QUEENSLAND. DEPARTMENT
OF AGRICULTURE & STOCK

ANNUAL REPORT
1943-44

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QUEENSLAND.

ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE AND STOCK

FOR

THE YEAR 1943-44.

PRESENTED TO PARLIAMENT BY COMMAND.

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REPORT OF THE DEPARTMENT OF AGRICULTURE AND STOCK FOR THE YEAR 1943-44.

TO THE HONOURABLE THE SECRETARY FOR AGRICULTURE AND STOCK.

SIR,—I have the honour to present herewith the Annual Report of the Department of Agriculture and Stock for the year ended 30th June, 1944.

SEASONAL CONDITIONS.

July, 1943, the seventh successive month of deficient rainfall, was exceptionally dry. Prolonged cold weather aggravated the serious effects of the general dryness, which was relieved partly, however, by light rains in the following month. After the light falls in August came out-of-season monsoonal rains, which excelled the rains of any previous September in volume and distribution, and benefited farmlands and pastoral areas alike. In consequence, a good spring was assured practically throughout the State. Soaking rains in October consolidated the benefits of the September falls. Inland pastures generally had made good growth, although parts of the sheep pastoral country needed more rain urgently, especially in Carpentaria, the Far West and Far South-west.

Frequent rains during November maintained one of the best spring seasons on record throughout the sub-tropical regions. North of Capricornia conditions were variable, but generally satisfactory, except in the central sugar districts. Near-coastal districts had more heavy rains in December, but there was need for substantial falls in many parts of the sheep and cattle country. January rains benefited the farm lands still further, with the odd exception of the usually well-soaked Far North Coast. A protracted heat-wave caused inland pastures to deteriorate rapidly, relieving rains were partial and scattered. Excluding the South-West, the best February rains fell where most required. The Far North Coast received a typical summer drenching and much of the parched inland pastoral country was soaked by falls ranging up to 21 inches at Pentland and 15 inches at Longreach. March and April were dry months in all parts of the State. The May rainfall was near average in the south-eastern farming districts, but much more was required to complete the recovery from the unusually dry autumn conditions. The best pastoral rains occurred in central and northern areas where they were least required. Lighter falls in the very dry southern sheep country did probably more harm than good by rotting roughage without making new feed. June also was a dry month generally, but unseasonal monsoonal rains have since given a State-wide distribution with the prospect of over-average registrations in nearly all divisions and the assurance of a good, early spring.

THE PASTORAL INDUSTRY.

The statistical position of the major branches of animal husbandry in Queensland is set out in the following table:—

Horses	387,018
Cattle	6,524,550
Sheep	23,255,584
Swine	450,391

Generally, the condition of livestock has been fair. There have been no abnormal losses from disease.

Good-quality horses of all classes are in strong demand at good prices.

Cattle values remained at a high level throughout the year and were reflected in increased numbers of stud and herd stock introduced. The demand for both fat and store cattle continued keen. Southern buyers have operated freely and trans-border crossings into New South Wales aggregated 226,566 head.

In the sheep pastoral areas, conditions generally were norural except in the South-West, where scrub and supplementary feeding became necessary on many holdings. Flock losses occurred in places, and to ensure their survival ewes were frequently left unmated. As compared with the previous year's figures, there was a decline in the number of sheep. There also was a slight decline in average fleece weight, largely because of prevailing unfavourable conditions in the South-West area.

Fat sheep deliveries decreased slightly, but the condition of the consignments was generally satisfactory. Values varied somewhat, but recent prices were as high as 6d. a lb. dressed weight, plus skin value. New South Wales border crossings aggregated 802,292 sheep. Store sheep quittances were moderate at prices rather low in view of the guaranteed price of wool, but transport difficulties and lack of experienced drovers were the chief contributory causes.

There was little increase in the number of fat lambs marketed, but their quality was evidence of good breeding and fattening at the right age. Naturally, the weather and its effects on growing fodder crops has an influence on lamb fattening practice and flockowners in parts of the fat lamb raising districts were at a disadvantage in that regard.

Registrations of stud flocks are increasing. They include Merino, Corriedale, and British breeds—a very encouraging indication of progress. The shortage of experienced station workers, especially for breeding establishments, was among the wartime problems of the pastoral industry.

Field days were held in several sheep pastoral centres for the purpose of giving practical demonstrations in stock disease and pest control. Sheep breeders are taking a keener interest in this inrportant branch of flock management.

Wool appraisals totalled 610,514 bales, for an average value of approximately £13 million. Production was above normal.

Under the Departmental Farmers' Wool Scheme assistance to small flockowners in the get-up and marketing of their clips was continued. The number of bales classed and appraised was 562 and the average price obtained was 13.72d. per lb.

VETERINARY SERVICES.

In the annexed report of the Director of Veterinary Services measures of control of stock diseases and pests, including the buffalo fly, are fully discussed.

GENERAL AGRICULTURE.

Sugar.—The downward trend in sugar production which started in 1940 continued, and in the 1943 season only 486,447 tons at 94 n.t. were produced. This total, which is the lowest since 1927, is 119,149 tons below that of 1942 and 404,975 tons less than the record year of 1939. The cane harvested amounted to 3,397,424 tons, consequently 6·98 tons of cane were required to produce 1 ton of sugar. This ratio, although a little higher than normal, is appreciably lower than that of 1942. Shortages of labour, fertilizer and equipment for cultivation were the main reasons for the low tonnage produced. The average price of sugar was £21 1s. 3d. per ton, compared with £19 0s. 5d. for the previous season's output, and the value of the crop was therefore approximately 10¼ million pounds—about £1,000,000 lower than that of 1942. The objective for 1944 has been fixed at 650,000 tons of bagged sugar. Of this, Queensland's share would be some 640,000 tons at 94 n.t. The present estimate indicates that production will fall short of this by 70,000 to 80,000 tons.

Cotton.—Climatic conditions were generally favourable in the main cotton growing districts, but in the South Burnett and southern and western areas were less conducive to high production because of excessive wet weather in December. More rain from mid-January onwards would have improved yields in all districts. Supplementary irrigation results, as a whole, did not come up to expectations, largely because of labour scarcity at the time it was urgently needed to ensure good yields. Many farmers averaged yields of 700 lb. of seed cotton to the acre or better and, in some instances, 1,200 to 1,500 lb. to the acre on sizeable areas. Details of acreage and yields are included in the report of the Director of Marketing. Because of increased demands on their services for fruit and vegetable harvesting, fewer members of the Women's Land Army were available for cotton picking. The work of developing improved strains of commercial cotton varieties was continued and some very promising results were obtained, the details of which are discussed in the report of the Division of Plant Industry (Research). Insect pests were not an important limiting factor in respect of crop yields in the 1943-44 season.

Wheat.—The wheat yield was above average and slightly better than that of the previous year, even though the acreage was smaller. The aggregate yield of over 5,000,000 bushels was, considering all circumstances, highly satisfactory.

Maize and Sorghums.—Although the maize acreage was slightly below average, the total yield of 4½ million bushels was above average. The quality of the grain was excellent and, as with other grains, high values were maintained throughout the season. Grain sorghum production has become a well established industry with an expanding acreage. The yield approximated 1,400,000 bushels, and a substantial increase in the coming season is anticipated.

Root and Fodder Crops.—Potato production was a record. In the southern districts, the acreage planted was 15,800, from which a return of 30,680 tons was obtained. In North Queensland, sufficient seed was supplied to sow about 2,000 acres and the prospective yield should not be less than 5,000 tons. Although seasonal conditions were unusually favourable for fodder crop production during the greater part of the year, the quantity of ensilage made was the least for many years. Fairly substantial hay reserves were held, however, on many farms.

Peanut.—Because of the very dry autumn, the peanut crop yielded less than was expected and the production objective of 13,000 tons was not attained.

Navy Beans.—For this crop 3,000 acres were sown. Dry autumn weather reduced yields in late-planted fields, but the quality of those harvested was high. Now that the industry is mechanised and that farmers have gained considerable experience with this important crop, a substantial increase in acreage is anticipated in the coming year.

Tobacco.—There was a downward trend in tobacco production, both acreage and yield being the lowest for many years. Apart from seasonal circumstances, the decline is attributed to the uncertainty of the labour position.

FRUIT AND VEGETABLE PRODUCTION.

Stanthorpe orchardists harvested the largest fruit crop ever produced in the district. The aggregate of fruit marketed was 1,286,900 bushels, as compared with 900,000 bushels in the previous year. Combined with a generally favourable season was a low incidence of pest and disease.

The total area under bananas was 9,264 acres, as against 9,693 acres in 1942-43. As with other land industries, a lack of suitable field assistance is a main retarding factor in respect of further expansion.

Pineapple production was lower than in the previous year. The decrease is attributed to the cumulative effects of labour scarcity, insufficient fertilizer, and severe frosts. About 940,000 cases were harvested, compared with almost 1,500,000 in 1941-42.

Of citrus fruits, it is estimated that 400,000 bushels were harvested, of which 50 per cent. were oranges, 40 per cent. mandarins and the remainder lemons and grapefruit. Because of the scarcity of planting material, the expansion of the citricultural area was limited.

Vegetable production was maintained at high levels. In association with the Government Statistician, a crop reporting system has been devised with the object of mitigating the effects of both gluts and shortages in vegetable supply.

PLANT INDUSTRY RESEARCH.

Once again problems associated with vegetable production were featured extensively in the investigational programme of the Division of Plant Industry (Research), particular attention being paid to nutritional requirements and to the control of pests and diseases. The plant-breeding programme of the Division included work on grain sorghums which are rapidly increasing in importance in this State and worth while progress can be recorded in both the cotton and wheat breeding work. Soil moisture and irrigation studies received an increasing measure of attention, a development which is particularly desirable in a State such as Queensland. Investigational work on such important fruits as pineapple, citrus, banana, and apple received as much attention as prevailing circumstances permit. Because of the requirements of the armed forces some measure of priority in fruit investigational work is, for the time being, called for in the case of citrus and the pineapple crop is now sharing in that priority. The legume inoculum work of the Division has been intensified and its botanical staff has continued its identification and advisory work on behalf of the primary producers of the State.

THE DAIRY INDUSTRY.

Butter output was 101,416,297 lb., valued at £8,546,992, in comparison with 111,511,198 lb., valued at £8,313,827 for 1942-43. Seasonal and wartime circumstances, as detailed in the report of the Director of Dairying, were against the attainment of the butter production objective of 51,000 tons. Despite all unfavourable conditions, however, high standards of quality were maintained.

Cheese production was 24,041,648 lb., valued at £1,159,250, as against 27,730,083 lb., valued at £1,213,183 for the previous year. A progressive improvement in quality also is recorded.

Milk quality control work was among the activities of the Dairy Branch in the course of the year. The Commonwealth subsidy has had a noticeably beneficial effect on the industry. The testing of pure-bred stock for herd book registration was continued, but grade herd testing was limited by wartime factors. The butter improvement service, dairy research work, and chemical engineering surveys were continued to the general benefit of the industry.

PIG RAISING.

Although there was a decrease in the number of pigs reared, a guaranteed price until 30th June, 1945, has stabilised the industry. There has been a substantial increase in the demand for breeding stock, and a very marked stimulation of interest in the raising of herd quality standards.

POULTRY RAISING.

Production in the controlled area aggregated 7,490,643 dozen eggs, which was approximately 250,000 dozen more than for the previous year. It is anticipated that the production objective of 8,500,000 dozen eggs for the current year will be achieved. Outside the area of control, of which Rosedale is the northern limit, accurate production figures are unavailable, but a definite upward trend is indicated by reasonable estimates. There was no material change in the net price paid to farmers for eggs, but table poultry values were exceptionally high until a maximum fixed price was established.

WILD LIFE PRESERVATION.

The preservation of native fauna and flora, especially of birds and animals of economic value, as provided for by legislation, continued as an important activity of the Department.

CHEMISTRY SERVICES.

Drought feeding of stock and its antithesis, the feeding of stud stock, were among the important advisory services of the Chemistry Branch. An investigatory programme has involved an increased amount of laboratory and field work, which is detailed in the report of the Agricultural Chemist.

The interests of farmers as buyers of seeds for sowing, fertilizers, veterinary medicines, pest destroyers and stock foods continue to be well served by the Department which is ever vigilant in its administration of relevant legislation.

DEPARTMENTAL PUBLICATIONS.

The demand on the informational services of the Department increased considerably in the course of the year. The monthly publication of the *Queensland Agricultural Journal* was resumed in July, 1943. With the development of the research activities of the Department, the *Journal* had become the medium for the publication of the results of scientific research, as well as for extension articles for the information and instruction of farmers, to the disadvantage of both sections. To overcome this it was decided to establish a new departmental publication, the *Queensland Journal of Agricultural Science,* which is now published quarterly. As a consequence, the value of the material in both publications is greatly enhanced.

The services of the Photographic Section, which are in constant demand, were made available, as required, to other Departments. The Central Library Section also had a busy year.

MARKETING.

The activities of the several commodity boards constituted under *The Primary Producers' Organisation and Marketing Acts,* 1926 *to* 1941, are fully reviewed in the report of the Director of Marketing.

WAR AGRICULTURAL COMMITTEES.

The District War Agricultural Committees, now 40 in number, continued a valuable national service throughout the year. For the present, their chief purpose is to assist farmers in obtaining the means of production, including manpower, machinery and materials. Details of this important wartime organisation are given in the report of the State Executive Officer.

ANNEXURES.

Detailed reviews of the work of the Department during the year are contained in the reports of the Director of Plant Industry (Research), the Director of Agriculture, the Director of Cotton Culture, the Director of Fruit Culture, the Director of Dairying, the Director of Veterinary Services, the Chief Inspector of Stock, the Senior Instructor in Sheep and Wool, the Poultry Expert, the Registrar of Brands, the Agricultural Chemist, the Officer in Charge of Seeds, Fertilizers, Veterinary Medicines, Pest Destroyers, and Stock Foods Investigation Branch, the Editor of Publications, the Registrar of Co-operative Associations, the Director of Marketing, and the State Executive Officer of the War Agricultural Organisation—all of which are incorporated herein.

I am, Sir,

Yours faithfully,

Richd P. N. Short

Under Secretary.

REPORT OF THE DIRECTOR OF PLANT INDUSTRY (RESEARCH)

During the 1943-44 departmental year, the staff of the Division of Plant Industry (Research) devoted a large proportion of its time to projects of immediate wartime importance. Hence, the year's programme, which is discussed in this report, was planned and implemented more or less along the lines adopted in the previous year. Two members of the staff, who had been serving in the Army for a considerable period, returned to civilian life, and certain divisional activities which had been suspended during their absence were resumed. Accordingly, to this extent, there was an expansion of the previous year's activities. Once again divisional officers' activities were not confined to their investigational programme and they handled a large volume of advisory work, more particularly in the case of inquiries which necessitated laboratory examination as a pre-requisite to tendering advice.

Cotton Plant-breeding.

Satisfactory climatic conditions during the spring months ensured a good start in the cotton plant-breeding programme and these conditions continued until January except for the fact that, in the Lockyer and the South Burnett, excessive rainfall in December interfered with cultivation operations. Hot, dry weather in all the cotton-growing districts—except in the Upper Burnett—prevailed from about mid-January until about mid-February and, as a consequence, a good deal of shedding occurred in the breeding plots. This hot, dry spell was broken by good falls of rain which matured the crop of bolls remaining on the plants and, in some cases, enabled a worthwhile top crop to be developed and matured. The season was accordingly a not unfavourable one for cotton breeding and, in this respect, was a decided improvement on the 1942-43 season.

Definite progress was achieved in the work of improving the Triumph variety, which was carried out at various centres in the Lockyer, Central Burnett, and Upper Burnett. Substrains of OS. 39-2 grown in the Lockyer again gave promise of being more suitable than any of the available commercial varieties for planting on the fertile lower slopes of this district. The heavy December rainfall, however, demonstrated a tendency to excessive vegetative development—even on only moderately fertile soils—in the OS. 39-1 progeny increases retained from the 1942-43 season because of their apparent superiority to the parent strain. This development was rather disappointing because of the desirability of developing a strain of OS. 39-1 for the fertile alluvial Lockyer soils, which require an open type of plant. Such disappointment, however, was compensated for by the fact that two other strains of Triumph —one each in the Central Burnett and the Upper Burnett—gave heavy yields on fertile soils in the 1943-44 season, the plots on which this breeding work was located having enjoyed good rainfall. Both strains, OS. 39-4 and OG. 39-10, have a very open habit of growth when conditions for growth are good and both gave yields of more than 1,500 lb. of seed cotton per acre. As some improvement in the length and strength of the fibre is called for in each of these strains, the necessary initial steps were taken to produce the required improvement. A large number of promising new selections were made in each strain for testing in the 1944-45 season. Under the circumstances just outlined, intensive work on OS. 39-1 will be discontinued until the possibilities of these OS. 39-4 and OG. 39-10 strains have been fully explored. Work was continued on the selections made in the 1942-43 season in the OG. 39-7 strain of Triumph, the shorter staple length selections being tested under non-irrigated conditions, with the result that two progenies were retained because of their apparent superiority to the parent strain. An increase of a mass selection which was obtained from this strain in the 1942-43 season, demonstrated its superiority to the parent strain. From what has been said, it will be seen that some considerable measure of success has been achieved in improving Triumph, and this progress is rather gratifying because Triumph is the most promising variety of cotton for the very fertile alluvial soils in the wetter cotton-growing areas.

The multiplication of the stock of seed of the new Lone Star strain—Lot 25—which was mentioned in the last two annual reports was continued. This work gave further evidence that Lot 25 yields fully as much seed cotton per acre as can be obtained from the commercial stocks of the variety; furthermore, it possesses a superior fibre and may have a slightly higher lint percentage. Very satisfactory results were obtained in the Lone Star breeding blocks and several of the more advanced progenies of this variety will be submitted to comprehensive tests during the 1944-45 season. The Lone Star position may be summarised by saying that in fibre characters, lint percentage, and size of boll the variety is now on a satisfactory basis and is widely planted in the drier cotton-growing districts.

Selection work to improve the fibre strength and length of New Mexico Acala was carried out chiefly where irrigation facilities were available in the Callide and in the southern portion of the Upper Burnett. These centres were chosen because the satisfactory results obtained in the 1942-43 season with this variety indicated its suitability for the less fertile alluvial soils in districts of moderate or indifferent rainfall in which supplementary irrigation can be applied. The South Burnett work, under rain-grown conditions, which was mentioned in last year's annual report, however, was also continued because the variety has done well on the less fertile forest slopes in this district. Mass-selected stock obtained in the Callide in the 1942-43 season showed greater uniformity in the crops which it produced than the commercial stock and it also displayed a slight improvement in quality. It will accordingly be multiplied in the 1944-45 season with the ultimate objective of replacing the main stock of New Mexico Acala. The Upper Burnett supplied three progenies and one hundred new individual plant selections for further testing and seven very promising progenies were also obtained in the South Burnett. It would appear that, except in the South Burnett, New Mexico Acala requires supplementary irrigation if satisfactory yields of good quality cotton are to be produced.

The greatest acreage of Miller, which is now the most extensively grown variety of cotton in Queensland, is planted in the Callide and plant improvement work in the variety was accordingly confined to this district. The small quantity of mass-selected seed of the leading commercial strain of this variety, which was mentioned in last year's report, was multiplied to a satisfactory extent during the 1943-44 season and, as it displays greater uniformity and slightly better fibre quality than the parent stock, the multiplication of the mass selection of Lot 41S will be continued until the parent stock is replaced. One of the newer strains, obtained from a single plant selection several years ago, namely Lot 39, showed a slightly better yield and a definitely better ginning percentage than Lot 41S in trials conducted on a variety of soil types at Biloela. Further comparisons of these two strains and of commercial plantings are accordingly called for. A number of promising progenies and progeny increases from the Lot 41S and Lot 39 plots were retained for further testing next season.

The results of the season's work in the development of jassid-resistant strains were very satisfactory and it would certainly seem that considerable progress is being made towards success in this project. The mass-selected 41J strain of Miller was planted on a commercial scale in the Callide and in test plots in the Upper Burnett and Coastal Burnett districts and, at each centre, lived up to its reputation as being partially jassid-resistant. The highly-resistant Miller strain III-26-0 once again gave good results, and yielded nearly 750 lb. of seed cotton per acre in a six acre multiplication plot which was grown under adverse climatic conditions. It has accordingly been decided to build up stocks of seed of this highly-resistant strain in order to replace the partially-resistant 41J in those districts which require a jassid-resistant strain of the Miller variety.

Passing now to the Miller jassid-resistant hybrids, it is interesting to note that some very promising results were obtained in the multiplication plots of several of the most advanced U. 4 x Miller backcrosses and in a trial at Biloela which compared these strains with jassid-resistant strains of Miller and commercial stocks of Miller and New Mexico Acala. Two of the hybrids outyielded the commercial varieties by 30 per cent. under conditions which did not call for a high degree of jassid resistance. Several other U. 4 x Miller hybrids, which have displayed only a slight degree of resistance to jassids, yielded well, and one such hybrid produced over 1,500 lb. seed cotton per acre on fertile, alluvial, Upper Burnett soil. It may be, therefore, that the worth while results of this hybridization work will not be confined to the production of jassid-resistant cottons, for it may give Queensland valuable non-resistant or partially-resistant material for developing strains superior to the commercial varieties where quick-maturing, heavy yielding, but not necessarily jassid-resistant cottons are required for very fertile soils. Some very promising jassid-resistant strains were obtained in the breeding plots of newer strains comprising some 200 hybrids and 100 pure selections from Miller.

The desirability of imparting jassid-resistance to important commercial varieties, other than Miller, was recognised in 1942-43 by crossing Triumph with Ferguson. This was followed in the 1943-44 season by attempts to similarly deal with New Mexico Acala and Lone Star, both of which varieties are distinctly susceptible to jassid attack.

Some measure of attention was again given to the Qualla variety, which once more demonstrated its usefulness on infertile soils under conditions of inadequate rainfall. Good quality 1-inch cotton was produced in very satisfactory quantity in several progeny increases and new progenies which also retained the attractive size of boll characteristic of this variety.

Cereal Plant-breeding.

The main centre for wheat-breeding work was again at Kincora with Westbrook functioning as a subsidiary experimental area. Approximately 170 varieties and selections were also included in observation plots at these two Darling Downs centres and at Wallumbilla and Yaralla, somewhat further

west. Flag rust occurred at all four centres and stem rust was present in a rather severe form at Kincora, the combination of stem and flag rust at the lastmentioned centre resulting in low yields of poor quality grain in all the standard Queensland varieties. In this severe test Eureka, the variety used as a rust-resistant control, proved to be less resistant than some of the Kenya wheats and Queensland crossbreds. The most outstanding of the latter were hybrids having Florence crossed with College blood in various combinations and others possessing an infusion of Keyna blood.

The breeding and observation plots at Kincora were not the only wheat-breeding activities at that centre, for 20 small plots of promising hybrids, ready for release from the breeding plots, were also sown. Three of these hybrids were sufficiently promising to warrant testing on a more extensive scale in the 1944 season and arrangements have been made to do so.

Eureka was again used as a control, on this occasion in a comparision of protein quality by the Pelschenke test. The varieties compared with Eureka were some of the more advanced of the newer hybrids developed for rust resistance, and it is interesting to note that, in this test, the best hybrid gave a test factor of 10.3 compared with only 3.7 for Eureka.

Oat varieties—41 of them—were sown at Wallumbilla, Westbrook, and Kincora with very satisfactory results at the firstmentioned centre and poor results at the second, a total failure resulting at the third through circumstances over which no control could be exercised. As was the case last year, Victoria x Richland crosses were practically free from rust infection, whereas most of the other varieties tested were infected. Seed of the F. 3 generation of the hybrid—Bond crossed with Victoria—crossed with Hajira was sown late in the departmental year at Wallumbilla, Moggill, and Sunnybank.

Sorghum Plant-breeding.

In spite of the hot, dry conditions which prevailed in the Callide during January and early February, quite satisfactory results were obtained in the grain sorghum breeding plots at the Biloela Research Station and in the trials on farmers' properties in the district. Pedigree selection work, coupled with self fertilization, was continued, more particularly in the Kalo, Wheatland, Ajax, and Hegari groups of grain sorghums, and pure seed stocks of the saccharine sorghums and of the less promising grain sorghums have been obtained and reserved for possible experimental work at a later date when circumstances permit of more extensive work on the sorghums.

Kalo and Wheatland stocks and Kafir x Milo hybrids were reported as the source of new divergent strains in 1942-43 and further work with these strains has proved their uniformity and demonstrated the retention of their identity. Dwarf and double-dwarf Kalo selections and very open and semi-open headed Wheatland selections are the outstanding new types in this group of grain sorghums.

The F.2 generation of five crosses of Shallu with dwarf grain sorghums was tested out on an extensive scale, the variety mentioned being a very open-headed, tall-growing grain sorghum. Each hybrid displayed some considerable degree of variation, but approximately 200 selections of mid-tall or dwarf segregates with open heads were obtained and these will provide the 1944-45 season's F. 3 generation for further study. It is hoped to secure from these hybrids a grain sorghum which will possess the short-growing characteristic of one parent and the open-headed growth habit of the other. Such a grain sorghum might be a decided acquisition in coastal areas, where the growing of the grain sorghums which are at present available is rendered unprofitable because of the incidence of several insect pests. An abundant supply of self-pollinated seed of four 1942-43 hybrids was obtained during the year under review and this will be used to provide an adequate population of the F. 2 generation of these hybrids for testing during the 1944-45 season. The objective in this case is to obtain a shorter grain sorghum type, combined with increased resistance to lodging, in such varieties as Kalo, Betty, and Schrock. An additional cross, Kalo x Double-dwarf Kalo, was made this year and back-crosses were made from selected individuals in the F.2 generation of Shallu crosses to the respective dwarf parents. The pollen grain anthesis study mentioned in last year's report was continued and crossing tests were carried out to determine the receptive period of pollen after emasculation and the viability period of pollen after shedding.

Varietal trials were again carried out on the Biloela Research Station and on farmers' own properties. The results of these trials suggest that late-maturing varieties such as Hegari and Kalo may, during a dry early season followed by heavy February rains, be superior to earlier-maturing strains because they can respond much more fully to rain following after the normal heading period. The trials also indicated that Ajax is agronomically superior to the standard variety Kalo, when the soil and climatic factors tend to produce lodging in the latter. Furthermore, they provided additional evidence that the open-headed Wheatland selection, referred to in last year's report, may be of value in coastal areas where yellow peach moth infestation hinders the development of grain sorghum growing.

A useful pure-seed reserve of Schrock was obtained from a farmer's plot and stocks have been prepared in order to establish pure-seed plots of Kalo and Ajax during the 1944-45 season. The open-headed Wheatland strain may also be included in this project.

Horticultural Plant-breeding.

The pineapple plant selection work has been under way for quite a number of years and it is now evident that, for the immediate future, simple mass selection is the most effective means whereby pineapple-growers can improve their plantations, in so far as improvement can be achieved through the planting material. In the course of this work, some 20,000 plants were selected, planted, and kept under observation and it was demonstrated that, although many undesirable mutants may occur in the pineapple plant, only four are of any consequence. These are the collar-of-slips, long tom, dry fruit, and spiny types, and, of these, the firstmentioned is the commonest and the one most to be avoided. Although mass selection offers the most immediate and most practicable method whereby the pineapple crop as a whole may be improved it may be that, when circumstances permit their further investigation, other methods, such as clonal selection, may still further materially assist improvement.

The papaw-breeding work was continued along the lines laid down in earlier years, and a number of strains have been selected for further testing. Some very promising material has been obtained and preliminary canning experiments, which were carried out during the year under review, showed that several very good strains have been produced. However, there is still much work to be done before the weaknesses can be eliminated from even the most advanced of these papaw strains and before the material can be fixed. The American strawberry varieties and the tomato crosses referred to last year are being maintained until such time as circumstances permit of more attention being paid to these two plant-breeding projects.

A limited amount of time was again devoted to the cowpea project, the objective of which is to produce a nematode-resistant variety. At Westbrook, uniform strains were planted for seed multiplication, while at Roma the work was confined to new non-uniform crossbreds which were tested for their susceptibility to nematode attack. Unfavourable weather at both centres militated against the success of this project, but some seed was obtained at Westbrook, and over 50 selections were made at Roma for testing in 1944-45. A little further work on developing a field pea suitable for culinary use as well as for the usual purposes was carried out at Moggill, and a total of 34 selections were obtained for further testing.

Pasture Investigations.

The Rhodes grass strip cultivation experiment at Biloela and the trial at the same centre of four Rhodes grass strains, supplied by the Council for Scientific and Industrial Research, were continued during 1943-44. Seasonal conditions at Biloela were very favourable for the growth of grass until the middle of January, when a five weeks' spell of very dry weather was experienced. Conditions were therefore apparently favourable for gains in the strip cultivation areas, but the data obtained yielded no evidence of a differential response to treatments in so far as yield, moisture percentage, and the chemical composition of the dry matter are concerned. Somewhat similar results were obtained last year, and it would therefore seem that, under the conditions prevailing in this experiment, the growing of Rhodes grass in strip cultivation has been productive of no beneficial results even in the fourth year of the establishment of the experiment. This work is accordingly being discontinued.

Work on the Rhodes grass strain trial was confined to observations on the relative rate of growth, on the stand of each strain, and on the amount of weeds present. At the end of five seasons' growth there is still a good stand in all four strains, the ground cover varying from 60 per cent. to 90 per cent. of a perfect stand. The highest percentage had been maintained in the late-spreading Kenya strain and the lowest in the spreading Queensland strain. As the plots were not grazed this year, the slight tendency to produce rather tough growth, which had been noticed in previous years in the Kenya strain, was more clearly demonstrated on this occasion. However, when the Kenya strain is regularly grazed, this tendency does not appear to affect its palatability. When it is allowed to make its full growth throughout the season the Kenya strain produces a dense body of wiry, roughish feed upwards of 2 ft. in height, and this growth was the most severely affected when ground temperatures fell to 26 deg. F. A Queensland strain of a clumpy type and a similar South African strain both produced a somewhat more attractive type of growth than the Kenya strain, but the body of feed was not so great in either case.

Fruit Investigations.

Essential work on the long-term apple nutritional experimental plot was attended to during 1943-44, but there are no striking developments to report in this particular experiment. The several hundred trees which comprise the experimental plot have made good growth and, in general, are in a

very satisfactory condition. No differences are apparent, as yet, as a result of the various fertilizer treatments, but the whole experimental area seems to have benefited from the lupin crops which have been grown and ploughed in each year since 1940. In this connection it is interesting to note that, although failures occurred in earlier years, satisfactory crops of New Zealand blue lupins have been grown in this orchard in each of the last four years. The position with respect to the large-scale citrus nutritional experiment in the Gayndah district is similar to that outlined in the case of the apple experimental block at Stanthorpe—*i.e.*, it has been maintained, and fundamental data have been obtained. No measurable differences between the various fertilizer treatments can be detected, but there is a suggestion that trees receiving potash have accelerated their rate of growth to a somewhat greater degree than trees which have not received this major element. During the year under review the results of the large-scale investigation of the nutritional requirements of the banana were published. These results are of immediate outstanding importance in determining future fertilizer practices in this State. Some aspects of this problem, however, merit further attention, and it is accordingly hoped that it will be practicable to resume work on it during the new departmental year. A survey of custard apples in the Sunnybank district disclosed the fact that a serious dieback was rather prevalent in a considerable number of orchards and was appreciably reducing the yield of the affected trees. Some attention was accordingly devoted to this problem, and it was demonstrated that it was associated with zinc deficiency and that it could quickly be remedied by spraying the affected trees with zinc sulphate. Continued observations confirm the view that soil applications of borax have a more lasting effect on the hen and chicken condition in Waltham Cross grapes than foliage sprays. This small scale project, which was carried out in co-operation with the Fruit Branch, received no further attention from divisional officers during 1943-44 other than the observations just referred to.

Essential Drug Plants.

The work on essential drug plants, which was initiated several years ago on a co-operative basis with the Council for Scientific and Industrial Research, has been continued. The field work on *Duboisia myoporoides* and *D. leichardtii*, which are the most important drug plants now under investigation in the Nambour district, has increased to such an extent, however, that the Council has stationed an officer at Nambour to work exclusively on this project, and from now on the Department's association with the work will be largely of an advisory nature. This co-operative project has already yielded quite a considerable amount of information of value to Australian producers of hyoscine.

Vegetable Nutritional Investigations.

Once again nutritional problems in vegetables were featured extensively in the Division's investigational programme, attention being devoted both to the major plant foods—nitrogen, phosphoric acid, and potash—and to the trace or minor elements, particular attention in the latter group being paid to boron.

Very considerable progress was made in the investigation of major plant food requirements, under irrigation conditions, the tomato being the crop in which such progress was most marked. The relationship that should exist between nitrogen and phosphoric acid in tomato fertilizer mixtures was clarified, and it was shown that, when the ratio dropped below one of nitrogen to two of phosphoric acid, significantly lower yields of tomatoes were obtained. It was also demonstrated quite conclusively that in pre-planting mixtures there must be a still wider ratio of nitrogen to phosphoric acid even when the nitrogen is supplied largely in farmyard manure applications. Yields were actually depressed by excessively heavy applications of farmyard manure containing 1.4 per cent. nitrogen, and in one instance, 5 tons of such manure gave a lower yield than either 3 tons or 1½ tons when combined with the same 2-14-4 mixture of artificial fertilizer. One incidental point in connection with nitrogen application is that, where frost damage occurred on some of the 1943-44 experimental plots, the damage appeared to be directly proportional to the amount of nitrogen which the plants had received. Tomato seed-bed fertilizer applications were also the subject of investigation, the results obtained demonstrating very clearly that a complete mixture application was distinctly preferable to a single major element application.

Field observations and experimental work amply demonstrated the fact that some growers in one of the most important tomato-producing districts are inclined to plant their seedlings too soon after the application of fertilizers containing blood. The placement of tomato fertilizers was also studied in a field experiment and from the results obtained so far, it appears that it is better to place the fertilizer directly below where the seedling will be planted rather than in two drills on either side of the plant row.

Passing now to trace element investigations in vegetables, mention may be made of the fact that a number of experiments, involving the testing of six of these elements, were carried out during the year under review and that these experiments fully demonstrated the importance of boron in vegetable production. The available evidence suggests that boron deficiency is particularly liable to adversely affect production in the sandier types of soil and that losses, due to the lack of this element, are of widespread occurrence, such losses having been recorded from vegetable-growing districts as far apart as Mundubbera and Aratula. It seems very likely that other trace elements are also lacking in some soils, but experimental proof of the existence of such deficiences is rather difficult to obtain because of seasonal influence on the availability of this type of plant food.

Vegetable Varietal Studies.

The varietal growth and cropping characteristics of several vegetables have been under observation on a number of experimental plots during the past twelve months. The harvesting of these experimental plots, however, has not been completed and all that can be recorded at present is the fact that thirty varieties of tomato, six of French bean, and ten of cauliflower have been under observation.

Weedicides in Vegetable-growing.

The confrol of weeds in vegetable crops has received some measure of attention during the 1943-44 departmental year, and progress in this project has been made in so far as the carrot crop is concerned. As a result of experience gained in Queensland and other Australian States, a special kerosene weedicide has been developed for use in carrots and is now being marketed in this State. Certain precautions, however, have to be observed in its use otherwise injury to, of tainting of, the carrot crop may ensue. Another selective weedicide, in this case a complex organic material for use in onion crops, has been used elsewhere with success, and steps have accordingly been taken to test it under Queensland conditions.

Soil Moisture and Irrigation.

The elucidation of the water relationships of plants calls for a particularly involved type of investigational work which cannot be expected to yield quick results. This is largely due to the fact that, apart altogether from technical difficulties, much of the work is slow and laborious requiring, as it does, a very considerable amount of fine measurement of delicate plant organs. From the work carried out to date, however, it is apparent that growth may be adversely affected by excessively dry conditions some time before there are any visible effects such as wilting.

The value of average soil moisture figures is obviously dependent on the distribution of both the moisture and the roots, and the study of root distribution is accordingly an important part of this project. Furthermore, there is some evidence that the leaf area on the plant is a factor in determining the critical soil moisture percentages, and attention is therefore being devoted to this line of inquiry.

Some preliminary work has been undertaken to determine the extent to which the growth potentialities and development of a plant may be affected by the treatment which it receives during the earliest stages of its growth. This certainly has some bearing on the practice of hardening plants prior to transplanting. The evidence obtained to date indicates that the history of the plant may be considerably influenced by what happens to it during the very early days of its growth, and it is therefore obvious that pre-treatment of seed and seed-bed preparation and management are all-important factors in plant production which call for careful investigation.

The investigation of irrigation problems is being undertaken along two main lines of inquiry, the first being the elucidation of the water relationships of the soil and the second a study of the water requirements of the plants. The formulation of sound irrigation practices calls for, as a fundamental pre-requisite, a knowledge of critical points such as field capacity and wilting point and, during the last twelve months, much time has been devoted to obtaining such data for soils in the Gayndah, Sunnybank, and Redlands districts. At the same time, the effects of variations in the intervals between waterings and in the amounts of water applied, of cultivation practices, and of green manuring have been studied. This work is yielding much valuable information, and it is hoped that it will be practicable to publish a progress report thereon in the 1944-45 departmental year.

Pineapple Investigations.

Some work on green manures and minor elements in pineapple plantations was undertaken during the year under review. A considerable amount of time was also devoted to a survey of conditions in the various pineapple-growing districts as a necessary preliminary to the initiation of further and larger scale experimental work in pineapples.

Entomological Investigations.

The protection of stored tubers against infestation by the potato tuber moth was again the subject of investigation, and this important entomological project may now be regarded as having been finalised in a satisfactory manner. Tubers from the 1943 spring crop in the Lockyer district were stored for three months under ordinary farm conditions, the tubers being subjected to four different dusting treatments. The dusts employed were a derris dust containing 1 per cent. rotenone, magnesite, a 5 per cent. pyridine dust, and a commercial organic mercurial preparation; the usual controls, of course, were incorporated in the experiment. A careful examination of the tubers at the end of the storage period showed that the derris dust had given almost complete control and that its application inhibited the development of larvae which had become established in the tubers during the interval elapsing between the digging of the potatoes and their treatment with the insecticidal dust; this interval in no case exceeded twenty-four hours. The magnesite and pyridine dusts gave quite satisfactory results, but it is doubtful whether the measure of control exercised by these materials during the wet summer months is any better than would be expected from the procedure adopted by a number of efficient growers in the Lockyer—*i.e.*, the prompt harvesting and storage of the tubers under a thick, weighted bed of straw. The results obtained with the organic mercurial treatment indicate that it exercised only a slight measure of control over the potato tuber moth.

As mentioned in last year's report, arrangements were made for a field control experiment on the potato flea beetle. It so happened, however, that the incidence of this pest in the 1943 crop was very low and indeed its presence seemed to be confined to adults which appeared quite late in the season. Under these circumstances the experiment furnished no useful information, at least in so far as it concerned the control of this pest. It was hoped that it would also shed some light on the extent to which insecticides can be relied on to control leaf and stem infestation by the tuber moth and on the influence of such control on the yield of tubers. The results obtained suggested that a spring potato crop grown under irrigation suffers little, if any, appreciable stem infestation and that, although considerable leaf mining may take place, it exercises no measurable adverse influence on the yield of tubers. A field experiment on cabbage pest control in the Sunnybank district, in which several dusts and sprays are under test, cannot be reported on at the time of writing because the harvesting of the crop has not yet been completed. In connection with cabbage pests, mention may be made of the fact that *Apanteles glomeratus*, a braconid parasite of the cabbage white butterfly which is now well established in a number of important cabbage-growing districts in this State, was liberated at Gatton and Toowoomba some months ago. This beneficial insect was introduced to Australia by the Council for Scientific and Industrial Research and a small consignment was received from the Council for liberation by this Department.

Throughout the year it has been found practicable, in conjunction with supervisory and advisory work designed to prevent or minimise insect infestation in stocks of foodstuffs in North Queensland, to survey the incidence of insect pests in vegetable crops in this part of the State. This survey has yielded a considerable amount of information which is particularly useful at present because of the recent extensive development of vegetable-growing in the north. It is additionally valuable in that it fills in a number of gaps which, until now, have existed in the story of pest incidence and control in Queensland.

During last summer the green vegetable bug was more destructive than had been the case for quite some time, but a check on the parasite position in autumn showed that two egg parasites were then very active and that a high percentage of the egg masses had been attacked, but more particularly by the species which was introduced by this Department a number of years ago from Western Australia. It is therefore hoped that, during the approaching summer, green vegetable bug infestation will be at a lower level than was the case during the 1943-44 season. It will be remembered that this pest, which is a comparatively recent introduction from overseas, was very abundant on the Darling Downs some 12 or 15 years ago, but that, on the establishment of the parasite just referred to, it became much less numerous, although, from time to time, it still seems to outstrip the parasitic control, which generally acts as an appreciable brake on its excessive multiplication.

The recently demonstrated value of magnesite in controlling rice weevil infestation in wheat naturally suggested the possibility of its equally successful use in dealing with similar infestation in maize. Maize in Queensland actually suffers much more seriously from rice weevil activity than wheat and a small-scale experiment in which magnesite, copper carbonate, copper oxychloride, dolomite, and hydrated lime were tested for the protection of maize was successfully concluded during the year under review. At the end of the experimental period of three months maize treated with magnesite, copper carbonate, and copper oxychloride showed little or no sign of deterioration, the dolomite-treated material had sustained slight damage, and appreciable damage had occurred where hydrated lime had been used, whereas the controls showed an 80 per cent. infestation. This experiment suggests that several dusts might be successfully used to protect seed maize and that one dust—*i.e.*, magnesite, might fill a very useful role in protecting maize held for feeding purposes. It is hoped that circumstances will permit of this method of control being tested on a larger scale in the near future. The same five dusts were also tested on French bean seed for protection against attack by bruchids, but in this case the order of merit of the dusts was rather different, the two copper dusts and dolomite checking insect development much more effectively than magnesite, which in this respect, however, was markedly superior to hydrated lime. This assessment was based solely on the insect population in the various treatments at the end of the experimental period and, in the case of magnesite, sufficient bruchids were present in the treated material to render it useless for sowing. Hence, in this experiment, both magnesite and hydrated lime failed to give any worthwhile protection to bean seed. Germination tests of the seed treated with the two copper dusts and with dolomite gave over 90 per cent. germination in each case. These dusts, together with one which has become available more recently, have been incorporated in a further test which is now under way.

Cotton pest investigational work has again concerned itself very largely with the problem of corn-ear worm control and with a study of the factors which influence the extent of jassid infestation and determine its effect on the plant and the crop which it produces. The latter project was undertaken with the objective of furnishing information which would be of material assistance to the plant breeder in his search for jassid-resistant cotton varieties, it having been decided years ago that direct control of jassids was quite impracticable. At Biloela, corn-ear worm control experiments included one in which a 90 per cent. arsenate of lead dust, an arsenate of lead spray consisting of 1lb. of arsenate of lead, 1 gallon of molasses, and 6 gallons of water, and a control treatment were superimposed on a time of planting test on an irrigated area. The October plantings in the dusted plots gave increases in yields amounting to about half a bale of seed cotton per acre, but no increase was obtained in the sprayed plots. The only major outbreak of corn-ear worm which occurred during the growing period in this experiment was in December. The results of the other Biloela corn-ear worm control experiments are not available for discussion in this report. Little need be said about the jassid investigational work, which continued along the lines discussed in the 1942-43 report, other than to record the fact that preliminary reports indicate that appreciable progress of practical importance is being made in this project.

The fruit fly control problem is again in the picture and is absorbing a good deal of time in the Gayndah district, where this pest has, in the past, been responsible for heavy losses in some citrus orchards, but more particularly in the early maturing fruit. The pineapple scale, which recently appeared in the Rochedale district near Brisbane, was also under investigation and field experiments with this insect yielded useful information on which control recommendations have been based.

The yellow-winged locust has been increasingly active in the Clermont and Emerald districts during the past three years and in 1943 it appeared further north in sub-coastal districts in which climatic conditions are somewhat similar to those prevailing in the earlier infested territory. During spring, a very heavy hatching occurred and large-scale migrations to the wetter coastal regions took place during the summer months. Sugar-cane, maize, and pastures in coastal areas from Rockhampton northwards, including the Mackay district, suffered appreciably from this unusual invasion of coastal areas. The coastal outbreak afforded an opportunity to acquire further information regarding the habits of this species, which can be dealt with in reasonably closely-settled areas by the application of the measures which have long proved effective in dealing with the Australian plague locust in such districts. Towards the end of summer, egg parasites were very active in the egg-beds of the yellow-winged locust and it is hoped that their activities will produce an effective reduction in the locust population or, at least, contribute materially towards such a desirable objective.

The cause of the losses in hoop pine plantations, which were mentioned in last year's annual report, was further investigated. The additional evidence obtained suggests that the two insects associated with the dead and dying trees normally attack only unhealthy individuals and that a plant pathogen is the primary cause of the trouble. It further suggests, however, that, in the absence of subsequent insect infestation, healing of the disease-infected tissues would generally take place and the affected trees would recover. One of the two species associated with the hoop pine trouble has also been found in areas in which logging of the exotic *Pinus radiata* has commenced. Various native borers have also been found attacking this exotic conifer and it is evident that prompt handling of the felled timber is called for if serious wastage is to be avoided. A native species, the brown tulip oak, which is being quite extensively utilised under the prevailing emergency conditions, is definitely susceptible to weevil infestation if allowed to remain in the scrub after felling and prompt removal from the scrub is indicated in this case.

During the early months of 1944 colonies of lantana leaf bugs were again collected by departmental officers and liberated at selected lantana infested centres in southern and central Queensland. Many strong colonies were obtained in the Mount Bauple district, and as these were mostly personally transported and liberated within a day of their collection it is hoped that evidence soon will be obtained of the successful establishment of this beneficial insect at quite a high proportion of the centres chosen for liberation during the departmental year that has just concluded. Evidently, the lantana leaf bug came through the 1943 winter reasonably well in southern Queensland, and it became extremely abundant at Mount Bauple during the subsequent summer months. In the Rockhampton district, however, the tale was a less happy one, and throughout the summer the insect was there less abundant than was the case towards the end of the previous summer. A fair assessment of the position at the beginning of the 1944 winter, however, would be that the prospects for establishing the lantana leaf bug in southern Queensland were better than at any previous date since its introduction. Nevertheless, it must once again be pointed out that there is, as yet, no evidence that this insect will eradicate its host plant anywhere in Queensland, although it may from time to time administer a severe check to it and thus assist eradication.

Plant Pathological Investigations.

The autumn potato crop in the Lockyer district was very adversely affected as a result of an outbreak of Fusarium wilt, the consequential reduction in yield ranging from 70 per cent. to 90 per cent. in quite a number of cases. This crop in the Lockyer is grown mainly under irrigation, and the generally good conditions which prevailed warranted the expectation of a satisfactory crop, but, as indicated, these expectations were far from being realised. Under these circumstances arrangements were made for the initiation of a set of three field experiments, the results of which, it is hoped, will indicate how the problem can best be met. At the time of writing, two of these experiments have been laid down, and it is expected that the third will be under way early in spring. During the 1943-44 season a series of tests of formalin, corrosive sublimate, and a proprietary preparation for the control of common scab of potatoes by the treatment of tubers prior to planting was carried out in the Lockyer district and at Toowoomba. For various reasons the results obtained were inconclusive, but the proprietary preparation, which is an organic mercurial material, is easily applied, and this attribute, together with the fact that its use was apparently quite unattended by any adverse effect on the treated tubers, seems to warrant further tests with this material as opportunity offers.

Some observational work was again carried out on the navy bean crop on the Darling Downs, but comparatively little additional useful information was obtained because disease incidence was not serious, although a small percentage of mosaic was encountered in most of the crops inspected in the Killarney district. The French bean crops in the Stanthorpe district were also inspected on several occasions because of the unusually high incidence of disease reported to be occurring in them. In the early crops the observed symptoms were usually typical of bacterial blight rather than of halo blight, whereas the latter disease was distinctly more prevalent later in the season. Although these two diseases are quite frequently confused, such confusion is a matter of no moment because their behaviour and the measures for dealing with them are so similar. The Stanthorpe district has experienced two wet summer seasons in succession, and this fact doubtless accounts for the prevalence of bean diseases in the district during the vegetable-growing season. The experience of the 1943-44 season should stimulate Stanthorpe growers' interest in the most effective measure for dealing with these diseases—i.e., the use of disease-free seed.

The grain sorghum crop on the Darling Downs was favoured with good seasonal conditions, and it is pleasing to note that in it smut incidence was at a definitely lower level than previously, doubtless as a result of the more general adoption of seed treatment prior to sowing. This reduction in smut incidence and the negligible amount of midge damage occurring in the main sowing of the grain sorghum crop gave the favourable seasonal conditions every opportunity for producing some very heavy yields of grain. On the other hand, these same favourable seasonal conditions probably constitute one of the main factors which were responsible for some heavy losses in maize as a result of ear rot infection. Losses were particularly severe in the Nobby district, and in a number of crops were as high as 50 per cent. Another factor which may have aggravated the position is a tendency on a number of farms to increase the acreage under maize and to correspondingly reduce the opportunity for rotation, thus permitting a build up of infection.

Field tests of copper oxychloride dust as an alternative to copper carbonate dust were continued and some useful information was obtained in the case of its application to tomato crops. The fungicides tested were these two dusts together with 4-4-40 Bordeaux mixture, home-made cuprous oxide mixture, and a commercial copper oxychloride spray. Yield figures were similar in all treatments except in the case of Bordeaux mixture, the use of which apparently reduced the yield of fruit considerably. There was no evidence whatever of any injury following on the application of the copper oxychloride dust, but unfortunately little or no information was obtained regarding its influence on disease incidence simply because Irish blight did not appear in the experimental area and target spot affected only a few plants. Copper oxychloride dust was also tested on cucumbers and rock melons, and here again no evidence of injury was forthcoming. Excessive rains brought the experimental work on these two crops to an untimely end, and consequently no information was obtained regarding the efficiency of this dust as a fungicide. However, as one of the primary objectives of this project was to determine whether copper oxychloride dust could be safely used for application to living plants the season's work on it has not been without profit because it has furnished confirmation of last year's finding that this dust can be safely employed in market gardens.

The experimental area at Mount Cotton, which was referred to in last year's report as having received applications of varying amounts of lime, was planted up during the spring months. However, the young passion-vine plants soon became heavily infected by Fusarium wilt and most of them died out. It would thus seem that the correction of the soil acidity by the use of lime served no useful purpose in disease control, and that the Mount Cotton passion-fruit growers will have to abandon the prevailing practice of continuous planting of this crop. A long-term rotation of crops appears to be the only practicable manner in which the great body of Fusarium infection in the soil can be reduced to a level at which successful replanting with passion fruit may be expected.

The seed selection work carried out in the ginger-growing districts last year achieved good results in that very satisfactory stands of ginger were obtained. The objective in this case is to ensure reasonable freedom from disease, and this was evidently achieved. A still greater measure of improvement, however, may be practicable, for it was found that, during the time that elapsed between digging and planting, some seed piece rotting occurred. This developed from infection in rhizomal cracks produced by frost or by exposure in unmulched crops. Preliminary tests showed that dipping the seed in a corrosive sublimate solution or in a commercial organic mercury compound caused no germination injury. It has therefore been decided to treat selected seed with a mercurial dip, in order to prevent this secondary rot developing, and to select seed from mulched ginger only.

Routine examinations for disease incidence in crops grown for French bean seed production were carried out as in previous years. The diseases whose elimination is sought in this crop are halo blight and anthracnose, both of which are capable of causing very heavy losses, especially when unusually rainy conditions prevail.

Legume Seed Inoculum.

For some years now farmers and orchardists have made extensive and increasing use of the Department's legume seed inoculum service. Because of enlistments, it was necessary to transfer this work to Toowoomba, but the return from the Army of the officer who was associated with the work several years ago has made practicable its transfer back to Brisbane, which is the appropriate centre at which to prepare, and from which to despatch, the inoculum. It has also been practicable to undertake the retesting of the various strains of inoculum on a much larger scale than was possible during the peak of staff depletion. Furthermore, a search for still better strains than those which are at present being distributed has been renewed and, in this connection, the possibility that native legumes may yield such strains is not being overlooked. As in past years, lucerne, cowpea, and lupin strains were those which were most in demand.

Botanical Investigations.

Again, the work of the botanical staff has consisted largely of the identification of many thousands of plant specimens forwarded by Queensland primary producers and accompanied by requests for comments thereon on such points as, say, the feed value of a herb or grass or the possible poisonous nature of a weed growing in a paddock in which stock losses have occurred. A similar service is provided by the botanical staff to departmental officers in general, including colleagues in the Department of Public Lands and in the Department of Public Instruction. The staff's work, however, is not confined to Queensland material, for each year specimens are received from collectors in Pacific islands and, not unnaturally, the volume of such material has been unusually large during the last year or two.

The herbarium has been maintained in a satisfactory condition and has been added to through the medium of collecting trips, exchanges, and material received from correspondents. The survey of potential rubber-producing plants which was mentioned in last year's annual report was completed and the valuable material obtained in the course of the survey is being incorporated in the herbarium.

As is usual, investigational work on the Queensland flora has been carried on throughout the year on the material already in the departmental botanical collections and on the accessions thereto. The results of such investigational work are generally published in *The Proceedings of the Royal Society of Queensland* and towards the end of the departmental year "Contributions to the Queensland Flora No. 8" was submitted for publication therein.

Apiary Work.

The Division is responsible for advisory work in bee-keeping and the discharge of this duty has now been facilitated by the return from the Army to civilian life of one of the officers who was for several years associated with this section of departmental activities. The officer who in recent years carried out most of the field inspectional work under "*The Apiaries Act of* 1938" is still absent on military duties, however, and inspectional work is therefore still on a much reduced scale.

Publications.

Since *The Queensland Agricultural Journal* resumed publication in July, 1943, divisional officers have contributed 36 articles to its pages. Two major articles have also been published in the recently inaugurated departmental journal *The Queensland Journal of Agricultural Science*. These various contributions give appropriate publicity to much of the information obtained in the course of the investigational projects which have been briefly reviewed in this and in recent annual reports.

ROBERT VEITCH,
Director of Plant Industry (Research).

REPORT OF THE DIRECTOR OF AGRICULTURE.

Although yields of some crops were reduced as a result of the unusually dry conditions which prevailed during the autumn months, crop production generally could be regarded as highly satisfactory when considering the labour shortage and other disabilities under which farmers have been carrying on.

As in the previous year, experimental and seed selection work had to be practically suspended to enable field officers to devote most of their time to the drive for increased production. The response to the appeal to increase the area under the various crops was excellent, and in some instances record acreages and yields were obtained.

Potato production was a record. In Southern Queensland the acreage planted was 15,800 with a yield of 30,680 tons. In North Queensland the area planted was also a record, sufficient seed having been delivered in that area to sow approximately 2,000 acres. In these districts crops have made great progress, and there is every prospect of at least 5,000 tons of potatoes being available from August to October, a period when potatoes are not being dug elsewhere. The action of the Federal authorities in arranging to have ample supplies of seed potatoes available in good time for planting assisted very materially in obtaining this result.

The area sown to navy beans again showed an increase, over 3,000 acres being sown in the Darling Downs and South Burnett districts. The quality of the beans was excellent, but unfortunately the dry weather during the autumn was responsible for reduced yields in many of the late-sown crops. Mechanical cutters and harvesters were available towards the end of the season in each district and proved entirely satisfactory.

Modern grading and cleaning machinery was imported from the United States of America by the Department of Commerce and Agriculture, and in future all consignments of beans which require cleaning and grading will be treated at a small cost per bushel.

Now that the industry is so highly mechanised and growers have had considerable experience with this crop, it is anticipated that the acreage will again show a very substantial increase next season, and should at least be in the vicinity of the objective of 6,000 acres.

The area under grain sorghum continues to expand, and this is now a well established industry. The State yield of approximately 1,400,000 bushels was easily a record, but it is fairly certain that this yield will again be greatly exceeded during the coming season as the very attractive guaranteed price of 3s. 7d. per bushel f.o.r. will be a great inducement to growers to increase their acreages to the limit.

Although the acreage sown to maize was slightly below average, the total yield of over 4½ million bushels was above average. Early and mid-season crops returned excellent yields, but those from late crops in some localities were reduced somewhat because of hot, dry conditions during February. The quality of the grain was excellent, and in keeping with all other grains maintained a high price throughout the season.

Tobacco production declined to a very considerable extent, and the acreage and total yield were the lowest for many years Growers in the Emerald Creek area, and to a lesser extent in the South-western districts, suffered through hail, and whilst this was, to some extent, responsible for a reduction in the State yield, the uncertainty regarding labour was mainly the cause of the greatly reduced acreage.

The nematode investigational work which has been under way for some years in collaboration with the Plant Industry Division was continued and has now reached a most interesting stage, and some very valuable information has been obtained. This work is to be continued next season.

The wheat crop was above average and slightly better than that of the previous year, even though the acreage was smaller. Very optimistic reports were received early in the season, but in some localities heavy rains at harvest time seriously damaged standing crops and also caused considerable damage to bagged wheat in the field. The early estimate of a heavy yield was not realised. However, under these circumstances, the yield of over 5 million bushels can be regarded as highly satisfactory.

The peanut crop did not come up to expectations because of dry weather during March and April. Early sown crops yielded well, but late sown crops were reduced in yield, with the result that the objective of 13,000 tons will not be attained.

Although seasonal conditions were most favourable for the production of fodder crops for the greater part of the year, the amount of ensilage made was the lowest for many years past. However, fairly substantial reserves of hay were held on farms.

Labour shortage was undoubtedly the reason for the reduction in the quantity of ensilage made, but even in normal times the additional labour which must be available immediately crops are ready for ensiling cannot always be had just when required, and many stockowners who would otherwise do so refrained from making silage. It is hoped that it will be possible to arrange for butter factories and other associations to take over the modern machinery which it is proposed to introduce from the United States and arrange for a staff to operate these throughout the dairying districts.

The production of tobacco seed of several of the most suitable varieties was continued, but it was unfortunately again necessary to discontinue the production of maize and grain and saccharine sorghum seed for distribution because of shortage of staff and the lack of storage space, since the seed store has been converted into air-raid shelters.

SOUTHERN DIVISION.

Darling Downs.

The seasonal conditions prevailing on the Darling Downs were very favourable for agricultural and pastoral activities, especially from July to February, when the rainfall was up to or slightly over average.

During the early stages of growth, it appeared that a record wheat yield would be obtained, but this was nullified to a large extent by heavy rains in November and December, when land in the Dalby and Bowenville districts became flooded, seriously damaging standing crops and also bagged wheat left in the field. Serious losses were fortunately confined to these districts. Flooding did not occur in the Oakey, Pittsworth, Brookstead, and Millmerran districts. Final returns disclose that approximately 5,042,840 bushels were harvested from 291,163 acres, and that approximately 16,214 acres were cut for hay.

The season was a most profitable one for maize growers, as prices obtained were very good and yields well up to expectations. The grain harvested was well filled and bright in colour.

The small area under sunflowers for seed returned from 1,100 to 1,250 lb. per acre. As ruling prices for this seed were high, an increased acreage may be anticipated during the coming season.

In the Emu Vale-Danderoo, Tannymorel districts, 250-300 acres of navy beans returned approximately 10 bushels per acre. A large acreage of early planted beans was adversely affected by excessive rains, which caused a heavy growth of weeds and prevented the use of the special harvesting machinery provided. The cutting and threshing machinery proved quite satisfactory for the later crops.

The popularity of grain sorghum was again demonstrated by the record yield of more than 1¼ million bushels. Yields throughout the Darling Downs were remarkably good, up to 120 bushels per acre being reported, while 90-bushels yields were quite common. The most popular varieties are Kalo, Wheatland Milo, and Hegari.

Seasonal conditions were generally suitable for the production of tobacco, apart from a severe hail and wind storm which caused some damage late in January. Crops in the Inglewood, Whetstone, Glenarbon, and Limevale districts were particularly good, producing medium size bright leaf of good body. Outstanding varieties were Mammoth Gold and Gold Dollar. Approximately 643,000 lb. of cured leaf were obtained from 860 acres, or an average of 747 lb. per acre. The yield per acre was lower than usual in the south-western districts.

Pastures were plentiful for the first eight months of the year, but the lack of late summer rains caused the grasses to depreciate very rapidly, and by the end of May, the position was serious enough to necessitate the removal of stock from some properties. A noticeable occurrence was the widespread growth of the Red Flinders grass, particularly in and around Yandilla, Brookstead and Dalby. Urochloa panicoides is still spreading, especially on the lighter soils.

Experimental work undertaken comprised varietal trials with canning beans, lucerne, cowpeas, and sweet potatoes, together with pasture improvement trials, seed wheat propagation plots and seed increase plots of oats and sorghum.

The quantity of fodder conserved was not nearly as great as it should have been, largely, because of labour shortage. Considerable interest is being taken in the proposed introduction of modern labour-saving machinery for this purpose, and if such machinery is made available much greater quantities of fodder will be conserved.

Western Downs.

The previous autumn was dry and marked by frequent and severe frosts. As a consequence, the year under review commenced without promise, grasses were dry and the wheat crop was distinctly backward.

Good rains commenced in late August, however, and continued throughout the spring. Grasses responded quickly and good crops of wheat were eventually harvested, although the grain was badly bleached as a result of wet weather during the harvesting period.

Storms accompanied by winds of cyclonic force and hail commenced in December and caused damage to buildings and crops. Rain was of a light and continuous nature and all crops and pastures made excellent growth. Unfortunately the rains were not sufficently heavy to penetrate to any depth and by late February, when they ceased, grasses and crops failed rapidly. With the exception of useful rains at the latter end of June, which allowed of the establishment of the new season wheat crops, the season continued dry to the end of the year.

Summer crops sown for reserves of fodder were, because of the unfavourable weather conditions, mostly grazed off, but small quantities were converted into ensilage and hay.

Winter cereals are well established, but further rains are needed to maintain their growth if good crops are to be assured.

Activities have been almost wholly confined to District War Agricultural Committee duties, and because of the severe shortage of surface water, these committees have been principally concerned with the obtaining of materials for the provision of water from bores to alleviate the position.

The spirit of co-operation exhibited during the endeavours to provide water for stock under the present shortage have made it possible to avert, so far, loss of stock which would have happened had no organisation been operating.

There are prospects of an increased sowing of summer fodder and grain sorghum crops this season, but the general shortage of labour and the large amount of developmental work necessary on most farms would preclude any substantial immediate increase in production.

South Burnett.

Weather conditions during the past twelve months provided an unusually favourable spring and early summer, but were adverse during late summer and autumn.

Following one of the most severe winters for many years a total of over 21 inches of rain was registered during the five months from August to December. This encouraged early planting of peanut and maize crops. During February, seasonal conditions changed and no further rainfall was recorded until late in May, with serious consequences to late planted crops.

The crop target of 13,000 tons of peanuts would have been obtained if normal weather had prevailed during March and April. Yields from early crops were high, but from the late November and December plantings yields were much below average. The total crop should be close to 10,000 tons. All Virginia Bunch crops are produced from selected seed produced under supervision. More plots of selected Red Spanish seed have produced several hundred bags of seed for this season, but the time spent controlling peanut harvest labour during the past two seasons has prevented further selections being made.

A large percentage of white maize was planted this year in accordance with the demand during the previous season. Early and midseason crops yielded well, but many late crops were complete failures.

Over 2,000 acres of navy beans were contracted for during the past season and, although late crops were seriously affected by the dry weather, the ability of the crop to produce under unfavourable conditions will encourage increase acreages during the next season.

Experimental work during the year was limited largely by D.W.A.C. work. An oat varietal plot, peanut selection plots, peanut selection increase plots, canning bean plots, and the sorghum selfing plot were the only experimental plots. Seed from an area of Wheatland Milo planted with seed obtained from the selfing plot has been in great demand.

With the object of providing an entirely mechanised method of harvesting peanuts, an experimental harvesting is being arranged for the next season. If a satisfactory curing can be made, the mechanical harvesting machinery should present no difficulties.

Upper Burnett.

Although the 1943-44 season was favourable for farm and dairy production, with a total rainfall of 2,869 points, a perusal of the rainfall figures alone is misleading, as an adverse spell of dry, cold weather was experienced after February, and farmers were unable to establish winter crops until late May.

Increased attention is being given to lucerne, as indicated by the large acreage sown during May and June and the renovation of existing areas.

Since the introduction of dwarf grain sorghums to the district in 1939, the number of header harvesters in use has increased from 5 to 20. Wheatland Milo and Kalo are the most popular varieties and one grower has specialised in the production of supplies of pure seed of these varieties, producing approximately 1,000 bushels of seed of each.

The high prices prevailing for pig meats has caused farmers to give some attention to the production of wheat grain as a supplementary ration to grain sorghum. The wheat is also proving useful as grazing for dairy cattle.

From 40 oat varieties sown in observation plots during the past few years, the varieties Klein and Fulghum x Victoria have been selected as outstanding grazing oats, and an endeavour is now being made to increase seed stocks.

Bundaberg.

Seasonal conditions experienced were generally favourable, particularly during the spring, when crops and pastures grew luxuriantly and cream production reached a high level.

The total rainfall received was 4,781 points.

Heavy frosts experienced during April caused considerable loss in production despite satisfactory rains.

Potato production showed a pronounced expansion, the autumn crop returning from 6,000 to 7,000 bags. One irrigated crop of 10 acres produced approximately 80 tons of saleable potatoes.

The outstanding variety for yield and quality of tubers was Bismarck, while some good yields were also obtained on river loams with the Factor variety.

Cotton crops produced high yields up to three bales per acre, but the acreage planted was appreciably less than in the previous season.

The acreage under tobacco at Miriam Vale was reduced to 35, and the total production by seven growers was 17,500 lb. of cured leaf. Labour shortage precluded any new areas being prepared for cropping.

Splendid crops of grain were produced from maize and sorghum. Small sowings were made of brown millet with satisfactory results.

Lucerne paddocks have flourished, but the demand exceeds the supply.

An abundance of vegetables of all kinds was produced.

CENTRAL DIVISION.

Rockhampton.

Although the rainfall was below average for the 1943-44 season, its even distribution rendered it possible to obtain satisfactory results with summer-growing crops.

The wheat grain harvest was light, because of the light winter rains, which delayed planting.

Of the vegetable crops, potatoes showed a slight increase, and the quality was generally good.

A substantial acreage was again planted to sweet potatoes, but owing to a fall in market values a larger area than usual was grazed off by pigs. The pumpkin crop was heavy, and also provided a surplus for stock feed.

Small vegetable crops showed a further increase during the year, the greatest attention being paid to tomatoes, cabbage, and turnips. Water-melon growers obtained heavy crops, which sold at good prices.

Early planted maize generally gave poor returns, accept in isolated parts of the district where good returns were obtained. The late planted crops were on the whole poor.

Grain sorghum production was below average, resulting in a shortage of this grain for feeding to stock and poultry. Some good individual yields were obtained.

Peanut production was also below normal, because of scarcity of labour. The quality of the nuts obtained was excellent.

An extensive acreage of saccaline sorghum provided valuable grazing.

There has been a big demand for lucerne hay and chaff during the year, and the acreage grown has slightly increased.

Some excellent quality hurl was produced from an increased acreage of broom millet. With the present favourable market, there is every prospect of a further substantial increase in broom millet production.

Several tobacco pure-seed plots were established to provide seed of various varieties for distribution to growers.

Additions were made to the grass propagation plot at Gracemere and a considerable number of rootlets were distributed throughout the various districts.

Oat variety trials and sorghum variety trials were conducted in the Theodore, Mount Larcom, Calliope, and Wowan districts.

A native legume trial was continued at the Caves and at Mount Larcom, *Phaseolus lathyroides* again proving the most useful from a grazing point of view, and this legume promises to be one of the most valuable for inclusion in pasture rejuvenation work which is contemplated.

Mackay.

A considerable expansion in production resulted from the installation of 30 new irrigation plants in the Mackay district. Vegetable crop production exceeded 30,000 cases for the year.

Potatoes have developed from a home garden crop to one of approximately 700 acres, and with the present remunerative prices a further expansion is likely. Based on a reasonably conservative estimate, production should exceed 25,000 bags or 1,562 tons.

Rainfall for the year was 61.49 inches, with the heaviest falls in February and March.

NORTHERN DIVISION.

Ayr—Home Hill.

Very dry conditions were experienced up to February, when storm and flood rain occurred over the whole area.

Cylonic disturbances then caused some damage in the district. The more forward crops of sugar-cane suffered severely in some cases. The wet season continued well into April and interfered considerably with the early planting of potatoes and vegetables that had been planned.

Potatoes.—The 1943 potato crop was very satisfactory, although some loss of yield from target spot was in evidence. Growers now number 129, of whom 97 are cane farmers. The total area planted was 590 acres.

The cessation of vegetable contracts in the North, and a general fear of glut production resulted in diversion of lands used for vegetables in 1943 to potatoes. It is estimated that 1,300 to 1,400 acres had been established in the Townsville district area. Unfortunately, it was not possible to plant the crop as early as desired owing to continued heavy rain, and consequently the bulk of the seed was established late in April and during May. General conditions had been mild and some target spot was in evidence. Strikes generally were good.

Further considerable expansion of potato-growing in the Burdekin is expected if the present conditions continue.

The interest of cane farmers in potato production is obvious from the following figures:—In 1942 cane farmers represented 79 per cent. of the total number of farmers growing the crop, and they planted 54 per cent. of the area; in 1943 they represented 75 per cent. of the total farmers growing the crop, and they planted 65 per cent. of the area. There is a definite tendency for some farmers to embark upon large-scale production of potatoes, and during the 1944 season areas of 20 to 30 acres were not uncommon.

Vegetables:—A considerable expansion of vegetable production took place in the 1943 season. The contract system was operating, and it was found that cabbages, tomatoes, carrots, beetroots, and all cucurbits were eminently suited to the district. Very little disease trouble was encountered, although some target spot and corn ear worm affected tomato crops, and cluster grub was serious in some cabbage crops. The majority of growers received satisfactory returns from their vegetable projects, and there would have been a considerable expansion in 1944 but for the cessation of the contract system. Some growers diverted their efforts to other crops, such as capsicums and egg fruit, which had not previously been grown in the district on a large scale. These ventures have generally been successful.

Mareeba-Dimbulah District.

Storms commenced early in December and continued throughout January, being frequent enough to benefit crops and yet well enough spaced to permit of satisfactory cultural operations.

Temperatures and humidities accompanying the stormy weather were relatively high and conducive to various crop growth. One disastrous storm in December, accompanied by hail, completely destroyed a large part of the Emerald Creek tobacco crops.

The estimated acreage planted to tobacco for the 1943-44 season was 2,000 acres, with about 900 acres in the Dimbulah area and 1,100 acres in the Mareeba area.

Of this area, about 600 acres were grown under irrigation, principally in the Mareeba area. Gold Dollar continues to be the predominant variety, with Kelly and Cash still in evidence. The season promised well, but the hailstorm at Emerald Creek and the development of "frog-eye" leafspot in the other areas towards the middle of the harvest appreciably reduced the yield of good quality leaf. In spite of these losses, it is estimated that a total of 1,000,000 lb. of saleable leaf will be supplied from this district.

Very little new land came into production, as the amount available on existing farms is limited.

The need for a suitable crop rotation, which includes green manuring, is becoming more obvious each season, and it is interesting to note that farmers are now becoming fully aware of this, as well as the thorough preparation of the land prior to planting, judging by the number of enquiries which are made from time to time.

Practically all farmers in possession of irrigation facilities have engaged in vegetable production.

The main types of vegetables grown in the district are cabbages, tomatoes, beans, lettuce, and cucumbers.

The pest and disease situation has been controlled reasonably well, and the general quality of the vegetables produced has been good.

In the 1942-43 season the prevalence of nematodes in the tobacco seed-beds was so pronounced that farmers have been induced to pay more attention to preventive measures. In most cases the beds have been sterilised by burning, with a few farmers using steam. The burning of seed-beds has been far less perfunctory than was the case in the previous season and far better results have been obtained. Departmental recommendations for seed-bed fertilizers had become almost universally adopted, and no "yellow patch" had been observed or reported during the season. The generally high temperatures have undoubtedly been a factor in reducing serious outbreaks of "blue mould" in the seed-beds. Benzol is still the recognised method of control in the district, but treatments have been rather infrequent. Diseases such as "damping off" and "frog-eye" leafspot have been of minor importance in seed-beds in the period under review.

Both leaf-miner (*Phythorimoea operculella*) and stem-borer (*Ph. heliopa*) have been more prevalent than should have been the case with proper attention to recognised control measures. Probably the introduction of the gas treatment for the control of "blue mould" has been very largely responsible for this state of affairs. The use of iron seed-bed covers every second to fourth night has entirely superseded the Rhodesian cloth covers for moth-proofing seed-beds, which were in regular use a few years ago. The only control measure in use has been a rather spasmodic dusting or spraying with arsenate of lead. Undoubtedly this does provide some protection when regularly applied, but it is not as effective as moth-proofing during the night-time.

Over the past few years there has been a marked improvement in seed-bed management, but there is still room for further improvement. In this connection, it is considered that greater attention might be paid to the various aspects of insect pest control. Farmers have become accustomed to sowing a generous area of seed-beds to allow for the discarding of seedlings which are below standard so that there has usually been sufficient seedlings for planting out. With greater attention to pest control the area of seed-beds could be appreciably reduced.

In the irrigation areas the stands were exceptionally good, and growers were elated at their prospects. Some "misses" did occur as a result of the development of stem rots. Stem rots have caused some concern amongst growers for the past few years, and the position has shown no improvement. In practically all cases the disease has been associated with stem damage brought about by the activities of wireworms and false wireworms, and it is considered that the effective control of these pests would provide a solution to the problem of stem rots. There also seems to be an

association between stem damage, stem rots, and grass fallows. It would appear that these grass fallows, including as they do weeds of several species, serve as a harbourage for the insects concerned and so increase the liability to damage.

In the dry-farmed areas fairly good stands were obtained in the first instance. With the delayed storms some of the earliest plantings remained at a standstill for a long period and were subject to leaf-miner and stem-borer damage. This is inevitable, but it is felt that the practice of regular dustings with 50 per cent. arsenate of lead would improve the position considerably. It is regrettable that this practice has not become universally adopted. There is experimental evidence in support of this recommendation, but for some reason growers make no attempt to follow it. The nearest approach has been the use of a dry bait as a general control for all insect pests, whereas this is of little value against stem-borers or leaf-miners. It may be that the introduction of power dusters into the district for vegetable growing will present a solution of the dusting problem and may have the effect of encouraging farmers to adopt a programme of regular dustings of their tobacco in the early stages.

A feature of the past season has been the absence of "blue mould" in the field. The higher temperatures throughout the growing period have undoubtedly been a factor. In the dry-farmed areas the development of "frog-eye" leafspot towards the middle of the harvesting period was responsible for serious losses in quality of otherwise good leaf. This has been the worst outbreak of the disease since the so-called "black year" some ten or more years ago.

In the Emerald Creek irrigation area the crops were most promising, probably the best since the introduction of tobacco growing into the district. A hailstorm on 1st December in this area constituted a major disaster and affected an area of about 200 acres of tobacco. Some leaf had been harvested prior to this storm, but after the storm very little leaf of any value was left for harvesting. In most cases farmers had harvested just sufficient leaf to meet their actual costs.

Experimental Work.—This season yields the first complete set of data on both two and three year rotations. The tobacco section of the experiment was most satisfactory and was up to expectations. Unfortunately, the crop suffered, with the rest of the Paddy's Green area, from the outbreak of leafspot. Nevertheless, there is value in comparing treatments under conditions such as these as well as under normally good conditions. After all, the purpose of replicating experiments over a period of years is to cover a wider range of seasonal conditions, and the fact that the first set of data covers adverse seasons does not necessarily detract from their value.

The leaf from the experiment has now been graded and prepared for sale. The experiment yielded at the rate of 775 lb. per acre of graded saleable leaf. The complete data and its analysis will be available after the sale of the leaf.

The value of this experiment lies in its continuation over a period of years, and it is hoped that this will be possible.

BUREAU OF TROPICAL AGRICULTURE.

The activities of the Bureau of Tropical Agriculture have centred around the experiment with rubber-bearing plants; the raising of cinchona seedlings on behalf of the Council of Scientific and Industrial Research for transport to New Guinea; increasing the area under *Derris elliptica;* and maintaining some of the more promising legumes established over the past years. The preliminary work in changing from a war-time experimental programme back to a post-war developmental one has been the main occupation for the last six months.

Seasonal Conditions.

The past season has been a comparatively dry one. Long spells of dry weather have occurred even in the summer months, when continuous rain is expected; as opposed to this the month of June has been exceptionally wet.

Experimental.

Rubber.—An experimental area of rubber (*Hevea brasiliensis*) was planted out at the station shortly after the occupation of a very large portion of the rubber-producing regions of the world by the Japanese. The object of the experiment was to determine if rubber could be obtained by mechanical means from trees before they had reached their second year of growth. Five different row spacings were made, and material from a section of each of these plots was harvested monthly and forwarded to Brisbane for analyses. Commencing in June last, when the plants were twelve months old, cuttings continued until the twelve series were completed. Last month saw the final harvest of the experiment. The plots were allowed to ratoon, and the field kept clean by means of the rotary hoe.

Another latex-bearing plant that was treated in a similar manner was *Cryptostegia grandiflora.* This experiment was harvested at four-monthly intervals, and the plot about to be harvested completes the series.

Derris elliptica.—An area of approximately one acre was planted out late in 1942 from cuttings obtained from two strains established at the station some years previously. One of these is known as the Darwin strain because it was obtained from the Botanical Gardens at Darwin, but was originally introduced from Kuala Lumpur. The other strain is known as Sarawak Creeping. It also came from Malaya, but it was introduced there from Borneo.

Owing to the extremely wide row spacing adopted, weed growth has become very troublesome, necessitating the cutting back of the vines with a view to establishing an additional row between the 8-feet spacings. This work, interrupted by weather conditions, is in progress at the station.

The analyses of Derris samples reveals that a wide range exists between individual plants as to their toxic content. By selection, even the material at the Bureau, which so far has not produced a high rotenone figure, could be considerably improved. Towards this end samples of Derris roots will be forwarded at monthly intervals (after the twenty month age period had been reached) from ten plants selected at random in the field. Cuttings from this material will be planted at the time of harvesting, and those whose tests are ultimately shown to be unsatisfactory will be eliminated and the remainder propagated with a view of securing as far as possible the isolation of clonal types. There is also room for some straight-out selection work in the field.

Pastures.—With the object of reverting to the principal undertaking of this station, that of developing the pastoral possibilities of the wet coastal belt, the areas that have been maintained under legumes are in the process of being cleaned up and the plots defined. One of the important objects of the immediate future is the collection of seed even though a pure sample may not be procurable this season. The bulk handling of this process is the only method that can be entertained. Small samples, in order to establish pure stands for experimental purposes, will have to be collected by hand.

For the past few years the energies of the Bureau, as already mentioned, have been directed towards the development and investigation of latex-bearing plants. This largely occupied the staff at the Bureau, particularly during the nursery and transplanting stages. All other work at the station was thus suspended, and to-day the tropical legumes, as a result of their somewhat free hand, have spread considerably and become admixed. The task of sorting them out is a rather difficult and tedious one. An effort has been made to keep them within bounds, and some have had to be cut back with the tropical legume attachment on the horse mower. Many of the grasses that encroached on these areas have been chipped out, but molasses grass is difficult to handle in this way. Grazing these areas would greatly assist in establishing order as well as providing valuable information. The manner in which these legumes are to be managed is an all-important factor, as further investigation is necessary to determine their palatability and permanence under stocking.

Over two years ago three blocks of land were selected in an area that had not been thrown open for general selection. These blocks were taken up with the object of extending the pasture work of the Bureau. The areas made up of portions 53, 55, and 56 comprise a total of 600 acres, and are a most valuable adjunct to this station. Since that time a small area of 10 acres was cleared, the fallen scrub burnt, and the area planted to grasses and legumes. A quantity of molasses grass was mixed with all species planted in order to ensure a good burn the following year; the original burn was not very satisfactory although an excellent stand of grasses was established.

Cinchona.—In August last year cinchona seed from high-yielding strains from the Philippines eventually found their way to North Queensland. These were raised in specially constructed houses at the Bureau and were attended by a Dutchman who had previous experience in this work. When the plants were sufficiently large for transplanting to commence they were pricked out and planted into flats 24 inches by 18 inches. Each flat contained about 250 to 300 seedlings. By March this year the young plants in the flats were well established and a start was made to shift them to New Guinea. Accordingly a consignment of 50 flats was transported by military trucks to Cairns, where they were loaded on to a 'plane and flown the following morning to within a few miles of their destination at Aiyura. In all 15,000 plants have been established at Aiyura.

General.

A papaw plot has been established, but unfortunately some of the trees have died because of the ravages of the fruit spotting bug. Between every second row of papaws, citrus having some outstanding quality in the localities where they are growing, will be planted. Seedlings to receive the bud wood are well established now.

Tea.—An area of approximately $\frac{2}{3}$ of an acre has been planted to tea. When the failures were re-established recently the plot contained 3,000 plants. This small plot is growing well. The old area of tea is still being maintained, but is badly in need of pruning. A heavy crop of seed has been produced by these trees this season.

Coffee.—In order to maintain a small plot of coffee at the station an area of sheltered land was selected in the scrub of the Basilisk, and some 30 tubed plants established there. Fertilizer was added at the time of planting, and good rains have fallen, thus establishing the stand satisfactorily.

Sweet Potatoes.—An area of land has been prepared for the planting of a large number of sweet potato varieties. The planting material will be obtained from the South.

Maize.—A small area of Durum maize has been planted. This valuable variety, a Queensland contribution, is grown in some of the coastal areas of the North, but as the strain now appears to be practically lost in these areas it was felt that some effort should be made to preserve it. An excellent strike has been obtained.

Ornamental.—The natural surroundings of the Bureau of Tropical Agriculture are very beautiful; they have been richly endowed by nature and have also been added to by agriculturists from time to time. Much of the careful planning and vision of the past is in evidence to-day, and gives the place a quiet charm which never fails to arrest the attention of visitors. In spite of all this, much still remains to be done, and it is one reason why the ornamental side of the Bureau of Tropical Agriculture remains an important feature of the work here. It is essential too that many of our beautiful native trees be given a place along with many introduced ones of outstanding value.

Some effort has been made to add to the beauty of the grounds during the last six months. This has been possible during rainy weather when conditions were too wet for field work. Various species of flowering trees have been planted in the thin scrub at the foot of the Basilisk. The avenues of Cassias and Peltophorums have been strengthened recently by the replacement of misses. About forty varieties of Crotons have been collected from various localities. Many of these have been struck at the station, while others have been propagated and transported from Cairns.

ACKNOWLEDGMENT.

Both field and administrative staffs have cheerfully and efficiently performed many new and onorous duties associated with urgent war-time food production, and thus have continued to render valuable service to the State.

CHAS. J. McKEON,
Director of Agriculture.

REPORT OF THE DIRECTOR OF COTTON CULTURE.

The climatic conditions for the 1943-44 season's cotton crop, with the exception of that portion which was produced in the South Burnett, Southern and Western districts, were reasonably favourable for cotton production, although better rainfall during the hot dry period which commenced at mid-January would have improved yields in all districts. Excessive rainfall during December in the three districts mentioned promoted such a growth of weeds and grass that a considerable acreage of cotton was abandoned. In addition, the resultant deeply-saturated heavier soils set so hard during the long dry period experienced in January and February that plant growth was affected and much loss of the middle and top crops occurred.

In the remaining districts the weather conditions were, in general, favourable for early planting and thus ensured satisfactory growth of the resultant seedlings. By the end of December most fields were carrying such good crops that good rainfall during January was required to mature them. Unfortunately, the rather prolonged hot, dry conditions experienced in some of the largest cotton-growing districts appreciably reduced yields, but the average returns finally obtained where proper cultural practices had been followed were highly satisfactory and the best for several seasons.

The results obtained in testing the merits of growing cotton with supplementary irrigation supplied from individually owned irrigation plants, as a whole, were not in keeping with the possibilities of growing cotton with such assistance. Generally, co-operators either did not plant because of labour shortage or, for the same reason, were unable to maintain clean cultivation on the fertile alluvial soils under the wet spring and early summer conditions. In some instances, where the crops got off to a good start labour shortage also prevented an irrigation application at mid-season when it was urgently required to obtain a good yield.

Acreage and Yields.—Details of the acreage under cotton and the yield obtained therefrom are included in the report of the Director of Marketing. The results, as a whole, confirm the findings of previous years that early planting on well-prepared seed-beds containing a good reserve of subsoil moisture, in cultivations in the first three seasons after grassland, undoubtedly increases the prospects of obtaining highly satisfactory yields of cotton. Many farmers averaged yields of 700 lb. seed cotton per acre or better and, in some instances, 1,200 to 1,500 lb. per acre on sizeable areas. The average returns obtained would certainly cause a marked increase in cotton-growing during the coming season, if the prospects for obtaining ample labour were more favourable.

Harvesting.—Because of the increased demand for Women's Land Army to harvest vegetable and fruit crops, approximately only 200 members could be made available for the cotton harvest. These were mostly housed in camps centrally located in areas in which there were sufficient acreages of cotton to provide full employment until the end of July, when the Army was required in other agricultural industries. A general scarcity of labour prevailed in all districts and this shortage resulted in such a slow picking of the crop that a considerable proportion of it was harvested by snapping.

Grades.—The slow harvesting of the crop resulted in a lowering of the grades of much of the cotton through long exposure to the weather. In addition, the snapping of much good, sound cotton lowered the grades of such cotton as compared with those that would have been obtained by hand picking. The grades of the snapped cotton were better than usual, however, through the inclusion of so much well-matured cotton that normally would have been hand picked had ample labour been available.

Biloela Research Station.—The climatic conditions during September to December inclusive were favourable for cotton, and all experiments planted prior to the end of October made very satisfactory growth up to the middle of January. Hot, dry weather prevailing from then to the middle of February seriously checked crop development and caused a considerable loss of squares and small bolls. Heavy rainfall in the latter half of February promoted further plant growth, which set and matured an appreciable late crop. The results obtained in the comprehensive programme of experiments indicated once again the advantages to be gained through planting cotton in the first three seasons following Rhodes grass. Confirmation was also obtained of previous findings of the value, to the following cotton crops, of the subsoil moisture conserved by March ploughing of Rhodes grass. Mid-September plantings on March-ploughed grassland yielded 1,131 lb. seed cotton per acre—a very satisfactory yield considering the period of five weeks of hot, dry weather experienced in January and February. Old cultivations once more failed to produce much in excess of 500 lb. seed cotton per acre. Undoubtedly, by plouging their grassland in the late summer before the grasses have utilized the moisture resulting from the summer rains, farmers can usually conserve a supply of subsoil moisture that will materially improve the yield of the following cotton crop.

The results obtained in the investigations into the merits of supplementary irrigation and its correct application once again indicated that farmers should use this method of growing cotton where irrigation can be applied economically on soil suitable for that crop. On a fertile cultivation in the fourth year after native grassland, cotton planted in the third week of October following a 3-acre-inch spray irrigation, and given two similar applications at mid-season, yielded 1,741 lb. seed cotton per acre, compared with 609 lb. in rain-grown cotton. In a five-variety trial to ascertain the best cotton to grow under irrigation, the lowest produced 1,822 lb. seed cotton per acre and the highest 1,927 lb. Altogether 8 acres of irrigated cotton, covering times of planting and watering and the above mentioned experiments, produced an average yield of 1,608 lb. seed cotton per acre.

Pure Seed.—The work of developing improved strains of the main commercial varieties was carried out under seasonal conditions which were favourable for testing the merits of the more advanced strains. Very promising results were obtained in some varieties, the details of which are discussed in the section of the report of the Division of Plant Industry (Research), which deals with the plant-breeding programme.

Instructional.—The field staff had a difficult year. Many farmers were faced with a labour shortage at the start of the season and this shortage was intensified by the wet conditions prevailing during November and December. The staff was therefore called on to advise on the best methods for overcoming the growth of weeds and grasses resulting from such conditions and to endeavour to locate temporary labour to carry out such operations. Later when the crops approached maturity the staff was busily engaged in organizing the harvesting of the crop. In some districts much of the crop was picked by the Women's Land Army and it was the responsibility of the field staff to supervise the establishment and maintenance of the necessary camps and the allocation of the units during the harvesting operations. Undoubtedly the harvesting programme could not have been carried out so efficiently as it was without the help of the experienced field staff.

Insect Pests.—Insect pests were not an important limiting factor to crop yields during the 1943-44 season, As is usual when good rains allow of early planting in the spring, false wireworms were active in some young stands, and tip malformations caused by thrips infestation were common. Setbacks attributable to these two seedling pests, however, were of little moment to the industry as a whole. The only corn-ear worm outbreak of any consequence occurred in December, but, although it was severe on some farms, losses were sporadic and many crops had ample time to recover and set a payable crop, notwithstanding the relatively dry weather experienced in late summer and autumn. Jassid activity, which usually becomes apparent in February, was less pronounced than usual except in crops which had lost their bottom crop through the influence of pests and/or dry weather.

W. G. WELLS,
Director of Cotton Culture and Senior Research Officer.

REPORT OF THE DIRECTOR OF FRUIT CULTURE.

The horticultural industry had another highly successful year financially, and this, in combination with the record income of the preceding period, has assured the immediate future of fruit and vegetable producers. Growers in all districts, because of wartime economic conditions, have been enabled to free their farms from encumbrances where they existed, and the majority now have substantial bank credits.

Seasonal conditions were particularly beneficial in the spring and summer, when unusually good falls of rain occurred and continued up to the end of January. Subsequent rains were unseasonably light but, generally, crops benefited so well from the earlier falls that the comparatively dry autumn did not seriously retard production.

It is unfortunately necessary to record, however, that in spite of the greatly improved financial position, the general standard of efficiency and production has declined in many orchards. This condition is due principally to factors beyond the control of the growers—such as shortages of essential materials, equipment and labour—and is also due in part to the fact that the Department has been unable to maintain the frequent personal contact, which is so important with farmers, through its field officers. A number of officers are still serving with the Forces and many of those remaining are so burdened with the numerous added duties required to be performed in the national interests that only a small proportion of their time is available for duty in the field. The most important and essential work has, however, been kept up to date with the co-operation of a reduced but willing staff. Field officers also have had frequently to work long hours, but they have creditably performed the numerous tasks assigned to them.

Vegetable Production.

The need of maintaining vegetable production has been the main function of this Branch during the past year and it is pleasing to report that, with the co-operation of officers of the field staff of the Director of Agriculture, the effort has been so successful that the market has rarely been short for any appreciable period of any particular vegetable. The system of growing vegetables under contract for the Services was abandoned early in the year for a number of reasons. The scheme entailed a great amount of work for comparatively little result. Actually, out of a very large tonnage of vegetables contracted for during nine months of operation of the system, only 17½ per cent. was delivered. Observations revealed that, generally, the experienced growers preferred to sell their produce on the open market and that in most instances it was the inexperienced growers, often lacking essential knowledge and equipment for this form of production, who entered into contracts. In consequence, deliveries fell far short of expectations. It was also found that, in some instances, when the market price was higher than the contract price, contractors sent their vegetables direct to market and *vice versa*, when the contract price was higher than the market, deliveries from contract areas became abnormally heavy. The Stanthorpe district responded best to contracts and supplied rather more than 70 per cent. of the tonnage for which contracts were made in that district. The fact of making a contract ensured a grower of certain advantages—e.g., he had priority on seeds and materials which were then in short supply. In effect, therefore, it meant that often the less efficient growers obtained their seed requirements because they made contracts, while experienced growers whose production could have been guaranteed were frequently unable to obtain supplies. A modified form of the former contract system is operative in the Cairns-Atherton area, where the Commonwealth has asked that the absolute maximum production be sought, but where, because of the uncertainty, from time to time, of requirements, the demand is unstable and growers consequently need protection.

As an alternative to the contract system a recommendation was made that the Commonwealth support the market during periods of over supply. This proposal was accepted by the Commonwealth and was applied successfully for a time. It was afterwards suspended, but, later, applied again in a modified form and is still operative.

In view of the altered conditions now existing in Queensland, consideration is being given to the reintroduction of an amended contract system.

Short-term gluts often, followed by periods of under-supply of particular vegetables, occurred in the course of the year and indicated the need to generally direct the efforts of producers along organised lines. An endeavour has been made to do this, using as a basis forecasts by growers of their estimated monthly plantings for six months ahead. The total requirements of the various kinds of vegetables are known and by comparison of the intended sowings with the demand it will be possible to determine when particular vegetables are being over- or under-planted and to advise growers accordingly. It is planned that field officers of the Department shall make a periodic check of a cross-section of the growers in their respective districts and report whether seasonal or other conditions have necessitated an amendment of the general estimate for any particular district.

The shortage of equipment, spare parts, and other material has been partly relieved, but inability to obtain some essential requirements is causing concern to many producers, of whom some have had to restrict plantings or cease vegetable production altogether. Plans for community transport are being worked out for some districts where individual transport difficulties exist.

Heavy rains during the maturing season for carrot seed crops planted under contract caused the destruction of most of the plantings. Good progress is, however, being made in the production of other vegetable seeds.

Southern Division.

Deciduous Fruit Production.—During the past year, Stanthorpe growers harvested the largest fruit crop ever produced in the district. An all-time record of 1,286,900 bushels was marketed, compared with about 900,000 bushels the previous year, which exceeded the 1941-42 production by 250,000 bushels. Apples and pears constituted the greatest portion of the production and totalled 620,060 bushels. The approximate quantities of other fruits, expressed in terms of bushels, were tomatoes, 229,700; grapes, 152,000; peaches, 127,600; plums, 118,500; apricots, 19,150; various, 20,000 bushels. The provision of cases presented an acute problem because of a scarcity of timber and sawmill labour. A fruit case committee was set up in the district. As a result of its activities every grower was enabled to market a maximum of his fruit as it became ready for harvest.

Pests and diseases were not very troublesome. Fruit fly caused some anxiety at one period, but fortunately the outbreak did not develop. Codlin moth damage was not greater than normal.

Bananas.—There are now 9,264 acres under bananas in the State compared with 9,693 acres in 1942-43. Of the present total, 7,741 acres are in bearing, while 1,703 acres of new plantings have been made. The total number of growers is 2,020—a decrease of 11. Because of the prevailing high prices, many old plantations which in normal times would have been eradicated have been reconditioned and fertilized. and are proving profitable. Some difficulty in regard to the early destruction of neglected and disease-infested acreages has been encountered because of labour scarcity.

Inability to obtain sufficient labour is the big problem confronting the industry, and in consequence weed growth in plantations is more in evidence than in normal times; but in spite of this the good seasonal conditions have enabled production to be well maintained. Bunchy Top was troublesome in some plantations during the warmer months, but with the co-operation of growers this disease has been kept under control.

Pineapples.—There has been a very big decline in pineapple production because of the accumulated effects of labour shortage, insufficient fertilizer, severe frosting of up to half the crops in some districts, and smaller plantings. About 940,000 cases were harvested, compared with almost 1,500,000 cases in 1941-42. Any early improvement in the position is improbable for the reasons mentioned above, and also because of a feeling of uncertainty which has arisen because of the compulsory diversion of 50 per cent. of every grower's production to the canneries at the "low" price of £12 per ton.

Citrus Fruits.—Citrus growers had a very good season. The crop was a large one, the fruit was mostly of excellent quality and prices were high. It is estimated that 400,000 bushels were harvested, of which 50 per cent. were oranges and 40 per cent. mandarins, and the balance lemons and grapefruit.

There has been an exceptional demand for citrus trees for the establishment of new orchards, indicating the possibility of considerable expansion of the area under this fruit. However, because of a scarcity of nursery trees, plantings have had to be limited. Most nurserymen have lost experienced propagators to the Forces and in consequence have had to curtail their output. They sold out of stocks comparatively early in the season, but the fact that only 25,226 trees of A grade varieties of citrus were available for sale compared with 58,000 the previous year is indicative of their plight. It is anticipated, however, that by the 1946 season there shall be a considerably greater output of trees. The greatest demand has been for Valencia and Washington Navel oranges, Emperor and Glen Retreat mandarins, and Lisbon and Villa Franca lemons. Only 19,000 buds were selected from approved trees in the course of the year. By much the lowest selection made in any season, it indicates another shortage of trees next year.

Other Fruits.—The aggregate area under other fruits—such as papaws, passionfruit and strawberries—has been substantially reduced because of inability to obtain essential labour. Growers obtained good returns, however, for the fruit they produced, and their incomes have not been less than usual. Plantings of Queensland nuts and avocados have yielded enhanced returns, as these products have been in great demand.

Central Division.

In the Central Division of the State, production increased considerably as larger areas were developed for fruit and vegetable growing. At times local markets were oversupplied, particularly with vegetables, such as cabbage. The good season and almost total freedom from diseases and pests enabled growers to harvest practically the whole of the crops planted.

Northern Division.

At Bowen, production for the year was comparatively high and 370,623 packages, principally cases of tomatoes, were railed to southern markets. The practice of irrigation is extending, chiefly in respect of pineapple and banana culture. Growers also are beginning to realise to a greater extent the value of growing green crops to plough in and renovate their land; consequently, there are prospects of even greater production from the district.

Further north, heavy crops were harvested. Oranges were in plentiful supply. The banana acreage has increased, pineapple plantations also have been extended, and there is scope for greater production of papaws. Much attention has been given to the expansion of vegetable production, chiefly around Ingham, Cairns, Atherton and Mareeba.

Experiment Work.—Very little experiment work has been possible during the year. The mango experimental garden at Kamerunga has been used for the production of vegetables. In order to maintain strains of papaws selected in 1942, plants were raised from seed and set out at Kamerunga and South Johnstone. At South Johnstone mango stock seedlings also have been raised for future work. At Charters Towers, the grape variety experimental plot has made good progress. Servant has shown itself as the ouutstanding variety in the plot, whilst Chaouch and Gros Colman are second best varieties. Others which show promise are Belas Blanco, White Wax, and Henab Turki.

Produce Markets.

Regular inspections of produce in the main markets have been continued. Generally, the policy adopted has been to display a greater degree of tolerance in the interpretation of grade standards, in view of the fact that there are many inexperienced people now engaged in the preparation of produce for sale. So long as a product is fit for consumption and is marketed with reasonable regard to regulations it has generally passed inspection, with perhaps a reminder to the grower that his pack could be improved. In spite of this, however, condemnations of inferior produce have been heavy. Inspections under the *Quarantine and Commerce Acts* were few, because of prevailing circumstances.

Attached is a table of the interstate exports and imports for the year.

INTER-STATE EXPORTS YEAR ENDING 30TH JUNE, 1944.

FRUIT.

——	Bananas.	Citrus.	Egg Fruit.	Various Fruit.	Grapes.	Straw-berries.	Passion.	Pines.	Melons.	Rock Melons.	Mangoes.	Chillies.	To-matoes.	Cu-cumbers.
Brisbane	33	31	..	822	..	..	..	31	..	..	4	..	153	45
Clapham	34,512	30,082	..	139,531	..	19,371	..	482,220	..	..	..	1,325	471,066	60,959
Wallangarra	3,088	2,747	..	34,197	4,144	13	166	3,795	121	..	..	..	13,288	859
Rockhampton	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bowen	2	..	1,340	..	..	..	..	4,173	..	743	27,477	1,285	218,976	9,097
Townsville	..	..	..	..	..	..	..	2,204	..	..	..	..	..	..
Cairns	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals ..	37,273	32,860	1,340	174,550	4,144	19,384	166	486,046	121	743	4	1,325	484,507	60,863

(Only Brisbane, Clapham, and Wallangarra included in Totals.)

PRODUCE.

——	Po-tatoes.	Pump-kins.	Onions.	Pea-nuts.	Seeds.	Tobacco. Bales.	Vege-tables.	Honey. Lbs.	Ginger.	Arrow-root.	Maize.	Garlic.	Herbs.	Soy Beans.
Brisbane	..	..	156	30,666	2,731	..	286	..	12	5,493	76,021	1	..	200
Clapham	22,992	66,899	..	10,689	5,333	13,433	127,721	..	3,222	1	105,427	2,028	172	..
Wallangarra	414	148,106	48,608	5	169,742	24	10,896	8,173	..	..	..	..	..	..
Rockhampton	..	13,984	5,503	..	..	..	..	..	..	..	..	..	..	..
Bowen	..	8,890	..	..	..	..	..	..	..	..	..	..	..	..
Townsville	17,533	..	6,649	..	..	..	..	..	..	..	..	..	..	..
Cairns	..	..	..	..	..	..	..	..	..	..	76,290	..	..	..
Totals ..	23,406	214,005	48,764	41,360	177,806	13,457	138,903	8,173	3,234	5,494	181,448	2,029	172	200

(Only Brisbane, Clapham, and Wallangarra included in Totals.)

IMPORTS FROM OTHER STATES YEAR ENDING 30TH JUNE, 1944.

——	Citrus.	Cherries.	Various Fruits.	To-matoes.	Po-tatoes.	Onions.	Swedes.	Seeds.	Plants.	Vege-tables.	Seed Oats.	Honey. Lbs.	Tobacco. Bales.	Fruit Trees.	Maize.
Brisbane ..	..	..	160,746	..	497,211	2,600	7,699	..	..	2,865	..	..	..	..	..
Clapham ..	..	..	1,102,242	233,957	..	125,161	14,491	5,831	361	78,326	..	..	..	..	..
Wallangarra ..	2,537	40,189	78,381	1,734	68,145	6,315	49	1,541	106	31,406	10,182	52,223	744	165	277,690
Rockhampton ..	..	..	..	..	12,472	3,225	..	..	..	..	..	..	..	..	..
Bowen	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Townsville	..	..	..	..	17,533	6,649	..	..	..	..	..	..	..	..	..
Cairns	..	..	..	..	11,280	2,755	..	..	..	..	..	..	..	..	..
Totals ..	2,537	40,189	1,341,369	235,691	565,356	134,076	22,239	7,372	467	112,597	10,182	52,223	744	165	277,690

(Only Brisbane, Clapham, and Wallangarra included in Totals.)

H. BARNES,
Director of Fruit Culture.

REPORT OF THE DIRECTOR OF DAIRYING.

Seasonal Conditions.

Production in the first quarter of this year—July-September, 1943—following one of the driest winters on record, was very low. However, after useful rains towards the end of the winter and in the early spring, production steadily increased. Widespread and abundant early and mid-summer rainfalls brought about the best seasonal conditions at the time for years. Late summer and autumn rains were subnormal, causing production, which commenced to recede in late summer, to decline rapidly in the final quarter of the year, until it reached a level so low as to cause concern to all associated with the industry. The unseasonal conditions throughout the final four months of the January-June half-year were reflected in the non-attainment of the butter production goal of 51,000 tons. Useful rainfall throughout the dairy districts in June brightened the outlook for the early part of the 1944-45 season.

Butter Production.

Butter production was 101,416,297 lb., valued at £8,546,992, in comparison with 111,511,198 lb., valued at £8,313,827, for 1942-43. The decline in output this year was mainly attributable to the adverse late summer and autumn seasonal conditions. Moreover, the wet conditions in the early summer retarded the preparation of land for the growth of winter fodder crops, and as fodder reserves were depleted in the preceding dry winter very limited reserves were available as a set-off to this year's unusually dry late seasonal conditions. Labour shortage and lack of suitable machinery in many districts prevented the conservation for winter feeding of surplus summer pasture and fodder crops.

Despite the cumulative effect of manpower shortage and other war-time circumstances, butter quality has been maintained, the percentages for the respective grades of all butter examined by Commonwealth and State grading staff being—choice 38,113,432 lb. (52 per cent), first 32,101,888 lb. (43 per cent.), second 3,649,184 lb. (5 per cent.). While the industry must be duly credited for this attainment, it behoves all sections to strive resolutely for further improvement, as quality must become a primary consideration in the eventual post-war competition with the produce of other countries and improved butter substitutes.

Cheese Production.

Cheese production was 24,041,648 lb., valued at £1,159,250, as against 27,730,083 lb., valued at £1,213,183, for the previous year. Seasonal conditions, coupled with the diversion of some supply from cheese factories with the restoration of butter to first priority, were causes of the decreased output in the season just ended. Nevertheless, it was still the second highest output in the history of the industry in this State.

Cheese gradings showed a slightly improved result over those of the previous year, and this continued progressive improvement in quality is a pleasing sign. Of all cheese graded 75·6 per cent. was classed as of choice and first quality, compared with 73 per cent. last year, 24 per cent. second grade, and ·4 per cent. third grade.

Liquid Milk Trade.

Milk quality control work is becoming of increasing importance, as treatment factories are becoming established on an increasing scale, and the Dairy Branch has applied itself vigorously in the past few years towards measures for quality improvement. Under departmental guidance, all milk plants have been assisted to provide and equip a routine testing room, and regular methylene blue, sediment, fat and other tests are now carried out at each plant. Microscopic slides and, where practicable, samples of any inferior milk, are sent to the departmental laboratories for more detailed examination, and field instructional services are rendered with a view to remedying any defect at either the factory or source of production. A pleasing uplift in quality of milk for consumption has resulted from the intensive control now being exercised.

Dairy Industry Subsidy.

A definite restoration of morale in the industry has been noticeable since the Commonwealth Government has increased the amount contributed by way of subsidy, and the serious drift from the industry has been stopped; in fact, in many districts farms are being brought back into production. The Commonwealth Government subsidy was further increased during the year, but its method of allocation differs from the flat payments previously made. The new subsidy was designed specifically to increase production by acting as an incentive to farmers to conserve fodder for "off" season feeding. It provided for an additional payment of 2d. per lb. commercial butter for all production in the eight "non-flush" months of lower production. Its effect is expected to bring the subsidy to an average of approximately 4½d. per lb. commercial butter, based on a production of 180,000 tons in Australia for the year and proportionately more if production exceeds this figure. Certain grains also have been subsidised with a view to the stimulation of dairy production by better stock-feeding.

It behoves every individual producer to profit from the present satisfactory returns, so improving farm efficiency as to enable any subsequent readjustment to changing circumstances to be effected with the minimum of disturbance.

General.

Although shortages of some types of essential farm machinery and equipment are still existent, a rapid improvement in the supply position of most materials has occurred during the year. Organised transport for milk and cream from supply areas to factories is still being satisfactorily maintained. In this connection, close co-operation exists between the Liquid Fuel Control Board, the Directorate of Emergency Road Transport, and the Cream Transport Committee. A serious difficulty is, however, being experienced by many individual producers in obtaining replacements of tyres and spare parts. A large number of Queensland farms are situated some distance from roads traversed by licensed milk or cream carriers, which necessitates the maintenance of a vehicle on the farm. Unless the needs of these producers can be met, the time is approaching when they may be compelled to cease production.

Labour supply still continues to be a vexed problem on dairy farms. As a partial aid to the solution of this problem, the installation of milking machines is continuing to expand.

Details of testing of pure-bred stock for entry into the advanced register of the respective Breed Societies are given below—

Breed.	Passed.	Failed.	Total.
Australian Illawarra Shorthorn ..	97	33	130
Jersey	93	22	115
Ayrshire	9	19	28
	199	74	273

Grade herd testing is still affected by the labour disabilities existent on farms. Fifty-six herds were under test during the year. These herds comprised 1,640 cows, and the total number of tests carried out was 4,463. Consideration is, at the present time, being given by the Commonwealth Government to the inauguration of a uniform scheme for adoption by all States. The rail-rebate scheme on dairy bulls was again continued, seventy-four farmers receiving in rebates £362 17s. 11d.

The number of candidates examined for certificates of competency in dairy manufacture was 120, and included: For milk and cream testing 59, milk and cream grading 42, butter-making 12, cheesemaking 7.

A total of twenty-six articles was contributed to *The Queensland Agricultural Journal* by officers of the branch, a number of the advisory stencils for factory operatives was revised, and several papers contributed at the annual conference of the Australian Factory Managers' Institute were published in its journal "Butter Fat and Solids." Successful field days were held at a number of centres.

Staff.

The numerous extraneous duties performed, especially by field officers of the branch, have necessitated some curtailment of normal duties, but the additional responsibility has been cheerfully accepted.

DAIRY RESEARCH LABORATORY.

Butter, cheese, and milk have again received the full attention of the laboratory staffs at Toowoomba, Hamilton, and Brisbane, and useful work has been accomplished. The volume of work entailed by the milk industry in quality control, field service, and investigational studies has grown considerably, and will undoubtedly increase in the future. Butter and cheese quality has been maintained at a satisfactory level, and the services of officers on this work have been fully taxed in endeavouring to satisfy the requests of factory managements. The chemical engineering service which was instituted last year has done useful work again, and is appreciated more and more as its value is recognised.

Butter.—The Butter Improvement Service completed its fourth year at the end of June, and good results have been achieved for the industry. The following table indicates its value to the industry as a result of improvement in the composition of butter. The Butter Board subsidises this service to the extent of £1,000 per annum.

Year.	Boxes Butter.	Price.	Percentage Improvement.	Value of Improvement Per Annum.
		Per Cwt. s. d.		£
1940–41	2,096,677	143 3	·176	16,000
1941–42	1,708,311	146 9	·310	23,700
1942–43	1,992,074	152 5	·327	30,300
1943–44	1,810,000	152 4	·320	26,800

The following table gives the bacteriological quality index figures for butter over the last four years. These figures are based on tests which are carried out on representative samples from each factory every three weeks—

—	1940–41.	1941–42.	1942–43.	1943–44.
July-September ..	222	298	299	277
October–December	177	224	241	245
January–March ..	171	246	248	235
April–June ..	257	272	243	259

This table indicates that the quality of the butter has been maintained at a satisfactory standard over the last twelve months, in spite of the many difficulties with which the farmers and the factories have had to contend. During the year 3,012 samples of butter from all factories were examined by 18,000 chemical and bacteriological tests. Factories were notified promptly of results, and dairy instructors following up these reports assisted factories in rectifying troubles.

Chemical engineering surveys were directed mainly to butter factories. Fourteen butter factories and six cheese factories were visited, and complete surveys of the chemical engineering features of each factory made. Three other factories, previously surveyed, were revisited for the purpose of carrying out investigational work requested by the factories. Reports, following these visits, were forwarded to the butter factory managements, and a report of the "Practicability and Economics of Refrigeration Units for Cheese Factories" was forwarded to the Cheese Board after visits to the cheese factories. Experimental tests on refrigerating brine corrosion and on pipes for disposal of dairy waste products are in progress.

Cheese.—During the year 820 lactic cultures were despatched to cheese factories from the Brisbane laboratory. This is a service which has been invaluable to the cheese factories throughout the war period. Forty-two samples of whey, starters and water from seven different factories were received for examination for bacteriophage, which was found in nineteen samples. A plan for an experimental isolated starter building has been drawn and arrangements have been made to have this building erected at a factory which has been experiencing trouble with "phage," which at one stage threatened to make cheesemaking impossible. This building will be used to determine its efficiency as a control measure. Investigation into the source of entry of the "phage" into the factories is planned.

Officers stationed at Toowoomba have carried out factory surveys, farm visits and have assisted the cheese industry to maintain and improve the quality of the product. Visits, numbering 120, were made to cheese factories, involving farm and factory work and 20,000 laboratory or field tests. Experiments were carried out in regard to the production of an homogenised cheese. These experiments were followed by the manufacture of a batch on a commercial scale, and cheese from this batch was sent to different areas for advice and comment. Reports were generally favourable, and defects noted will be examined and further experiments carried out to obviate them in future batches. Investigations were also made on water supplies, butter-fat losses in whey, cheese waxing, cheese yield in relation to added calcium salts, stripping versus non-stripping of cows, and lactic culture for cheese making.

Milk.—Samples of milk numbering 10,669 were examined during the year. Of this total 1,023 samples were pasteurised milk. At the factory depots, where tests are made under the guidance of the Dairy Research Laboratory, 58,564 tests on raw milk were made. All of these samples have been tested as part of the programme of quality improvement controlled by this laboratory in close co-operation with and on behalf of the Milk Board. Reports were sent to all producers when the milk failed to reach the required standards. These reports, accompanied with advice regarding the defects and followed by visits from the field officers, have resulted in effecting improvement in the quality of the product of many suppliers.

A re-allocation of duties of officers was made in regard to milk work and this has resulted in giving a better field or "follow-up" service to the producers. In addition to farm visits, the depots and pasteurising plants have also been regularly visited and surveys carried out from time to time.

Investigational work on quality of milk in relation to transport and temperature has been done. The data already collected has furnished valuable information, and the investigations will continue this year. Investigations are also under way with pasteurised milk and with milk used for pasteurising purposes. These involve studies on keeping quality of pasteurised milk and the pasteurisability of raw milks.

Arrangements also have been made for a comprehensive investigation into the composition of milk produced in the Brisbane milk area.

Pasteurised milk has been sampled and tested daily and reports forwarded to the depots and the Milk Board. At least once a week, the pasteurised milk has been subjected to the phosphatase test, and results over the last 12 months have been satisfactory. The fat content of the pasteurised milk has been maintained at a satisfactory level, the average for the Brisbane depots being 3.93 per cent. fat for the year.

Apart from the Milk Board work, service has been given to other milk depots and pasteurising plants as well as to "warm milk" producers. In Toowoomba, the laboratory officer has carried out investigational and control work on milk supplied by that centre.

Miscellaneous samples small in number associated with dairy work were also received and examined in the laboratory.

PIG SECTION.

Some decrease in pig population was recorded as, because of numerous factors, the industry has not yet recovered from the serious set-back when factories were unable to take delivery of all available pigs.

The Commonwealth Pig Meats Acquisition Scheme, which provides a guaranteed price until 30th June, 1945, has established a measure of stability in the industry. It would be an advantage if, in addition to the Commonwealth guaranteed weight and price scheme, there could be some definite assurance that additional cold storage and curing space will be available to cope with the normal increase in production during the spring and summer months of 1944 and thereafter, for it is now the usual practice of bacon curers to cold store a considerable proportion of their monthly intake of pigs, and to gradually release these from cold store as the seasonal decline sets in, or as opportunity offers for shipping frozen pork overseas.

There has been a substantial increase in the demand for stud pigs; in fact, most of the breeders report phenomenal demand, for everywhere there is a drive to improve quality to meet increasing demands for the longer, leaner type of pig. It is evident that breeds like the Large White increase in popularity because of their usefulness in grading up of carcases, and the same can be said of the more lengthy types of Berkshires and Tamworths.

Health of stock is generally good, but there is need for research into diseases and ailments of pigs, especially diseases like brucellosis and swine paratyphoid, which appear to have gained ground in recent years.

The demand for fresh milk for a wide variety of purposes means that less milk is now available for pig-raising, hence some supplementary food must be used. Assurances that wheat deliveries under the Commonwealth scheme will continue and that meat meal, pollard and similar products will be allotted in reasonable proportion to pig-raisers are desirable.

Expansion of the grazing system has meant an increase in the requirements of pig-raisers, for barbed wire, wire netting and for building material generally. Electric fencing is becoming more popular.

There has been little or no improvement in the man-power position, although it is exceedingly difficult to forecast industry requirements. The post-war rehabilitation of returned service personnel in the pig-raising industry should be given attention.

The correspondence course of instruction in pig-raising continues to interest a number of students and is proving of much value in instructional work. Field days, lantern lectures and farm visits all have their place and have received regular attention. There has been a very marked increase in the interest taken in production of better quality stock and at field days and lantern lectures attendances have been remarkably good and an indication of a desire for further knowledge.

E. B. RICE, Director of Dairying.

REPORT OF THE DIRECTOR OF VETERINARY SERVICES.

The work of the veterinary services, like that of most of the other services of the Department, has been curtailed to some extent because of military requirements.

A pleasing experience, however, is the marked appreciation now being shown by the stock owners in those districts where it has been possible to place veterinary officers, and a reflection of this attitude is the increasing number turning to the veterinary services for advice in disease control.

Disease control does not merely embrace the investigation of stock losses of spectacular magnitude and the application of appropriate measures of control, but rather the education of the farmer and stock owner in methods that he can, to a large extent, very often apply himself if assisted and properly advised. Many owners in the past have adopted the view that because of disease some losses have to be recognised as part of the general scheme of things; in other words, they

become resigned to such a state of affairs. But when it has been pointed out to them, as has been done so often by the field officers, that a little effort on their part, together with the assistance of the veterinary officer, losses can be prevented, they have been usually very willing to alter their views.

Throughout the year the disease situation remained much the same, although buffalo fly has extended its hold considerably and has overrun some first-class country during the last few months. The cattle tick, because of the favourable season, has been very active, and dipping has been intensified in some areas.

ANIMAL HEALTH STATIONS.

Both Stations, Yeerongpilly and Oonoonba, have been concerned mainly with diagnostic work and the vaccination of cattle for tick fever. The enhanced price of beef cattle has resulted in a very active market for the better class of bull, and the importations into this State from southern studs has been on the increase for some time. In addition, many owners of dairy herds are importing better class sires and adding good quality heifers to their herds. Where these animals have been bred on clean country and then sold into tick infested areas, vaccination against tick fever is essential.

DISEASE CONTROL.

Cattle.

(i.) *Cattle Tick and Tick Fever.*—Tick fever outbreaks have been spasmodic, as they always are, particularly in Southern Queensland. In the aggregate, many valuable stock are lost during the year. It seems inevitable that this state of things must continue as long as there are ticks and where, under the conditions under which stock are maintained on many properties, owners do not see animals very often for many days at a time, hence are not in a position to treat them before it is too late.

Cattle ticks have been very active, and have been carried on several occasions by tavelling stock for some distance out of infested into clean areas. At some of the clearing points great difficulty has been experienced in freeing cattle from the parasites. It would appear that increased resistance to destruction by the ordinary methods of treatment, *i.e.*, the arsenic dipping vat, is becoming marked. One mob of cattle, which had only been exposed for a week in tick country, were treated twice before release, yet were found to be heavily infested a short time after reaching clean country. This is contrary to usual experience. Other mobs have been held up at clearing points for as many as six treatments at weekly intervals before movement was allowed. The problem is likely to become a very serious one in this State because many of the cattle bred in the tick-infested areas find a market in the fattening areas which are well outside the tick areas, and for that reason the flow of cattle out of infested into clean areas reaches considerable proportions at certain times of the year.

At the present time, a considerable amount of investigational work is being done on the subject of what might be called, perhaps, "arsenic resistance" in ticks. This work is being carried out conjointly by the Council for Scientific and Industrial Research and the Department of Agriculture and Stock, and is under the control of a special committee comprising members from both organisations. Much ground work has already been done.

(ii.) *Buffalo Fly.*—The fly has continued to spread. Inland it has reached Clermont; on the coast it is a few miles south of Bowen, its southern boundary being roughly along a line joining these two places and running through Nebo west of Mackay. It is approaching some of the best breeding and fattening areas in the State and, although quiescent at the present because of the cold weather, there seems to be little doubt that it will spread further south when the warmer weather commences. For a time no cattle movements were allowed south of Bowen, but with the building of spraying plants at Clermont and at Yaamba (north of Rockhampton) cattle can now proceed south by rail from these points after suitable treatment. Fly movements throughout the State have received little assistance from travelling cattle, although the general movements of stock have been such that it might be expected that some assistance would be given to the fly in its encroachments into non-infested country. Many thousands of cattle each year, and over a period of some years, have travelled out of the infested areas of the Gulf country to the Townsville meatworks, but at no time has the fly been taken out. In all cases, the treatment given these cattle before trucking has been adequate, and the fly eventually reached the eastern coast of Australia only by steady infiltration. It has continued this process of gradual extension, and there seems little doubt that it will keep on doing so for some time at least. The only control at present feasible is to keep moving the spraying plants ahead of the fly, to allow cattle to move out only at specified points on the railway, and to treat such cattle before movement.

In regard to control measures in the infested areas, a considerable amount of work has been done by the officials of the Council for Scientific and Industrial Research working in conjunction with departmental officers, both in respect of control by trapping and destruction of the fly by the use of sprays. Trapping has been found to be very effective, and on one dairy farm where an experimental trap has been used the reduction in fly incidence has been very marked and the pest readily controlled. The trap used has been built on the lines of the American horn fly trap. Little difficulty has been experienced in accustoming animals to pass through it, and after they become used to the procedure they enter quite readily. The principle of the trap is quite simple. The animals pass through a narrow passage where the flies are brushed off by hanging curtains and fly immediately towards the trapping elements at the sides which are well lighted, these elements being so constructed that ingress is easy but egress very difficult. Plans of the trap have been already completed, and these, together with a statement concerning the life history in pamphlet form, will be available for the use of farmers within a short time.

Spraying materials have also been tested, and at least one of the newer preparations has been found to be very effective. However, there are certain difficulties in connection with the use of these materials which have yet to be overcome, and work is still proceeding.

While it is recognised that the use of traps and sprays may help to control the fly on the dairy farms, control in the grazing areas will be entirely different. It is very difficult to see how sprays and/or traps could be used on the grazing properties, particularly the larger ones. Cattle on dairy farms usually come into the milking yard twice daily, and traps can be so arranged that the cattle pass in and out of the yard through the trap, but the matter of arranging traps where cattle can go through them frequently on a grazing property is a problem not easy of solution.

(iii.) *Pleuropneumonia Contagiosa of Cattle.*—Outbreaks of the disease continue to occur, particularly in the northern breeding areas, where the disease has a firm hold and where it is enzootic. Large numbers of animals develop a mild attack, then appear to recover, and no doubt often remain carriers. As the northern areas act as a reservoir from which large numbers of cattle are drawn for distribution throughout Southern Queensland for fattening, outbreaks of disease frequently result from the movements of these cattle.

Doses of vaccine numbering 357,650 were distributed in the State. There were forty-four officially recorded outbreaks of the disease.

(iv.) *Tuberculosis.*—Work on the testing of cattle, particularly in dairy herds, has been seriously curtailed, largely because of the difficulty in the disposal of reactors. No owner wishes to retain reactors in his herd after the test has been completed, and practically all have difficulty in isolating such animals from the remainder of the herd. Nevertheless, much testing has been done, particularly in herds where the incidence is low and where owners have been prepared to dispose of the animals on the property. These animals represent almost a dead loss, and excepting the hide there is no salvage whatever. The desire is that satisfactory arrangements may be made before long for reacting animals to be killed at a central depot.

Tests carried out on some of the herds in the Brisbane area suggest that the incidence of the disease is not as low in some of them as would be desirable. A large number of animals in herds supplying milk to military camps has also been tested.

In a few special herds which have shown a high incidence at the initial test, it has been found very difficult to clear up the disease. In some of these cases there is no doubt that the disease has been spreading at an alarming rate, and unless tests are spaced at sufficiently short intervals the incidence cannot be reduced to manageable proportions. On some properties a very high incidence has been found in calves a few months old, thus suggesting gross contamination of the milk. It is well known that the very bad generalized case of the disease may not react to the test, and this animal is undoubtedly the source of much of the trouble. Sufficiently short interval testing is the only way in which this difficulty can be overcome.

At the present time, although there are many herds free from the disease, there are no tubercle-free areas. With the increase in testing, it may be possible to declare tubercle-free areas, particularly around the larger towns.

A commendable innovation in connection with the tuberculin testing of cattle is the insistence this year for the first time by the Royal National Association of Queensland that all cattle presented at the annual show sales in August must carry a certificate to the effect that they have been tested for and found free from tuberculosis.

Although tuberculosis has, generally, a higher incidence in dairy cattle, it is by no means confined to these herds. A recent test of a large stud herd of beef shorthorn cattle running on pasture not heavily stocked, and where the animals

do not come into such intimate contact as they do in a dairy herd, showed a high percentage of infected cattle. Many bulls from this herd which had previously been removed to other properties were also tested and these too showed a relatively high incidence.

(v.) *McKenzie River Disease.*—This disease of cattle derives its name from the district in which it occurs in Central Queensland. At times it causes heavy losses, particularly during a dry spell towards the end of the year. It is restricted to certain fairly well defined areas and seems to be associated with certain types of vegetation. Experiments have been commenced in the area to determine if possible the etiology of the complaint. These experiments have given certain results which may lead to a solution of the problem. The owners say that it is not economic to use some properties in the affected area for cattle during dry periods.

All cattle affected with this complaint do not die, but many of them lose condition and fall away so rapidly that even when removed to fresh pasture they are often difficult to fatten. The disease is associated with peculiar eye lesions as well as disturbance of the excretory system. Work on the problem is being continued.

(vi.) *Brucellosis.*—This disease is well established in the dairying districts and presents a formidable problem for a small staff to deal with. A striking feature of this complaint is the large number of farmers who appear to be just beginning to realise the great economic loss steadily going on in their herds through the ravages of this disease. With some owners it is accepted that the cows will abort at least once and sometimes twice in the early part of their career in the milking herd. Notwithstanding the high initial loss often inflicted on an owner by the removal of reactors when he decides to eradicate the disease, many farmers have accepted the position and have gone on with the scheme.

No attempt has yet been made in this State to vaccinate against this disease, but it is hoped that something may be done along these lines. Vaccination has already started overseas and is assuming considerable proportion, while preliminary tests have already commenced in at least one of the southern States.

One high class stud of beef cattle recently tested showed a relatively high incidence, several imported cows being positive to the test.

(vii.) *Mastitis in Dairy Cattle.*—The disease has a very firm hold on many of the dairy herds and there appears to be no suitable method which can be relied on to eradicate it in a reasonably short period of time. Nevertheless much can be done by accepting and following certain well established rules of hygiene, both in respect of the infected animal and the machines and/or milkers. Badly infected cows should undoubtedly be removed from the herd.

Some preliminary tests with sulphanilamide suspended in paraffin oil, a method recommended by some overseas workers, have been completed and although a temporary improvement was apparent in some animals, it was only of short duration and streptococci reappeared shortly afterwards in most of the treated quarters, and several developed clinical mastitis. Probably the cause of failure lay in the inability of the suspension to reach the more remote parts of the milk sinuses of the udder tissue.

(viii.) *Internal Parasites of Cattle.*—Outbreaks of disease caused by internal parasites have been frequently observed along the coastal littoral particularly in young stock. in some instances, losses have been considerable. The most commonly observed parasite is *Haemonchus contortus.* Lung worms have also been found in young calves, particularly on dairy farms, as well as a variety of less common parasites.

(ix.) *Miscellaneous.*—A variety of other conditions some of which are under investigation, have been observed.

A disease involving considerable losses in cattle has occurred in the Bundaberg district, where on one or two properties there has been a steady mortality over a period of some years, mainly of older cattle. It has been suspected that bracken fern may be involved, because this plant is common on these properties, but the exact etiology has not been determined.

Mycotic dermatitis in cattle has also been seen on a western property, involving some losses. The disease has now been recorded at three widely separated points in the State. Deaths of cattle in and around some of the Georgina River properties in the west have also been reported. The condition may at times assume quite serious proportions. It has been the subject of previous investigation, but the cause has not been determined. The fact that the losses are confined to certain areas suggests that it is probably caused by a poisonous plant. Several known poison plants grow in the area and it is suspected that some of these are involved. Further work is required on the problem.

Poison plants of which there are very many in the State have been the cause of some losses in cattle. A heavy mortality caused by Ellangowan poison bush (*Myoporum desertii*) occurred recently in travelling cattle in the Clermont district.

Sheep.

In the sheep pastoral areas, the most important disease conditions observed are—

(i.) *Blowfly.*—Reports indicate that the fly has been bad at times, although outbreaks have been more or less spasmodic. Good rains fell over most parts of the State—except in the South West—during the early part of the wet season and caused an increase in the strike incidence. Since then, reports indicate that the fly has been less active.

The educational work which commenced some years ago with a number of schools of instruction in blow fly control throughout the State have been continued where possible. These schools are of very great value to the industry. The Mules operation and jetting have been demonstrated to many graziers at these schools, but even this does not ensure that the methods will be applied properly, so many visits have to be made to properties to make sure that the principles are being properly applied. This is essential, because it is often found that owners and/or their employees do not always apply the correct methods, and for that reason unsatisfactory results often follow and the remedies are condemned. By correctly performing the Mules operation and providing the correct tail length in the lambs, the incidence of breech strike can be very appreciably reduced.

(ii.) *Sheep Parasites.*—Parasites are always bad in many districts when weather conditions are favourable and much educational work is necessary to ensure that correct control methods are followed and the parasites thereby kept within reasonable control. Methods of treatment have been demonstrated at the various schools which have been held. It cannot be disputed that if owners adopt proper methods of treatment at the most favourable period of the year, and combine these with correct methods of grazing, the incidence of these parasites can in most instances be reduced.

Surveys dealing with the incidence of the various internal parasites of sheep are now being carried out on various properties throughout the State, and represent a conjoint effort conducted by officers of the Council for Scientific and Industrial Research and departmental officers.

(iii.) *Dermatitis* of the legs in sheep.—A condition has been recently seen in some of the sheep districts west of Rockhampton in which the main lesion appears to be a "scabby" condition of the legs. There is a marked dermatitis followed by breaking of the skin with ulceration and general thickening of the epidermis. Marked irritation is observed, the animal rubbing and scratching the affected area. The cause is unknown. Further investigation is necessary, and it is hoped that some work will be undertaken in the early summer when the trouble appears to be most prevalent.

(iv.) Miscellaneous.—Other conditions observed are as follows:—

Pregnancy toxæmia has been frequently observed in lambing ewes during the early part of the winter. In some cases losses have been heavy. It seems at times to be associated with a hypocalcæmia.

Labial dermatitis is common in various districts, particularly in the younger sheep.

Poison plants cause considerable losses in some of the sheep districts. The most common of these plants are soda bush (*Threlkeldia proceriflora*) and the two wild sunflowers (*Weddelia asperrima*) in the North, and (*Verbesina enceliodes*) in the South.

Salt poisoning has been observed under rather unusual conditions. The bore water on one property contained a fairly high salt content, and this was increased to a considerable extent by continuous surface evaporation from the storage tank. Finally the salt content became high enough to produce symptoms of poisoning.

Swine.

Serious outbreaks of disease in swine are unusual at any time, but in the aggregate the losses which do occur each year, both from infectious disease and nutritional disturbances, are heavy. These losses have been aggravated during the last year particularly because of a large increase in the number of pig-raisers new to the industry. This increase has been partly the result of the higher prices for pork products and partly because of the large quantity of kitchen refuse now available from military establishments for pig feeding. The new recruits to the industry mostly buy their store pigs wherever available, and there is considerable traffic in these animals. Moreover, having little knowledge of hygiene and feeding methods, and being handicapped to some extent by shortage of labour, the conditions under which the animals are kept leaves much to be desired.

(i.) *Tuberculosis.*—The tuberculin testing of dairy herds and the eradication of the reactors has a marked influence on the incidence of the disease in pigs in some districts. Nevertheless, the number of pigs entering the factories and showing lesions of tuberculosis on *post-mortem* is far too high. With staff shortage it is very often difficult to apply remedial measures on many of the farms where the disease occurs.

(ii.) *Brucellosis* has been observed in several instances, particularly in breeding studs. Quarantine measures are now being applied in all cases where the disease is found, and the testing and destruction of reactors is insisted on. Stud herds are undoubtedly the worst source in this respect, particularly as there is much more traffic in pigs between these piggeries than in the case of commercial establishments. In several cases carcases of reacting animals have been examined, and no great difficulty has been encountered in isolating the causal organism. Strains of brucella isolated appear to have a high degree of virulence for laboratory animals.

It is hoped that the testing of stud piggeries will be greatly extended.

(iii.) *Paratyphoid.*—This disease of swine is very common, and is a difficult disease to control. The indications are that with the increase in traffic in pigs the disease is spreading, and this is what might well be expected with a disease so contagious. Many pigs appear to "recover," but really develop into chronic cases, and since such pigs often do not develop and reach maturity they represent a considerable economic loss to the grower.

(iv.) Miscellaneous.—Locomotory disturbance probably of nutritional origin has been very frequently observed.

Ascaris infection of young pigs with consequent pneumonia and liver damage is common on some farms.

Swine erysipelas, recorded for the first time in the last report, has been suspected during the last year on several occasions, but recent attempts to isolate the organism have not been successful. It is believed that the disease is much more widely spread than was at first suspected. This condition can quite easily become a major problem.

Swine influenza is believed to exist in this State, and is probably widespread. The symptoms seen correspond with the description given as common in this disease. Some work on the problem has been attempted.

Horses.

The following conditions have been observed, but up to the present have not been made the subject of any special investigation.

(i.) *Blindness.*—A peculiar form of blindness has been seen in horses in one district. Sometimes two or three horses on the one farm are affected. According to reports the initial symptom is a mild conjunctivitis which may clear up in a short time only to recur again at a longer or shorter interval. At a later date a cloudiness appears in parts of the lens, and this gradually extends until the organ is quite opaque. In all cases both eyes have been affected.

(ii.) *Ataxia.*—An unusual condition has been seen in one northern district, the main symptoms of which appear to be an ataxia involving the hindquarters. The worst cases are associated with loss of condition, gradual weakness, and finally exhaustion and paralysis. Recovery is said to occur in many cases, and second attacks at a remote period are believed possible. A condition resembling the foregoing has also been seen in one southern district as well.

Poultry.

Pullorum disease has been on the increase. This is, no doubt, due to the fact there are many hatcheries which are not periodically tested, if they are tested at all. The increased number of growers, particularly around the larger towns, has brought the condition into prominence. Leucosis is very widespread and is now a major problem. A mortality due to a salmonella, not yet identified, has been observed on a property on which many ducks were reared was investigated. The testing of all birds and the elimination of all those giving a positive agglutination test eventually eradicated the disease.

JOHN LEGG, Director of Veterinary Services.

REPORT OF THE CHIEF INSPECTOR OF STOCK.

The statistical position of animal husbandry in Queensland is set out in the following table:—

Horses	387,018
Cattle	6,524,550
Sheep	23,255,584
Swine	450,391

The cattle population, as was the case in the previous year, remained at a high level and increase in pigs also is recorded, while sheep show a decline in numbers.

Irregularity of rainfall was again the general experience in the pastoral districts. In the northern portion of the State storm rain did not fall until late in the season, and was followed by a very light wet season and absence of the usual heavy monsoonal falls. Fair grass rains were recorded in the southern part of the State in the early part of the year, but were insufficient to replenish surface waters. The non-occurrence of a general wet season, however, saw many of the pastoral districts heading into a winter with anything but favourable prospects in respect of grass and water.

Generally, the condition of stock throughout the period under review has been fair. Fat cattle from some districts have been disappointing, but some prime lines have otherwise been coming forward. There have been no abnormal losses from disease; 44 were quarantined for contagious pleuro pneumonia as compared with 40 in the previous year.

Stock values maintained a high level throughout the year and this has been reflected in the increased numbers of stud and herd bulls introduced. The demand for both fat and store cattle has been keen. Meatworks buyers have been active throughout the twelve months, although fat cattle have latterly been scarce and some local butchers have been experiencing difficulty in supplying requirements. Southern buyers have operated freely and a total number of 226,566 cattle and 802,292 sheep crossed the border into New South Wales during the period under review.

Quality horses continue to be in demand and good prices are being obtained.

Twenty-five convictions were obtained in prosecutions instituted under *The Diseases in Stock Acts* in the course of the year.

Buffalo Fly.

After the heavy rainfalls in February of this year, the buffalo fly made rapid progress from its invasion point at that time on the Burdekin River to Clermont. In order to allow movements of stock, particularly fat cattle, it was necessary to remove spraying plants to other places of advantage for control measures. Spraying plants are now operating at Hughenden, Aramac, Clermont and Yaamba, and are situated on the extreme southern boundaries of the fly-infested area between infested and clean country. Staff adjustments have been necessary in connection with control measures.

Tick Cleansing.

Again, this year, because limitations of field staff, there have been no extensions to the existing cleansing areas. In these areas, ticks did not appear to be as troublesome as the previous year and did not become numerous until the beginning of February, because mainly of the severe winter and continuous dipping. In cleansing areas, the impounding of straying stock by local authorities has been a factor in minimising the spread of ticks and this co-operation has been appreciated. Continued progress is being made in the Injune infested area.

A small number of isolated tick outbreaks from introduced stock in the Toowoomba and Warwick stock districts have been rigorously controlled by the use of effective restrictions and regular inspections and treatments.

Slaughtering Legislation.

Despite the many extraneous duties that field officers have had to carry out during the past several years, reports indicate that slaughtering premises and butcher shops are being generally maintained at the standard required by *The Slaughtering Act* and *Regulations.*

Necessary repairs to slaughter-houses and butcher shops have been carried out, but shortages of materials, particularly gauze, have had to be contended with. White paper for the wrapping of meat has also been in short supply at times.

The restriction on building has necessarily limited the erection of new slaughtering premises and shops.

There were ten prosecutions instituted under *The Slaughtering Act* and *Regulations* and convictions were obtained in each case.

Butcher shops and delivery vehicles in the metropolitan abattoir area have been subjected to regular inspectional supervision during the year, and, in the main, cleanliness and hygiene is being observed. With the advent of meat rationing a closer watch has had to be maintained in order to prevent illegal slaughtering and the illegal introduction of meat into the area.

Bacon Factories.

The annual decrease in the number of pigs slaughtered at bacon factories has been arrested, a total of 370,652 being killed during the last twelve months, as compared with 370,516 for the previous year. As the average individual weight of pigs treated at factories over the period under review has considerably increased, the number of pigs treated compared with the number treated for the previous twelve months, does not give an adequate representation of the increase made in bacon and pork supplies. Out of the total number of pigs killed 12,945 were diverted for export, as compared with 487 in the previous year.

In addition, 40,512 cattle, 17,322 calves, and 11,370 sheep were slaughtered at bacon factories, mainly for canning and small goods purposes.

Condemnations of swine for tuberculosis numbered 2,356 carcases and 9,893 heads, as compared with 2,023 carcases and 13,297 heads for the corresponding period in 1942-43.

Recognising the value of pig condemnations in tracing the incidence of tuberculosis in dairy herds, follow-up work in the field continues to be undertaken.

Summary of Stock Slaughtered.

The summary of all stock slaughtered for home consumption throughout the State, exclusive of stock killed for export and on farms and stations for private use, is as follows:—

Inspection.	Bullocks.	Cows.	Calves.	Sheep.	Swine.
Bacon Factories	4,012	36,500	17,322	11,370	357,707
Brisbane Abattoir ..	60,296	66,847	94,633	774,841	10,686
Departmental Inspection	57,243	71,779	29,866	380,898	19,380
Police Acting Inspectors ..	30,179	36,294	5,616	128,637	6,046
Totals	151,730	211,420	147,437	1,295,746	393,819

L. D. CAREY,
Chief Inspector of Stock.

REPORT OF THE SENIOR INSTRUCTOR IN SHEEP AND WOOL.

At the commencement of the year, seasonal conditions throughout the sheep pastoral regions of the State were normal. Useful to flood rains fell during early summer and were followed by good late summer registrations. Except in the South-Western pastoral country, odd showers and mild conditions during the early winter have provided an assurance of safety for several months to come. Flood rains in the North-West benefited the flat country further south, resulting in a rich growth of clovers and herbage. In the near south-western and the Western Darling Downs, the early summer rains were light, while practically no follow-up rains occurred during the remainder of the season. Consequently supplementary and scrub feeding became necessary over a big proportion of this country. Not only did flock losses occur during this dry period, but for the safety of the ewes they were not mated. Recent rains were not sufficient to give relief, but these with the mild winter up to the present, have been helpful, and have given promise of an early spring.

The number of ewes mated during the year was 7,875,112, from which 3,536,173 lambs were marked. This increase, however, has not been sufficient to make up the deficiency caused by deaths and slaughter for domestic and export consumption.

Besides the reduction caused by a lesser number of sheep being shorn, a slight decline from 8.39 lb. for 1942-43 to 8.21 lb. in average fleece weight is reported for the 1943-44 year, largely because of prevailing unfavourable conditions in the South-West area.

Fat sheep consignments to the Cannon Hill saleyards showed little decrease in numbers, while the condition of the sheep generally was satisfactory. Values varied somewhat, but recent prices were high at 6d. per lb. dressed weight, plus skin value.

Store sheep were in moderate demand during the year at prices rather low in view of the guaranteed price of wool, but transport and the lack of experienced drovers were among the chief contributory causes. The number of lambs fattened for market has not substantially increased, but the age and quality of those brought forward reflected credit on growers' judgment in the selection of sires and their system of fattening at a suitable age.

Climatic conditions suitable for the production of cultivated crops have a big influence on fattening at the correct age, and some disadvantage in this respect was experienced on the Darling Downs.

Registered stud flocks records show a gradual increase in number, and include Merino, Corriedale, and British breeds —a most encouraging indication of progress.

The shortage of experienced station hands is a handicap against efficient management, especially on holdings where breeding is carried on.

The health of the stock generally has shown an improvement, due largely to the drier conditions prevailing over the worm-infested areas. Sheep lice, however, have been recorded still further west, chiefly as a result of better conditions prevailing there, and movement of infested sheep to clean routes and pastures from the areas which missed the summer rains. Blowflies gave very little trouble over the most of the sheep pastoral regions, a fortunate circumstance because of the scarcity of labour on most holdings. In the North and Central-West, where frequent falls of rain occurred, blowfly occurrence developed into serious proportions during the late summer months.

Field days were held in several centres, where practical demonstrations in disease and pest control were given. Similar instructional work was carried out on owners' holdings, including the classing of breeding flocks. Sheep breeders are taking a keener interest in this important branch of flock management. This practice, with the use of better rams of a type suitable to the district, has been stressed where breeding is practised, whether for wool or for fat lambs.

The use of the Corriedale and British breeds is being introduced into the areas further west, chiefly for the purpose of breeding-up crossbred and comeback ewes to supply the growing demand for these types in the fat lamb raising district.

Wool production during the year was above normal when 610,514 bales were appraised in the usual satisfactory way, and for which values approximated £13 millions.

Farmers' Wool Scheme.—The practical assistance given to small flock owners and those running crossbreds, Corriedales or British breeds in the preparation of their wool for market was fairly well supported. Manpower problems at the commencement of the season have been overcome, and satisfactory progress is now being made. During the year 562 bales were classed and appraised for which the splendid average of 13.72 pence per lb. was obtained, as a result of the thorough system of classing practised.

JAS. CAREW,
Senior Instructor in Sheep and Wool.

REPORT OF THE POULTRY EXPERT,

Poultry-raisers have had to face many difficulties during the period under review, the principal of which has been the shortage of fodder and material. Notwithstanding these and other difficulties, production in the controlled area for the year ending 30th June, 1944, reached the total of 7,490,643 dozen eggs. This is approximately 250,000 dozen eggs greater than for the year 1943.

Control is only exercised over an area south of Rosedale, consequently no accurate production figures are available throughout the State, but a definite upward trend in production is indicated. There is every reason to believe that the 1944-45 production goal of 8,500,000 dozen eggs within the controlled area will be obtained.

The sale of poultry fodder and incubators indicates a very great increase in activity in this industry. One firm is selling prepared laying mashes sufficient to feed 1,800,000 layers. To this figure, the quantity sold by other firms, and the quantity of home-mixed mashes used have to be added to give an idea of the total number of laying birds that are being fed. If these mashes are being used exclusively for laying stock, this class of fowl is well in excess of 2,000,000, therefore the State's production should more than double the production objective set.

The sale of mammoth incubators is another indication of activity. For the year ending 1943, incubators to the capacity of 253,700 every three weeks were installed. In the course of the first half of 1944 additional machines with a capacity of 447,000 were purchased by hatcheries. Every known hatchery within the State is working to capacity, to supply the demand for day-old chickens.

Egg and Poultry Values.—The average net price for eggs paid to growers has been approximately the same during the year as that received by growers during the preceding twelve months. Table poultry values were exceptionally high during the first few months of the year, but, later, maximum prices were fixed. The maximum fixed price per pound for cockerels is sufficient to stimulate the raising of cockerels for culinary requirements, and the maximum for hens, although still good, is a deterrent to the indiscriminate slaughter of hens for table purposes. It is considered that the high table value of poultry during the early period of the year was the reason for the slaughter of many hens that should have been retained for egg production.

Stickfast Flea Control.—A vigorous programme of work was commenced in November, 1943. From then until June, 1944, inspections were carried out on 700 properties; treatment had or was being carried out on 102 properties; and on the last inspection of properties which had received treatment, 63 were apparently clean.

P. RUMBALL, Poultry Expert.

REPORT OF THE REGISTRAR OF BRANDS.

DETAILS OF REGISTRATIONS, TRANSFERS, &C., FOR YEAR 1943-1944.

—	Number.	Fees Received.	Number since Inception of Legislation.
		£ s. d.	
Three-piece horse and cattle brands registered	706	706 0 0	91,049
Cancelled horse and cattle brands reallotted	317	951 0 0	7,874
Horse and cattle symbol brands registered	84	630 0 0	1,900
Cattle earmarks registered ..	678	678 0 0	20,211
Horse and cattle brands transferred	1,570	785 0 0	63,205
Sheep brands and earmarks registered	84	46 5 0	13,347
Sheep brands and earmarks transferred	102	25 10 0	7,108
Distinctive brands registered ..	10	No fee	..
Alteration of address of brands ..	251	No fee	..
Brands cancelled	11	No fee	..
Earmarks cancelled	106	No fee	..
	..	£3,821 15 0	..

There has been a decided increase in the numbr of registrations of cancelled brands, symbol brands, cattle earmarks, and transfers of horse and cattle brands and sheep brands and earmarks, compared with the figures for 1942-43.

Registrations of ordinary three-piece brands, sheep brands and earmarks, and distinctive brands show a slight decrease.

The fees collected were £567 in excess of those for the previous year.

Close attention is being given to the inspection of brands and earmarks at the Cannon Hill Saleyards, with the result that a considerable number of irregularities in branding and earmarking have been detected.

The action taken by advising owners of their obligations under the Acts regarding branding should have a beneficial effect in the direction of minimising the excessive branding of hides.

It is expected that the printing of the next issue of the Horse and Cattle Brands Directory will be commenced at the end of the year. Owing to the war and the necessity for curtailing expense, the printing of the Directory has been held in abeyance, the last issue being complete to the end of 1940 only.

F. GIBNEY,
Acting Registrar of Brands.

REPORT OF THE AGRICULTURAL CHEMIST.

During the past year a number of investigations, operating on a conjoint basis with other branches of the Department and with the Commonwealth Bureau of Scientific and Industrial Research, have yielded useful results. The Soils Laboratory has co-operated with the Division of Plant Industry (Research) in vegetable production studies. The programme has involved an increased amount of laboratory and field work. The results, so far obtained, have entirely justified the venture, and it is proposed to expand this system of individual farm soil surveys and fertilizer trials to other districts and crops.

An unusually large number of waters was submitted during the drought months for examination, either to determine their usefulness in irrigation projects or their suitability for livestock. This service promises to become an important section of the laboratory.

It is interesting to record new sources of fluorided waters. Several years ago observations on endemic fluorosis in sheep were begun. This trace element malady was not known in Queensland until recent years, since when work done in this laboratory has shown that abnormally high fluorine content, in certain waters, has resulted in serious economic loss. Other laboratories have confirmed our results. The exceptional figure of forty (40) parts per million has been recorded, though most of the results lie between two (2) and ten (10) parts. These are toxic levels for children but, whereas humans have alternate sources of water and the cost of defluoriding household supplies is small, it becomes an industrial undertaking to reduce the fluorine content of high output bores to innocuous levels.

There is reason to believe that this trouble is widespread and is sufficiently important to merit more than passing interest by Governments and local authorities.

Research on the so-called arsenic resistant tick (*Bo-ophilus Australis*) has led this laboratory into an extensive series of experiments on arsenical dipping fluids. Until the work is complete no details will be released, but those interested will be glad to know that many causes of inconsistencies in the past have been elucidated and the position generally, with regard to testing, has been clarified. The work has been conducted in collaboration with the Commonwealth Bureau of Scientific and Industrial Research and the Veterinary Branch of this Department.

The routine procedure of analysing human and animal foodstuffs, checking the composition of pest destroyers, veterinary medicines and fertilizers, has been maintained.

Drought feeding and its antithesis, stud feeding, have occupied prominent positions in the advisory services of the Branch.

Numerous committees associated with problems of a wartime nature have utilized the services of the laboratory and its staff.

Farmers and graziers in increasing numbers seek advice on soils, fertilizers, waters and fodders.

The number of poison cases requiring analyses of food, ingesta, and organs has been too high. Repeated warnings regarding the careless disposal of arsenic and the inadequate protection afforded stock on "poisoned" country, call for special mention, and yet another plea is made to producers to do all in their power to reduce these avoidable losses.

Though staff numbers are more than 50 per cent. below normal strength, there has been abundant evidence of their industry. This has, in large measure, been made possible by the introduction of new methods and more modern equipment. It is a sterling tribute to Great Britain that she supplied most of these new units in her most difficult hour.

MONTGOMERY WHITE,
Agricultural Chemist.

REPORT OF SEEDS, FERTILIZERS, VETERINARY MEDICINES, PEST DESTROYERS, AND STOCK FOODS INVESTIGATION BRANCH.

The following table sets out the work for the current year and comparative total figures for the last two years:—

—	1944.					Total.		
	Seeds.	Fertilizers.	Veterinary Medicines.	Pest Destroyers.	Stock Foods.	1942.	1943.	1944.
Samples received from—								
Inspectors of this Branch	366	4	..	..	..	1,452	1,018	370
Chief Quarantine Officer (Plants)	1	..	..	..	..	5	1	1
Dealers	1,086	10	..	31	157	2,063	1,465	1,284
Buyers	22	1	..	1	1	57	19	25
Government Departments	147	2	..	1	5	280	236	155
Referee, Repeat and Experimental Tests	432	..	..	..	..	334	528	432
Total Samples dealt with	2,054	17	..	33	163	4,191	3,267	2,267
Licenses issued	..	213	378	..	..	628	566	591
Registrations effected	..	161	36	178	110	811	942	485
Registrations refused	..	..	3	..	..	15	17	3
Board Meetings	..	..	2	2	..	16	7	4
Number of inspectional visits made to localities other than Brisbane	1	3	..	..	1	9	11	5
Analyses carried out for this Branch by the Agricultural Chemist	..	17	..	5	5	161	43	27
Prosecutions	..	..	..	..	..	..	1	..

Seeds for Sowing.—During the year 2,054 samples were received at the Seed Testing Station; 366 were taken by inspectors of the Branch; one received from the Chief Quarantine Officer (Plants); 1,086 from seed dealers; 22 from farmers; 147 from other Government sources; 432 representing experimental work; and 148 analyses were carried out on bean seed for the Commonwealth Government.

Of the seed samples, 71 examined did not reach the germination standard.

The prohibited seeds of *Datura sp.* was found in samples of sudan grass, sorghum and oat seeds; also dodder in lucerne and Johnson grass (*Sorghum helepense*), and in sudan grass seed samples. Unfortunately, because of shortage of staff, it has not been practicable to take the usual action of seizure in such cases.

Experimental work was carried out on beans, beet, carrot, peas, maize, peanuts, sorghum, sudan grass, and tree seeds.

Fertilizers.—Fertilizer registrations numbered 161; 213 fertilizer licenses were issued, and 17 samples received and analysed by the Agricultural Chemist.

Pest Destroyers.—The year 1944 was the second in a three-yearly registration period; 178 pest destroyers were registered, 33 samples received, and five samples analysed by the Agricultural Chemist.

The ravages of buffalo fly in North Queensland resulted in the recent submission of three preparations which purported to control this menace. To date only one of them has been approved and registered.

In the course of the year several pest destroyers were in short supply, the most noteworthy being arsenate of lead, derris, and nicotine sulphate. A quantity of nitotine sulphate was imported and quotas allotted to the several States by the Department of Commerce and Agriculture. Distribution to and within Queensland was supervised by this Branch, and it is felt that although the material was in short supply most farmers were able to obtain sufficient for their needs. Derris, an important non-poisonous insecticide, has been practically unobtainable in this State for several years. Early in 1944 a shipment of timbo (a derris substitute) was received into Australia. Unfortunately, it was found to be low-grade material and to require further grinding. Difficulties encountered have held up production of finished dusts, and to date very little has been obtainable. A very serious shortage of arsenate of lead has prevailed throughout the period; however, sustained efforts to determine and eliminate causes of short supply have been made. Increased quantities should be available in the near future.

Veterinary Medicines.—Registrations amounted to thirty-six, this small number being due to the fact that the three-yearly registration period ends on the 31st January, 1945, most preparations having been already registered. Three preparations were refused registration by the Veterinary Medicines Board, which had two meetings. The number of licenses issued numbered 378.

Stock Foods.—Registrations totalled 110, as against 182 in the previous year. It should be noted that a considerable number of applications for registration have been held pending the launching of a scheme of control for bran, pollard, and meat and other meals. The number of samples received totalled 163, while five samples were analysed. Under recently gazetted *National Security (Agricultural Aids) Regulations* control is now exercised over supplies of bran, pollard, blood meal, meat meal, and meat and bone meal. Priorities have been established with respect to the disposal of these materials to essential users. The livestock so far covered by the priority system are poultry, pigs, and dairy cattle, the priorities being—

—	Dairy Cattle.	Poultry.	Pigs.
Bran	First	Second	..
Pollard	Second	First	..
Blood Meal, Meat Meal, Meat and Bone Meal	Third	First	Second

Restrictions on the use of bran, pollard, and meat and other meals used in feeding meal mixtures are as follows:—The amount of bran and pollard contained therein must not exceed 20 per cent. of each, and the crude protein content of a mixture must not exceed 20 per cent. This control was instituted because of the shortage of the materials in question and the necessity for diversion of such into channels where most needed.

Fertilizer for Sugar Cane Growers.—In the course of the year the Bureau of Sugar Experiment Stations found it necessary to revise the whole of the ration units for cane-growers; the new units came into force in the 1944 ration period. This led to the recalculation by this Branch of approximately 8,000 rations each of (i.) superphosphate, (ii.) blood and bone, and (iii.) nitrate of soda.

Sulphate of ammonia amounting to 5,500 tons was made available for use only on irrigated and gravelly soils in the high rainfall areas.

The amount of potash made available was increased from 400 tons to 2,000 tons 50 per cent. potash (K_2O) grade.

General.—When it is realised that approximately 83 per cent. of the work and duties of this Branch during the period under review is absorbed in rationing of fertilizers, stock foods, and pest destroyers, it can be understood that the normal supervision on the quality of the several commodities under departmental control has been lacking.

F. B. COLEMAN,

O/i.C. Seeds, Fertilizers, Veterinary Medicines, Pest Destroyers, and Stock Foods Investigation Branch.

REPORT OF THE EDITOR OF PUBLICATIONS.

The demand on the informational services of the Department increased considerably in the course of the year. Requests for information on land settlement and rural-industries were in greater volume, largely from ex-Service personnel who are facing a period of reorientation or readjustment and who are looking to the land as a solution of their own rehabilitation problems. Many members of the Allied Forces also are interested in the possibilities of land settlement in Queensland and were among the numerous seekers of information.

An extensive general informational service was maintained throughout the year. In addition to departmental publications, this service included, among other media, regular Press contributions, radio broadcast talks, lectures, and the supply of authentic information on crop production and cultivation to newspaper contributors. Other information on the contemporary agricultural situation was prepared, as required, and circulated through appropriate channels. In co-operation with the Army Education Service, the Editor delivered twenty-five lectures in the course of the year.

In its bulletin, pamphlet, and advisory leaflet services, the Department continued to supply a constant demand for information on the land industries.

Queensland Agricultural Journal.—The publication of the *Journal* was resumed in July, 1943, and has since attained an aggregate distribution of 102,530 copies. As conditions return to normal, a progressive increase in circulation is anticipated. In its present make-up, the *Journal* conforms more closely with the requirements of farmers generally. It is reserved for the publication of short practical and topical articles by officers of the Department, whose contributions are couched in simple, non-technical language. Although smaller in volume than formerly, because of the wartime necessity for conserving paper, the *Journal* has proved its value as a vehicle for supplying extension information to the farmer. Because of war conditions, greater quantities of primary products have to be produced by fewer people. Increased output, especially of basic foodstuffs, is imperative, and this, in large measure, can only be attained by more efficient production. For that reason especially, the reappearance of the *Queensland Agricultural Journal* was welcomed by all concerned with agricultural production in the State.

Queensland Journal of Agriculture Science.—With the development of the research sections of the Department, the *Queensland Agricultural Journal* was forced into the position of having to serve as a medium for the publication of both research papers and extension articles for the information and instruction of farmers. To overcome this incongruity it was decided to establish a new departmental publication under the title of the *Queensland Journal of Agricultural Science*, now published quarterly. As a consequence, the material in both publications meets the needs of subscribers much more efficiently. To conduct the new *Journal* an Editorial Board, consisting of officers of the Department with special qualifications in one or other of the major subjects covered by the publication, was appointed. The new *Journal* has been well received in the scientific world and has already attracted a large number of exchange periodicals which are valuable additions to the Central Library. To cope with the additional editorial work, Mr. C. W. Winders, B.Sc.Agr., A.I.I.S., of the Research Division of the Department, was appointed part-time Associate Editor of Publications.

Food Production Stimulation.—During the year, as in 1942-43, the country was confronted with a food and raw material problem greater than at any other period in its history, while the difficulties of production and distribution were without precedent. Abnormal increases in population in certain zones, restriction of transport, cessation of imports, and other wartime conditions made it necessary to grow crops new to Queensland or new to particular regions. Consequently, farmers were called on to produce and harvest crops with which many were unfamiliar, and, as a necessary corollary, a greater demand was made on the advisory and informational services of the Department. The food production stimulation campaign, with which the Publications Branch was directly associated, especially in respect of intensified radio publicity, was continued vigorously and, to a large extent, successfully.

Photographic Service.—The Photographic Section extended its services, as required, to other State Departments. Requests for prints, process blocks and lantern slides were numerous.

Central Library.—Largely through the exchange service with reciprocating countries and institutions, many important additions were made to the Central Library in the course of the year. Through the circulation of monthly accession lists, Departmental officers and others concerned are kept informed of the availability of the most recent literature relating to the land industries. Sectional libraries within the Department also have been well maintained.

Settlement of Ex-Service Personnel on the Land.—In collaboration with the Director of Agriculture, the Editor assisted in the drafting of the R.S.S.A.I.L.A. proposed Act to provide for the settlement on the land of persons who have been members of the Defence Forces of Australia and for other purposes, and which has been incorporated *in toto* in the Second Report of the Rural Reconstruction Committee—*Settlement and Employment of Returned Men on the Land*—to the Minister for Post-war Reconstruction.

J. F. F. REID, Editor of Publications.

REPORT OF THE DIRECTOR OF MARKETING.

In accordance with the requirements of *The Primary Producers' Organisation and Marketing Acts*, 1926 to 1941, I have the honour to submit herewith my annual report for the year ended 30th June, 1944.

The marketing boards, the activities of which are hereinafter reviewed, operate, unless otherwise indicated, under *The Primary Producers' Organisation and Marketing Acts*, 1926 to 1941. These boards are producer-controlled, with the Government exercising one vote thereon through the *ex-officio* membership of the Director of Marketing.

Where *National Security Act Control* has been applied to commodities by the Commonwealth Government, the Queensland boards concerned have continued to assist in administering various control schemes. Towards the end of the period under review, the Council of Agriculture, which is representative of the several boards created under the Queensland *Marketing Acts*, discontinued the arrangement whereby its staff was made available, part-time, to assist in administering the *Commonwealth Potato Control Plan*.

The Council is now devoting its full attention to its own affairs, but assistance in administering this war-time plan is still provided by the secondment of the Council's secretary, temporarily, to the Commonwealth Service as Deputy Potato Controller for Queensland.

ARROWROOT BOARD.

The Board has an indefinite term and functions in respect of both arrowroot bulbs and arrowroot flour.

1943 Crop.—In consequence of adverse seasonal conditions and manpower difficulties, the arrowroot industry was unable to meet the war-time demand for 2,000 tons of flour from this crop. The quantity of flour received by the Board amounted to 541 tons, of which 50 per cent. (as was the case in the previous season) was disposed of for industrial purposes associated with the war effort. The remainder was distributed in normal channels of consumption on a quota basis, clients receiving only 12½ per cent., approximately, of their requirements.

Whereas the Board's maximum selling prices in respect of the 1942 crop were fixed by the Commonwealth Commissioner of Prices at £38 per ton for flour for ordinary consumption, and £35 per ton for flour sold for the industrial purposes referred to above, the Prices Commissioner, following representations by the Board, fixed the Board's maximum selling price for all flour sales ex the 1943 season's intake at £38 per ton, and, in addition, granted a subsidy of £1 per ton on flour produced from the 1943 crop.

The advances paid by the Board to growers on bulbs delivered to mills totalled £2 7s. 2d. per ton, after deducting the Board's administrative levy at the rate of 6d. per ton compared with £2 5s. 3·65d. per ton in the 1943 season. Millers have received £12 12s. per ton of flour manufactured, compared with £11 3s. 0.574d. per ton in the previous season.

1944 Crop.—The Board estimates that the out-turn of flour from the 1944 crop will be between 600 and 700 tons, that is, only 33⅓ per cent., approximately, of war-time requirements. Shortage of manpower, too much rain in the Pimpama district in the early stages of crop growth, and lower financial returns to growers than those obtainable from certain other crops, are the factors responsible for this anticipated low yield.

General.—At the Arrowroot Board general election held in April last, the growers' representaives on the Board were elected on a district basis following the issue last year of an *Order in Council* under which the arrowroot growing areas were divided into three districts, and provision made for the election of two representatives each in the case of Districts 1 and 2, and one representative from District 3. Hitherto five representatives were elected by growers on the block or senate system.

ATHERTON TABLELAND MAIZE BOARD.

The Board is empowered to function to 30th June, 1955.

1942-43 Season.—A final advance of £1 5s. per ton was paid to growers in August, 1943, bringing the total payments to growers for the season to £9 15s. per ton of maize containing 3 per cent. dead grain, with relative premiums and dockages according to quality. Total payments for the previous season amounted to £6 2s. 6d.

1943-44 Season.

	Tons.	Tons.	Tons.
Stock on hand, 1st June, 1943			47
Maize delivered—			
Gross deliveries by growers		14,553	
Less returned to growers	381		
Less moisture over 14 per cent.	181		
		562	
			13,991
			14,038
Maize despatched—			
Net sales, including offal		13,959	
Less weight of bags, included		219	
		13,740	
Stock on hand, 31st May, 1944		42	
			13,782
Net under-run			256
			(*i.e.*, 1·82 per cent. on total deliveries.)

Marketing.—Excluding maize resold to growers, amounting to £2,386 13s. 9d., the season's sales totalled £183,906 3s. 1d. This total does not include sales of pig, poultry, and cattle foods, but includes the value of the maize used in those preparations.

Growers were paid a first advance of £4 per ton on maize delivered to the Board containing 3 per cent. dead grain, with premiums and dockages according to quality.

Four further payments have been made in the course of the season at the rates of £1, £2, £2, and £1 per ton, respectively, making the total advances for the season to 30th June £10 per ton.

As in the previous year, the Government granted suspension of redemption during 1943-44 on its loans to the Board on silo construction account. The unpaid balance of these loans at date amounts to £53,129 3s. 11d.

Commonwealth Subsidy.—Maize delivered to the Board during the 1944-45 season will be subject to a Commonwealth Government guarantee and subsidy scheme, under which maize will be made available to essential users north of St. Lawrence at 4s. 3d. per bushel at buyer's siding, and the Board will be paid a subsidy at the rate of 2s. per bushel on such sales.

BARLEY INDUSTRY.

1941-42 Season (No. 3 Pool).—The Australian Barley Board in the course of the year made fifth and final advances on the No. 3 Pool. A total of 13,223,583 bushels were acquired by the Commonwealth Government under *The National Security (Barley Acquisition) Regulations*, including 24,819 bushels in Queensland. Details of the completed payments per bushel of barley, less freight from growers' station to receiving depot, are as follows:—

—	Previous Advances.	Fifth Advance.	Final Payment.	Total.
	s. d.	*d.*	*d.*	*s. d.*
No. 1 Chevalier	2 9	5	5·05	3 7·05
No. 2 Chevalier	2 3	5	8·05	3 4·05
Feed Chevalier	1 8	5	3·05	2 4·05
Cape Malting	2 2	5	7·05	3 2·05
Cape Feed	1 6	5	1·05	2 0·05

Queensland growers received 2d. per bushel more than the growers in South Australia. This was paid in the fifth advance. The Queensland Barley Board, which acted as agent and sole licensed receiver for the Australian Barley Board, did not operate its malthouse because of the small crop which resulted from drought conditions.

Barley Board.

The Board is empowered to function to 23rd April, 1948.

1942-43 Season.—State-wide pooling of barley was resumed under the control of the Queensland Barley Board, as Commonwealth acquisition was confined to South Australia and Victoria. The crop was small, because of the uncertainty of a marketing outlet at malting prices and manpower and material shortages. Up to 5s. per bushel was obtained for first quality malting barley, but a large proportion of the crop was sold at feed values. The Board's malthouse did not operate. A final payment of 3d. per bushel was made on all deliveries, thus making a total of payments to growers as follows:—

	Bus. lb.		£	s.	d.
Chevalier	4,070 2	at 3s. 9d. per bushel	763	2	8
Chevalier	3,896 45	at 3s. 6d. per bushel	681	19	2
Chevalier	15,659 31	at 2s. 9d. per bushel	2,153	4	0
Cape ..	1,973 13	at 2s. 9d. per bushel	271	6	6
	25,599 41		£3,869	12	4

Working expenses amounted to £1,168 2s. 3d., or 10·95d. per bushel.

1943-44 Season.—Deliveries totalled 54,951 bushels. Wet weather at harvest time adversely affected the quality of much of the grain. Loss through weevil attack and subsequent treatment in cleaning machines amounted to approximately 5¼ per cent. The Commonwealth Production Executive had allotted Queensland a barley production goal of 180,000 bushels, i.e., the equivalent of the malting barley requirements of the two Queensland malthouses, plus the State's requirements for feeding to lower animals. However, because of the Board's inability to obtain the services of a malster and the necessary manpower, only one malthouse was operating and marketing prospects as a consequence were not encouraging.

Prices for malting barley increased from 5s. for No. 1 Chevalier in the previous season to 5s. 9d. per bushel, but an outlet as malting barley could be obtained for only 12,952 bushels, and the balance had to be offered for sale for stock feeding. Advances have been paid to growers at the rates of 2s. 6d. per bushel for No. 1 Chevalier barley, 2s. 3d. per bushel for No. 2, and 1s. 9d. per bushel for feed barley.

BROOM MILLET BOARD.

The Board is empowered to function to 31st October, 1949.

1942-43 Season.—During the season, which covered the period 1st November, 1942, to 31st October, 1943, 45 tons 9 cwt. 3 qr. 17 lb. of broom millet were received and sold by the Board. This quantity realised £3,232 3s. 10d. or an average of £71 0s. 7d. per ton. The maximum and minimum prices realised were £81 4s. and £45 per ton respectively.

1943-44 Season.—From information contained in growers' returns, the Board anticipated that the crop would not be a heavy one, consequently it was decided that full control should not be exercised during this season. From the 1st November, 1943, to 30th June, 1944, 76 tons 17 cwt. 1 qr. 22 lb. of broom millet were sold, realising £5,815 15s. 10d., an average of £75 13s. 4d. per ton; the maximum price at which sales were made by the Board was £81 4s. per ton, the minimum price being at the rate of £50 per ton.

Because of the low volume of production in the Southern States during 1943-44, practically no supplies of broom millet have been received from the South by local broom manufacturers. This, together with the shortage of hair brooms, the abnormal war-time demand for brooms for the services and essential industries, and transport difficulties, has resulted in a serious shortage of brooms in this State to the extent that local manufacturers have found it necessary to use substitute materials, such as grass-tree leaves and Darwin fibre.

BUTTER BOARD.

The Board is empowered to function to 31st December, 1944.

Production.—Queensland production of butter for the year ended 30th June, 1944, totalled 1,811,016 boxes, compared with 1,992,074 boxes manufactured in the previous year.

Sales.—Sales of Queensland butter during 1943-44, including the carry-over from the previous year, amounted to 1,814,860 boxes, of which 907,308 boxes were sold in Queensland, 159,780 boxes to other States, 733,015 boxes exported to Great Britain, and 14,757 boxes sold as ships' stores or exported to countries other than Great Britain.

Consumption.—Because of the influx of population due to war conditions, butter consumption in Queensland during the year showed a further marked increase. In 1938-39—the year immediately preceding the outbreak of war—537,915 boxes of butter were consumed within the State. Consumption rose to 782,932 boxes in 1942-43, and further increased to 912,308 boxes in 1943-44.

Values Returned to Manufacturers.—The total of 1,811,016 boxes sold during the year returned a net value to manufacturers of £6,941,322. On the basis of equalization figures, factories received a net value of £3.824714826 per box or approximately 1s. 4.39d. per lb., compared with 1s. 4.33d. per lb. for the previous year. The 1943-44 figures are interim only, as values for the period January to June, 1944, are subject to final adjustment. It is estimated that the average value for the year will be approximately 14s. 7d. per cwt. above parity, as measured by the price being paid by Great Britain for surplus choice butter.

The values given represent net returns at agent's floors, Queensland ports of shipment, or other recognised centres of distribution, and local transport charges only require to be deducted to establish net returns to manufacturers.

Dairy Industry Subsidy.—The Commonwealth Government scheme for subsidising butter and other manufactured dairy products commenced in the year 1942-43, Queensland butter produced from 1st July, 1942, to 31st March, 1943, attracting a total payment of £334,911 14s. at an average price of 8s. 1d. per cwt. The subsidy was considerably increased over the year 1st April, 1943, to 31st March, 1944, the rate being approximately 35s. 5½d. per cwt. or 3.8d. per lb., and involving a total payment in respect of Queensland production for that period of £1,674,784 18s. 7d.

For a period of two years, commencing 1st April, 1944, rates of subsidy on butter manufactured in Queensland have been determined as follows:—

April-November, 6⅜d. per lb. butter-fat.

December-March, 4¼d. per lb. butter-fat.

The Commonwealth Government has intimated that to ensure the continued stability of the industry, its further intentions in relation to subsidy will be announced well before the expiry of the period covered by the present scheme.

Marketing Control in Brisbane.—The continuance of the Board's policy of control over the marketing of butter in the Brisbane area, and its operations in respect of the manufacture and sale of tropical butter-fat spread direct to the Services, resulted in a saving to Queensland dairy farmers, during the year, of £90,002 13s. 5d.

Butter for the Services and Tropical Butter-fat Spread.—Throughout the year the Board continued to pack large quantities of butter for the Services within and based on Australia.

The discovery, during the year, that by the addition of water tropical butter-fat spread can be reconverted to butter, has proved most helpful to the Services.

Butter Improvement Service.—The Butter Improvement Service completed its fourth year in June, 1944. At regular intervals throughout the year butter from all factories was again examined for hygienic quality and chemical composition. Although the bacteriological indices for 1943-44 were not as high as for the preceding year, they were higher than at the beginning of this service. The slight decline is attributed to manpower difficulties in factories, employment of inexperienced labour, difficulty in obtaining replacements in equipment, and the many requisites for efficient factory operation.

CHEESE BOARD.

The Board is empowered to function to 31st December, 1944.

Production.—Although considerably below the record of 28,501,265 lb., produced during the previous year, cheese production for 1943-44, 24,030,545 lb., was the second highest on record. A favourable season was experienced during the spring and early summer, but towards the end of summer most unfavourable seasonal conditions set in, and persisted right through to the end of the twelve months, with the result that during the months of April, May, and June supplies were not adequate to meet all demands. The bulk of the cheese manufactured was of the cheddar variety, the remainder comprising 52,522 lb. of gruyere and 534,194 lb. of other varieties.

Disposals and Values.—Sales of cheese amounted to 23,390,072 lb., disposed of to the following markets:—Local, 5,839,332 lb.; interstate, 4,274,745 lb.; to processors for Australian market, 3,569,607 lb.; to processors for forces overseas, 7,031,465 lb.; United Kingdom, 2,642,636 lb.; other countries, 32,287 lb. Queensland's cheese production for 1943-44 was valued at £1,159,250, which includes Commonwealth Government subsidy amounting to £185,599.

From July, 1943, to March, 1944, subsidy was paid at the rate of approximately 16s. 6d. per cwt. of cheese, while for April to May the rate was approximately 6·38d. per lb. of butter-fat, and for June 6.375d. per lb. of butter-fat.

The average equalisation price for 1943-44 was 10·119d. per lb. of cheese, as compared with 9·906d. per lb. in 1942-43. These figures are exclusive of Government subsidy, and the price for 1943-44 is an interim one only, as final equalisations have not been completed for the last six months of the year. It is not anticipated, however, that there will be any appreciable alteration to the average price as stated.

Local Marketing.—The Board continued to supply cheese to military camps and naval and air force establishments in and around Brisbane as direct selling agents for supplying factories. Although the quantity sold by the Board showed a reduction from 759,652 lb. in 1942-43 to 576,220 lb. in 1943-44, there was a net profit from these operations of £305 9s. 2d., which was distributed *pro rata* amongst all factories, according to the quantity of cheese manufactured by each in the course of the year.

Cold Storage Accommodation.—Profiting by experience of the previous year, the Board took early action to ensure that the utmost use would be made of the cold stores at Hamilton for export crated cheese. As a result of the Board's action in directing that all 80-lb. cheese, manufactured on and after 1st December, 1943, should be crated, and the provision of shipping at suitable intervals, there was never any real threat of a shortage of cold storage for export cheese during the past export season.

COTTON BOARD.

The Board is empowered to function to 31st December, 1946.

1942-43 Season.—The season was unfavourable because of adverse climatic and rainfall conditions. Sufficient seed to plant 55,000 acres was distributed to 4,000 growers, but only 40,000 acres were actually planted by 3,220 growers. The total production of seed cotton was 9,539,697 lb., which produced 3,345,622 lb. of raw cotton lint, equivalent to 6,814 bales. Total disbursements to growers covering the 1942-43 season's crop amounted to £216,539. The net average crop return to growers covering all grades and classifications of cotton was 15.533d. per lb. of raw cotton, equal to 5.45d. per lb. of seed cotton. The average net return to growers for hand-picked cotton was equal to 16d. per lb. of raw cotton or 5.61d. per lb. of seed cotton, this being equivalent to £11 13s. 9d. for a 500-lb. bale of seed cotton.

Revolving Fund.—The sum of £3,610, equivalent to .259d. per lb. of raw cotton lint, was deducted from growers during the 1942-43 season and placed to their credit in the working account reserve revolving fund. A sum of £3,520 was withdrawn from the fund and returned to growers of the 1934 season.

1943-44 Season.—A production target of 40,000 acres was set for the 1943-44 season, but the acreage planted to cotton showed a considerable reduction over that of the previous season. Although seed was distributed to 1,787 growers, sufficient to plant 23,406 acres, it is estimated that only 16,000 acres will be brought to harvest. The total yield, however, is estimated at 6,200 bales, which, if realised, will constitute the highest average yield per acre on record.

Up to the 30th June, 1944, the Cotton Board had received from growers 5,901,471 lb. of seed cotton, producing 2,003,871 lb. of raw cotton.

EGG BOARD.

The Board is empowered to function to 31st December, 1944.

Commonwealth Control.—As from 5th July, 1943, the Commonwealth Government, by virtue of an order issued under the *National Security* (*Egg Industry*) *Regulations*, assumed control of egg supplies in that portion of Queensland comprising the whole of the territory previously under the jurisdiction of the Queensland Egg Board, together with the remainder of the shires of Gooburrum, Kolan, Perry, Gayndah, Wondai, Kingaroy, Wambo, Tara, and Waggamba; and the whole of the shires of Murilla, Chinchilla, Mundubbera, Eidsvold, and Monto.

The Egg Board is handling eggs produced in the area described above as agent for the Commonwealth Controller of Egg Supplies through the Deputy Controller in Queensland. The Commonwealth Control applies to owners of forty or more adult female fowls and/or ducks. The superseded Queensland scheme applied to persons keeping fifty or more fowls irrespective of age or sex.

Controlled producers are not permitted to sell eggs except to the Controller unless they have obtained the authority of the Controller to otherwise dispose of them. The Controller actually purchases the eggs from producers and sells them to consumers, whereas previously the Board received and marketed eggs on growers' behalf.

The qualities and grades of eggs for sale within Australia are now prescribed by the Controller of Egg Supplies and provide for two qualities of fowl eggs—namely, "first quality" and "second quality," each being divided into two grades (according to weight) designated "hen" and "medium." There is one quality and one grade only for duck eggs.

The wholesale selling prices of eggs are fixed by the Commonwealth Prices Commissioner. Prices are uniform throughout the Commonwealth, with the exception of that part of Queensland north of the Tropic of Capricorn where a higher rate is allowed.

The prices paid to producers by the Controller, through his agents, are the current wholesale selling prices for the various grades, less (*a*) handling and selling commission, and (*b*) Commonwealth Control Fund charge. During the period under review, handling and selling commission was 1¾d. per dozen eggs. The Commonwealth Control Fund charge was originally fixed at 1½d. per dozen eggs, but was reduced as from 4th October, 1943, to 1d. per dozen.

Agents of the Board.—The receiving and selling agencies of the Board formerly conducted in Brisbane were discontinued with the commencement of Commonwealth control, and all eggs delivered in Brisbane are now handled on the Board's own floors. Country agencies of the Board are in operation at Ipswich, Toowoomba, Dalby, Warwick, Maryborough, and Bundaberg.

Supplies.—The quantities of eggs received by the Board and its agents during the year ended 24th June, 1944—a period of fifty-one weeks—totalled 6,446,200 dozen, as compared with 7,223,675 dozen received during the previous yearly trading period, which, however, extended to fifty-three weeks. These figures refer to eggs produced in Queensland only. In addition, the Board, as agent of the Controller of Egg Supplies, handled 1,615,470 dozen eggs received from New South Wales for the purpose of augmenting local supplies. The demands of the Services were so great that the total Queensland production during the year was fully absorbed within the State, and it became necessary to import eggs from New South Wales to assist in meeting, to some extent, Services and civilian requirements.

Allocations of supplies as between the Services and civilians are made by the Controller of Egg Supplies, and despite a reduction in the quantities received by the Services, there was a shortage of eggs for civilians for approximately eight months of the year. In accordance with instructions issued by the Controller, sales to civilian clients were limited to 50 per cent. of their normal purchases, while for a short period supplies to cafes were reduced to 25 per cent.

Sales.—Sales during the year were as under, figures for the previous year being quoted also for purposes of comparison:

	1942–43.	1943–44.
Eggs in Shell—		
Local	6,598,025 dozens	6,990,485 dozens
Interstate	87,900 dozens	..
For Drying	537,750 dozens	..
Egg Pulp	825,680 lb.	1,107,960 lb.

Bonus Distribution.—In November, 1943, a bonus was distributed of 50 per cent. of commissions on consignments to C.O.D. floors for 1942-43. For the previous year the bonus distributed was 25 per cent. The bonus amounted to £31,124, compared with £6,278 in 1942-43.

Merchandise Department.—Despite serious trading difficulties turnover again increased substantially from £88,830 to £126,545. A bonus of 4½ per cent., amounting to £2,948, was paid to growers in November on their previous year's purchases.

Country Order Department.—There was a big increase in turnover from 57,042 packages, valued at £50,666 in 1942-43, to 125,876 packages, valued at £109,600. The difficulty in obtaining fruit and vegetables in the country districts led to some shire councils undertaking local distribution, and a number of these were supplied by the country order department.

Canvassing Agreements operated for Bowen tomatoes, South Queensland coastal beans, and Redlands tomatoes.

Army Supply.—The supply of Army requirements of fruit and vegetables was continued throughout the year. The intolerable position which previously existed through shortage of space in Brisbane for handling Army requirements was solved satisfactorily by the erection by the Federal authorities of a large building. All Service shipping orders are crated in this building. The Department of Commerce and Agriculture arranged for the C.O.D. to take over the servicing of United States Navy in Brisbane as from 1st July, 1944. A feature of Army servicing is the ripening of tomatoes in a section of the C.O.D. Brisbane banana plant. The main sources of supply of tomatoes are Stanthorpe in the summer—bought on the Brisbane market; and Bowen in the winter—bought on an f.o.r. basis Bowen. The C.O.D. buyer also regularly operates on the Brisbane market throughout the year. The tomatoes are ripened and colour graded to ensure delivery to the Services at the exact stage of maturity required.

Factory Activities for Twelve Months Ended 30th June, 1944.

The following quantities of the various fruits have been handled for factory:—Stanthorpe fruits, 875 tons; citrus fruits, 1,482 tons; figs, 113¾ tons; papaws, 444¼ tons; passion fruit, 18½ tons; metropolitan tomatoes, 28 tons; strawberries, 13½ tons; and pineapples, 12,000 tons—

	Tons.
Winter crop, 1943 ..	8,103
Summer crop, 1944 ..	3,897

Grand total of all factory fruits, 14,975 tons.

Interstate Transport.

Comparison of interstate loadings for the last two years is shown as follows:—

To—	1942-43. Packages.	1943-44. Packages.
Victoria	301,943	298,659
New South Wales ..	1,075,838	972,329
	1,377,781	1,270,988

Strawberry consignments interstate by passenger train in 1943-44 totalled the equivalent of 143,524 pint boxes—all to New South Wales.

Freight Rebates.

(*i.*) *Pineapple.*—A rebate of 1½d. per case was made on all interstate consignments for the year ended 30th June, 1943. This was distributed in December, 1943, and absorbed £3,071.

(*ii.*) *Citrus.*—£198 was rebated on interstate consignments for the year ended 30th June, 1943, at the rate of 1½d. per case.

(*iii.*) *Deciduous.*—A rebate of 10s. per ton was distributed to growers consigning interstate and to C.O.D. branches in Rockhampton, Townsville, and Cairns. £1,416 was thus rebated.

Stanthorpe Co-operative Hail Insurance Fund.

There were no hail losses during the 1942-43 season, but compensation at the rate of 3s. 4d. per bushel was paid on losses during 1943-44 season. Claims totalling £1,316 11s. 6d. have now been paid on 7,899·45 bushels.

Summary of Moneys Returned to Growers During 1943-44.

	£	£
Freights—		
Pineapple	3,071	
Citrus	198	
Deciduous	1,416	
		4,685
Fruit Section		31,124
Banana Branch		5,488
Merchandise		2,948
Hail Payments		1,316
		£45,561

Directions.

The following fruits have been under the control of the Committee of Direction for the year ended 30th June, 1944, by direction:—

For Factory Purposes.—Deciduous, figs, passion fruit, papaws, pineapples, strawberries, and tomatoes.

Levies.

The following levies have been in operation during the year ended 30th June, 1944:—

Banana Levy.—1d. for every £1 or part thereof of the gross proceeds realised from sales in Queensland of bunch bananas and ½d. per 1½ bushel case of bananas.

Citrus Levy.—½d. per case (irrespective of size) with a minimum of 1d. to be expended in the interests of the citrus section.

Pineapple Levy.—(*a*) Fresh Fruit: 1d. per case or 21 loose on smooths, and ½d. per case or 42 loose on rough and ripley varieties, the moneys collected to be for advertising administrative and stabilisation purposes.

(*b*) Cannery Revolving Fund: Levy 10s. per ton or 3d. per case on factory fruit only, for the purchase of half-interest in Queensland Canneries. The purchase has now been completed, and this fund will commence to revolve when the amount available is sufficient to refund to all growers the total levies for the first year of contribution.

Stanthorpe Levy.—3s. 4d. per ton on all fruit and vegetables marketed from the Stanthorpe district, the fund so created to be for administrative purposes.

Hail Insurance Levy.—6s. 8d. per ton on all fruit only grown in the northern portion of the Granite Belt, being the contributions of the growers concerned to a hail insurance fund.

Papaw Levy.—At the rate of 1d. for every two cases or part thereof, half the fund so created (with a minimum of £125 and maximum of £175 per annum), to be used to subsidise the appointment by the Department of Agriculture and Stock of a papaw research officer; the balance of the funds to be used for advertising purposes.

Tomato Levy.—¼d. per case, but no levy on consignments of less than four cases, to be used for administrative purposes.

Fig Levy.—5s. per ton on factory figs, the fund created to be used for advertising purposes.

Avocado Levy.—1d. per case, gazetted 15th July, 1941, the funds to be expended in advertising.

2. APPLE AND PEAR MARKETING BOARD.

The acquisition of apples and pears applied during the year to Tasmania and Western Australia only, Queensland growers having the right to dispose of their crops on the open market.

Sales in Queensland by the Apple and Pear Marketing Board for the period 1st July, 1943, to 30th June, 1944, were as follows:—

	Cases.
Apples—	
From Western Australia ..	37,511
From Tasmania	408,770
Total	446,281
Pears—	
From Tasmania	11,575

3. SECOND HAND FRUIT CASES ACT.

The principal feature of the year's operations of the Second Hand Fruit Cases Committee, constituted under *The Second-hand Fruit Cases Act of* 1940, was the successful diversion, with the co-operation of the Committee of Direction and other licensed dealers, of over 300,000 second-hand cases to the Stanthorpe district during the Granite Belt fruit season, compared with a normal usage in that area of less than 10,000 second-hand cases during a season. This diversion was affected without depriving growers in other areas of needed supplies, and assisted very materially in solving the district's case supply problem which at the beginning of the season had appeared almost insurmountable.

Continued attention has been given to the recovery of used cases in the hands of purchasers of fruit and vegetables other than traders and special salvage drives were conducted, with the approval of the Department of Public Instruction, through the State schools and also through the Boy Scouts' Association.

Case transactions again indicated a large increase in recoveries. Sales of cases of all kinds totalled 1,448,545, compared with 1,007,303 during 1942-43, and 679,832 for the previous year. No permits were granted for the release of cases to other industries.

GINGER BOARD.

The Board is empowered to function until 15th July, 1945.

During the 1943-44 season 180 tons of ginger were received from sixty-three suppliers. The gross return was £12,116, leaving a net amount of £10,077, after deducting costs of handling and treatment, for distribution to growers. This is equivalent to 6d. per lb. for green ginger root, as compared with 4½d. per lb., for the previous season.

The progress of the industry is indicated by the following figures showing the quantities of Ginger pre-treated at Buderim:—

	Tons.
1941-42	14
1942-43	77
1943-44	180
1944-45	350 (estimated)

The pre-treatment plant at Buderim is operated by The Buderim Ginger Growers' Co-operative Association Limited, which acts as the agent of the Board. Increase in production necessitated the erection of additional factory space during the year.

The Board has been able to arrange suitable financial accommodation to enable a first payment of 3d. per lb. to be made to growers during the month following delivery of their produce.

HONEY BOARD.

The Board is empowered to function to 8th March, 1947.

In addition to two selling agents in Brisbane, the Board now has a third agent, who is located in Maryborough and was appointed as such by the Board in the course of the year. The total sales by these three agents amounted to 25,613 (60 lb.) tins of honey and 10,518 lb. of beeswax, compared with 8,190 tins of honey and 13,415 lb. of beeswax in 1942-43.

The price realised on all beeswax sold by the Board's selling agents during the year was 2s. 6d. per lb., while selling prices for honey varied from 7½d. to 3d. per lb.

PEANUT BOARD.

The Board is empowered to function to 27th August, 1947.

1942 Season.—This season's transactions were finalised during the year just ended.

Particulars of receivals at the Board's silos and depots, net advance payment to growers, loss in de-shelling, also particulars of sales, are as follows:—

RECEIVALS AND ADVANCE PAYMENTS.

Variety.	No. 1 Pool.		No. 2 Pool.	
	Receivals (Tons).	Net Advances (pence per lb., excluding ¼d. lb. levy).	Receivals (Tons).	Net Advances (pence per lb., excluding ¼d. lb. levy).
Virginia Bunch—				
Grade 1A ..	1,384	3·85	50	3·6
Grade A2 ..	426	2·975	18	2·725
Grade B	1,213	2·225	42	1·975
Grade C	304	1·35	12	1·1
	3,327	(V.B. average 2·917)	122	(V.B. average 2·67)
Spanish and Other Varieties ..	1,723	2·6	50	1·35
Total	5,050	£132,402 15s. 11d. (average 2·809 pence per lb. excluding levy)	172	£4,131 12s. 2d. (average 2·576 pence per lb. excluding levy)

LOSS IN DE-SHELLING.

—	No. 1 Pool.		No. 2 Pool.	
	Virginia Bunch.	Spanish and Other Varieties.	Virginia Bunch.	Spanish and Other Varieties.
	Tons.	Tons.	Tons.	Tons.
Receivals—				
Weight in Shell ..	3,327	1,723	122	50
Less—				
Sales in Shell ..	1,737	749	46	23
	1,590	974	76	27
Less—				
Sales of Kernels ..	1,034	745	48	23
Loss in De-shelling	556 (35%)	229 (23·5%)	28 (36·7%)	4 (16·9%)

SALES.

—	No. 1 Pool.			No. 2 Pool.		
	Virginia Bunch.	Spanish and other Varieties.	Realisations.	Virginia Bunch.	Spanish and other Varieties.	Realisations.
	(Tons.)	(Tons.)	£ s. d.	(Tons.)	(Tons.)	£ s. d.
In Shell	1,737	749	..	46	23	..
Trade Kernels	631	573	..	27	18	..
Oil Kernels	403	171	..	20	5	..
	2,771	1,493	194,718 9 2	93	46	6,332 13 10
Screenings and Shells	..	..	238 5 5	..	..	7 17 6
			£194,956 14 7 (average 4·136 pence per lb.)			£6,340 11 4 (average 3·954 pence per lb.)

Pool expenditure amounted to £50,862 12s. 3d. in respect of No. 1 Pool, and £1,930 15s. 5d. in relation to No. 2 Pool, equivalent to 1·075d. and 1·204d. per lb., respectively, on receivals.

It will be observed, in the case of No. 2 Pool, that the advance payments to growers, and realizations, compare favourably with No. 1 Pool advances and realizations. This is attributable to the fact that the total deliveries to No. 1 Pool, because of adverse seasonal conditions, were below the estimated Australian annual requirements for edible and planting purposes—6,000 tons of Virginia Bunch in-shell, and 3,300 tons Spanish in-shell—in consequence of which all No. 2 Pool receivals conforming with the requisite grade standards were drawn upon by No. 1 Pool to supplement the supplies available from the latter for edible and planting purposes.

1943 Season.—The disposal of the whole of this season's intake has been subject to control by the Commonwealth Government, in consequence of which the Board has been obliged to confine its sales to persons authorised by the Commonwealth authorities to obtain specified quantities of peanuts from the Board. As a result of this war-time control measure, the nut-in-shell grades have been eliminated and edible quality peanuts made available in kernel form only for consumption by civilians and the Armed Forces in the raw and processed state.

Weather conditions and manpower difficulties were the cause of the crop being approximately 5,200 tons (in shell) short of Australian requirements. The Board's receivals amounted to 7,807 tons in-shell (*i.e.*, 5,559 tons Virginia Bunch and 2,248 tons Spanish and other varieties). Only one Pool (No. 1) is being operated this season, which has not yet been completed.

1944 Season.—Because of seasonal conditions and shortage of labour, production will be considerably below the production objective of 13,000 tons in-shell which coincided with the Commonwealth production goal for this season. It is estimated that the intake will not exceed 9,500 tons. Receivals by the Board to date amount to 5,394 tons Virginia Bunch and 1,060 tons Spanish and other varieties.

As was the case in the previous season, only the No. 1 Pool is being operated this year. First advance payments are being made to growers at the flat rates, excluding the ¼d. per lb. levy, of 2.125d. per lb. for Virginia Bunch and 2d. per lb. for Spanish and other varieties.

Control of sales by the Commonwealth Government was continued.

REVOLVING LEVY FUND.

In regard to the current silo loan, which was obtained by the Queensland Peanut Growers' Co-operative Association Ltd. under Government guarantee for the purpose of constructing the additional storage plant and treatment facilities erected at Kingaroy in 1938, the compensation receivable by growers up to the 1942 season, in return for the levy contributed by them to the Board, was along similar lines to the arrangements which prevailed in respect of the 1929 storage scheme, under which the peanut silos and plant provided by the Association during that year were built. Under those arrangements, the proportion of the levy which went towards redemption was issued to growers (on their making application) in the form of shares in the Queensland Peanut Growers' Co-operative Association Ltd., which is the holding body for the industry's fixed assets (*i.e.*, the treatment plant, storage facilities, office equipment and fittings) and rents them to the Board.

In 1943, the Board was empowered by *Order in Council* to create a revolving levy fund for the purpose of enabling it to repay to growers such portion of the levy paid to the Board by the growers concerned, as has been or is used by the Board for redemption and for payment of interest on capital sums raised by the Board to provide silos, treatment plant and other assets. At the same time, the Board was permitted by an amending regulation to increase the levy as from the 1942 season from ⅛d. to ¼d. per lb.

Not less than one-half of the amount of the levies paid by growers in respect of the 1942 season and all subsequent seasons must be utilized in repaying moneys to growers, under the revolving fund scheme. The *Order in Council* also provided that the first repayment be made in relation to the first year in respect of which the levies were paid, that is, 1927.

The repayment of such monies to growers holding shares in the association, in relation to any year, is subject to their surrendering or transferring, whichever may be required by the Board, all shares issued to them in respect of that year.

THE PIG INDUSTRY.

1. Acquisition of Pig Meats.

The marketing of pigs and pigmeats was brought under the control of the Australian Meat Industry Commission in terms of *The National Security (Meat Industry Control) Regulations* issued in March, 1943, and administered by the Controller of Meat Supplies appointed under the *Regulations*, with the assistance of Deputy Controllers in the several States.

A pigmeats committee was appointed towards the end of 1943 to act in an advisory capacity to the Deputy Controller for Queensland, consisting of two representatives of pig producers, two representatives of bacon factories, and a representative of the Department of Agriculture and Stock, with the Deputy Controller as chairman. The Department was represented on the committee by an officer of the Marketing Branch.

During June, 1943, the Commonwealth Government introduced the *Pigmeat Acquisition Plan* in terms of which pig carcases of 100 lb. and over, chilled weight, were acquired at guaranteed prices based on 8d. per lb. at export port for first quality baconers within the weight range 100 lb. to 180 lb. Producers were assured that the guaranteed prices would operate for at least two years, and that twelve months' notice would be given of any withdrawal of the guarantee.

Early in September, in consequence of the need to increase the output of bacon and hams for the Services, and for overseas commitments, the plan was revised. The price for first quality baconer carcases was raised to 9d. per lb., and the upper weight range lifted from 180 lb. to 200 lb. Restriction was placed on the sale of pork, bacon, and ham which could only be disposed of at the direction of the Controller of Meat Supplies. Meanwhile, a total ban was imposed on the slaughter of porker pigs of less than 100 lb. carcase weight, but this was subsequently modified to the extent that pig carcases of export quality within the range 82 lb. to 100 lb. were accepted for export.

In terms of the control measures slaughtering, except in certain exempted areas, was confined to registered treatment works. Prices have been fixed under *The National Security (Prices) Regulations* in accordance with the provisions of the *Acquisition Plan*.

2. Northern Pig Board.

The Board is empowered to function until 31st December, 1946.

Pigs purchased by the Board for the y ear are as under:—

—	No.	Lb.	Value.
			£
North Queensland Co-operative Bacon Association, Ltd. ..	12,278	1,783,406	59,634
Other Sales	208	8,608	343
Insurance Fund	49	8,428	260
	12,535	1,800,442	£60,237

The average dressed weight of all grades of baconers was 139 lb., the average price being 8·4d. per lb., and the value per pig £4 17s. 9d.

Although pig production decreased from 14,789 carcases in 1942-43 to 12,535 in 1943-44, there was a substantial gain in the weight of pigmeat produced, viz.:—1,800,442 lb. in 1943-44, as compared with 1,682,150 lb. in 1942-43. This is accounted for by an increase in average weight of all pigs handled from 114 lb. to 143 lb.

Shortage of rural labour and the change over of many dairy farms on the Atherton Tableland from butter to milk production were the main factors responsible for the reduction in the number of pigs produced in the Board's area. The decrease would have been greater but for the fact that a considerable quantity of the pig swill was available from Army establishments.

The Board's area is subject to the operation of *The Commonwealth Acquisition of Pig Meats Plan*.

PLYWOOD AND VENEER BOARDS (NORTHERN AND SOUTHERN).

Both Boards are empowered to function until 2nd May, 1947.

Deliveries for the year on the basis of 3/16 inch totalled 65,400,654 square feet, valued at £531,380, of which 46,896,337 square feet, valued at £381,033, was delivered to the Southern Board, and 18,504,317 square feet, valued at £150,347, to the Northern Board.

These deliveries show a reduction of 282,299 square feet as compared with 1942-43. Shortage of manpower has been chiefly responsible for failure to overtake production of previous years. Production for 1943-44 is almost 13,000,000 square feet below the output of 1940-41.

Distribution of sales:—

—	Southern Board.	Northern Board.
	sq. ft.	sq. ft.
Queensland	21,719,113	9,208,774
Interstate	25,177,224	9,295,543
	46,896,337	18,504,317

Sales to Queensland buyers during the year increased by, approximately 5,000,000 square feet over those of last year, mainly because of increased Service demands and the expansion of the use of plywood for case-making for essential foodstuffs and other urgent purposes. Export from Australia is still prohibited by the Timber Controller.

The administrative levy has been continued at the rate of 1d. per 100 square feet, calculated on the equivalent of 3/16 inch thick basis.

Cost of administration averaged ·859d., and quantity discount to Queensland distributors .062d., making a total of ·921d. per 100 square feet.

Co-operation with the plywood manufacturers in the other States has been satisfactorily maintained, and all production is subject to the control of the Timber Controller.

THE WHEAT INDUSTRY.

The marketing of the Australian wheat crop was again conducted by the Australian Wheat Board in terms of *The Wheat Acquisition Regulations* under *The National Security Act*, with the State Wheat Board, established under *The Queensland Wheat Pool Acts* 1920 to 1930, acting on a commission basis as sole licensed receiver and agent in Queensland for the Australian Board. Queensland-grown wheat was again marketed in accordance with the Queensland system of wheat classification, and the usual premiums over the basic price for the higher grades were collected by the Queensland Board and returned to growers. The co-operative hail insurance scheme also continued to operate, and growers' contributions were deducted from amounts payable to growers by the State Board.

In accordance with the policy of the Commonwealth Government as announced during the previous year, provision was made for direct grower representation on the Australian Wheat Board by members chosen by ballot of the growers. The reconstituted Board consists of nine members of whom one is a representative of the Commonwealth Government, one represents the flour millers of Australia, and seven are growers' representatives. Growers of Victoria and New South Wales are represented by two members, while South Australia, West Australia and Queensland have each one grower member on the Board.

The quota plan of payment to growers, introduced in the previous season, was continued, the only variation being that the guaranteed price for "quota" wheat was increased from 4s. to 4s. 1⅓d. per bushel, while the first advance for wheat in excess of the grower's quota allocation was raised from 2s. to 2s. 1⅓d. per bushel. Further payments on excess deliveries will be dependent on realisations on the whole of the wheat in the pool.

1940-41 Season (No. 4 Pool).—Queensland deliveries totalled 5,286,538 bushels. No further advances were distributed during the year and the total amount of advances by the Australian Board remained at 3s. 11¼d. per bushel for bagged wheat of milling quality, less rail freight of 5d. per bushel or 3s. 6¼d. To this there is added payments made by the Queensland Wheat Board on account of quality premiums and distribution of profits on the basis of 4½d. for Q1 wheat, or a total for Q1 of 3s. 10¾d. per bushel.

1941-42 Season (No. 5 Pool).—Australian Board advances for bagged wheat which at the close of the previous year amounted to 3s. 3d. per bushel, less rail freight, were increased by a third advance in January, 1944, of 4d. per bushel and a fourth advance in May, 1944, of 3d. per bushel, thus making

net payments to date to Queensland growers for Q1 wheat 3s. 8¼d. per bushel, after allowing for the usual deduction of ½d. per bushel as hail insurance levy.

1942-43 Season (No. 6 Pool).—Total receivals by the Australian Board amounted to approximately 142,836,334 bushels, of which Queensland deliveries comprised 4,402,845 bushels. Payments to growers by the Australian Board were on the basis of the quota plan which provided for a guaranteed price of 4s. per bushel at growers' sidings for the first 3,000 bushels of each grower's deliveries, and a first advance of 2s. per bushel for deliveries in excess of that quantity. A second advance on "non-quota" wheat was distributed during April, 1944, at the rate of 1s. per bushel. The Queensland Board also made a distribution to growers of quality premiums and profits at the rates of 4¼d. per bushel for Q1, 2¾d. for Q2, and 1¼d. for Q2A and feed wheat, each less ½d. per bushel retained as hail insurance levy. Classification of Queensland deliveries and the payments, inclusive of the hail insurance levy, are tabulated below:—

1942–43 SEASON.

Classification.	Deliveries.	Percentage.	Payments.	
			Quota Wheat.	Non-quota Wheat.
	Bushels.		s. d.	s. d.
Milling—				
Q1	2,736,106	62·14	4 4¼	3 4¼
Q2	1,093,520	24·84	4 2¾	3 2¾
Q2A	466,015	10·58	4 1¼	3 1¼
Feed	107,204	2·44	4 1¼	3 1¼
	4,402,845	100·00		

Hail insurance compensation payments to growers amounted to £10,662 10s.

1943-44 Season (No. 7 Pool).—An abnormally cold dry winter, which delayed plantings in many instances until July and early August, followed by a wet harvesting period, reduced the quantity and affected the quality of the crop and deliveries to the end of June only slightly exceded those of the previous year, the quantity being approximately 4,590,290 bushels. Of the wheat delivered, approximately 60 per cent. was classified as Q1 quality. Receivals by the Australian Board totalled 94,890,194 bushels.

For this season, in order to make provision for an increase in harvesting costs which had been disclosed by a board of inquiry set up to examine the extent of added harvesting costs arising, principally in Southern States, out of the harvest workers' award made in October, 1943, the guaranteed price for quota wheat was fixed at 4s. 1⅓d. per bushel with 2s. 1⅓d. per bushel as the first advance on excess deliveries from licensed areas, and distribution of payments to growers was made accordingly by the Australian Board.

Importation of Wheat.—The problem of maintaining adequate supplies of wheat to meet the needs of users in this State for both milling and stock-feeding purposes has again been a serious one. There has been a steady increase in the demand for wheat for flour and a very substantial increase in orders for stock-feeding purposes, stimulated considerably by the decision of the Commonwealth Government to distribute wheat for stock feeding at a special concession price, as referred to in a subsequent section of this report. The quantity imported to supplement the 1942-43 Queensland crop was 3,944,745 bushels. The Queensland crop of the 1943-44 season was slightly larger than that of the previous year, but it is anticipated this will fall short of consumptive requirements by more than 5¾ million bushels, of which 3,337,164 bushels were received to 30th June, 1944.

In my last report, reference was made to the necessity of maintaining a daily rate of transport by rail from New South Wales via Wallangarra of 400 tons of wheat per day or 2,400 tons per week. Expanding consumption called for further increase, which was to be supplied by fortnightly shipments of approximately 1,500 tons by ship from as far distant as South Australia. The necessary rate of delivery via Wallangarra was not maintained, but during the six months period from January to June fell to approximately 1,834 tons per week. As a result of this transport failure and because of shipping delays, insufficient wheat was available to supplement other Queensland grains for feeding to poultry and live stock. The result will be reflected in a need for still greater imports of wheat in the latter part of the cereal year, because of the early exhaustion of supplies of grain sorghums and maize which have been drawn upon unduly to counter balance the wheat shortage.

In order to have a reserve to cushion the effect of sudden interruption to wheat transport, arrangements were made in co-operation with the Queensland Emergency Supplies Committee for the erection by Food Control of a wheat storage shed in Brisbane. This shed, which has a capacity of about 60,000 bags of wheat, was completed at the end of June, and now awaits the arrival of a substantial shipment of southern wheat.

The arrangement was continued whereby both locally-grown and imported wheats were made available to flour millers at an over-all price of 4s. 5d. per bushel at Brisbane. This price is appreciably lower than the average of the landed costs, including freight, of the wheats used, based on the Australian Board's selling price for milling wheat.

Emergency Wheat Supplies.—The Queensland Emergency Supplies Committee continued its efforts to have reserve stocks at flour mills and for the produce trade established on the basis of eight weeks normal requirements. Transport difficulties, combined with the expansion of requirements, have, however, kept supplies at a level barely sufficient to meet current demands from time to time.

Concession-priced wheat for stock feeding.—The decision of the Commonwealth Government to amend the scheme, whereby wheat was available to stock feeders at a concession price, which became operative early in September, 1943, resulted in an appreciable reduction in the price to stock feeders in this State. Previously, the arrangements provided for the distribution of wheat at 6d. below the normal market price. Under the new scheme, wheat is available in truck-load quantities at a fixed price of 3s. 6¾d. per bushel at buyer's siding, thus enabling users in distant places to purchase feed wheat at a price comparable with that which, under the original arrangement, was enjoyed only by stock feeders in Southern States operating close to the wheat depots and export ports.

Flour Tax.—No alteration has occurred in the flour tax which is at the rate of £2 8s. 10d. per ton. The f.o.r. price of flour at Brisbane remained at £13 1s. 6d. per ton.

Seed Wheat.—The necessitous growers' seed wheat scheme operated, as in previous year, subject to a guarantee by the Queensland Government up to an amount of £5,000.

Wheat Sacks.—Provision for growers' requirements has been made through the Australian Wheat Board.

Wheat Industry Stabilization.—Partly because of seasonal conditions, but probably more because of the restrictive influence of the quota plan, the relaxation of *The National Security (Wheat Industry Stabilisation) Regulations* to provide for the issue of "temporary" licenses referred to in my last report did not bring about the desired increase in the acreage sown to wheat. As compared with a licensed area of 447,210 acres for the 1942-43 season, licenses were issued for a total area of 474,277 acres for the 1943-44 season, including 11,504 acres covered by temporary licenses. However, the area planted to wheat for grain amounted to only 291,000 acres, approximately, for the 1943-44 season, whereas the planting for the previous year was about 350,000 acres.

The Wheat Subsidy Act, 1944, enacted by the Commonwealth Government, which came into operation on 6th April, 1944, gave statutory authority for the Government's quota plan of payment for wheat grown on licensed areas and ratified the payments of 4s. per bushel and 4s. 1⅓d. per bushel growers' sidings for "quota" wheat of the 1942-43 and 1943-44 seasons, respectively. In February, 1944, the Commonwealth Government announced that for the 1944-45 season the payment for "quota" wheat would again be 4s. 1⅓d. per bushel, but that in order to stimulate an increase in production, which had fallen to a marked extent since the introduction of the stabilization scheme, the first advance against wheat from licensed areas in excess of growers' quotas would be 3s. per bushel, as compared with 2s. per bushel for the 1942-43 season and 2s. 1⅓d. per bushel for 1943-44.

GENERAL.

The staff of the Marketing Branch continued to give part-time attention to the administration of the War Agricultural Organisation, of which the Director had acted as State Executive Officer from its inception in August, 1942, until that responsibility was taken over by Mr. A. F. Bell on 16th May, 1944.

During that time, a D.W.A.C. Central Administrative staff was gradually built up, organisations were completed in the forty war agricultural districts into which the State had been divided, and decisions promulgated on a host of matters which provided the foundations for a working code for the organisation. Acknowledgment also is made of the assistance rendered in marketing matters by the heads of the several production branches of the Department.

The Director has continued his association with the work of the Queensland Emergency Supplies Committee in the capacity of deputy chairman of that organisation, and to represent the Commonwealth Government as chairman of the State Wheat Industry Stabilisation Committee.

H. S. HUNTER, Director of Marketing.

REPORT OF THE REGISTRAR OF CO-OPERATIVE ASSOCIATIONS.

One additional association was registered under "*The Primary Producers' Co-operative Associations Acts*, 1923 *to* 1934," in the course of the year, bringing total registrations to 215, comprising 213 associations and 2 federations.

The number of registrations actually remaining in force totalled 193 associations and 2 federations, the registration of 20 associations having been cancelled in the course of the period the Acts have been in operation.

The number of licensed auditors increased from 239 to 241.

Some associations have amended their rules to meet changing circumstances and to provide for better administration of their affairs.

A. J. EVERIST,
Registrar of Primary Producers' Co-operative Associations.

WAR AGRICULTURAL COMMITTEES.

District War Agricultural Committees constituted throughout the State have had an important influence on war-time organisation of primary industry. Their main objective for the present is to assist farmers in obtaining the means of production, including manpower, machinery, and materials.

Special Service Releases for Rural Labour.—On the 23rd October, 1943, a Commonwealth-wide scheme was instituted for the release of nominated Service personnel for return to rural industries. Of a Commonwealth quota of 15,000 men, the allocation to Queensland was 3,350, distributed among the dairying, poultry, vegetable-growing, and meat industries. The undertaking was that the release of these men would be completed by June, 1944.

The Manpower Directorate was responsible for the distribution of this labour to industry, and was assisted by the District War Agricultural Committees, who reported on all applications and made appropriate recommendations to the Deputy Director-General of Manpower.

Up to the 30th June, 1944, the 40 District War Agricultural Committees throughout the State had handled an aggregate of 10,342 applications, of which 4,859 were made for release to the dairying industry. Of the 10,342 applications received, 8,469 had been recommended for release. At this date, 7,105 applications had been completed; of these, 2,058 approvals for release had been granted and 5,047 were not approved. Corresponding figures supplied by the Manpower Directorate at 30th June, 1944, are as follows:—

Recommendations submitted to Army ..	7,327
Applications approved for release by Army	2,910
Applications refused by Army	4,326
Applications not completed by Army ..	181

It will be noted that there is a lag of approximately 1,000 between recommendations by D.W.A.C.'s and Manpower submissions to Army and between Army decisions and notification of these decisions to D.W.A.C.'s.

Australian Women's Land Army.—During the year the Australian Women's Land Army assisted in alleviating the prevailing labour shortage in rural areas. Although the Manpower Directorate is responsible for the administration of the Land Army, it is part of the functions of D.W.A.C.'s to organise camp accommodation and allocate Land Army personnel employed within their districts.

Seasonal work undertaken by the Land Army included the harvesting of fruit and vegetable crops in the Stanthorpe district, cotton in the Dawson and Callide Valleys, and citrus at Gayndah, potatoes and other vegetables at Home Hill and Ayr, and vegetables in the Gympie area.

Permanent camps were established at Birkdale, Victoria Point, Redland Bay, and Buderim, where Land Army members were engaged in the planting, cultivation and harvesting of vegetable crops. Land Army personnel billeted with individual employers also were engaged in almost every form of rural work.

Prisoner of War Rural Labour.—Following representations which commenced in June, 1943, approval was granted for the establishment in selected areas in Queensland of prisoners of war control centres. Under this system, prisoners are billeted on farms in groups of two or three, and are available for general agricultural work. In addition to providing suitable accommodation and rations, the present cost to the employer is £1 per week.

The first Queensland centre was established at Stanthorpe just prior to the 1943-44 harvest. Some 170 prisoners were placed in a very short time, and this form of labour was a substantial factor in the successful harvesting of last year's very heavy crop of fruit and vegetables.

The recommendation and establishment of other control centres followed rapidly, and up till June, 1944, the following placements had been made:—

Centre.	Placements.
Stanthorpe	200
Nambour	150
Kenilworth	90
Kingaroy	100
Boonah	51
Gayndah	96
Monto	34
Home Hill	115
	986

The cause of delay in completing placements was an insufficient number of suitable prisoners of war.

The allocation of placements to particular rural industries was—

Dairying	312	
Vegetables	150	(including Home Hill)
Pineapples	171	
Other Fruits	21	
General Agriculture ..	110	(including some dairying)
Mixed Fruit and Vegetables ..	217	
Pastoral	5	
	986	

Materials.—Because of heavy Service demands and restricted output, many essential materials are in short supply, and in order to ensure the most equitable distribution in accordance with the food production programme of the Commonwealth Government, D.W.A.C's. have been called on to act as recommending authorities in respect of the releases of fencing wire and netting and bore casing. The controlling authorities have also taken cognisance of recommendations by D.W.A.C's. in respect of several items of importance to production, such as electric motors, irrigation piping, building materials, and axes.

The Central Executive of the War Agricultural Organisation has kept closely in touch with the Commonwealth authorities in regard to the overall material supply position, and has brought to notice Queensland's requirements of materials essential to primary production.

Machinery.—The War Agricultural Organisation has been responsible for the administration in Queensland of the *National Security* (*Agricultural Machinery*) *Regulations*, which were issued on the 20th May, 1943. At that time the shortage of agricultural machinery was becoming apparent, and the principal object of the regulations was to ensure the most equitable distribution of certain types of machinery in accordance with the Commonwealth food production programme.

An order issued under the Regulations required that these types should not be sold without a permit from an authorised officer, who in Queensland is the machinery control officer on the Central Executive of the War Agricultural Organisation. This rigid control does not apply to many other types of machinery listed separately, which a distributor may supply on satisfying himself that they are essentially required by the applicant.

The setting up of a Commonwealth-wide organisation to deal with machinery releases has made it possible to gauge the requirements of primary producers, and to arrange for increased quotas.

Since machinery control became effective, 10,750 applications for types of machinery under rigid control have been dealt with in Queensland, and releases made in favour of 5,712 applications. Any delay in the issue to an applicant with a permit to purchase has been due to the shortage of stocks. A feature of the control is that no permit is issued until the type of machinery applied for is available for distribution.

The principal items are classified hereunder:—

Type of Machine.	Releases.	Requirements above Releases.
Tractors (new and second-hand) ..	955	1,221
Engines	1,295	898
Rotary Hoes (5, 22 h.p.)	300	96
Windmills	1,952	642
Irrigation Plants	197	241
Shearing Units	250	12
Separators	731	..
Spraying Plants	32	48

A. F. BELL,
State Executive Officer.

By Authority: A. H. Tucker, Government Printer, Brisbane.