in 1906, 51,195 acres were unaffected by rust, and 63,380 more or less damaged by the pest. This is the most unsatisfactory position on this point experienced for many years, 55 per cent. of the total area being affected. During the past ten years, the next largest proportions of the total area rusted were—1897, 41 per cent.; 1903, 26 per cent.; and 1901, 12 per cent.

As a result of the rust and rain, the reduced production, as compared with 1903 and 1904, was greater than the falling off in the acreage, the returns for the last four years being—1903, 2,436,799 bushels; 1904, 2,149,663 bushels; 1905, 1,137,321 bushels; and last year, 1,108,902 bushels. It will thus be seen that the output of wheat grain in 1905 and 1906 was only about one-half of what it was in the two preceding years.

The yield per acre for the last ten years averaged 14·10 bushels. The means for ten years of the average yields for other States of the Commonwealth were—New South Wales, 9·72; Victoria, 7·91; and South Australia, 5·37; so that the (for Queensland) low averages of 1905 and 1906 of 9·53 and 9·68 bushels per acre compare not unfavourably with the decennial averages of the three States quoted.

On this point, the average yields of the four States for each year of the last decade may be of interest:—

E a.

—	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.
Queensland	17·5	13·1	11·7	15·1	19·4	3·3	17·7	14·2	9·5	9·7
New South Wales	10·2	10·6	7·0	9·5	10·6	10·6	1·2	17·5	9·3	10·7
Victoria	4·5	6·4	9·1	7·0	8·9	6·9	1·3	14·5	9·3	11·3
South Australia	1·7	2·6	4·9	4·6	5·9	4·6	3·6	7·7	6·5	11·5

It will be seen that a successful crop in one State was by no means accompanied by like good fortune in each of the others. In 1897 the satisfactory return of 17·5 bushels in Queensland was accompanied by an average crop only in New South Wales, by but little more than half an average crop in Victoria, and by next door to a failure in South Australia. The year 1901 proved the record of the decade for Queensland, but not so with regard to either of the other States.

With no expansion as to the area placed under wheat, any extension of the wheat cultivation line was not to be looked for, but all localities where this cereal was cultivated in previous years were represented in 1906.

The following table shows the results last year for each petty sessions district:—

E b.

Divisions and Petty Sessions Districts.	RESULTS.								
	FREE FROM RUST.			AFFECTED WITH RUST.			TOTAL.		
	Area.	Produce.	Average per Acre.	Area.	Produce.	Average per Acre.	Total Extent of Land Reaped for Grain.	Produce.	Average per Acre.
	Acres.	Bushels.	Bushels.	Acres.	Bushels.	Bushels.	Acres.	Bushels.	Bushels.
BURNETT AND WIDE BAY.									
Gayndah	2	52	26·00	...	...	...	2	52	26·00
Kilkivan	10	90	9·00	...	...	...	10	90	9·00
Nanango	1,006	11,911	11·84	45	260	5·78	1,051	12,171	11·58
Total, Burnett and Wide Bay	1,018	12,053	11·84	45	260	5·78	1,063	12,313	11·58
MORETON.									
Crow's Nest	621	9,852	15·86	72	1,120	15·56	693	10,972	15·83
Dugandan	14	246	17·57	...	...	...	14	246	17·57
Gatton	27	592	21·93	15	100	6·67	42	692	16·48
Total, Moreton	662	10,690	16·15	87	1,220	14·02	749	11,910	15·90
DOWNS.									
Allora	3,889	55,742	14·33	1,154	15,012	13·01	5,043	70,754	14·03
Clifton	5,121	61,316	11·97	6,712	66,986	9·98	11,833	128,302	10·84
Condamine	451	2,564	5·69	121	552	4·56	572	3,116	5·45
Dalby	9,352	113,302	12·12	4,193	40,762	9·72	13,545	154,064	11·37
Goondiwindi	54	652	12·07	44	440	10·00	98	1,092	11·14
Highfields	3,043	45,766	15·04	565	7,369	13·04	3,608	53,135	14·73
Inglewood	453	6,978	15·40	160	2,000	12·50	613	8,978	14·65
Killarney	1,100	16,718	15·20	4,866	66,744	13·72	5,966	83,462	13·99
Stanthorpe	1	12	12·00	...	...	...	1	12	12·00
Texas	85	1,320	15·53	13	28	2·15	98	1,348	13·76
Toowoomba	15,309	180,217	11·77	5,228	48,125	9·21	20,537	228,342	11·12
Warwick	7,108	101,076	14·22	9,257	105,688	11·42	16,365	206,764	12·63
Total Downs	45,966	585,663	12·74	32,313	353,706	10·95	78,279	939,369	12·00
MARANOA.									
Mitchell	791	5,693	7·20	4,016	18,615	4·64	4,807	24,308	5·06
Roma	1,721	13,855	8·05	25,755	90,730	3·52	27,476	104,585	3·81
St. George	10	144	14·40	...	...	...	10	144	14·40
Surat	269	3,366	12·51	44	152	3·45	313	3,518	11·24
Yeulba	698	6,464	9·26	1,120	5,940	5·30	1,818	12,404	6·82
Total, Maranoa	3,489	29,522	8·46	30,935	115,437	3·73	34,424	144,959	4·21
OTHER DISTRICTS.									
Barcaldine	48	250	5·21	...	...	...	48	250	5·21
Springsure	8	84	10·50	...	...	...	8	84	10·50
Taroom	4	17	4·25	...	...	...	4	17	4·25
Total, Other Districts	60	351	5·85	...	...	...	60	351	5·85
Total, State	51,195	638,279	12·47	63,380	470,623	7·43	114,575	1,108,902	9·68

The bulk—78,279 acres, or 68 per cent.—of the total area under wheat was contributed by the Downs group of districts, followed by 34,424 acres, or 30 per cent., by the Maranoa. There was a relatively large increase on the very limited acreage planted in the West Moreton area, whilst the results obtained there were much more satisfactory than elsewhere, the 749 acres harvested returning 11,910 bushels, or an average of 15·90 bushels. From 78,279 acres on the Downs 939,369 bushels were garnered, an average of 12·00 bushels per acre; whilst from the 34,424 acres in Roma and surrounding districts only 144,959 bushels were obtained, an average of 4·21 bushels to each acre, a result mainly instrumental in bringing the average for the whole State below the mean annual return. But this, nevertheless, was better than was secured in the same locality in 1905. It is unfortunate that the Western areas, which gave a poor return from dry weather in 1905, were adversely affected by the opposite cause in 1906. It is, however, believed that the first-named difficulty may be much modified, if not overcome, by the use of sub-surface pressing-ploughs, whilst the selection of seed for drought and rust-resisting varieties has been found to be most efficacious in the past.

CONSUMPTION AND EXPORT.

With the reduced output of the two successive years—1905-6—it was inevitable that the demand for breadstuff would have to be met by import.

E c.

BREADSTUFFS.

ITEM.	IMPORTED.		EXPORTED.		NET IMPORTS.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
		£		£		£
Wheat (centals)	263,965	70,536	2,567	634	261,398	69,902
Flour (centals)	629,045	241,784	5,437	2,132	623,608	239,652
Biscuits (lb.)	838,534	27,724	61,172	1,194	777,362	26,530
Total	...	340,044	...	3,960	...	336,084

During 1906 wheat and its products were imported to the value of £340,044; as the value of the exports was £3,960, the total value of net imports of breadstuffs was £336,084.

The corresponding figures for the two preceding years are given in the following table:—

E d.

—	1904.	1905.	1906.
	£	£	£
Wheat	*131,388 centals = *36,857	*107,197 centals = *28,053	261,398 centals = 69,902
Flour	536,210 ,, = 216,359	411,226 ,, = 169,503	623,608 ,, = 239,652
Biscuits	417,474 lb. = 16,248	549,050 lb. = 20,335	777,362 lb. = 26,530
	195,750	161,785	336,084

*Excess of Exports.

In both 1904 and 1905 the export of wheat was in excess of the import, the excess amounting to 238,585 centals, worth £64,910; not, however, because the local production had exceeded the local demand, as during the two years flour to the value of £385,862 was introduced into the State. Last year 261,398 centals of wheat, valued at £69,902, were in excess of exports, besides flour and biscuits to the value of £239,652 and £26,530 respectively.

The consumption of wheat in this State averages slightly over 3,000,000 bushels each year, or a *per capita* demand of 6·10 bushels.

E e.

IMPORTS IN EXCESS OF EXPORTS OF WHEAT AND FLOUR, THE LATTER CONVERTED INTO TERMS OF THE FORMER.

Year.	Imported over Exported.	Grown in Queensland.	Total.
	Net Bushels.	Bushels.	Bushels.
1902	1,957,205	6,165	1,963,370
1903	2,767,723	2,436,799	5,204,522
1904	1,121,545	2,149,663	3,271,208
1905	849,403	1,137,321	1,986,724
1906	1,994,683	1,108,902	3,103,585

NOTE.—For the purposes of this Statement the flour imported has been converted into wheat on the basis of 1 cental of flour = 2½ bushels of wheat.

The annual requirement has never yet been met by the local production, although there was a fairly close approximate in 1903, when 2,436,799 bushels were harvested.

This average consumption of 6·10 bushels is based on a ten years' experience. For the first five years of the decade the demand was 6·25 bushels per head, and for the last five 5·96. It would be unwise to argue from this, however, that less was consumed during the later period.

FLOUR-MILLS.

There were the same number of mills in operation in the State last year as in 1905, for although one was closed down in the metropolitan district, one was also reopened elsewhere, after having been closed for over two years.

E f.

District.	Number of Establishments.	Number of Hands Employed.	Number of Stones.	Number of Rollers.	Wheat Treated.	FLOUR MADE.		MEAL MADE.		BRAN AND POLLARD.	
						Tons.	Value.	Tons.	Value.	Bushels.	Value.
			Pairs.	Sets.	Bushels.		£		£		£
Metropolitan	6	94	8	49	501,673	10,470	84,818	80	669	462,272	19,427
Toowoomba	3	33	...	29	251,194	5,007	42,312	11	91	233,720	8,799
Elsewhere	7	55	4	69	426,179	8,616	69,000	35	283	408,909	16,690
Total, 1906 ...	16	182	12	147	1,179,046	24,093	196,130	126	1,043	1,104,901	44,916
,, 1905 ...	16	205	16	162	1,885,408	37,300	295,482	205	1,672	1,900,332	66,691

At some of the above establishments but little wheat is treated, such factories being principally devoted to treating other grain, consequently particulars as to hands and factory do not exactly match with the output. Information respecting Grain Mills will be found in Part VIII. of the Statistical Register.

There were 1,179,046 bushels of wheat treated during 1906. As the total net quantity imported was 435,663 bushels, equal to 22 per cent. on the quantity treated, 63 per cent. of the grain ground must have been of local production.

The flour-milling industry availed itself at one time of the "Vote for Loans in aid of Co-operative Agricultural Production," and at the end of 1905 a small balance was still owing by two mills to this account, but this was discharged during 1906, and the connection of this industry with the fund was thus closed.

OTHER GRAIN CROPS.

Barley.—There was an increased area planted with this cereal in 1906 as compared with 1905, and of the area sown a much larger proportion was reaped for grain. A comparison of the areas under these crops for the last two seasons is furnished in the following statement:—

F.

—	1905.	1906.
	Acres.	Acres.
Reaped for grain	5,201	8,601
Mown for hay...	205	324
Used for green food	9,071	6,603
	14,477	15,528

Of the 14,477 acres sown in 1905, 5,201 acres, or 36 per cent., were reaped for grain; the corresponding area and proportion harvested in 1906 out of the 15,528 acres planted were 8,601 acres and 55 per cent. The areas mown for hay and cut green are dealt with elsewhere under "Hay and Green Forage," and the further remarks here are confined to the grain area.

The results of the barley crop for the two years are further illustrated by the following statement:—

Fa.

Year.	Area for Grain.	Produce.	Average Produce per Acre
	Acres.	Bushels.	Bushels.
1905	5,201	61,816	11·89
1906	8,601	158,283	18·40
Increase in 1906	3,400	96,467	6·51
Decrease in 1906	...	...	...

From the 8,601 acres reaped last year, 158,283 bushels of grain were garnered, or an average of 18·40 bushels to each acre. In 1905 the yield was 61,816 bushels, an average of 11·89 bushels only, an increase in 1906 of 96,467 bushels, and an improvement to the average of 6·51 bushels to each acre. The bulk of the barley grown consists of the malting varieties. The following table shows for the principal districts the results of the crop for 1906, distinguishing between malting and other barley:—

F b.

Petty Sessions District.	Malting Grain.			Other Varieties Grain.		
	Acres.	Bushels.	Average per Acre, Bushels.	Acres.	Bushels.	Average per Acre, Bushels.
Allora	231	4,283	18·54	254	5,290	20·83
Clifton	1,879	31,736	16·89	61	1,457	23·89
Crow's Nest	192	5,180	26·98	20	701	35·05
Dalby	524	6,424	12·26	393	10,052	25·58
Highfields	471	12,165	25·83	40	1,037	25·93
Killarney	282	6,382	22·63	49	672	13·71
Toowoomba	2,345	38,444	16·39	494	10,338	20·93
Warwick	570	9,530	16·72	566	12,404	21·92
All other Districts	202	1,758	8·70	28	430	15·36
Total State	6,696	115,902	17·31	1,905	42,381	22·25

Of the total area reaped, 6,696 acres, or 78 per cent., was malting barley. From this acreage 115,902 bushels were obtained, or an average of 17·31 bushels per acre. Toowoomba, 2,345 acres, and Clifton, 1,879 acres, were the districts in which this cereal was most generally cultivated. Returns of 38,444 bushels and 31,736 bushels were respectively obtained from these areas, or average yields of 16·39 and 16·89 bushels. In the contiguous districts of Crow's Nest and Highfields, from 192 and 471 acres, averages were respectively secured of 26·98 and 25·83 bushels.

"Other Varieties" gave better average results than the malting barley—namely, 22·25 bushels per acre for the whole State, and as much as 35 bushels being obtained from the small area cultivated at Crow's Nest.

The production of malt is an industry that each year appears on the verge of a great expansion which does not arrive. Maltsters and farmers are agreed as to the fact, but generally differ as to the cause. The former have, however, shown their confidence in the future by extending their business premises, and no doubt the measure of the Queensland demand will soon be locally met. The malt now produced is said to be of a quality that reflects credit on both farmers and maltsters, and if such a standard is maintained the disposal of the surplus product will no doubt present but little difficulty.

The following table shows for five years the quantity of malt made:—

F c.

Year.	Made from Imported Barley.	Made from Queensland Barley.	Total Malt Made.
	Bushels.	Bushels.	Bushels.
1902	9,500	75,500	85,000
1903	67,500	...	67,500
1904	...	113,000	113,000
1905	...	107,521	107,521
1906	12,120	25,734	37,854

Only a small quantity of malting barley was reaped in 1905, and naturally this fact was reflected in the lesser quantity of malt made. As a bushel of barley makes a bushel of malt, it would appear that in 1906 only 25,734 bushels of malt were made from Queensland grain. This is less than half the quantity of malting barley reaped in the previous year, and as some imported barley—12,120 bushels—was also used, the position is somewhat difficult to understand, unless the latter was either in stock or was brought into the State to steady the prices asked by the farmer.

There is still a good deal of malt imported, and although in 1904, the year of greatest production, imports fell to between one-third and one-half of previous dimensions, they rose again in 1905-6 in answer to the reduced barley crop of the firstnamed year. The production and the net import for each of the last five years were as follow:—

F d.

Year.	Malt made in Queensland.	Year.	Malt Imported in Excess of that Exported.
	Bushels.		Bushels
1902	85,000	1902	111,147
1903	67,500	1903	86,921
1904	113,000	1904	54,694
1905	107,521	1905	70,441
1906	37,854	1906	90,063

The quantity of beer brewed and of malt used in its manufacture is given in the following table:—

F e.

Year.	Beer.	Malt used in Breweries as returned to Excise.
	Gallons.	Bushels.
1902	*5,333,202	170,610
1903	†4,489,958	147,591
1904	‡4,455,110	145,778
1905	§4,568,916	155,840
1906	¶4,749,376	149,393

* Including waste, 260,038 gallons. † Including waste, 165,622 gallons. ‡ Including waste, 134,872 gallons.
§ Including waste, 134,731 gallons. ¶ Including waste, 140,778 gallons.

For the five years the aggregate amount of malt available resulting from production and net import was 824,141 bushels, whilst the breweries utilised 769,212 bushels. The difference amounting to only 7 per cent. on the amount utilised is, after allowing for waste, a strong confirmation of the figures of production and import.

MAIZE.—The results secured with maize were most satisfactory. The area planted and grain harvested exceeded that for any previous year, and although the average yield of 26·49 bushels per acre had previously been exceeded on a few occasions, it held, conjointly with the year 1896, the record since 1891.

G.

Year.	Grain.		Average per Acre.
	Acres.	Bushels.	Bushels.
1902	89,923	1,033,329	11·49
1903	133,099	1,923,623	14·45
1904	119,171	2,542,766	21·34
1905	113,720	2,164,674	19·04
1906	139,806	3,703,274	26·49

There were 139,806 acres under maize in 1906, against 113,720 in the previous year, the grain obtained being 3,703,274 bushels and 2,164,674 bushels respectively. The following table gives further details in respect to the cultivation of the cereal in the various divisions:—

G a.

MAIZE GRAIN.

Division or Group.	Acres.	Yield.	Average.	Proportion of Area to whole Area of Maize for Grain.
		Bushels.	Bushels.	
Rockingham	8,826	297,760	33·74	6·31
Edgecumbe	591	10,427	17·64	0·42
Port Curtis	1,438	35,046	24·37	1·03
Burnett and Wide Bay	18,084	508,662	28·13	12·94
Moreton	60,688	1,612,373	26·57	43·41
Downs	48,173	1,212,171	25·16	34·46
Maranoa	564	4,725	8·38	0·40
Other Districts	1,442	22,110	15·33	1·03
Total State	139,806	3,703,274	26·49	100·00

Over 91 per cent. of the maize is grown in the Southern part of the State, although the best yields are secured from the rich virgin scrub lands of the far North. In the Edgecumbe division, being the locality embracing Ayr and Townsville, maize is but little cultivated, and last year the average crop secured was very indifferent considering the season.

A comparison of the results of the last two season's crops in the principal petty sessions districts is afforded in the following table:—

G b.

Petty Sessions District.	Area Planted for Grain.			Yield of Grain.			Average Yield per Acre.		
	In 1905.	In 1906.	Increase or Decrease —	In 1905.	In 1906.	Increase or Decrease —	In 1905.	In 1906.	Increase or Decrease —
	Acres.	Acres.	Acres.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
Allora	2,104	4,209	2,105	25,133	106,089	80,956	11·95	25·21	13·26
Beaudesert	3,017	3,015	— 2	83,595	94,124	10,529	27·71	31·22	3·51
Biggenden	1,641	1,783	142	27,475	45,115	17,640	16·74	25·30	8·56
Bundaberg	1,966	2,097	131	30,863	51,159	20,296	15·70	24·40	8·70
Cairns	905	1,019	114	30,730	33,566	2,836	33·96	32·94	— 1·02
Childers	763	845	82	13,473	21,241	7,768	17·66	25·14	7·48
Clifton	4,557	7,137	2,580	57,747	161,121	103,374	12·67	22·58	9·91
Crow's Nest	4,686	5,029	343	87,002	146,965	59,963	18·57	29·22	10·65
Dalby	643	2,309	1,666	5,862	43,300	37,438	9·12	18·75	9·63
Dugandan	7,538	7,742	204	161,952	232,344	70,392	21·48	30·01	8·53
Esk	2,099	2,421	322	42,302	64,010	21,708	20·15	26·44	6·29
Gatton	9,334	9,977	643	148,821	249,823	101,002	15·94	25·04	9·10
Gin Gin	959	1,072	113	12,071	31,452	19,381	12·59	29·34	16·75
Gympie	1,856	2,438	582	51,989	72,400	20,411	28·01	29·70	1·69
Harrisville	4,412	4,285	— 127	105,959	117,726	11,767	24·02	27·47	3·45
Herberton	6,476	7,278	802	244,466	250,795	6,329	37·75	34·46	— 3·29
Highfields	6,038	6,734	696	78,241	179,722	101,481	12·96	26·69	13·73
Ipswich	1,453	1,833	380	28,845	42,716	13,871	19·85	23·30	3·45
Kilkivan	999	1,809	810	17,307	46,322	29,015	17·32	25·61	8·29
Killarney	3,484	6,000	2,516	75,618	210,495	134,877	21·70	35·08	13·38
Laidley	10,804	11,251	447	191,073	291,469	100,396	17·69	25·91	8·22
Logan	1,365	1,246	— 119	31,132	26,716	— 4,416	22·81	21·44	— 1·37
Marburg	3,528	3,772	244	56,437	74,546	18,109	16·00	19·76	3·76
Maryborough	392	344	— 48	7,598	9,110	1,512	19·38	26·48	7·10
Nanango	3,976	5,806	1,830	52,229	176,799	124,570	13·14	30·45	17·31
Nerang	1,684	1,607	— 77	46,377	50,089	3,712	27·54	31·17	3·63
Redcliffe	1,735	1,749	14	34,037	44,292	10,255	19·62	25·32	5·70
Rockhampton	843	898	55	12,613	19,938	7,325	14·96	22·20	7·24
Rosewood	2,742	3,154	412	37,455	73,508	36,053	13·66	23·31	9·65
Tiaro	1,223	1,278	55	30,174	40,831	10,657	24·67	31·95	7·28
Toowoomba	7,264	11,164	3,900	104,775	250,369	145,594	14·42	22·43	8·01
Warwick	6,044	10,078	4,034	82,341	251,800	169,459	13·62	24·99	11·37
All other Districts ...	7,190	8,427	1,237	148,982	193,322	44,340	20·72	22·94	2·22
Total State ...	113,720	139,806	26,086	2,164,674	3,703,274	1,538,600	19·04	26·49	7·45

Increases in area during 1906, exceeding 2,000 acres, were returned—from Toowoomba, 3,900 acres; Clifton, 2,580 acres; Killarney, 2,516 acres; and Allora, 2,105 acres. The following were the districts in which for the same year the additional production was in excess of 100,000 bushels:—Toowoomba, 145,594 bushels; Killarney, 134,877 bushels; Nanango, 124,570 bushels; Clifton, 103,374 bushels; Highfields, 101,481 bushels; Gatton, 101,002 bushels; and Laidley, 100,396 bushels. Average yields exceeding 30 bushels per acre were recorded in—Killarney, 35·08; Herberton, 34·46; Cairns, 32·94; Tiaro, 31·95; Beaudesert, 31·22; Nerang, 31·17; Nanango, 30·45; and Dugandan, 30·01.

Oats.—This grain is but little used as a cereal crop, by far the largest part of the area sown being cut for either hay or green forage. The following table shows the total area sown and the acreage harvested for grain, hay, and green forage:—

H.

Oats.	1902.	1903.	1904.	1905.	1906.
	Acres.	Acres.	Acres.	Acres.	Acres.
Reaped for grain	78	2,808	643	533	1,236
Mown for hay	2,619	19,523	9,076	4,446	9,260
Cut for green fodder	1,462	1,897	3,354	4,733	4,370
Total	4,159	24,228	13,073	9,712	14,866

Of the total 14,866 acres, 9,260 acres, or 62 per cent., were mown for hay; 4,370 acres, or 30 per cent., for forage, and 12·36 acres, or 8 per cent. only, reaped for grain. The two first-named will be further dealt with elsewhere in this report.

The results of the oat crop for grain were much more satisfactory than in 1905.

H a.

Year.	Area for Grain.	Produce.	Average Produce per Acre.
	Acres.	Bushels.	Bushels.
1905	533	5,858	10·99
1906	1,236	28,884	23·37
Increase in 1906	703	23,026	12·38
Decrease in 1906	...	...	...

The average yield in 1905 was 10·99 bushels; last year it was 23·37 bushels, a proportion only twice exceeded in the last decade, and considerably in excess of the general result. The 1,236 acres reaped last year yielded 28,884 bushels, a production equal to about one-tenth of the requirements of the State.

H b.

Annual Acquisition by the State of Oaten Grain and its Products expressed in Terms of Oats.*

—	1902.	1903.	1904.	1905.	1906.	Average of the Quinquennium.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
Net Imports { Oats (Grain)	266,463	134,443	81,618	115,452	88,802	137,356
Net Imports { Products of Oats	139,059	93,200	123,895	142,715	135,937	126,961
Production, Oats (Grain)	520	70,713	15,137	5,858	28,884	24,222
Total	406,042	298,356	220,650	264,025	253,623	288,539

* Oatmeal converted into Oats on the basis of 1 ton Avoirdupois to each 100 bushels of Oats.

There would appear to be considerable room for expansion in connection with the cultivation of this crop. As for the last five years the average annual production has only been 24,222 bushels out of an annual demand of 288,539 bushels—that is, one-twelfth of the requirement only—has been met by the local farmer.

Rice.—The production of this cereal has practically ceased. The results for the last nine years were as follow:—

I.

Year.	Acres.	Bushels.	Average Bushels.
1898	863	38,133	44·19
1899	319	9,275	29·08
1900	271	6,870	25·35
1901	205	5,222	25·47
1902	38	1,093	28·76
1903	49	1,322	26·98
1904	60	1,638	27·30
1905	33	885	26·82
1906	24	772	32·17

The 24 acres planted in 1906 yielded 772 bushels of paddy, an average of 32·17 bushels to each acre, the best average since 1898.

RYE.—In common with all grain crops except wheat, the result was most satisfactory last year.

J.

Year.	Acres.	Yield.	Average per Acre.
		Bushels.	Bushels.
1902	22	238	10·82
1903	315	6,482	20·58
1904	151	1,729	11·45
1905	60	562	9·37
1906	122	2,781	22·80

The average yield of 22·80 bushels has only once been exceeded since records of the crops were first collected in 1890—namely, in 1891—when an average of 23·11 bushels was obtained.

POTATOES (ENGLISH).

A somewhat larger area was placed under this tuber than in 1905—viz., 8,031 acres against 7,170. The average yield was also somewhat better—1·97 tons as against 1·58 tons—in the previous year. There will probably always exist a certain amount of interchange between the States in this commodity, largely owing to the season varying according to locality. Hitherto Queensland has never grown sufficient for home requirements, and has annually imported considerable quantities, as will be seen from the following table:—

K.

Year.	Weight.	Value.
	Tons.	£
1902	27,848	152,560
1903	26,734	89,605
1904	9,936	20,265
1905	14,672	97,708
1906	13,369	96,702

Although there is room for expansion in cultivation, yet, as a surplusage is already available in the Southern States, any material extension would hardly be likely to benefit the grower. In both 1899 and 1901 the yield obtained in this State exceeded 22,000 tons, so with a requirement of local need of about 30,000 tons, there has not been in years of largest production a large margin for profitable increase of output.

SWEET POTATOES.

There was a small increase in the area returned under this head in 1906, and the yield was at the same time slightly better, the exact figures being 3,229 acres, 14,974 tons—average 4·64 tons—in 1905; and 3,276 acres, 15,371 tons—and average 4·69 tons—in 1906. The tuber is used to some extent as a vegetable, but is principally utilised by dairymen for feeding stock and pigs. The mean yield for twenty years has been over 5 tons per acre, so that the returns for 1906 are not as good as the mean average.

SUGAR.

Although there was a slightly larger area under sugar-cane in 1905 than in 1906, yet the latter year was a record one with regard to area crushed, weight of cane harvested, and quantity of sugar made. The climatic conditions were very favourable, and the average yield of sugar per acre was most satisfactory when compared with the usual results obtained in Queensland, although below that secured in 1898, the hitherto record season as to quantity of sugar produced.

The following table gives the results of the cane crop for each of the past five seasons:—

L.

Year.	Acres Cultivated.	Acres Crushed.	YIELD.	
			Tons Cane.	Tons Sugar.
1902	85,338	59,102	641,927	76,626
1903	111,516	60,375	823,875	91,828
1904	120,317	82,741	1,326,989	*147,688
1905	134,107	96,093	1,415,745	*152,722
1906	133,284	98,194	1,728,780	*184,377

*94 per cent. net titre.

There were 133,284 acres returned as under cane in 1906, against 134,107 in the previous year. Of this, 98,194 acres were harvested for a return of 1,728,780 tons of cane, from which 184,377 tons of sugar were manufactured.

The satisfactory results were rather due to the quantity than to the quality of the cane obtained, as will be seen by a comparison of the average returns for the past five years:—

La.

Year.	TO EACH ACRE CRUSHED.		Tons of Cane to One Ton of Sugar.
	Tons of Cane.	Tons of Sugar.	
1902	10·86	1·30	8·38
1903	13·65	1·52	8·97
1904	16·04	1·78	8·99
1905	14·73	1·59	9·27
1906	17·61	1·88	9·38

In 1906 there were 17·61 tons of cane obtained from each acre crushed, exceeding by more than 1½ tons that for 1904, the next best year in this respect of the quinquennium. The average yield of sugar last year to each acre was 1·88 tons, which, as previously stated, has only once been exceeded—namely, in 1898, when a return of 1·99 tons to each acre was obtained. It took more cane to make a ton of sugar in 1906 than in any of the previous five years.

The quality would appear to have declined each year during the period—namely, from 8·38 in 1902 to 9·38 in 1906—probably due to the increased moisture resulting from the improved seasons.

The following table furnishes information as to the results of the crop in the various cane-growing areas of the State:—

Lb.

Division and District.	Area for Plants.	Area Stand-over or Unproductive.	Area Crushed for Sugar.	Total Area for Sugar.	Weight of Cane.	Sugar.	Molasses.
	Acres.	Acres.	Acres.	Acres.	Tons.	Tons.	Gallons.
Rockingham—							
Cairns and Douglas	140	3,698	14,179	18,017	249,858	25,954	1,066,204
Ingham and Mourilyan	364	4,731	16,170	21,265	248,108	28,566	1,133,576
Total	504	8,429	30,349	39,282	497,966	54,520	2,199,780
Edgecumbe—							
Ayr	71	2,418	4,800	7,289	105,481	12,696	213,840
Bowen	18	1,127	2,276	3,421	43,167	4,573	46,560
Mackay	324	10,619	20,529	31,472	317,442	34,338	3,609,714
Total	413	14,164	27,605	42,182	466,090	51,607	3,870,114
Port Curtis—							
Gladstone	...	30	21	51	320	*	
Burnett and Wide Bay—							
Bundaberg and Gin Gin ...	54	5,367	21,033	26,454	353,461	40,841	1,123,809
Childers, Maryborough, and Tiaro	57	3,790	13,955	17,802	318,208	29,032	913,828
Gympie	...	118	131	249	2,599	†	
Total	111	9,275	35,119	44,505	674,268	69,873	2,037,637
Moreton—							
Logan	1	691	1,781	2,473	30,680	2,583	86,000
Marburg and Rosewood ...	9	489	392	890	5,633	406	6,050
Maroochy	7	755	2,266	3,028	42,944	4,324	139,000
Nerang	12	200	661	873	10,879	1,064	35,000
Total	29	2,135	5,100	7,264	90,136	8,377	266,050
TOTAL STATE ...	1,057	34,033	98,194	133,284	1,728,780	184,377	8,373,581

* Crushed in Bundaberg.

† Crushed in Maroochy and Maryborough.

Of the 133,284 acres under cane, 1,057 acres, or about 0·8 per cent., were required for the production of cane for plants, 34,033 acres, or 26 per cent., were "stand over," and were non-productive during 1906. Of the 98,194 acres crushed, 35,119 acres were in the Burnett and Wide Bay division, 30,349 acres in Rockingham, 27,605 acres in Edgecumbe, and 5,100 acres in Moreton. The corresponding acreages in the previous year were: 30,921 acres, 32,984 acres, 27,396 acres, and 4,768 acres.

Cane cultivation is practically confined to within 50 miles of the coast. Taking the five great geographical divisions, it is found that the Burnett-Wide Bay group was the largest producer of sugar last year, returning 38 per cent. of the total output. Of this, 40,841 tons were turned out from Bundaberg-Gin Gin, and 29,032 tons from Childers-Maryborough-Tiaro. Rockingham had the next

largest production—54,520 tons—of which 25,954 tons came from Cairns-Douglas, and 28,566 from Ingham-Mourilyan. Of the Edgecumbe output of 51,607 tons, Mackay contributed 34,338 tons; Ayr, 12,696; and Bowen, 4,573 tons. The southern division of Moreton crushed 332 acres more cane and produced 1,425 tons more sugar in 1906 than in the preceding year.

Of the 1,728,780 tons of cane cut, 674,268 were obtained from Wide Bay-Burnett; 497,966 from Rockingham; 466,090 from Edgecumbe; and 90,136 from Moreton.

Molasses.—The output of this by-product last year was returned at 8,373,581 gallons. Such a relatively small portion is put to direct profit that it is probable the full quantity is not recorded. Of that appearing on the returns, 1,486,767 gallons were sold; 737,108 were fed to live stock; 1,050,776 gallons were utilised as fertiliser; and 569,094 gallons reported as still on hand; and 4,529,836 gallons, or more than one-half, "run to waste." In view of its proved value as an article of diet for live stock of all kinds, this appears to be a matter for regret. The planters of the Wide Bay and Burnett division appear to be able to dispose of by far the most of this commodity, 860,029 gallons being reported as sold from that locality, besides 89,816 gallons fed to live stock. In the Edgecumbe division substantial quantities—namely, 440,113 gallons and 440,708 respectively—were sold and fed to stock.

There would appear to be but little relation between the quantity of sugar made and of molasses resulting, judging from the figures of the different districts. The variation is indeed so marked as to justify the conclusion already expressed that a good deal of the output of this by-product escapes record. The proportions of molasses as returned to each ton of sugar made in each division last year were—Rockingham, 40 gallons; Edgecumbe, 75 gallons; Burnett-Wide Bay, 29 gallons; Moreton, 32 gallons; clearly showing that large quantities are not returned.

The average results of the sugar crop in each division and district are given in the following table:—

Lc.

Sugar Averages, 1906.

Divisions or Groups and Districts.	Tons of Cane per Acre Crushed.	Tons of Sugar per Acre Crushed.	Tons of Cane per Ton of Sugar.
Rockingham—			
Cairns and Douglas	17·62	1·83	9·63
Ingham and Mourilyan	15·34	1·77	8·69
Total	16·41	1·80	9·13
Edgecumbe—			
Ayr	21·98	2·65	8·31
Bowen	18 97	2·01	9·44
Mackay	15·46	1·67	9·24
Total	16·88	1·87	9·03
Port Curtis—			
Gladstone	15·24	*	*
Total	15·24	*	*
Burnett and Wide Bay—			
Bundaberg and Gin Gin	16·81	1·99	9·65
Childers, Maryborough, and Tiaro	22·80		
Gympie	19·84	†	†
Total	19·20	1·99	9·65
Moreton—			
Logan	17·23	1·45	11·88
Marburg and Rosewood	14·37	1·04	13·87
Maroochy	18·95	1·91	9·93
Nerang	16·46	1·61	10·22
Total	17·67	1·64	10·76
Total State	17·61	1·88	9·38

* Crushed in Bundaberg. † Crushed in Maroochy and Maryborough.

In 1906 there were throughout the State 17·61 tons of cane harvested from each acre crushed. One ton of sugar was obtained from each 9·38 tons of cane crushed, giving a return of 1·88 tons of sugar to each acre.

Very frequently the best average returns are obtained in the more northerly cane districts, the larger proportion of virgin, or, at least, less denuded soil, and the greater freedom from frost, contributing to this result.

The petty sessions district of Ayr is generally well in front in connection with average results, and in 1906 stood first as to quality of cane produced, and, at the same time, was only slightly outrivalled by the Childers group as to quantity, for whilst in Ayr there were 21·98 tons of cane cut from each acre, the crop yielded 1 ton of sugar from each 8·31 tons of cane crushed, giving the very satisfactory yield of 2 tons 13 cwt. to each acre cut for crushing. As already stated, the greatest average quantity of cane was obtained at Childers—viz., 22·80 tons to each acre. The cane obtained at Ingham yielded 1 ton of sugar to less than 9 tons of cane, which at first sight is considerably better than that obtained in the Burnett and Wide Bay district; but, as the latter district produced so much more cane to the acre, the result shows the latter locality slightly superior in resulting produce from each acre crushed for the year under review. In the southern division of Moreton the very satisfactory return of 1·91 tons of sugar per acre was secured by a crop averaging 18·95 tons of cane, producing 1 ton of sugar from 9·93 tons of cane.

A comparison of the crops for the two seasons 1905 and 1906 is afforded in the following table:—

L d.

Petty Sessions Districts.	Cultivation.			Production.					
	Area in 1905.	Area in 1906.	Increase or —Decrease in 1906.	1905.		1906.		Increase or —Decrease in 1906.	
				Area Crushed.	Sugar.	Area Crushed.	Sugar.	Area Crushed.	Sugar.
	Acres.	Acres.	Acres.	Acres.	Tons.	Acres.	Tons.	Acres.	Tons.
Ayr	6,583	7,289	706	4,423	10,337	4,800	12,696	377	2,359
Bowen	3,302	3,421	119	2,211	2,741	2,276	4,573	65	1,832
Bundaberg, Gin Gin, and Gladstone	26,364	26,505	141	18,395	26,645	21,054	40,841	2,659	14,196
Childers, Maryborough, and Tiaro	17,518	17,802	284	12,414	19,728	13,955	29,032	1,541	9,304
Cairns and Douglas	19,695	18,017	—1,678	15,301	26,334	14,179	25,954	— 1,122	— 380
Ingham and Mourilyan	23,197	21,265	—1,932	17,683	27,605	16,170	28,566	— 1,513	961
Logan	2,491	2,473	— 18	1,869	2,124	1,781	2,583	— 88	459
Mackay	30,328	31,472	1,144	20,762	32,380	20,529	34,338	— 233	1,958
Marburg and Rosewood ...	543	890	347	250	173	392	406	142	233
Maroochy and Gympie	3,299	3,277	— 22	2,149	3,945	2,397	4,324	248	379
Nerang	787	873	86	636	710	661	1,064	25	354
Totals, 1905	134,107	...	...	96,093	152,722	...	...	...	...
Totals, 1906	...	133,284	...	...	...	98,194	184,377	...	...
Increase in certain Districts, 1906			2,827	...	...	...	...	5,057	32,035
Decrease in certain Districts, 1906			3,650	...	...	...	...	2,956	380
Net Increase in 1906			...	...	...	...	...	2,101	31,655
Net Decrease in 1906			823	...	...	...	...	...	...

Of the area under crop the largest increase was at Mackay, there being 1,144 acres more under cane in 1906 than in 1905. Ayr came next, with 706 acres; then West Moreton, with 347 acres; and Childers group, with 284. In the North two important decreases were recorded—Ingham-Mourilyan, 1,932 acres; and Cairns-Douglas, 1,678 acres.

Of the area crushed, the most important increases were the Bundaberg group, 2,659 acres; and the Childers group, 1,541 acres; the larger decreases were—Ingham-Mourilyan, 1,513 acres; and Cairns-Douglas, 1,122 acres.

The following table compares the average results of the crops for the past two seasons in each geographical division:—

L e.

Division.	TO EACH ACRE CRUSHED.				TON CANE TO EACH TON SUGAR.	
	Tons of Cane.		Tons of Sugar.		1905.	1906.
	1905.	1906.	1905.	1906.		
Rockingham	13·81	16·41	1·64	1·80	8·44	9·13
Edgecumbe	14·49	16·88	1·66	1·87	8·73	9·03
Port Curtis	6·33	15·24	*	*	*	*
Burnett and Wide Bay ...	15·58	19·20	1·50	1·99	10·39	9·65
Moreton	17·08	17·67	1·46	1·64	1·72	10·76
State	14·73	17·61	1·59	1·88	9·27	9·38

* Crushed in Bundaberg. From a small area only.

Here it is at once apparent that the position for the whole State, already referred to, of an increase last year, both in weight of cane and also of sugar to each acre crushed, applied without exception to each district. In the Northern divisions the greater weight of cane was discounted in part by a reduced quantity or quality of the juice, but in Wide Bay-Burnett and in Moreton the quality as well as the quantity was more than maintained.

Information is collected and tabulated as to area cultivated and weight of cane grown and harvested by white labour. The figures issued by this Department necessarily consist of claims made by planters, and, naturally, do not quite agree with the excise figures of the weight of cane upon which bounty has actually been paid. Our figures would, of course, include items which may have been disallowed, those still under consideration, and possibly even some admitted but not yet paid.

The following tables give information on this point:—

L f.

CLAIMED AS GROWN AND HARVESTED BY WHITE LABOUR.

Rebate.	Petty Sessions District.	Area Crushed for Sugar.	Weight of Cane Harvested.
		Acres.	Tons.
No. 1 at 5s.	Cairns and Douglas	6,026	108,051
	Ingham and Mourilyan	8,352	135,954
	Total	14,378	244,005
No. 2 at 4s. 8d.	Ayr	2,579	54,764
	Bowen	1,968	37,267
	Mackay	15,496	245,749
	Total	20,043	337,780
No. 3 at 4s. 4d.	Bundaberg, Gin Gin, Gladstone	16,950	291,459
	Childers, Maryborough, Tiaro	11,499	262,596
	Total	28,449	554,055
No. 4 at 4s.	Logan	1,773	30,575
	Maroochy and Gympie	2,089	41,020
	Nerang	661	10,879
	Marburg and Rosewood	392	5,633
	Total	4,915	88,107
	Grand Total	67,785	1,223,947

L g.

—	1903.		1904.		1905.		1906.	
	Tonnage of Cane.	Amount of Bonus.	Tonnage of Cane.	Amount of Bonus.	Tonnage of Cane.	Amount of Bonus.	Tonnage of Cane.	Amount of Bonus.
		£		£		£		£
1st District ...	37,660	9,415	32,131	8,002	35,459	8,850	235,346	59,528
2nd „ ...	106,333	24,811	166,441	38,620	171,967	40,256	331,154	77,268
3rd „ ...	40,283	8,728	143,421	31,055	217,300	47,105	543,679	117,792
4th „ ...	37,500	7,500	37,891	7,534	76,184	15,339	87,256	17,450
Total ...	221,776	50,454	379,884	85,211	500,910	111,550	1,197,435	272,038

Producers claim to have harvested 1,223,947 tons of cane upon which white-labour bounty was payable. The Excise Department has paid upon 1,197,435 tons, a difference of 26,512 tons, equal to 2 per cent. on the former's figure.

From Table Lf may be ascertained both the quantity of white-grown cane produced in 1906 and also the area from which it was cut. In Rockingham, or district No. 1 of the Excise Department, 47 per cent. of the acreage and 49 per cent. of the production was white grown. In Edgecumbe, or district No. 2, 73 per cent. of area and 72 per cent. of production; Burnett-Wide Bay, 81 per cent. of area and 82 per cent. of production; and in Moreton, 96 per cent. of area and 98 per cent. of production.

Table Lg shows for each of the last four years the gradually increasing tonnage of cane upon which bounty has been paid, rising from 221,776 tons in 1903 to 1,197,435 tons in 1906.

Outside the capital invested in the cultivation of sugar-cane, a large sum of money is represented by mills and machinery engaged in the extraction of sugar from the cane. Particulars on this point are furnished in the following table:—

L h.

—	Works.	Hands Employed.	VALUE.	
			Machinery.	Land and Premises.
	No.	No.	£	£
Refineries } In operation, 1906	2	345	212,844	95,000
Juice Mills } In operation, 1906	5	43	24,200	2,660
Sugar Mills } In operation, 1906	50	2,833	1,644,260	203,432
Total	57	3,221	1,881,304	301,092

There were the same number of factories engaged in the production and refining of sugar in 1906 as in 1905—namely, 57. Of these, 2 were refineries, 5 were juice-mills, and 50 both crushed cane and made sugar.

There were nearly 900 more hands employed in the latter year, whilst there was evidently considerable addition to the machinery, the value of which was returned in 1905 at £1,666,872, and in 1906 at 1,881,304.

There was a considerable improvement in the financial position of factories established under the provisions of the Sugar Works Guarantee Acts, as will be seen from the following comparative statement, the figures for which have been courteously supplied by the Comptroller of Central Sugar Mills:—

	1905.			1906.		
Number of mills to which advances have been made under the Sugar Works Guarantee Acts	11			11		
Under other conditions	2			2		
Number of tramway companies under Sugar Works Guarantee Acts	1			1		
	£	*s.*	*d.*	£	*s.*	*d.*
Total amount of advances to 31st December under Sugar Works Guarantee Acts	532,786	0	6	536,239	3	5
Under other conditions	52,500	0	0	52,500	0	0
Indebtedness to 31st December under the Sugar Works Guarantee Acts, including special temporary advances	530,584	4	11	499,408	12	2
Under other conditions	18,566	17	7	15,578	11	5

Showing a reduction in the amount of indebtedness on the two accounts of £34,163 18s. 11d.

Sugar Consumption.—To base the consumption of sugar, or, indeed, of almost any commodity, on the production plus net import of any one year would be palpably misleading, as the question of stocks at the beginning and end of the year is an all-important one. Taken over a series of years, the average annual *per capita* consumption for each State has been determined with sufficient definiteness for practical purposes for another year or two, when a fresh average, covering a more recent period, may become necessary.

The following table shows the estimated consumption of sugar for each State and for New Zealand for 1906:—

L i.

Return showing the Annual Consumption of Sugar for the Year 1906, based on the Average Annual Consumption per Capita of the Mean Population, for a Series of Years.

—	Queensland.	New South Wales.	Victoria.	South Australia.	Western Australia.	Tasmania.	Total Federated States.	New Zealand.	Total Australasia
Consumption for the Year 1906—Tons	27,115	70,981	52,589	17,092	11,947	7,419	187,143	41,581	228,724
Average Annual Consumption per Capita for a Series of Years. To the nearest lb.	114	105	96	101	103	92	102·4	104	10

This gives the consumption for the Commonwealth at 187,143 tons. An estimate based on the figures for five years, 1901-5, gives a somewhat larger amount, and, in view of the revival of manufacture, it is possible that the figures in the table are under rather than over the mark; but, on the other hand, as an analysis of the figures for the more recent quinquennium would allot the increase almost entirely to Queensland, where there is nothing to justify the assumption of so large an increase in *per capita* consumption, it appears to me not unreasonable to assume that the increased consumption was more

apparent than real, and is due to a disturbance in the balance of stocks held at the beginning and end of the period, brought about by Queensland's greater production in the last year of the computation as compared with the year immediately preceding the quinquennium. This greater production amounted to over 60,000 tons, and must create a difference in volume of stock held, thus well illustrating the fallacy of averages taken over a restricted period.

The largest relative consumer is Queensland, with 114 lb. per head of population, followed by New South Wales with 105, and Western Australia, 103 lb. The greatly larger *per capita* demand for sugar in the first-named State induces conjecture as to whether the volume of production is so accurately determined as the volume of barter, leading to—if the former is in any way exaggerated—an over-estimate of Queensland's consumption.

The important point, however, remains, that during 1906 the production of sugar within the Commonwealth was decidedly greater than the local demand, and the question of foreign export is now a factor for consideration by our manufacturers.

IMPORTS AND EXPORTS.—Information on this point is furnished in the following table:—

L j.

IMPORTS and EXPORTS of SUGAR during 1905 for each AUSTRALIAN STATE from and to places beyond the COMMONWEALTH.

State.	Imports.	Exports.	Net Imports.
	Tons.	Tons.	Tons.
Queensland	37	218	— 181
New South Wales	10,669	2,279	8,390
Victoria	14,004	5,384	8,620
South Australia	148	3,275	— 3,127
Western Australia	21	2	19
Tasmania	1,220	...	1,220
Total Commonwealth	26,099	11,158	14,941

— Excess of Exports.

The exports, of course, do not comprise sugar forming a part of some other commodity, such as beer, jam, &c.

It will be seen that the imports for 1905 exceeded the exports by some 14,941 tons, and from evidence given before the Tariff Commission it appears probable that this has been considerably exceeded during 1906.

COTTON.

The area shown as under cotton in 1906 is less than that returned for 1905. In not a few instances experimental plots were destroyed by unpropitious weather, and in other cases ignorance resulted in planting unsuitable varieties from which, for climatic reasons, a payable crop would not mature. In a number of cases, however, the harvest has been satisfactory, and, with the experience gained during the past three year, an extension of the area planted is to be looked for.

—	1905.		1906.	
	Area—Acres.	Lb.	Area—Acres.	Lb.
Rockingham	24	18,000	52	20,525
Port Curtis	11	1,885	12	15,389
Moreton	112	78,283	56	38,617
Downs	12	3,580	8	1,950
Elsewhere	12	11,260	10	900

It will be noticed from the above that the falling off is principally in the Moreton district. Inquiry has shown, however, that some at least of the shortage has been made up, but as the planting was only undertaken quite late in 1906, the crop was not sufficiently advanced to be considered as belonging to the year under review. Caravonica cotton does not come into bearing until the second year, and plantings of this variety have also been made during 1906, and will help to swell the returns for 1907. The returns quoted above show that the crop is a profitable one, and will in all probability attract more attention as the method of its cultivation and the habits of the different varieties become more widely known.

Hybridisation of cotton has invited much attention and with considerable success, as varieties of improved quality and enlarged yield promise to become fixed. The crucial question is "picking." With a mechanical contrivance for this, the position of Queensland as a cotton-producing country is assured. In the States it is reported that great success has attended one invention, and the cost reduced one-half. In this State an officer of the Agricultural Department has patented a machine, of which much is hoped. The Ipswich Cotton-spinning Mills have been secured by a new proprietary, and it is announced that they intend manufacturing cotton yarns and calicoes.

ARROWROOT.

Except in one district in the Northern part of the State, the cultivation of arrowroot for mercantile purposes is confined to the south-eastern corner of Queensland; small areas are grown elsewhere, but such tuber is practically all utilised for food for pigs. Neither area nor production varied materially from the result shown for 1905. Particulars respecting the crop for the past two years are compared in the following table:—

M.

Division and Petty Sessions District.	1905.		1906.		Increase or Decrease —	
	Area.	Production.	Area.	Production.	Area.	Production.
	Acres.	Tons.	Acres.	Tons.	Acres.	Tons.
Rockingham—						
Herberton	4	8	2	10	— 2	2
Mourilyan	26	320	25	300	— 1	— 20
Total Rockingham	30	328	27	310	— 3	— 18
Moreton—						
Beaudesert	1	10	...	...	— 1	— 10
Brisbane	1	4	...	...	— 1	— 4
Caboolture	...	...	1	4	1	4
Dugandan	...	...	2	4	2	4
Logan	93	957	93	934	...	— 23
Marburg	1	2	3	8	2	6
Maroochy	18	238	15	176	— 3	— 62
Nerang	243	2,848	241	2,613	— 2	— 235
Rosewood	3	50	8	173	5	123
Woodford	3	9	3	19	...	10
Total Moreton	363	4,118	366	3,931	3	— 187
Total State	393	4,446	393	4,241	...	— 205

It will be seen that of the total area cultivated in the Moreton district 334 acres out of a total of 366 acres were grown in the contiguous districts of Logan and Nerang, whence also nearly all the mercantile article is derived, the only exception being the district of Mourilyan, where also a small factory is in operation. The following table shows the quantity of arrowroot manufactured:—

M a.

Petty Sessions District.	Hands Employed.	Tuber.	Arrowroot.
		Tons.	Lb.
Mourilyan	11	300	67,200
Logan	5	700	142,010
Nerang	25	2,464	514,928
Others	...	200	35,840
Total	41	3,664	759,978

The tuber appears to have contained more starch per ton in 1906 than in 1905, taking only 3,664 tons to produce 759,978 lb. against 4,013 tons producing 758,520 lb. in the latter year. The industry has not advanced in recent years. Some of the manufactured article finds its way outside the State, as will be seen by the following statement:—

M b.

ARROWROOT.

Year.	IMPORTS.		EXPORTS.		PRODUCTION.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Manufacturers Value.
	Lb.	£	Lb.	£	Lb.	£
1902	5,648	59	360,719	3,872	192,702	1,766
1903	264	7	360,748	5,058	683,883	6,903
1904	53	1	331,454	4,417	740,715	4,082
1905	2,240	12	597,325	5,439	758,520	4,028
1906	...	...	491,771	3,949	759,978	3,639

Very little was sent outside Australia, the only items being—United Kingdom, 4,700 lb., £32; Canada, 1,000 lb., £12; United States, 4,459 lb., £29.

These prices of about 15s. per cwt. seem low when compared with 6d. to 7d. per lb. secured in London for Bermuda arrowroot. Queensland has to fight in London against the prejudice attached to the fact that her product is the starch of the *Canna edulis* and not of the *Maranta arundinacea*. This

prejudice can only be overcome by convincing the consumer of the intrinsic merit of the Queensland article, which is said to be undoubted by persons competent to express an opinion. This might take a considerable time to accomplish, and to do it, it would be necessary to secure for some time perhaps a regularity of supply and shipment to the United Kingdom at whatever price could be obtained, so that it might be systematically introduced to the retail buyer.

A firm of London experts have stated that 2,000 to 3,000 tons could be placed there annually at £12 per ton. This seems very low, and would perhaps hardly pay; but it is pointed out that St. Vincent arrowroot is now placed there at about £14 per ton, and it is implied that the £12 is a low quotation, that would probably soon be exceeded on the excellence of the Queensland article being recognised.

TOBACCO.

Tobacco-growers, who have hitherto been practically confined to the Texas and Inglewood districts, were particularly unfortunate during 1906. Climatic conditions were such as to preclude planting, as seed beds so far failed as to leave an insufficient supply of young plants for setting out. Indeed, in the two districts mentioned, seventeen farmers who have cultivated the plant for several successive years were unable to place any land under this crop in 1906, whilst those who continued planting were only able to cultivate a much smaller area than usual. Those plants, however, which were placed in the field, when once established, flourished well, returning between 9 and 10 cwt. of dried leaf to the acre—rather less than in 1905, but considerably better than in any other year of the decennium. Particulars of the crop are given in the following table:—

N.

Division and Petty Sessions District.	1905.		1906.		Increase or Decrease —	
	Area.	Produce Dried Leaf.	Area.	Produce Dried Leaf.		
	Acres.	Cwt.	Acres.	Cwt.	Acres.	Cwt.
Rockingham—						
Cardwell	2	20	6	27	4	7
Moreton—						
Nerang	5	53	7	67	2	14
Downs—						
Goondiwindi	4	29	...	...	— 4	— 29
Inglewood	162	2,089	61	702	— 101	— 1,387
Killarney	4	63	1	15	— 3	— 48
Texas	752	7,946	591	5,643	— 161	— 2,303
Warwick	4	30	...	...	— 4	— 30
Total Downs	926	10,157	653	6,360	— 273	— 3,797
Total State	933	10,230	666	6,454	— 267	— 3,776

It would appear that there is an opening for the cultivation of cigar leaf, more particularly in the Northern districts, where experimental areas have been planted during the current year. The result from one of these plots has proved so successful that the growers intend to extend operations, and others will probably go into the industry, and thus bring about a considerable expansion, more particularly as the market for high-grade leaf is far from being overstocked. The quantity of tobacco imported and entered for home consumption for 1905 and 1906 are tabulated below:—

N a.

Year.	Tobacco, &c.	Imported.	Entered for Home Consumption.*
		Lb.	Lb.
1905	Manufactured	1,178,092	1,157,950
	Unmanufactured	19,780	19,780
	Cigars	43,636	42,667
	Cigarettes	132,671	99,663
	Snuff	693	662
	Total	1,374,872	1,320,722
1906	Manufactured	1,290,774	1,281,653
	Unmanufactured	955	466
	Cigars	60,072	50,016
	Cigarettes	144,637	114,154
	Snuff	494	261
	Total	1,496,932	1,446,550

* Including imports, produce of other States, duty free.

Considerably more manufactured tobacco entered the State during 1906 than in the previous year; probably the consumption during more prosperous times would increase sufficiently to account for this, the larger quantity being distributed between tobacco used as such, cigars, and cigarettes. A second factory was established in Queensland last year, but much of the tobacco used is introduced by the Southern combination, which to a great extent controls the Australian market.

COFFEE.

There is an import duty on the raw bean of 3d. per lb., which should prove a substantial protection to the grower. The yield per acre in 1905 was considerably below what might be reasonably expected, as in many cases the trees were fully matured. The cyclone which visited the Northern coast early in 1906 was the means of destroying a considerable area in at least two districts, but apart from that catastrophe the average results were by far the best on record. Details of the crop for the past two years are subjoined:—

O.

Division and Petty Sessions District.	Not Bearing.		Bearing.				Average Yield per Acre (Bearing).		1906. Increase or Decrease—Bearing Area.	1906. Increase or Decrease—in Yield.
	1905.	1906.	1905.		1906.		1905.	1906.		
	Acres.	Acres.	Acres.	Lb.	Acres.	Lb.	Lb.	Lb.	Acres.	Lb.
Rockingham—										
Cairns	2	2	106	24,499	94	31,745	231	338	— 12	7,246
Douglas	...	...	10	5,016	7	2,500	502	357	— 3	— 2,516
Herberton	...	3	6	4,480	3	2,550	747	850	— 3	— 1,930
Mareeba	8	...	2	120	4	220	60	55	2	100
Mourilyan	...	...	33	18,640	15	6,720	565	448	— 18	— 11,920
Total Rockingham ...	10	5	157	52,755	123	43,735	336	356	— 34	— 9,020
Edgecumbe—										
Mackay	11	12	32	9,516	30	30,834	297	1,028	— 2	21,318
Port Curtis—										
Rockhampton	14	...	3	800	11	600	267	55	8	— 200
Wide Bay and Burnett—										
Maryborough	...	...	5	1,500	6	2,612	300	435	1	1,112
Moreton—										
Maroochy	9	22	38	17,659	46	29,664	465	645	8	12,005
Other District—										
Cook	...	1	...	...	...	...	...	...	...	...
Total State... ...	44	40	235	82,230	216	107,445	350	497	— 19	25,215

As has been the case for several years, the crop in the vicinity of Herberton yielded well, although the average result was less than half that obtained in 1904. The plantations at Mackay exhibit a marked improvement, averaging 1,028 lb. per acre, against only 297 in 1905. In the Maroochy district an average of 645 lb. per acre over the substantial area of 46 acres was obtained. The yield in Cairns shows some improvement, probably due to the more matured condition of the plantations.

PUMPKINS AND MELONS.

There is no great inducement to extend the area planted with these gourds beyond that necessary to satisfy local requirements. It is true that the former is of considerable value to the dairyman, both for his cattle and pigs, but the demand is limited, and from its bulky and awkward nature this vegetable is unfit for transport to distant places. The crop is very frequently planted amongst maize, in order that it may receive shelter from the extreme heat of the sun. There were 12,528 acres planted in 1906 yielding 54,419 tons, against 10,606 acres and 37,079 tons in 1905.

FRUIT.

As previously remarked in my comments on coffee, the cyclone in the North devastated most permanent crops. Oranges, bananas, and mangoes were in many cases totally destroyed. The fruit fly was in evidence in many places, and is like to so continue until concerted action is taken, and it is very improbable that it will be effectively dealt with except by the adoption of compulsory methods. Vines did better than for several previous years, although hailstones played havoc with the fruit in some cases. Bananas suffered more severely from the cyclone than any other crop, the loss in area in the district of Cairns and Mourilyan amounting to 1,250 acres, whilst Cardwell recorded little more than half a crop. The late frosts on old plantations of pineapples in the Brisbane district necessitating replanting is largely accountable for the diminution in area under that fruit in that district. This crop, as a whole, however, showed considerable improvement. Citrus fruits, principally represented by the orange, did well, but the crop of mangoes was a failure in nearly every district. Strawberries just held their own in area, but the crop showed a marked improvement on that of 1905. Apple-planting continued during the year, whilst the crop showed a small additional area of matured trees.

VINES, GRAPES, AND WINE.

Not only was a much larger area recorded as productive during 1906 than in the previous year, but the return per acre was over 2 cwt. better. Particulars respecting the past two years is given in the following table:—

Q.

Year.	VINEYARD.			Grapes Gathered.	Average Yield per Acre (Bearing).
	Acres Bearing.	Acres not Bearing.	Total.		
				Lb.	Lb.
1905	1,717	327	2,044	3,017,743	1,758
1906	1,788	282	2,070	3,572,570	1,998

It will be noticed that 71 more acres came into bearing in 1906, and that notwithstanding this large percentage of young vines which could hardly be expected to bear as heavily as more matured plants, the return per acre was 1,998 lb. as against 1,758 lb. in the previous year. This is the highest recorded since the devastation caused by the dry seasons of 1902-4, and, with favourable climatic conditions, it may be expected that the yields of over a ton to the acre experienced in 1896, 1897, 1898, and 1901 will again be shortly recorded. The average returns for each productive vine were—1904, 2·68 lb.; 1905, 2·51 lb.; and 1906, 2·85 lb.; showing a markedly better yield in the latter year. A comparison of the crop for 1905 and 1906 is shown by the following table:—

Qa.

Petty Sessions District.	AREA UNDER VINES.								
	1905.			1906.			Increase or Decrease—in Latter Year.	1905.	1906.
	Bearing.	Not Bearing.	Total Area.	Bearing.	Not Bearing.	Total Area.		Grapes Gathered.	Grapes Gathered.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Lb.	Lb.
Brisbane	268	28	296	260	20	280	—16	349,313	460,388
Gatton	96	10	106	133	6	139	33	204,150	445,671
Gympie	31	12	43	40	7	47	4	34,551	59,078
Highfields	29	5	34	55	1	56	22	100,566	201,726
Logan	60	10	70	51	6	57	—13	99,374	80,329
Maryborough	36	5	41	43	3	46	5	79,615	60,237
Rockhampton	62	9	71	63	11	74	3	78,507	61,044
Roma	296	119	415	349	118	467	52	289,040	440,186
Rosewood	52	...	52	51	...	51	— 1	5,900	64,530
South Brisbane	126	4	130	124	2	126	— 4	269,412	229,374
Stanthorpe	33	48	81	48	39	87	6	51,080	80,230
Toowoomba	192	6	198	186	6	192	— 6	492,192	409,218
Warwick	57	6	63	46	6	52	—11	102,714	132,144
All other Districts	379	65	441	339	57	396	—48	861,329	848,415
Total	1,717	327	2,044	1,788	282	2,070	26	3,017,743	3,572,570

There was a somewhat smaller area returned by each of the metropolitan districts, and although North Brisbane had a considerably better yield than in the previous year, the crop on the south side fell short of that in 1905. Gatton, Highfields, Roma, Rosewood, and Warwick showed improvement, but excessive rain and hailstorms injured the grapes in other places. Roma in particular showed a considerable increase, both in area cultivated with this frut, and in production. The vines at Rosewood, which suffered so severely from hail in 1905, recovered to a considerable extent from the effects of the injury, as rather more than a half a normal crop resulted. The following table shows for five years the results obtained from each of the four most important districts of the State:—

Qb.

Petty Sessions District.	1902. Average per Acre.	1903. Average per Acre.	1904. Average per Acre.	1905. Average per Acre.	1906. Average per Acre.
	Lb.	Lb.	Lb.	Lb.	Lb.
Brisbane	2,536	2,310	1,761	1,303	1,771
Roma	1,358	1,872	1,494	976	1,261
South Brisbane	1,827	1,961	1,976	2,138	1,850
Toowoomba	2,601	1,666	1,947	2,564	2,200
Total State	1,755	1,590	1,875	1,758	1,998

The average obtained over the whole of Queensland was the best of the quinquennium, but was much short of what has been obtained in earlier years. The relatively great increase in Roma, where nearly a quarter of all the vines are planted, is largely responsible for this better average, although the

district of Brisbane also forms a noticeable factor. In both the other districts a falling off is recorded, attributed in both cases to excessive rain just when the fruit was nearing maturity. The wine industry does not expand, as will be seen from the following statement:—

Q c.

Years.	Number of Makers.	Quantity of Wine Made.	Quantity of Brandy Distilled.
		Gallons.	Gallons
1902	391	100,852	2,199
1903	251	38,558	692
1904	309	60,433	574
1905	320	66,926	1,194
1906	313	65,016	628

With a very few exceptions, wine is only made by farmers for their own use. Of course, a substantial proportion of the total output is made by the few who manufacture for sale. Naturally, it is by these that the little brandy that is recorded is distilled. The whole industry is attempted on quite a limited scale, although the suitability of Queensland for the production of wine is beyond dispute. The number of persons engaged in wine-making is given below:—

Q d.

1906.

Petty Sessions District.	Number of Makers.	Quantity of Wine Made.	Quantity of Brandy Distilled.
		Gallons.	Gallons.
Brisbane	9	7,390	228
Clifton	15	936	...
Gatton	28	3,205	...
Highfields	10	591	...
Logan	29	2,040	...
Roma	4	11,300	400
South Brisbane	18	5,297	...
Toowoomba	92	15,889	...
All other Districts	108	18,368	...
Total	313	65,016	628

It will be seen that in no district do the size of the establishments warrant more than a passing notice; even in Roma the average output was under 300 gallons.

BANANAS.

The result of the cyclone is plainly seen in the following table, where the districts of Cairns, Cardwell, and Mourilyan suffered most severely.

R.

Petty Sessions District.	Area.		Production.		Increase or Decrease —	
	1905.	1906.	1905.	1906.	Area.	Quantity.
	Acres.	Acres.	Bunches.	Bunches.	Acres.	Bunches.
Brisbane	353	353	48,025	63,939	...	15,914
Cairns	1,399	808	307,369	156,663	— 591	— 150,706
Cardwell	610	626	243,200	130,180	16	— 113,020
Logan	86	88	15,476	13,927	2	— 1,549
Maroochy	448	491	127,726	143,644	43	15,918
Maryborough	118	121	22,070	22,806	3	736
Mourilyan	2,632	1,966	1,643,447	614,547	— 666	—1,028,900
Redcliffe	150	196	39,658	116,651	46	76,993
All other Districts	402	514	62,297	80,676	112	18,379
Total	6,198	5,163	2,509,268	1,343,033	— 1,035	—1,166,235

In the Northern districts the cultivation of bananas is mainly in the hands of Chinese, on lands leased by them. They rarely adopt the careful methods of cultivation employed by them in connection with market gardening, but crop until the soil is exhausted, and then desert that area, taking up a fresh lease somewhere in the vicinity. Subsequent to the destruction of the plantations by the cyclone in 1906, a considerable number of Chinese deserted their old holdings, and either left the locality altogether, or for some reason delayed replanting. Some recovery from the catastrophe has, however, been made in the affected districts; whilst taking an advantage of circumstances an increased area was planted under this crop in the Maroochy and Redcliffe districts.

The average returns for the Northern districts—which contribute the bulk of the total production—proving very indifferent, seriously affected the average obtained for the whole State, which was far below that for the previous year. The returns per acre in principal districts, with the figures for 1905 in brackets, were—Brisbane, 181 (136); Cairns, 194 (220); Cardwell, 208 (399); Logan, 158 (180); Maroochy, 293 (285); Maryborough, 188 (187); Mourilyan, 313 (624); Redcliffe, 595 (264); and the whole State, 260 (405).

PINEAPPLES.

The yield secured from this crop, although short of that obtained in the first five years of the decennium, was the highest recorded since 1901. Particulars respecting the crop for 1905 and 1906 are presented in the following table:—

S.

Petty Sessions District.	1905.		1906.		Increase or Decrease—	
	Area.	Production.	Area.	Production.	Area.	Production.
	Acres.	Dozen.	Acres.	Dozen.	Acres.	Dozen.
Brisbane	776	238,867	715	319,990	— 61	81,123
Caboolture	55	6,347	37	5,177	— 18	— 1,170
Cairns	71	46,560	74	29,000	3	— 17,560
Cleveland	291	58,791	353	57,868	62	— 923
Logan	189	58,993	211	74,907	22	15,914
Maroochy	171	22,266	223	28,688	52	6,422
Maryborough	82	24,302	76	28,232	— 6	3,930
Redcliffe	28	9,740	38	6,820	10	— 2,920
Rockhampton	44	6,650	51	8,070	7	1,420
South Brisbane	43	11,027	38	10,488	— 5	— 539
All other Districts	95	23,340	110	32,729	15	9,389
Total	1,845	506,883	1,926	601,969	81	95,086

The late and severe frosts seriously affected plantations in the vicinity of Brisbane; in some cases the latter were destroyed, and in others much deteriorated, so that up to the time of the collection of statistics some 60 acres had not been replanted. This shortage, however, was more than compensated for by increased areas in Cleveland, Maroochy, and Logan, and to a smaller extent in other places. Altogether there were 1,926 acres under this plant in 1906 as compared with 1,845 acres in the previous year, the average return per acre being 313 dozen against 275 dozen in 1905. This fruit is in demand for canning, quite an important industry in connection therewith having sprung up during the last few years, the quantity for 1906 being retured at 1,325,544 lb., valued at £13,457; the weight is slightly less than that for 1905, but the value appears to be decidedly higher. There appears to be every prospect of the trade in this commodity attaining important proportions.

The bulk of the Queensland fruit is at present preserved in the slice, the size of fruit available to the canner not being suitable for preserving whole. The latter is a much more marketable article, and to a considerable extent is the one exported from Singapore. Pineapples preserved in chunks instead of slices, or even pulped for marmalade-making, it is believed could find a market.

ORANGES.

The crop for the 1906 season proved, as was anticipated when writing my last report, eminently satisfactory. The following table furnishes particulars showing details in the more important districts for the past two years:—

T.

Petty Sessions District.	Area.		Bearing, 1906.	Not yet Bearing, 1906.	Production.		Increase or Decrease—	
	1905.	1906.	Area.	Area.	1905.	1906.	Area.	Production.
	Acres.	Acres.	Acres.	Acres.	Dozen.	Dozen.	Acres.	Dozen.
Beaudesert	22	19	17	2	18,980	25,720	— 3	6,740
Bowen	161	208	128	80	93,816	173,707	47	79,891
Brisbane	53	49	40	9	15,153	40,540	— 4	25,387
Bundaberg	39	52	35	17	12,116	28,674	13	16,558
Caboolture	62	59	32	27	47,241	79,620	— 3	32,379
Cairns	114	127	52	75	117,179	40,713	13	— 76,466
Cardwell	201	209	86	123	159,070	58,095	8	— 100,975
Charters Towers	28	32	22	10	40,740	47,945	4	7,205
Cleveland	32	37	22	15	16,899	25,462	5	8,563
Cook	51	47	46	1	51,955	47,065	— 4	— 4,890
Douglas	68	63	43	20	57,972	30,484	— 5	— 27,488
Esk	30	30	21	9	23,927	50,496	...	26,569
Gatton	189	180	154	26	217,208	400,047	— 9	182,839
Gympie	58	65	38	27	36,951	45,130	7	8,179
Herberton	31	35	24	11	40,808	29,627	4	— 11,181
Logan	129	142	105	37	114,631	123,711	13	9,080
Mackay	44	25	19	6	32,685	25,518	— 19	— 7,167
Maroochy	730	770	379	391	579,856	799,564	40	219,708
Maryborough	302	289	189	100	214,189	364,849	— 13	150,660
Mourilyan	34	35	26	9	33,749	21,662	1	— 12,087
Nerang	129	118	73	45	15,592	264,457	— 11	248,865
Redcliffe	29	35	26	9	14,795	21,475	6	6,680
Rockhampton	70	82	40	42	31,190	39,088	12	7,898
South Brisbane	38	39	22	17	8,443	20,848	1	12,405
Tiaro	46	35	22	13	25,282	30,326	— 11	5,044
Toowoomba	52	55	51	4	73,588	53,988	3	— 19,600
All other Districts	336	353	238	115	241,932	310,390	18	68,458
Total	3,078	3,190	1,950	1,240	2,335,947	3,199,201	112	863,254

It will be noticed that in several districts a smaller area was reported than in 1905. In Gatton, for instance, there appears a loss of 9 acres, and it is stated in connection with this matter that in many cases the fruit trees were neglected for dairying. In Maryborough a number of trees were ploughed out in disgust at the paucity of results, owing to the ravages of the fruit fly. Nerang also complained of flying

foxes, but, as a whole, the orange-grower was fairly rewarded, the yield per acre being the best of the decennium. There were 100 more acres returned as bearing in 1906 than in the previous year, and 112 acres more altogether under cultivation. The district of Maroochy exceeded all other localities in production, 799,564 dozen being returned as having been grown there. Gatton made a substantial recovery in yield, but was still short of the return obtained in 1904, when 494,968 dozen were obtained. Cairns, Cardwell, and Mourilyan exhibited shortages, as might have been expected, whilst the fruit in Toowoomba was injured by rain. The total yield amounted to 3,199,201 dozen, or an average to the bearing area of 1,641 dozen per acre. The average to each tree in bearing was 18·23 dozen, against 14·03 dozen in 1905, and 17·52 dozen in 1904; so that not only was the yield per tree a good one, but, by the fact that a large area was fruitful, the benefit of the excellent harvest would be experienced by many.

MANGOES.

In collecting statistics respecting fruit trees, it is found that some kinds are more frequently than others planted promiscuously about the holding, instead of with regularity like an orchard, the beauty of the foliage no doubt being a contributing cause. It is found in such cases that when the crop obtained is not a remunerative one there is a strong tendency on the part of the farmer to ignore its existence altogether. The mango is frequently planted as much for ornament and shade as for its fruit, and is seldom grown by itself in a distinctive plantation. It, therefore, becomes practically impossible to keep from year to year a satisfactory check on the returns of acreage. Small areas carrying a few trees, which are omitted one year from the collection through the cause above-given, will appear the following year in the returns if the season is a prolific one. The following table gives particulars for the past two years:—

U.

Petty Sessions District.	Area.		Bearing, 1906.	Not yet Bearing, 1906.	Production.		Increase or Decrease — 1906.	
	1905.	1906.			1905.	1906.		
	Acres.	Acres.	Acres.	Acres.	Dozen.	Dozen.	Acres.	Dozen.
Bowen	24	27	18	9	58,807	79,862	3	21,055
Brisbane	18	22	12	10	7,300	6,893	4	– 407
Bundaberg	28	26	25	1	52,090	1,498	– 2	– 50,592
Cairns	10	8	7	1	49,334	44,060	– 2	– 5,274
Cleveland	13	8	6	2	5,169	30,508	– 5	25,339
Cook	16	14	14	...	116,600	91,070	– 2	– 25,530
Douglas	11	13	9	4	43,310	41,124	2	– 2,186
Ingham	13	15	13	2	54,075	23,504	2	– 30,571
Logan	22	24	20	4	12,752	26,787	2	14,035
Mackay	46	46	29	17	151,004	57,554	...	– 93,450
Maroochy	10	9	4	5	3,735	4,464	– 1	729
Maryborough	33	26	21	5	60,100	4,351	– 7	– 55,749
Mourilyan	13	3	2	1	61,226	120	– 10	– 61,106
Rockhampton	28	24	16	8	41,594	13,244	– 4	– 28,350
South Brisbane	10	9	4	5	5,807	1,580	– 1	– 4,227
Tiaro	10	10	7	3	8,973	4,465	...	– 4,508
Townsville	15	14	12	2	46,612	73,674	– 1	27,062
All other Districts	54	46	33	13	132,260	37,082	– 8	– 95,178
Total	374	344	252	92	910,748	541,840	– 30	– 368,908

In many instances, especially in the Southern part of the State, considerable crops set, but subsequently fell from the trees, never reaching maturity. After the good yield of 1905 it was not to be expected that the crop would be so heavy during the succeeding year. In 1905 the yield per acre of bearing trees amounted to 3,087 dozen, whilst in 1906 this fell to 2,150 dozen. In Mourilyan the major part of the trees were destroyed, but the shortage, apart from the special circumstances in this district, appears almost general, Bowen, Logan, and Townsville being notable exceptions. The total yield was only 541,840 dozen, compared with 910,748 dozen in the previous year, whilst the acreage was only 30 acres less, of which Mourilyan contributed 10 acres.

STRAWBERRIES.

There does not appear to be much desire to extend the culture of this fruit. Probably the cost of cultivation and picking is accountable for this, in addition to which freight and packing form no inconsiderable item of expense. The locale appears to have changed of recent years, for Maroochy, although originally the chief centre of production, has now to give place to Cleveland, a locality situated considerably nearer the metropolis. Details respecting the crop for the last two years may be gathered from the following table:—

V.

Petty Sessions District.	Area.		Production.		Increase or Decrease —	
	1905.	1906.	1905.	1906.	1906.	1906.
	Acres.	Acres.	Quarts.	Quarts.	Acres.	Quarts.
Brisbane	12	9	7,312	6,370	– 3	– 942
Bundaberg	6	5	4,917	3,850	– 1	– 1,067
Cleveland	70	74	60,293	132,646	4	72,353
Gympie	5	7	810	775	2	– 35
Maroochy	59	51	55,536	75,427	– 8	19,891
South Brisbane	16	10	6,876	5,977	– 6	– 899
All other Districts	5	5	2,484	2,928	...	444
Total	173	161	138,228	227,973	– 12	89,745

The yield per acre was more satisfactory than in either of the two preceding years—viz., 1,416 quarts against 799 quarts in 1905, and 1,165 quarts in 1904. This average, however, falls far short of the returns for 1899, 1900, and 1901, when 2,136, 3,315, and 2,073 quarts to the acre were obtained. There were 74 acres grown in Cleveland, and 51 acres in Maroochy, or 125 acres out of a total of 161 acres. These two districts averaged 1,793 quarts and 1,479 quarts per acre respectively, returns from other districts being very low.

APPLES.

A reference to the table printed below will furnish full particulars respecting this crop:—

W.

Petty Sessions District.	Area.		Increase or Decrease—1906.	Bearing, 1906.	Not Bearing, 1906.	Production.		Increase or Decrease—1906.
	1905.	1906.				1905.	1906.	
	Acres.	Acres.	Acres.	Acres.	Acres.	Bushels.	Bushels.	Bushels.
Allora	7	5	– 2	3	2	196	367	171
Beaudesert	5	4	– 1	3	1	135	110	– 25
Clifton	9	6	– 3	5	1	462	233	– 229
Crow's Nest	9	10	1	8	2	348	422	74
Dalby	7	7	...	4	3	208	150	– 58
Herberton	4	4	...	2	2	138	152	14
Highfields	5	10	5	8	2	382	595	213
Killarney	2	2	...	2	...	157	101	– 56
Stanthorpe	429	492	63	245	247	11,463	15,015	3,552
Toowoomba	31	28	– 3	25	3	2,794	2,941	147
Warwick	11	13	2	11	2	482	547	65
All other Districts	18	21	3	18	3	597	933	336
Total	537	602	65	334	268	17,362	21,566	4,204

As will be seen from the return, Stanthorpe is the only district cultivating apples to any material extent. An addition has been made during 1906 to the orchards in this locality, amounting to 63 acres. Barely one-half of the total has yet come into bearing, and very few of the orchards can yet be fully matured, for it is only of quite recent years that this industry was taken in hand. Forty-four more acres were returned as bearing from Stanthorpe in 1906 than in 1905, and this new area of young trees naturally prevents the average yield increasing to any appreciable extent, the actual averages being 57 bushels in 1905 and 61 bushels in 1906. The latter is slightly below that of the whole State—viz., 65 bushels—and, in view of the large proportion of young trees which will only be gradually coming into bearing in successive seasons, it must be several years before a full crop can be expected.

OTHER FRUITS.

The large extent of territory comprised in Queensland naturally results in a great variety both of soil and climate, consequently areas exist suitable for the cultivation of almost every kind of vegetable production. This is especially applicable to fruit trees. In the North are to be found every sort of tropical fruit, whilst on the tablelands of the South-east all the fruits of Europe grow and bear crops to perfection. There are several descriptions of fruit of which particulars are not furnished in the general tables; these for the most part are grown in patches of a few trees distributed amongst a large number of agriculturists located throughout the whole State. Details are given in Table XI. of the Appendix. The principal items recorded are:—

	Acres.		
Apricots	56	...	2,891 bushels.
Custard apples	35	...	1,561 „
Lemons	39	...	29,501 dozen.
Peaches	412	...	31,265 bushels.
Pears	40	...	2,220 „
Plums	217	...	9,629 „

Apricots.—These are principally grown on the Downs, 48 out of the 56 acres being returned from that locality.

Custard Apples.—This fruit appears to be growing in favour; much of the fruit finds its way to the metropolis, where it commands a ready sale.

Lemons.—There does not appear to be much attempt to cultivate this directly for profit. Trees exist on many holdings, but the bulk of the fruit is not grown for sale. It is difficult to understand why lemons are still imported into the Commonwealth from Italy, as good fruit commands a ready sale at satisfactory prices. There is also a good demand for lemons of less good quality for the preservation of the peel.

Peaches.—This fruit appears to be particularly susceptible to the ravages of the fruit fly, and the yield, which does not amount to a bushel per tree probably, shows the ravages made by this pest during the year. So many peach-trees are planted in very limited numbers that they escape record. Those returned must be far short of actual total.

Pears are practically confined to the Downs. In most instances the trees are yet young.

Plums.—These are cultivated from the Burnett to the Southern border. The yield was poor last year, largely owing to excessive rain when the fruit required sun to ripen it.

In addition to the above, the following may be noted:—Cherries, 22 acres, 571 bushels; figs, 10 acres, 923 bushels; Cape gooseberries, 13 acres, 9,877 quarts; passion fruit, 26 acres, 4,400 bushels; pawpaw, 25 acres, 4,671 dozen; persimmons, 15 acres, 1,129 bushels; quinces, 8 acres, 569 bushels;

nectarines, 7 acres, 347 bushels. Of course, there were many other trees largely grown in private gardens which are not recorded. It is, moreover, certain, as already stated, that farmers are disposed not to mention items which have proved more or less a failure, and some have doubtless escaped record.

OTHER VEGETABLES.

Details respecting these will be found in Table XI. of the Appendix. A summary of the principal items is printed below:—

X.

—	1905.		1906.	
	Acres.	Produce.	Acres.	Produce.
Beans	107	10,106 bushels	105	9,179 bushels
Cabbages and Cauliflowers ...	444	150,703 dozen	458	204,401 dozen
Cucumbers	223	85,873 dozen	224	93,481 dozen
Onions	96	4,565 cwt.	88	6,168 cwt.
Peas	89	5,597 bushels	95	6,297 bushels
Tomatoes	402	45,868 bushels	462	61,977 bushels
Turnips	148	733 tons	158	886 tons
Yams	65	43 tons	95	94 tons

The total quantity actually produced in the State would, of course, be much greater than shown above, as the market gardens in the vicinity of centres of population would cultivate most of the crops mentioned, although in areas too small to be specifically recorded. In Bowen and near the metropolis a considerable trade in cucumbers and tomatoes is conducted with the Southern States during that period of the year when climatic conditions prevent their cultivation there. The cultivation of the latter was increased by 60 acres during the year. Onions, on the other hand, fell off by 8 acres, although the return to the grower was considerably more than in the previous year.

MISCELLANEOUS CROPS.

The same table in the Appendix also contains particulars respecting such other crops as are not included under specific headings in the general tables of these. Broom millet is one of the most important, and particulars have been compiled comparing the crops of 1905 and 1906, as will be seen in the following table:—

X a.

Division and Petty Sessions District.	Broom.				Increase or Decrease—	Increase or Decrease—	Average yield per acre.	
	1905.		1906.				1905.	1906.
	Acres.	Lb.	Acres.	Lb.	Acres.	Lb.	Lb.	Lb.
Rockingham—								
Herberton	2	2,300	...	...	— 2	— 2,300	1,150	...
Edgecumbe—								
Bowen	1	600	...	...	— 1	— 600	600	...
Burnett and Wide Bay—								
Bundaberg	3	2,000	...	...	— 3	— 2,000	667	...
Moreton—								
Beaudesert	24	16,592	17	9,030	— 7	— 7,562	691	531
Brisbane	2	1,000	...	...	— 2	— 1,000	500	...
Dugandan	30	21,048	30	21,734	...	686	702	724
Esk	...	...	2	560	2	560	...	280
Gatton	39	22,867	32	16,502	— 7	— 6,365	586	516
Ipswich	8	20,000	14	32,592	6	12,592	2,500	2,328
Laidley	116	55,016	82	41,278	— 34	— 13,738	474	503
Logan	45	31,108	49	25,088	4	— 6,020	691	512
Nerang	5	2,450	...	...	— 5	— 2,450	490	...
Redcliffe	...	...	3	2,000	3	2,000	...	667
Rosewood	1	800	...	...	— 1	— 800	800	...
Woodford	...	...	5	672	5	672	...	134
Downs—								
Allora	1	1,792	...	...	— 1	— 1,792	1,792	...
Clifton	...	...	13	8,176	13	8,176	...	629
Highfields	...	...	1	700	1	700	...	700
Killarney	3	11,000	...	...	— 3	— 11,000	3,667	...
Toowoomba	15	7,142	8	4,480	— 7	— 2,662	476	560
Warwick	...	...	5	1,680	5	1,680	...	336
Maranoa—								
Roma	...	...	8	1,500	8	1,500	...	188
Total	295	195,715	269	165,992	— 26	— 29,723	663	617

Now that the local consumption has been practically overtaken, there does not appear to be a strong inducement to cultivators to extend their areas. The crop is a bulky one, and freight to any great distance would be an important consideration to the farmer. There were 26 acres and 29,723 lb. less grown in 1906 than in the former year, the yield per acre being 663 lb. in 1905 and 617 lb. last year. The quantity used by our manufacturers during each of the last five years is tabulated in the subjoined statement:—

Xb.

Year.	Total.	Queensland Grown.	Grown Elsewhere.
	Lb.	Lb.	Lb.
1902	172,127	34,828	137,299
1903	76,352	32,564	43,788
1904	123,757	88,678	35,079
1905	202,869	186,672	16,197
1906	183,644	180,144	3,500
Mean of Five Years	151,750	104,577	47,173

It is evident that a little of the cultivation escapes record. A searching inquiry made relating to the subject in a previous year showed that there were, in addition to the areas included by the collectors, many persons who grew small quantities, too limited in extent for special record, but which were in the aggregate considerable. This produce reached the factory, being collected by agents, and appeared in the consumption of the article, but not in the production. The quantity used by the Queensland makers was less than in the previous year, but as will be seen by the table, nearly all was grown within the State.

Canary Seed.—A much larger area was placed under this during 1906—namely, 949 acres—against 617 in 1905—the yield was much more satisfactory, 508,716 lb. being obtained against only 186,736 lb. in the previous year.

Grass Seed.—Largely panicum or Hungarian rye grass; 182 acres were cultivated for 11,231 bushels.

Mangold Wurzel.—Ninety-eight acres were planted with this, considerably less than in the previous year; the yield, however, was relatively much better, 1,089 tons being obtained. In 1905 the figures were 148 acres for 1,124 tons.

HOPS.

It has been reported that experiments in hop cultivation are being commenced on the Downs. The success or otherwise of the attempt will be watched with interest. In Germany the hop is cultivated in many small areas, and by this method the difficulties as to labour and drying attendant in large plantations such as are found in England, the United States, &c., have been minimised; moreover, it is found that the quality is better, largely owing to the individual attention possible in small areas. The quantity of hops per beer unit varies considerably in different countries—from 2·24 lb. in New Zealand, 1·27 lb. in the United Kingdom, to as low as 0·51 lb. in France. The amount for Queensland is somewhat high, being 1·60 lb., the unit being taken as the barrel of 31 gallons. On this basis the requirements for this State for 1906 would amount to about a quarter of a million pounds, whilst other industries would also absorb some 50,000 lb., the total value being about £17,500. It must be remembered, however, that even in those countries where the cultivation of hops is undertaken, only certain localities have been found suitable; thus, in England, hop cultivation is confined to a small portion of the south-eastern corner, and in this State it is quite likely that the most congenial spot has not been selected for this first attempt, but that such is to be found is, in view of the large territory available, highly probable.

Other crops which might be well worth the attention of the agriculturist, but are not yet in evidence:—

Sunflower.—Every portion valuable. Oil from the seed—a bushel yields about 1 gallon—the cake making excellent feed for stock, and the plant after the seed has been gathered is also readily eaten.

Camphor Laurel grows readily, matures with fair rapidity, and the camphor yield from a small area even would prove profitable.

Rape, both for oil and feed for stock.

Ramie, and many other fibre plants.

Rubber Plant.—This product is in much demand, with every prospect not only of a continuance but of a large and rapid expansion. Rubber production is an industry that, in proportion to the labour and expenditure required, will yield a return probably greater than that of nearly all other primary productions. It is a crop, of course, that has to be waited for, and is, therefore, admirably adapted as one for cultivation by persons already possessing a limited but regular income, but which, having regard for the future, they desire to ultimately increase. Steps are already being taken to establish plantations chiefly in the north-eastern districts.

Other Crops mentioned were—Cassava, 1 acre, 10 tons; cow-pea, 6 acres, 131 bushels; peanuts, 59 acres, 71,410 lb.; sisal hemp, 67 acres (not yet in bearing); and lucerne seed, 201 acres, 24,643 lb.

HAY CROPS.

Full details respecting these are given in the Appendix tables. A summary is printed below, which compares the results of the past two years:—

Y.

—	Area.		Increase or Decrease —	Production.		Increase or Decrease —
	1905.	1906.		1905.	1906.	
	Acres.	Acres.	Acres.	Tons.	Tons.	Tons.
Wheat	2,856	8,664	5,808	2,295	9,383	7,088
Oats	4,446	9,260	4,814	4,983	14,146	9,163
Lucerne	28,564	44,178	15,614	47,017	66,608	19,591
Other	1,559	2,396	837	2,534	4,206	1,672
Total	37,425	64,498	27,073	56,829	94,343	37,514

A great increase on the figures of the previous year is noticeable. The condition of some wheat areas intended for grain, when nearing maturity, is responsible for 5,808 acres being added to hay crops, as the proprietors, fearing it would prove a failure for grain, mowed their fields so as to secure some return, at least, for their labour. A satisfactory increase in oats and lucerne is apparent, the former accounting for 4,814 acres of the increase, and the latter amounting to 15,614 acres. Altogether 27,073 acres more were cut for hay than in the previous year, and the additional weight secured aggregated 37,514 tons. The average yields were—1905, wheat, 0·80 tons; oats, 1·12 tons; lucerne, 1·65 tons; all kinds, 1·52 tons; and, in 1906—wheat, 1·08 tons; oats, 1·53 tons; lucerne, 1·51 tons; and, all kinds, 1·46 tons. The average for wheat and oats has considerably increased, whilst that for lucerne has decreased, though there was no material difference existing between the two years with regard to the total.

GREEN FORAGE CROPS.

The excellent season for natural grasses is reflected in the smaller area utilised by being cut for green fodder, there being only 50,513 acres so recorded as against 66,183 acres in 1905. Much less wheat was so consumed—viz., 6,026 acres against 15,287 acres in the previous year. The area under oats was about 600 acres less, and lucerne about 1,000. The area of both wheat and barley cut green during 1905 was abnormally large.

ARTIFICIALLY-SOWN PASTURE.

The area shown under this heading fluctuates considerably from year to year. A large proportion of the land under this category consists of lucerne paddocks, which, according to the needs of the farmer, are either grazed over, cut for hay, or cut for green fodder. When an abnormally large area is utilised for grazing, the area under cultivation suffers, as it is not then tabulated as cultivated land. The area so described in 1906 was 45,900 acres, against 40,802 in 1905, and 35,589 in 1904.

Particulars respecting the more important districts are given in the following table:—

Z.

Petty Sessions District.	1905.	1906.	Increase, 1906.	Decrease, 1906.
	Acres.	Acres.	Acres.	Acres.
Allora	935	1,492	557	...
Beaudesert	368	448	80	...
Cairns	27	937	910	...
Clifton	7,645	2,409	...	5,236
Crow's Nest	4,467	2,786	...	1,621
Dalby	1,841	2,672	831	...
Dugandan	73	30	...	43
Esk	429	1,019	590	...
Gatton	2,267	521	...	1,746
Gympie	227	1,415	1,188	...
Herberton	1,511	1,638	127	...
Highfields	205	533	328	...
Ipswich	45	18	...	27
Kilkivan	74	253	179	...
Killarney	271	385	114	...
Maroochy	3,203	4,151	948	...
Nanango	1,476	3,181	1,705	...
Nerang	1,486	2,635	1,149	...
Redcliffe	...	536	536	...
Rockhampton	36	380	344	...
Stanthorpe	30	315	285	...
Toowoomba	7,738	10,394	2,656	...
Warwick	5,024	5,394	370	...
Woodford	789	1,052	263	...
All other Districts	695	1,396	701	...
Total State	40,802	45,990	5,188	...

ENSILAGE.

There were a considerable number of persons presumably experimenting in this direction during 1906, for in twelve more districts a quantity, large or small, was recorded. The only districts that made any large quantity were—Allora, 466 tons; and Toowoomba, 1,205 tons. The total weight preserved was 3,201 tons, compared with 1,199 tons in 1905, and 1,735 tons in 1904.

Z a.

Petty Sessions District.	1905.	1906.	Increase, 1906.	Decrease, 1906.
	Tons.	Tons.	Tons.	Tons.
Allora	400	466	66	...
Bowen	...	30	30	...
Caboolture	...	2	2	...
Cairns	80	70	...	10
Charters Towers	...	30	30	...
Crow's Nest	...	80	80	...
Dalby	30	50	20	...
Esk	...	230	230	...
Gatton	32	120	88	...
Gladstone	...	40	40	...
Gympie	...	24	24	...
Harrisville	...	25	25	...
Highfields	...	197	197	...
Inglewood	5	8	3	...
Ipswich	20	15	...	5
Kilkivan	...	200	200	...
Nerang	100	105	5	...
Rockhampton	...	30	30	...
South Brisbane	...	3	3	...
Springsure	30	...	...	30
Toowoomba	230	1,205	975	...
Warwick	272	267	...	5
Townsville	...	4	4	...
	1,199	3,201	2,002	...

I am indebted to the Chief Compiler, Mr. Shackel, for valuable assistance in the preparation of this report.

THORNHILL WEEDON, F.S.S.,
Government Statistician.

Government Statistician's Office,
Brisbane, 4th July, 1907.

APPENDIX.

Table No. I.

RETURN OF THE NUMBER OF HORSES, CATTLE, SHEEP, AND PIGS IN THE VARIOUS PETTY SESSIONS DISTRICTS OF THE STATE, TOGETHER WITH THE INCREASE AND DECREASE OF CATTLE AND SHEEP ON THE 31ST DECEMBER, 1906.

Petty Sessions District.	Horses.	Cattle.				Sheep.				Pigs.
		1905.	1906.	1906.		1905.	1906.	1906.		
	1906.			Increase.	Decrease.			Increase.	Decrease.	1906.
Adavale	2,016	8,371	9,106	735	...	340,749	447,250	106,501	...	46
Allora...	2,840	9,726	12,392	2,666	...	23,276	21,401	...	1,875	3,009
Alpha	2,342	6,560	9,822	3,262	...	155,341	74,281	...	81,060	396
Aramac	1,266	2,250	3,068	818	...	265,029	215,142	...	49,887	37
Augathella	1,851	10,728	14,914	4,186	...	200,575	291,586	91,011	...	95
Ayr	4,893	20,231	22,499	2,268	...	351	407	56	...	814
Banana	2,702	26,679	34,316	7,637	...	30,559	47,947	17,388	...	164
Barcaldine	2,893	5,423	5,621	198	...	603,222	623,967	20,745	...	163
Beaudesert	4,605	53,601	61,432	7,831	...	708	791	83	..	6,044
Biggenden	1,801	5,699	6,980	1,281	...	2,234	1,840	...	394	861
Blackall	3,525	4,216	5,016	800	...	566,757	608,617	41,860	...	335
Bollon	3,145	22,834	31,349	8,515	...	421,134	503,439	82,305	...	122
Boulia	4,939	69,331	68,354	...	977	70,889	53,522	...	17,367	14
Bowen	10,884	77,450	90,608	13,158	...	5,547	5,378	...	169	737
Brisbane	8,599	13,406	14,577	1,171	...	548	817	269	...	3,338
Bundaberg	6,899	20,919	24,037	3,118	..	143	343	200	...	2,152
Burke	6,519	126,541	119,746	...	6,795	997	1,012	15	...	148
Caboolture	915	6,389	7,247	858	...	195	157	...	38	865
Cairns	2,507	3,719	4,209	490	...	167	234	67	...	556
Camooweal	2,644	41,175	30,836	...	10,339	18,927	18,202	...	725	12
Cape River	4,442	40,307	50,507	10,200	...	25,320	20	...	25,300	401
Cardwell	1,309	6,294	6,215	...	79	...	...	...	...	25
Charleville	4,337	34,808	35,333	525	...	334,469	486,205	151,736	...	318
Charters Towers	12,948	88,325	109,686	21,361	...	538	1,668	1,130	...	2,168
Childers	2,645	5,609	6,988	1,379	...	714	764	50	...	972
Clermont	6,396	32,761	41,175	8,414	...	376,211	400,268	24,057	...	770
Cleveland	483	1,013	1,127	114	...	...	...	...	...	281
Clifton	4,668	11,486	14,224	2,738	...	57,731	64,013	6,282	...	2,831
Cloncurry	7,552	94,815	99,836	5,021	...	279,179	265,697	...	13,482	239
Coen	2,044	7,642	6,924	...	718	...	...	...	...	93
Condamine	1,412	10,717	17,204	6,487	...	22,817	8,121	...	14,696	277
Cook	3,468	22,507	16,719	...	5,788	...	...	...	...	360
Crow's Nest	3,509	18,790	24,259	5,469	...	920	2,665	1,745	...	4,399
Croydon	2,469	21,604	14,573	...	7,031	...	...	...	..	340
Cunnamulla	3,330	8,042	21,110	13,068	...	868,587	993,088	124,501	...	169
Dalby	9,948	35,478	50,817	15,339	...	561,888	643,386	81,498	...	4,021
Diamantina	2,476	23,791	29,690	5,899	...	4,375	6,256	1,881	...	...
Douglas	948	404	375	...	29	...	...	...	...	58
Dugandan	3,627	27,439	30,932	3,493	...	289	229	...	60	5,790
Eidsvold	4,422	45,037	50,597	5,560	...	20,758	23,325	2,567	...	226
Emerald	1,352	5,222	8,217	2,995	...	17,226	17,966	740	...	466
Esk	6,041	66,608	79,372	12,764	...	1,348	1,151	...	197	4,024
Etheridge	7,620	105,324	119,920	14,596	...	...	...	...	...	275
Eulo	670	6,988	7,432	444	...	152,379	178,657	26,278	...	38
Gatton	6,193	32,135	36,080	3,945	...	377	354	...	23	7,157
Gayndah	4,825	53,853	69,494	15,641	...	2,305	2,627	322	...	759
Gin Gin	3,853	31,075	37,185	6,110	...	522	712	190	...	878
Gladstone	10,942	85,316	99,892	14,576	...	4,766	4,398	...	368	1,584
Goodna	578	1,958	1,865	..	93	97	32	...	65	276
Goondiwindi	2,998	19,284	28,399	6,051	...	299,893	388,037	45,508	...	611
Southwood		3,064				42,636				
Gympie	5,346	36,076	44,912	8,836	...	186	302	116	...	2,937
Harrisville	2,523	18,590	20,660	2,070	...	368	346	...	22	3,468
Herberton	9,654	53,324	57,865	4,541	...	170	220	50	...	978
Highfields	2,486	11,578	12,727	1,149	...	5,353	9,713	4,360	...	3,481
Hughenden	4,381	40,203	50,959	10,756	..	406,381	301,548	...	104,833	282
Hungerford	593	774	2,792	2,018	...	108,514	142,631	34,117	...	24
Ingham	6,454	24,488	24,988	500	...	173	171	...	2	1,945
Inglewood	2,160	19,095	20,940	1,845	...	134,508	113,675	...	20,833	436
Ipswich	4,646	21,074	22,869	1,795	...	535	878	343	...	2,733
Isisford	2,789	1,495	2,001	506	...	320,510	501,074	180,564	...	30
Jundah	1,008	7,467	7,529	62	...	155,644	142,175	...	13,469	15
Kilkivan	3,868	47,179	53,178	5,999	...	3,093	5,506	2,413	...	912
Killarney	1,916	6,842	8,873	2,031	...	2,080	2,712	632	...	1,231
Laidley	3,903	16,279	19,128	2,849	...	600	164	...	436	5,950
Logan	2,475	11,507	11,276	...	231	109	95	...	14	1,577
Longreach	6,699	9,172	14,162	4,990	...	761,622	1,163,922	402,300	...	208
Mackay	18,788	56,549	62,404	5,855	...	17,181	18,423	1,242	...	1,672
Marburg	1,632	9,105	9,841	736	...	...	36	36	...	4,159
Mareeba	1,275	1,457	1,605	148	...	35	43	8	...	208
Maroochy	2,015	8,023	9,871	1,848	...	277	465	188	...	1,179
Maryborough	4,891	17,122	19,009	1,887	...	453	412	...	41	1,376
Mitchell	4,452	42,104	48,230	6,126	...	125,989	197,671	71,682	...	442
Mount Morgan	3,928	7,658	8,589	931	...	231	255	24	...	653
Mourilyan	968	1,293	1,512	219	...	48	30	...	18	487
Muttaburra	4,226	14,429	16,625	2,196	...	986,211	1,070,648	84,437	...	61
Nanango	6,173	48,622	55,346	6,724	...	7,108	1,231	...	5,877	2,294
Nerang	2,317	13,189	15,358	2,169	...	351	373	22	...	2,387
Norman	6,366	187,263	169,747	...	17,516	...	108	108	..	111
Palmer	1,150	3,301	3,501	200	...	...	...	...	...	...
Ravenswaod	2,835	6,565	6,071	...	494	50	127	77	...	386
Redcliffe	1,845	11,905	13,082	1,177	...	11	13	2	...	2,076
Richmond	5,768	76,170	97,176	21,006	...	537,700	716,641	178,941	...	209

Table No. I.—*continued.*

Petty Sessions District.	Horses.	Cattle.				Sheep.				Pigs.
		1905.	1906.	1906.		1905.	1906.	1906.		
	1906.			Increase.	Decrease.			Increase.	Decrease.	1906.
Rockhampton	22,601	122,117	153,573	31,456	...	11,655	13,024	1,369	...	5,956
Roma	5,905	32,900	45,424	12,524	...	180,128	257,955	77,827	...	1,161
Rosewood	2,915	20,242	21,984	1,742	...	392	275	...	117	4,144
St. George	3,885	13,806	20,331	6,525	...	699,069	754,167	55,098	...	204
St. Lawrence	4,718	32,673	38,260	5,587	...	992	1,042	50	...	140
Somerset	146	656	512	...	144	...	...	...	...	284
South Brisbane	3,777	7,765	9,047	1,282	...	387	605	218	...	1,580
Springsure	4,662	39,981	48,735	8,754	...	211,481	214,145	2,664	...	693
Stanthorpe	2,442	18,298	19,305	1,007	...	90,759	97,761	7,002	...	391
Surat	1,726	9,712	13,674	3,962	...	262,922	322,743	59,821	...	135
Tambo	2,171	6,325	9,548	3,223	...	371,288	415,134	43,846	...	41
Taroom	2,827	34,417	44,488	10,071	...	47,303	39,587	...	7,716	57
Tenningering	1,907	13,127	18,669	5,542	...	173	158	...	15	190
Texas	1,480	9,440	11,522	2,082	...	7,262	10,351	3,089	...	272
Thargomindah	6,138	40,497	55,328	14,831	...	141,456	146,932	5,476	...	106
Thornborough	3,931	36,714	40,321	3,607	...	...	...	...	...	324
Tiaro	5,252	35,323	40,498	5,175	...	519	626	107	...	1,388
Toowoomba	14,277	53,062	66,617	13,555	...	554,252	591,914	37,662	...	9,821
Townsville	7,674	19,821	22,505	2,684	...	98	562	464	...	1,720
Warwick	8,427	40,527	45,658	5,131	...	148,813	159,160	10,347	...	4,116
Windorah	1,669	13,981	19,783	5,802	...	72,008	117,548	45,540	...	44
Winton	5,900	23,928	34,517	10,589	...	368,837	938,889	570,052	...	61
Woodford	2,823	21,461	23,685	2,224	..	566	564	...	2	1,519
Yeulba	843	4,080	4,833	753	...	6,687	5,716	..	971	314
Total in State in 1906 ...	452,916	...	3,413,919	...	...	...	14,886,438	...	...	138,282
Total in State in 1905 ...	430,565	2,963,695	...	...	...	12,535,231	...	...	...	164,087
Increase in 1906	22,351	...	...	450,224		...	...	2,351,207		...
Decrease in 1906	...	...	...	...		...	...	...		25,805
Centesimal Increase in 1906 ...	5·19	...	...	15·19		...	...	18·76		...
Centesimal Decrease in 1906 ..	...	...	...	...		...	...	...		15·73

Table No. II.

RETURN OF THE NUMBER OF HORSES, CATTLE, SHEEP, AND PIGS IN THE VARIOUS PASTORAL DISTRICTS OF THE STATE FOR THE YEARS 1905 AND 1906, TOGETHER WITH THE NUMERICAL AND CENTESIMAL INCREASE OR DECREASE IN THE LATTER YEAR.

Pastoral District.	Year.	Horses.	Cattle.	Sheep.	Pigs.	Numerical Increase or Decrease—				Centesimal Increase or Decrease—			
						Horses.	Cattle.	Sheep.	Pigs.	Horses.	Cattle.	Sheep.	Pigs.
Burke ...	1905	33,412	531,552	1,118,573	1,258	...	...	...	...	...	...	...	...
	1906	33,772	534,318	1,224,401	1,281	360	2,766	105,828	23	1·08	0·52	9·46	1·83
Burnett ...	1905	19,953	200,054	33,221	6,624	...	...	...	...	...	...	...	...
	1906	21,868	239,476	34,187	5,017	1,915	39,422	966	— 1,607	9·60	19·71	2·91	—24·26
Cook ...	1905	32,213	238,450	250	4,462	...	...	...	...	...	...	...	...
	1906	32,565	239,139	307	3,483	352	689	57	— 979	1·09	0·29	22·80	—21·94
Darling Downs	1905	50,741	249,791	1,951,325	36,026	...	...	...	...	...	...	...	...
	1906	55,087	310,203	2,110,328	30,527	4,346	60,412	159,003	—5,499	8·57	24·19	8·15	—15·26
Gregory North	1905	12,327	109,815	465,917	111	...	...	...	...	...	...	...	...
	1906	12,633	124,310	1,034,721	89	306	14,495	568,804	— 22	2·48	13·20	122·08	—19·82
Gregory South	1905	5,209	45,157	161,648	85	...	...	...	...	...	...	...	...
	1906	6,318	63,348	194,426	131	1,109	18,191	32,778	46	21·29	40·28	20·28	54·12
Leichhardt ...	1905	30,680	234,550	403,809	6,548	...	...	...	...	...	...	...	...
	1906	35,022	305,913	413,562	5,750	4,342	71,363	9,753	— 798	14·15	30·43	2·42	—12·19
Maranoa ...	1905	17,363	103,557	1,694,487	3,149	...	...	...	...	...	...	...	...
	1906	19,143	136,595	2,041,241	2,328	1,780	33,038	346,754	— 821	10·25	31·90	20·46	—26·07
Mitchel ...	1905	23,059	73,162	4,009,347	813	...	...	...	...	...	...	...	...
	1906	24,810	91,043	4,639,950	868	1,751	17,881	630,603	55	7·59	24·44	15·73	6·77
Moreton ..	1905	64,132	386,014	10,128	73,809	...	...	...	...	...	...	...	...
	1906	65,682	439,200	10,010	63,021	1,550	53,186	— 118	—10,788	2·42	13·78	— 1·17	—14·62
North Kennedy	1905	49,840	277,812	22,807	7,929	...	...	...	...	...	...	...	...
	1906	50,909	317,066	7,963	8,336	1,069	39,254	— 14,844	407	2·14	14·13	—65·09	5·13
Port Curtis ...	1905	24,424	173,229	9,567	4,734	...	...	...	...	...	...	...	...
	1906	23,367	192,721	11,301	4,203	— 1,057	19,492	1,734	— 531	— 4·33	11·25	18·12	—11·22
South Kennedy	1905	23,986	102,610	389,039	3,131	...	...	...	...	...	...	...	...
	1906	25,921	129,230	382,390	2,669	1,935	26,620	— 6,649	— 462	8·07	25·94	— 1·71	—14·76
Warrego ...	1905	14,720	83,890	2,262,176	823	...	...	...	...	...	...	...	...
	1906	16,066	109,448	2,777,992	726	1,346	25,558	515,816	— 97	9·14	30·47	22·80	—11·79
Wide Bay ...	1905	28,506	154,052	2,937	14,585	...	...	...	...	...	...	...	...
	1906	29,753	181,909	3,659	9,853	1,247	27,857	722	—4,732	4·37	18·08	24·58	—32·44

Table No. III.

RETURN of LIVE STOCK SLAUGHTERED for PRESERVATION as FOOD, or FREEZING, or for TALLOW, in the STATE, during the YEARS 1897-1906, with the Quantity and Value of MEAT, TALLOW, LARD, &c., produced.

Year.	Number of Establishments.	Average Number of Hands Employed.	NUMBER SLAUGHTERED. Cattle. For Freezing.	Cattle. For Preserving.	Cattle. For Boiling Down.	Sheep. For Freezing.	Sheep. For Preserving.	Sheep. For Boiling Down.	† Hogs.	MEAT PRESERVED OR FROZEN. Beef. Frozen.	Beef. Fresh Preserved.	Beef. Salted.	Mutton. Frozen.	Mutton. Preserved.	† Bacon and Hams.	† Pork, Salt and Fresh.	Extract and Essence of Meat Produced.	Quantity of Tallow Produced.	Quantity of Lard Produced.	Total Value of all Products shown here.
									No.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	tons.	lb.	£
1897	38	2,604	111,267	62,342	85 754	70,8°5	259,536	615,454	76.719	62,764,267	34,941,056	106,499	2.952,290	1,970,959	6,103,485	1,191,345	463,386	13,651	167,743	78 ,539
1898	46	2,876	112,940	65,966	147,528	61,258	69,0 6	146,845	85,510	64,676,868	23,2 9,919	1 972,00)	2.355 030	967,363	6.973.007	878,901	1,593,285	13.6 9	216,194	548,651
1899	47	3,156	117,668	140,815	127,983	119,964	144,345	215,5 9	101,704	78,173,578	46,031,300	1.192,152	4,966,390	2,616,318	7,147,760	975,302	1,925,193	19,165	222,460	1,101,004
1900	33	2,540	150,0 7	108,975	21.022	50,719	75,887	25,049	90,608	91,006,191	33,111,290	1,153,285	2.285,758	1,379,785	7,685,446	696,062	759,193	9.657	381,6 5	1,068 623
1901	26	1,879	140,011	57,447	2,285	64,121	67,692	301	104,017	90,053,829	29,732,204	173,716	3,337,332	2,827,247	7,064,714	662,500	343,014	8,231	405,181	1,729 082
1902	22	1,548	132,166	51,205	2,471	117,729	189,025	2,251	88,416	85,743.229	22,543,999	479,138	5,225,727	*5,374,696	6,512,952	841,673	192.781	5 237	197,990	1 835,665
1903	16	999	108,343	16,149	922	102,0 7	13.309	110	54,712	66,483.364	9,773.112	73,924	4,9 6.991	498,416	4,145 900	940,489	100,729	3,661	273,257	1,437,701
1904	17	1,059	51,108	19,066	579	90,828	10,206	...	106,633	36,514.333	10,227,433	400,237	4,598,825	470,645	6,514,852	2,131,647	59.091	4,290	314 489	952.388
1905	15	1.516	66,288	14,315	156	267,248	20,186	65	153,136	47,846,259	9,982.659	57,421	12.381,958	779,122	10.560 335	2.282,881	58 803	4 179	522 190	1.142 226
1906	11	1,050	60,807	15,936	791	107,527	11,994	12	153,918	42,362,283	10,293,794	...	4,251.216	486,367	10,846,959	1,814,670	33,295	3,237	456,357	1,015,247

* Includes 3,970 lb. salted.

† Pigs killed by farmers, and pork and bacon made therefrom, are included in this table.

Table No. IV.

RETURN showing the NUMBER of CATTLE, SHEEP, &c., SLAUGHTERED (under the supervision of Inspectors of Slaughter-Houses only) for CONSUMPTION as FOOD in the STATE, together with the AVERAGE DEAD WEIGHT of each ANIMAL and the ESTIMATED QUANTITY CONSUMED PER CAPITA, for FIVE YEARS, ending 31ST DECEMBER, 1906 (exclusive of Factories engaged in Slaughtering for Preservation).

YEARS.	*POPULATION. Estimated for the Year.	NUMBER SLAUGHTERED. Cattle.	Sheep.	Calves.	Lambs.	Hogs.	AVERAGE DEAD WEIGHT. Cattle.	Sheep.	Calves.	Lambs.	Hogs.	CONSUMPTION PER CAPITA. Beef.	Mutton.	Veal.	Lamb.	Pork.	Total.
							lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
1902	493,117	148,970	399,412	9,919	7,026	33,387	540	35	58	25	77	163	28	1	0·36	5·21	197·57
1903	497,794	132,237	335,610	4,772	2,630	25,644	577	46	60	34	82	153	31	0·57	0·18	4·22	188·97
1904	503,574	133,368	297,103	6,594	2,551	27,852	655	50	58	33	84	173	29	0·76	0·17	4 65	207·58
1905	508,123	129,191	294,732	4,512	5,175	32,653	662	48	62	34	77	168	28	0·55	0·35	4·97	201·87
1906	514,948	140,386	323,525	5,549	6,489	34,615	661	48	62	35	79	180	30	0·66	0·44	5·33	216·43

* The figures quoted in this column refer to he estimated number of consumers calculated on data in the Statistical Department.

Table No. V.

OTHER PRODUCTS of MEAT PRESERVING, ETC., ESTABLISHMENTS in the STATE—RETURN for TEN YEARS.

Year.	No.	Manure.		Edible Fats.		Hides.		Skins.		Bones.		Horns and Hoofs.	Hair.		Oils, &c.		All Other Products.*	Total Value.
		Tons.	£	Lb.	£	Number.	£	Number.	£	Tons.	£	£	Lb.	£	Gallons.	£		£
1897	33	10,738	24,654	673,385	8,455	259,160	161,979	928,330	125,043	954	3,696	3,307	76,539	1,843	18,478	1,819	...	330,801
1898	46	15,072	36,133	1,083,523	14,189	325,933	227,175	275,824	39,736	991	4,685	5,615	72,358	1,871	27,678	2,899	...	332,303
1899	47	17,347	56,446	985,121	13,163	395,929	337,931	524,215	97,016	1,265	6,363	10,819	92,487	2,359	26,000	2,831	...	526,928
1900	27	9,519	31,518	1,362,786	19,792	265,051	235,239	191,445	28,850	655	3,739	12,900	39,089	2,001	17,590	2,022	9,073	345,134
1901	18	4,037	21,999	1,382,080	21,244	182,708	180,673	187,126	14,847	522	2,873	5,321	34,670	1,820	16,916	2,218	8,668	259,663
1902	18	3,654	14,274	1,191,572	21,572	178,090	170,874	275,176	26,311	578	3,824	3,649	16,310	860	18,760	2,283	6,613	213,647
1903	12	2,215	9,973	1,033,491	16,807	130,639	135,518	150,900	21,466	625	3,660	4,667	17,819	797	10,540	1,296	15,019	209,123
1904	12	1,763	8,667	377,105	5,109	76,677	86,505	124,251	19,023	159	1,001	3,069	28,933	813	7,242	753	20,912	145,852
1905	12	1,566	8,466	1,036,602	15,727	90,184	92,405	308,017	63,937	167	1,033	3,717	41,142	894	7,114	826	21,724	08,729
1906	9	1,448	8,197	1,539,004	23,796	83,699	102,141	155,357	35,769	156	1,267	2,004	35,525	738	8,216	967	12,818	188,297

* Not compiled prior to 1900.

Table No. VI.

RETURN showing the TOTAL EXTENT of LAND under CULTIVATION, and the AREA under each DESCRIPTION of CROP, in the several PETTY SESSIONS DISTRICTS of the STATE during the YEAR 1906.

DIVISIONS AND PETTY SESSIONS DISTRICTS.	Total Extent of Land under permanent Pasture with Artificially Sown Grasses.	Total Extent of Land under Cultivation.	Land in Fallow and Totally Unproductive.	Total Extent of Land under Crop.	GRAIN CROPS.							POTATOES.		Pumpkins and Melons.	Cotton.	Sugar-cane.	Arrowroot.	Tobacco.	COFFEE.		Hay (All Kinds).	Green Fodder.	VINE.		Bananas.	Pineapples.	Oranges.	Other Crops.	Gardens and Orchards.
					Wheat.	Oats.	Barley.		Maize.	Rye.	Rice.	English.	Sweet.						Bearing.	Not yet Bearing.			Bearing.	Not yet Bearing.					
							Malting.	Other.																					
Moreton Division.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Beaudesert	448	5,833	493	5,340	...	...	...	...	3,015	...	...	175	17	262	1	...	...	...	...	...	715	1,031	3	1	...	...	19	44	57
Brisbane	197	5,255	87	5,168	...	3	...	...	776	...	...	247	257	214	2	...	...	...	...	...	494	1,041	260	20	353	715	49	507	230
Caboolture	171	1,404	156	1,248	...	...	...	...	549	...	...	92	82	20	...	...	1	...	...	...	32	220	5	...	4	37	59	24	123
Cleveland	14	1,006	88	918	...	...	...	...	20	1	...	6	31	15	...	...	...	...	...	...	23	83	9	6	86	353	37	231	7
Crow's Nest	2,786	9,321	809	8,512	693	4	192	20	5,029	1	...	534	3	552	...	...	...	...	...	...	459	936	10	...	...	...	19	53	7
Dugandan	30	10,475	...	10,475	14	...	...	...	7,742	...	...	114	21	342	9	...	2	...	...	...	965	1,157	10	...	15	1	10	47	26
Esk	1,019	5,181	150	5,031	...	...	...	...	2,421	...	...	117	130	743	...	...	...	...	...	...	863	669	5	2	...	...	30	31	20
Gatton	521	23,623	1,643	21,980	42	...	37	6	9,977	...	...	1,383	354	1,831	12	...	...	...	...	...	4,450	3,399	133	6	...	...	180	130	40
Goodna	3	571	...	571	...	...	...	...	236	...	...	24	2	71	10	...	...	...	...	...	149	44	8	1	...	...	13	...	13
Harrisville	18	8,059	303	7,756	...	...	...	...	4,285	...	...	88	78	191	14	...	...	...	...	...	1,694	1,309	24	...	...	...	20	52	1
Ipswich	18	4,558	238	4,320	...	...	...	...	1,833	...	...	98	67	155	1	...	...	...	...	...	528	1,476	19	...	...	1	26	57	69
Laidley	130	18,813	192	18,621	...	...	...	...	11,251	30	...	605	224	1,333	3	...	...	...	...	...	3,065	1,809	18	3	10	2	25	131	112
Logan	...	5,585	...	5,585	...	...	...	...	1,246	...	2	341	214	2	...	2,473	93	...	...	...	167	342	51	6	88	211	142	162	45
Marburg	59	7,738	...	7,738	...	...	...	...	3,772	...	...	57	146	368	...	820	3	...	...	...	80	2,172	25	5	7	1	10	34	238
Maroochy	4,151	6,345	96	6,249	...	3	...	...	906	...	...	71	48	5	1	3,028	15	...	46	22	57	156	9	6	491	223	770	126	266
Nerang	2,635	4,143	111	4,032	...	...	...	...	1,607	...	...	331	17	6	...	873	241	7	...	...	320	456	6	1	1	...	118	30	18
Redcliffe	536	4,283	529	3,754	...	10	...	...	1,749	...	...	263	153	14	...	...	...	...	...	...	576	680	16	2	196	38	35	16	
Rosewood	...	8,662	897	7,765	...	1	...	2	154	...	...	86	74	188	3	70	8	...	...	...	1,551	2,564	51	...	...	...	1	10	2
South Brisbane ...	46	2,224	146	2,078	...	...	...	...	260	...	...	108	178	21	...	...	...	...	...	...	582	500	124	2	...	38	39	84	142
Woodford	1,052	1,483	34	1,449	...	...	...	...	860	...	...	44	20	128	...	...	3	...	...	...	156	153	1	...	...	...	23	17	44
Total Moreton ...	13,834	134,562	5,972	128,590	749	21	229	28	60,688	32	2	4,784	2,116	6,461	56	7,264	366	7	46	22	16,926	20,197	787	61	1,251	1,620	1,615	1,786	1,476
Downs Division.																													
Allora	1,492	27,386	5,831	21,555	5,043	449	231	254	4,209	12	...	225	...	574	...	...	...	...	...	...	5,382	4,997	10	2	...	...	18	61	88
Clifton	2,409	35,775	1,470	34,305	11,833	69	1,879	61	7,137	...	...	59	...	391	...	...	...	...	...	...	8,306	4,058	28	4	...	...	3	460	17
Condamine	...	721	70	651	572	...	10	...	29	...	...	...	...	6	...	...	...	...	...	...	15	12	5	...	...	...	1	1	...
Dalby	2,672	21,561	861	20,700	13,545	26	524	393	2,309	...	...	34	1	300	7	...	...	...	...	...	1,210	2,235	16	3	...	...	10	51	36
Goondiwindi	...	372	79	293	98	...	...	1	5	...	...	1	...	3	...	...	...	...	...	...	158	2	2	...	...	...	5	12	6
Highfields	533	15,808	711	15,097	3,608	43	471	40	6,734	7	...	401	...	756	...	...	...	...	...	...	1,750	1,076	55	1	...	...	14	68	73
Inglewood	52	1,715	40	1,675	613	15	9	5	289	...	...	16	...	126	...	...	...	61	...	...	427	106	2	...	...	...	...	6	...
Killarney	385	15,326	260	15,066	5,966	6	282	49	6,000	...	...	168	...	195	...	...	...	1	...	...	1,204	1,111	3	...	...	...	1	57	23
Stanthorpe	315	1,532	19	1,513	1	...	...	...	73	4	...	103	...	28	...	...	...	...	...	...	149	186	48	39	...	...	...	841	41
Texas	...	977	1	976	98	...	...	1	146	...	...	1	...	37	1	...	...	591	...	...	81	20	...	...	...	...	...	...	...
Toowoomba	10,394	72,658	8,175	64,483	20,537	458	2,345	494	11,164	8	...	196	...	856	...	...	...	...	...	...	15,341	11,837	186	6	...	...	55	729	271
Warwick	5,394	38,560	1,260	37,300	16,365	109	570	566	10,078	38	...	333	3	884	...	...	...	...	...	...	5,811	1,931	46	6	...	...	2	434	124
Total Downs ...	23,646	232,391	18,777	213,614	78,279	1,175	6,321	1,864	48,173	69	...	1,537	4	4,156	8	...	...	653	...	...	39,834	27,571	401	61	...	...	109	2,720	679
Maranoa Division.																													
Bollon	...	5	...	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
Mitchell	...	5,937	669	5,268	4,807	...	...	...	30	...	...	9	...	...	...	...	...	...	...	...	385	23	2	9	...	...	...	...	3
Roma	..	33,235	3,483	29,752	27,476	1	100	4	499	...	...	42	4	28	...	...	...	...	...	...	979	96	349	118	...	...	8	20	28
St. George	...	324	167	157	10	...	...	...	9	...	...	8	...	4	...	...	...	...	...	...	84	9	2	1	...	...	4	2	24
Surat	...	349	...	349	313	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	36	...	...	...	...	...	...	...	...
Yeulba	...	1,930	47	1,883	1,818	...	...	4	26	...	...	4	...	...	...	...	...	...	...	...	29	1	1	...	...	...	...	...	...
Total Maranoa ...	...	41,780	4,366	37,414	34,424	1	100	8	564	...	...	63	4	32	...	...	...	...	...	...	1,513	129	354	128	...	...	12	22	60

Table No. VI.—*continued.*

DIVISIONS AND PETTY SESSIONS DISTRICTS.	Total Extent of Land under permanent Pasture with Artificially Sown Grasses.	Total Extent of Land under Cultivation.	Land in Fallow and Totally Unproductive.	Total Extent of Land under Crop.	GRAIN CROPS.							POTATOES.		Pumpkins and Melons.	Cotton.	Sugar-cane.	Arrowroot.	Tobacco.	COFFEE.		Hay (All Kinds).	Green Fodder.	VINES.		Bananas.	Pineapples.	Oranges.	Other Crops.	Gardens and Orchards.
					Wheat.	Oats.	Barley. Malting.	Barley. Other.	Maize.	Rye.	Rice.	English.	Sweet.						Bearing.	Not yet Bearing.			Bearing.	Not yet Bearing.					
Rockingham Division.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Cairns	937	13,542	430	13,112	...	...	...	...	1,019	...	6	17	61	12	47	10,712	...	...	94	2	...	85	...	...	808	74	127	29	19
Cardwell	...	947	...	947	...	...	...	...	78	...	...	...	11	...	5	...	...	6	...	...	...	...	...	...	626	...	209	12	...
Douglas	9	7,595	...	7,595	...	...	...	...	157	...	1	4	6	1	...	7,305	...	...	7	...	...	...	...	...	29	1	63	20	1
Herberton	1,638	7,749	10	7,739	...	...	...	...	7,278	...	...	22	42	25	...	...	2	...	3	3	198	38	1	...	8	2	35	23	59
Ingham	11	14,206	1,101	13,105	...	...	...	...	2	...	...	9	22	...	...	13,024	...	...	...	...	...	20	...	...	5	...	7	16	...
Mareeba	40	317	44	273	...	...	...	...	193	...	...	19	16	1	...	...	...	...	4	...	...	19	...	...	2	...	7	7	5
Mourilyan	...	11,778	1,295	10,483	...	...	...	...	99	...	...	...	66	...	...	8,241	25	...	15	...	...	23	...	...	1,966	10	35	3	...
Total Rockingham	2,635	56,134	2,880	53,254	...	...	...	...	8,826	...	7	71	224	39	52	39,282	27	6	123	5	198	185	1	...	3,444	87	483	110	84
Edgecumbe Division.																													
Ayr	...	8,195	582	7,613	...	...	...	...	199	...	...	13	23	13	...	7,289	...	...	...	...	...	59	...	...	5	...	9	...	3
Bowen	1	4,598	178	4,420	...	...	...	...	296	...	...	133	28	52	...	3,421	...	...	...	...	...	36	...	...	3	13	208	229	1
Mackay	18	32,210	83	32,127	...	...	...	...	47	...	5	41	54	13	...	31,472	...	...	30	12	9	131	7	...	67	4	25	69	141
Townsville	2	574	6	568	...	...	...	...	49	...	...	209	36	126	...	...	...	...	...	...	21	5	2	...	2	2	9	55	52
Total Edgecumbe	21	45,577	849	44,728	...	...	...	...	591	...	5	396	141	204	...	42,182	...	...	30	12	30	231	9	...	77	19	251	353	197
Port Curtis Division.																													
Gladstone	10	1,052	234	818	...	...	...	...	538	...	...	56	13	15	...	51	...	...	...	...	71	15	2	...	20	6	14	11	6
Mount Morgan ...	...	111	...	111	...	...	...	...	2	12	...	4	4	...	...	...	...	...	...	...	...	9	2	...	...	1	2	16	59
Rockhampton	380	4,320	741	3,579	...	2	1	...	898	...	1	204	160	200	12	...	...	...	11	...	1,447	207	63	11	27	51	82	95	107
Total Port Curtis ...	390	5,483	975	4,508	...	2	1	...	1,438	12	1	264	177	215	12	51	...	...	11	...	1,518	231	67	11	47	58	98	122	172
Burnett and Wide Bay Division.																													
Biggenden	121	2,381	108	2,273	...	...	...	...	1,783	...	...	49	33	97	...	...	...	...	...	...	142	122	3	...	...	...	4	1	39
Bundaberg	16	25,945	773	25,172	...	...	...	...	2,097	...	...	44	53	60	...	21,697	...	...	...	...	562	282	32	3	22	23	52	44	201
Childers	160	17,068	1,583	15,485	...	...	...	...	845	5	...	25	31	16	...	14,265	...	...	...	...	143	42	2	...	5	13	8	65	20
Eidsvold	5	409	46	363	...	...	...	...	242	...	...	11	6	6	...	...	...	...	...	...	73	3	2	...	...	...	1	...	19
Gayndah	...	632	82	550	2	...	...	3	346	...	...	8	33	11	...	...	...	...	...	...	110	31	1	...	...	...	4	1	...
Gin Gin	2	7,351	1,317	6,034	...	...	...	...	1,072	...	...	25	12	11	...	4,757	...	...	...	...	66	66	6	1	...	2	7	1	8
Gympie	1,415	4,447	144	4,303	...	...	...	...	2,438	...	...	215	43	54	...	249	...	...	...	...	879	138	40	7	9	1	65	16	149
Kilkivan	253	2,575	202	2,373	10	...	...	...	1,809	...	...	53	7	41	...	...	...	...	...	...	328	90	5	...	...	...	2	8	20
Maryborough	89	3,869	59	3,810	...	...	...	...	344	3	...	111	96	7	...	1,836	...	...	6	...	491	267	43	3	121	76	289	49	68
Nanango	3,181	9,062	72	8,990	1,051	37	5	1	5,806	1	...	135	3	862	...	...	...	...	...	...	462	594	6	...	...	...	2	11	14
Tenningering	19	52	3	49	...	...	...	...	24	...	...	4	5	6	...	...	...	...	...	...	6	...	...	...	...	...	1	1	2
Tiaro	195	4,210	197	4,013	...	...	...	...	1,278	...	...	173	12	73	...	1,701	...	...	...	...	432	244	5	1	8	8	35	27	16
Total Burnett and Wide Bay ...	5,456	78,001	4,586	73,415	1,063	37	5	4	18,084	9	...	853	334	1,244	...	44,505	...	...	6	...	3,694	1,879	145	15	165	123	470	224	556

Table No. VI.—*continued.*

DIVISIONS AND DISTRICTS.	Total Extent of Land under permanent Pasture with Artificially Sown Grasses	Total Extent of Land under Cultivation.	Land in Fallow and Totally Unproductive.	Total Extent of Land under Crop.	GRAIN CROPS.							POTATOES.		Pumpkins and Melons.	Cotton.	Tobacco.	Arrowroot.	Sugar-cane.	COFFEE.		VINES.		Hay (All Kinds).	Green Fodder.	Bananas.	Pineapples.	Oranges.	Other Crops.	Gardens and Orchards.
					Wheat.	Oats.	Barley.		Rye.	Maize.	Rice.	English.	Sweet.						Bearing.	Not yet Bearing.	Bearing.	Not yet Bearing.							
							Malting.	Other.																				
Other Districts.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Advale	...	6	38	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
Alpha	...	6	6	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
Arnhem	...	51	127	25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
Augathella ...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Barcaldine ...	...	517	86	14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Blackall	...	39	7	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Boulia	...	33	...	106	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Burke	...	6	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cairncurran ...	...	31	...	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cape River ...	...	41	...	39	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Charleville ...	...	127	...	501	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Charters Towers	...	517	...	431	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Clermont ...	...	34	...	34	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cloncurry ...	...	39	...	39	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Coen	...	4	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cook	...	51	...	501	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Croydon	...	136	...	136	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cunnamulla ...	...	158	...	158	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dalrymple	...	83	...	79	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Emerald	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Etheridge	...	656	6	691	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Esmo	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hughenden ...	...	26	...	24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ilfracombe ...	...	199	...	190	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Isisford	...	15	...	15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Junction	...	5	...	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Longreach	...	31	...	31	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Blackall	...	23	...	23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Normanton	...	95	35	60	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Palmer	...	27	...	27	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ravenswood ...	...	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Richmond	...	38	8	30	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
St. Lawrence ...	3	138	...	138	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Somerset	...	361	...	361	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Surbiton	2	260	338	562	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tambo	...	6	...	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tarcoon	...	47	13	34	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Thargomindah ...	...	32	...	32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Thornborough ...	...	214	22	192	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Winton	...	...	...	33	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total Other Districts	8	4,819	619	4,230	60	...	40	1	1,442	...	9	63	276	177	10	...	...	1	786	90	24	6	179	19	152	243	653
Grand Total 1906 ...	45,990	598,777	39,021	559,753	114,675	1,236	6,696	1,905	139,806	122	21	8,031	3,276	12,528	188	1'3,281	301	696	216	50,513	1,788	2,42	5,163	1,976	3,190	5,·80	3,877
" 1905 ...	40,302	622,987	100,283	522,748	119,336	533	4,670	631	113,720	60	33	7,170	3,229	10,606	171	13,107	398	933	235	1,717	327	45	1,198	6,183	3,078	6,380	3,854
Increase in 1906 ...	5,188	21,210	61,215	37,005	4,781	703	2,026	1,374	26,086	62	9	1,231	47	1,922	33	828	267	1	4	15,670	71	45	1,035	81	112	730	23
Decrease in 1906 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Table No. VII.

RETURN showing the GROSS PRODUCE of PRINCIPAL CROPS Raised in the several PETTY SESSIONS DISTRICTS of the STATE during the YEAR ended 31st DECEMBER, 1906.

DIVISIONS AND PETTY SESSIONS DISTRICTS.	QUANTITY OF PRODUCE.																			
	GRAIN CROPS.							POTATOES.		Pumpkins and Melons.	Cotton.	SUGAR-CANE.		Arrowroot.	Tobacco (Cured Leaf).	Coffee.	Hay (All Kinds).	VINES.	Bananas.	Pineapples.	Oranges.
	Wheat.	Oats.	Barley.		Maize.	Rye.	Rice.	English.	Sweet.			Sugar-Cane Crushed.	Sugar-Cane Crushed.					Grapes Gathered.			
			Malting.	Other.																	
Moreton Division.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Tons.	Tons.	Tons.	Lb.	Acres.	Tons.	Tons.	Cwt.	Lb.	Tons.	Lb.	Bunches.	Dozens.	Dozens.
Beaudesert	...	...	...	...	94,124	...	...	408	125	1,368	460	...	...	...	...	...	2,919	16,136	...	...	25,720
Brisbane	...	8	...	...	20,655	...	...	547	1,195	1,166	740	...	...	...	...	...	1,161	460,388	63,939	319,990	49,549
Caboolture	...	...	...	...	19,147	...	...	284	719	538	...	...	...	4	...	...	96	27,045	1,800	5,177	79,620
Cleveland	...	...	...	...	394	20	...	10	121	64	...	...	...	...	...	...	30	27,991	13,146	57,868	25,462
Crow's Nest	10,972	160	5,180	701	146,965	28	...	1,166	30	4,527	...	...	...	...	...	...	864	44,977	...	...	9,718
Dugandan	246	...	...	...	232,344	...	...	198	70	1,161	5,483	...	...	4	...	...	2,165	33,175	1,710	126	9,125
Esk	...	...	...	...	64,010	...	...	294	959	2,511	...	...	...	...	...	...	2,172	23,792	...	...	59,496
Gatton	692	...	208	160	243,823	...	...	2,324	1,748	10,511	10,551	...	...	...	...	...	10,097	445,671	...	...	400,047
Goodna	...	...	...	...	6,718	...	...	46	6	161	6,728	...	...	...	...	...	304	7,690	...	...	970
Harrisville	...	...	...	...	117,726	...	...	144	307	803	9,839	...	...	...	...	...	2,867	24,293	...	...	11,656
Ipswich	...	...	...	...	42,716	...	...	221	251	640	1,808	...	...	...	...	...	1,210	34,320	...	210	13,719
Laidley	...	...	...	...	291,469	1,200	...	1,107	980	5,416	458	...	...	...	...	...	7,051	36,235	50	1,550	15,788
Logan	...	...	...	...	26,716	...	64	600	805	11	...	1,781	30,680	934	...	...	415	80,329	13,927	74,905	123,711
Marburg	...	...	...	...	74,546	...	...	97	562	1,625	...	384	5,526	8	...	...	217	50,330	2,000	20	3,876
Maroochy	...	20	...	...	25,992	...	...	147	280	22	160	2,264	42,944	176	...	29,664	114	27,789	143,644	28,688	79,564
Nerang	...	...	...	...	50,089	...	...	746	119	45	...	661	10,879	2,613	67	...	432	23,511	210	...	264,457
Redcliffe	...	310	...	...	44,292	...	...	634	937	58	...	...	...	...	...	...	1,394	39,070	116,651	6,820	21,475
Rosewood	...	3	...	12	73,508	...	...	165	304	1,150	2,900	8	107	173	...	...	3,465	64,530	...	...	2,760
South Brisbane	...	...	...	...	7,342	...	...	178	1,366	128	...	...	...	...	...	...	1,391	229,374	...	10,488	20,848
Woodford	...	...	...	...	23,777	...	...	107	102	451	...	...	...	19	...	...	293	6,836	...	...	27,726
Total Moreton ...	11,910	501	5,388	873	1,612,374	1,248	64	9,421	10,907	32,334	38,617	5,100	90,134	3,931	67	29,664	38,660	1,703,382	357,077	505,844	1,947,578
Downs Division.																					
Allora	70,754	11,356	4,283	5,290	106,089	208	...	436	...	2,801	...	...	...	...	...	...	4,530	70,495	...	...	30,850
Clifton	128,302	1,282	31,736	1,457	161,121	...	...	83	...	1,051	...	...	...	...	...	...	7,776	36,074	...	...	3,263
Condamine	3,116	...	120	...	644	...	...	...	...	6	...	...	...	...	...	...	16	5,734	...	...	...
Dalby	154,064	728	6,464	10,052	43,509	...	...	49	5	1,198	750	...	...	...	...	...	1,248	42,027	...	...	2,513
Goondiwindi	1,092	...	...	6	58	...	...	2	...	8	...	...	...	...	...	...	184	15,357	...	...	3,966
Highfields	53,135	923	12,165	1,057	179,722	149	...	607	...	2,488	...	...	...	...	...	...	2,425	201,723	...	...	16,689
Inglewood	8,978	236	88	80	5,666	...	...	21	...	210	...	...	...	...	702	...	619	14,997	...	...	...
Killarney	83,462	60	6,382	672	210,495	...	...	349	...	866	...	...	...	...	15	...	1,831	14,920	...	...	1,037
Stanthorpe	12	...	...	...	1,553	30	...	205	...	89	...	...	...	...	...	...	233	80,230	...	...	...
Texas	1,348	...	...	20	1,344	...	...	2	...	86	1,200	...	...	...	5,643	...	193	...	...	...	...
Toowoomba	228,342	10,572	38,444	19,338	250,369	166	...	363	...	3,724	...	...	...	...	...	...	15,379	409,218	...	...	53,988
Warwick	206,764	2,017	9,530	12,404	251,800	534	...	565	18	2,746	...	...	...	...	...	...	8,409	132,144	...	...	1,364
Total Downs ...	939,369	27,174	109,212	41,356	1,212,171	1,087	...	2,682	23	15,303	1,950	...	...	...	6,360	...	42,806	1,022,922	...	...	113,675
Maranoa Division.																					
Bollon	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mitchell	24,308	...	...	...	190	...	...	8	...	...	...	...	...	...	...	...	321	3,150	...	...	...
Roma	104,585	17	800	56	4,123	...	...	74	4	78	...	...	...	...	...	...	880	440,186	...	...	6,889
St. George	144	...	...	...	20	...	...	6	...	8	...	...	...	...	...	...	83	9,144	...	...	30
Surat	3,518	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	55	...	...	...	...
Yeulba	12,404	...	...	48	212	...	...	8	...	...	...	...	...	...	...	...	72	4,950	...	...	...
Total Maranoa ...	144,959	17	800	104	4,725	...	...	96	4	86	...	...	...	...	...	...	1,411	457,430	...	...	6,919

Table No. VII.—*continued.*

DIVISIONS AND PETTY SESSIONS DISTRICTS.	QUANTITY OF PRODUCE.																			
	GRAIN CROPS.							POTATOES.		Pumpkins and Melons.	Cotton.	SUGAR-CANE.		Arrowroot.	Tobacco (Cured Leaf).	Coffee.	Hay (All Kinds).	VINES.	Bananas.	Pineapples.	Oranges
	Wheat.	Oats.	Barley.		Maize.	Rye.	Rice.	English.	Sweet.			Sugar-Cane Crushed.	Sugar-Cane Crushed.					Grapes Gathered.			
			Malting.	Other.																	
Rockingham Division.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Tons.	Tons.	Tons.	Lb.	Acres.	Tons.	Tons.	Cwt.	Lb.	Tons.	Lb.	Bunches.	Dozens.	Dozens.
Cairns	...	...	...	...	33,566	...	208	50	386	71	20,025	7,677	146,588	...	...	31,745	...	...	156,663	29,000	40,713
Cardwell	...	...	...	...	2,750	...	...	...	42	...	500	...	...	...	27	...	...	...	130,180	...	58,095
Douglas	...	...	...	...	4,316	...	30	11	27	8	...	6,502	103,270	...	...	2,500	...	...	15,450	190	30,484
Herberton	...	...	...	...	250,795	...	...	33	182	94	...	...	...	10	...	2,550	463	5,400	1,865	209	29,627
Ingham	...	...	...	...	14	...	...	24	102	...	...	9,648	146,408	...	...	...	...	...	732	...	3,701
Mareeba	...	...	...	...	4,329	...	...	35	64	1	...	...	...	...	...	220	...	...	496	...	596
Mourilyan	...	...	...	...	1,990	...	...	...	394	...	...	6,522	101,700	300	...	6,720	...	...	614,547	1,750	21,662
Total Rockingham	...	...	...	...	297,760	...	238	153	1,197	174	20,525	30,349	497,966	310	27	43,735	463	5,400	919,933	31,149	184,878
Edgecumbe Division.																					
Ayr	...	...	...	...	4,342	...	...	18	156	33	...	4,800	105,481	...	...	...	...	...	1,115	...	...
Bowen	...	...	...	...	3,172	...	...	234	77	115	...	2,276	43,167	...	...	...	...	...	870	1,937	173,707
Mackay	...	...	...	...	1,350	...	200	100	231	26	...	20,529	317,442	...	...	30,834	9	12,671	3,024	342	25,518
Townsville	...	...	...	...	1,563	...	...	620	102	275	...	...	...	...	...	...	23	1,240	230	1,000	5,780
Total Edgecumbe	...	...	...	...	10,427	...	200	972	566	449	...	27,605	466,090	...	...	30,834	32	13,911	5,239	3,279	205,005
Port Curtis Division.																					
Gladstone	...	...	...	...	15,063	...	...	137	31	126	...	21	320	...	...	...	149	3,281	136	1,379	9,566
Mount Morgan	...	...	...	...	45	240	...	6	24	...	...	...	...	...	...	...	...	1,800	...	100	50
Rockhampton	...	80	2	...	19,938	...	8	424	602	619	15,389	...	...	...	...	600	1,960	61,044	4,714	8,070	39,088
Total Port Curtis	...	80	2	...	35,046	240	8	567	657	745	15,389	21	320	...	...	600	2,109	66,125	4,850	9,549	48,704
Burnett and Wide Bay Division.																					
Biggenden	...	...	...	...	45,115	...	...	64	144	307	...	...	...	...	...	...	220	7,220	...	...	2,456
Bundaberg	...	...	...	...	51,159	...	...	71	229	247	...	17,052	304,706	...	...	...	1,651	21,187	3,186	9,961	28,674
Childers	...	...	...	...	21,241	150	...	51	140	64	...	11,298	270,961	...	...	...	234	6,762	1,680	1,945	2,633
Eidsvold	...	...	...	...	4,331	...	...	15	29	44	...	...	...	...	...	...	138	5,853	...	...	1,300
Gayndah	...	...	52	20	9,147	...	...	14	197	31	...	...	...	...	...	...	197	3,690	...	...	9,478
Gin Gin	...	...	...	...	31,452	...	...	48	45	59	...	3,981	48,755	...	...	...	183	10,430	...	195	1,180
Gympie	...	...	...	...	72,400	...	...	491	139	270	...	131	2,599	...	...	...	1,681	59,078	550	332	45,130
Kilkivan	...	90	...	...	46,322	...	...	138	31	141	...	...	...	...	...	...	901	17,200	...	...	2,465
Maryborough	...	...	...	...	9,110	50	...	206	390	46	...	1,324	23,121	...	...	2,612	968	60,237	22,806	28,232	364,849
Nanango	...	12,171	1,112	100	20	176,799	6	...	397	13	3,102	...	...	...	...	...	759	28,305	...	...	3,030
Tenningering	...	...	...	...	...	755	...	...	7	24	16	...	...	...	...	...	13	...	...	...	2,110
Tiaro	...	...	...	...	...	40,831	...	...	332	44	494	...	1,333	24,126	...	...	...	1,029	16,994	984	8,599	30,326
Total Burnett and Wide Bay	12,313	1,112	100	40	508,662	206	...	1,834	1,425	4,821	...	35,119	674,268	...	...	2,612	7,974	236,956	29,206	49,264	493,631

Table No. VII.—*continued.*

DIVISIONS AND PETTY SESSIONS DISTRICTS.	QUANTITY OF PRODUCE.																				
	GRAIN CROPS.							POTATOES.		Pumpkins and Melons.	Cotton.	SUGAR-CANE.		Arrowroot.	Tobacco (Cured Leaf).	Coffee.	Hay (All Kinds).	VINES.	Bananas.	Pineapples.	Oranges.
	Wheat.	Oats.	Barley.		Maize.	Rye.	Rice.	English.	Sweet.			Sugar-Cane Crushed.	Sugar-Cane Crushed.					Grapes Gathered.			
Other Districts.			Malting.	Other.																	
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Tons.	Tons.	Tons.	Lb.	Acres.	Tons.	Tons.	Cwt.	Lb.	Tons.	Lb.	Bunches.	Dozens.	Dozens.
Adavale	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alpha	...	...	...	...	400	...	...	...	...	...	...	...	...	...	...	...	...	890	...	...	465
Aramac	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	800	...	...	628
Augathella	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Banana	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Barcaldine	...	...	...	...	18	...	...	9	4	14	...	...	...	...	...	...	2	8,030	...	...	5,176
Blackall	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Boulia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Burke	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Camooweal	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	772
Cape River	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Charleville	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Charters Towers	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	30	3,600	...	...	765
Clermont	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	27,601	...	...	47,945
Cloncurry	...	...	...	...	1,892	...	...	14	24	62	...	...	...	...	...	...	207	2,931	...	...	3,767
Coen	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cook	...	...	...	...	502	...	...	...	11	7	...	...	...	...	...	...	...	...	390	173	...
Croydon	...	...	...	...	6,526	...	262	...	233	71	700	...	...	...	...	...	...	...	16.665	1,689	47,065
Cunnamulla	...	...	...	...	...	...	...	3	37	...	...	...	...	...	...	...	...	...	1,670	5	6,050
Diamantina	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	110	...	...	...	...
Emerald	...	...	...	...	324	...	...	17	4	82	200	...	...	...	...	...	8	10,100	...	...	3,700
Etheridge	...	...	...	...	5,372	...	...	2	3	2	...	...	...	...	...	...	...	...	150	...	...
Eulo	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hughenden	...	...	...	...	...	...	...	...	...	6	...	...	...	...	...	...	...	2,690	...	...	68,850
Hungerford	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	233	...	...	...	...
Isisford	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jundah	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Longreach	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Muttaburra	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1,601
Norman	...	...	...	...	...	...	...	4	...	2	...	...	...	...	...	...	...	...	...	...	892
Palmer	...	...	...	...	60	...	...	...	8	5	...	...	...	...	...	...	...	...	...	10	200
Ravenswood	...	...	...	...	718	...	...	...	17	...	...	...	...	...	...	...	...	...	700	160	8,000
Richmond	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
St. Lawrence	...	...	...	...	...	...	...	10	29	11	...	...	...	...	...	...	...	...	...	...	...
Somerset	...	...	...	...	1,731	...	...	20	26	25	...	...	...	...	...	...	63	600	...	...	...
Springsure	...	...	...	...	65	...	...	...	103	16	...	...	...	...	...	...	...	...	6,780	157	20
Tambo	...	...	84	...	1,092	...	...	...	9	169	...	...	...	...	...	...	217	...	...	...	...
Taroom	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Thargomindah	...	...	17	...	232	...	...	3	...	4	...	...	...	...	...	...	10	1,252	...	...	100
Thoruborough	...	...	...	...	...	...	...	9	7	4	...	...	...	...	...	...	...	5,200	...	...	720
Windorah	...	...	...	...	3,178	...	...	10	27	8	...	...	...	...	...	...	8	...	375	100	1,590
Winton	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	...	...	...	...	...	...	...	...	...	14	...	...	...	...	...	...	...	2,750	...	...	505
Total Other Districts	351	...	400	8	22,110	...	262	105	542	502	900	...	...	...	...	...	888	66,444	26,728	2,884	198,811
Grand Total, 1906	1,108,902	28,884	115,902	42,381	3,703,274	2,781	772	15,830	15,371	54,419	77,381	98,194	1,728,780	4,241	6,454	107,445	94,343	3,572,570	1,343,033	601,969	3,199,201
„ 1905	1,137,321	5,858	53,324	8,492	2,164,674	562	885	11,308	14,974	37,079	113,008	96,093	1,415,745	4,446	10,230	82,230	56,829	3,017,743	2,509,268	506,883	2,335,947
Increase, 1906	...	23,026	62,678	33,889	1,538,600	2,219	...	4,522	397	17,340	...	2, 101	313,035	...	...	25,215	37,514	554,827	...	95,086	863,254
Decrease, 1906	28,419	...	...	...	...	...	113	...	...	...	35,627	...	...	205	3,776	...	...	...	1,166,235	...	...

Table No. VIII.

SHOWING the TOTAL EXTENT of LAND under CULTIVATION, and the AREA under each DESCRIPTION of CROP in QUEENSLAND—RETURN for TEN YEARS.

Year.	Total Extent of Land under Cultivation.	Land in Fallow.	Total Extent of Land under Crop.	AREA UNDER EACH DESCRIPTION OF CROP.																																
				GRAIN CROPS.							POTATOES.		*Pumpkins and Melons.	Cotton.	SUGAR-CANE.		Arrowroot.	Tobacco.	COFFEE.		Hay (all Kinds)	Lucerne and Green Forage.	VINES.		Bananas.	Pineapples.	ORANGES.		MANGOES.		Strawberries.	APPLES.		Other Crops.	*Market Gardens.	Other Gardens and Orchards.
				Wheat.	Oats.	Barley. Malting*.	Barley. Other.	Maize.	Rye.	Rice.	English.	Sweet.			Area Crushed.	Total Area.			Bearing.	Total Area.			Bearing.	Total Area.			*Bearing.	Total Area.	*Bearing.	Total Area.		*Bearing.	Total Area.			
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1897	386,259	14,402	371,857	59,875	1,834	...	2,077	109,721	470	445	8,197	3,581	...	48	67,432	98,611	391	755	180	311	48,220	19,903	1,881	2,167	4,828	909	...	2,196	...	235	32	...	86	3,057	...	3,878
1898	409,287	46,033	363,254	46,219	271	1,953	991	102,835	299	863	7,931	3,896	7,694	1	82,391	111,012	455	617	199	432	35,262	26,980	1,727	2,020	5,264	1,130	...	2,272	...	214	75	...	157	1,169	...	3,501
1899	455,645	34,899	420,746	52,527	714	6,011	1,463	110,489	198	319	10,766	3,919	10,167	...	79,435	110,657	441	745	223	495	58,939	35,514	1,746	2,033	5,802	904	...	2,324	...	215	87	...	132	2,044	...	3,761
1900	480,372	22,975	457,397	79,304	385	6,302	1,231	127,974	151	271	11,960	3,614	14,232	...	72,651	108,535	401	665	283	537	42,497	41,445	1,734	2,019	6,215	939	2,045	2,882	349	411	121	140	238	2,381	...	3,587
1901	507,317	23,857	483,460	87,232	1,535	6,818	4,957	116,983	246	205	9,948	3,390	14,448	...	78,160	112,031	399	768	370	547	63,055	39,793	1,691	1,910	5,772	1,020	1,911	3,083	325	383	139	172	278	3,544	2,328	2,568
1902	478,121	202,738	275,383	1,880	78	163	267	89,923	22	38	2,899	1,847	2,573	8	59,102	87,338	296	722	314	396	24,068	51,279	1,312	1,559	5,266	1,101	2,085	3,141	384	420	65	189	353	2,146	2,171	1,344
1903	621,693	55,104	566,589	138,096	2,808	14,750	6,131	133,059	315	49	6,732	3,054	18,833	2	60,375	111,516	363	772	318	394	78,803	26,576	1,486	2,069	6,577	1,493	1,619	2,936	266	377	91	279	443	4,290	2,563	1,867
1904	577,896	38,680	539,216	150,958	613	15,382	2,005	119,171	151	60	9,571	2,983	8,991	30	82,741	120,317	437	784	292	342	48,740	35,831	1,647	2,194	6,689	1,781	1,790	3,106	292	382	161	289	516	3,874	2,099	1,793
1905	622,987	100,239	522,748	119,356	534	4,670	531	113,720	60	33	7,170	3,239	10,606	171	95,983	134,107	394	934	245	279	37,425	66,183	1,717	2,044	6,198	1,845	1,850	3,078	295	374	173	282	537	5,246	2,089	1,765
1906	593,777	33,024	559,753	114,575*	1,236	6,696	1,905	139,806	122	24	8,031	3,276	12,528	138	98,194	133,281	393	606	216	256	61,498	55,513	1,788	2,070	5,163	1,926	1,950	3,190	252	344	161	334	602	4,473	1,963	1,924

* Not specially returned in earlier years.

Table No. IX.

SHOWING the GROSS PRODUCE of PRINCIPAL CROPS Raised in QUEENSLAND—RETURN for TEN YEARS.

Year.	QUANTITY OF PRODUCE.																																		
	GRAIN CROPS.							POTATOES.		*Pumpkins and Melons.	Cotton. †	SUGAR-CANE.		Arrowroot (Tubers.)	Tobacco (Cured Leaf).	Coffee.	Hay (All Kinds).	Ensilage.	VINES.		Bananas.	Pineapples.	Oranges.	Mangoes.	Strawberries.	Apples.	* Market Gardens.	* Other Gardens and Orchards.								
	Wheat.	Oats.	Barley. Malting.*	Barley. Other.	Maize.	Rye.	Rice.	English.	Sweet.			Weight of Cane.	Sugar made.						Grapes.	Wine.															
	Bshls.	Bshls.	Bshls.	Bshls.	Bshls.	Bshls.	Bshls.	Tons.	Tons.	Tons.	Lb.	Tons.	Tons.	Tons.	Cwt.	Lb.	Tons.	Tons.	Lb.	Gallons.	Dozens.	Dozens.	Dozens.	Dozens.	Quarts.	Doz.	£	£							
1897	1,039,293	31,496	...	49,840	2,803,172	8,329	12,990	18,520	17,466	...	19,977	804,815	97,916	2,888	5,703	81,614	94,339	1,197	4,822,901	207,945	16,194,604	351,524	1,628,176	358,315	44,142	43,401	...	...							
1898	607,012	4,047	26,917	7,918	2,252,481	3,874	38,133	16,413	20,069	23,370	50	1,542,090	163,734	6,116	3,276	56,552	70,235	1,620	4,116,218	134,334	46,547,090	462,752	1,527,469	266,444	83,366	60,918	...	...							
1899	614,414	10,712	100,027	18,416	1,965,598	2,391	9,275	22,675	19,899	38,040	...	1,176,466	123,289	4,669	6,551	104,981	103,409	1,554	3,230,627	131,015	36,301,735 Bunches.	401,692	1,420,839	191,074	185,870	3,306 Bushels.	...	...							
1900	1,194,088	7,855	107,910	19,234	2,459,647	1,928	6,870	20,014	18,200	43,740	...	848,328	92,554	4,419	4,032	102,134	78,758	1,276	3,634,949	132,489	2,321,108	424,835	2,041,068	277,444	401,105	5,316	...	...							
1901	1,682,222	42,203	193,538	83,499	2,569,118	5,000	5,222	22,402	17,128	56,297	...	1,180,091	120,858	4,069	5,848	130,293	122,039	888	4,053,109	148,835	2,313,719	359,717	1,880,264	336,925	288,125	7,495	51,342	26,302							
1902	6,185	520	1,749	1,846	1,033,329	238	1,093	3,257	7,165	6,087	1,600	641,927	76,624	1,461	1,818	113,301	23,181	217	2,284,404	100,852	1,160,015	260,444	1,191,242	257,138	12,714	9,165	40,374	11,649							
1903	2,436,799	70,713	382,082	128,475	1,923,623	6,482	1,322	17,649	13,412	62,102	1,500	823,875	91,828	4,735	617	83,632	136,117	1,273	2,362,520	38,558	1,112,578	310,832	1,150,514	326,957	159,340	18,390	44,963	18,640							
1904	2,149,663	15,137	296,449	35,326	2,542,708	1,729	1,638	19,231	14,026	30,976	25,832	1,326,989	147,688	4,094	7,125	132,554	80,662	1,735	3,087,835	60,433	1,976,806	453,799	2,819,669	861,592	187,526	19,162	34,330	14,079							
1905	1,137,121	5,858	53,324	8,492	2,164,674	562	835	11,308	14,974	37,079	113,008	1,415,745	152,722	4,446	10,230	82,230	56,829	1,199	3,067,743	66,926	2,509,268	506,883	2,435,947	910,743	138,228	17,362	37,572	13,911							
1906	1,108,902	28,884	115,902	42,381	3,703,374	2,781	772	15,830	15,371	54,119	77,381	1,728,780	184,377	4,241	6,454	107,445	94,343	3,201	3,572,570	65,016	1,343,033	601,969	3,199,201	541,840	227,973	21,566	38,971	18,585							

* Not specially returned in earlier years. † Unginned.

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Table No. X.

AVERAGE PRODUCE PER ACRE OF PRINCIPAL CROPS IN QUEENSLAND—RETURN FOR TEN YEARS.

Year.	GRAIN CROPS.							POTATOES.		*Pumpkins & Melons.	†Cotton.	SUGAR.		Arrowroot (Tubers).	Tobacco (Cured Leaf).	Coffee.	Hay (All Kinds).	Grapes.	Bananas.	Pineapples.	Oranges.	Mangoes.	Strawberries.	Apples.	*Market Gardens.	*Gardens and Orchards.
	Wheat.	Oats.	Barley. *Malting.	Barley. Other.	Maize.	Rye.	Rice.	English.	Sweet.			Tons of Cane per Acre Crushed.	Tons of Sugar per Acre Crushed.													
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Tons.	Tons.	Tons.	Lb.	Tons.	Tons.	Tons.	Cwt.	Lb.	Tons.	Lb.	Doz.	Doz.	Doz.	Doz.	Quarts.	Doz.	£	£
1897 ...	16·86	17·17	...	24·00	25·55	17·72	29·19	2·26	4·88	...	416	12·30	1·50	7·39	7·55	453	1·96	2,564	3,416	387	§741	§1,525	1,379	§505	...	...
1898 ...	13·13	14·93	13·78	8·02	21·90	12·96	44·19	2·06	5·43	3·07	50	18·72	1·99	13·44	5·31	284	1·99	2,383	8,843	410	§672	§1,245	1,111	§388	...	...
1899 ...	11·70	15·00	16·64	12·59	17·79	12·08	29·08	2·11	5·08	3·74	...	14·81	1·55	10·83	8·79	470	1·75	1,850	6,257	404	§611	§780	2,136	Bushels §25	...	...
1900 ...	15·06	20·40	17·12	15·62	19·20	12·77	25·35	1·81	5·04	3·07	...	11·68	1·28	11·02	6·06	361	1·85	2,096	Bunches. 373	452	998	795	3,315	38	...	...
1901 ...	19·40	27·50	28·39	16·84	21·96	20·33	25·47	2·25	5·05	3·90	...	15·10	1·55	10·20	7·61	352	1·94	2,403	401	353	969	1,037	2,073	44	22	10
1902 ..	3·28	6·67	10·73	6·91	11·49	10·82	28·76	1·12	3·88	2·37	200	10·86	1·30	4·94	2·52	361	1·16	1,755	220	237	571	670	196	48	19	9
1903 ...	17·65	25·18	22·81	20·95	14·45	20·58	26·98	2·62	4·39	3·30	750	13·65	1·52	13·04	0·80	265	1·74	1,590	169	228	711	1,229	1,758	66	18	10
1904 ...	14·24	23·54	19·27	17·62	21·34	11·45	27·30	1·97	4·70	3·44	861	16·04	1·78	9·37	9·09	454	1·65	1,875	296	255	1,575	2,951	1,165	68	17	8
1905 ...	9·53	10·99	11·42	15·99	19·03	9·37	26·82	1·58	4·64	3·50	631	14·73	1·59	11·31	10·96	350	1·52	1,758	405	275	1,263	3,087	799	62	18	8
1906 ...	9·68	23·37	17·31	22·25	26·49	22·80	32·17	1·97	4·69	4·34	561	17·61	1·88	10·79	9·69	497	1·46	1,998	260	313	1,641	2,150	1,416	65	20	10
‡	14·20	20·08	19·74	19·33	21·97	18·70	34·84	2·18	5·07	3·52	437	14·83	1·59	10·09	7·68	378	1·79	2,243	304	378	1,101	1,652	1,529	59	19	9

* Not specially returned in earlier years. † Unginned ‡ Average for twenty years (or since statistics have been collected). § On total area.

Table No. XI.

RETURN showing the AREA and PRODUCE obtained during the YEAR 1906 from CERTAIN OTHER CROPS, details of which are not included in the GENERAL TABLE.

DIVISION.	OTHER FRUITS.																			OTHER VEGETABLES.								OTHER MISCELLANEOUS CROPS.								
	Almonds.	Apples.	Apricots.	Cherries.	Cocoanuts.	Custard Apples.	Figs.	Gooseberries (Cape).	Lemons.	Mangoes.	Passion Fruit.	Pawpaw.	Peaches.	Pears.	Persimmons.	Plums.	Quinces.	Strawberries.	Nectarines.	Beans.	Cabbages and Cauliflowers.	Cucumbers.	Onions.	Peas.	Tomatoes.	Turnips.	Yams.	Broom Millet.	Canary Seed.	Cassava, Manioc, or Tapioca (Tubers).	Cow Pea.	Grass Seed.	Mangel-Wurzel.	Pea Nuts.	Sisal Hemp and Ramie.	Lucerne Seed.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Rockingham	...	4	...	...	1	...	...	...	5	50	1	4	4	...	...	...	...	...	...	1	22	3	...	...	5	3	...	...	...	1	...	...	...	6	...	...
Edgecumbe	...	...	...	...	...	1	...	...	...	87	...	4	3	...	...	...	...	...	...	...	20	70	...	...	159	1	...	...	...	...	...	...	...	...	8	...
Port Curtis	...	...	...	...	...	2	...	...	2	30	...	10	5	...	...	2	...	...	...	4	31	3	...	2	6	15	...	...	...	...	...	...	3	2	3	...
Burnett and Wide Bay ...	4	1	...	...	3	...	...	2	64	1	...	20	...	1	11	...	12	...	5	17	...	4	8	1	9	...	...	...	...	1	...	5	3	50	...
Moreton	30	6	...	...	29	3	13	17	89	24	7	122	2	13	60	...	148	1	84	222	142	8	76	233	117	...	234	...	...	3	2	87	3	4	...
Downs	2	564	48	22	...	...	7	...	10	...	...	...	244	38	1	142	8	1	6	11	91	4	70	9	52	8	...	27	948	...	2	180	3	15	...	201
Maranoa	...	...	1	...	...	...	...	...	...	...	...	...	7	...	...	2	...	...	...	...	1	...	2	...	...	...	...	8	1	...	...	...	...	...	...	...
Other Districts ...	...	...	...	...	11	...	...	...	3	24	...	...	7	...	...	...	...	...	...	...	54	2	4	...	6	5	95	...	...	...	...	...	...	30	2	...
Total Area ...	2	602	56	22	12	35	10	13	39	344	26	25	412	40	15	217	8	161	7	105	458	224	88	95	462	158	95	269	949	1	6	182	98	59	67	201
	Bushels.	Bushels.	Bushels.	Bushels.	Dozens.	Bushels.	Bushels.	Quarts.	Dozens.	Dozens.	Bushels.	Dozens.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Quarts.	Bushels.	Bushels.	Dozens.	Dozens.	Cwt.	Bushels.	Bushels.	Tons.	Tons.	Lb.	Lb.	Tons.	Bushels.	Bushels.	Tons.	Lb.	Lb.	Lb.
Rockingham	...	152	...	...	400	...	...	...	2,230	125,034	266	1094	351	...	...	...	...	...	...	32	6,441	1,370	...	...	254	11	...	...	...	10	...	...	...	6,650	...	...
Edgecumbe	...	...	...	...	...	20	...	...	...	211,090	...	960	119	...	...	...	...	...	...	...	4,182	34,180	...	...	30,949	2	...	...	...	...	...	...	...	...	...	...
Port Curtis	...	...	...	...	...	40	...	...	830	18,474	...	682	211	...	...	27	...	...	...	104	11,465	420	...	42	342	36	...	...	...	...	...	...	28	1,950	...	...
Burnett and Wide Bay ...	216	36	...	...	...	113	...	...	700	10,622	169	...	2,408	...	14	642	...	4,625	...	295	7,856	...	252	296	17	68	...	...	...	...	56	...	95	4,500	...	...
Moreton	1,196	137	...	...	...	1,388	125	9,877	15,748	75,523	3,965	1935	14,200	564	1,095	3,753	...	222,888	60	7,918	112,185	49,201	225	5,574	22,323	704	...	149,456	...	...	45	180	945	8,960	...	...
Downs	20,002	2,699	571	...	...	...	798	...	5,794	...	...	...	12,925	1,656	20	5,191	569	460	287	830	41,711	7,670	5,433	385	7,715	52	...	15,036	507,596	...	30	11051	21	17,380	...	24,643
Maranoa	...	19	...	...	...	...	...	...	...	...	...	...	371	...	...	16	...	...	...	...	466	...	131	...	...	...	...	1,500	1,120	...	...	...	...	...	...	...
Other Districts ...	...	...	...	...	8,715	...	...	...	4,199	101,097	...	...	680	...	...	...	...	...	...	...	20,095	640	127	...	377	13	94	...	...	...	...	...	...	31,970	...	...
Total Produce ...	21,566	2,891	571	9,115	1,561	923	9,877	29,501	541,840	4,400	4671	31,265	2,220	1,129	9,629	569	227,973	347	9,179	204,401	93,481	6,168	6,297	61,977	886	94	165,992	508,716	10	131	11231	1,089	71,410	...	24,643

Table No. XII.

RETURN showing the TOTAL EXTENT of LAND CULTIVATED for HAY, together with the YIELD of HAY, and the Average Yield per ACRE in each of the several PETTY SESSIONS DISTRICTS of the STATE during the YEAR 1906.

PETTY SESSIONS DISTRICTS.	HAY.									
	Wheat.		Oats.		Lucerne.		Other.		Total.	
	Acres.	Tons.	Acres.	Tons.	Acres.	Tons.	Acres.	Tons.	Acres.	Tons.
Allora	875	879	414	398	4,073	3,235	20	18	5,382	4,530
Beaudesert	9	17	112	268	571	2,580	23	54	715	2,919
Bundaberg	3	3	173	250	366	1,365	20	33	562	1,651
Clifton	1,060	952	736	775	6,346	5,904	164	145	8,306	7,776
Dalby	234	337	58	89	915	778	3	4	1,210	1,208
Dugandan	3	5	60	117	818	1,859	84	184	965	2,165
Esk	21	32	120	258	621	1,664	101	218	863	2,172
Gatton	189	333	389	695	3,429	8,305	443	764	4,450	10,097
Gympie	11	18	694	1,130	145	498	29	35	879	1,681
Harrisville	7	11	326	516	1,085	1,886	276	454	1,694	2,867
Highfields	501	635	157	165	1,080	1,608	12	17	1,750	2,425
Ipswich	3	5	136	284	358	868	31	53	528	1,210
Killarney	17	36	17	17	1,170	1,778	...	...	1,204	1,831
Laidley	39	59	103	173	2,824	6,644	99	175	3,065	7,051
Redcliffe	19	20	311	499	200	785	46	90	576	1,394
Rockhampton	51	48	770	875	452	755	174	282	1,447	1,960
Roma	939	826	11	22	19	20	10	12	979	880
Rosewood	12	28	227	490	1,097	2,473	215	474	1,551	3,465
South Brisbane	...	...	342	589	193	728	47	77	582	1,394
Toowoomba	2,366	2,672	1,344	1,794	11,443	10,506	188	407	15,341	15,379
Warwick	654	570	346	373	4,800	7,446	11	20	5,811	8,409
All other Districts	1,651	1,897	2,414	4,369	2,173	4,923	400	690	6,638	11,879
Grand Total for 1906 ...	8,664	9,383	9,260	14,146	44,178	66,608	2,396	4,206	64,498	94,343
Grand Total for 1905 ...	2,856	2,295	4,446	4,983	28,564	47,017	1,559	2,534	37,425	56,829
Increase in 1906	5,808	7,088	4,818	9,163	15,614	19,591	837	1,672	27,073	37,514
Decrease in 1906	...	...	...	...	...	...	...	...	...	...
Average Yield per Acre	1·08		1·53		1·51		1·76		1·46	

Table No. XIII.

RETURN showing the TOTAL EXTENT of LAND CULTIVATED for GREEN CROPS in each of the several PETTY SESSIONS DISTRICTS of the STATE during the YEAR 1906.

PETTY SESSIONS DISTRICTS.	GREEN CROPS.				
	Wheat.	Oats.	Lucerne.	Other.	Total of all Kinds.
	Acres.	Acres.	Acres.	Acres.	Acres.
Allora	1,275	306	2,077	1,339	4,997
Beaudesert	56	145	457	373	1,031
Brisbane	3	191	268	579	1,041
Clifton	903	189	2,542	424	4,058
Dalby	626	...	963	646	2,235
Dugandan	92	100	328	637	1,157
Gatton	453	208	812	1,926	3,399
Harrisville	72	208	594	435	1,309
Highfields	167	21	505	383	1,076
Ipswich	45	194	646	591	1,476
Killarney	275	...	813	23	1,111
Laidley	278	178	557	796	1,809
Marburg	51	370	433	1,318	2,172
Rosewood	131	284	987	1,162	2,564
Toowoomba	940	714	7,282	2,901	11,837
Warwick	215	82	604	1,030	1,931
All other Districts	444	1,180	2,029	3,657	7,310
Grand Total for 1906	6,026	4,370	21,897	18,220	50,513
Grand Total for 1905	15,287	4,733	22,870	23,293	66,183
Increase in 1906	...	...	...	...	...
Decrease in 1906	9,261	363	973	5,073	15,670

Table No. XIV.

AVERAGE YIELD PER ACRE OF CROPS IN EACH DIVISION OF THE STATE FOR THE YEAR 1906.

Division.	GRAIN CROPS.							POTATOES.		Sugar-cane (to Acres Crushed)	Cotton.	Arrow-root (Tuber).	Tobacco (Dried Leaf.)	Coffee.	Pumpkins and Melons.	Hay of all Kinds.	Grapes.	Bananas.	Pine-apples.	Oranges.
	Wheat.	Oats.	Barley, Malting.	Barley, Other.	Maize.	Rice.	Rye.	English.	Sweet.											
	Bushels.	Bushels.	Bushels.	Bushels	Bushels.	Bushels.	Bushels	Tons.	Tons.	Tons.	Lb.	Tons.	Cwt.	Lb.	Tons.	Tons.	Lb.	Bunches.	Dozen.	Dozen.
Rockingham	...	...	...	...	33·74	34·00	...	2·15	5·34	16·41	395	11·48	4·50	356	4·16	2·34	540	267	358	777
Edgecumbe	...	...	...	...	17·64	40·00	...	2·45	4·01	16·88	...	...	...	1,028	2·20	1·07	1,546	68	173	132
Port Curtis	...	40·00	2·00	...	21·37	8·00	20·00	2·15	3·71	15 24	1,282	...	...	55	3·47	1·39	987	103	165	974
Burnett and Wide Bay	11·58	30 05	20·00	10·00	28·13	...	22·89	2·15	4·27	19·20	...	...	...	435	3·88	2·16	1,634	177	401	1,629
Moreton	15·90	23·86	23·53	31·18	26·57	32·00	30·00	1·97	5·18	17 67	690	10·74	9·57	645	5·01	2·28	2,164	285	312	1,981
Downs	12 00	23·13	17·28	22·19	25·16	...	15 75	1·74	5·75	...	244	...	9·74	...	3·68	1·07	2,551	...	...	1,322
Maranoa	4·21	17·00	8·00	13·00	8·38	...	...	1·52	1·00	...	...	...	...	...	2·69	0·93	1,292	...	...	865
Other Districts	5·85	...	10·00	8·00	15·33	29·11	...	1·67	1·96	...	90	...	...	...	2·84	1·13	2,769	149	152	1,565
TOTAL AVERAGE YIELD FOR 1906	9·68	23·37	17·31	22·25	26·49	32·17	22 80	1·97	4·69	17·61	561	10·79	9 69	497	4·34	1·46	1,998	260	313	1,641
„ „ „ 1905	9·53	10·99	11·42	15·09	19·03	26·82	9·37	1·58	4·64	14 73	661	11·31	10·98	350	3·50	1·52	1,758	405	275	1,263

Price, 4s.]

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