

1902.

QUEENSLAND.

REPORT OF THE SECRETARY FOR AGRICULTURE
FOR THE YEAR 1901-1902.

Presented to both Houses of Parliament by Command.

TO HIS EXCELLENCY MAJOR-GENERAL SIR HERBERT CHARLES CHERMSIDE,
G.C.M.G., C.B., GOVERNOR OF THE STATE OF QUEENSLAND AND ITS
DEPENDENCIES IN THE COMMONWEALTH OF AUSTRALIA.

Brisbane, 15th October, 1902.

SIR,—I have the honour to lay before Your Excellency the Report of this Department for the twelve months ending with the 30th of June, 1902.

My last report contained a table in which the cost of the Department for the year 1900-1901 was compared with its cost for the year 1899-1900. When that table was compiled, only such disbursements as were made up to the end of the later year could be included in it; and, to make the comparison fair, the year 1899-1900 was similarly treated. For neither year were the payments made after the 30th June, for services rendered on or before that date, taken into account. On this occasion, however, the preparation of the table was delayed until the whole expenditure for the year under review had been ascertained; and it has been thought advisable to give, in connection with that expenditure, information similarly completed respecting the two preceding years.

		1899-1900.		1900-1901.		1901-1902.
Gross expenditure	... ..	£66,995	...	£53,330	...	£46,295
Revenue	... ..	5,540	...	6,829	...	7,321
Net cost	... ..	£61,455	...	£46,501	...	£38,974

THE INSTITUTIONS OF THE DEPARTMENT.

Hitherto the Officer in Charge of the College, or of a State Farm or Nursery, has furnished for inclusion in the Annual Report a full record of his year's work; but this time it has been decided to give only a summary in each case, and to reserve the detailed statement for publication in the *Agricultural Journal*.

THE AGRICULTURAL COLLEGE.

(Established July, 1897.)

As might be expected, the most costly institution connected with the Department is the Agricultural College at Gatton. But when it is remembered how great the outlay on buildings and plant must be during the early years of such an institution, it may well be conceded that few agricultural Colleges are maintained so economically. The following table shows the decline in its cost during the last three years:—

		1899-1900.		1900-1901.		1901-1902.
Gross expenditure	... ..	£8,599	...	£7,040	...	£6,262
Revenue	... ..	1,823	...	2,940	...	2,934
Net cost	... ..	£6,776	...	£4,100	...	£3,328

While the cost has been thus constantly diminishing, the number of students in attendance has been constantly increasing. In 1899-1900 the number was 38; in 1900-1901, 45; and in 1901-1902, 69. Expressed in other terms, the cost per student, which was £178 in 1899-1900, and £91 in 1900-1901, was £48 in 1901-1902. It has been ascertained that of the 80 students who have left the College during the last four years, 42 are engaged in farming, 14 in dairying, 5 in horticulture, 10 in grazing pursuits, and 2 in engineering.

During the year under notice the College suffered much from the prevailing drought, not only in the matter of crops and vegetation, but also in connection with practical education in farm work. Nevertheless, much effective outdoor effort was devoted to horticulture, dairying, cattle-breeding, pig and poultry raising, bacon curing, bee-keeping, and clearing and fencing new land. An attempt was also made to meet the demand for short courses, covering agriculture in conjunction with special lines, and designed to meet the wants of young men who had a previous knowledge of farming. The dairy course was planned for the needs of those intending to work their own dairy farms or to undertake the management of cheese or butter factories, or creameries.

In spite of the bad season, the record of the College for the year has been on the whole satisfactory. That its popularity is increasing is evidenced by the fact that much extra accommodation for students had to be provided during the year. The gold medal given by the Principal for the highest marks obtained in the examination was won by C. Stumm. During the year a student, B. Noakes, was successful in carrying off the youth's prize at the local ploughing match.

The loss of the hayshed and its contents by fire in March was a serious calamity. The fodder destroyed was valued at £3,200, and would, it is estimated, have sufficed to keep the College stock for at least two years. The cause of the disaster has remained undiscovered. The unexpected scarcity of other feed proved the value of the silos, since not less than 195 tons of ensilage were available for the farm animals during the earlier months of the drought.

The conditions have been very unfavourable to dairying, especially so from the want of green feed for the milking herd; but, notwithstanding the difficulties that had to be overcome, some 19,968 gallons of milk passed through the dairy. Among the different breeds of stud dairy cattle are Guernseys, Holsteins, Jerseys, Ayrshires, South Coast, and Shorthorns. Of the pigs, the following breeds are kept:—Improved Berkshires, Middle Yorkshires, Large Yorkshires, Small Yorkshires, and Tamworths. A small flock of sheep, numbering 220, is kept partly for educational and experimental purposes, and partly to supply the needs of the dining-hall. They are chiefly of the Romney Marsh, Shropshire, and Merino breeds.

On the farm, with a rainfall of only 15 inches during the year, any hope of showing the best results from experimental work was out of the question; but what could be done in the circumstances was effected. The area under crop on the 30th June was 220 acres, and there were, in addition, 96 acres in fallow. Crops from 197 acres were taken off during the year. Manurial experiments were carried on in land set apart for the purpose. In the vegetable garden, irrigation was inaugurated with a considerable measure of success, and an occasion offered was extended to a portion of the land under lucerne. In the orchard some good crops—particularly of peaches, plums, apricots, oranges, and figs—were gathered.

THE STATE FARMS.

1.—WESTBROOK.

(Established March, 1897.)

Westbrook consists of 524 acres, of which 130 acres are under cultivation. Up to the spring of 1901 this farm enjoyed a fair season, but after that the rainfall was quite inadequate for the summer and autumn crops, the fall for the year amounting to only 18·66 inches. To add to the difficulties, a swarm of caterpillars and grasshoppers, which passed over the farm towards the end of 1901, did serious damage to the grain crops. The worst effect of this visitation was the injury done to a collection of 130 different kinds of wheat, sown in May, 1901, to determine the earliest and most rust-resistant varieties. An experience with a 5-acre block of Golden Superb maize that partially failed is worth recording. This maize was planted on the 10th of January last, and on the 6th April was cut into sheaves with a corn harvester. It was fielded in the stook for one month, and was afterwards put through the chaffcutter when required, the ripe cobs being picked off first and the intermediate cobs chaffed with the stook. The Manager is of opinion that it is proving one of the best rough fodders he ever handled. While millets and sorghums did not do well, potatoes returned a fair crop. Among the successes of the year were peas, beans, and root crops, especially the Swedes, which were said to be the best ever seen on the Darling Downs.

The orchard, like that at each of the other farms, is directly under the care of Mr. Voller, the Assistant Instructor in Fruit Culture. It contained 1,176 fruit trees of the various kinds most suitable to the Downs. All are looking well and, owing to the high cultivation effected and to the perfect cleanliness maintained, are free from pests. The trees have been carefully pruned, and their symmetrical form proves the correctness of the methods adopted. Though the trees are still young, this being the first year that any scions have been sold, the results obtained from the sales of fruit have been most encouraging. The interest of farmers in the orchard is increasing, more people having visited it for instruction during the year than at any former period. The vineyard is under the care of the Viticulturist and covers about 10 acres, the vines being trained to over 4½ miles of strong wire trellising, 5 feet high. About 8 tons of grapes were sold during the season. The different varieties planted consist of:—Red wine grapes 26, white wine 20; table—red 27, white 27; resistant stock—American 5, Anglo-American 3, Franco-American 2, direct producers 3. The results of the experimental work at this vineyard have been, and will continue to be, published in the *Journal*.

The following table shows the cost of this farm:—

	1899-1900.	1900-1901.	1901-1902.
Gross expenditure	£1,026	£1,095	£1,055
Revenue	87	121	408
Net cost	£939	£974	£647

2.—HERMITAGE.

(Established March, 1897.)

This farm contains 433 acres, of which there were on the 30th June last 177 under cultivation or in fallow. The rainfall for the year was 16·68 inches, instead of the usual fall of about 29 inches. The season was, notwithstanding the presence of spring rust and black rust, on the whole favourable to the wheat crop, which fetched at the auction sales of Messrs. Dalgety and Co. up to 4s. 4d. per bushel. The yield varied from 21 bushels to 40 bushels to the acre. Thirty-eight plots of stud wheats were sown in areas of half-an-acre each; the seed in all cases germinated; and results of different degrees of success were obtained. Five hundred drills one chain each in length were planted in June, 1901, with artificially-crossbred wheats. From the harvest of these wheats 70 kinds were chosen for propagation this year. Unhappily the present prospect is not encouraging; for the season threatens to retard the interesting and valuable work the manager is engaged upon in connection with the cultivation of cereals. The experiments with wheat fertilisers were not successful, owing to the presence of black rust and to the drought. Experiment plots were also laid down, in 4 varieties of maize, 12 of sorghum, 5 of mangels, and 16 of miscellaneous. The areas of these

plots ranged from 16 perches to half-an-acre. About 13 varieties of potatoes were set in deeply-ploughed land, dressed with sulphate of potash which was worked into the seed furrow before planting commenced. Full particulars of the results will be given in the *Agricultural Journal*.

In the orchard, under the care of Mr. Voller, the work of the year was satisfactory, excepting that the frost on the 29th October somewhat lessened the output. Most of the fruit was, however, of high quality and good prices were obtained for it. At this farm more experimental work in packing was done than in Westbrook; the results were satisfactory; and the object lessons have been followed by the Warwick growers. About 300 cases and a dozen crates of fruit were for sale; yet the demand was greater than the supply. Though some of its vines bear fine fruit, the vineyard is still suffering from the hailstorms and frosts of the last two years. The cost of this farm has been:—

	1899-1900.	1900-1901.	1901-1902.
Gross expenditure	£2,349	£911	£874
Revenue	106	165	359
Net cost	£2,243	£746	£515

3.—BIGGENDEN.

(Established February, 1898.)

This farm covers an area of 83 acres, of which 22½ were under cultivation on the 30th June last. The rainfall for the year amounted to 13·83 inches, which fell on 44 days. The principal experiments here were with maize, plots of a quarter of an acre each being devoted to 8 different varieties, one being with large as against small seed. Experiments were made also with 3 varieties of barley, 2 of oats, 10 of sorghum, 5 of millet. Mangels, lucerne, sweet and English potatoes, legumes, beans, sugar-cane, grasses, tomatoes, and vegetables were also grown with varying success. Of the experiments proper it would appear under the adverse circumstances of the year that the best variety of maize for the district is the one known as Legal Tender; of barley, Hallet's Improved; of oats, Tartarian; the best varieties of sorghums are the kinds known as Collier and Folger's Early; and of millets, Seteria-Italica and Germanica. The vineyard produced its first crop of fruit last season. The quality attracted considerable attention, and judging from the number of applications for cuttings, the establishment of this vineyard will have the effect of increasing the district production of table grapes, for which there are good markets at Maryborough, Gympie, and Bundaberg. The farmers of the district have taken an intelligent interest in the operations carried on during the visits of the Viticulturist. There are 11 varieties of wine grapes and 16 of table grapes under cultivation, some of which may prove unsuitable to the district; but this is a point that at present cannot be determined. The distributions from this farm for the year, excluding sales in bulk, number 156 packets, 1,455 plants, and 2,879 cuttings. The cost has been:—

	1899-1900.	1900-1901.	1901-1902.
Gross expenditure	£750	£461	£443
Revenue	43	6	15
Net cost	£707	£455	£428

4.—GINDIE.

(Established February, 1898.)

This, the largest of the farms, with an area of 8,611 acres, of which 166 are under cultivation, was the greatest sufferer from the drought. Between 1st July, 1901, and 30th June, 1902, there were 27 wet days, and the rainfall for the period was only 9 inches. Such conditions were entirely against success with cereals, and the stock were allowed to feed on the 156 acres that had been planted. The manager tried to harvest a part of it, but the crop was too light. Nine acres were seeded to lucerne, which came up fairly well and struggled on until December, when it was quite burnt up by the heat. The same may be written of the other crops—prairie grass, millets, sorghums, beet, maize, and cow pea. Considering the season, the increase of 100 lambs from the small flock of 162 ewes at the farm was a fair one; and, notwithstanding the hardships of the time, the manager was able to maintain an increase of 54 over last year's number, even after deducting 28 that were sold. Of the herd of 170 head of cattle on the farm last year, 9 died in consequence of the drought; the remainder and the farm horses have been removed to the Dee River for agistment. This season 150 acres were planted, from which there will be no return. Employment was found for many men in the Central district who were unable to find other work. The staff has been reduced to one man, in addition to the manager. The garden is irrigated from a well, and, notwithstanding the almost total absence of rain, contains vegetables fine enough for show purposes. The lesson in this case is a very small one, but it is sufficient to indicate what can be done even in a prolonged drought by a judicious application of water. The survivors of vines that were planted here have been removed to Westbrook, on the advice of the Viticulturist, who is of opinion that Gindie is not suitable for such crops. The expenditure has been:—

	1899-1900.	1900-1901.	1901-1902.
Gross expenditure	£2,587	£1,229	£1,818
Revenue	247	94	59
Net cost	£2,340	£1,135	£1,759

STATE NURSERY, KAMERUNGA.

(Established January, 1890).

This nursery, situated in the neighbourhood of Cairns, has an area of 316 acres, of which 15 acres were under cultivation on the 30th June last. It is principally utilised for the propagation and distribution of plants likely to advance agriculture in the North. Though it was not affected by drought to the same extent as the farms in the South, the rainfall for the year was 48·772 inches, or only about half the normal quantity. The general growth has been good, and the condition of the nursery at present is satisfactory. The cultivated part is laid out into nine fields, each of which is set apart for a particular series. The nursery, being within the tropics, a list of some of the principal plants cultivated

there may be of interest. It includes sugar-cane, citrus trees, bananas, cocoa (*Theobroma cacao*), mangosteen (*Garcinia mangostana*), breadfruit and jackfruit, nutmegs, cloves, cinnamon, allspice, black pepper, vanilla, mesquit bean, *Monstera deliciosa*, pines, tea, coffee, tobacco, cotton, rubber-trees of several varieties, maize, sorghums, millets, cow peas, beans, and rice. With regard to the rubbers, experiments in tapping are now being carried out by the Manager, who intends, as soon as they are completed, to publish the results in the *Agricultural Journal*. The cost of this nursery for the past three years has been:—

	1899-1900.	1900-1901.	1901-1902.
Gross expenditure	£781	£811	£733
Revenue	Nil	9	5
Net cost	£781	£802	£728

THE QUEENSLAND AGRICULTURAL JOURNAL.

(Established, July, 1897.)

The official journal continues to justify its existence by the valuable educational work it performs, and thanks for its service to agriculture are being constantly received. Such appreciation is not confined to the farmers, dairymen, and stockowners of this State, but is expressed from time to time by correspondents in distant parts of the world. The reading matter is usually of a high character, whether the articles are written by the Editor or by members of the Scientific Staff of the Department, or are selected by the Editor from the writings of similar authorities in other countries. From the outset it has been the aim of the *Journal* to disseminate such information as tends to the education of rural workers, and to the elevation of Agriculture to the position of premier industry of the State. To this end the latest and most approved methods of production are presented in the form of short instructive articles ranged under the general heads of Agriculture, Dairy, Swine, Poultry Farming, Fruit and Vine Culture, Live Stock, Animal and Vegetable Pathology, Tropical Industries, Horticulture, Forestry, Apiculture, &c. Generally, without in the least trenching upon the work of the local and country Press, the *Journal* takes cognisance of all matters likely to be of value to settlers, and it is satisfactory to know that everywhere the publication has been welcomed as a most valuable addition to the rural library. Its circulation which was 59,800 in 1899-1900, and 65,295 in 1900-1901, was 66,475 in 1901-1902. The cost of producing and distributing it, which was £2,102 in 1899-1900, and £2,360 in 1900-1901, was £1,945 in 1901-1902.

THE PROFESSIONAL STAFF.

It has been the custom to publish along with the Minister's Report annual statements prepared by the technical officers of the Department. This year it has been thought desirable to abridge considerably these statements. They will, however, appear in full in the *Agricultural Journal*.

1.—THE AGRICULTURAL ADVISER.

Mr. McLean, in addition to the direction of the work upon the State Farms and the Nursery at Cairns, has had much to occupy his time. Apart from his advising me upon the agricultural problems I referred to him, it was necessary for him to be travelling 165 days during the year. His services in this connection included twelve visits to the State Farms; the judging at the annual exhibitions of ten agricultural and horticultural societies situated too far from Brisbane to be attended to within a day's journey; four missions undertaken for other Departments, including inspections and reports under the Agricultural Lands Purchase Act; Departmental inquiries; the carrying out of the prickly pear experiments at Bunker's Hill; and the making of the necessary arrangements for holding agricultural conferences, of which he is the deputy chairman. Valuable counsel has been given by him to many new settlers in the State, to visitors from other countries, to the officers of the Department, and to the public generally.

2.—THE INSTRUCTOR IN FRUIT CULTURE.

Mr. Benson reports that although the year has not been favourable for fruitgrowers generally the industry as a whole has suffered less than other branches of agriculture. The spring was good, and record crops seemed likely, especially with regard to the citrus fruit, but only in favoured places was an average crop realised. The deciduous fruit crop of the Darling Downs and in the Stanthorpe district was fairly satisfactory, particularly where the trees were kept free from pests by systematic cultivation, spraying, and other means. The pineapple industry has been thriving despite the drought, the prices being better than for some years past. Queensland practically holds a monopoly for pineapples so far as Australia is concerned, and advantage should be taken of this by growers. A good demand has sprung up for fruit suitable for canning. Horticulturists do not seem to have been discouraged by the drought, as the planting of deciduous trees on the Downs and in the Stanthorpe district, and of citrus trees on the coast, has increased to a considerable extent during the year; and there is every appearance of further planting during the coming spring. The instruction given by the Department as to the best way to fight the many pests that attack fruit in this State has not been ineffectual. Several cyaniding plants have been established by private persons, and spraying pumps have been purchased by many. Mr. Benson has visited many parts of the State during the year, and has given practical instruction in all branches of fruit culture, including planting, pruning, spraying, cyaniding, handling, and packing. It was mainly by his instrumentality that the first steps towards extensive co-operation on the part of the fruitgrowers have been taken, and in a manner that promises the greatest success.

3.—THE INSTRUCTOR IN COFFEE CULTURE.

Mr. Newport reports that the past year has, on the whole, been favourable for coffee. The crops have been somewhat earlier than usual, but heavy and fairly good. Great improvements are noticeable in estates that have been systematically worked, and the general culture and manufacture of coffee have steadily advanced. Vigilant efforts are made to prevent any coffee pest or disease from establishing itself. The coffee season in the Cairns district began with a frost, which damaged eight or nine estates, and was followed by a cold wind, which proved disastrous to some of the smaller growers and caused them to abandon their estates. Those plantations which were protected from the cold wind quite escaped

damage. In January of this year Mr. Newport visited Victoria and New South Wales in the interests of the coffee industry. The results of this trip were detailed in the report made in March, and may be summed up as follows:—That a large market for coffee exists at our doors where prices allowing a handsome margin to the producers can be obtained; that the industry can be expanded to nearly twenty times its present extent without exceeding the demand for consumption; that the greater demand is for high-grade coffees, but that good medium qualities are also appreciated; that the Queensland product compares favourably with the imported article. Attention must be given to the curing, grading, and general quality, in growing the staple. With such good prospects, and the crop being on a sound basis from a cultural point of view, it can only be regretted that a larger area is not under cultivation.

4.—THE VITICULTURIST.

Mr. Rainford has been occupied during the year in attending to the vineyards at the State Farms, establishing and completing experimental work at those places, the results of which have been, and will continue to be, published in the *Agricultural Journal*. He has assisted vignerons at their vintage and in selecting soil for vineyards, and has given instruction in pruning and general cultivation. To prepare for a possible invasion of phylloxera, a number of resistant stocks have been imported upon his advice and planted at the State Farms for propagation and distribution should the necessity ever arise; but before that can be done it is necessary to prove the adaptability of our soil under its varying conditions. The drought has given us the opportunity of testing their resistance in two widely differing soils—the sandy ridges of Gindie, and the chocolate soil of basaltic origin at Westbrook. At Gindie the *rupestris* and its hybrids do best, the Franco-Americans at Westbrook. At both places the *riparia* is a failure. Mr. Rainford recommends a more extensive cultivation of the vine in the Roma district for table and for wine-making purposes, and does so with the knowledge of the competition that may be expected from the south. We have the advantage of being able to produce a sherry wine that cannot be made in other parts of Australia. The varieties generally recommended by him among others for light red wines are Carbenet, Malbec, Merlot, Dolcetto, and Black Hermitage; for light white wines, White Hermitage, Reising, Chardonay, and Mensac. These should be planted on the poorer ridges or lower grounds; on the ridges of the best quality of soil, Verdeilho, Sercial, Palomino (called Sweet-water in Roma), Boal or W. Portugal, Grenache, and the true port varieties.

5.—THE ENTOMOLOGIST.

Mr. Tryon has been fully occupied during the year in the investigation of plant diseases caused by insects or parasites. Investigations have been made in the Burdekin district in connection with diseases of sugar-cane and maize, in the Cairns district with the partial failure of the banana crop and with affections of coffee, and on the Darling Downs with regard to certain enemies of wheat. Reports on these subjects have not yet been published, matters relating to them being still the subject of inquiry. A collection comprising specimens of insectivorous birds has been for some time in the course of preparation. The section of those inhabiting South Queensland is now nearing completion, and it is intended that they will be exhibited in the offices of the Department for the instruction of those interested. The acquirement, with the identification and systematic arrangement, of an extensive collection of useful and injurious insects for public display has also been undertaken. The interest of the public in matters relating to entomology and vegetable pathology, and the satisfying of inquiries made, have involved considerable original investigation. Apart from the daily personal inquiries, reports have been supplied relating to 64 distinct kinds of pernicious insects attacking upwards of 30 different kinds of economic plants; and the subjects within the domain of vegetable pathology that have been similarly attacked have related to 28 kinds of parasitic disease, and constitutional derangement affecting 20 botanical species.

6.—THE BOTANIST.

Mr. Bailey states that in an annual report only a mere glance of the real work of a botanist can be given, as he is constantly in request for information regarding plant life in its multifarious aspects, not only by those in the State but by those beyond it. Few additions have been made to the library, the purchases having been confined to periodicals. Lack of funds has suspended the work of enlarging the collections in the Museum of Economic Botany. The drought has had the effect of keeping noxious weeds in check, for weeds, like other vegetation, cannot thrive without moisture. The scarcity of food has caused stock to browse upon plants which they would not touch in ordinary seasons; and many specimens of such plants have been received for investigation and report. Some of these have been of a poisonous character, but the really injurious ones have been few. The blight fungi received for identification have consisted chiefly of well-known species. *Gloeosporium musarum* has caused some damage to the banana crop at Cairns. As it is most destructive, the fruit infested with it should be destroyed and as far as possible prevented from being shipped from port to port for sale, and thus increasing the risk of spreading the disease. The publications have been confined to reports, the addition to the Flora having been worked into the publication of the "Queensland Flora" now in course of preparation.

7.—THE TOBACCO EXPERT.

Mr. Nevill reports that a protracted drought has prevailed throughout the Texas and Inglewood districts, which are the only districts in Queensland where tobacco is now grown to any considerable extent. The result of this drought has been decreased acreage and production. The intended crop was 1,000 acres, an increase of 25 per cent. over that of the previous year, but only one-quarter of the intended area was planted, and one-fifth of the proposed crop harvested. From 8d. to 9½d. was realised for the tobacco at the shed. Since federation, the amount of locally-grown tobacco consumed in this State, as compared with the imported, cannot be determined; but there is every reason to believe that the Queensland article has advanced in popular esteem. If the coming year is favourable, there will be a largely increased acreage under tobacco, as the demand from the manufacturers of the other States is greatly in excess of what Queensland has so far been able to produce. The area cultivated during the year on the Government Tobacco Farm, Texas, under the direction of Mr. Nevill was 18 acres. Though the farm has suffered much from the drought, it has yielded a return of 5½ tons of excellent leaf, which is now in process of sale, and another crop of 2½ tons which will shortly be put on the market. The proceeds of both will go a great way towards repaying the money expended on the farm, which has

been leased rent free to the Department, the owner having provided also a considerable portion of the amount laid out on improvements. It is thought probable that before the lease expires the whole of the State outlay will be repaid by the sale of the crops.

RESERVES.

Under this heading are included all parks, gardens, and pleasure grounds, controlled or subsidised by the State. The following reserves have been endowed at the rate of 15s. in the £1 on all subscriptions and donations recognised as such by the Department:—

The Botanical Reserve, Bowen; Municipal Council Reserves, Brisbane: Musgrave Park and West End Recreation Reserve, South Brisbane; Botanic Gardens, Bundaberg; Lissner Park, Charters Towers; Queen's Park, Cooktown; Reserves at Gympie; Queen's Park, Ipswich; Botanic Gardens, Maryborough; Botanic Gardens, Rockhampton; Recreation Reserve, Roma; Queen's Park, Toowoomba; Queen's Park, Townsville; Queen's Park, Warwick.

It will be noticed that this list does not include the Brisbane Botanic Gardens, or the Great National Park at Mount Cootha. The former is controlled directly by this Department, which pays the whole cost of its maintenance as set forth in the following table:—

BOTANIC GARDENS AND GOVERNMENT DOMAIN.						
		1899-1900.		1900-1901.		1901-1902.
Gross expenditure	...	£2,692	...	£2,514	...	£2,460
Revenue	...	72	...	72	...	74
Net cost	...	£2,620	...	£2,442	...	£2,386

The latter is controlled by trustees, who receive annually for its maintenance the sum of £125 from the Department. This is the whole amount at their disposal, but small as it is, they have contrived by means of it to add attractions to the natural beauty of the place, to keep the road and fences in good repair, to check the growth of underwood, and to pay a caretaker's salary. While it is undoubtedly the most beautiful spot in the whole Brisbane district, its distance from the city, and difficulty of access, prevent its being at present the favourite holiday resort. The number of visitors, however, is annually increasing, and averaged last year nearly 100 a day.

AGRICULTURAL AND PASTORAL SOCIETIES.

Out of the 140 societies applied to some months ago for information required for this Report, only 84 have forwarded the necessary particulars. Of these 84, the Royal Agricultural Society of Toowoomba, founded in 1860, is the oldest. That society has also the largest revenue, and has spent the largest amount in improvements. Its revenue last year was £1,326, and its total improvements to date are valued at £3,500. The society with the largest membership is the Lockyer Agricultural and Industrial Society, Laidley, which has 302 members, of whom 201 are agriculturists. This is the largest proportion of agriculturists to other members shown by any society. In a membership of 111, the Longreach Pastoral and Agricultural Society has no agriculturists, and out of 258 members the Townsville Pastoral, Agricultural, and Industrial Association, has only 11 agriculturists. The last-mentioned society expended the most money during the year—viz., £1,657, of which £241 was for salaries and wages. The Drayton and Toowoomba Agricultural and Horticultural Society offered the largest amount in prizes—viz., £309, allotted thus: £157 for stock exhibits; £75 for agriculture; £9 for dairy produce; £49 for "jumping events"; and £19 for competitions classed as miscellaneous. Eight societies confined their work to the holding of shows. Of the rest, while most can claim that they exist to further the general interests of agriculture, relatively few give details of their operations. Among the honourably conspicuous exceptions, the most conspicuous is the Drayton and Toowoomba Agricultural and Horticultural Society, whose secretary's report is convincing proof that the society neglects no means or opportunity of promoting the interests of the farmer.

THE CHAMBER OF AGRICULTURE.

The Chamber of Agriculture, which was initiated in 1901 at the Agricultural Conference at Bundaberg, has met with much success in its first year's operations. The report for the year 1901-02 shows that the chamber has steadily advanced in membership, which includes thirteen affiliated societies. Amongst the matters of urgent importance which have been considered, and in which action has been taken by the chamber are:—The question of excessive shipping freight charges for fruit from Bowen; differential freight rates on Queensland Railways; the carriage of wheat to port at rates similar to those of other States; the testing of weighbridges, and the issuing of certificates of correct weights. In both shipping and railway freights satisfactory concessions were obtained, but the question of weighbridges is still under consideration by the Railway Department.

Various matters connected with the producing interests of the State as affected by the Federal tariff received the full consideration of the chamber; and representations made to the Federal Government were, in some instances, favourably received. On several other questions, such as the ullage of fruit in transit, the shipping and receiving of perishable products, and the better control of retail and wholesale markets, the chamber has taken action with good results in favour of the producers. It is to be hoped that every agricultural society in Queensland will soon see what an influence for good the chamber has already proved itself, and how potent it might become to advance the interests of agriculture if all the societies were to affiliate with it.

THE AGRICULTURAL CONFERENCE OF 1902.

Much interest continues to be evinced in the annual Agricultural Conferences called by the Department, as is shown by the increasing number of delegates attending them from the agricultural districts in all parts of the State. The latest, which was held in Toowoomba, was the means of bringing together and making public much valuable information on many subjects, notably on the most important question of the day—the question of irrigation. From what was cited with reference

to irrigation work elsewhere, and to the mischief that might be done at such a time as the present by uninformed enthusiasm, it was clear that much care and preliminary inquiry ought to be exercised before irrigation works of any magnitude are attempted. The subject is one which Dr. Maxwell has made so thoroughly his own, that much regret was expressed at his absence, through illness, from the conference, where it had been hoped he would be able to give the delegates the benefit of his scientific knowledge and experience. The loss of his counsel was the greater, because not only is he familiar with irrigation works on a large scale in other parts of the world, but he had been for some time previously making investigations with a view of adapting in the most economical manner the general principles of irrigation to the particular needs and conditions of Queensland. It is some consolation to know, however, that our settlers generally are not to be deprived of the advantage of his wide acquaintance with the subject; for, at my request, he has consented to advise on the question of irrigation in connection with the State Farms, at each of which probably there will soon be installed a cheap irrigation plant which will afford useful lessons to the farmers in the vicinity. This is not the place to discuss the larger schemes that have been proposed and that will be proposed; but I cannot refrain from congratulating the State on having in its service an officer who is able to bring the highest scientific knowledge and skill to the consideration of projects involving so great an expenditure of money.

The question of grain elevators and the bulk handling and storage of grain was the subject of a paper by the Hon. A. J. Thynne, M.L.C., whose opinions were listened to with marked interest and attention. Mr. Thynne brought forward much information on the matter, collected from personal observation while in America. He contended that by the use of this system the large sum of money lost by farmers year after year through an antiquated method of transport would be saved. He computed that the farmers of Queensland spent annually £10,000 on bags alone, and that another £10,000 was wasted through the repeated handling of the grain before it reached the miller. He said that the amount thus practically thrown away on the purchase of bags was equal to the annual interest on £250,000, which would suffice to erect all the elevators required, and that the £10,000 per annum saved in the handling of the grain would remain the property of the farmers. He thought that, but for the apathy of the farmers, the Commissioner for Railways might have long since inaugurated the system.

Among other interesting matters, "Dairying in Queensland" was introduced by Mr. McShane, the "Horse Industry" by Mr. W. R. Robinson, and "The Extension of the Scope of 'The Agricultural Bank Act of 1901,'" by Mr. C. P. Mau, of Mackay. In the discussion which took place on the last-mentioned subject, some misconceptions as to the functions of the bank were removed. It was explained that, in the matter of advances, no distinction would be made between new and old settlers, that advances would be made only to such as intended to apply them to the improvements of the land taken as security, and that no advance could be employed in the purchase of land.

It was generally agreed that the Toowoomba Conference was one of the most valuable of the series, partly on account of the number of the delegates, and partly because of the capable and serious manner in which such important subjects as irrigation, grain elevators, horsebreeding, and dairying were considered.

"THE AGRICULTURAL BANK ACT OF 1901."

This Act, which was passed during the year under review, and which provides cheap money for farmers, was brought into practical operation in April last by the appointment of Sir Hugh Nelson, Mr. E. Deshon, and Mr. H. L. E. Rütting as Trustees, with Sir Hugh Nelson as Chairman. The work of the Trustees has, so far, been as follows:—

1. Issue of Regulations prescribing the operations under the Act.
2. The acceptance of applications and conditional approval of a proportion thereof after obtaining reports thereon from such Land Commissioners and Crown lands bailiffs and rangers as had been appointed valuers and inspectors under the Act.
3. The establishment of an office in the Treasury Buildings.

In all their preliminary work the Trustees had the valuable clerical assistance of Mr. W. C. Green, of the Agricultural Department, and it is understood that they highly appreciated his ability and assiduity.

THE SUGAR WORKS GUARANTEE ACT.

The Central Mills generally are improving their position, though those situated in the South have suffered greatly from the drought, and those in the North, while not so badly affected, did not have a season as favourable as usual. The Nerang River Central Mill did moderately well, but the cane available is not yet sufficient to work the mill to half its capacity of 2,000 tons. So far the quantity made has not exceeded 700 tons of sugar for the season. The Moreton Mill of 3,000 tons capacity is in a like condition, the cane supply falling far short of the capacity of the works. In 1900, 918 tons of sugar were made, but in 1901 the cane supply was sufficient for only 846 tons. The Isis Mill has the distinction of being the most economically managed; its average cost of working is £1 10s. 9½d. per ton of sugar less than that of any other mill. The Mount Bauple Mill had a very dry season for 1901, but obtained 13,004 tons of cane, an improvement upon 1900, mainly due to an increase in the areas planted. The Gin Gin Mill has felt the effect of the drought to such an extent that it is feared that there will be no crop for the season of 1903. The crop for this year was crushed in less than three weeks. The returns from the Proserpine are steadily increasing, and it is expected that there will be nearly 2,000 acres under crop for 1903 season. The results for 1901 were not quite as satisfactory as for 1900. With 2,068 tons more cane, 131 tons less sugar were made, and the number of tons of cane required for 1 ton of sugar was increased by 1·8. The manager attributes the result to the large proportion of frosted cane, and to the sugar contents being lower than in 1900. The Marian and Pleystowe Mills at Mackay have done good work, and have paid good prices for their cane. At the instance of some of the shareholders of the Pleystowe Mill, an inquiry was held by Mr. O'Malley, late of the Public Service Board, into certain matters affecting the management of the company. The decisions he arrived at have been communicated to those interested. The Mossman and Mulgrave Mills have made fairly good profits, are well managed, and should have a prosperous year before them. The financial position of the Central Mills as regards their indebtedness to the Government is shown in the following table:—

RETURN OF REDEMPTION AND INTEREST PAID, AND REDEMPTION AND INTEREST DUE, BY SUGAR MILL COMPANIES UNDER "THE SUGAR WORKS GUARANTEE ACTS, 1893 TO 1895," AS AT 30TH JUNE, 1902

Name of Company.	Amount Advanced.		Interest paid during 1901-1902.		Total Redemption Paid.	Arrears of Interest Due and Unpaid to 30th June, 1902.		Redemption Due to 30th June, 1902.	Total Amount Interest and Redemption Due to 30th June, 1902.	Remarks.		
	£	s. d.	£	s. d.		£	s. d.				£	s. d.
Double Peak	18,200	0 0	Nil	Nil	Nil	3,443	3 7	1,161	16 0	a Includes £647 10s. 4d. Interest and £543 16s. 7d. Redemption paid since 30th June, 1902. Matter in abeyance.		
Gin	50,000	0 0	Nil	Nil	Nil	6,469	12 9	3,191	15 0			
Temporary Advance	2,000	0 0	Nil	Nil	Nil	Nil	Nil	Nil	Nil	b Includes £2,639 18s. 5d. Interest and £1,879 7s. 7d. Redemption paid since 30th June, 1902.		
Isis	38,636	0 0	a 1,963	9 4	a 7,347	15 4	Nil	Nil	Nil			
Johnstone	847	17 8	...	...	...	...	...	...	...	c Includes £640 14s. 9d. Interest and £508 3s. 9d. Redemption paid since 30th June, 1902.
Marian	39,000	0 0	b 2,639	18 5	b 2,489	11 4	2,000	0 0	2,000		0 0	
Moreton	32,864	15 0	Nil	Nil	Nil	7,191	1 6	2,097	18 6	d Includes £1,552 12s. Interest and £2,115 6s. 4d. Redemption paid since 30th June, 1902.		
Temporary Advance	5,300	0 0	Nil	Nil	Nil	Nil	Nil	Nil	Nil			
Mossman	66,300	0 0	2,569	0 2	4,232	5 6	Nil	Nil	Nil	e Includes £640 14s. 9d. Interest and £508 3s. 9d. Redemption paid since 30th June, 1902.		
Mount Bauple	32,480	16 1	c 640	14 9	c 508	3 9	4,526	15 3	1,565		4 5	
Mulgrave	46,000	0 0	1,782	8 6	2,934	19 10	Nil	1	8 4	f Includes £1,552 12s. Interest and £2,115 6s. 4d. Redemption paid since 30th June, 1902.		
Nerang	19,998	18 10	Nil	Nil	Nil	5,480	10 4	1,276	2 8		6,756	13 0
Plane Creek	65,000	0 0	d 3,535	12 5	d 4,149	5 6	9,985	5 2	Nil	9,985	5 2	
Pleystowe	35,472	1 3	1,374	9 8	1,735	12 8	4,201	9 2	528	14 8	g Includes £1,552 12s. Interest and £2,115 6s. 4d. Redemption paid since 30th June, 1902.	
Proserpine	54,000	0 0	Nil	Nil	Nil	13,521	0 7	3,447	1 10	16,968		2 5
Temporary Advance	8,500	0 0	
	*£514,600	8 10	£14,505	13 3	£23,397	13 11	56,818	18 4	13,270	1 5	70,088	19 9

* Under "The Sugar Works Guarantee Acts, 1893 to 1895" Temporary Advances to Mills under Government control ... £498,500 8 10
Do. Gin Mill ... 13,800 0 0
... 2,000 0 0
Total ... £514,600 8 10

Interest paid prior to 1901-1902 during 1901-1902 (including £5,480 15s. 6d., paid since 30th June, 1902) ... £52,952 18 5
Do. ... 14,505 13 3
Total ... £67,458 11 8

Redemption paid prior to 1901-1902 during 1901-1902 (including £5,046 14s. 3d., paid since 1st July, 1902) ... £11,459 10 9
Do. ... 11,938 3 2
Total ... £23,397 13 11

When "The Sugar Works Guarantee Act Amendment Act of 1900" was passed the above Loans were Consolidated, and Redemption, under the provisions of this Act, was charged the Mills as from 30th June, 1900, arrears of Interest only being brought forward. The total amount of Redemption Due and Unpaid to the 30th June, 1902, is £13,270 1s. 5d., as above.

"THE DISEASES IN PLANTS ACT OF 1896."

The good effects of this Act are every year becoming more apparent. The inspection (and, if necessary, fumigation) of all plants entering the State, and of fruit imported into or grown in Queensland, and brought to market, prevents the spread of vegetable diseases, and tends to improve the quality of the fruit produced within the State. The inspectors have endeavoured, as far as possible, to keep our markets and orchards free from diseased fruit and trees, and have done much to induce growers and importers to co-operate with them in this respect. The imported fruits condemned have been chiefly apples and pears from Tasmania, New South Wales, and Victoria, infested with black spot or codlin moth, and stone fruit from New South Wales, infected with fruit fly, San Jose and red scale. Largely through the Inspectors' efforts, improvements have been effected in the quality of bananas intended for export, and in the arrangements for shipping them, with the result that the proportion condemned in the ports of other Australian States is much less than in former years.

"THE MEAT AND DAIRY PRODUCE ENCOURAGEMENT ACTS 1893 TO 1901."

The operations under these Acts during the past year, so far as advances are concerned, were restricted, owing to the prolonged drought conditions existing, which practically paralysed all enterprise in the direction of the erection of new meat and dairy factories. One advance of £771 10s. only was made, this being the final payment on account of an advance of £1,400 approved from the Southern District Dairy Fund on a condensed milk factory. It is gratifying, however, to note that the various borrowers have met their engagements to the funds, thus enabling the return to the certificate holders, or contributors to the meat fund, of portions of the amounts paid in in 1893, 1894, 1895, and 1896, at the following rates, viz. :—

Southern District,	3s. in the £1
Central	" 3s. "
Northern	" 6s. "

Provision was also made for all certificates drawn against the meat fund in these districts which amount to only £1 or under, to be paid in full, as provided by the Amendment Act passed last year. This will cause the distribution of some £22,000, of which more than £15,000 has already been paid away. The Amendment Act above referred to was found necessary, from the fact that the board which administers these Acts had not by any of the previous Acts been directly authorised to utilise a portion of the money standing to the credit of the meat and dairy fund to meet the cost of administration. This Amendment Act gives the board this authority, and also validates its action in the past in paying these expenses from the funds.

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

No new advances have been made from this vote during the year, the only payment being £150, the balance of the advance approved to the Queensland Farmers' Co-operative Dairy Company, Limited, upon their butter factory at Booval. So far all interest and redemption claims have been satisfactorily met. Advances of £138 for a new flour store in connection with the Roma Co-operative Milling Company's Mill, and £1,370 on the new flour mill erected by the Dalby Farmers' Milling Company, have been approved, and will be paid as soon as the necessary securities are lodged.

THE EXPORT OF FROZEN PRODUCE.

Though Queensland has agricultural capabilities superior to those of any other State in the Commonwealth, the superiority seems insufficient to countervail the effects of her greater distance from the London market, and the greater difficulty her producer has in reaching the most profitable customers. This is especially true as regards her dairy industry. Three years ago my predecessor in office determined, as far as was in his power, to place the Queensland dairy farmers on a footing of something like equality in this respect with their Southern rivals, and made an arrangement with the Adelaide Steamship Company, Limited, of the following nature: In return for a subsidy of £4,500 in all, the company undertook to provide sufficient refrigerated space in one of their ships, and during the three following butter seasons to carry frozen cargo to Sydney weekly for transhipment to the outgoing mail steamers. The venture was not an unqualified success, and cannot be said to have wholly pleased anybody concerned in it. It was soon manifest that all parties had overrated the quantity of produce that would be available for export under this contract. The season opened with the shipment of 26 tons of meat and 55 tons of butter, and if this rate could have been maintained all would have been well. But the shipments fell away, until on one trip the company's steamer carried only 6 tons of butter and 14 tons of meat. Ultimately, the company refused to cool the vessel down when a fair amount of cargo was not tendered. In the second season no produce was carried at all, since, owing to various causes, the quantity for export by this medium was very small; and the company decided not to run the boat unless a minimum freight of £80 per trip was guaranteed, the charges under the agreement being £1 10s. a ton for the butter, and ½d. per lb. for the meat. In the third season arrangements were more satisfactory. The company again prescribed £80 as a minimum freight, which the Department and the butter exporters agreed to guarantee. The exporters undertook to pay the accumulated shortages until they amounted to £460, after which the Department was to become responsible. Had circumstances proved as favourable as they promised to be when the revised agreement was made, the Department would not have been called upon to pay anything; but, again, expectations were not realised, and the Department's liability amounted to £736. Thus the service cost the State £5,236. The following particulars respecting the shipments may be of interest :—

	1899-1900.	1900-1901.	1901-1902.
Butter shipped	486 tons	Nil	198 tons
Meat shipped	105 "	Nil	80 "
Total value of freight	£974	Nil	£483
Average freights per trip	£51	...	£23

Though better seasons would have ensured better results, indications were not wanting that, even in the most favourable circumstances, this mode of reaching the English markets will never give full satisfaction. The only course that can be completely successful is that of making Brisbane a port of call for the English mail steamers. To that object our efforts should be directed, and I trust that when the ocean mail contract is renewed about twelve months hence, a clause will be inserted in the agreement to let Brisbane share the advantages Sydney, Melbourne, and Adelaide derive from the service.

THE PRICKLY PEAR.

A reward of £5,000 has been offered for a means of destroying the prickly pear at a reasonable cost by a process not injurious to animal life. Responses to this offer have come from almost every part of the world; but no one has as yet undertaken to carry out the prescribed conditions, which were necessary in the interests of the State, considering the magnitude of the reward. Most of the foreign claimants sent formulas for the destruction of the pest, requesting the Department to give them a trial. But manifestly this was impracticable, and would have been unjust to others willing to experiment at their own expense, in accordance with the terms of the competition. Furthermore, these formulas, so far as they were examined, revealed no process that had not been tried and found either inefficacious or too costly. Oddly enough, there has appeared in newspapers, by the side of the announcement of this reward, a paragraph stating that cattle had been fattened on a diet of prickly pear in districts of Queensland where no other fodder was available. It is certain that a considerable quantity of prickly pear has been carried by rail for cattle-feed from places where it is abundant to places where it is unknown; and the Railway authorities are co-operating with this Department to prevent the spread of the pest while in transport. To solve the problem of its virtues as a fodder, I have directed experiments to be made with the plant both alone and in combination with ordinary foods. Perhaps the best evidence that could be given of the severity of the present drought is the fact that in many places even the prickly pear is succumbing to its influence.

QUEENSLAND AGRICULTURE GENERALLY.

The prominent features of our agrarian industries during the last few years have been—the steady increase in the areas under cultivation, the development of the sugar industry, the establishment of the modern dairy system, the attention given to the cultivation of particular products—notably wheat, malting barley, coffee, and tobacco—and the sale of wheat and wool by auction instead of direct to the individual buyer.

Every year shows an increase in the area under cultivation. The additions for 1901 represent 26,945 acres, which the Registrar-General finds is a centesimal increase of 5.61. The increase in population for the same period was only 2.46 per cent. The principal increase was in the area placed under fodder plants, which shows that the farmers are becoming more alive to the necessity for providing for their stock food other than the natural grasses. Of the principal crops, the advance for wheats, oats, barley, and rye, was 13,415 acres; sugar-cane increased by 3,496 acres, and fodder crops by 18,906 acres. The decreases were—in maize, 10,991 acres, and in rice 66 acres. The grain crop, therefore, shows a net increase of 2,358 acres.

Wheat.—The wheat crop for 1901 was on the whole satisfactory. The area under crop for grain rose from 79,304 acres in 1900 to 87,232 acres in 1901, the total yield from 1,194,088 bushels to 1,692,222, and the average yield from 15.06 bushels to 19.40 bushels to the acre. Though rust affected 10,070 acres, the crop was such a good one that even with this misfortune the average yield has been only once exceeded—in 1894—when it reached 19.48 bushels to the acre. For a comparison, the wheat crop of South Australia may be taken. There, it is stated, 1,415,658 acres were reaped for an average of 4.60 bushels to the acre. The Allora district covered the largest area, with 22,131 acres; the Toowoomba district came next with 18,609 acres; the third in order was Warwick, with 14,762 acres. The highest average return was in the Nanango district, with 22.23 bushels to the acre, followed by Crow's Nest, with 20.12 bushels. The average yield of wheat in the various States of Australia are:—

Queensland	...	...	...	...	...	19.40 bushels
New South Wales	...	...	...	...	...	10.60 „
South Australia	...	...	...	...	...	4.60 „
Western Australia	...	...	...	...	...	9.96 „
Victoria	...	...	...	...	...	6.91 „

The imports for 1901 were equal to 1,820,240 bushels, and the quantity grown in Queensland was 1,692,222 bushels. If the total be valued at 3s. 2½d. per bushel it will be seen that the requirements of the raw material for the present population amount to £559,798 12s. 7d. The quantity produced in Queensland in 1901 was 48 per cent. of the total requirements. Two new flourmills were erected, making a total of 18. The value of the flour made by all mills was £204,842, of bran and pollard £38,182, and of meal £1,605.

Barley.—Malting barley was grown on 6,818 acres, as against 6,302 acres in 1900; and the yield was better by 11.27 bushels to the acre, the average for 1901 being 28.39 bushels to the acre. Toowoomba had the largest crop with 2,440 acres; Allora came second with 1,358 acres; and Warwick third with 1,219 acres. The total yield was 193,538 bushels, as against 107,910 bushels for 1900. The total requirements of malt for the State were 191,424 bushels, of which 36 per cent. was made from Queensland barley, the imports of malt being 121,424 bushels; but of the malt made in Queensland, 69,000 bushels or 98.6 per cent. were made from Queensland grown material. In 1900 the proportion was 79 per cent.

Maize.—Maize showed a fairly average yield for the State, but in some districts there were failures, of which the dry weather that followed the planting was the cause. The acreage planted fell from 127,974 in 1900 to 116,983 in 1901, but the average yield rose from 19.20 to 21.96 bushels to the

acre. The reduction in the area for grain was 10,991 acres. The greatest decrease was in the Allora district, where the area for 1901 was less than one-half of that for 1900, the decrease being 5,878 acres. The imports of maize for the past three years have been:—

	Bushels.	Value.
1899	501,179	£89,256
1900	247,449	42,388
1901	131,601	23,307

Sugar.—The sugar crop of 1901 was an improvement on the previous year, but did not come up to the returns of 1898. The figures for the four years are:—

	Acres crushed.	Average yield of sugar per acre.
1898	82,391	1.99
1899	79,435	1.55
1900	72,651	1.28
1901	78,160	1.55

The total weight of cane crushed in 1901 was 1,180,091 tons, or an average of 15.10 tons to the acre. The weight of cane required to make a ton of sugar was 9.76 tons. The number of factories in connection with the industry were:—

Refineries	2
Sugar Manufactories	52
Crushing Mills only	6
	—
	60

The total weight of sugar was 120,858 tons. The quantity exported was 81,024 tons for the sugar year, which ended on the 31st of May, 1902, and the estimated requirements for Queensland were 28,270 tons. The surplus of the operations of last season was 11,564 tons. The sugar content of the canes was not so high as in 1900, and it took on an average .59 tons more cane to make a ton of sugar. This was caused in the Central and Northern districts by the lateness of the rains, which did not fall until February; the cane did not make growth, and was immature; in addition to which it was affected by frost, and its density consequently lowered. The Southern district produced a ton of sugar from 10.43 tons of cane, as compared with 10.77 tons in 1900. It is estimated that the annual consumption of sugar in the Commonwealth of Australia amounts to about 176,031 tons, so that with a return of normal seasons and the benefits of interstate freetrade there should be sufficient inducement for the extension of the area under sugar-cane, in order to obtain command of the sugar market in the Commonwealth. The prospects for the season of 1902 are particularly good in the North, but the Central and South will show a considerable shortage, owing to the continuance of the drought. The output for the whole State may be less than in 1901.

Fruit.—In the matter of fruits there are some in which Queensland is able to face the Southern markets without any risk of serious rivalry, notably bananas, pineapples, and mangoes. It is in the North that the cultivation of the banana has been prosecuted upon lines beyond the wants of the local market; and it is by the North that practically the whole of the export trade in bananas is done. The number of bunches produced in 1901 was 2,313,719, of which the Cairns district yielded 575,760 bunches and the Mourilyan district 1,246,695 bunches. These added together are equal to 79 per cent. of the banana production of the whole State; and the area represented was 69 per cent. of the area under bananas in Queensland. It is in the Southern part of this State, on the other hand, that the pineapple is cultivated to the greatest extent. Of the 1,020 acres devoted to it, no fewer than 638 acres or more than 62.549 per cent. of the whole are in the neighbourhood of Brisbane. Next to the banana and the pineapple among the fruits for the supply of which the other States of Australia look to Queensland, may be classed the mango, though it is at present a much less profitable export than either. Attention may also be drawn to the citrus fruits, the cultivation and export of which are annually expanding. The picking time being earlier here than in the South, good prices can be obtained by the grower if care be taken to send only the best fruit to market. The area under oranges in 1901 was 3,083 acres, an increase of 201 acres over the previous year. The production, however, fell from 2,041,068 dozen in 1900 to 1,880,264 dozen in 1901. The Maroochy district has 674 acres under crop, and the Maryborough district 364 acres. The total area under grape vines fell from 2,019 acres to 1,990 in 1901, but the yield increased from 3,634,949 lb. in 1900 to 4,063,109 lb. in 1901, the average yield for the latter year being 2,403 lb. of grapes to the acre. The season was fairly good, the average being the highest for the past five years. The Roma district far exceeds other districts for the cultivation of the grape vine, the total area under vines there for 1901 being 550 acres, Brisbane coming next with 162 acres. In 1901 there were 538 manufacturers, who made 148,835 gallons of wine and 1,112 gallons of brandy. The imports for the year were valued at £31,140, represented by 5,054 gallons of sparkling and 51,037 gallons of other wine. Though with interstate freetrade much wine will be imported from the South, Queensland vignerons would be able to command the local markets if they took the advice of the Viticulturist as to the kinds of grapes to be grown and the kind of soil to be planted with them.

Tobacco.—Practically the whole of the Queensland tobacco crop is grown in the Carnarvon district. Of the total area of 768 acres under crop in 1901, 692 acres were in the Texas and 72 acres in the Inglewood district. The average production was better than in 1900, the yield being 7.6 cwt., as against 6.1 cwt. per acre in the latter year. A small area formerly under tobacco in the Cairns and Cardwell districts has apparently been abandoned or turned to other uses. The increase for 1901 as against 1900 was 103 acres and 1,816 cwt. of leaf. The value this industry might become to Queensland—for there seems to be no doubt about the suitability of our soil and climate for tobacco-growing—is shown by the value of the imports, which, for all classes of tobacco, amounted to £100,315 in 1901, £91,766 in 1900, and £110,075 in 1899.

Coffee.—The area under productive trees in 1901 was 370 acres, and that under non-productive trees 177 acres; the increase in the productive area was 87 acres. The yield for the year was 130,293 lb., but, in a comparison with the yield for 1900, shows a decrease of 9 lb. per acre, the yield for 1900 being 361 lb. to the acre. It is in the North that coffee cultivation is most closely followed. There were in that division of the State 472 acres under coffee out of a total for the whole of 547 acres. The Cairns district, in which the Instructor in Coffee Culture has his headquarters, had 213 acres under cultivation, the district next in area being Mackay with 49 acres. The imports for 1901 were valued at £6,153, and the exports at £215. It is estimated that the present production is equal to only 45 per cent. of our requirements. Our coffee-growers, therefore, have still scope for considerable expansion before local wants are fully satisfied; after which there still remains the wider field of enterprise left open to them by the wants of the other parts of the Commonwealth. Mr. Newport, in the early part of this year, visited Victoria and New South Wales to bring the Queensland coffee under the notice of the public and to ascertain what share this State could reasonably expect to have in the trade generally. The annual imports of coffee into Victoria and New South Wales amount to about 300 tons each, and into South Australia, West Australia, and Tasmania about 400 tons. Excluding Queensland, the requirements of the Commonwealth amount to about 1,000 tons a year. The production in the State for 1901 slightly exceeded 58 tons.

Dairying.—The drought has had such an effect on this industry in all its branches that for the remainder of this year at least we shall be importing instead of exporting. Notwithstanding the dry weather in 1901, there was a fair expansion in the industry. The quantity of milk dealt with was 26,286,459 gallons, as against 21,884,407 gallons in 1900, an increase of 4,402,052 gallons in one year. The output of butter was 9,741,882 lb., as against 8,680,389 lb. in 1900. If these quantities can be dealt with in a dry year, there will be no fear for the industry when the seasons have again become normal and prosperity has returned. The export trade has continued to grow, and it is greatly to be regretted that the disastrous year of 1902 will break through arrangements that have gradually been built up since the industry was started. The export figures for the past five years are—

1897	...	...	...	...	...	...	...	186 tons, valued at £16,251
1898	...	...	...	...	...	...	...	433 " " 37,286
1899	...	...	...	...	...	...	...	517 " " 49,429
1900	...	...	...	...	...	...	...	620 " " 51,662
1901	...	...	...	...	...	...	...	931½ " " 86,150

Of the total output of butter 1,809,669 lb. were made by farmers, and 7,932,213 lb. by factories. For cheese, 2,410,627 gallons were treated with a return of 2,436,912 lb. The manufacture of hams and bacon was less by 610,732 lb. than in 1900, and the export of these articles was reduced by £14,438 in value. The figures for the years 1900 and 1901 are:—

	1900.	1901.
Number of pigs in State	122,187	121,641
Bacon and hams made	7,685,446 lb.	7,074,714 lb.
Bacon and hams of local manufacture exported, value	£45,831	£31,393

TABLE A.

STATEMENT showing the ACREAGE of CROPS during the Years 1900 and 1901.

Crops.	Acreage.	
	1900.	1901.
	Acres.	Acres.
Sugar-cane ...	108,535	112,031
Grain crops ...	215,618	217,976
English potatoes ...	11,060	9,948
Pumpkins ...	14,232	14,448
Hay crops ...	42,497	63,055
Green crops ...	41,445	39,793
Fruit ...	16,146	17,430
Other crops ...	7,864	8,779
	457,397	483,460

TABLE B.

ESTIMATED VALUE of all the AGRICULTURAL PRODUCTIONS in 1900 and 1901.

Crops	1900.	1901.
	£ s. d.	£ s. d.
Crops	1,501,622 0 0	2,589,488 6 4
Dairy produce	658,177 1 4	551,082 14 4
Farm stock	4,024,050 0 0	4,126,717 19 6
	£6,183,849 2 1	£7,267,289 0 2

TABLE C.

STATEMENT showing the VALUE of AGRICULTURAL EXPORTS, the PRODUCE and MANUFACTURE of the STATE during the Years 1900 and 1901.

Exports.	Value.	
	1900.	1901.
	£	£
Sugar, molasses, and syrups	678,681	792,329
Grain	437	3,013
Hay and chaff	1,500	2,646
Dairy and auxiliary industries	101,269	129,724
Fruit	104,747	102,630
Products of root crops	3,674	4,857
Vegetables	4,013	5,875
Other	9,840	13,878
	£904,161	£1,054,952

TABLE D.

TABLE showing the RELATIVE VALUES of EXPORTS, the Produce of the State.

	1900.		1901.	
	£	Percentage of Total.	£	Percentage of Total.
Agricultural	904,171	9·67	1,054,952	11·71
Pastoral	5,248,785	56·11	4,750,353	52·72
Mineral	2,894,689	31·91	2,933,147	32·56
Other	217,044	2·31	271,244	3·01
	£9,354,689	100·00	£9,009,696	100·00

I append two Reports which it was deemed advisable not to abridge—the Report of Dr. Maxwell, on the Agricultural Chemist's Branch, and the Report of Mr. Gordon on the Stock Sub-department.

By the provisions of "The Sugar Experiment Stations Act of 1900," the Director is to lay before Parliament a Report on his operations under the Act, and the Report, which is now in course of preparation, will be tabled in both Houses at an early date.

I have, &c.,

D. H. DALRYMPLE,
Secretary for Agriculture.

REPORT OF THE CHEMISTRY DIVISION.

(SECTION OF FEED STUFFS AND PRODUCTS.)

When, at the Minister's request, the general agricultural chemical work of the Department came under my direction a partial reorganisation was determined upon in order to define more clearly the lines of each branch of chemical research; further, to confine and concentrate the services of respective chemists upon work for which they are more or less specially prepared and thus prevent overlapping; and, finally, to bring all the sections of chemical investigation within a system which shall represent in such respect the work of the State.

The chemical laboratories established at Bundaberg, under the Sugar Experiment Station's Act, are equipped more especially for lines of work coming within the definition of "Inorganic Chemistry," which includes the examination of rocks, soils, waters, manures, and similar materials, and for which work given laboratory appliances are required. The services of the chemists at Bundaberg are concentrated upon the lines of chemical work set forth, and a notable economy results from the greater efficiency that is attained.

At the time of the removal of the general agricultural chemical work from the Gatton College to the Department Building in Brisbane, and in the equipment of the laboratory now in use, particular consideration was given to the nature of the work most likely to be done. As the Bundaberg laboratories are capable of meeting all requirements covering the investigations of the soils and waters of the State, it was considered advisable that the Brisbane laboratory should confine its undertakings more especially to examination of all such materials as properly come within the section of Feed Stuffs and Products, including grains, grasses, roots, and other edible growths, and all natural or manufactured products of the farm, such as dairy, orchard, and field produce, the investigation of which substances falls within the limits of agricultural "Organic Chemistry." The laboratory in the Department Building has been equipped with such purpose in view; and the services of the chemist are concentrated upon the lines of investigation already set forth. In consequence of the division of work explained, all soils, waters, manures, and similar mineral materials go to the Bundaberg laboratories, and all seeds, plants, fruits, dairy, and other organic substances come for examination to the Brisbane laboratory, and with the immediate result that greater efficiency and economy are achieved in the execution of the work. The most noteworthy result of such systematising of the chemical work of the Department will ultimately be found embodied in such a complete statement as will thus be made possible of the soils and the waters, and of the crops and products, covering all the areas and conditions of the State. Nothing short of such an inventory, indicating the nature and producing capabilities of the State, should be kept in view during the course of investigation of the soils, and of the crops produced by them.

With the transfer of the laboratory from Gatton to the Department Building the chemist, Mr. Brünnich, who has charge of the laboratory work under direction, has taken up residence in Brisbane.

Mr. Brünnich is a trained chemist, and has ample capability for carrying out the special examinations, along lines of agricultural organic chemistry, entrusted to him. During the past months he has shown a particular aptitude for such work, embracing a knowledge of the methods of the laboratory, also of the literature bearing upon such investigations.

The work of the laboratory of the past year is set forth briefly by the chemist in his report to the director, as follows:—

THE CHEMIST'S REPORT.

“A good deal of delay was caused by the removal and the fixing of the new laboratory. The work carried out during the first half of the year included analyses of wines, cheese, butter, grasses, tanning liquors, wattle barks, honey, Moreton Bay chestnut seeds, seeds of *Strychnos lucida*, and other various products, of which full reports have been made through the *Journal* of the Queensland Department for Agriculture.

“Investigations were also made on the preparation of dipping fluids for cattle dips, which resulted in being able to give to the Chief Inspector of Stock the formula for an easily prepared, cheap, and efficient dipping solution.

“The laboratory work performed during the second half of the year, and since the equipment of the new laboratory in Brisbane, embraces examinations of grape musts, grape marc, and leguminous seeds. A report of the results of the analyses of the leguminous seeds is herewith submitted to you.

“J. C. BRÜNNICH, Chemist.”

Since the submittal by the chemist of the preceding report, the investigations have been notably advanced. The analyses of the leguminous seeds then in hand have been completed. These include a sufficiently exhaustive examination of the Florida velvet bean, black Mauritius bean, soja bean, white lupine, yellow lupine, cow pea, and the winter vetch or tares. The analysis and examination of the seeds of those varieties of peas, beans, and of other leguminous growths, was the first step in the study and determination of their respective farm values—first, as feed stuffs, and, secondly, as green or manure crops. After analysis, seeds of all the varieties went to the Mackay Experiment Station, and were planted for field tests, and in connection with tests of other feed crops whose seeds are not used directly as feed stuffs. Four out of twelve varieties thus grown have reached maturity. The crops were cut and weighed, and the production per acre determined. Samples of the crops of all varieties matured were taken, and are now awaiting examination in the laboratory. With the weight per acre produced, and the analyses, showing the chemical composition, and by the aid of repeated tests where it is foreseen that soil and climatic conditions can exercise a notable effect upon the results, it will then be possible to furnish a complete statement to agriculturists upon the feed values, and upon the manurial properties of those and other crops grown in the soils and conditions of Queensland.

More than ordinary attention is being given to the great vegetable family to which most of the varieties so far mentioned belong. The Leguminosæ are distinguished in the plant kingdom by the extraordinary measure of power that they exercise in gathering free nitrogen from the atmosphere. When it is understood that nitrogen is the most vital element in the active processes of plant and animal life, that it is the keystone of the great class of food constituents—the proteids which provide the basis of animal nutrition and growth, it becomes evident that too great attention cannot be given to those crops which possess, to so notable a degree, the power to abstract nitrogen from the immeasurable supply in the atmosphere, to bring it within reach of other crops, such as the grasses or canes, which have not the same power to collect it for themselves, and finally to increase the sum that is in circulation for the use of animals and of man. As a commercial matter of fact, the proportion of nitrogen that is contained very largely dominates the value of foods that are the diets of animals and of men, and also of fertilisers that are the food of plants and crops.

Other great classes of plants that are bound up with the necessities of the farm are the cereals or grain crops which with the grasses, canes, and some further members, make up the family of the Graminæ. The laboratory is now engaged in the examination of many of the known varieties of maize. The purpose is to determine the relative feed value of each of the several varieties. When this is known, with the yielding power per acre, it will then be possible to give more exact advice to farmers concerning the economic values of the respective varieties. It is already well known that the highest yield in bushels does not necessarily carry with it the greatest actual value per acre.

The maize cobs of several varieties are also being examined. This is being done in order that the “cob” may take its place in the lists of animal feed stuffs. The advisability of this has been most acutely emphasised by the protracted drought which has caused every description of vegetable growth to be brought into use for keeping starving cattle alive. The maize cob has already an accepted value as a feed stuff, and more particularly in the large cities of Europe and America. The Omnibus Companies of Paris and other towns grind the cob with the maize, which, when mixed with other somewhat more nitrogenous stuffs, provides a well-balanced provender. So far, the maize growers of Queensland have largely looked upon the maize cob as refuse, to be burnt or otherwise gotten rid of. The purpose of the laboratory is to indicate that it should have its place as a food, and be regarded as an easily kept standby of real value in seasons of food emergency such as the country is now passing through.

The laboratory is also about to look into the food values of some of the better known varieties of wheats. Wheats not only vary in the matter of production per acre, the weight of the bushel, and the flour it will “cut”; they can also differ greatly in the proportions of the chemical constituents which compose them. In speaking of the element nitrogen, it has always been said that it largely dominates the dietary value of foods. Wheats can vary notably in the content of total nitrogen, and also in the amounts and nature of the specific constituents (glutens) in which the nitrogen is found. It is intended to investigate the varieties in order to estimate their relative values for bread-making and nutritive uses. When it is realised that the wheats compose the foundation of human nutrition in many countries, the immediate practical moment of such examinations becomes apparent.

Examinations have also been made of parts of trees (bottle-tree) and other materials, in order to indicate their value as emergency feed stuffs. In normal conditions the consideration of the pith and wood of trees, and of growths, such as the prickly pear, which have still to be regarded as pests let loose, would not be in place. The severe stress caused by the drought has given everything the significance of a feed stuff that can aid in keeping animals alive.

In addition to work that has been explained as already in course of execution, the director of the laboratory proposes to extend the plant investigations to include a determination of the chemical composition and feed values of all Queensland grasses, and to compare the native with foreign varieties introduced into Queensland soils. In view of the enormous pastoral and agricultural interests and possibilities of the State, such examinations must have a leading importance; yet so far, practically nothing has been done along these lines. The situation of the pineapple industry requires that investigation should be made with a view to note if any, and what relation can be established between the diseases that are threatening given localities, and the possibly exhausted or defective state of the soils. A relation is already understood to exist between soils and given kinds of fungus and parasitic attacks upon plants and trees growing in them. This is believed to apply specially to the scale pests. At this time the scale found upon the Indian chutney mangoes, with the excreta, are coming under examination by the

laboratory, with the special aid and co-operation of the entomologist, Mr. Tryon. These mangoes are growing indifferently at the Mackay Experiment Station. Finally, certain manufactured products, including starches made from the cassava and other plants that are growing at the Mackay and Kamerunga Stations, are coming to the laboratory for examination and determination of their market values. Several starch-yielding plants have been handled by Mr. Newport at the Kamerunga Station for the extraction of the starch with much preliminary success. The laboratory will determine the purity of the products. Samples of cassava sent for examination from the Mackay Station represent what has been grown for feed stuff uses.

The analytical results of the examinations described in the foregoing paragraphs, if given in full detail, would cover several pages of printed space. This would overweight the purpose of the present statement. Therefore, the analyses, with a detailed statement of conclusions, will be published through the official journal of the Queensland Department for Agriculture.

It is desirable at this place to call attention to the matter of samples of materials that are sent to the laboratory for examination. It should be known that only one chemist is at the present time engaged in the laboratory at Brisbane. This makes it expressly necessary that judgment be used in deciding which materials should take up the service of the laboratory. As a matter of fact, samples of plant substances are sent in for analysis that it would be waste of time and chemicals to examine. The samples themselves are not representative of the goods to be examined, and not infrequently they arrive in a partly decomposed state, due to want of knowledge in preparing them. If the sample is wrong, the results of the analysis are certainly wrong and misleading. It is indispensable that the director, in the first place, shall determine what materials require to be analysed, and will offer a return for the labour and chemicals expended upon them. It is also necessary that samples shall be taken and prepared according to carefully stated instructions. In the matter of soils, for example, no soils are analysed unless the samples are taken by a laboratory officer, or according to rules uniformly followed. Concerning the conclusions to be drawn from the results of the analyses, it is clear that only a person who understands the findings of the laboratory can put them into use. In fact, the understanding and application of the results demand an additional knowledge and width of experience not necessary to the analyst. It is desirable that it be understood that in following the course thus explained the director of the laboratories has not only in view the greatest economy of the labour and costly chemicals of the laboratory, but also the final interests of those who seek its services. In a word, the guiding idea of the laboratory is selection of and concentration upon lines of investigation that promise the greatest and most immediate economic results on the farm and to the State.

WALTER MAXWELL, Director.

REPORT OF THE CHIEF INSPECTOR OF STOCK AND REGISTRAR OF BRANDS FOR THE YEAR 1901.

I.—DISEASES IN SHEEP ACTS.

The number of sheep in the State as at 31st December last, adapted, as formerly, to the pastoral districts from the Registrar-General's returns under "*The Stock Returns Act of 1893*," show the numbers in each of such districts, compared with those of 1900.

DISTRICT.	1901.	1900.	INCREASE.	DECREASE.
Burke	1,153,490	1,448,057	...	294,567
Burnett	29,842	28,670	1,172	...
Cook	209	170	39	...
Darling Downs	2,051,409	2,183,109	...	131,700
Gregory North	1,055,031	603,701	451,330	...
Gregory South	108,118	139,210	...	31,092
Kennedy	189,886	689,832	...	499,946
Leichhardt	244,053	474,432	...	230,379
Maranoa	1,046,346	1,211,366	...	165,020
Mitchell	2,783,690	2,254,877	528,813	...
Moreton	8,867	7,536	1,331	...
Port Curtis	33,821	81,209	...	47,388
Warrego	1,321,806	1,212,408	109,398	...
Wide Bay	4,403	4,608	...	205
Total	10,030,971	10,339,185	1,092,083	1,400,297

This shows a total decrease of 303,214, equal to 2.9 per cent., as against a decrease of 32 per cent. in 1900.

In a footnote to a corresponding table for 1900, where it was shown that the decrease for that year was 32 per cent. on the previous year, I remarked that the losses there shown did not represent the actual decrease, as heavy mortality was known to have occurred subsequently to the date of making the returns, and that in many instances the numbers were given by approximation.

The above figures would appear to show either that the losses in 1901 had not been so severe as generally anticipated or that the figures for 1900 were unreliable. I am inclined to adopt the latter alternative, as towards the close of 1900 large numbers of sheep were being travelled in search of pasture, and it is not unreasonable to assume that numbers of these had not been enumerated.

That the figures for sheep, cattle, and horses for last year are fairly reliable must be assumed from the fact that the stock assessment for the present year, payable from and after 1st January last, approaches to within 3½ per cent. of the amount of collections for 1901, and it is unlikely that owners would pay assessment on stock unless they were morally sure that they were on the pastures at time of rendering their returns. At the same time, judging from the monthly reports of the inspecting staff, the losses since 1st January last, when the returns were rendered, must have been very heavy in the West.

The decrease in sheep for the two years 1900 and 1901 was within a fraction of 35 per cent.

The introduction of sheep from the southern States during the year was—

By sea	6,629
By the borders	290,999
	<u>297,628</u>

The numbers exported during the year were—

By sea	31
By the borders	277,707
	<u>277,738</u>

The numbers operated on at the various meat-preserving works were—

Frozen	92,420
Canned	35,373
Extract	500
Boiled	150
Total output preserved	128,443
Exported as above	277,738
Total output for the year	406,181

as compared with 638,547 in the previous year.

Queensland continues to maintain its position as enjoying greater immunity from sheep diseases than any other State in the group.

II.—DISEASES IN STOCK ACTS.

The number of cattle in the State at 31st December last, arranged into the various pastoral districts, from the Registrar-General's figures, was as under—

DISTRICT.	1901.	1900.	INCREASE.	DECREASE.
Burke	768,497	823,112	...	54,615
Burnett	389,728	403,506	...	13,778
Cook	206,303	206,468	...	165
Darling Downs	280,223	253,694	26,529	...
Gregory North	120,842	178,303	...	57,461
Gregory South	15,159	31,896	...	16,737
Kennedy	497,432	523,977	...	26,545
Leichhardt	502,305	587,696	...	85,391
Maranoa	136,361	171,528	...	35,167
Mitchell	30,413	46,139	...	15,726
Moreton	401,313	384,950	16,363	...
Port Curtis	236,399	259,175	...	22,776
Warrego	70,979	83,902	...	12,923
Wide Bay	116,753	123,845	...	7,092
Total	3,772,707	4,078,191	42,892	348,376

This shows a decrease of 305,484, equal to 7.49 per cent. on the previous year's figures, as against a decrease of 19.3 per cent. of the previous year. The decrease for the two years 1900-1 was therefore nearly 27 per cent. over the whole State.

As in the case of the sheep, the decrease for 1901 is below expectations, and can only be accounted for by the fact that the figures for 1900 included the very heavy losses that occurred in the Gregorys, Mitchell, Warrego, Leichhardt, and Maranoa districts, the decreases in those districts being small comparatively during 1901, for the reason that the number of cattle had been very greatly reduced during the previous year.

The number of cattle introduced into the State during 1901 was—

By sea	215
By the borders	32,224
	32,439

The number exported during the same period was—

By sea	724
By the borders	73,342
	74,066

The numbers of cattle operated on at the various meat-curing establishments were—

Frozen	113,375
Canned	46,194
Extract	14,590
Boiled	1,170
Manufactured into pemmican for the War Office	56
Total	175,385
Exported by sea and the border as above	74,066
Total output for the year	249,451

as compared with 307,041 in the previous year.

The number quoted as having been turned into extract does not represent the quantity of extract made, as large quantities were produced conjointly with boiling and canning.

With the exception of isolated cases of pleuro-pneumonia and occasional losses from tick fever in the Central and Southern coast districts, the health of the cattle stock has been very good. Of course, heavy losses still continue from drought. As in former years the returns of the veterinary inspectors under the Live Stock and Meat Export Act as well as those of the trained inspectors under "The Slaughtering Act of 1898" have shown that tubercular disease is not by any means so prevalent in our herds as was at one time believed to be the case. It has, however, to be taken into account that cattle are slaughtered at younger ages than was formerly the case, tuberculosis being invariably more prevalent in old than in young cattle.

It will be a relief to our meat-consumers to know, on the authority of Professor Crookshank, in his paper recently read before the Royal Society here, that the flesh of cattle suffering from actinomycosis is harmless as human food; that the risk of eating the flesh of animals suffering from bovine tuberculosis is almost nil, and that the term cancer should be eliminated from diseases affecting cattle. The Professor is clearly of opinion that the flesh of cattle suffering from any of the above diseases is not injurious to health, always assuming that they are in good condition at time of slaughter.

Cattle in the Northern districts where the pest first appeared are now reported to be immune to tick fever, and, although in many cases ticks are present, they seem to cause no ill-effects in the cattle. Cattle, however, from clean districts that are travelled into infested districts almost invariably contract the fever.

Experiments in dipping with various medicaments were continued during the year and, it is satisfactory to have to report, with a large measure of success. By permission, Mr. J. C. Brünnich, the Analytical Chemist of the Agricultural Department, undertook the preparation of a dip, based on that most generally in use, and popularly known as "Christian's dip." Mr. Brünnich's formula is as follows:—

Arsenic	...	...	...	...	...	...	...	8 lb.
Caustic soda	...	...	...	...	...	...	...	4½ "
Tallow	...	...	...	...	...	...	...	8 "
Best Stockholm tar	...	...	...	...	...	...	...	2½ gallons
Water	...	...	...	...	...	...	...	400 "

The mode of preparation is as follows:—

- (a) Half fill with water a 5-gallon drum; add 2 lb. of caustic soda, and boil. Then add slowly 8 lb. arsenic. Add cold water in small quantities, to prevent boiling over, until the drum is full.
- (b) Boil 100 gallons of water in a 400-gallon tank; add 2½ lb. of caustic soda; then 8 lb. of tallow and boil quickly. Add slowly in a thin stream 2½ gallons of Stockholm tar. When the whole of the tar has been added, boil from thirty to forty minutes, then add the solution prepared in accordance with instructions in (a). Gradually fill the tank with water and keep the mixture boiling until the tank is filled.

This dip was tested by Mr. Brünnich in presence of the Moreton District Inspector, and was found most effective. By the use of caustic instead of common soda, as in Christian's dip, the time occupied in boiling is greatly reduced. A large number of dairymen and others in Southern and Central Queensland prefer to use Erkenbrach's dip, commercially known as "skin poison," which they state they have found very effective, easily prepared, requiring no boiling, and does not injure the skin.

As has been frequently pointed out, a strict maintenance of the proclaimed quarantine lines and a rigid observance of the restrictions on the movement of stock within and out of infected areas have occasioned heavy monetary losses. The losses from ticks on our Northern and Central coastal districts on the earliest appearance of the pest were exceptionally severe; but, with our extended experience, we now know that a very large percentage of the deaths of cattle were not due to tick fever, but to anæmia, caused by gross tick infestation. In districts where dipping has been extensively resorted to, and where, by that means, gross infestation has been prevented, deaths from anæmia have been all but unknown. Of course, dipping does not protect the cattle from tick fever, but the mortality from that disease, where cattle have been periodically dipped—even where inoculation has not been carried out—has been small. Another great advantage resulting from dipping is that it prevents the maturing of female ticks, and renders fully-developed ticks sterile, thus greatly checking the increase of the pest.

An impression appears to prevail, in some quarters, that dipping injures the stock, particularly dairy cows. The evidence of the dairy farmers in Southern Queensland disproves this. In one instance, the Moreton inspector reports that after dipping a herd of dairy cattle in his district the production of cream increased very considerably, and for only one day after dipping was the quantity reduced.

III.—HORSES.

The number of horses in the State at 1st January last was as under:—

DISTRICT.	1901.	1900.	INCREASE.	DECREASE.
Burke	41,752	41,111	641	...
Burnett	30,131	28,883	1,248	...
Cook	30,383	27,979	2,404	...
Darling Downs	55,959	53,696	2,263	...
Gregory North	19,303	20,965	...	1,662
Gregory South	4,642	4,362	280	...
Kennedy	67,879	66,985	894	...
Leichhardt	43,827	46,361	...	2,534
Maranoa	17,268	19,900	...	2,632
Mitchell	22,238	21,423	815	...
Moreton	62,398	61,652	746	...
Port Curtis	34,603	32,984	1,619	...
Warrego	12,250	11,407	843	...
Wide Bay	19,486	19,080	406	...
Total	462,119	456,788	12,159	6,828

The above shows an increase of 5,331 or 1.16 per cent. on the number of the previous year.

The numbers of horses imported during the year were:—

By sea	...	...	...	...	...	...	...	223
By the border	...	...	...	...	...	...	...	2,212
								2,435

Exported—

By sea	...	...	...	...	...	...	...	13,659
By the border	...	...	...	...	...	...	...	3,380
								17,039

The returns for the year 1900 showed a decrease of 22,339 or 4.66 per cent., but, as before stated, matters in connection with stock were so disorganised by drought that mustering in a large majority of cases was impossible, and the returns in very many instances were merely made by approximation, and to a large extent the returns for the past year were mere estimates.

IV.—BRANDS.

The number of brands registered during the year was 786; the total number registered up to 31st December last, 41,766; the number transferred up to the end of last year, 1,185; number of cheek and one-piece brands registered in accordance with the Act of 1898, 43; and the number of cancelled brands re-allotted during the past year, 174.

In consequence of the severe drought patrolling was rendered all but impossible over a large area of the State. In the coastal districts, however, and in consequence of the large numbers of stock travelling for agistment, the work of the Brands Inspectors has been exceptionally heavy. As in previous years, the continuous work imposed on the inspectors in the tick zone, inspecting and granting permits for travelling stock, has also greatly interfered with their brands duties; nevertheless much solid work has been done in eliminating from the Brands Directory many brands that have gone into disuse, through death and removal of owners and other causes, thus making available for re-registration many brands of the first and second series, and which are greatly preferred to the third, or script letter, series.

V.—MARSUPIAL BOARDS ACT.

The number of marsupial and dingo scalps destroyed during the year ending 30th June last shows a decrease on that of the previous year by 8,827 scalps. This is, however, accounted for by a large shortage in the number of kangaroos paid for—viz., 220,231. On the other hand the following increases are shown:—Wallabies, 196,191; paddymelons, &c., 10,605; and dingoes, 4,608.

The Aramac Marsupial Board dealt with the greatest number of kangaroos (123,516); Darling Downs, wallabies (308,163), and paddymelons, &c. (10,113); while the Burnett Board leads in the number of dingo scalps paid for (2,138). The Bulloo Board is, however, only 68 under that number.

The figures of the Darling Downs Board are without precedent during the period the Acts dealing with this subject have been in operation.

The statement of operations of each Board, which is appended hereto, seems to indicate that numbers of scalpers have been driven in from the far Western country by the drought conditions prevailing, in addition to which there is little doubt but that marsupial destruction has been largely carried on by other than "professional scalpers" during the year under review. Thus, there are large increases in the numbers of the pest destroyed in the coastal and conterminous marsupial districts, with corresponding reductions in districts further inland.

This opens up the way for the queries: Is the system a success or terminable? Is the work done an equivalent for the large annual expenditure? The answer must be in the negative, for the following reasons:—The increased numbers of marsupials destroyed in certain cases prove irrefutably that—as it is not reasonable to suppose the pest to have travelled in from the drought-stricken areas hundreds of miles further west—the numbers killed in previous years only represented a small proportion of those in the district. In other words, the marsupials left to breed exceeded by thousands those destroyed for the value of their scalps. The following are given as instances:—

	BELYANDO DISTRICT.*	GOGANGO SPECIAL DISTRICT.	LEICHHARDT SOUTH DISTRICT.†	DARLING DOWNS SPECIAL DISTRICT.	DALRYMPLE DISTRICT.
	Scalps (all kinds).	Scalps (all kinds).	Scalps (all kinds).	Scalps (all kinds).	Scalps (all kinds).
1896	17,799 (6 months)	6,475 (6 months)	56,918 (9 months)	110,380	19,435
1897	34,140	10,189	101,695	43,654	8,605
1898 (half)	10,175	8,038 (6 months)	28,823 (6 months)	337	3,940 (6 months)
1898-1899	39,262	31,125	43,653	232,643	9,578
1899-1900	52,328	26,212	60,490	200,078	16,182
1900-1901	48,343	51,477	102,126	319,312	32,449

* Operations suspended 19th March to 30th June, 1901.

† Suspended operations 12th June, 1901.

Of course it may be said that the increased efforts in the coastal and other districts, aided by the severe drought elsewhere, will reduce the animals to a minimum. This may be so, but statistics of the past years do not afford any guarantee thereof. Take, for instance, from the commencement of the Act in 1878 to 1885, 1886 to 1890, and again, 1896 to 1901 (5½ years). The scalps paid for were as follows:—

	Kangaroo.	Wallaby.	Other.	Dingo.	Total.
1878-1885	2,650,292	2,888,564	2,113	74	5,541,043
1886-1890	1,307,673	1,940,945	112,709	74,700	3,436,027
1896-1901	3,168,453	3,709,469	315,332	123,589	7,316,843
Total	7,126,418	8,538,978	430,154	198,363	16,293,913

With respect to this, however, it will be well to note that during the first two periods nearly the whole of the State was under the operations of the Act, while from 1896 to the present time only two-thirds of the country are included. Also, in earlier years, although marsupials were much more plentiful, there were fewer hunters, and facilities were not what they are now; yet, on the other hand, the blacks were then instrumental in counteracting the increase. Again, from 1890 to 1895, the destruction was either wholly suspended or else carried on in a desultory manner. This would account for the continued large annual destruction of late years, were it not for the fact that the country is experiencing a drought unparalleled since its occupation by white man.

To sum up the whole matter, I am of opinion that marsupials will never be even reduced to a minimum by the bonus system, which has so far proved but a means of prolongation.

The dingo and wild dog has taken a prominent place at the present time. Owing to the depleted state of the flocks, its ravages have been all the more keenly felt. High prices are paid for the scalps, notwithstanding which the dogs are reported as being more numerous and destructive than ever. The old theory that these animals do not travel far from the breeding ground is quite upset, as it has been found that where sheep have been travelled from their runs in search of grass and water the dogs followed, and abundant evidence is forthcoming to prove this. Weak cattle have also fallen a prey to dogs. This, and the dangers arising from the interbreeding with dogs of heavier type, formed the subject of a special report to you during last year, and need not further be dealt with here.

OX TONGUES			PIGS' HEADS		
Condemned.	Out of	Per cent.	Condemned.	Out of	Per cent.
1,760	87,112	2.020	4,190	84,548	4.960

NOTE.—Tongues and pigs' heads were condemned for tubercular, actinomycotic, and ordinary abscesses; "Rejects" constitute stock not absolutely sound, though fit for human food. For example, in a case of localised tuberculosis (swine excepted) affecting one or more of the viscera, or if the lesions are confined to the carcass itself, such a body is immediately rejected for freezing or shop; then, when on a careful examination of the glands and other parts the carcass is found to be quite healthy, the diseased portions are removed and destroyed, and the rest of the carcass is permitted to be utilised for preserving only, thus ensuring thorough cooking and sterilisation.

(b) CENTRAL DIVISION.

H. O. BOYLE, M.R.C.V.S.

Number of cattle inspected	...	...	...	...	...	52,315
Condemnations—						
For tuberculosis, generalised and local	...	...	...	...	2.376	
Abscesses, tumours, bruises, &c.	...	...	...	...	.703	
					<u>3.079</u>	
Sheep slaughtered...	...	...	...	...	...	26,753
Condemned	...	...	...	...	...	.003

(c) NORTHERN DIVISION.

B. O. MEEK, M.R.C.V.S.

Number of cattle inspected	...	...	...	...	...	75,570
Average percentage of condemnations—						
For tuberculosis	...	...	...	...	2.543	
For pleurisy, tick fever, emaciation, bruises, &c.	...	...	...	...	.425	
					<u>2.968</u>	
Tongues condemned	4,910
Sheep slaughtered	22,141
Condemned for jaundice, bruises, &c.124

Price 8d.]

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