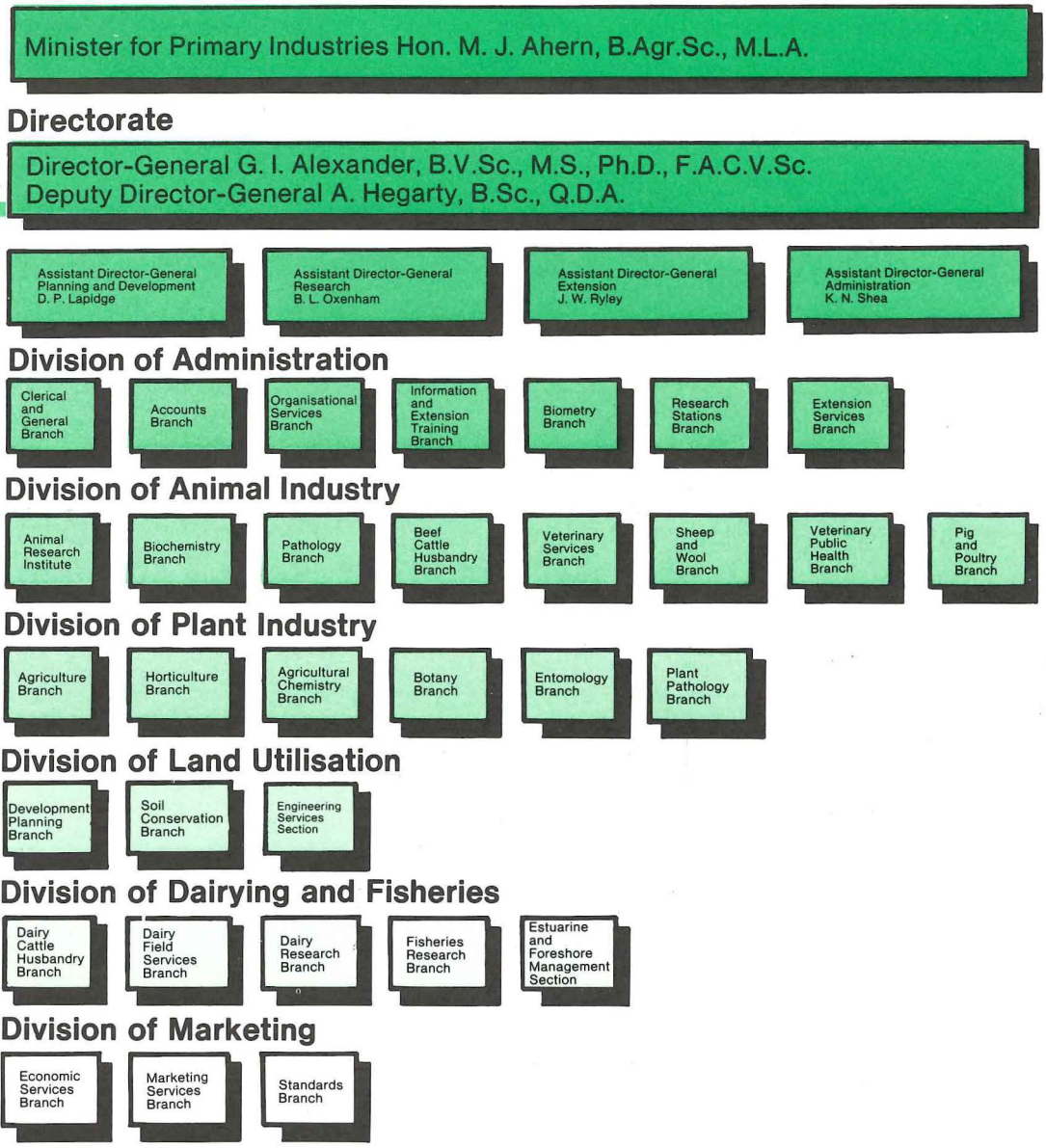
Queensland Department of Primary Industries

ANNUAL REPORT 1982-83

Organisation



The DPI is responsible to the Minister for Primary Industries, who is also responsible for a wide range of statutory authorities established under Acts of State Parliament.

A director-general heads the DPI with the assistance of a deputy director-general and four assistant directors-general. Collectively called the directorate, they are responsible for planning and development, research, extension, regulation and administration.

Responsibility for co-ordination and performance in technical areas rests with divisional directors, who are supported by their branch structure and senior officers at centres throughout the State. A director heads each branch within a division. The DPI has six divisional directors and 28 branch directors.

The DPI's approved public service staff establishment at the end of June 1983 was 2825. If the major activity of each officer is considered, about 20% are involved in administrative and clerical services; about 40% in research and resource activities; about 30% in regulatory and service work; and more than 10% in full-time extension. Many research and regulatory staff also have some extension duties.

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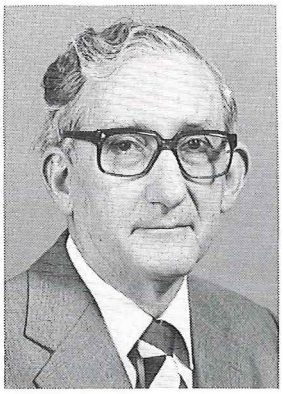
Queensland Department of Primary Industries

Annual Report 1982-83

Presented to Parliament by Command

Contents

The year reviewed



Dr G. I. Alexander
Director-General

Rural production

The financial year 1982–83 was not a good year for primary industry in Queensland. The gross value of the State's rural production fell by $245m to $2 368m, which was a decline in real terms of 18.4%. Low prices for many rural commodities on world markets and the long drought were the main causes for the decline.

The drought

Drought, the most telling factor in Queensland agriculture in 1982–83, is very much a part of the State's grazing environment.

Undoubtedly, the most telling factor in Queensland agriculture in 1982–83 was the most widespread drought for many years; but just when it seemed that the rains had failed and a hard winter was inevitable, the most widespread and serious floods in some years hit the State in April.

During the year, the Minister for Primary Industries, Mr Ahern, introduced local drought committees comprising DPI staff and industry nominees. These committees were given the prime role of assessing areas for drought declaration and revocations.

At the end of May 1982, two shires had been declared drought stricken and two shires partly declared. All were located in the State's south-west corner. At the end of December, 45 shires had been declared drought stricken; many had recorded their lowest rainfall ever. By March 1983, 61 shires (57 fully and four partly) had been declared. These shires occupied about 70% of the land area of the State. The only regions not declared were Cape York Peninsula, the north-west area bordering the Northern Territory, and the south-east corner.

Assistance schemes and subsidies

Queensland was not the only State to suffer from drought last summer. New South Wales, Victoria and South Australia were all severely affected. Because of this, the Commonwealth Government introduced two national assistance schemes from 1 September 1982:

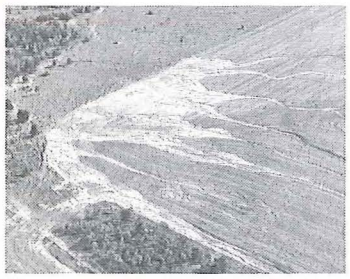
- the fodder subsidy scheme (funded by the Commonwealth and administered by State departments of agriculture); and
- the drought-relief interest subsidy scheme (funded and administered by the Commonwealth Government).

A number of other subsidies were introduced in Queensland under the Commonwealth-State Natural Disaster Relief Arrangements. These were: the on-property slaughter subsidy; assistance to local authorities to sink bores for watering stock; assistance to local authorities for the establishment of bulk molasses storage facilities; subsidy on the cost of agistment; and a subsidy on the cost of scrub feeding. The assistance package now available to primary producers is the most generous since the first drought-relief schemes were implemented more than 20 years ago.

Drought-relief assistance measures for Queensland primary producers in 1982–83 cost almost $53m. This included more than $36m in drought-relief loans; nearly $10m in road-freight rebates; nearly $4m in fodder subsidy; and about $1.5m in rail-freight rebates (July to March).

These schemes meant a dramatic increase in workload for the DPI section processing the schemes. The peak was reached in April when the section consisted of 44 clerical officers.

Natural disasters



Massive rill erosion occurred on large paddocks with long slopes prepared for grain crops in the Central Highlands and the South West, during the drought-breaking rains of April-May 1983.

Early in December, storms passed through the State's south-east corner and caused an estimated potential loss in Stanthorpe apple and pear crops of about $11m. Market garden crops were also damaged at Redland Bay where lost production was estimated at $0.5m. The shires of Stanthorpe, Rosenthal, Inglewood and Redlands, and the cities of Logan and Brisbane were declared a disaster area.

In mid-January, storms caused serious crop damage, with the shires of Murgon, Wondai and Chinchilla being subsequently declared a disaster area.

In late April and early May, most of the State received unseasonal heavy rains. These rains boosted surface water supplies and cause widespread flooding. In coastal areas cumulative rainfall figures of 200 mm were common. Severe flooding occurred along the central coast and on the Darling Downs.

April rainfall recordings for Dalby, Taroom, the Upper Burnett, South Burnett and South-West Downs were more than 300% above average. The unseasonal autumn rains ruined many grain sorghum, peanut and navy bean crops and many horticultural lines; and it came too late for grass growth in some areas. However, it did result in good production of herbage.

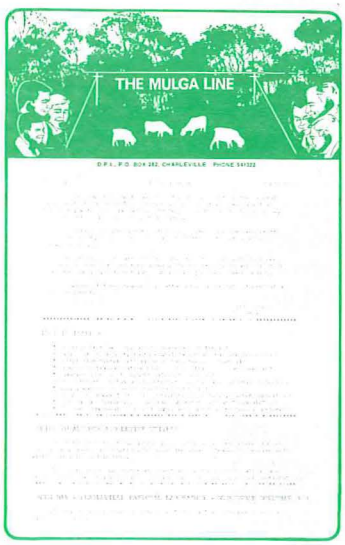
Further heavy rain throughout the south-western and central border districts towards the end of May caused major flooding in these areas. As a result, the whole of Queensland was declared a major disaster area.

An assistance scheme of low-interest carry-on loans was introduced for each of these natural disasters. The interest rate on loans relating to the Murgon storms was the standard rate of 7%. The Stanthorpe storms and the floods resulted in long-term income reduction; consequently, the interest rate on loans from these disasters was set at 4%. The maximum loan available was $20 000, with provision for an extra $20 000 in special cases of hardship.

While the rain broke the drought in many parts of Queensland, 35 shires remained totally declared and two partly declared drought stricken at the end of June. In the central border region, flood waters stranded hundreds of thousands of sheep and many cattle on small islands, cutting them off from feed supplies. Fodder drops by RAAF Caribou aircraft were carried out on properties in the' St George area. The Commonwealth Government agreed to co-operatively fund a subsidy on the cost of this fodder.

Extension

Drought dictated much of the DPI's extension activity throughout the State. Many long-term extension projects were disrupted or held in abeyance while attention was concentrated on saving the cattle and sheep of the State from the ravages of drought.



The front sheet of the DPI's award-winning newsletter, *The Mulga Line*.

Regional extension leaders also reported a number of major initiatives in grain areas, such as extension projects on ways to farm erodible land while minimising the threat of soil erosion, and farm mangement schools for producers. Several beef industry extension groups established trials to demonstrate the value of various *Stylosanthes* species in pastures in coastal and sub-coastal Queensland.

Information was made available to producers in a number of ways, including newsletters and self-service information stands. These stands were located in DPI and commercial premises in response to a recognised need of 'hobby farmers' for information on a variety of rural subjects.

Forty separate newsletters were produced by extension staff and were reaching a third of the State's primary producers. One of these newsletters, *Mulga Line,* produced by the Charleville staff, won the 1982 Queensland Rural Press Club Award for the best example of media communication for a rural audience.

A number of initiatives sought to increase the efficiency of the DPI's extension programme and its relevance to producers. These included the establishment of a simplified extension reporting system and the publication of an internal newsletter, the *Extension Courier,* to improve communication between extension officers stationed throughout the State.

Brucellosis and tuberculosis

In the extensive pastoral areas of western Queensland, DPI stock inspectors are using helicopters to muster cattle for brucellosis and tuberculosis testing.

Queensland continued to play its part in the national campaign to eradicate brucellosis and tuberculosis from cattle herds. Eradication of brucellosis from Queensland cattle herds advanced to a point where the State can expect to be declared provisionally free from the disease by April 1984. In addition, all Queensland cattle herds had been assessed for tuberculosis, and less than 1% of properties remained actively engaged in an eradication programme. The State can expect to be declared provisionally free from tuberculosis by April 1985.

At the end of June, as part of the national brucellosis and tuberculosis eradication campaign, DPI officers were planning to meet graziers and Commonwealth, South Australian and Northern Territorian government officers to finalise plans to destock the Simpson Desert of cattle. Twenty-three cattle stations have a common border with the Simpson Desert.

Meat inspection

The report of the Royal Commission into the Australian meat industry was presented by Mr Justice Woodward in September. The commission was set up after the export meat substitution scandal, involving kangaroo and horse flesh, had been detected in Victoria in August 1981.

The commissioner's findings vindicated Queensland's decision not to participate unless allegations of malpractice within Queensland could be proven.

Some of the findings were pre-empted by the Commonwealth and acted upon before release of the report; for example, export security measures. Some of the recommendations and findings were of little interest to Queensland; some were of vital concern.

New wheat varieties

During the year, three new wheat varieties (Torres, Bass and King) were released, bringing to five the number of new varieties which the DPI has released in Queensland in the last two years. The new varieties produce up to 20% more grain than the older traditional wheat varieties, are more resistant to diseases, and have better quality grain.

The Farrer Medal

The new wheat varieties have resulted from the work of DPI scientists at the Queensland Wheat Research Institute in Toowoomba. One of these scientists, Dr Jim Syme, the Institute's supervising plant breeder, attained national recognition when he was selected to receive the 1983 Farrer Memorial Medal for his outstanding service to the Australian wheat industry and for his general contribution to agricultural science in Australia. Dr Syme joins a select band of men who have received this prestigious award since its inception in 1941.

Technology advance

Microcomputers were installed in Brisbane and country centres during 1982–83 to streamline the DPI's research work.

Twenty-nine microcomputers were installed in Brisbane and country centres during the year to streamline the DPI's research work. They are freeing staff of much of the detailed repetitive work entailed in research and giving them more time to get on with the job of solving primary production problems. Research work in animal and crop production involves analysing, processing and recording masses of technical data in the field. With the aid of the microcomputer, these data will be recorded and processed in a fraction of the time it took previously. Rural economists will also use the new system to prepare farm budgets and for other related purposes.

Operational reviews

With the help of producer-orientated independent committees, the DPI undertook several reviews of its management, operations and services to the agricultural and pastoral industries and to the community in general.

One of the committees, under Mr J. Heussler's chairmanship, reported the results of its review of DPI services to the pastoral areas of western Queensland. This area contains most of the State's wool industry and a significant part of the State's beef cattle industry. The report outlined the need for growth of extension services throughout the area and highlighted the desirability of multi-disciplinary teams, located at central locations, being established to conduct research programmes.

Another committee chaired by Mr D. Eather, president of the Queensland Graingrowers Association, reviewed and reported upon the DPI's soil conservation services. The committee recognised the need for a substantial increase in soil conservation services. This will require the recruitment of significant staff numbers so that soil erosion in the rapidly developing agricultural lands in the western Darling Downs, the Maranoa and the Central Highlands can be controlled at an acceptable rate.

Overseas consultancies

Dr Graham Alexander, Director-General of the Queensland Department of Primary Industries, gives Mr Tijjani Ibrahim, of Nigeria, his certificate at the end of the DPI's first International Course in Fodder and Fodder Seed Production. Participants came from Nigeria, India, Nepal, Malaysia and Tanzania.

The DPI's Overseas Development Unit is responsible for organising short training courses, consultancies and overseas study programmes undertaken by DPI officers. These provide valuable training for officers and help people in developing countries to achieve self-sufficiency.

In 1982–83, the Unit organised a three-month dairy husbandry training course for the Philippines. Attended by 21 participants, the course was sponsored by the Australian Development Assistance Bureau and was conducted with the co-operation of officers from several DPI branches.

The Unit's consultancy programme consisted of DPI officers undertaking short-term consultancies to China, Cuba, Zimbabwe, Zambia, Malaysia, Thailand, India, Fiji, Japan, Indonesia, the Philippines, South Korea, Mexico and Kenya. The demand for DPI staff as consultants indicates they are held in high regard, particularly in the field of tropical primary production. The experience they gain is valuable to Queensland in keeping DPI staff abreast of developments overseas. The Unit also arranged study tours and training programmes for individual officers from various South-East Asian, African, European and American regions.

Queensland is also involved with the Australian Centre for International Agricultural Research (ACIAR). ACIAR is a Commonwealth Government initiative designed to mobilise Australian research capability to undertake collaborative research projects in developing countries. ACIAR does not itself undertake research projects, but contracts projects to appropriate research institutions in Australia.

The DPI in 1983 agreed to undertake a project on integrated grain pest control in the humid tropics. This project is part of a five-project programme designed to develop effective grain storage techniques in the tropics and initially involves collaboration with Malaysia and the Philippines. It will be undertaken over three years and is fully funded by ACIAR and collaborating countries. A number of other projects relevant to Queensland and developing countries were being discussed with ACIAR.

I visited Thailand during the year to discuss co-operative research into problems that country is having in marketing dairy products because of an expanding dairy industry. I also visited Malaysia for talks on the research needs of the Malaysian dairy industry and the establishment of joint Queensland and Malaysian research programmes.

Dr G. I. Alexander
Director-General

Finance

In 1982–83, staff ceilings and funding limitations, imposed through Commonwealth and State government policies and industry economics, placed considerable restraint on DPI operations.

The DPI serves diverse and widely spread rural industries, and many of its services are provided in or close to the areas serviced. In recent years, a number of new and expanded centres in country areas have been developed. Maintaining and operating such centres in remote areas is costly but justified. However, the effect on existing funds has been significant.

Natural disasters placed heavy demands on finances in 1982–83. Administration of the joint Commonwealth-State Disaster Assistance Scheme inspections and the processing of payments were met wholly from DPI funds. Actual assistance payments made by the DPI and subject to cost-sharing arrangements totalled $26 078 530 compared with $3 845 938 in 1981–82.

DPI expenditure from the Consolidated Revenue Fund is shown in the table:

Vote sub-division	1981–82	1982–83
	$	$
Payments authorised by special acts		
Grant in aid of the Banana Industry Fund	95 850	146 204
Department of Primary Industries		
Salaries	44 225 876	48 729 487
Contingencies	26 294 704	32 687 779
Total	**70 616 430**	**81 563 470**

Compensation payments within the Bovine Brucellosis and Tuberculosis Programme amounted to $4 249 991 during 1982–83 compared with $2 809 933 in 1981–82.

The State's estimated share of the Commonwealth-State Bovine Brucellosis and Tuberculosis Eradication Programme amounted to $4 878 300 of a total estimated expenditure from Consolidated Revenue Fund of $9m.

Transactions involving the Trust and Special Funds are shown in the table:

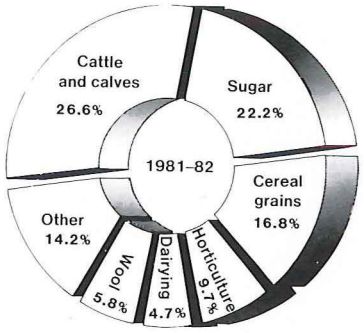
Trust and special funds	1981–82	1982–83
Department of Primary Industries Special Standing Fund	8 846 192	29 563 743*
Banana Industry Fund	221 392	282 024
Commonwealth Agricultural Extension Services Fund	303 102	. .
Commonwealth Poultry Industry Assistance Fund	3 557 308	3 403 960
Commonwealth Quarantine and Export Inspections Fund	3 030 921	3 437 187
Commonwealth Rural Industry Grants Fund	2 132 044	2 511 629
Fisheries Research Fund	358 474	475 474
Meat Inspection Account	3 228 173	3 533 876
Poultry Inspection Fund	645 208	701 681
Potato Marketing Trust Fund	. .	13 823
Stock Disease Compensation and Stock Improvement Fund	20 607	26 539
Sugar Cane Prices Fund	1 788 692	1 909 652
Swine Compensation Fund	2 468	17 661
Total	**$24 134 581**	**$45 877 249**

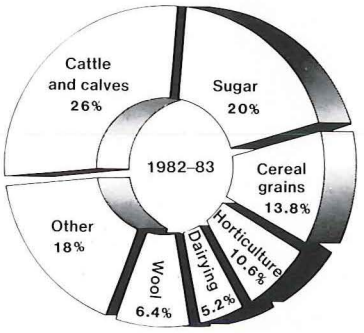
* Includes $26 078 530 on account of Disaster Assistance Scheme and $836 506 on account of the Queensland Fish Board.

Expenditure of $293 000 was incurred through the Loan Fund to 30 June 1983.

Primary industries overview

Rural production values





Pie charts (above).
Gross value of rural production showing the proportional contribution by industry groups (Source: Australian Bureau of Statistics).

The gross value of rural production in Queensland in 1982–83 was about $2368m, 9.4% less than in 1981–82. However, after allowing for an inflation rate of about 11%, the decline in real terms was a massive 18.4%. This drop can be attributed to the long-running drought in a large part of the State and to the low prices for many Queensland commodities on world markets.

The value of cereal grains was expected to be $328m, 25% below last year's figures. Wheat and barley values were extremely disappointing with decreases of 45% and 50% respectively.

Because of a dramatic fall in world market prices, the value of the sugar crop was 18% below last year's level of $578m.

The total value of livestock slaughterings was estimated at $766m, 8% less than in 1981–82. Although the value of cattle and calves slaughtered dropped by more than 11%, pig and poultry slaughterings improved by 10% and 6% respectively.

The value of the wool clip was expected to increase slightly to $151m; dairying by 2% to $214m; and eggs by almost 60% to $53m (due to production and price increases).

The figure shows the proportions of gross value of rural production. The greatest relative changes are cereal grains (down 3% to 13.8%) and sugar (down 2.2% to 20%).

Pasture and fodder crops

Drought dominated the State's weather in 1982–83. Conditions for much of the year were hot and dry. Rainfall was well below average, especially in western areas. The normal wet season in the tropical north did not occur. These conditions drastically restricted pasture and fodder crop growth.

Effective rain did not fall until late April and early May, when heavy rainfall throughout Queensland dramatically reversed conditions for pasture and fodder crops. However, the lateness of the rainfall meant that pasture growth was less than optimal. Conditions for planting next season's fodder crops, however, were greatly improved.

The beef industry

The State's beef herd at 31 March was provisionally estimated at 9m head compared with 9.4m in 1982. The 4% decline was caused mainly by drought. The beef herd peaked at 11.1m in 1978 and the subsequent 18% decline reflects the influence of drought and the generally low profitability of beef production.

Despite the drought, cattle and calf slaughterings were significantly lower than in 1981–82. This was largely responsible for an estimated $77m reduction in the gross value of slaughtering and live exports between 1981–82 and 1982–83.

Beef and veal exports in 1982–83 continued to represent a high proportion of the State's total production.

Slaughter-cattle fluctuated substantially during 1982–83 in response to movements in overseas beef prices, the value of the Australian dollar and cattle supplies. During autumn, prices rose rapidly in response to several factors, including the 10% Australian dollar devaluation in early March; rising USA cow beef prices; and the reduced cattle supply after the April drought-breaking rain. By late May cow prices at Cannon Hill had reached 70c/kg, 23c more than a year earlier. However, in real terms (that is, after adjustment for inflation) May prices were still lower than during 1979–80.

Earlier in the year, the Cattle Council of Australia proposed major changes to the national structure and operation of beef marketing. In late April, the Commonwealth Minister for Primary Industry, Mr Kerin, outlined proposals for a new administrative structure for the meat and livestock industry. These included establishing an Australian Meat and Livestock Industry Conference with an executive committee to advise on policy. The Australian Meat and Livestock Corporation would be responsible mainly for marketing and regulatory activities. Industry organisations were considering the proposals at year's end.

The IAC enquired into the meat-processing industry problems resulting mainly from reduced supplies of livestock for slaughter. A joint submission by the DPI and the Queensland Meat Industry Organisation and Marketing Authority was presented to the IAC whose report, submitted early in 1983, was being considered by the Commonwealth Government.

The Commonwealth Government announced it intended to introduce a new objectively-based system for describing meat exports on 1 October 1983. The descriptions were to be based on individual objective measurements such as sex, age, weight and fatness and would cover beef cuts at well as sides and quarters. The measurements could be combined to meet overseas customers' widely differing needs. Meat inspectors would check the accuracy of the measurements. A Commonwealth-State working party, on which Queensland was represented, devised the system. Its development was assisted significantly by the carcass classification work which the DPI and the Meat Authority had undertaken in Queensland.

The wool industry

The minimum reserve price of the Market Indicator for the 1982–83 season was set at 422c/kg clean, an increase of 2.9% on the average 1981–82 floor price. However, the floor price was raised by 7.5% to 454c after the 10% Australian dollar devaluation on 8 March.

Wool prices fluctuated throughout the year. There was a general trend downwards for the first half and upward over the latter half of the year helped by the Australian dollar devaluation. The market indicator increased to 470c/kg clean (week ended 13 May), 27c higher than for the same time last year.

The number of sheep and lambs shorn in Queensland during 1982–83 is estimated at 12.3m head, 5% below last year's 12.95m head. The average fleece weight was 4.3 kg compared with 4.4 kg last year.

Queensland's wool production in 1982–83 is estimated at 55.9m kg, 7.9% below last year's production of 60.7m kg, but 20.2% above the 1980–81 level of 46.5m kg. Shorn wool production is estimated at 52.9m kg compared with 56.9m kg in 1981–82. Queensland's wool production in 1981–82 realised an estimated gross value of $150.2m, an increase of 28.4% on the gross value of production for 1980–81. Preliminary estimates indicate a value of $151m for all wool produced in Queensland in 1982–83.

Early in the season, the Australian Wool Corporation was required to provide substantial market support. The Corporation's stockpile stood at about 510 000 bales at the opening of the season. It built up to 1 162 000 bales. Substantially strong trade demand and reduced offerings reduced the stocks to about 1 003 000 bales by the end of May.

Sheep and lambs

Preliminary Australian Bureau of Statistics figures showed that sheep and lamb numbers in Queensland at 31 March had increased by 2.6% to an estimated 12.662m head compared with 12.343m last year.

Sheep and lamb slaughterings in Queensland were expected to increase by 4.3% from 1.3m in 1981–82 to 1.36m head in 1982–83. Production of mutton and lamb was forecast to increase by 1.1% from 23 900 t in 1981–82 to about 24 150 t in 1982–83.

Lamb prices had started to improve after experiencing a depressed trade in the first eight months of the year. The prices improved due to reduced supplies relative to the normal seasonal decline and improved seasonal conditions. Average monthly values for lambs (16 to 19 kg) score 4 fell from 129c in June 1982 to 107c by February before recovering to average 146c/kg at the end of April. By mid May prices had increased to reach a seasonal high of 166c/kg.

New arrangements to apply until 30 June 1985 were made for the regulation of merino ram exports. Up to 300 rams valued at $1000 or more a head will be allowed to be exported each year. No quota limit will be placed on the number of rams bought at export sales for less than $1000 a head.

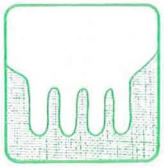
The Australian Meat and Livestock Corporation recommended a revised allocation of the 17 500 t annual sheepmeat quota for the EEC. The first 14 500 t are now allocated first-in-first-served, and the remaining 3 000 t are reserved for the specialist trade. The Sheepmeat Council of Australia welcomed the AMLC's move to encourage the expanding specialist cut trade.

The pig industry

In line with the Australian trend, the number of pigs slaughtered in Queensland declined 3.1% from 838 000 in 1980–81 to 812 300 in 1981–82. However, in Queensland, pig meat production fell only marginally from 50 375 t in 1980–81 to 49 930 t in 1981–82. By contrast, 1982–83 slaughterings were forecast to increase by 4.5% to about 850 000 head while production was expected to rise 6% to about 53 000 t.

At year's end, the pig market was anything but bright, with values for most descriptions falling. Increased slaughterings contributed to the downturn in values.

The dairy industry



Queensland wholemilk and butter production was expected to be about the same as in 1981–82. Cheese production was expected to be up by about 6%.

Sales of the more profitable market milk, which includes pasteurised, low-fat, modified, flavoured and long-life milk, were expected to be up by about 2.5% on 1981–82.

The Butter Marketing Board continued to obtain butter from Victoria for its domestic market shortfall and for butter fat exports. In addition, southern dairy manufacturers continued to penetrate the Queensland market, and their market share is estimated at 20% of all pat butter sold in Queensland. Total butter consumption in Queensland has stabilised at about 8000 t a year.

The IAC recommended that the existing underwriting scheme be extended to the 1983–84 season. A further IAC hearing began in April to examine longer-term assistance to the dairy industry.

The egg industry

Queensland egg production for 1982–83 was estimated at 9.1% above that for 1981–82. Excellent weather for egg production in the year's last half resulted in production well above the anticipated surplus.

Egg sales by the South Queensland and Central Queensland Egg Marketing Boards were estimated to be 2.1% and 1% respectively above 1981–82 sales. Although commendable, these sales increases were insufficient to absorb the production increase. Depressed overseas prices compounded overproduction problems.

The poultry meat industry

Chicken slaughterings in Queensland during 1981–82 decreased by 4.1% to 31.07m. This represented 15.2% of total Australian slaughterings which had decreased by 8%. However, the 1982–83 Queensland chicken slaughterings were forecast to rise by 11% to 34.5m.

Chicken-meat production in Queensland decreased in 1981–82 by 6.4% to 38 963 t. Total Australian chicken-meat production decreased by 8.5% over the same period. The latest forecast indicated that Queensland production had recovered in 1982–83 to about 43 800 t, a 12% increase on the previous year.

After the regular six-monthly review of indexed production costs, the Queensland Chicken Meat Industry Committee set the amount paid by processors to contracted growers for rearing chickens at 26.8c a bird for July to December 1982 and 28.5c a bird for January to June 1983. The growing fee for the 1982–83 season averaged 27.65c a bird, an increase of 9.3% over that of 1981–82.

The fishing industry

The rationalisation begun in the late 1970s remained the fishing industry's major feature during 1982–83. The Queensland Fish Management Authority was established to ultimately manage the State's fisheries.

Overall industry conditions continued to be difficult. Although prices for export-quality prawns firmed considerably, a decline in the catch rate offset the impact on total industry income. Perhaps the greatest problem during the year was costs continuing to rise at a faster rate than income. One of the few bright spots was the excellent scallop catches off central Queensland in the pre-Christmas period.

On the domestic market, the pattern was unchanged from 1981–82 with imports still providing major competition for locally produced species.

The wheat industry

In 1982–83 Queensland produced an estimated 634 000 t of wheat from a planting of some 728 000 ha. Plantings were low due to inadequate moisture, and more than 150 000 ha were abandoned due to adverse conditions. The total Australian crop was expected to be the lowest for 10 years, about half of the 1981–82 crop.

A significant feature of the Queensland crop was that 83% of the grain harvested was classified Prime Hard or No. 1 Hard.

Australian wheat exports during the 1982–83 season were expected to be less than 5m t, compared with 11.9m t in 1981–82. Supplies were allocated to regular buyers, long-term agreements and 100 per cent Australian wheat markets according to availability by quantity and quality.

Growers' returns from the 1982–83 crop were expected to be similar to the previous season's returns of about $120/t, port basis.

The barley industry

The 1982–83 barley season resulted in the second drought-affected crop in three seasons. Eventual production totalled only 210 000 t compared with 390 000 t in 1981–82 and 170 000 t in 1980–81. Average yields in 1982–83 were 1.55 t/ha compared with 1.81 t/ha the previous season.

The Barley Marketing Board received 169 056 t compared with 320 000 t in 1981–82 and 95 000 t in 1980–81. Most of the crop was disposed of on the domestic market as feed grain with only 13 561 t exported, all to Saudi Arabia.

A first advance of $115 net/t was paid on all deliveries to the board compared with $92.50 net/t for the previous pool. The board again operated a discounted cash-payment scheme whereby growers could receive a cash payment upon delivery, in lieu of the normal pool payments spread over 12 to 15 months. About 38% of all board deliveries were made for cash payments, which ranged from $120.26 net/t for feed grade to $156.51 net/t for malting grade. Growers delivering to the pool elected to 'cash out' about one-third of the net pool tonnage. These cash-out payments ranged from $5.41 net/t for feed grade up to $42.79 net/t for malting grade.

For the second year in succession, the board expected to be able to finalise the 1982–83 pool within 12 months.

A feature of the 1982–83 season was the board's decision to accept the variety Grimmett as a malting barley. Total deliveries of malting grade barley were 52 738 t comprising 29 526 t of the traditional malting Clipper and 23 212 t of the new variety.

The grain sorghum industry

Grain sorghum plantings for the 1982–83 season were estimated at 508 000 ha or 5% above last year. However, due to drought in many growing areas, production was expected to reach 900 000 t compared with 982 435 t in 1981–82.

On a regional basis, central Queensland production, including the Upper Burnett, was estimated at only 250 000 t compared with 415 000 t in 1982; in south Queensland, production was estimated at 650 000 t compared with 745 000 t in 1982.

In central Queensland, drought drastically reduced the crop during the critical growing period; the crop was further affected by two successive periods of unseasonal rainfall at harvest. These disastrous circumstances posed difficult financial and marketing problems for the Central Queensland Grain Sorghum Marketing Board, which received $6.5m in loan guarantees from the State Government.

The board's problems were earlier compounded by interstate grain buyers seeking sorghum for drought feeding in New South Wales. Actual tonnages likely to be delivered to the board by the end of the year (31 May) were uncertain.

The maize industry

Maize production in 1982–83 was expected to total 56 000 t, almost 65% less than last year's output. Crops in all districts suffered severe moisture stress as a result of the drought.

On a regional basis, production in the South Burnett was estimated at 7000 t (51 600 t in 1981–82), with 7000 t from the Atherton Tableland (21 700 t in 1981–82) and 42 000 t from other areas (78 100 t in 1981–82).

The oilseeds industry

Despite lower plantings, sunflower production was estimated to be about 8% higher than in 1981–82. Prices were expected to remain stable and reflect the price of imported sunflower oil. Sunflower prices were about $230/t on-farm in March 1983.

Soybean production was estimated to be 13% down on that for 1981–82. Crops were affected by hot dry conditions during the growing season and by rain at harvesting, which caused sprouting in the pods.

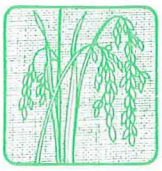
The soybean market was firm due to high demand for protein meals. Soybean prices were $270 to $280/t on-farm in March 1983 compared with $210 to $215/t in March 1982.

Safflower and linseed plantings were lower than usual due to the lack of adequate planting rain.

The 1982–83 oil-seed production figures are:

Crop	Area planted (ha)	Production (t)	Yield (t/ha)
Sunflower	118 000	77 000	0.653
Soybean	30 000	41 000	1.367
Safflower	2 000	less than 250	. .
Linseed	less than 250	less than 250	. .

The rice industry



With the harvesting of the 1983 winter crop, total 1982–83 production was expected to exceed 22 000 t. This is above the production levels of the last two years and is surpassed only by the 1979–80 harvests. About 20% of the Burdekin district crops were lost, and crop quality suffered markedly from the heavy autumn rains. Fortunately for Mareeba growers, their crops were harvested before the rains which overcame the water shortage in most areas.

The world rice market remained depressed, but indications were that the slump had bottomed out. This follows reduced production in 1982 and the possibility of reduced production in 1983. Fortunately, most Queensland rice is sold on the more stable and generally higher-returning domestic market and, as such, is largely insulated from movements in international rice markets.

The sugar industry

Queensland's sugar-producing districts experienced favourable weather during growing and harvesting in the 1982 season. This was reflected in the higher quality cane harvested, with the CCS average for the State increasing 0.62 units to 14.21 units.

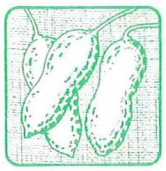
A record 302 000 ha was harvested for milling during the season, producing 23.1m t of cane. Although this was slightly lower than the 1981 level, the 3.3m t of 94n.t. sugar produced from the crush was slightly higher than in the previous season.

Sugar producers' returns during 1982 were well below those of 1981 because of low prices on the international sugar market. By the end of May 1983, world sugar prices had improved and there were hopes for the implementation of a new International Sugar Agreement.

Because of the drought during the growing season, production of cane for the 1983 season could be between 10% and 20% less than for the 1982 season.

The depressed world sugar market was largely responsible for the financial difficulties of a number of co-operative sugar mills, which were assisted by State Government loans. Cane farmers were also assisted through the Rural Reconstruction Board.

The peanut industry



The area sown to peanuts for the 1983 season was estimated at 36 500 ha compared with 32 984 ha in 1982. Severe drought during the growing season followed by unseasonal heavy rainfall just before harvest reduced the likely production to less than 20 000 t (56 429 t in 1982). The quality of the harvested crop was expected to be generally lower than usual.

During the year, the peanut industry experienced some dramatic developments, details of which are on page 41.

The financial and marketing difficulties associated with the 1982 season, combined with the drought- and flood-reduced 1983 crop, made State Government assistance for the Peanut Marketing Board necessary. Loans totalling $6m were made to the board. In addition, at the end of May, consideration was being given to making more funds available to the board to help pay a first advance of 50c/kg to growers. This was designed to boost confidence in the industry and encourage growers to deliver maximum quantities of peanuts to the board.

The navy bean industry

The area of 6650 ha sown to navy beans in 1982 was the largest since 1979 and about 90% more than in 1981. Expected high gross margins relative to those for other crops and favourable season conditions were the main reasons for the increase. The average yield for the 1982 season was 900 kg/ha, well up on the yield of 590 kg/ha in the previous year. Total production for 1982 was just over 6000 t, estimated clean weight.

The Navy Bean Marketing Board paid 45c/kg on the 1982 crop and expected to pay a further 30c/kg early in the 1983–84 financial year.

Plantings for 1983 were estimated at 6500 ha. However, a combination of poor seasonal conditions and flood rains resulted in large areas being abandoned. Only 1500 t, estimated clean weight, were likely to be delivered to the board. Returns to growers for this crop were expected to total 65c/kg.

The cotton industry

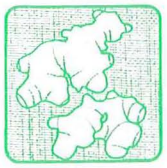
In Queensland, the area planted to cotton for the 1982–83 season increased in line with the long-term goals. However, crop prospects decreased significantly when extensive flooding occurred in the main cotton-producing areas. Until the May rain, the cotton outlook had been promising. Prospects for improved cotton yields had been enhanced by the generally good weather, and a record crop of around 120 000 bales was expected compared with the record production of 96 759 bales in 1981–82. However, the extensive flooding in the major cotton-producing area of southern Queensland could reduce production by 20 000 bales.

The crop setback reduced the exportable cotton surplus, making the trade outlook less optimistic. The volume of cotton exports for the season could decline to 86 000 bales compared with the 100 000 bales exported last year.

World cotton prices most recently had been influenced by improved demand for cotton and a tightening in supplies of uncommitted cotton, especially in the better grades, in many countries. Prices had increased from 77.80cUS/lb early in March to 82cUS/lb in mid May.

At year's end, the Cotton Marketing Board had shipped or committed to export 54 000 bales, leaving a balance of 32 000 bales uncommitted. This augured well for future sales.

The ginger industry



Ginger production in 1982 totalled 6038 t from 172 ha. The previous season's crop had been 7834 t from 228 ha.

During the year, the world ginger market was depressed. Carry-over stocks of some products had posed marketing and financial problems for the Buderim Ginger Growers Co-operative Association.

The fruit and vegetable industry

The estimated gross value of horticultural production in 1982–83 was $251.5m, slightly less than the value for 1981–82. On the Brisbane Wholesale Market, average prices for most fruit and vegetable products were above last year's, mainly under the influence of reduced market intakes.

Severe hail storms on the Granite Belt in December substantially reduced production in the State's **apple** and **pear** crops. Crop estimates were set at 1.305m boxes for apples (930 000 and 375 000 hail damaged) and 196 000 boxes for pears. The previous season's output had been 2.271m boxes of apples and 241 000 boxes of pears. Value of production was expected to amount to about $10m.

The Processed Apple and Pear Committee established recommended minimum prices for apples and pears for processing during the 1983 season at levels somewhat higher than those for the previous season.

Value of production of **bananas** was estimated at $38m, significantly above the level of previous years. For **pineapples** and **citrus,** the value of production was estimated at $25.5m and $20.3m respectively.

The Australian citrus industry was still encountering technical difficulties in meeting the standards set by Japan for the residual level of ethylene di bromide (EDB) in the atmosphere of containers used to export oranges. This matter was expected to be resolved and a shipment of oranges to Japan to occur later in the 1983 season.

The level of canned pineapple imports continued to concern the local industry. After an IAC inquiry last year, the Commonwealth Government decided that canned pineapple imports would be subject to a 15% *ad valorem* rate of duty until 30 June 1985. This rate was to be reduced to 12.5% on 1 July 1985 and to 10% on 1 July 1986.

The decision will maintain the current protection level until mid-1985, but will reduce the industry's assistance by one-third by mid-1986.

In February 1983, the Ministers for Primary Industries and for Commerce and Industry jointly released a report on the horticultural

potential of the Burdekin-Bowen region of north Queensland. In April 1983, a paper on stabilisation in the Queensland potato industry was prepared in response to industry concern about the significant fluctuations in production, grower returns and grower numbers which had been evident in recent years.

The value of Queensland's **potato** production was expected to be about $22.1m, significantly down on last season's. The decline was attributed mainly to the lower price levels which prevailed throughout the year.

The value of production of **tomatoes** was also expected to fall significantly from last year's. Similarly, the decline was mainly the result of lower market prices.

The tobacco industry

The 1982 Queensland tobacco-selling season saw 7 478 283 kg of tobacco leaf sold at an average price of 452.7c/kg. The Mareeba district fared particularly well with the average price for the Mareeba sales being 456.1c/kg. This compared with the 1982 minimum average reserve price of 444.7c/kg. The value of sales totalled $33.9m.

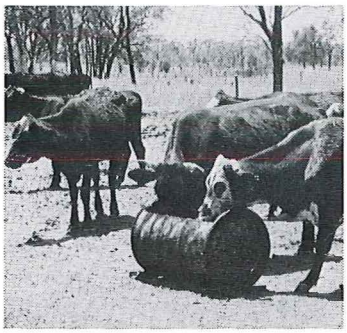
The growing sector's restructuring remained a high industry priority. The opening of intra-State transfers and the raising of the upper limit on quota amalgamations helped restructuring.

The current five-year Stabilisation Plan expires at the end of 1983. The structure of a subsequent plan was being negotiated by the relevant State governments, the Commonwealth, the growing sector and the manufacturers after the IAC recommendation for the phasing out of stabilisation arrangements. The format of the plan would place continued emphasis on industry restructuring, especially interstate quota movements, the reduction of manufacturers' stockholdings and continued price restraint.

The policy of price restraint was evident in the setting of the 1983 minimum average reserve price of 465.6c/kg—an increase of only 4.7% on the 1982 price.

Animal industry highlights

Drought and flood



Molasses fortified with urea and protein meal helped save many cattle in the drought.

One of the worst droughts this century ended in early May with widespread floods throughout the State. Cattle losses were not as severe as in previous prolonged droughts due to extensive feeding, encouraged by the availability of the drought fodder subsidy and the adoption of new approaches to the feeding of molasses. In addition, significant numbers of droughted cattle were brought into feedlots for finishing. Heavy losses were caused by serious flooding in the Weir, Balonne and McIntyre rivers.

The concept of medication through the drinking water was exploited in the field during the drought to supply sheep with supplements (non-protein nitrogen and minerals). A DPI officer visited all mainland States to demonstrate the concept to graziers and government officers.

The meat industry

State and Commonwealth meat inspectors worked together to develop monitoring systems for export-meat trade description.

The Roma meatworks remained closed and Mareeba failed to reopen in 1983. There was a marked trend towards increased throughput in domestic abattoirs at the expense of export works. The larger export operators expressed concern about excess capacity and viability, and moves were made towards rationalisation of capacity, without success.

The Report of the Royal Commission into the Meat Industry vindicated Queensland's decision not to participate until allegations of malpractice were made. The Commonwealth pre-empted the Commissioner's findings by establishing an Export Inspection Service under changed management and by imposing tight security measures. In April the Commonwealth proposed three options for a single meat inspection service and the State had agreed to reopen negotiations on two of these options.

Field days are an important extension medium. These producers gathered at Wivenhoe in June 1982 to hear the results of worm trials jointly conducted by the DPI and the CSIRO.

State officers contributed significantly to developing more objective trade descriptions within the Export (Meat) Regulations and the establishment of meat quality monitoring on the export and domestic markets. Attempts by the State to establish a fully integrated monitoring service were not successful, but a degree of co-operation has been achieved.

Agreement was reached by all States to implement the Queensland system for consumer identification of meat. The scheme was to use the orange brand, to be known nationally as 'Gold'.

A further increase occurred in the use of electrical stimulation to accelerate conditioning and improve tenderness of beef carcasses. In co-operation with the Queensland Livestock and Meat Authority, DPI officers were to examine the need for better monitoring of accelerated conditioning and the Gold brand system.

Modifications were made to the pet food regulations in the wake of the meat substitution scandal in southern States and the national agreement for uniform staining with brilliant blue and for other security measures.

The cattle industry

Hereford and Poll Herefords accounted for 50% of the Queensland cattle population in the mid 1960s. Since then, with the expansion of Tropical breeds and crosses, Hereford numbers have declined dramatically in tick-infested areas. However, they still remain the most dominant single breed, accounting for 19% of the population.

During the year important developments occurred in livestock marketing. Trading on a classification schedule was offered by the Mackay works throughout the year. The New England computer livestock marketing scheme extended its trials into the eastern Darling Downs. For intensive cattle producers, the scheme offers some distinct advantages over traditional selling methods. It provides substantial competition while giving a farm-gate price based on carcass weight without any uncertainties of grading. Prior weighing and assessment were seen as limiting wide adoption of the scheme.

An international congress to celebrate the 50th anniversary of the Brahman cattle breed in Queensland was held in Rockhampton during April. It could almost have been a tropical breeds congress because Braford, Droughtmaster, Santa Gertrudis and Africander breeders were well represented.

Cannon Hill saleyards opened as a delivery centre for futures trade steers in June to replace the Miles centre. A DPI study had indicated that a well-located delivery centre was needed on the Darling Downs as well as at Cannon Hill. In May industry organisations in Queensland recommended to the Sydney Futures Exchange that a delivery centre also be established at Dalby saleyards.

The second and third importations of beef cattle from Canada and the USA arrived in August 1982 and April 1983. The second consignment contained one Poll Hereford, 17 Brahmans and four Santa Gertrudis imported by Queensland breeders, out of a total importation of 36 head. In the third consignment of 43 animals, 37 came to Queensland of which 31 were Brahmans and six Poll Herefords. Queensland stud masters, and Brahman breeders in particular, dominated these importations.

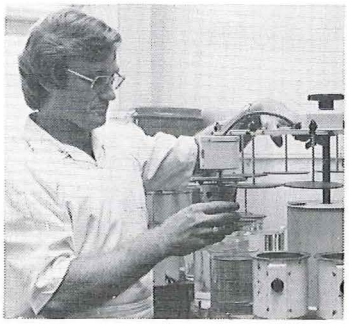
Brucellosis and tuberculosis

All Queensland cattle herds had been assessed for tuberculosis, and only 246 properties (0.8%) remained under eradication. It was anticipated that the whole of the State would be provisionally free of tuberculosis by April 1985. With 97.6% of cattle herds clear of brucellosis, it was expected that Queensland would be provisionally free of brucellosis by April 1984.

Research in the animal industries

Blood sera were collected from tuberculosis infected and selected cattle to form a serum bank to aid the development and evaluation of a serological test for tuberculosis diagnosis. A more convenient and accurate procedure than the intradermal tuberculin test is necessary for eradication in the more extensive grazing areas.

Tick fever remains a major cause of losses in cattle in coastal Queensland. Vaccines produced by the DPI's Tick Fever Research Station, Wacol, are packaged in multi-dose containers suitable for most automatic syringes.



Automated tissue-processing machines are used to prepare animal tissues for microscopic examination at the DPI's Animal Research Institute, Yeerongpilly. This is an important process in disease diagnosis, and more than 4500 batches of tissues were processed in this way in 1982–83.

A survey of dairy herds was begun to acquire more information on the distribution and prevalence of enzootic bovine leucosis (EBL). Results using the AGID test on some 35 samples from each of 80 herds indicated that 64% had positive animals. The survey was recently extended to involve sampling of dairy herds in the Toowoomba, Maryborough, Rockhampton and Cairns areas.

An experiment aimed at assessing oncogenicity for sheep of the Queensland isolate of EBL virus was completed. Sheep were infected with EBL virus three years ago and, of the 18 animals infected, six developed generalised lymphosarcoma. The study established that sheep are much more susceptible to the tumour-inducing properties of the virus than are cattle. These findings are consistent with overseas reports and suggest that the prevalence of lymphosarcoma in sheep warrants further study particularly since a syndrome similar to EBL has been reported in sheep flocks overseas.

Abortion is one of the most serious problems confronting the cattle industry. The causes are many and frequently unknown.

Two agents not often associated with abortion in Queensland were identified. *Salmonella dublin* caused abortion in two south-east Queensland dairy herds. Both owners had bought pregnant Friesian heifers from Victoria through a dealer. *S. dublin* was isolated in pure culture from several organs of the foetus submitted. It was also isolated from calves of these heifers. They had subsequently developed septicaemia and diarrhoea. Mycotic abortion was diagnosed four times over a three-month period in south-east Queensland, an unusually high incidence. Abortion occurred at about seven to eight months and diagnosis was by demonstrating the presence of fungal hyphae in foetal organs or membranes.

A study was being undertaken into the epidemiology of bovine hydatidosis. Two 'strains' of *E. granulosus* were identified from material obtained in surveys: a 'mainland domestic' strain and a 'sylvatic' strain. Both strains have been found in dingoes, but the 'sylvatic' strain is by far the more common. It is known that the 'mainland domestic' strain is infective to man, but there is no direct evidence that man can be infected with the 'sylvatic' strain.

Until this year, active transmission of equine infectious anaemia, a virus-induced haemolytic anaemia, had been confined to river systems of the central highlands, central and south-western Queensland, and the Gulf. However, early in the year, cases were confirmed in the Brisbane area for the first time in local horses. Extensive testing of horses in the surrounding area failed to detect any other cases, so that the source of infection remained unknown.

The pig industry

Despite increasing costs of feed due to drought, sow numbers in Queensland at March 1983 were about 74 700, an increase of 12% over the total for the previous year. This compared with an 8% rise in Australian sow numbers.

For the pig industry, producer schools were organised in conjunction with frozen-semen importing agents to teach artificial insemination techniques. On-farm tuition was given in techniques of collection and utilisation of fresh semen.

The virus disease encephalomyocarditis (EMC), which previously was suspected to be present in Queensland, was confirmed present by the recovery of the virus from the tissues of pigs which had died suddenly.

The poultry industry

A working party of the Poultry Advisory Board which investigated the effects of seasonal hen quota adjustment on the egg industry found that these adjustments benefited the community economically.

Development of facilities

The DPI's purchase of 'Croxdale', a property near Charleville, will enable it to implement a range of applied studies into high priority problems of the sheep industry. These studies are aimed at developing a range of practical recommendations which producers in south-west Queensland can implement.

The installation of versatile, highly accurate, gas chromatography-mass spectrometry equipment at the DPI's Animal Research Institute, Yeerongpilly, will enable the detection and identification of complex organic compounds in a range of diagnostic and research investigations.

Animal quarantine

As the result of a Queensland initiative, all Australian divisions of the Animal Quarantine Service attended a Brisbane workshop with the aim of developing the first training manual for animal quarantine officers. The workshop was a landmark in improving service efficiency.

Plans were advanced for introducing tighter control over the import of live ornamental fish based on licensed privately-owned quarantine premises.

Increased resources were devoted to quarantine surveillance in the Torres Strait, and to screw worm and other monitoring programmes in this area. General agreement to the concept of a livestock-free buffer zone towards the tip of Cape York Peninsula was achieved.

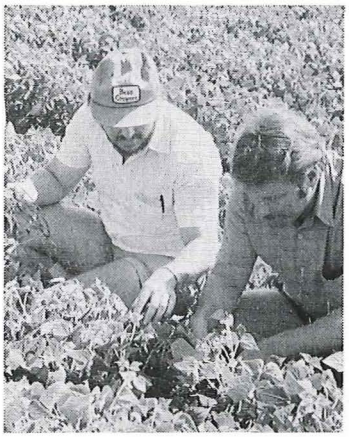
Husbandry and management programmes

The DPI reviewed its sheep and wool extension activities and as a result emphasised four priority areas: net reproductive rate, wool growth, wool harvesting, and parasites. Peripheral projects such as property improvement, goat husbandry and activity-related events were incorporated into a miscellaneous programme.

Plant industry highlights

Agriculture

A DPI agronomist inspects a crop of sesame seed grown near Atkinson's Dam in the Lowood district.



Navy beans are finding a place in the Mareeba district. A DPI extension agronomist (right) inspects a crop of irrigated navy beans grown on sandy soils at Dimbulah in 1982.

DPI breeding programmes are producing a steady stream of new varieties and breeding lines. During the year, six crop varieties and one breeding line were released.

Three new wheat varieties—Torres, Bass and King—were released. Torres and Bass are high-yielding, quick-maturing varieties, Bass being closely related to Cook but having additional resistance to stem rust. King is an awnless winter wheat suitable for early sowing and for grazing.

The soybean variety Dragon has good field tolerance to *Phytophthora* stem rot. Its resistance is not liable to breakdown through mutation in the disease organism and is, therefore, long term. Dragon is a high-yielding variety and has good resistance to pod shattering.

The butter bean variety Pharlap will fill a need for a large, white-seeded bean variety. This type of seed traditionally has been graded from navy beans and availability has varied with seasonal conditions.

The red kidney bean variety Rufus gives higher yields and has improved disease resistance compared with the red kidney variety previously available to growers.

The sorghum breeding line QL24 has a single recessive gene which causes extreme lateness. This lateness is not related to a photo-period response, and the line should be useful in breeding programmes aimed at producing late-maturing sorghums.

The shrubby stylos cultivars Seca and Fitzroy were proving widely adapted to the dry tropics and in central and south-east Queensland south to Bundaberg. Three formal grazing experiments (Mareeba, Brigalow Research Station and Brian Pastures Research Station) and seven grazing demonstrations on private properties were successfully established and were supplying important data on the impact of grazing and phosphorus on plant and animal production.

Two new aphid-resistant lucerne cultivars Trifecta and Sequel were developed in conjunction with the CSIRO.

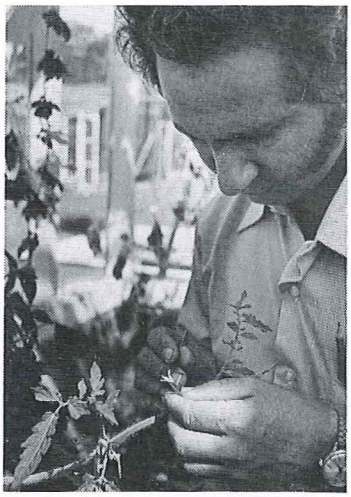
Producers were interested in improving the range of available enterprises and in enhancing their managerial ability to best use meagre returns and resources. In particular, sugar-cane farmers were assisted with growing alternative crops, such as grain legumes and cereal crops, and graziers were keen to use low-cost methods of crop production, particularly in coastal areas of south-east Queensland.

Many traditional growers of cereal and grain legume crops were diversifying into horticultural and tree crops, particularly on the Atherton Tableland and the eastern Darling Downs, and in the Burnett and Moreton regions.

A 'Micronair' unit provides low-volume and high-coverage chemical spray for disease control in a peanut crop at Walkamin in the Mareeba district. The six-head unit sprays 12 rows at a time.

A return to more profitable cotton yields in the Emerald Irrigation Area resulted from an extension programme involving extension agronomists, research officers, industry personnel and cotton growers. The benefits of a well planned and conducted extension programme, with extensive grower involvement, were an increase in average yields from 3 bales/ha in 1981–82 to more than 4.5 bales/ha in 1982–83.

Horticulture



A new tomato variety was released to industry as a result of the tomato-breeding programme at the Redlands Horticultural Research Station.

Bacterial wilt is a major problem of tomato production in warmer months. Varietal resistance is required for its control. In 1980, the DPI released the variety Scorpio to overcome the problem. It became a significant variety, but lacked the firmness of the major variety Flora-Dade. During the year, the tomato hybrid variety Redlands Summertaste was released from the breeding programme. This variety has firm fruit of high quality, taste and consumer acceptability, coupled with resistance to bacterial wilt, Verticillium wilt race 1, and Fusarium wilt races 1 and 2. The variety performed well in grower trials.

The new races of Fusarium wilt (race 3) identified at Bowen in 1979 continued to threaten the tomato industry there. The breeding programme to develop resistant varieties was progressing strongly with the release of six breeding lines with Fusarium wilt race 3 resistance. One of the breeding lines was close to being a commercial variety, and several growers were to produce it on a small commercial scale this season. The breeding lines were distributed to tomato breeders in Florida, USA, where the new race had also been identified. The breeding lines will save the Florida breeders several years of basic breeding work to develop resistant varieties.

The large-scale pea varietal introduction and evaluation programme of the last three years resulted in a major expansion of processed-pea production in Queensland. Queensland produces about 35% of Australia's processing-pea requirements on 4500 ha a year. The new varieties have increased yields and have allowed significant expansion in the pea-production season through the use of early and late varieties. A similar varietal evaluation programme was in progress for French beans.

The DPI was instrumental in identifying the nature and cause of bitterness in zucchinis after consumer complaints to the Department of Health. The main Queensland varieties Blackjack and Castle Verde were both involved. The bitterness was found to be genetically controlled. The seed companies involved were advised of the genetic problem in their seed. Investigators were seeking to identify varieties free of bitterness.

Phytophthora root rot remained a major problem of commercial avocado production. Maroochy Horticultural Research Station developed a vegetative propagation technique for avocado rootstocks, giving growers access to avocado trees propagated on Phytophthora root-rot-tolerant rootstock clones. A local nurseryman had successfully adopted the technique.

1 Drought was the most important environmental influence on Queensland's rural industries in 1982–83 and gave producers a grim reminder of the need for strategic plans to help alleviate the vagaries of the weather. By March 1983, shires occupying about 70% of the State's land area had been declared drought stricken.

2

3 DPI stock inspectors rope a mickey bull for tuberculosis testing on a property outside Mt Isa. Ultimate success in the tuberculosis eradication campaign means testing every head of cattle in Queensland—not always an easy job in the isolated areas of the State.

4 Brigalow wattle *(Acacia harpophylla)* is among the 61 wattles *(Acacia)* listed and described in the DPI's publication *Wildflowers of South-eastern Queensland.* Originally, it covered more than 9.2m ha in Queensland, in a continuous belt from the New South Wales border north to Collinsville. It is now found in south-east Queensland in the area from Boonah to Lowood.

5 Harmless coloured dyes are used to check the spray pattern produced by agricultural aircraft. The *Agricultural Chemicals Distribution Control Act* licenses agricultural pilots and provides a system for investigating complaints of plant or stock damage.

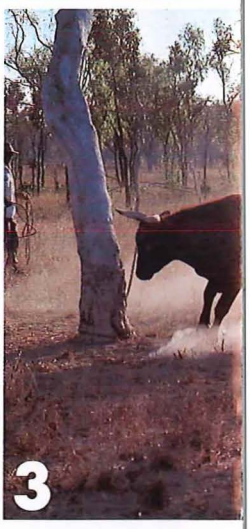
6 Tailor fishermen line the beach at Fraser Island during the height of the season in September. The DPI is monitoring this recreational fishery, which is one of the most important in Queensland.

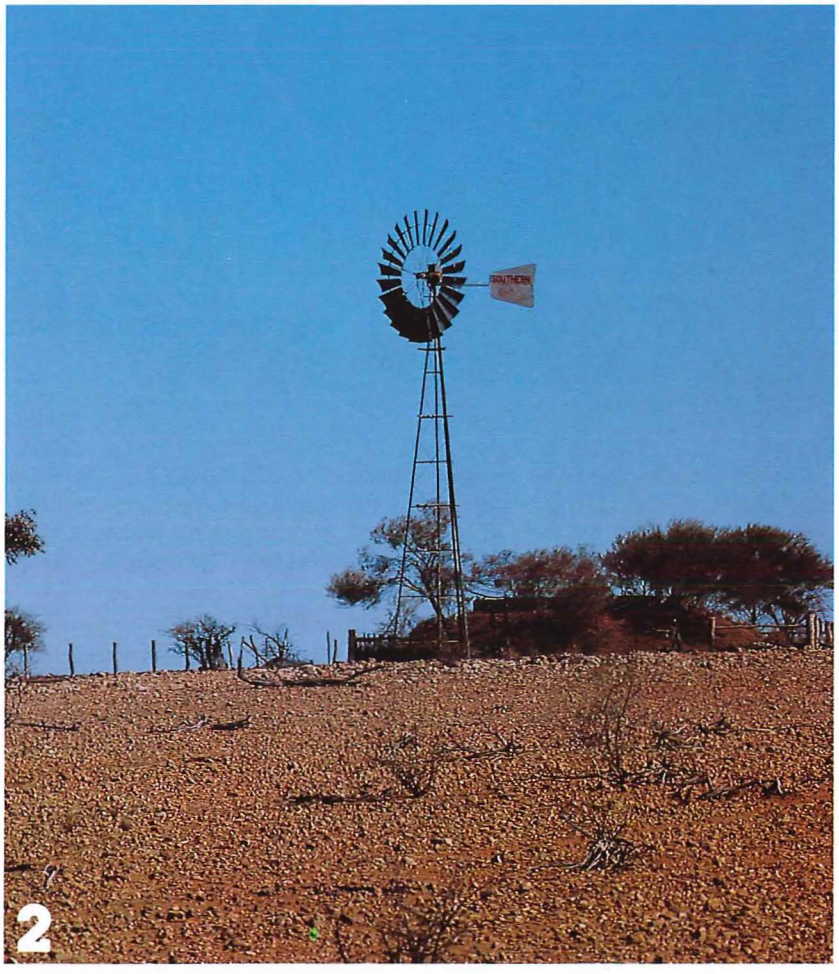
7 A king-size Queensland fruit salad: the State produces a wide range of fruits for both the fresh and processing markets.

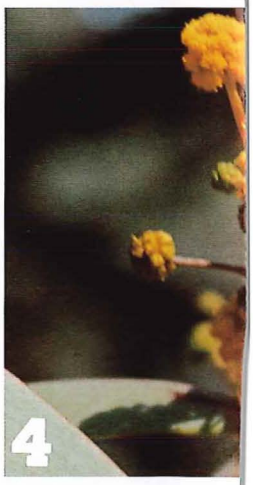
Soil erosion in Queensland has reached 'very serious proportions', according to the *Queensland Planning Committee for Soil Conservation Report* released in April 1983. Of the 2.8m ha presently cultivated, 2.3m ha are prone to erosion, almost entirely from water flow.

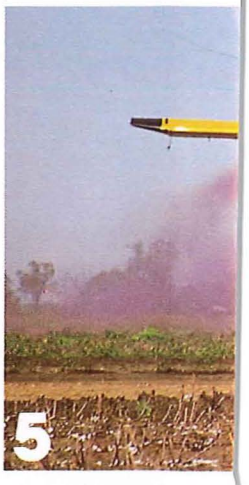
8 In two months, 450 mm of rain fell on Mitchell Downs near Mitchell. Soil loss was 50 t/ha. The green is all that remains of crops that were washed into the drainage line.

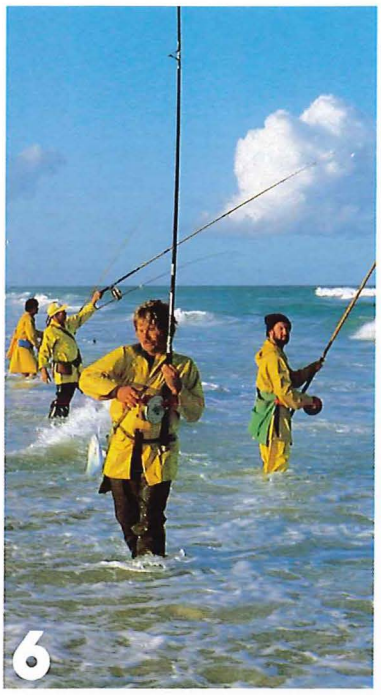
9 In late June 1983, rain washed away a section of the Toowoomba-Roma railway line at Gowrie Junction.







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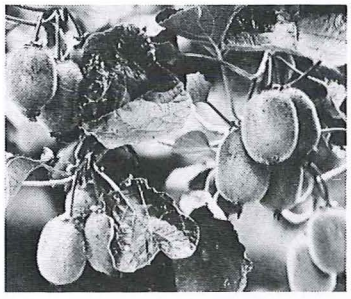
Wine quality is assessed in experiments at the DPI's Sandy Trout Food Preservation Laboratory, Brisbane.

Excellent prospects existed for developing a local and export persimmon market with the release to the industry of the non-astringent variety Fuyer. This variety, semi-dwarf in habit, was expected to produce yields of 20 t/ha at high densities. Fuyer has excellent appearance, good fruit size, excellent shelf life and good flavour.

Fifty-six new stonefruit varieties were introduced into Queensland, taking the total number being evaluated to 180. The programme has resulted in a large number of varieties, including high- and low-chilling types, being released to industry for commercial evaluation. Low-chilling varieties introduced through the programme were being produced in many districts throughout the State, resulting in a substantial increase in the stonefruit marketing season.

A new research project was investigating the potential of a range of alternative fruit and nut crops for production in colder areas of Queensland. These included pecans, almonds, hazelnuts, pistachios, chestnuts, blueberries, blackcurrants, persimmons and figs. A number of varieties of each of these crops was planted at the Granite Belt Horticultural Research Station, with the nut crops also being planted at Inglewood.



Kiwifruit are becoming a popularly grown fruit crop in Queensland.

A tissue-culture method for bananas was successfully developed. The presence of a new race of Fusarium wilt in Queensland had highlighted the need for resistant varieties. Some cloning was to be used in an attempt to develop a resistant variety, and the tissue-culture method was the first step.

The commercial production of frozen avocado spread began in Queensland after a suitable processing technique had been developed at Sandy Trout Food Preservation Research Laboratory. Another processor was using the research results to prepare avocado puree. These developments have opened the way for increased use and consumption of avocados.

After blue mould caused the loss of 10 000 cartons of stored apples on the Granite Belt, a major extension drive was directed to all cool stores early in 1982 to promote post-harvest dipping in benomyl. As a result, blue mould losses in late-stored fruit were negligible in 1982.

Production of summer broccoli was promoted on the Granite Belt through variety trials and a range of extension media. The number of summer broccoli growers increased from three to 25, producing over 36 000 cartons valued at about $550 000 during December and January.

A valuable publication *Salinity Management in the Lockyer Valley* was prepared to support an extension programme designed to assist Lockyer Valley growers to manage soil and water salinity problems that intensified during the drought.

A container is prepared for experiments to simulate transport of fruit and vegetables.

Promotion of the advantages and techniques of trickle irrigation for vegetable production continued in the Bundaberg area, and the number of growers adopting it more than doubled to 96.

The advantages of trickle ethylene gas injection for tomato ripening were being recognised by Bowen growers, and several ripening rooms were being modified for the system.

To assist north Queensland banana growers to improve the cost efficiency of fertilizers, critical soil phosphorus data were provided to commercial soil-testing services, and growers were encouraged to use their facilities. This led to a reduction in use of 160 t of P a year in north Queensland, with a cost saving of about $156 000.

An extension programme conducted by horticulturists and soil conservationists resulted in 70% of banana growers adopting soil conservation methods—an increase from 25% in the last few years.

A new avocado and mango package was developed through co-operation between key growers, a carton manufacturer and the market extension service. The package was well promoted through the industry, and experimental approval was granted by the three eastern States. About 50 000 were bought for evaluation during the 1983 avocado season, and a further good response was expected during the mango season.

Agricultural chemistry

An officer in the DPI's agricultural chemistry branch dispenses an acidic extracting solution used in testing soils for available phosphorus, an important test for primary producers' soils.

Research into the causes and alleviation of soil salinity was intensified.

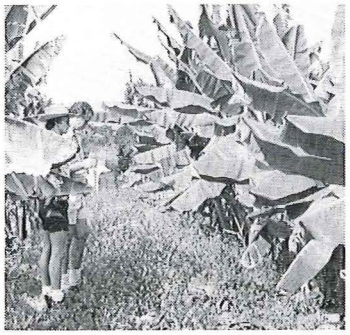
The Lockyer Valley has one of Queensland's worst irrigation-water salinity problems, with 90% of irrigation waters unsuitable for sensitive crops. Detailed studies of groundwater chemistry in parts of the Valley indicated new origins of salts in groundwater. Mechanisms of salt accumulation were suggested. Clay content of soil markedly influences salt build-up from irrigation, and the salinity level from a given quality irrigation water is lower than would be predicted based on overseas experience. The work was leading to a re-assessment of quality criteria for Lockyer Valley irrigation water.

Development of shallow water tables in the Burdekin area indicated that large land areas could become salt affected after irrigation development. These areas were being identified and the means of preventing salinity build-up studied.

Salt and groundwater monitoring at farms on the Darling Downs and in central Queensland was providing information on salt accumulation processes to help with reclamation strategies. Reclamation trials at Emerald had already been successful in lowering water tables and salinity levels, and this had resulted in significant crop yield improvements.

Plant pathology

Boil smut in a maize crop in the Lowood district in 1982.



Banana planting material is prepared to replace material eradicated in Cape York and the Torres Islands after an outbreak of Black Sigatoka and Freckle.

New diseases of varying importance appear in Queensland every year.

Brown rot of stone fruit caused by *Monilinia laxa* was of most concern in 1982–83. This fungus is responsible for a more severe blossom and twig blight than *M. fructicola* which has been in Queensland for more than 60 years. After it was detected on Mariposa plums at the Brisbane Markets in January 1983, *M. laxa* was found in eight of 67 orchards surveyed in the Granite Belt. Growers should be able to cope with the disease at the cost of additional fungicide sprays.

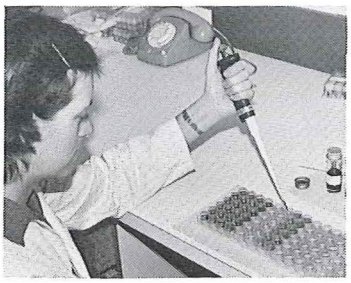
Boil smut continued to spread throughout south-east Queensland and northern New South Wales. At the end of the 1981–82 season, it had been found in the Beaudesert and Gatton districts. In 1982–83 it was recorded on the eastern Darling Downs, and at Upper Yarraman, Blackbutt, Killarney and Dalveen. The level of disease was generally low. In laboratory tests, the fungicide Bawsan L® gave good control of smut spores contaminating seed; its effect on seed germination was being evaluated. Field studies by NSW Department of Agriculture plant pathologists indicated that DPI-developed maize hybrids were no more susceptible than commercial hybrids of USA origin. The maintenance of quarantine areas was to be reconsidered in the near future.

A spherical virus was found in Lady Finger banana plants showing symptoms of bunchy top. Although bunchy top has long been regarded as a virus disease because it is spread by aphids, the causal virus had never been found. The DPI was endeavouring to characterise the virus and was looking forward to a better understanding of the disease.

All banana plants at Bamaga and on Moa, Badu and Thursday islands were eradicated to eliminate Black Sigatoka banana disease from the southern Torres region. Clean banana-planting material was provided to replace the eradicated plants. Wide publicity and personal contacts were used to create awareness of the implications of the disease to the Australian industry and the need for its eradication.

DPI horticulturists and plant pathologists who carried out this programme, funded by the Commonwealth Department of Health, to date have found no disease on the replants.

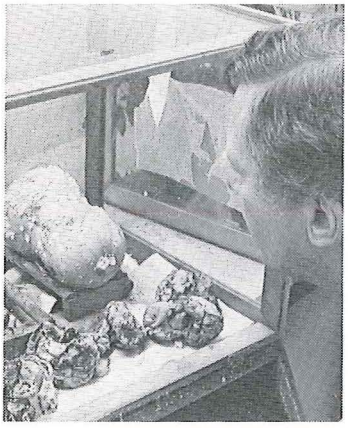
Entomology



Laboratory bioassays provide the most convenient and accurate method of testing the infectivity of varying doses of a virus-based insecticide against *Heliothis* larvae.

Resistance to synthetic pyrethroid insecticides (SPs) emerged in populations of the major insect pest *Heliothis armiger* in the Emerald Irrigation Area. For several seasons, many growers had relied heavily on SP sprays to control *H. armiger* in a wide range of crops, especially in cotton during the critical mid-season period. During March, despite concentrated efforts to control the pests, significant larval infestations on irrigated cotton and soybean crops in the Emerald Irrigation Area caused substantial economic losses.

Laboratory bioassay, done in association with the NSW Department of Agriculture laboratory at Tamworth, confirmed high-level resistance to SPs at Emerald, with more than 50% of individuals within each sample being resistant. Other samples collected throughout Queensland showed



The emergence of a parasite of the citrus mealybug is checked in a laboratory rearing cage. The citrus mealybug is reared most conveniently in the laboratory on butternut pumpkins. It is a pest of custard apples and citrus.

no evidence of resistance, except in one with very low frequency from St George late in the cotton season.

SP sprays provided good control of *H. armiger* infestations in rain-grown sorghum crops in the Central Highlands and elsewhere in the State. Despite variable levels of *H. armiger* control which Cecil Plains cotton growers in south Queenland attained with SP sprays, there was no reason to suspect that this might have been due to resistance. Analysis of resistance data collected from Cecil Plains indicated no change in the susceptibility of *H. armiger* individuals from this locality to any group of insecticides.

A multidisciplinary group developed a practical pesticide application manual for DPI officers to use when advising farmers on correct application techniques.

Botany

Certificates of Identification under the State Health Act were issued for 2143 samples of marihuana submitted by State police officers or occasionally by Commonwealth customs officers. This was an increase of more than 27% over the 1981–82 figure.

For the second successive year, a large number of specimens (16 300) were incorporated into the Queensland Herbarium. In these two years, the herbarium collection size has increased by almost 10%. Another 1300 specimens were identified and were awaiting incorporation.

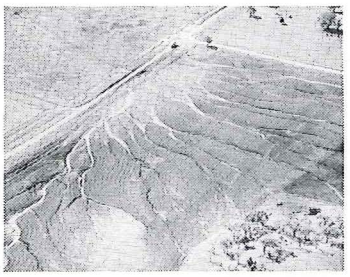
Land management highlights

Treatment of cultivated land

DPI officers treated 70 000 ha of cultivated land, again a record protected area but still less than the area by which cropping is expanding. Treatment is by such methods as contour-bank run-off control systems and strip cropping, and by a concerted extension effort to encourage conservation cropping. More contour bank systems were designed in 1982–83 than ever before.

The area cultivated for grain is rapidly increasing. About 77 000 ha were opened during the year, mostly in areas with shallower erosion-prone soils. These areas must be protected as quickly as possible or their soils' productive life will rapidly reduce.

Drought and rain



Paddocks unprotected from soil erosion on the sloping cultivated lands of the Darling Downs are, after a few years, rendered almost unmanageable.

The severe drought during most of the year depleted soil cover in semi-arid pasture land and led to little crop or stubble cover on cultivated land. When drought-breaking rain fell during May, much of this land had been finely prepared for a winter crop. Extreme soil erosion resulted.

The worst-hit areas were the central Queensland grainbelt, and valley floors and other flood areas on the Darling Downs. About 30m t of soil was lost in the central grain areas where falls of 300 to 450 mm over 10 days were common. Soil loss averaged nearly 80 t/ha on bare fallow land not protected by contour banks. Land with contour banks and some crop cover lost amounts of soil as low as 5 t/ha on average. A figure of 12 t/ha is most widely accepted as a reasonable loss for a whole year. The greatest soil loss, up to 500 t/ha, occurred on individual paddocks of red duplex soil in the Bauhinia Downs area of the Dawson-Callide.

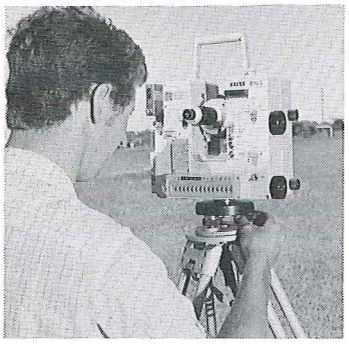
Adoption of soil conservation measures

The record implementation of soil conservation measures indicated producers' increasing recognition of the need for such measures. The high level of adoption of structural measures was partly due to the continuing high demand by large-scale growers whose big areas can be serviced much faster.

Growers became increasingly interested in adopting conservation cropping practices designed to maintain crop or crop-residue cover on soil during high-risk periods. This was particularly true of central grain areas where a number of growers had initiated reduced and even zero tillage practices.

Landholder and community involvement

Landholders in several districts were participating in pilot trials of conservation cropping practices. This should enhance acceptance and development of these practices.



Electronic distance measuring equipment has boosted the collection rate of topographic survey data for soil conservation planning. The instrument computes and stores the co-ordinates of the height of a chosen point. These can be used to compose a computer-plotted map showing spot heights and contours.

Requests for soil conservation services were again high, but, at 4556, were 9% fewer than the 1981–82 record. The reduction was due almost entirely to the drought and landholders' consequent lack of finance. A total of 477 landholders implemented soil conservation measures for the first time.

Requests increased from local authorities for erosion-control advice about land capabilities and the suitability of subdivision proposals. Officers supplied advice on 314 occasions compared with last year's 265.

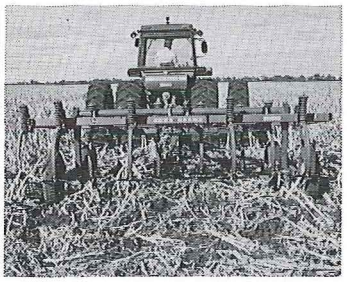
Farleigh Sugar Mill near Mackay, recognising the DPI's difficulties in coping with the demand for service in its area, appointed a land management officer primarily to undertake soil-conservation work. This indicated the value the mill placed on ensuring continued productivity in its area.

Surveying and measuring equipment

Recently acquired electronic distance-measuring equipment has revolutionised topographical information collection, especially on the low sloping country of the Darling Downs where strip cropping practices are necessary. More than four times the usual area was surveyed in 1982–83. Computer mapping using this data was being developed.

The use of mobile electronic staffs accelerated broadacre surveying of contour structures; and new laser equipment, despite some teething troubles, proved valuable. Two additional laser units were bought late in the year.

Extension and development



Promotion of conservation cropping methods that try to maintain good ground cover by either crop or stubble cover was a major part of soil conservation extension activity in 1982–83. Weed control may be achieved by using stubble handling tillage equipment (as here) or herbicides.

The DPI soil conservation extension services's major thrust is to encourage cropping practices which maintain ground cover. A survey of conservation cropping practices on the eastern Darling Downs and 'hands-on' training in conservation tillage machinery for DPI staff assisted this programme.

New joint development and extension projects were begun in the Roma and the Monto-Mundubbera districts. Appointment of a conservation cropping officer to Biloela drew greater attention to the need for system development in the Dawson-Callide area. This was already attracting considerable interest from landholders, especially after the severe damage caused by the April–May rains.

Three landholder surveys of farmers' attitudes to soil erosion and the adoption of conservation measures were completed and published. The surveys were expected to influence future extension activities. The studies were directed at the northern sugar-cane industry and the southern grain industry.

Planning Committee for Soil Conservation

Chaired by Mr D. R. Eather, Queensland Graingrowers Association general president, the planning committee completed its report which was received by State Cabinet. The report recommends, among other things, a restyled Soil Conservation Authority; the abolition of Soil Conservation Districts and Trusts; Advisory Group Committees throughout the State; and a new State-wide planning system. It also recommends the removal of subsidies for works, wider use of lower interest rate loans through the Agricultural Bank, and assistance throughout the State to local authorities. The report was referred to local authorities, grower organisations and the rural community for comment.

Land resource assessment

Well planned and constructed contour bank systems greatly reduced soil loss from cultivated land during the April–May 1983 rains.

Highlights included completion of mapping of the Southern Leichhardt Section of the Burdekin Irrigation Area and of the first draft of the *Mackay Sugar Cane Land Suitability Study,* as well as the Roma marginal cropping workshop.

Sugar industry land use studies progressed satisfactorily. The *Wet Tropical Coast Land Use Study* overview was completed. It indicated that, in addition to the 125 000 ha currently assigned to all 10 mills on the wet tropical coast, there are about 119 000 ha of potential sugar-cane land. This land is unequally distributed among mill areas, and some mills are facing a land-locked situation.

The co-operative land-use and soil mapping studies with the CSIRO continued in the Cardwell–Tully region. These studies are not only identifying the valuable agricultural soils but also providing data useful in resolving land conflict issues. Field studies in the Herbert River region reached the halfway mark with more than 76 000 ha of the total 150 000 ha covered.

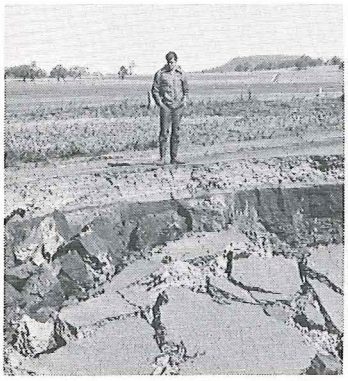
The first draft of the *Mackay District Land Use Study* was completed. Co-operation continued with the land-use committees in the Mackay and Plane Creek regions. These committees were established to co-ordinate and guide the studies and, with DPI technical guidance, to decide how the results should be applied.

Demand for the Near North Coast region maps indicating suitability for horticulture continued to grow. Preliminary maps for the Maroochy, Caboolture and Landsborough Shires are now available.

The high intensity 1:25 000 soil mapping essential for farm subdivision and development of the major Burdekin Irrigation Area began. Mapping of the initial area, the 4 300 ha Southern Leichhardt Section, was completed and the first draft of the report was nearing completion. Maps of the land resources of the South Burnett region at a scale of 1:250 000 and covering 1 064 000 ha were printed. Final manuscripts of the accompanying report were being prepared for publication.

A DPI inter-branch programme to determine the extent of cropping in Near South-West Queensland and to develop practical management guidelines required major inputs of resource information. A land resource map of the Maranoa-Warrego region at a scale of 1:1 000 000 was prepared for inclusion in an extension booklet.

Development planning and evaluation



Concentrations of storm runoff at locations where water crosses roads can be focal points for severe damage to both roads and adjacent farmland.

Involvement in evaluation and planning of irrigation schemes continued at a higher level of activity than in 1981–82.

A comprehensive report, including submissions from the DPI, was being compiled on the *South East Queensland Water Resources Study.* At the request of the Queensland Water Resources Commission, data also were supplied on average cropping patterns and total monthly water requirements for the crops involved in Lockyer Valley irrigation schemes.

The feasibility of a dam and irrigation scheme on the Maranoa River was being investigated. A reconnaissance soil survey was undertaken of about 8000 ha to identify the main areas requiring investigation. Emphasis was on the alluvial river soils, the rolling open downs west of the river, and a limited area of mixed basaltic soils in the Amby region.

Revived interest in the Bradfield scheme led to an investigation of the Flinders River land resources near Hughenden. The proposal was based on a dam with irrigation of suitable riparian and/or commandable lands downstream. Preliminary findings conclude that sufficiently large areas of suitable soils warrant further investigation should the scheme proceed.

Requests from local authorities for assistance in defining areas of valuable agricultural land increased significantly. Local authorities and town planners are using these data as support documents for, or as aids in preparing, strategic shire plans and town planning schemes. Most land resource information is adopted from existing land resource studies. In regions where adequate land resource data are not available, the challenge to conduct specific studies has been accepted only where practicable. At least seven shires were assisted.

Rural tree decline in Queensland has developed to significant levels. Landholders in all of the 70 shires in southern and central regions of the State reported dieback, but the problem appeared most severe in the Fitzroy, Wide Bay-Burnett, Moreton and Brisbane regions. Dieback appeared to be increasing.

Land management research

Run-off and soil-loss trials established at Capella on the basaltic black earths were yielding valuable data on the effects of crops, residue cover and tillage on soil water, run off and soil loss. Crop growth and production were also being recorded. Results so far indicated that soil losses from bare fallow were substantially greater than those for crops or stubble residue combined with minimum or zero tillage practices.

The second stage of the Brigalow Research Station catchment study in central Queensland began with the clearing of two catchments. The pasture catchment was sown to Biloela buffel grass, and, in the cropping catchment, earthworks were delineated and the waterways planted to Indian bluegrass.

A land-management field trial was established at Roma on a brigalow grey clay, one of the south-west's productive soil groups. The aim is to assess the effects of cover and cultivation on runoff, soil loss and crop yield.

The Land Management Field Manual for the Crows Nest district was published. It provides a suitable soils base for farm planning, specifications for run-off control structures, the limitations and management of the soil resource and suitable conservation management systems. The overall programme was progressing satisfactorily.

An assessment of dryland salinity throughout Queensland was published as part of a report on salting of non-irrigated land in Australia. The Queensland assessment identified 8000 ha of land severely affected by seepage salting and 590 000 ha affected by scalding, with areas affected fluctuating seasonally. Trends appear to indicate long-term increases. Research work during the year was directed at identifying water intake areas and areas susceptible to salting. This will allow preventative measures to be applied to precise locations for maximum effectiveness.

Engineering

DPI extension staff were given opportunities in 1982–83 to gain experience in using conservation tillage machinery such as this blade plough.

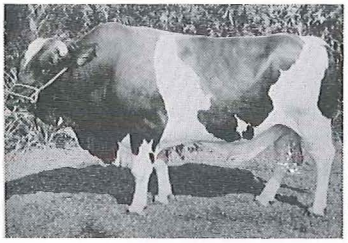
Twelve field days demonstrating tractor fuel-saving techniques were held in grain growing areas. The field days interest landholders greatly, but were able to continue only because of Queensland Graingrowers Association funds. The field days encourage farmers to bring their own tractors for dynamometer testing.

Bed-former and mulch-layer equipment for on-the-ground tomato production at Bundaberg was successfully tested. The next step was to produce a vine trainer to relocate large tomato bushes onto the plastic cover to protect the fruit from ground rots.

A directed spraying rig for cotton was successfully developed and some growers, with DPI engineering guidance, were constructing similar units. Growers have become increasingly interested in sprayer design and use in many crops. Air mist boom sprayers built by two growers appeared to have been most successful, and a new commercial unit was to be tested in the coming year.

Dairy industry highlights

The Queensland dairy industry



The Australian Friesian Sahiwal (AFS) dairy breed was developed by the DPI. Because of its heat tolerance and tick resistance, the breed is suited to the tropical conditions of northern Australia and South-East Asia.

Queensland not only maintained its record as the State with the highest per capita milk consumption but also achieved an increase of 2.9% in its volume of market milk sales during 1982. Despite the drought, milk production increased 2% to 553m L for the year ending 30 April. Of this 59.3% was required for market milk compared with 58.9% in the previous year. Despite 32 new registered dairies, total dairy farm numbers declined slightly to 2616.

Rates of pay for market milk improved from 33.53c/L to 37.28c/L during the year, manufacture milk from $3.23/kg of butterfat in 1981–82 to $3.55/kg in 1982–83, and the average for all milk from 21.3c/L in 1981–82 to 23.1c/L in 1982–83.

Much concern and debate occurred throughout the south-east Queensland dairy industry regarding the operation of Stage IV of the Milk Entitlements Scheme due to begin on 1 July 1983.

Activities in dairy farm production

Calves need high-quality solid feed such as lucerne hay to grow well and achieve target mating weights. The DPI publication, *The Dairy Calf in Queensland*, discusses most aspects of rearing a calf from birth to weaning at 15 months.

An unprecedented demand came from farmers and field advisers for advice on milking system design. Officers from the DPI Milking Systems Resource Group at Wacol visited all areas of Queensland. A total of 133 sheds (new and converted) were built during the year. Of these, 46 used the herringbone pit moulds provided by the DPI.

Dairy cattle nutrition was a central theme of extension programmes. Increasing numbers of farmers aimed to improve their efficiency by producing more milk per cow and/or per unit area. This led to more detailed advice being sought on supplementary feeding. Use of clover-based pastures continued to increase during the year.

Do-It-Yourself AI courses were a major platform for herd improvement extension. More than 300 people were trained in 33 DIY AI courses and a further 600 attended 32 refresher courses.

Selection of young sires for bull-proving teams was a major activity. The number of bull-proving co-operators increased by 30%. This in turn allowed an increase in the number of genetically desirable bulls being tested.

A Herd Management Scheme was to be launched in July 1983 to help the development of herd-health programmes. About 150 farmers now participate in a herd-health programme in conjunction with their local private veterinarian. A programme of regular regional liaison meetings between private veterinarians and DPI officers was begun to promote and co-ordinate dairy herd-health programmes.

Liaison with the dairy industry was a highlight of 1982–83. The revamping of Dairy Extension Advisory Committees, the establishment of Dairy

Industry Liaison Groups, and the continuing Dairy Research Advisory Meeting have led to closer contact with the industry.

The second in the series of 'Dairy Management in the 80s' seminars was to be held in Gympie in September 1983, with the theme 'Focus on Feeding'. The DPI and the Queensland Dairymen's Organization were joint sponsors of the seminar, which was to be the start of a major effort on feeding and management for DPI officers in 1983–84.

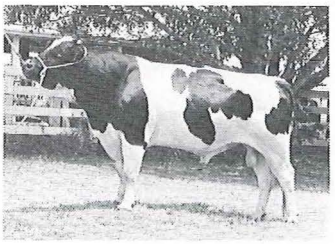
Cows feeding on maize silage from wooden troughs.

A major study, *The Learning Strategies of Queensland Dairy Farmers,* was completed. Involving 153 dairy farmers, the study found that farmers prefer individual discussion with other people when seeking information and use a combination of information resources. These depend on the type of change being undertaken; for example, feeding or irrigation.

Salmonella was detected in skim milk powder produced at a Queensland factory. Much effort went into defining the extent of the problem, locating possible contamination sources, and supervising the cleanup and upgrading of the premises.

Silage was of renewed interest in dairying areas with limited irrigation. A silage book was completed and was expected to be available to farmers early next year. A trial to evaluate a range of fodder crops' suitability for ensiling began as did a programme to assess the results which farmers had obtained from using silage in their feed programmes.

Artificial breeding



Australia's top Holstein-Friesian sire 'Barron Vale Starlight' stands at the DPI's Wacol AI Centre.

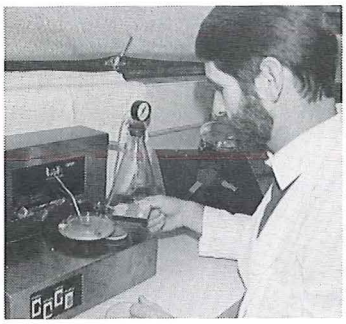
The Holstein-Friesian sire 'Barron Vale Starlite' and the Illawarra sire 'Warroolaba Magnet', which both stand at the DPI's Wacol AI Centre, were identified as Australia's top living dairy-herd improvers for their respective breeds. This information, released in March, was contained in the Australian Dairy Herd Improvement Scheme's first national bull proofs and provided the first comparison of AI sires used throughout Australia.

A number of other Holstein-Friesian and Illawarra sires which stood at the Wacol Centre performed well. These results indicate that the DPI's bull breeding and selection procedures have been soundly based and of great benefit to the dairy industry.

Artificial breeding attracted increasing interest. Bovine semen demand showed strong growth with a 38% increase in distribution within the State. Export sales, which are more variable between years, also increased considerably. They were 200% greater than in 1981–82.

The DPI's Ormiston AI Export Centre continued to be supported extensively by owners of bulls imported from North America. Seventeen bulls, which were previously quarantined on Cocos Island, passed through the centre during the year.

Herd management information services



A spiral plating machine is used in a DPI laboratory to evaluate the bacterial count in a milk sample.

A total of 48 518 cows completed recorded lactations in 1981–82. Their average production of 3128 L of milk and 119 kg of butterfat was the highest recorded since group herd recording began in 1948. During 1982–83, herd registrations for recording services increased by 11%, with 871 herds participating at May 1983. A Farmers-Own-Sampling (FOS) scheme was becoming more popular and was used by 19% of recording members compared with 15% in 1981–82.

Greater use of alternative systems is expected as the cost of providing supervised on-farm services increases further. For this reason, alternative AM/PM recording was to be introduced from July 1983. This new system is based on the recording of measurements and taking milk samples at one milking each month, but the recordings must alternate between morning and afternoon milkings. The cost of this on-farm service was to be about 70% of that for recording two consecutive milkings every month.

The Mastitis Cell Count Service, which began in July 1981, was being used by 560 dairymen. This represents 64% of herd recording members, and indicates the importance that these dairymen place on the two services to provide them with herd management information.

Dairy breed improvement

Work continued on the development of the tick-resistant Australian Friesian Sahiwal (AFS) breed. The first 'AI Proven' AFS sires were designated as a result of progeny tests on a group of eight sires. Semen from these AI Proven sires (S1962 and S1511) was being used in the AFS bull-breeding programme.

The Holstein-Friesian bull-proving scheme continued to be well supported by recording members. In 1982, 11 762 cows were nominated for mating to 12 young bulls in the proving group, 6828 more than in 1981.

Developments in dairy research

Data input sheets are compiled as an integral part of the automated reporting of market milk results.

The DPI's computerised liquid milk quality services began on 1 January. All market milk laboratory results for producers, factory managers, field officers, statutory authorities and management are now issued weekly by computer, with summary information issued monthly, quarterly and annually. The system was being enhanced to highlight trends in milk quality. The next stage, computerisation of non-liquid milk products, was to begin soon.

An interlaboratory testing programme, designed to help standardise methodology used in all dairy testing laboratories within the State, was well established and accepted by personnel in most dairy factory laboratories.

An egg yoghurt project was finalised and an Australian patent taken out in conjunction with Sunny Queen Eggs, which was negotiating commercialisation of the formulation.

Fisheries highlights

Fishing industry research

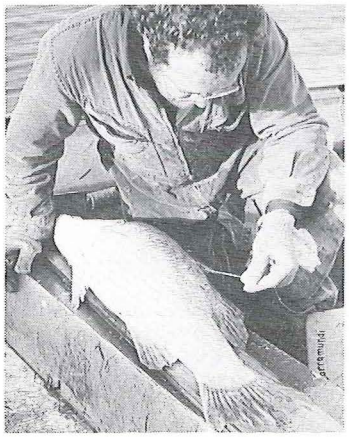
Tiger prawns are a significant component of the Gulf of Carpentaria prawn fishery. In 1982, landings of tiger prawns from the Gulf fishery declined for the first time, with a catch of 4302 t, down from 5128 t in 1981. Prawn prices averaged $10/kg.

Tiger prawns continued as the target of an intensive monthly sampling programme due to finish in February 1984. Mornington Island was chosen as the site for a study of tiger-prawn nursery grounds in the south-east Gulf. Studies were being undertaken of the seasonal occurrence of juvenile tiger prawns and of the processes by which these prawns are recruited into the offshore fishery. In the offshore component of the sampling programme, 38 sites were chosen, covering about 80% of the recognised tiger-prawn grounds in the south-east Gulf. Data were being obtained on the geographical and seasonal distribution of commercial prawns and will be compared with complementary data from inshore nursery areas. In addition, many 'by-catch' species were being sampled, including bay lobsters (bugs), squid, cuttlefish and many fin fish species.

Mrs Andrea Ahern, wife of the Minister for Primary Industries, Mr Mike Ahern (right), commissions the DPI's research trawler, *Gwendoline May* on 14 July 1982.

The DPI's research trawler *Gwendoline May* became fully operational in December 1982. She was being used to support the DPI's research programmes in the Gulf of Carpentaria tiger-prawn fishery and exploratory fishing surveys along the Great Barrier Reef's northern extremity. The *Gwendoline May* is 18 m long and is capable of carrying six research staff as well as crew.

A new log book for the northern prawn fishery was designed to ease trawler skippers' workload by incorporating four existing logs into one. The new book was scheduled for issue to the fleet by 30 June 1983.



A DPI biologist tags a large barramundi on a fishing survey in Princess Charlotte Bay, north of Cairns. DPI research teams are tagging barramundi to study their growth rate, population density, fishing exploitation and migratory patterns.

Inshore net fisheries for barramundi and threadfin salmon in the Gulf of Carpentaria and on the east coast were being assessed for impact of management regimes. About 250 endorsed master fishermen were involved during the 1982 fishing season, with most (160) in the Gulf fishery. This fishery produced about 737 t of fillet product for a value of nearly $3.5m. Barramundi contributed 51% by weight and 72% by value; catch of threadfin salmon was 32% and 20% respectively. More than half of the Gulf net fishermen earned more than $20 000 from fishing during the year, compared with one-third last year. The north-east coast fishery produced some 60 t of fillet product worth $0.3m, with the barramundi catch component being 64% by weight and 78% by value.

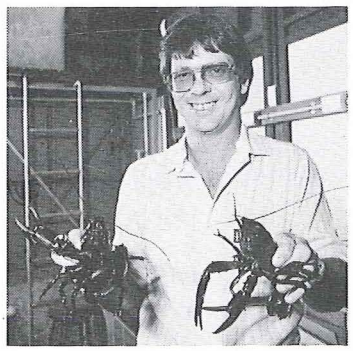
Only two commercial demersal reef fish species (coral trout and tricky snapper) have been studied in any detail in Queensland. In contrast, the fishing effort over the last five years has expanded markedly in both commercial and recreational fisheries (particularly the latter). A current DPI research programme is investigating the growth and reproductive biology of some of the more heavily exploited demersal reef fish species.

Members of the public enthusiastically supported the open-day exhibition of the DPI's Northern Fisheries Research Centre, Cairns, on 16 February 1983. Here a DPI technician exhibits fish specimens taken in local prawn trawls.

A deep-water survey of potential prawn and fish stocks began in August off south-east Queensland. The 42-day survey was funded by the Fishing Industry Research Trust Account (FIRTA). DPI officers planned the survey, recorded scientific data and collected biological specimens on all trips to survey the continental slope (200 to 600 m) between 26°20'S (east of Noosa Heads) and 28°10'S (east of Point Danger). This area had never been surveyed for trawling grounds, and commercial trawlers in the area had not ventured past 240 m.

Results were mixed, with most success from 520 to 540 m where limited good trawling ground was found between 27°13'S to 27°24'S and around 153°54'E.

Beam trawling for river and estuarine prawns continued to produce strong reactions from both amateur anglers and offshore otter trawlermen. Anglers have been concerned that the catches of juvenile fish of commercial species taken in beam trawls might affect their sport. Otter trawlermen consider that the competition between beam trawlers and themselves for prawns at different stages in their lifecycle could adversely affect their livelihood. Sampling programmes were begun to investigate the impact of beam trawling on prawn and fish resources in Moreton Bay (Logan River) and at Bundaberg (Burnett River). The results of these studies were expected to be available in late 1983.



The claws have it! This DPI crustacean biologist has found West Australian marron crayfish (right) to be better suited to fish farming than ordinary freshwater crayfish (left).

Ciguatera is a form of food poisoning. It results from eating certain fish from coral reefs colonised by relatively rare and minute toxic algae known as *Gambierdiscus toxicus.* During 1982–83, a FIRTA grant enabled a project to get underway to determine the distribution of *G. toxicus* along the Queensland coast. This study will clarify the conditions which favour an upsurge of this toxic organism.

The effect of human interference with coral reefs on ciguatera outbreaks is being examined. The DPI has established a collaborative programme with Hawaiian ciguatera research workers.

A fish research group was set up in the DPI's dairy research branch to investigate problems associated with post-harvest handling, processing and storage in the fishing industry. Several possible project areas were being examined in consultation with key personnel in the industry and several practical trials planned for 1983–84.

Aquaculture in Queensland

A short-term study of the feasibility of aquaculture in Queensland was initiated in response to immense public- and private-sector interest. The DPI's Southern Fisheries Research Centre at Deception Bay alone answered more than 800 enquiries while, across the State, fisheries officers handled more than 2 300 enquiries.

The study indicated a big increase in interest in aquaculture by overseas investors as well as by local business enterprises. A list of species acceptable for culture in Queensland was being formulated. A report was to be released assessing the future of aquaculture in Queensland.

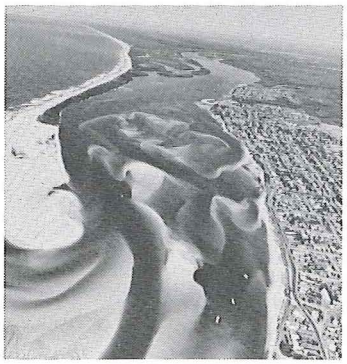
A seminar dealing with the potential of aquaculture in Queensland was held in March. The seminar aroused much interest. More than 350 people from all Australian states and from several overseas countries (including the United States, Malaysia, Japan and Hong Kong) attended.

Nile perch project

A tender was let on 10 February for Stage 1 of the Nile perch project at the DPI's Freshwater Fisheries Research Station at Walkamin (Atherton Tableland). The work entails site preparation and pond construction at a cost of $171 470. The project will evaluate Nile perch as a suitable exotic fish for release into north Queensland water storages. After introduction into the Walkamin ponds, the fish will be tested under strict quarantine and security to ensure that they do not threaten the survival of native fish.

Stage 2, to be completed next year, will include treatment works and security arrangements to ensure that no fish, larvae or eggs can be accidentally discharged into local waters during the research programme's quarantine period.

Estuarine and foreshore management



The fish-spawning area at Golden Beach, Caloundra: dredging of these shoals could have a disastrous effect on bream and whiting stocks of Moreton Bay.

An estuarine inventory was being established. It requires the collation of base-line data on the State's estuaries and the further development of computer methodology to classify and rank estuarine habitats. The inventory shows that the total area of mangroves in the State is about 5000 km^2, of which 1500 km^2 consists of riverine and scattered communities of limited extent with the remaining 3500 km^2 comprising extensive deltaic and island communities. Claypan, salt-marsh and seasonally inundated coastal plains total 8000 km^2, of which the coastal plains of the Gulf of Carpentaria cover 3500 km^2.

The monitoring of changes to estuarine systems revealed a continuing increase in mangrove and seagrass vegetation throughout the State. No evidence was found to indicate an increase in fisheries production proportional to the increase in mangrove or sea-grass. The increase in small boats and an accompanying increase in amateur fishing activities were again observed to be major factors in the exploitation of estuarine fisheries and in the impact on aquatic resources.

Tailor fishermen in the surf at Fraser Island at the height of the season in September. The DPI is monitoring this recreational fishery, which is one of the most important in Queensland.

Management zones for estuarine habitats were being prepared progressively as an outcome of the estuarine inventory project. Draft zoning was prepared for Moreton Bay, Great Sandy Strait, and the Gladstone-Fitzroy and Cairns regions, and preliminary zones were identified on a regional basis for the Gulf of Carpentaria, and the Cape York and Mackay regions.

Proposals for Fish Habitat Reserves were initiated for the Burrum River and Great Sandy Strait. Reserves for fisheries purposes, designated as Wetland Reserves, were proposed for four locations and legislation was being prepared. A conservation and management strategy was formulated for the Jumpinpin-Southport Broadwater area and accepted by all departments and authorities involved. Management zones for Pumicestone Strait were endorsed by local authorities involved in the preparation of the report on land use and water quality in that locality.

Marketing and economics highlights

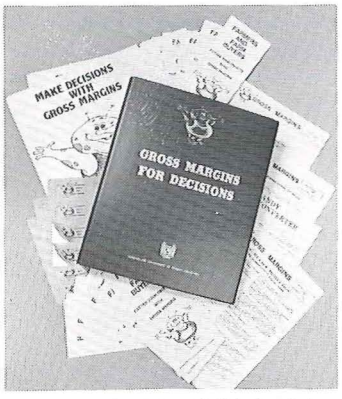
Agricultural policy for Queensland

The comprehensive report of the Queensland Agricultural Policy Working Committee (The Truss Report) was released in November 1982. Entitled *An Agricultural Policy for Queensland,* it contains many policy recommendations covering the land, the economic framework, production, marketing and the organisational structure of Queensland agriculture. The committee proposed that a primary-producer body embracing all farmer organisations be established and that a jount industry body regularly update the policy paper. The report provides an outline of Queensland primary producers' attitudes on a wide range of issues of interest to policy makers.

The Minister for Primary Industries, Mr Ahern, had formally established the committee in November 1981 under the chairmanship of Mr Errol Truss, Queensland Council of Agriculture deputy president and Navy Bean Marketing Board chairman. DPI marketing officers played a major role in the committee's work.

Inquiries and government assistance

Regional agricultural economists ran farm business management schools for primary producers throughout Queensland during 1982–83. Skills training was provided in rural accounting and budgeting, taxation, computers, personnel management and office procedures.



A selection of course materials handed out to participants in the 'Gross Margins for Decision' farm business management schools held on the southern Darling Downs during 1982–83.

The difficult economic climate and the prolonged drought followed by floods in many parts of the State severely affected many primary industries. This led to a significant increase in the number of Industries Assistance Commission inquiries and requests to the State government for assistance. During the year, the DPI was involved in preparing submissions to the IAC in relation to sugar, wheat, tobacco, meat processing, the dairy industry, fish and rural adjustment.

Submissions to the State government resulted in assistance to the peanut industry by loans totalling $6m and a government guarantee of up to $1.76m for a Reserve Bank loan.

After the disastrous flooding in central Queensland, the Central Queensland Grain Sorghum Marketing Board advised the DPI of the need for government assistance if growers were to receive an adequate return for the small crop which remained. Discussions were held with Treasury officers, and the government accepted a recommendation to provide a government guarantee for a loan of up to $6.5m.

Because of the serious problems which faced the Peanut Marketing Board and following a DPI report, the Minister for Primary Industries, Mr Ahern, requested the Auditor-General to conduct a special audit of the Peanut Marketing Board and the closely related Peanut Growers' Co-operative Association Ltd. The audit revealed serious deficiencies in performance by the board.

After the Auditor-General's report was released, the grower positions on the board became vacant. State Cabinet appointed an ad hoc advisory committee of six members to assist in the board's day-to-day operations until a fresh election was held. Two DPI officers were committee members. At the end of the year, as a result of the State Government assistance, the industry had a greater degree of confidence. Nominations for election of grower representatives had been called and the election was due to be completed by the end of July 1983.

Accountability of statutory authorities

The Auditor-General's report on the Peanut Marketing Board raised important questions about the accountability of statutory authorities to the Minister and to Parliament. The Minister, Mr Ahern, directed that a review of reporting and accountability be undertaken and draft legislation be prepared based on the *Statutory Bodies Financial Arrangements Act* and the Auditor-General's report.

Working groups

The DPI was represented on three working groups established by the Standing Committee on Agriculture at the national level. The working groups were dealing with the treaty on Closer Economic Relations (CER) with New Zealand; the policy discussion paper proposed on the initiative of the Minister for Primary Industry, Mr Nixon, entitled *Agricultural Policy—Issues and Options for the 1980s* (widely referred to as the 'Balderstone' report); and egg marketing arrangements.

Development proposals

A study of the financial viability of Burdekin dam farms was undertaken. Information and reports from the study were used by the Burdekin River Project Advisory Committee and the Queensland Water Resources Commission to determine farm size for sugar, horticulture, grain and rice farms. The study was a first in Queensland for joint co-operation between the Water Resources Commission, the DPI and industry representatives. It recommended farm sizes for a new irrigation development based on comprehensive profitability and projected cash-flow information.

An interdepartmental committee of DPI marketing officers, economists and horticulturalists, and representatives from the Department of Commercial and Industrial Development and the COD studied the prospects for horticultural development in the Burdekin-Bowen region. Its report was released in February 1983. A wide range of horticultural crops was assessed according to agronomic suitability and profitability of production, and marketing and processing potential. Information was also provided on crops suitable for the northern wet coastal region and the Atherton Tableland.

Standards in agriculture

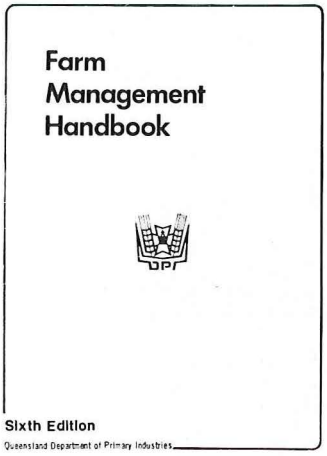
The failure of stockfoods to comply with their label guarantees and prescribed standards remained a problem in spite of warnings and assistance given to manufacturers. The percentage of non-complying samples (32%) was disturbing, 8% being more than for 1981–82. Detailed sampling programmes were being prepared; and, with changes to the types of analyses being requested of the DPI's agricultural chemistry branch, a concerted inspection effort was to be made in 1983–84.

Actions under the *Fruit and Vegetables Act* 1947–1972 for non-compliance with prescribed standards were far fewer (25%) in fruit lines during the year, due to the dry spring and summer. However, avocado losses increased, due mainly to seizures and destruction of immature fruit from seedling trees. This appeared to be related to a general increase in the quantity of avocados marketed this season, combined with increased surveillance by inspectors.

The free advisory fruit-maturity testing service appeared to have been effective in reducing the number of immature lines marketed. The demand for this service continued to increase and was spread across ten different fruit species. A record number of tests were conducted on mango, grape, avocado and citrus varieties.

Farm Management Handbook

The completely revised sixth edition of the *Farm Management Handbook* went on sale in April. It has two parts: Part A contains data which remain current for several years while Part B contains cost and return data that are revised and reissued annually. Contents are grouped according to enterprise and science, based on the Agdex coding systems. The *Handbook* has a hard plastic cover designed for easy updating of material.



The sixth edition of the DPI's *Farm Management Handbook* went on sale in April 1983.

Legislation

New and amended legislation, introduced in 1982–83 to come under the administration of the Minister for Primary Industries, is listed below.

The *Agricultural Chemicals Distribution Control Act Amendment Act* 1982, following amendments to the *Agricultural Standards Act* 1952–1981, placed more responsibility on the actual operator of the aerial application business and to update licensing provisions within the industry.

The *City of Brisbane Market Act Amendment Act* 1982 updated the legislation in line with current auditing practices approved by the Auditor-General and expanded the Trust membership from eight to 10 members. It also clarified certain By-law-making powers of the Trust.

The *Farm Produce Agents Act and Another Act Amendment Act* 1982 modernised the requirements of the Act in relation to the marketing of farm produce. To accommodate this modernisation, it was necessary to amend both the *Farm Produce Agents Act* 1964–1982 and the *Fruit Marketing Organisation Act* 1923–1982.

The *Filled Milk Act Amendment Act* 1981 provides for the sale of animal foods without liability being incurred.

The *Fisheries Act Amendment Act* 1982 included sections dealing with the control of a seized vessel, the plucking of mangrove leaves, protection of freshwater fish species, the controlled taking of fish, and penalties.

The *Fishing Industry Organization and Marketing Act* 1982–1983 replaced the repealed *Fish Supply Management Act.* The Act created the Queensland Fish Management Authority which is responsible for the management of the industry in Queensland.

The *Margarine Act Amendment Act* 1982 included changes to the labelling and packaging of table margarine to facilitate promotional programmes and allow for the attractive presentation of the product.

The *Meat Industry Act Amendment Act* 1982 changed the name of the Queensland Meat Industry Authority to the Livestock and Meat Authority of Queensland; provided for the control of pet food introduced from other States and for the the slaughter of stock at abattoirs and slaughterhouses and poultry at poultry slaughterhouses for pet food. The Act clarified the meaning of the term 'meat' and included satisfactory standards of hygiene for poultry meat introduced into the State.

The *Sugar Acquisition Act Amendment Act* 1982 clarified the status of the Sugar Board and promoted the more effective administration of the *Sugar Acquisition Act of* 1915.

The *Wine Industry Act Amendment Act* 1982 changed the minimum sales requirement at second outlets from the present 50% of the vigneron vintner's own wine to 50% of Queensland produced wines with the remainder consisting of any other Australian wine.

The *Primary Producers' Organization and Marketing Act Amendment Act* 1983 provided for certain powers of boards to be subject to the prior approval of the Minister for Primary Industries. Provision was also made for the application of the *Statutory Bodies Financial Arrangements Act* 1982 and approval by the Governor in Council to board superannuation schemes.

The *Milk Supply Act Amendment Act* 1983 amended the legislation by granting to the Milk Entitlements Committee sufficient powers to enable it to continue to allocate milk entitlements and to clarify previous determinations of the committee.

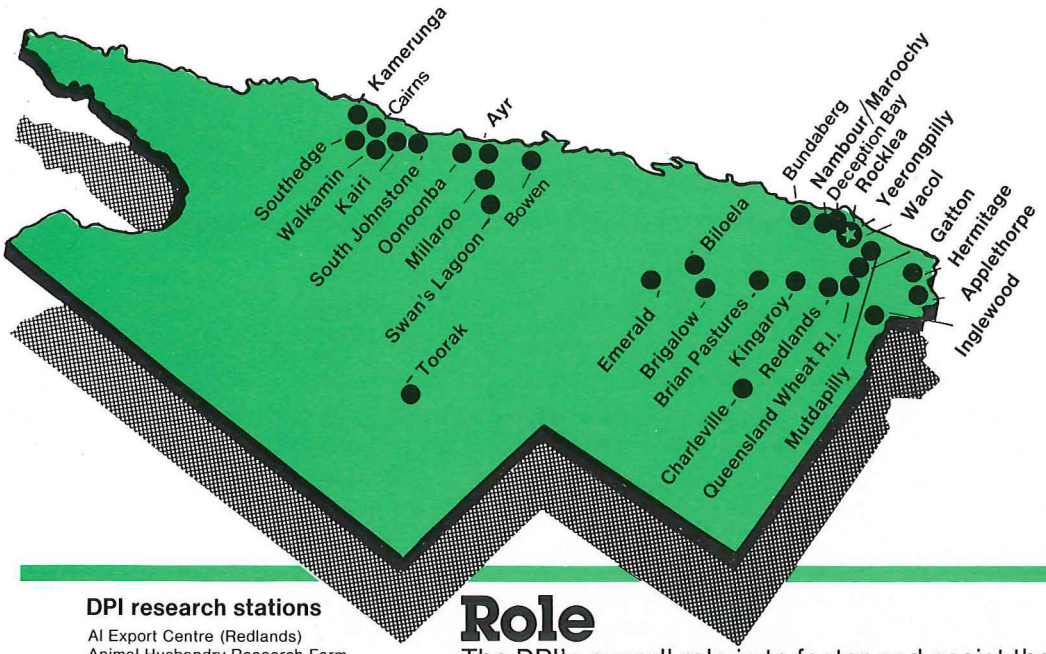
The *Apiaries Act* 1982 replaced the now repealed *Apiaries Act* 1947–1982 to meet present industry requirements. It applies to the whole of the State, not just to south-east Queensland as the previous Act did. Registration of beekeepers and disease protection received paramount consideration in the Act.

The *Queensland Grain Handling Act* 1983 established the Queensland Grain Handling Authority to replace the State Wheat Board as the central grain storage and handling authority in Queensland; to handle grain on behalf of the various marketing boards, the Queensland Graingrowers Association, and the private grain merchants; to provide for a toll on grain and for related purposes; and to provide for the acquisition of Board assets. It was proposed that the Authority would begin operations on 1 October 1983.

The *Sugar Experiment Stations Act Amendment Act* 1983. Amendments were mainly administrative but also reflected current practices for quarantine and pests in the industry. Powers and duties of Cane Pest and Disease Control Boards were further clarified and updated.

The *Wheat Marketing Act Amendment Act* 1983. This legislation resulted from discussions between the Commonwealth, the States and the Australian Wheat Growers Federation, and the subsequent agreement of the Australian Agricultural Council to recommend certain amendments to the basis for the Australia-wide wheat marketing and stabilisation arrangements. The Wheat Marketing Acts of the Commonwealth and the States are complementary. The amendment will allow greater fiscal flexibility within the industry.

The *Wheat Pool Act Amendment Act* 1983. This legislation ensured compatibility between the *Wheat Pool Act* 1920–1983 and the *Queensland Grain Handling Act* 1983 by amending the *Wheat Pool Act* 1920–1979 to allow the Board to deduct any Queensland Grain Handling Authority toll or levy from proceeds of wheat sales and to remit them to the Authority.



DPI research stations

Al Export Centre (Redlands)
Animal Husbandry Research Farm (Rocklea)
Animal Research Institute (Yeerongpilly)
Artificial Insemination Centre (Wacol)
Ayr Research Station
Biloela Research Station
Bowen Horticultural Research Station
'Brian Pastures' Pasture Research Station
Brigalow Research Station
Charleville Pastoral Laboratory
Emerald Field Station
Fisheries Research Centre (Bundaberg)
Fisheries Research Station (Walkamin)
Gatton Research Station
Granite Belt Horticultural Research Station (Applethorpe)
Hermitage Research Station (Warwick)
Inglewood Tobacco Research Station
J. Bjelke-Petersen Field Station (Kingaroy)
Kairi Research Station
Kamerunga Horticultural Research Station
Millaroo Research Station
Mutdapilly Research Station
Nambour and Maroochy Office/Laboratory Complex
Northern Fisheries Research Centre (Cairns)
Oonoonba Animal Health Station
Queensland Wheat Research Institute (Toowoomba)
Redlands Horticultural Research Station
South Johnstone Research Station
Southedge Tobacco Research Station
Southern Fisheries Research Centre (Deception Bay)
'Swan's Lagoon' Cattle Field Research Station
Tick Fever Research Centre (Wacol)
Toorak Sheep Field Research Station
Walkamin Research Station

Role

The DPI's overall role is to foster and assist the development of Queensland's rural industries while conserving the State's natural resources for the use of future rural producers. At the same time, it provides a service to the Queensland consumer by assuring the quality of rural produce.

The DPI fulfils this role through its work in three major functions: research, extension services and regulatory activities. As a consequence, the DPI is involved in activities at all levels of production, through processing and marketing to consumer acceptance and protection.

Research

Although procedures for research projects follow an overall pattern throughout the DPI, they are not completely uniform because of the nature of the industries being serviced, the number of regional officers involved, and the activities of the project group; for example, production research, marketing research, conservation research.

Research is not regionalised; it is administered through branches and divisions or through the Research Stations Board. Regional groups are established within some branches.

Research facilities can be categorised as:

- research stations administered by the Research Stations Board, usually multi-disciplinary and involving a number of branches;
- research stations in rural areas operated by branches, usually serving a particular industry (for example, tobacco or fruit);
- central laboratories operated by branches with a large service/diagnostic component and a variable amount of discipline-oriented research (for example, pathology and entomology);
- field experiments and surveys.

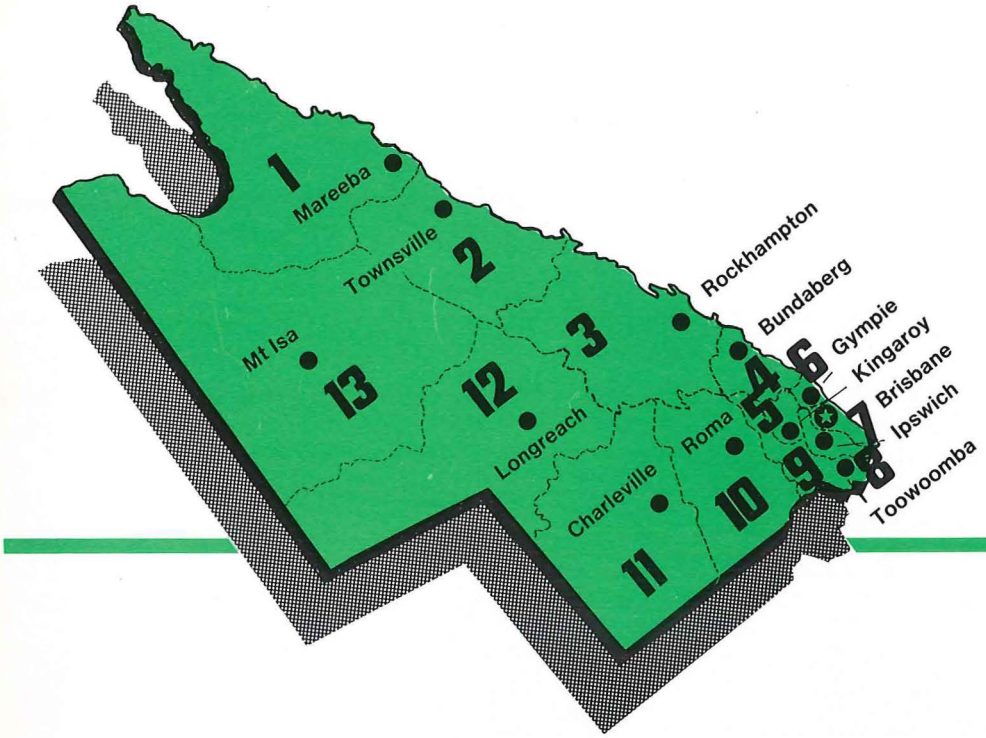
Problem identification

In general, the DPI establishes problem identification and priority setting by consultation and discussion (usually with industry), through formal groups or through ad hoc meetings to discuss specific topics.

Much of the planning is done regionally, and branch and Departmental priorities are determined from the overall advice received, except where Government priorities assume an overriding importance

Industry is consulted, particularly in relation to problem identification. Industry consultative committees are associated with a number of DPI research stations, while other research stations receive the advice of industry representatives. In addition, as an example of divisional consultation, the Division of Animal Industry has a number of animal species liaison groups, designed for consultation between extension and research groups.

The DPI does longer-term planning into new fields of work, particularly into the need to develop resources and staff. DPI attendance at national review conferences, workshops and meetings helps in the co-ordination of State priorities and activities within national programmes to support rural industry.



DPI Extension Regions

1. Far Northern
2. Northern
3. Capricornia
4. Burnett
5. South Burnett
6. Near North Coast
7. East Moreton
8. West Moreton
9. Darling Downs
10. Near South West
11. Far South West
12. Central West
13. North West

Extension

The DPI's extension services help farmers to improve their productivity through adopting new or improved farming practices and through adapting existing resources to meet new goals.

The DPI services all rural industries except timber. It operates a co-ordinated, regionally-based, extension services system, which an Extension Services Branch administers within policies established by an Extension Services Board.

Each of the 13 regions is divided into districts and each region has a 'Charter of Operations' setting out the formal arrangements under which it operates and the guidelines for co-ordinating extension activities. Most regions have full-time regional extension leaders who co-ordinate, assess, develop and improve extension services.

Staff committees in each region ensure that extension activities are planned as a co-ordinated effort. Many committees are industry based. Each committee involves producers in determining industry and district needs as a basis for extension activities.

Regulation

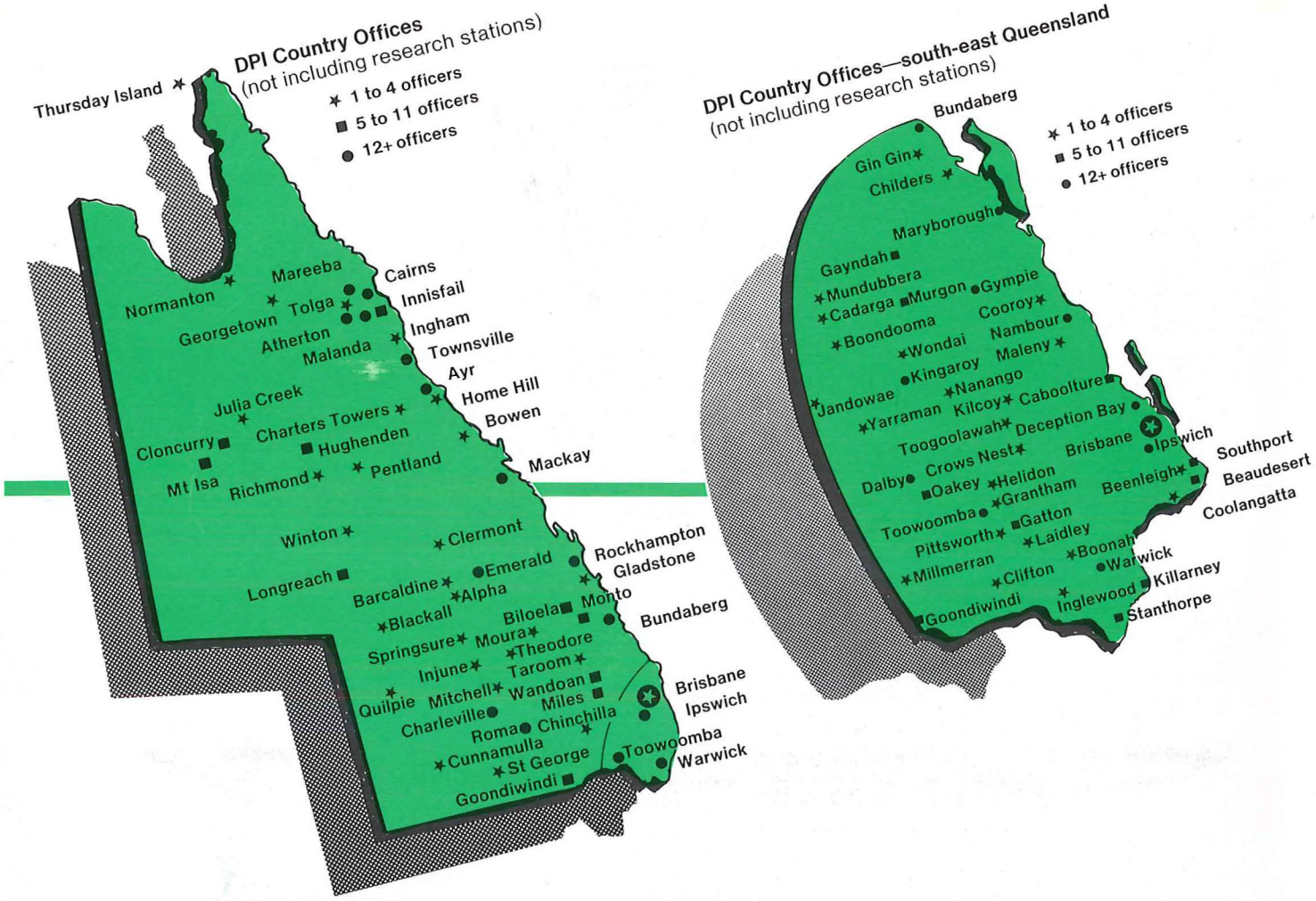
DPI regulatory staff administer Acts for both the Queensland and Commonwealth governments. The aim is to protect both the consumer and the producer through orderly marketing, the control of diseases and product hygiene and quality.

These acts include the *Agricultural Standards Act, Drought Relief to Primary Producers Act, Stock Act, Primary Producers Act, Wine Industry Act, and Veterinary Surgeons Board Act.*

DPI regulatory activities include:

- supervision of meat slaughtering and meat quality for domestic consumption;
- issue of permits to move stock;
- inspection of butcher shops;
- responsibility for quarantine of livestock and plants as agent for the Commonwealth Government;
- recommendations relating to the declaration of drought-affected areas;
- supervision of the activities of rural marketing boards and co-operatives;
- quality assurance for all rural produce.

Officers carrying out a regulatory function are required to maintain the effectiveness of the Acts for the benefit of farmers and of the community as whole.

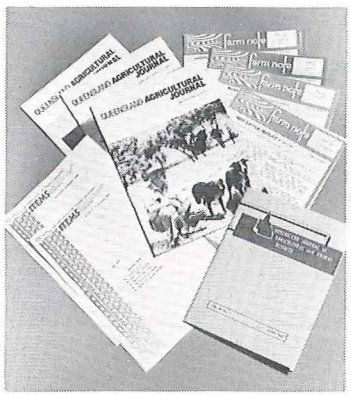


Information services

To complement its research, extension and regulatory functions, the DPI maintains a State-wide information service. The many facets of this service include:

- the DPI *Annual Report* to Parliament;
- the *Queensland Agricultural Journal,* which is published six times a year and is an important extension vehicle containing comprehensive articles on the practical application of DPI research. (It is sold on subscription to commercial and part-time farmers, agribusiness people, students, and scientists in Australia and overseas.);
- the *Queensland Journal of Agricultural and Animal Sciences,* which is published twice a year and contains scientific papers written in the main by DPI research workers.
- *Farm Notes,* which are prepared for primary producers to meet their need for timely, practical and concise advice on a single agricultural topic. They are provided free on request at all DPI offices;
- an extensive range of saleable publications, available at major DPI centres and through the DPI Information Centre in Brisbane;
- a weekly news release and special feature service to metropolitan and provincial newspapers and to radio and television stations in Queensland and around Australia;
- the work of regional information officers in Rockhampton and Toowoomba, who provide professional information support to DPI staff and who publicise DPI activities through local mass media and other outlets;
- displays at the Brisbane Show and country shows;
- a variety of marketing publications sent to mass media representatives and other interested people. (These publications include the weekly *Rural Trend Report,* the monthly *Horticultural Trends and Marketing Newsletter,* the bi-monthly *Agricultural Trends,* and the quarterly *Trends in Animal Industries.);* and
- many district extension newsletters from more than 25 DPI centres throughout the State, covering the dairy, horticulture, pig, poultry, beef, sheep, and field crop industries.

The DPI radio rural news service comprises a weekly tape of topical interviews on research and extension subjects. The tape is played on 16 ABC and commercial radio stations in country areas.



The printed word is an important means by which the DPI reaches its various audiences, including primary producers and consumers.

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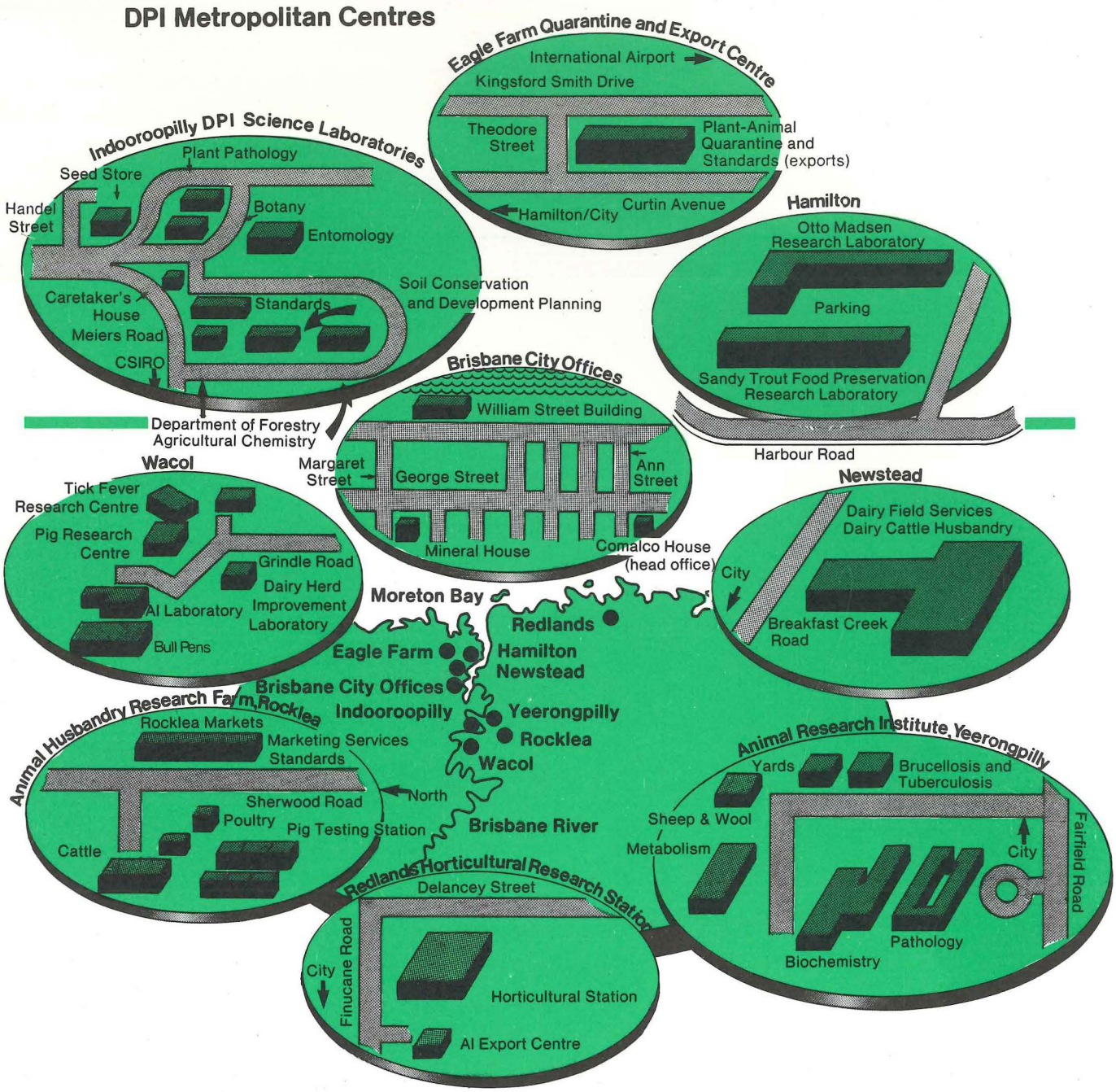

DPI saleable publications

Publications which the DPI offers for sale are listed below. They are written specially for Queensland conditions and therefore are directed at a specifically Queensland audience.

Farm Management Handbook (6th ed.)
Accounting and Planning for Farm Management (2nd ed.)
Farm Taxation—Collected Farm Notes
Rural Credit in Queensland (Q183009)
Understanding Real and Nominal Interest Rates and Rates of Return on Capital (QB82009)
Financing the Purchase of a Viable Property—Q183001
An Economic Investigation of Farm Machinery—QB82003
Inventory of Agriculturally Oriented Software in Australia and New Zealand
Vegetables in the Home Garden
A Handbook of Plant Diseases in Colour (Vol. 1)—Fruit and Vegetables (2nd ed.)
A Handbook of Plant Diseases in Colour (Vol. 2)—Field Crops
Herbicide Effects in Crop Plants
Weeds of Queensland
Queensland Weed Seeds
Insect Pests of Macadamia in Queensland
Economic Fruit Flies of the South Pacific Region
Principles of Crop Protection
Wildflowers of South-Eastern Queensland Volume 1
Wildflowers of South-Eastern Queensland Volume 2
The Flora of Lamington National Park
The Beef Cattle Industry in Queensland
Beef Cattle Breeds—Queensland
Breeding for Beef Production
Crossbreeding Beef Cattle in Queensland
Beef Production on the Central Wet Coast of Queensland
The Supplementary Feeding of Grazing Beef Cattle in Queensland
Beef Carcass Composition and Meat Quality
Dairy Cattle Research Techniques
The Angora Goat in Queensland
The Dairy Goat in Queensland
Pig Housing Plans—selected references drawings
Register of Queensland Breeders of Fancy and Commercial Poultry
Shire Handbooks of Wambo, Jondaryan, Inglewood, Mareeba, Fitzroy, Waggamba and Noosa
Queensland Agricultural Journal (bi-monthly)
Queensland Journal of Agricultural and Animal Sciences (six-monthly)

New titles are continually being added to this list.

QUEENSLAND DEPARTMENT OF PRIMARY INDUSTRIES