16

RURAL INDUSTRY

FARMING IN VICTORIA

Beginnings

The first permanent settlement of the then Port Phillip District of the Colony of New South Wales occurred in 1834 when the Henty brothers squatted on Crown land at Portland. They were followed by Batman and Fawkner who in 1835 similarly squatted on the present site of Melbourne. Although squatting was illegal, by 1836 settlement had extended some 130 kilometres inland.

Efforts were made to legalise the position of the squatters and in 1836 regulations were made to enable them to acquire for £10 as much land as they wished. This resulted in some very large holdings. At one time four pastoralists held approximately 3 million hectares of the District. By 1840 most of the southern and western parts had been occupied. Also, because of the favourable reports of Major Mitchell, who led an expedition through the area, pastoralists were bringing their flocks south of the Murray River, resulting in extensive settlement in northern areas from New South Wales.

Various Acts of Parliament were proclaimed to give the squatters security of tenure and to break up the large holdings and make land available to more people. By the use of " dummy settlers ", vast areas of land still remained in the hands of a few.

The early settlers were all pastoralists. Crops that were grown were for their own consumption and for food for the livestock. With the large increase in population that came with the gold rushes and in the aftermath of the Irish potato famines, land-use had to be diverted from grazing to agriculture. Large holdings had to be broken up to make land available to the small farmer.

In all, some ninety Acts of Parliament were proclaimed dealing with land settlement. To enable closer settlement to take place, the Government re-purchased land from the original holders and then offered it for sale to small farmers to use for cropping instead of grazing. Full details of these Acts of Parliament can be found in the *Victorian Year Book* 1973.

Alienation of land

The following tables show utilisation of land in Victoria :

VICTORIA—ALIENATION OF LAND
AT 30 JUNE 1974

Particulars	Area
	hectares
Lands alienated in fee-simple	13,580,310
Lands in process of alienation	131,571
Crown lands	9,049,970
Total	22,761,851

VICTORIA—CROWN LANDS AT 30 JUNE 1974

Particulars	Area
	hectares
Land in occupation under—	
Perpetual leases	17,339
Grazing leases and licences	2,436,672
Other leases and licences	13,032
Reservations—	
Reserved forest	2,295,297
Timber reserves (under Land Act)	59,664
Water catchment and drainage purposes	85,671
National Parks (under National Parks Act)	206,435
Wildlife reserves	55,320
Water frontages, beds of streams, and lakes (not included above)	342,535
Other reserves	119,170
Unoccupied and unreserved but including areas set aside for roads	3,418,835
Total	9,049,970

Crown lands alienated in fee simple during the years ended 30 June 1971, 1972, 1973, and 1974, were 34,830, 24,323, 39,195, and 33,019 hectares, respectively.

Improvement purchase leases

Crown land can be made available for application under improvement purchase lease conditions, and applications received are dealt with by a local land board.

The essential conditions of an improvement purchase lease are as follows:
(1) That the lessee will make such land improvements within the first six years as are specified. "Land improvements" means the clearing, draining, or grading of land, the preparation of land for the sowing of crops and pasture, and soil improvement and maintenance.
(2) That the lessee will commence to carry out the land improvements within one year and will complete one quarter within three years.
(3) That the lessee will not sell, assign, or part with possession of the leasehold during the first six years.
(4) That the lessee will not mortgage his interest in the leasehold during the first six years without first obtaining the consent of the Department of Crown Lands and Survey.
(5) That the lessee will reside in person on or within 40 kilometres of the leasehold during the first six years.

The purchase money is payable in twenty annual instalments, and on satisfactory compliance with the conditions of the lease and on payment of the balance of purchase money and fees, a Crown grant will be issued at any time after the first six years except where the lease contains a soil erosion prevention condition. The period is then twelve years or such further period as is provided in the lease.

Land utilisation

The climatic conditions of Victoria (for details see pages 85–104), especially the varying incidence of rain, have resulted in the development of a wide range of farming practices, but at the same time have been largely responsible for restricting the range of activities on individual farms.

The pattern of land-use conforms more or less to each of the statistical districts. Thus the Mallee and the northern part of the Wimmera District are used mainly for cereal production and sheep raising. The more intensive carrying of livestock in these districts has been made possible by a channel system of domestic and stock water supply originating in the mountainous areas of the Grampians to the south. The agriculture of the Northern District

is based largely on irrigation, and ranges from dairying to fruit production. The non-irrigated parts of the district are used for cereal and sheep production. In the Western, Central, North Central, North Eastern, and Gippsland Districts, the rainfall is heavier and more reliable; consequently, there is more diversity in land utilisation. In these districts, sheep grazing and dairying are the most important industries. Cultivation is generally limited. Some wheat is grown in the North Eastern and Western Districts, and there is some production of potatoes, vegetables, and other intensive cultivation crops on the more fertile soils in the higher rainfall parts.

Considerable areas in Victoria are retained as forest reserves and for water catchments (see page 378).

Rural districts, 1975

Soil Conservation Authority

Information about the activities of the Soil Conservation Authority can be found on pages 50–2 of this *Year Book*.

Land Conservation Council

Information about the activities of the Land Conservation Council can be found on pages 48–50 of this *Year Book*.

Rural finance

Australia's national policy for permanent land settlement has been based on the family unit farm. Financially this has seldom been easy because even in the early days settlers found it difficult to earn enough to maintain themselves while they were clearing and developing their blocks. The conditions of purchase were made very easy, but considerable aggregation of holdings took place because settlers failed. Later, some of these large estates were re-purchased, subdivided, and the smaller farms made available to settlers under closer settlement schemes.

After each world war these schemes were expanded to enable ex-servicemen to acquire farms under generous terms of settlement. In addition, money was advanced to returned servicemen to enable them to buy their own "single unit" farms. Soldier settlers were also granted loans for the purchase of stock, plant, and equipment.

Rural Finance and Settlement Commission

The Rural Finance and Settlement Commission was established by legislation in late 1961 to merge the former Soldier Settlement Commission and the Rural Finance Corporation. In the first instance, the new Commission carried out the functions of the former organisations in two separate branches until further legislation was passed in 1963 which completed the merger and co-ordinated the functions of the two branches in providing finance for country industry and land settlement development.

Rural Finance Act

The Rural Finance Act, which is administered by the Commission, embraces two distinct functions.

First, under part III of the Act, the Commission may grant loans "to any person or body establishing or carrying on any country industry", primary or secondary. These loans are, subject to the Act, made on such terms as are determined by the Commission. However, interest on the loans is required to be at a rate as low as practicable having regard to the rate at which the Commission borrows money and the costs of administration. Loans are made to primary industry for farm purchase, farm development, refinance, payment of probate, and seasonal advances. Loans to secondary industry have resulted in the establishment of a number of successful country industries over the

years. The Victorian Development Corporation was established towards the end of the 1972–73 financial year and the Commission is working in close co-operation with the new body in respect of loans to establish new country industries and for expanding and improving existing facilities. It is anticipated that the Corporation will now be the major channel through which Victorian Government loan assistance is made available to secondary industry located outside the Melbourne metropolitan area. The Commission, however, will still have a role to play in selected cases and industries.

The other function administered by the Commission under the Rural Finance Act is to act as agent for the Treasurer of Victoria in administering money provided from the Public Account for any special purpose, subject to such directions as the Treasurer may give or impose. Under these agency provisions, the Commission administers relief lending to members of the rural community in times of adversity, such as bushfire, drought, flood, etc. The agency provisions are also the means whereby special loans outside the scope of the Commission's ordinary lending are made available to particular industries. Major Australian–State Government schemes such as the Rural Reconstruction Scheme, the Marginal Dairy Farms Reconstruction Scheme, the Fruitgrowing Reconstruction Scheme, the Dairy Adjustment Programme, and the Beef Industry Carry-on Scheme, have also been administered in Victoria by the Commission under an agency direction from the Treasurer pursuant to section 35 of the Rural Finance Act.

VICTORIA—LOANS UNDER THE RURAL FINANCE ACT
($'000)

Particulars	(a)1970–71	1971–72	1972–73	1973–74	1974–75
Primary industry—					
Ordinary lending	4,529	2,519	2,347	2,488	2,806
Agency lending	74	11,991	16,481	8,887	12,549
Secondary industry—					
Ordinary lending	441	868	1,301	3,068	2,484
Agency lending	4,000	230	1,415	959	679
Loans outstanding at 30 June—					
Ordinary lending	30,875	30,924	29,223	29,356	31,447
Agency lending	9,376	20,493	35,516	38,656	48,070

(a) Does not include agencies administering finance provided by the Australian Government. This finance is included from 1971-72.

Soldier settlement and land settlement

The Commission administers the Soldier Settlement Act and the *Land Settlement Act* 1959. Allocation of soldier settlement ceased some years ago. In total, 6,171 ex-servicemen were assisted, either to obtain farms of their own choosing or allocated a farm under the various general settlement projects. At 30 June 1975, 3,901 of these farmers had completely repaid their liabilities to the Commission.

Under the Land Settlement Act, the Commission has developed land on five projects: at Heytesbury near Cobden, Yanakie on Wilsons Promontory, East Goulburn Irrigation Area near Shepparton, the Rochester Irrigation Area, and Palpara in the south-west of Victoria. The Yanakie and East Goulburn Irrigation Area Schemes were completed and all farms allocated to settlers by the mid-1960s.

When the Victorian Government decided in 1970 to refrain from making further land available for dairying, 573 farms had been allotted under the Land Settlement Act (381 dairy farms under rainfall conditions, 113 irrigation dairy farms and 79 soft fruit orchard holdings) on all projects.

No allocations of land settlement farms have been made since June 1970. However, the Government's decision was revised in November 1973, and during

the following five year period the Commission was to establish 120 new dairy farms at Heytesbury and Rochester.

Rural reconstruction scheme

Following the economic problems experienced by the farming community in 1969 and 1970, with greatly depressed prices and rising costs, a scheme for rural reconstruction was introduced in 1971, after conferences between the Australian and the State Governments.

Initially, the Australian Government agreed to provide $100m to the States (of which Victoria's share was $22.07m) for the purposes of the scheme, to be expended over four financial years. This expenditure was later agreed to be concentrated into two financial years to 30 June 1973, and it was also later agreed to continue the scheme for a further three financial years beyond that date. Additional funds allocated to Victoria to 30 June 1976 totalled $22.69m. In addition, Victoria had available an amount of $4.5m from funds received as repayments of the farmers' debts adjustment scheme of the 1930s.

The scheme provides for three main forms of assistance:

(1) *Debt reconstruction.* The purpose of this was to assist a farmer who, although having sound prospects of long-term commercial viability, had used all his cash and credit resources and could not meet his financial commitments.

(2) *Farm build-up.* The object of this was to supplement the normal processes under which uneconomic properties were amalgamated with adjoining holdings or were subdivided and the subdivided portions added to adjoining holdings. It also aimed at assisting the farmer of sound financial position, whose property was too small to be economic, to purchase additional land to build up his property to at least an economic size.

(3) *Retraining and rehabilitation.* This aimed at providing assistance, where necessary, for those who were obliged to leave the industry, in retraining for some other occupation. Loans up to $3,000 could also be made available to alleviate personal hardship.

Initially, expenditure under the scheme was concentrated on debt reconstruction, with only a small interest being shown in farm build-up. As confidence in the rural sector increased, however, particularly because of the higher prices being obtained for products, including wool, the emphasis shifted from debt reconstruction to farm build-up. Loans made for debt reconstruction purposes carry an interest rate of 4 per cent, and loans for the purpose of farm build-up carry an interest rate of 6.25 per cent.

To 30 June 1975, 2,918 applications were received for debt reconstruction loans, of which 800 were approved, while 1,540 applications were received for farm build-up loans, of which 798 were approved. Expenditure to 30 June 1975 totalled $20.9m for debt reconstruction and $20.3m for farm build-up.

Marginal dairy farms reconstruction scheme

This scheme was introduced so that dairy farmers whose farms had insufficient potential to become viable economic units could voluntarily dispose of their land and improvements at market value to the State. The State, after allowing for redundant improvements on the basis of the most practical and economic land-use, could then sell the land and remaining improvements with the object of building up other rural properties to economic levels or for specific purposes other than farming, such as forestry. At 27 July 1974, the expiry date of the four year scheme, the total commitment by the Commission amounted to only $562,786.

Dairy adjustment programme

This scheme superseded the Marginal Dairy Farms Reconstruction Scheme introduced in 1970, which created little interest amongst dairy farmers in Victoria. The new scheme is wider in definition and includes new categories.

Basically, it has three main elements. It provides interest free loans to dairy-farmers who at present supply cream or water-cooled bulk milk, to enable them to meet the cost of conversion after 21 August 1974 to bulk refrigerated milk supply; it provides finance to assist the purchase of uneconomic dairy farms for amalgamation with an existing farm; and in special circumstances the dairy farm may be disposed of to persons prepared and able to use the farm for forestry purposes. Where an uneconomic dairy farm has potential, it may be possible to assist the farmer to purchase additional land to bring his property to a viable unit. There is also scope for assistance for improvement of dairy properties to bring them to a suitable standard. Relocation assistance up to $3,000 is available to a dairy farmer who may suffer personal hardship on leaving the industry and disposing of his farm after 21 August 1974.

To the end of June 1975, the Commission had received 1,406 applications for bulk vat conversion loans, of which 1,153 were approved, while 509 applications were received for farm purchase and development, of which 245 were approved. The total commitment at 30 June 1975 was $12m.

Fruit growing reconstruction scheme

During 1971 and 1972, growers in the canning fruit and export apple and pear industries continued to experience financial difficulties brought about by restriction of market outlets. The industry, generally, was experiencing high levels of stocks. Against this background, proposals were put forward by the industry for the curtailment of production by means of a tree removal scheme. The Australian Government, after consultation with the States, offered to finance a scheme within the context of the rural reconstruction measures, with the emphasis on relief being given to the individual grower. Legislation was passed in 1972 to establish the scheme. A total of $4.3m was made available to the States under the scheme to pay compensation to growers for the removal of trees. Half the amount available was to be applied to canning-peach and pear trees, and the other half to fresh apples and pears. State authorities were to administer the scheme so that the average rate of assistance did not exceed $350 per acre for canning-peaches and canning-pears and $200 per acre (later amended to $250 per acre) for fresh apples and fresh pears. Compensation in respect of trees was to be assessed after having given due regard to age, yield, and condition of the trees, and market access availability.

Eligibility for admission to the scheme was divided into two categories: (1) Clear fell for the grower in severe financial difficulties who intended to clear fell his orchard, leave the industry, and convert his land to other use; and (2) partial fell for the grower who did not have adequate resources to withstand the short-term effect on his economic viability of removing surplus trees without assistance.

To 30 June 1975, 149 applications had been received, of which 15 were later withdrawn and 72 rejected. At that date 5 applications were pending and offers had been made in 119 cases, of which 86 had accepted, involving compensation totalling $595,190. The scheme has been extended to 31 December 1975.

Beef industry carry-on scheme

Following the depressed prices for beef caused by loss of export markets during 1974, many beef producers experienced financial hardship, and the Victorian Government provided a special fund of $2m to assist beef producers who could not be assisted under any other rural assistance scheme. On 28 April 1975, agreement was reached on a joint Australian–State Government scheme to provide carry-on finance to beef producers where the State assistance was matched by a similar allocation of Australian Government funds, the total sum available in Victoria being $4m. Those eligible are specialist beef producers who still have a sound asset structure and would be viable on the resumption of a market

recovery to a long-term trend, but who lack the finance needed to carry on in the period of low market return. The maximum loan available to any individual is $10,000. The Commission had made 51 loans totalling $389,100 to 30 June 1975.

Other rural finance facilities

State Savings Bank of Victoria

State Savings Bank loans for rural purposes are available on the security of first mortgage over freehold property. Loans are repayable over periods varying between 15½ and 24 years. Interest is charged at the rate ruling from time to time—in 1975 from 10.5 per cent per annum, depending on the amount of the loan and whether the property is worked by the applicant. The maximum loan must not exceed two thirds of the value of the property.

Particulars for the year ended 30 June 1975 may be found in Chapter 21.

Reserve Bank of Australia—Rural Credits Department

The Rural Credits Department was established in 1925 as a department of the Commonwealth Bank of Australia and is now part of the Reserve Bank of Australia. The Department may make advances to rural marketing authorities formed under Australian, State, or Territory law and to co-operative associations of primary producers to assist in the marketing, processing or manufacture of primary produce. Advances, which may not be made for a period of more than one year, are used by borrowers principally for making payments to growers for their primary produce pending its sale, and to finance marketing expenses, which in some cases include processing and packing of the commodity.

Among the commodities financed are wheat, barley, canned and dried fruits, cotton, dairy produce, eggs, rice, sugar, superphosphate, and wine and spirits. Lending rates on the Department's loans were increased from 7.0—7.25 per cent to 9.5—10.0 per cent per annum on 15 July 1974.

The profits of the Rural Credits Department each year are distributed equally between the Department's Reserve Fund and the Rural Credits Development Fund. This Fund was established in 1925 to be used for the promotion of primary production. It is distributed by way of grants to various organisations engaged in rural research work and extension activities.

Farm Development Loan Fund

The Farm Development Loan Fund was established in 1966 to provide rural producers, particularly small producers, with greater access to medium and long-term finance. Initially, this lending was to be mainly for farm developmental purposes which would directly raise productivity. However, from November 1972, resources from the Fund can also be made available for such purposes as financing farm property purchases, assisting where the death of a farm proprietor creates financing difficulties in holding together a farming enterprise, and, in appropriate cases, financing repayment of existing short-term debt. Loans are made by the trading banks from their Farm Development Loan Fund Accounts with the Reserve Bank and are designed to supplement other loans available from the banking system.

Commonwealth Development Bank

A brief outline of the functions of the Commonwealth Development Bank, together with particulars of rural loans outstanding at 30 June 1974, may be found in Chapter 21. Rural loans are made for a variety of purposes, e.g., clearing, fencing, pasture improvement, farm water conservation, erection of essential farm buildings, and the basic stocking of properties. Other aspects of assistance granted include aid to successful applicants in government sponsored rural development schemes and land ballots. Special attention is also given to providing finance to applicants opening up new areas.

Advances by major trading banks

The extent of rural lending in Victoria by the Commonwealth Trading Bank and other major trading banks is illustrated in the following table, which shows bank advances to borrowers outstanding at the end of June for the five years 1970 to 1974 :

VICTORIA—COMMONWEALTH TRADING BANK AND PRIVATE TRADING BANKS : BUSINESS ADVANCES OUTSTANDING TO RURAL INDUSTRY BORROWERS AT END OF JUNE
($m)

Industry of borrower	1970	1971	1972	1973	1974
Sheep grazing	81.0	78.9	67.3	53.5	55.7
Wheat growing	28.4	27.2	25.6	26.4	29.4
Dairying and pig raising	48.7	45.5	44.9	57.0	65.3
Other rural	50.9	51.8	59.4	73.9	88.1
Total	209.1	203.3	197.2	210.7	238.5

Advances to rural industry borrowers represented 14.8 per cent of trading banks' business advances outstanding at the end of June 1974, and 11.2 per cent of all advances outstanding. The maximum rate of interest on bank overdrafts at 30 June 1974 was 9.5 per cent per annum for amounts under $50,000 but the average rate on rural loans would probably be below this level. Actual rates for amounts $50,000 and over are now a matter for negotiation between banks and their customers.

Advances of pastoral finance companies

The following table shows total rural advances outstanding to pastoral finance companies at 30 June for the five years 1970 to 1974:

VICTORIA—RURAL ADVANCES (*a*) OF PASTORAL FINANCE COMPANIES
($m)

At 30 June—	Advances outstanding
1970	66.1
1971	57.2
1972	57.2
1973	68.0
1974	86.1

(*a*) Held by branches located in Victoria, which is not necessarily the State of residence of the borrower.

Government assistance to the farming industry, 1964

Water supply and land settlement

Chapter 13 now covers this topic, but previous references to this material when it appeared in this chapter are as follows:

Irrigation, 1962 ; Wimmera–Mallee region water supply, 1963 ; Flood protection, river improvement, and drainage, 1963 ; Underground water, 1964 ; Water supply in Victoria, 1964 ; Goulburn–Murray Irrigation District, 1965 ; Spray irrigation in agriculture and dairying, 1965 ; Private irrigation development, 1966 ; Water Research Foundation, 1966 ; River improvement, 1967 ; Rivers and streams fund, 1967 ; Dandenong Valley Authority, 1968 ; Water conservation, 1969 ; Water supply to Western Port, 1971 ; Lake William Hovell dam, 1972 ; River Murray Agreement and the River Murray Commission, 1972 ; Ten year plan, 1974 ; Millewa pipeline project, 1974 ; Snowy Mountains Hydro-Electric Scheme, 1974 ; Millewa Scheme, 1975 ; Tarago-Western Port pipeline, 1975

Department of Agriculture

Functions

The functions of the Department of Agriculture may be described briefly as providing regulatory, research, diagnostic, and extension services in the fields of animal health, animal industry, agriculture, dairying, and horticulture; discharging the statutory responsibilities imposed by the legislation administered directly by the Department; and administering Victoria's agricultural and horticultural colleges.

The current administrative and functional pattern originated in 1911. The Department comprises the Central Administration and eight divisions: Agricultural Chemistry, Agricultural Education, Agriculture, Animal Health, Animal Industry, Dairying, Extension Services, and Horticulture, as well as the two major servicing branches—Economics and the Victorian Plant Research Institute (Biology). The Department operates a number of agricultural research establishments, veterinary laboratories, and offices throughout Victoria, in addition to the colleges.

Regulatory activities

The Minister of Agriculture administers more than forty Acts of Parliament, a number of which establish statutory authorities.

The Department is responsible for the administration of legislation within the Department including the registration and inspection of dairy farms and dairies and factories producing butter, cheese, and other dairy produce, to ensure proper standards of hygiene and equipment; the registration of manufacturers of margarine and the limitation of the quantity of table margarine which may be made by each manufacturer; the registration and control of farm produce merchants and commission agents; the inspection, packing, and grading of fruit and vegetables; the inspection of orchards and insistence on proper methods for preventing and controlling plant diseases and insect pests, including measures to be taken against outbreaks of fruit fly; the registration of fertilisers, pesticides, stock foods, stock medicines, and sheep branding fluids; the licensing of abattoirs, pet food manufacturers, and meat transport vehicles; the inspection of meat; the prevention, control, and eradication of stock diseases; the assessment and payment of compensation to owners of cattle, swine, and bees condemned because of infection with prescribed diseases; the elimination of bulls not of a reasonable standard in respect of type, conformation, and breeding; the control and regulation of the artificial breeding of stock; the control of processing of poultry intended for sale; the inspection and testing of seeds for sale to ensure compliance with prescribed standards of purity and germination; the conduct of seed certification schemes; the control of the spraying of agricultural chemicals from aircraft; the control of rain-making operations; the inspection of accommodation provided for shearers to ensure that it conforms to prescribed standards; and the control of agricultural colleges.

In addition, the Department, on behalf of the Australian Government, undertakes the inspection of fruit and grain for export and the inspection and quarantining of imported animals and plants to prevent the introduction of diseases.

Since 1971, apart from a number of amendments to established legislation, the Bees Act, the Fertilizers Act, and the Seeds Act have been reviewed and updated as new pieces of legislation; additional legislation has been enacted to provide for the stabilisation of the egg industry and for the transfer of the Veterinary Research Institute and of the control of abattoirs and meat inspection to the Department of Agriculture.

The *Bees Act* 1971 contained substantially the same provisions as the *Bees Act* 1966 relating to the registration and inspection of apiaries to control diseases and maintain proper hygiene standards in the preparation of honey,

with the addition of sections to provide for a compensation scheme to alleviate the losses experienced by beekeepers when disease occurs in their apiaries. The *Seeds Act* 1971 took cognisance of developments in the seed industry over a number of years. The legislation relates to seed sold or intended for sale for the purpose of sowing, other than seeds of wheat, oats, barley, and cereal rye except where the seeds are used or intended to be used for mixing with other kinds of seeds to form a seed mixture. Significant new principles in the Act were the compulsory examination of all seed prior to sale in relation to physical purity and germination, the follow-up examination at prescribed periods, and the registration of all seed cleaning plants. The *Fertilizers Act* 1974 consolidated and amended the law relating to the sale of agricultural limes, fertilisers, and soil conditioners.

The *Veterinary Research Institute Act* 1972 provided for the transfer of the Institute and appropriate staff from the University of Melbourne to the Department of Agriculture as part of a programme of establishment and development of veterinary diagnostic and research laboratories by the Department throughout Victoria. The *Abattoir and Meat Inspection Act* 1973 provided for the transfer of the control of abattoirs and meat inspection (other than the public health control of meat at retail outlets, which is still exercised by the Department of Health and municipal health inspectors), previously exercised by the Department of Health and municipal councils under the provisions of the Health Act, to the Department of Agriculture. The legislation provided for the establishment of a Victorian Abattoir and Meat Inspection Authority and for the licensing of abattoirs, slaughterhouses, meat inspection depots, meat processing works, knackeries, and pet food establishments. The *Egg Industry Stabilization Act* 1973 provided for the stabilisation of the egg industry by the introduction of a poultry farmer licensing scheme, and the allocation of a hen quota to each licensee.

Agricultural education

Agricultural colleges

The Department of Agriculture administers four colleges through its Division of Agricultural Education. The main purpose of the colleges is to provide appropriate education for practising and future farmers and for those wishing to work in industries related to farming. The colleges are financed chiefly from Victorian Government funds.

Dookie Agricultural College, established in 1886, and Longerenong Agricultural College, established in 1889, provide a three year course leading to the Diploma of Agricultural Science. The course for the Diploma of Agricultural Science has developed from the needs of those whose first wish is to follow a career in farming or in an allied field as an alternative. To meet these dual needs, it was necessary to provide a course of study reaching tertiary level which emphasised the training of technologists to assist in agricultural research and extension and in the many government and private enterprises which service agriculture.

Training is given in the basic technical, scientific, and economic principles underlying all aspects of production management and business management relevant to farming in southern Australia. Lectures on all topics are complemented by laboratory work, field demonstrations, personal assignments, visits to commercial farms and agricultural industries, and by practical work on the farm which is part of each college campus.

Burnley Horticultural College, established in 1891, provides a three year course for the Diploma of Horticultural Science. The course is comprehensive, giving tuition and practical experience in fruit and vegetable production, ornamental horticulture, nursery management, and landscape design, as well as training in the basic physical, biological, and applied sciences.

Glenormiston Agricultural College, established in 1971, has an annual intake of about 60 students. It was established to meet the needs of those young men and women who, having already gained some experience in farming, wish to be trained in the principles and practices of farm management before returning to a farm career. The college provides high standard facilities for the many educational functions for which it is used.

In December 1974 the Victorian Government decided to establish, at Warragul, a new agricultural college to provide for the continuing education of primary producers, principally those in the Gippsland region.

Miscellaneous agricultural colleges

A significant change in the concept of adult farmer education has taken place since 1971 when the Department established a regionally structured Extension Services Branch which became a Division in 1974. All colleges are now involved in an active programme of adult farmer education in co-operation with this Division to provide a wide variety of activities, including short courses and seminars based on regional needs.

Part-time evening classes are conducted at the colleges, the majority being given at Burnley Horticultural College. Subjects in horticultural, agricultural, and associated sciences were available to the 1,350 persons enrolled in 1973, and included such specialist areas of instruction as greenkeeping, weeds and their control, and the genetics of sheep breeding.

The Agricultural Education Division also administers the Victorian Government grant to the Victorian Young Farmers movement.

Apprenticeships in general farming and fruit growing were offered for the first time in Australia in 1975. Courses were set up in six technical schools by the Victorian Department of Labour and Industry and the Education Department, with active co-operation from farm industry organisations and the Department of Agriculture. The general farming courses incorporate instruction to cater for individual needs in such areas as grazing, dairying, and cropping. Also, advanced basic vocational and technician programmes have been developed for post-apprenticeship training together with middle level programmes designed to meet the needs of owner-operators of small farms.

University of Melbourne

School of Agriculture

The Faculty of Agriculture was established in 1905 by statute of the Council of the University, and the first Professor of Agriculture, Dr Thomas Cherry, was appointed in 1911. However, it was not until 1921, following the passing of the *Agricultural Education Act* 1920, that provision was made for a building to house the school and for the appointment of permanent staff.

The purpose of the four year course is to give students a sound basic training in scientific principles as applied to agriculture. The first year is devoted to science subjects, and is followed by a year in residence at the University Field Station at Mount Derrimut, Deer Park, where students are introduced to the variety of farm operations involved in a mixed farming enterprise while taking lectures and practical classes in various sciences applied to agriculture. They return to the University campus for more advanced training in economics and the soil, plant, and animal sciences in the third and fourth years of the course. In the final year the students have a restricted choice of subjects, which ensures that all students receive a general training in all aspects of agricultural science, while allowing a measure of specialisation.

Since the establishment of the Faculty of Agriculture, 1,000 graduates have entered the profession, the number of graduates averaging about 55 per annum. There are some 30 students working for higher degrees (Ph.D. and M.Agr.Sc.)

either at the University or at Mount Derrimut, and about ten postgraduate students attend the course for the Diploma in Agricultural Extension.

Department of Civil Engineering—Agricultural Engineering Section

The University of Melbourne also offers training in the more physical aspects of agriculture, leading to a degree in agricultural engineering. This course is the only one of its type at an Australian university, and is closely linked with complementary postgraduate and research programmes.

Some of the specific field tasks handled are the interactions between soil, crops, and machinery in regard to function, safety, and economics; the control of natural and irrigation waters to achieve maximised production; the estimation of water resources and disposal of wastes; work study and organisation of farming systems; processing of farm products, such as refrigeration and drying; and mechanical handling and transport of a wide range of materials such as fruit, grain, and wool.

The course is of four years duration and leads to a B.E. (Agr.).

Latrobe University—School of Agriculture

Latrobe University, which admitted its first students in March 1967, opened its School of Agriculture a year later. The emphasis of the course is on the sciences relevant to an understanding of the rural environment, covering the relation between the soil, the plant, the animal, and the environment. Substantial emphasis is also given to the study of the economic and social aspects of agriculture and farm management. The four year course leads to a B.Agr.Sc. (pass or honours degree).

Some six hectares of the University campus are presently used by the School of Agriculture for field work involving crops, pastures, and livestock, enabling students to have day to day contact with agricultural experimentation as well as with the more applied aspects of crops and animal husbandry. These on-campus facilities are supplemented by the provision of at least twelve weeks practical experience on approved farms.

Agricultural extension services

Advancing technology and increasing competition on world markets have intensified the need for farmers to be advised quickly about each new development and to establish sound bases for the many decisions which are necessary as consequences of rapid change. Extension services to provide advice and training in these matters are conducted by several government departments and also by commercial firms such as the manufacturers of agricultural chemicals, farm machinery, and stock foods and medicines. Some farmers employ professional consultants to advise them personally.

In Victoria, the major extension service is provided by the Department of Agriculture, which, in addition to its research and regulatory staffs, has a large group of extension workers throughout the State. Whereas the main emphasis of this service for many years was on the answering of farmers' questions and the dissemination of research results and other information, it is now devoting increasing attention to educational programmes which help to train farmers to make decisions according to their individual circumstances. Consequently, special emphasis is given to farm economics and financial management.

The Department's extension services are co-ordinated throughout Victoria by a regionalised Extension Services Division, administered locally by regional centres located at Ballarat, Bendigo, Benalla, and Warragul. Within each region, district offices have the appropriate staff to serve a more limited area. Each Regional Officer co-ordinates the activities of a group of extension specialists, according to the needs of his region, e.g., agronomy, dairy husbandry,

sheep and wool, beef, or horticulture. A growing team of agricultural economists is serving at regional and district centres. Close relationships are maintained with the Department's research stations and other experimental centres, agricultural colleges, regulatory staff, the rural community, commercial firms that serve agriculture, and associated government departments.

The regional service occasionally has to divert its immediate activity to special campaigns such as the alleviation of drought or the consequences of other crises such as floods and bushfires. Sometimes it is necessary for extension specialists to visit individual farms and to use other person-to-person methods such as office consultations, telephone discussions, and correspondence. However, to make the most efficient use of available resources and to serve as many farmers as possible, extension officers do much of their work with groups of primary producers and use media outlets such as publications, radio, television, and films.

More than 200 discussion groups of dairy farmers meet regularly in farm homes to exchange ideas on developments in their industry. Department of Agriculture specialists often visit these groups to provide information about the subject under discussion.

More formal group activities occur at regular field days on research stations, experimental plot sites, and other places of interest such as the winning farm in a soil conservation competition. Whereas field days on major research stations attract up to 800 visitors, smaller farm walks involving up to 20 farmers provide effective informal discussions about current methods and problems.

Occasionally groups within a district combine to hold schools for farmers or to tour together to other similar areas in Victoria, other States, and even New Zealand. Subsequent discussions are helpful in assessing the potential local application of ideas which have been seen elsewhere. More formal schools for farmers are held in local halls, woolsheds, and Education Department classrooms. Emphasis is being given to financial management in courses which continue, one night a week, for several weeks. Between classes, farmers apply what they have learned to their individual circumstances and raise points for discussion at the next session. Meetings and conferences also provide opportunities for farmers to receive new information and discuss problems. Exhibits at agricultural shows are often focal points of discussion.

Both person-to-person activities and group work are complemented strongly by articles in newspapers and magazines, the *Journal of Agriculture,* industry digests for dairy farmers, fruit growers, and apiarists, a wide range of books and pamphlets, farm radio and television programmes, and films. Farmers often become aware of new developments through the media before seeking further advice to help them to decide on the adoption of new ideas. The Department of Agriculture's Media Services Branch in Melbourne has the printing facilities, studios, and other resources for providing this complementary information to, and through, extension workers in the field. In addition to its direct services, the Department of Agriculture provides much information which reaches farmers through other departments and commercial organisations, including consultants.

Research activities of the Department of Agriculture

The first experimental farm was established over 100 years ago at Royal Park by the Port Phillip Agricultural Society. The venture failed, but after the Department of Agriculture was formed in 1872 other experimental farms were established at Rosedale, Whitfield, Wyuna, and Rutherglen. However, agricultural research as it is known today dates from 1912 with the establishment of the State Research Farm at Werribee and the Rutherglen Research Station. The Department now conducts research in institutions strategically situated throughout the State and provides a scientific service for all aspects of agriculture in

Victoria. Some research is also conducted on private properties, thus enabling results obtained on research stations to be extended over a wide range of environments and on subjects not covered at research stations.

The research stations and institutes occupy about 4,455 hectares, and are staffed by more than 200 graduate officers assisted by about 600 diplomate and ancillary staff. Wherever possible the various research stations and institutes co-operate in work with other departments in Victoria, with the C.S.I.R.O., and with the universities.

Control of pests and diseases

In recent years, there has been a growing awareness of the dwindling food resources of the world, as well as of the need to exercise control over those agents, such as fungicides and insecticides, which have made it possible to meet current needs. As a result, the role of agencies such as the Victorian Department of Agriculture and the Department of Crown Lands and Surveys has changed to become not only a regulatory one, but also an initiator of new uses and efficient applications of pest and disease control methods.

Department of Agriculture

The Department of Agriculture exercises control of agrochemical pesticides through the *Pesticides Act* 1958 and maintains close contact with the industry to achieve compliance with its provisions. Insecticides, fungicides, and herbicides used on orchards and wheat crops are controlled primarily through the requirement to register new products with an approved label. They are then carefully examined by the Victorian Pesticides Review Committee before being registered for sale. This Committee, comprising representatives of the Departments of Conservation, Health, Agriculture, Lands, the Forests Commission, and the State Rivers and Water Supply Commission, represents a broad cross section of the many interests likely to be affected by the use of pesticides, and provides expert knowledge on problems regarding efficacy, human safety, safety to wildlife, and associated considerations.

Victorian Plant Research Institute

At the Department of Agriculture's Victorian Plant Research Institute the programme includes work on pest and disease control, and development of practical control measures, with emphasis on non-chemical and integrated approaches to solutions of problems. Important developments include multiplication schemes for fruit tree budwood, grapevines, seed potatoes, and ornamental plants using disease-free, high yielding, high quality plants which are multiplied under strict control for sufficient generations to supply commercial demands. Disease-free fruit tree budwood for multiplication schemes is available from the National Fruit Variety Foundation, which is a repository for virus-tested stone fruits and grape vines.

Further details of the production of disease-resistant varieties are given on pages 391-2 of this *Year Book*.

The biological control of plant diseases is another significant development, using organisms antagonistic to plant pathogens in soils.

The Institute was involved in the introduction into Australia of the rust fungus as a biological control of skeleton weed. Pests of stored grain have been a critical problem area, and collaborative research with the C.S.I.R.O. has been undertaken. Another approach is the study of juvenile hormone analogues which function by disrupting certain stages of insect development and may provide a safe substitute for chemical insecticides.

Integrated control of deciduous fruit pest and mite species has given promise of more economic methods of controlling codling moth on pome fruits and Oriental fruit moth on peaches. Red scale, the major pest of citrus, is now under almost complete biological control.

Methods developed to control Queensland fruit fly have made it possible to treat infested areas much more quickly and there are good indications that this pest might eventually be eradicated from Victoria. The research programme has also indicated that insect viruses could be of great value in controlling pests.

Department of Crown Lands and Survey—Vermin and Noxious Weeds Destruction Board

In 1962 the Vermin and Noxious Weeds Destruction Board established the Keith Turnbull Institute at Frankston as its research headquarters. Major research projects have been the study of myxomatosis for rabbit control; studies into use of the poison 1080 for vermin control; aerial baiting of rabbits; trials in the control of sparrows and starlings; and the use of grain-based pellets for rabbit control. Another significant contribution has been the research on the food habits and parasites of the fox and the dingo.

Research on the ecology and control of noxious weeds has resulted in the development of more effective control measures. Herbicides provide the main methods of control. Research has aimed to find the most suitable herbicides, dose rates, and method of application for the control of each noxious weed. More detailed research has been concentrated on the ecology and management of blackberry, ragwort, skeleton weed, horehound, Paterson's Curse, spiny burr grass, Californian thistle, slender thistle, soursob, African feather grass, boneseed, and wild garlic. Projects have also been undertaken on the control of roadside weeds. Considerable emphasis is now being given to investigations into methods of biological control of weeds.

The staff of extension officers provides an effective means of disseminating results of research throughout Victoria. A recent development at the Keith Turnbull Institute has been the introduction of a training scheme for Inspectors of Lands. Training is provided, in conjunction with the Education Department, for both new inspectors and the existing inspection staff.

Plant breeding

The Department of Agriculture is developing improved varieties of crop plants by breeding and selection. The objectives of this programme are determined by the shortcomings of a particular crop and by the needs of the industries, but breeding for higher yields is an aim common to all programmes. Wheat breeding has been particularly successful, about 60 per cent of the current Victorian wheat area being sown to cultivars produced from the programme. During the past 50 years, more than 40 new varieties have been released. These varieties have much better baking quality than earlier ones, give a higher yield of grain, and are also resistant to several diseases.

Current work aims at increasing yield further and reducing losses from drought and diseases. Improvement in milling and baking qualities are also important objectives. The two centres for wheat breeding are the Victorian Wheat Research Institute, Horsham, and the State Research Farm, Werribee. These two stations carry out hybridisation and grow the early generations. Preliminary quality and disease testing is also performed before the crossbreds are transferred to regional nurseries where their performance is studied in the field, as in all crop breeding programmes. In the case of wheat, about 40 centres on Departmental research stations and colleges, and on farmers' properties, are used. Estimates of yield are made over several seasons, and final evaluations of milling and baking qualities are made at the Department's cereal laboratory in Melbourne.

The aim of the barley breeding programme is to produce varieties with high yield, good malting quality, and strong straw. Much use is made of overseas varieties in the crossing programme to incorporate the desirable characteristics into a type suitable for Victorian conditions. Workers carry out hybridisation at

Werribee where early generations are grown in the field. After preliminary selection, crossbreds intended for use in the Mallee are transferred to the Mallee Research Station, Walpeup, where they undergo further selection for yield, grain type, and malting quality. Final selection is based on field performance at a number of regional sites and on the results of quality tests in the Melbourne cereal laboratory.

The Department also undertakes breeding work on oats, which are now mainly used as a feed grain. With this crop, tolerance to the diseases " stem rust " and " barley yellow dwarf virus " is important as these can cause considerable losses in yield. Particular attention is paid to the size and shape of the grain, and to the ratio of kernel to husk. A light colour is important for the export trade, and high contents of protein and fat are desirable. Oats are still grazed to a large extent and a dual purpose variety that provides green feed during autumn and winter and recovers satisfactorily to produce good yields of quality grain is a major objective in breeding.

Another feed grain being developed is triticale which is a cross between wheat and rye. This species is still in the developmental stage in Australia and there are several problems to be overcome before it can be grown commercially. The breeding programme is aimed at improving adaptation as well as overcoming sterility problems and shrivelled grain. As with the other cereals, the farm at Werribee carries out the first stages of this work.

Because of the importance of ley farming to Victorian agriculture, work was undertaken to improve the pasture species available for use in the cereal growing areas. The main species of interest have been barrel medic, annual ryegrass, and phalaris. Good autumn and winter growth and reliable regeneration from year to year are the main objectives of this work.

The development of improved varieties has made a major contribution to the linseed industry, and Victorian cultivars are now grown throughout Australia. Resistance to rust, wilt and browning diseases has been incorporated into varieties with high yield of seed and oil. With the new interest in the oilseeds industry, a breeding programme with rapeseed was recently commenced to develop varieties which are suitable for Victoria. At present, only imported varieties are available commercially. The requirements of the trade are a good quality oil free from erucic acid, and a meal without goitrogenic agents. Also important are high yield, high oil content, low fibre, and resistance to shattering and to fungus disease.

Another very successful aspect of the Department's breeding work is the development of new tomato varieties. A number of varieties suitable for the fresh market and for processing have been produced, including varieties resistant to the soil-borne diseases. During recent years, equipment for mechanical harvesting has become available, necessitating a different type of tomato. The plant must be a small compact bush with concentrated fruit ripening. The fruit must be firm, able to resist cracking, keep well, and be readily separated from the plant. The emphasis in the breeding programme has consequently been changed to meet these requirements, and three new varieties suitable for mechanical harvesting have been released.

Resistance to disease is also one of the objectives of the potato studies in which it has also become necessary to develop varieties suitable for a changing industry—varieties which are suitable for chipping, french frying and canning, as well as for the traditional uses. Two new potato varieties have been released to the industry in recent years.

Improvements which are being made in other vegetable crops are the incorporation of resistance to halo blight and other diseases into high yielding french beans, and the increase in yield of onions by the development of hybrid lines. Details of other work on the control of pests and diseases are given on pages 390-1.

Fertilisers

James Cuming, who arrived in Victoria in 1862, established the superphosphate industry in Australia, using bones and guano as a source of phosphate. Later, rock phosphate was imported from the United States of America. Since the First World War, supplies of rock phosphate from Nauru and Ocean and Christmas Islands have provided almost all of the requirements for superphosphate manufacture in Australia. Recently, Christmas Island has become the major supplier, with Nauru remaining important, but Ocean Island providing little. Most of the sulphur used in the industry comes from Canada.

Since the 1920s, the need to topdress pastures with superphosphate for high productivity has become generally accepted and soil fertility has been much improved by the practice. Although superphosphate is designed to supply mainly phosphorus, its contents of sulphur and calcium are also essential for plants in certain areas of Victoria, and it comprises about 85 per cent of Victoria's annual usage of fertilisers. In 1973–74 over one million tonnes of artificial fertiliser were used, including 883,247 tonnes of superphosphate, of which pastures received 739,470 tonnes and crops 143,777 tonnes.

While phosphorus and, to a lesser extent, nitrogen are the most important nutrients in Victorian agriculture generally, in certain areas potassium and sulphur are no less important. The use of nitrogenous fertiliser has become almost static in recent years and, despite the wide range of forms available, requirements are met mainly by ammonium nitrate, calcium ammonium nitrate, urea, and sulphate of ammonia. However, since the 1950s, there has been a rapid and continuing expansion in the use of potassic fertilisers in southern Victoria. Usually, potassium is applied to pastures as mixtures of muriate of potash and superphosphate. In Victoria, the trace elements molybdenum, copper, zinc, and cobalt are also supplied in a variety of mixtures with superphosphate.

Superphosphate prices increased significantly during 1974, because of increases in rock phosphate and manufacturing costs. Rising fertiliser costs and, to some extent, environmental considerations are also forcing major economies, particularly with pastures. A side effect is the increased utilisation of animal manures, but the scope for this remains small.

Since the Artificial Manures Act was introduced in 1897, the law has required fertilisers to be sold according to a guaranteed analysis. Under the *Fertilizers Act* 1974 manufacturers must register the brands, analyses, and prices of their products with the Department of Agriculture. A list of registrations is published in the Victorian Government *Gazette*.

In 1973–74 artificial fertilisers were used on 1,045,345 hectares of wheat; 433,804 hectares of other cereal crops; 20,990 hectares of vegetables; 24,622 hectares of orchards; 22,629 hectares of other crops; and 4,488,012 hectares of pastures. Superphosphate is the main fertiliser used on both crops and pastures and in 1973–74 amounted to 199,171 tonnes of single strength equivalent, or 82 per cent of the total artificial fertiliser used on all crops, and 758,117 tonnes or 87 per cent of that used on pastures.

VICTORIA—ARTIFICIAL FERTILISERS

Year	Crops			Pastures		
	Number of holdings	Area fertilised	Quantity used	Number of holdings	Area fertilised	Quantity used
		'000 hectares	'000 tonnes		'000 hectares	'000 tonnes
1969–70	27,055	2,001	299	35,426	4,212	725
1970–71	24,164	1,529	326	34,668	3,979	695
1971–72	22,147	1,585	237	33,827	3,763	684
1972–73	n.a.	1,565	232	34,274	4,277	782
1973–74	n.a.	1,547	240	35,374	4,488	869

Superphosphate, 1971

Aerial agricultural services

The aerial agricultural services industry has developed in Australia since late 1949 and has expanded rapidly in recent years. It is now a stable industry, assisted by the use of safer and more modern aircraft. Standards of operation are very strict. All pilots must pass a special examination and flight tests for a licence endorsement with an agricultural rating and for a pilot chemical rating certificate, as required by the *Aerial Spraying Control Act* 1966, which is administered by the Victorian Department of Agriculture. Under the Act, conditions under which aerial spraying may be done are specified; provision is made for the declaration of "hazardous areas", and inspections are authorised of properties on which damage has been alleged to have been caused by spray drift of specified chemicals onto susceptible crops. There are a number of areas in Victoria with concentrations of crops susceptible to hormone weedicide damage; these are declared as "hazardous areas" for varying periods each year and at these times the aerial application of specified chemicals is prohibited.

In Victoria it is estimated that almost 1 million hectares a year have been treated from the air with fertilisers, insecticides, and weedicides. To a lesser degree, aircraft have been used for seeding, and for the control of rabbits and other vermin by dropping poisoned baits. Other areas where aircraft are used in primary production include spotting shoals of fish and the dropping of fingerlings (young fish) into Victorian lakes and rivers. Aircraft are also used for fire spotting. Experiments have been conducted in dropping fire retardants for the protection of pulp wood and natural forests.

A full description of aerial agricultural services may be found on pages 494 and 764–5 of the *Victorian Year Book* 1966.

VICTORIA—AERIAL AGRICULTURAL SERVICES AT 31 MARCH

Particulars	Unit	1970	1971	1972	1973	1974
Total area treated (*a*)—	'000 hectares	946	754	640	659	797
Topdressed or seeded	'000 hectares	726	621	489	559	552
Sprayed or dusted	'000 hectares	196	96	99	82	224
Rabbit baiting, etc.	'000 hectares	23	38	53	19	21
Materials used—						
Superphosphate	tonnes	117,988	92,317	68,515	86,505	97,587
Seed	'000 kg	45	79	76	66	55
Aircraft utilisation (flying time)	hours	20,893	15,294	11,767	15,197	17,963

(*a*) Areas treated with more than one type of material on one operation are counted once only.

Farm machinery

The numbers of selected items of farm machinery on rural holdings at 31 March during each of the five years 1970 to 1974 are given in the following table:

VICTORIA—FARM MACHINERY ON RURAL HOLDINGS AT 31 MARCH

Particulars	1970	1971	1972	1973	1974
Milking machines—Units	112,012	(*a*)	108,745	113,335	(*a*)
Shearing machines—Stands	43,152	(*a*)	42,876	(*a*)	(*a*)
Tractors—Wheeled type	79,188	79,369	79,396	79,449	79,350
Crawler type	3,130	3,071	3,101	3,119	3,109
Rotary hoes	11,646	12,373	12,736	12,229	12,501
Fertiliser distributors and broadcasters	30,036	29,337	28,552	27,829	27,595
Grain drills—Combine	19,919	19,710	20,175	19,999	19,838
Other	8,641	8,395	7,202	6,948	6,699
Maize planters	877	811	837	790	1,210
Headers, strippers, and harvesters	13,310	13,289	13,068	12,549	12,270
Pick-up balers	14,337	14,692	14,822	14,814	15,263
Forage harvesters	2,108	2,134	2,217	2,211	2,255

(*a*) Not collected.

Further reference, 1975; Mechanisation of farming, 1962; Farm management, 1967; Agricultural extension services, 1968; Size distribution of rural holdings, 1969; Research and extension activities of the Department of Agriculture, 1970; Application of scientific research to agriculture, 1970; Research stations of the Department of Agriculture, 1971; Bureau of Agricultural Economics: activities in Victoria, 1972; Research activities of the Department of Agriculture, 1974; Farming for unstable markets, 1975

RURAL STATISTICS

General

Collection of statistics

Before 1904, agricultural and pastoral statistics were collected by the municipal authorities, who were required by statute to furnish information on such forms and in such manner as was required by the Governor in Council. During the period 1904 to 1966, police officers were required to collect agricultural, pastoral, and dairying statistics from landholders in Victoria. Commencing with the 1966–67 farm census, the collection of these statistics has been carried out on a direct postal basis by the Australian Bureau of Statistics.

The rural statistics contained in this section are mainly compiled from annual returns of agricultural and pastoral production collected from some 65,000 rural holdings in Victoria at 31 March each year. Statistics from these schedules are compiled for each county and local government area.

Every holding used for the commercial production of agricultural products, or for the raising of livestock and the production of livestock products, is required to supply full particulars of the area occupied, the number of persons employed, the area and yield of each kind of crop cultivated, artificial fertiliser usage, numbers of certain items of farm machinery, the number and description of livestock, the quantity of wool clipped, and other relevant matters.

Data relating to area sown, production, yield per hectare, and number of holdings growing crops are for the season ended 31 March, thus including crops which are sown and harvested, or harvested, during the twelve months ended 31 March. In cases where harvesting of certain crops has not been completed by 31 March (potatoes, fruit, vines, etc.), supplementary collections are made later in the year. Livestock numbers and farm machinery on rural holdings are reported at 31 March.

Summary of Australian statistics

The following table, which summarises the principal farming activities in Australia during the 1973–74 season, shows the position of farming in Victoria relative to other States:

AUSTRALIA—PRINCIPAL ITEMS OF FARM ACTIVITY, 1973–74

Particulars	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T. and A.C.T.	Australia
Rural holdings—								
Number	74,675	65,327	41,299	28,738	20,608	9,375	548	240,570
Area ('000 hectares)	68,881	15,485	154,506	64,843	114,653	2,561	78,537	499,466
Principal crops—								
Wheat—								
Area ('000 hectares)	2,883	1,258	395	1,432	2,978	3	..	8,949
Production ('000 tonnes)	3,962	1,490	526	1,795	4,211	4	..	11,988
Oats—								
Area ('000 hectares)	405	271	20	152	325	9	..	1,182
Production ('000 tonnes)	327	233	13	142	383	8	..	1,107
Barley—								
Area ('000 hectares)	386	222	139	627	510	11	..	1,894
Production ('000 tonnes)	448	285	221	793	626	24	..	2,398
Hay—all types—								
Area ('000 hectares)	371	626	55	268	220	92	5	1,637
Production ('000 tonnes)	1,401	2,967	273	879	734	461	17	6,732
Tobacco—								
Area (hectares)	837	3,940	4,501	..	..	..	..	9,278
Production (dried leaf '000 kg)	1,252	5,634	8,000	..	..	..	..	14,886
Onions—								
Area (hectares)	1,061	758	1,123	831	146	267	1	4,187
Production (tonnes)	24,420	12,727	20,072	21,497	5,659	9,309	2	93,686

AUSTRALIA—PRINCIPAL ITEMS OF FARM ACTIVITY, 1973–74—*continued*

Particulars	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T. and A.C.T.	Australia
Potatoes—								
Area (hectares)	8,502	12,474	5,279	2,477	2,242	3,127	12	34,113
Production (tonnes)	124,586	254,021	86,529	60,491	60,603	62,866	101	649,197
Other vegetables—Area (hectares)	16,448	16,814	17,574	6,083	3,157	6,895	211	67,182
Fruit—Area (hectares)	33,679	23,041	21,113	16,906	7,965	5,996	99	108,799
Vineyards—								
Area (hectares)(*a*)	14,718	21,597	1,594	29,602	2,477	(*b*)	..	69,988
Table grapes (tonnes)	4,389	5,726	n.a.	898	1,421	..	..	12,434
Wine made ('000 litres)	76 541	46,090	(*b*)	167,611	(*b*)	(*b*)	..	294,666
Currants (tonnes)	288	1,255	..	1,041	1,032	..	..	3,615
Sultanas and raisins (tonnes)	8,014	33,645	..	2,109	135	..	..	43,903
Livestock numbers, 31 March 1974—								
Sheep ('000)	53,300	25,788	13,119	16,431	32,451	3,964	144	145,197
Cattle ('000)	8,457	5,839	10,297	1,692	2,330	884	1,341	30,839
Pigs ('000)	835	424	441	385	344	68	8	2,505
Livestock slaughtered for human consumption—								
Sheep ('000)	2,748	3,134	920	1,138	2,571	336	7	10,854
Lambs ('000)	4,961	5,258	401	1,456	1,185	490	138	13,889
Cattle ('000)	1,716	1,696	1,487	316	477	230	88	6,011
Calves ('000)	209	564	253	43	9	30	2	1,109
Pigs ('000)	1,166	1,081	829	448	497	116	33	4,170
Wool production (million kg)	213	155	64	100	149	18	1	700
Wholemilk production—								
All purposes (million litres)	1,088	3,908	654	439	241	435	3	6,769
Tractors on rural holdings (number)	90,420	82,459	74,482	37,588	35,878	12,846	775	334,448
Gross value of production—								
Crops ($m)	803	461	517	385	588	47	2	2,802
Livestock slaughterings and other disposals ($m)	531	415	362	165	140	58	26	1,697
Livestock products ($m)	572	530	183	215	288	60	5	1,853

(*a*) Total area: including non-bearing area.
(*b*) Not available separately.

Land occupied in different districts of Victoria, 1973–74

For the season 1973–74 the number of rural holdings was 65,327, the area cropped was 1,980,007 hectares, and the total area occupied 15,484,584 hectares.

It should be noted that statistics in this section of the *Year Book* have been compiled for statistical districts, which are groups of counties, i.e., land areas with immutable boundaries.

The following table shows the land in occupation for agricultural and pastoral purposes in each statistical district for the season 1973–74:

VICTORIA—LAND IN OCCUPATION FOR AGRICULTURAL AND PASTORAL PURPOSES IN EACH DISTRICT, SEASON 1973–74

Statistical district	Total area of district	Number of holdings	Area of crops	Area of sown pasture and lucerne	Area of native pasture	Balance of holding	Total area of holding
	'000 hectares		'000 hectares	'000 hectares	'000 hectares	'000 hectares	'000 hectares
Central	1,645	13,259	80	600	130	201	1,011
North Central	1,186	4,281	22	419	206	172	819
Western	3,551	12,028	116	2,000	325	292	2,733
Wimmera	2,992	5,512	538	1,050	271	622	2,481
Mallee	4,364	5,697	888	690	398	1,104	3,080
Northern	2,565	10,962	279	1,109	375	493	2,256
North Eastern	2,922	5,044	33	535	315	456	1,339
Gippsland	3,537	8,544	24	713	347	681	1,765
Total	22,762	65,327	1,980	7,116	2,367	4,021	15,484
PERCENTAGE OF ABOVE TO AREA OCCUPIED							
Central	..	..	7.91	59.35	12.86	19.88	100.00
North Central	..	..	2.69	51.16	25.15	21.00	100.00
Western	..	..	4.25	73.18	11.89	10.68	100.00
Wimmera	..	..	21.69	42.32	10.92	25.07	100.00
Mallee	..	..	28.83	22.40	12.92	35.85	100.00
Northern	..	..	12.37	49.16	16.62	21.85	100.00
North Eastern	..	..	2.46	39.96	23.52	34.06	100.00
Gippsland	..	..	1.36	40.40	19.66	38.58	100.00
Total	..	..	12.79	45.96	15.28	25.97	100.00

VICTORIA—LAND IN OCCUPATION FOR AGRICULTURAL AND PASTORAL PURPOSES IN EACH DISTRICT, SEASON 1973–74—*continued*

Statistical district	Total area of district	Number of holdings	Area of crops	Area of sown pasture and lucerne	Area of native pasture	Balance of holding	Total area of holding
	PERCENTAGE IN EACH DISTRICT OF TOTAL IN STATE						
Central	7.23	20.30	4.04	8.43	5.49	5.00	6.53
North Central	5.21	6.55	1.11	5.89	8.70	4.28	5.29
Western	15.60	18.41	5.86	28.11	13.73	7.26	17.65
Wimmera	13.14	8.44	27.17	14.75	11.45	15.47	16.02
Mallee	19.17	8.72	44.85	9.70	16.82	27.45	19.89
Northern	11.27	16.78	14.09	15.58	15.84	12.26	14.57
North Eastern	12.84	7.72	1.67	7.52	13.31	11.34	8.65
Gippsland	15.54	13.08	1.21	10.02	14.66	16.94	11.40
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Classification of rural holdings by size and type of activity

Tabulations classifying rural holdings by principal characteristics have been undertaken at irregular intervals. Since the Second World War they have been prepared for each of the years 1947–48, 1949–50, 1955–56, 1959–60, 1965–66, 1968–69, and 1970–71.

VICTORIA—HOLDINGS CLASSIFIED ACCORDING TO SIZE OF HOLDING : NUMBER AND TOTAL AREA OF HOLDINGS

Size of holding	1965–66		1968–69		1970–71	
	Number of holdings	Total area of holdings	Number of holdings	Total area of holdings	Number of holdings	Total area of holdings
hectare		hectare		hectare		hectare
0.4– 39.9	21,340	325,816	23,298	333,233	21,462	314,965
40.0– 79.9	12,219	705,236	12,077	702,815	11,787	687,791
80.0– 119.0	6,693	656,895	6,657	653,614	6,646	651,461
120.0– 159.0	5,312	729,968	5,292	727,407	5,157	709,246
160.0– 199.0	3,297	595,057	3,342	602,040	3,298	594,033
200.0– 399.0	11,037	3,155,449	10,754	3,083,437	10,489	3,006,857
400.0– 499.0	3,738	1,782,574	3,811	1,820,385	3,814	1,821,093
500.0– 799.0	2,573	1,722,287	2,662	1,789,029	2,683	1,805,291
800.0–1,199.0	1,599	1,544,762	1,665	1,607,580	1,701	1,643,898
1,200.0–1,999.0	926	1,397,750	972	1,461,989	986	1,487,049
2,000.0– and over	465	2,698,755	526	3,074,455	532	3,038,621
Total	69,199	15,314,549	71,056	15,855,984	68,555	15,760,305

Crops and growers

The following information on numbers of growers includes some duplication, since some growers cultivate more than one of the crops specified:

VICTORIA—NUMBER OF GROWERS OF CERTAIN CROPS, SEASON 1973–74

Crops grown	Statistical district								Total
	Central	North Central	Western	Wimmera	Mallee	Northern	North-Eastern	Gippsland	
Grain crops—									
Wheat	382	192	525	3,289	2,470	2,381	247	37	9,523
Oats	417	300	1,568	2,185	1,175	1,613	350	64	7,672
Barley (2 row)	512	68	386	1,384	1,465	623	27	55	4,520
Maize	5	..	4	..	3	6	10	41	69
Rape	30	14	90	15	..	6	7	28	190
Safflower	4	1	2	15	7	13	..	..	42
Sunflower	3	6	15	13	18	76	..	1	132
Other—									
Potatoes	755	239	231	4	11	6	32	209	1,487
Onions	167	..	59	6	25	7	1	6	271
Other vegetables	1,476	270	429	30	336	331	56	370	3,298
Orchards	1,002	86	28	45	942	739	104	31	2,977
Vineyards	29	15	8	10	2,164	151	33	3	2,413
Grass and clover seed	18	51	79	53	18	49	86	10	364
Tobacco	..	..	..	1	..	17	334	..	352

A summary of the area under cultivation and yield of crops in each statistical district of Victoria for the season 1973–74 is given in the following tables:

VICTORIA—AREA UNDER CULTIVATION, SEASON 1973–74
(hectares)

Crop	Statistical district								Total
	Central	North Central	Western	Wimmera	Mallee	Northern	North-Eastern	Gippsland	
Grain crops—									
Wheat	12,458	5,480	18,573	380,202	670,491	158,694	10,431	1,608	1,257,937
Oats	8,013	5,960	54,129	86,021	60,089	49,090	6,662	1,191	271,155
Barley	22,292	1,213	8,235	57,630	110,213	19,701	539	1,981	221,804
Rye	12	5	47	57	2,824	2	9	..	2,956
Maize	6	..	..	1	44	97	17	489	654
Field peas	1,469	145	797	116	212	167	..	26	2,932
All hay	66,777	38,739	160,834	61,094	38,244	148,388	38,612	73,038	625,726
Green fodder	9,513	2,363	9,272	6,451	13,313	13,792	6,876	16,123	77,703
Grass, clover, and lucerne for seed	533	2,225	2,679	2,695	1,372	2,283	4,283	1,318	17,388
Tobacco	..	..	..	3	..	110	3,827	..	3,940
Potatoes	6,437	2,102	1,727	6	66	192	154	1,790	12,474
Onions	361	..	257	1	91	39	..	9	758
All other vegetables	7,738	83	3,254	20	1,479	1,624	76	2,540	16,814
Vines	98	177	119	410	19,711	421	657	4	21,597
Fruit	5,258	564	122	787	3,556	11,826	495	129	22,737
All other crops	5,608	1,401	12,558	2,079	1,286	4,601	1,590	3,556	32,679
Total area under cultivation	146,573	60,457	272,603	597,573	922,991	411,027	74,228	103,802	(a)2,589,254

(a) The total area under crop indicates 8,084 hectares double-cropped.

VICTORIA—PRODUCTION OF PRINCIPAL CROPS, SEASON 1973–74

Crop	Statistical district								Total
	Central	North Central	Western	Wimmera	Mallee	Northern	North-Eastern	Gippsland	
Grain crops—									
Wheat tonnes	15,984	5,171	23,574	351,243	915,161	164,070	11,902	2,945	1,490,050
Oats "	8,577	5,111	80,701	60,199	46,537	26,824	3,595	1,196	232,740
Barley "	46,028	1,392	13,759	68,770	133,056	18,658	347	3,348	285,358
Maize "	2	..	..	2	22	396	38	1,430	1,890
Field peas "	2,061	165	1,044	94	218	117	..	5	3,704
All hay "	356,014	190,443	808,491	210,540	122,603	594,455	197,050	487,792	2,967,388
Linseed "	371	..	4,141	..	17	..	..	139	4,668
Rapeseed "	477	156	1,788	189	..	83	66	739	3,498
Tobacco "	..	..	..	..	..	119	5,515	..	5,634
Potatoes "	126,580	47,931	33,560	117	876	2,842	2,772	39,345	254,023
Onions "	5,807	..	4,535	8	1,240	986	1	150	12727
Wine made kilolitres	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	46,090
Dried vine fruits—									
Raisins tonnes	..	..	2	..	2,214	33	..	..	2,249
Sultanas "	..	..	..	..	31,391	..	..	..	31,391
Currants "	12	..	..	..	1,243	..	..	..	1,255

(a) Details for individual districts are not available for publication.

BROAD AREA CROPS

Principal crops

The cereals wheat, oats, and barley are the principal crops grown in Victoria, and these, together with hay, represent about 90 per cent of the total area sown, although there is some variation from year to year.

In the following pages some detailed descriptive and statistical information is given of all main crops grown in Victoria, including those mentioned previously.

Wheat

Wheat is Victoria's largest crop. The average area sown in the ten year period 1965–66 to 1974–75 was 1.21 million hectares, about 50 per cent of

the State's total cropping area. The area under wheat is normally subject to fairly minor fluctuations, but this ten year period has seen both a record high and a very low level of production. The 1968–69 season produced a Victorian record harvest of 2.47 million tonnes of wheat from 1.6 million hectares. However, this production coincided with a large Australian harvest and a saturated world wheat market. As only about 20 per cent of Victorian production is used for home consumption, the virtually unsaleable export wheat in 1969 led to considerable storage problems. To reduce production levels, the *Wheat Marketing Act* 1969 implemented the Wheat Delivery Quota Scheme which allocated deliveries in accordance with market demand and storage capacity.

In 1970–71, due to a large carryover of overquota wheat from the previous year and an associated reduction in delivery quotas, the area of wheat sown for grain was reduced to 760,000 hectares—the smallest area sown since 1958–59. By 1972–73, the world wheat market had reverted to a tight supply situation following reduced production in the principal exporting countries and a rapid rundown of stockpiles. World market prices showed a strong upward trend as importers sought to ensure supplies. Effective quota restrictions were removed by 1973–74 in response to a world demand for wheat, and the legislation ceased to operate from 30 September 1975.

More than 90 per cent of Victorian wheat is grown in the Mallee, Wimmera, and Northern Districts. The average rainfall in the main wheat belt varies from about 300 millimetres in the north-west to about 500 millimetres to 750 millimetres in the eastern and southern districts. With the exception of a small area of intensive cropping in the Wimmera, wheat is grown on a ley system of farming in which wheat is produced in rotation with fallow, pastures, and other crops, principally oats and barley. Surveys of the Wimmera have shown that many paddocks are under-cropped and that the potential exists to increase cropping intensity without risk to the stability of the farm system. Levels of soil nitrogen in the region are highly correlated with the ability to support cereal crops, and a soil nitrogen test introduced by the Victorian Department of Agriculture in 1974 now adds precision to the complex decision on cropping rotations within the ley farming system.

Since the adoption of legume (subterranean clover or medic) based pastures into Victorian cropping rotations, nitrogenous fertilisers have found only limited application. Nitrogen is applied only in specific circumstances, namely, on light sandy soils and land infested with skeleton weed on the Mallee, and on intensively cropped land in the Wimmera and southern districts. Superphosphate is applied at seeding to virtually all crops to correct a phosphorus deficiency inherent in nearly all Australian soils. Increases in the cost of superphosphate in 1974 and 1975, due to the additional cost of raw materials and, to a lesser extent, the withdrawal of the superphosphate bounty by the Australian Government, are likely to result in a reduction in the amounts of superphosphate applied to wheat crops in Victoria.

Diseases of wheat are not normally a major problem, but in 1973–74 heavy losses were incurred through attack by stem rust, Septoria leaf spot, root diseases, and weather damage. The Department of Agriculture's estimate of losses due to these diseases is conservatively set at one million tonnes, of which 700,000 tonnes is considered to have been due to stem rust.

During the 63 year period 1911 to 1973, stem rust occurred in some part or parts of Victoria, in varying degrees of severity, in sixteen seasons. In only four of these years, 1934, 1947, 1955 and 1973, did the disease cause heavy losses of production, 1973 being the heaviest on record. The only effective control is to breed disease-resistant varieties, a continuing project in Victoria since 1950. While several rust-resistant lines have been produced, they have not been released due to susceptibility to other diseases, lower yields or poorer quality

than existing varieties, and changes in strains of rust. Another disease problem, the ball smut fungus, is effectively controlled by the use of fungicide applied when the seed is graded. Crop failures following the use of seed which had been "pickled" with fungicide in 1973 and sown in 1974, and field experiments by the Department of Agriculture, emphasised the fact that "pickled" seed should not be carried over from one season to the next as seed viability is greatly reduced and resowing costs are high.

The most serious problem facing the cereal industries, wheat in particular, is the control of insect pests in grain storage, as the loading of wheat and other cereals for exports is prohibited if insects are present. Strains of insects, resistant to rates of insecticides approved for the international grains trade, have developed. The Department of Agriculture therefore initiated a campaign in 1973 to improve awareness of farmers to the problem and to ensure the delivery of insect-free cereal grains to the export terminal. Processors and retail outlets are also being encouraged to improve their standards of grain hygiene.

Wheat marketing in Australia is controlled by the Australian Wheat Board under the provisions of the present *Wheat Stabilization Act* 1974 operating until 1978. This legislation provides for a guaranteed "stabilisation" price, adjusted annually on the basis of movements in export markets. When average export prices are higher than the stabilisation price, growers are required to contribute to a fund (subject to a minimum and maximum level). These monies are used to maintain returns to growers should export prices fall below the stabilisation price. In the event of the fund being exhausted, the Australian Treasury will provide an interest-free loan, up to a maximum of $80m, to operate the plan.

Details of the functions and operations of the Australian Wheat Board are given on pages 401–2 of this *Year Book*.

Research work on control of pests and diseases, and plant breeding, is described on pages 390–1 of this *Year Book*.

Most wheat varieties grown in Victoria are of the soft white class. The environment generally does not favour the production of wheat of the harder types, but limited areas of the hard variety Emblem are sown in the eastern Mallee where wheat with protein content above the Victorian average is usually produced.

VICTORIA—PRINCIPAL VARIETIES OF WHEAT SOWN

Variety in order of popularity in season 1973–74	Season 1971–72		Season 1972–73		Season 1973–74	
	Hectares sown	Percentage of total area sown	Hectares sown	Percentage of total area sown	Hectares sown	Percentage of total area sown
Halberd	7,371	0.7	137,652	12.3	422,248	33.3
Olympic	203,240	19.3	238,873	21.4	216,579	17.1
Summit	153,746	14.6	204,206	18.3	204,305	16.1
Insignia	345,402	32.8	255,154	22.8	185,909	14.6
Emblem	61,077	5.8	64,659	5.8	70,313	5.5
Heron	113,730	10.8	86,396	7.7	59,931	4.7
Pinnacle	66,342	6.3	66,214	5.9	50,468	4.0
Insignia 49	67,396	6.4	45,718	4.1	36,399	2.9
All other (including mixed and unspecified)	34,750	3.3	18,785	1.7	22,557	1.8
Total	1,053,054	100.0	1,117,657	100.0	1,268,709	100.0

Marked improvement in wheat quality has been achieved by plant breeding during the past thirty years, and the leading soft wheats grown at present have excellent bread making characteristics.

VICTORIA—WHEAT FOR GRAIN

Season	Holdings growing wheat (8 hectares and over)	Area	Production	Average yield per hectare	Estimated gross value	A.S.W. (*a*) wheat standard (*b*)
	number	'000 hectares	'000 tonnes	tonnes	$'000	kg/h.l.
1969–70	11,618	1,335	2,274	1.70	116,747	81.7
1970–71	9,669	760	1,004	1.32	51,127	81.4
1971–72	10,273	1,040	1,894	1.82	96,765	80.4
1972–73	10,002	1,087	1,405	1.29	68,263	82.3
1973–74	9,238	1,258	1,490	1.18	156,671	77.5

(*a*) Australian Standard White.
(*b*) See wheat standard on page 402.

Australian Wheat Board

Virtually the whole of the wheat crop is handled, stored, and transported in bulk. The crop is marketed through the Australian Wheat Board. The greater part of the crop is marketed as one grade known as Australian Standard White (A.S.W.). A small amount of the hard wheat grown in the south-eastern Mallee is segregated for separate sale.

History

After the outbreak of the Second World War, the Australian Wheat Board was established in September 1939 under national security legislation. When the war ended in 1945 the Board continued to operate until 1948 as an agent for the Australian Government under " transitional legislation ".

In 1948 agreement was reached between the Australian and State Governments for the first of the wheat industry stabilisation schemes. For constitutional reasons, it was necessary for each State to pass legislation accepting the Australian Wheat Board as the central marketing authority, and to permit it to operate within the States. Before the outbreak of the war, progress had been made in Australian-State Government conferences towards a comprehensive stabilisation scheme. The war intervened and full control over the sale of Australian wheat was given to the Board under the exigencies of war-time conditions.

The marketing experience of the Board and the desires of the growers were finally combined in the wheat stabilisation legislation of 1948 and renewed under successive five year schemes, with the exception that the *Wheat Stabilization Act* 1968 was extended to include the 1973–74 season to give the Australian Government time to review the next five season proposal. The Australian Wheat Board now functions under the *Wheat Stabilization Act* 1974. This Act authorises the Board to market all wheat harvested between 1 October 1974 and 30 September 1981 (seven seasons), but limits the provisions relating to the average export price and the stabilisation price to wheat harvested between 1 October 1974 and 30 September 1979 (five seasons). These new provisions replace the guaranteed price provision in the previous Act.

Constitution

The Board comprises fourteen members—two growers from each of the mainland States, together with a chairman, a finance member, a millers' representative, and an employees' representative.

Functions and operations

Under complementary Australian and State legislation :
(1) The Board is the sole authority for the marketing of wheat in Australia and both wheat and flour for export ;
(2) growers are required to deliver to the Board all wheat grown by them except that required as seed or feed on the farms where it is grown ; and
(3) the Board becomes the owner of all wheat delivered to it.

The Board employs various bulk handling authorities for the receival of bulk wheat. Total deliveries by wheat growers to the Victorian branch of the Board during the 1973–74 season were 1,518,024 tonnes, which includes wheat grown in southern New South Wales, but delivered either to storages in Victoria or to storages at railway sidings operated by Victorian Railways in New South Wales.

Wheat standard

The Australian Standard White (A.S.W.) standard is determined each season by a State committee and is the basis for sales of each crop.

Samples of wheat from various districts are obtained each year and mixed to obtain a representative sample of the whole crop. The A.S.W. weight is then determined by use of the Schopper 1 litre scale chondrometer. The A.S.W. standard was set at 77.5 kg per hectolitre for 1973–74.

Grain Elevators Board of Victoria

In 1934 an Act was passed to provide for the handling of wheat in bulk in Victoria. The Act gave the Victorian Government power to constitute a Board of three members to implement the provisions of the Act. As a result of submissions made by the Board to, and approved by, the Government, 226 country receiving elevators and an 824,000 tonnes capacity shipping terminal at Geelong and storage facilities for 109,000 tonnes at Portland have been constructed, the necessary finance being obtained from loans and internal sources. Repayment of the principal and interest is guaranteed by the Victorian Government. In 1963 the Act was amended to provide for the handling of barley in bulk by the Grain Elevators Board, and in 1975 further amended to provide for the handling of other grains and oilseeds.

The Grain Elevators Board first received and shipped Victorian wheat in bulk for the 1939–40 season and first received barley in bulk for the 1963–64 season.

The main shipping terminal is at Geelong where the Board's pier has accommodation for two vessels. The storage comprises concrete vertical storage bins with a capacity of 213,000 tonnes and horizontal shed type storage with a capacity of 610,000 tonnes. Grain can be received from rail trucks at the rate of 1,600 tonnes per hour and loaded into ships at the rate of 2,000 tonnes per hour.

At Portland, the shipping rate is 600 tonnes per hour, and the rail truck receival rate is 500 tonnes per hour.

The Grain Elevators Board has under its control storage for 3.8 million tonnes of wheat and barley. In comparison with the season 1972–73, when the quantity of 1.2 million tonnes of bulk wheat and 92,000 tonnes of bulk barley were delivered to the Board, the receivals for the 1973–74 season were 1.52 million tonnes of bulk wheat and 233,000 tonnes of bulk barley. Wheat quotas were introduced for the 1969–70 season, Victoria's quota being fixed at 1.77 million tonnes and the balance of the receivals, 566,000 tonnes, being over-quota wheat. The Victorian quota for 1973–74 was 2.49 million tonnes ; however, quotas have ceased to be in operation in Victoria from 30 September 1975.

The following table shows the revenue and expenditure of the Grain Elevators Board in Victoria :

VICTORIA—GRAIN ELEVATORS BOARD: REVENUE, EXPENDITURE, ETC.
($'000)

Particulars	Year ended 31 October—				
	1970	1971	1972	1973	1974
Revenue—					
Grain handling charges	5,022	5,506	5,818	5,133	6,245
Interest on investments	584	649	765	862	1,143
Total revenue	5,606	6,155	6,583	5,995	7,388
Expenditure—					
Operating and maintenance expenses	1,949	2,329	2,568	1,849	2,872
Administration expenses	505	582	648	667	799
Depreciation and renewals	600	576	589	587	570
Interest on loans	1,590	1,638	1,631	1,646	1,693
Sinking fund charges	292	301	304	306	290
Appropriations to reserves	669	558	973	940	1,164
Other	..	41	..	..	..
Total expenditure	5,605	6,025	6,713	5,995	7,388
Net surplus	1	130	—130	..	..
Fixed assets at 31 October	32,825	31,668	31,839	31,305	32,886
Loan indebtedness at 31 October—					
Victorian Government	1,630	1,598	1,568	1,526	1,490
Public	26,734	27,232	27,164	27,000	25,242

Alternative crops to wheat, 1974

Barley

More than 95 per cent of the barley grown in Victoria is of the two-row type. Barley production in Victoria increased significantly between 1964–65 and 1973–74. In 1971–72, a record 296,000 hectares of barley produced a record 395,000 tonnes harvest. By comparison, production in 1964–65 was only 98,000 tonnes from 76,000 hectares. During this period, impetus was added to an already established trend of increased production by the introduction of the Wheat Delivery Quota Scheme in 1969–70 which had the effect of reducing the area of wheat sown in the cereal belt. Barley proved to be the most popular alternative crop to wheat, particularly in the Mallee. In other districts oilseeds, such as rapeseed and safflower, were also prominent.

Increased wheat quota allocations in 1972–73 and 1973–74 resulted in a slight fall in the area sown to barley as land was diverted back into wheat. However, the general trend for increased production of barley in Victoria is well established and seems unlikely to suffer further significant reduction in the absence of a marked shift in the price ratios between the cereal crops. The provision of bulk handling facilities for barley by the Victorian Grain Elevators Board since 1963 has contributed to the increased production of this grain.

While some barley is grown in all districts, production has been traditionally centred in two distinct areas where high quality grain is produced. The largest production is in the south-western Mallee and the adjacent north-western Wimmera where the best quality barley is grown on the sandier soil types. The crop is sown either on cultivated ley ground without fallow or on wheaten stubble land. Until 1970, the variety Prior was almost exclusively sown in this area. Since the new variety, Weeah, was introduced in 1968, it has steadily displaced Prior to a significant extent. Superphosphate is the only fertiliser normally used for barley.

The second source of high quality barley grain is in an area between Melbourne, Geelong, and Bacchus Marsh in southern Victoria. In this district, barley is the principal crop and it is normally sown with superphosphate on

fallowed land. Yields of barley in this district average about 1.7 tonnes/hectare compared with about 1.0 tonnes/hectare in the Mallee–Wimmera. The district has the further advantage of proximity to the main barley shipping terminals. Consequently, freight costs are much lower than for northern districts.

Introduced in 1971, the variety Lara has displaced Research types as the main variety. Lara suffered some initial resistance to its acceptance by growers in spite of its inherent higher yielding potential than the Research type varieties. A small grain led to a number of samples being refused classification as suitable for malting and being declared unsuitable for handling in mixed bulk samples with Research types. Lara has since gained acceptance with both growers and maltsters, and has been declared compatible with Research for the purposes of bulk handling.

The substantial increase in barley production has meant that Victoria is now self-sufficient in barley for malting, feed and manufacturing in the distilling, pearling, and prepared stock feed industries. It can also contribute to Australian export markets. Barley is sold in Victoria through the Australian Barley Board on a pool basis. The Board is responsible for setting prices for both domestic and export sales. Japan provides the main export market; smaller quantities go to the United Kingdom and Europe. In 1973–74, the Australian Barley Board negotiated its first direct sale to the U.S.S.R. and is hopeful of developing this market in the future. However, Australia is a minor contributor to the world barley market, which is determined by climatic and economic conditions in the principal exporting countries, namely, Canada and France.

VICTORIA—BARLEY PRODUCTION

Season	Area		Production		Average yield per hectare			Estimated gross value
	2-row	6-row	2-row	6-row	2-row	6-row	Total	
	'000 hectares	'000 hectares	'000 tonnes	'000 tonnes	tonnes	tonnes	tonnes	$'000
1969–70	187	10	245	13	1.31	1.30	1.31	11,060
1970–71	259	10	306	12	1.18	1.20	1.18	16,379
1971–72	286	9	382	13	1.34	1.44	1.34	15,689
1972–73	269	9	207	7	0.77	0.78	0.77	11,352
1973–74	217	4	281	5	1.29	1.25	1.29	24,308

Australian Barley Board

The Australian Barley Board was constituted in 1939 under Australian Government legislation. In 1948 the Board passed to State control, and the South Australian and Victorian Governments re-constituted the Board under State legislation, which has been amended several times. Legislation currently applies up to and including season 1975–76 in Victoria and season 1977–78 in South Australia.

The Board consists of a chairman and seven members. The chairman is appointed by the Governor of South Australia, three grower members are elected by the growers of South Australia, two grower members are elected by the growers of Victoria, one member is appointed by the Governor of Victoria, and one member is appointed as the representative of the brewing and malting industry. Each member is elected or appointed for three years.

The head office of the Board is in Adelaide and there is an office in Melbourne. Terminal elevators for the handling and storage of barley are situated at Geelong, Sunshine, and Portland, and a number of storage elevators are situated in the barley producing areas throughout Victoria.

Under the Victorian Barley Marketing Act all barley grown in Victoria must be marketed by the Board with the exception of barley:

(1) Retained by the grower for use on the farm where it is grown;

(2) which has been purchased from the Board;
(3) sold or delivered to any person with the approval of the Board;
(4) sold at any auction market in accordance with a permit granted by the Board; or
(5) that is the subject of trade, commerce, or intercourse between States, or required by the owner thereof for the purpose of trade or intercourse between States.

It is the function of the Board to receive barley from growers in South Australia and Victoria, market the barley to the best advantage, and distribute the proceeds (less operating costs) to growers. In disposing of this barley, the Board must have regard to the reasonable requirements of persons requiring barley for use or consumption in Victoria and South Australia. The Board has the power to license any person to receive barley on its behalf and the licence to receive barley contains terms and conditions fixed by the Board. The Grain Elevators Board of Victoria is licensed to receive barley in bulk in Victoria. With the expansion of bulk handling facilities in recent years and the increase in the cost of bagging barley, the quantity of bagged barley delivered to the Barley Board has declined and no bagged barley was delivered to the Board during season 1974–75.

The varieties commonly grown in Victoria are Weeah, Research, and Lara. These varieties are classified by a committee into grades for the purpose of marketing, the highest grade being malting grade (No. 1 Grade), all of which is required by the malting industry in Victoria for the manufacture of barley malt. With the increase in production over the last few seasons, the Board has been able in some years to export a small quantity of Victorian barley.

The Board is not subsidised in any way and the payment for barley to growers is made by a series of payments, the first advance being paid on delivery. Finance for this is arranged with the Reserve Bank of Australia.

Victorian deliveries of barley to the Australian Barley Board increased considerably in the 1950s with an average crop of 115,600 tonnes up to and including season 1960–61. In season 1953–54, 175,800 tonnes were delivered, the highest received in the 1950s. From the 1960–61 season to 1968–69 Victorian deliveries to the Board declined and an average of 66,500 tonnes was received. In the 1969–70 season, deliveries rose to 168,800 tonnes and since that season have increased markedly to a record of 276,400 tonnes in season 1974–75.

Oats

The second largest crop in Victoria is oats, sown both for grain production and for winter grazing and hay production. The average annual area sown between 1965–66 and 1973–74 was 432,000 hectares of which about 80 per cent was harvested for grain, some of it after being grazed during the winter. During the last decade, the position of oats has been seriously challenged by barley, particularly on the lighter soils where winter waterlogging is not a problem. In the Mallee, oats grown for all purposes in 1967–68 occupied 63,200 hectares and in 1973–74 84,000 hectares, while barley was sown on 44,800 hectares and 116,000 hectares, during the respective seasons. Barley also has a relative price advantage, together with advantages from the introduction of new higher yielding barley varieties, and the availability of bulk handling facilities for barley.

The predominance of oats in the higher rainfall districts has been maintained by the greater tolerance shown by oats to wet conditions and by the demand for oats for stock feed. More than half the grain produced in Victoria is held on farms or used as stock feed, especially during periods of seasonal shortage or in drought conditions. About 25 per cent of the crop goes to mills, but only a small fraction is processed for human consumption. The bulk of the "milled" oats is destined for incorporation in proprietary stock feeds or as

unkilned oats for export. The remaining 25 per cent of the crop is exported as grain.

Unlike wheat and barley which are marketed through the Australian Wheat Board and the Australian Barley Board, respectively, oats are sold on the free market. Domestic prices are markedly affected by the size of the crops and pasture conditions during winter and spring.

Since 1972, the world feed grains market production base has been eroded by land being redirected to wheat production. As the U.S.A. provides 50 to 60 per cent of the total world trade in feed grains, the U.S.A. crop decisively influences the market. Other factors which can influence export markets include the general level of economic activity and the demand for coarse grains for lot-fed livestock enterprises. The dominant export market for oats is Japan which accounts for almost 80 per cent of Australian exports. Italy is the only other significant importer.

The following table shows the area, yield, and gross value of oats for grain for each of the five seasons 1969–70 to 1973–74:

VICTORIA—OATS FOR GRAIN

Season	Area	Production	Average yield per hectare	Estimated gross value
	'000 hectares	'000 tonnes	tonnes	$'000
1969–70	358	470	1.31	10,495
1970–71	399	467	1.17	13,558
1971–72	329	449	1.36	11,334
1972–73	255	238	0.93	8,345
1973–74	271	233	0.86	11,373

Maize

Maize is grown in Victoria both for grain and for green fodder, and is cultivated mainly in Gippsland. Lower values in the late 1960s and other more profitable alternatives in vegetables and livestock led to a substantial decline in the production of maize grain. The area, yield, and gross value of maize for each of the five seasons 1969–70 to 1973–74 are given in the following table:

VICTORIA—MAIZE PRODUCTION

Season	For green fodder	For grain							
		Area			Production			Average yield per hectare	Estimated gross value
		Hybrid	Other	Total	Hybrid	Other	Total		
	hectares	hectares	hectarcs	hectares	tonnes	tonnes	tonnes	tonnes	$'000
1969–70	985	436	27	463	1,760	67	1,827	3.95	111
1970–71	546	520	15	535	1,546	32	1,578	2.95	101
1971–72	806	370	5	375	1,907	12	1,919	5.12	122
1972–73	636	493	3	496	1,490	16	1,506	3.04	96
1973–74	536	646	8	654	1,873	17	1,890	2.89	190

Rye

Cereal rye is of minor importance in Victoria and is not usually grown as a cash crop. European migrants to Australia have created a small demand for this cereal for human consumption, thus helping to stabilise the market for rye grain. The chief purpose for which rye is grown is the stabilisation of loose sand or sandhills in the Mallee District. There is some interest in it for winter grazing in cold districts during the winter months. The following table shows the area, yield, and gross value of rye for each of the five seasons 1969–70 to 1973–74:

VICTORIA—RYE PRODUCTION

Season	Area	Production	Average yield per hectare	Estimated gross value
	hectares	tonnes	tonnes	$'000
1969–70	4,678	1,551	0.33	58
1970–71	4,992	2,746	0.55	111
1971–72	5,062	2,597	0.51	81
1972–73	2,615	975	0.37	47
1973–74	2,956	882	0.30	71

Oilseeds

Demand for high-protein oilseed meals for livestock feed, together with a general world-wide trend to increased consumption of vegetable oils, has been reflected in Australia, where domestic oilseed prices rose in sympathy with prices on world markets and reached record levels during 1973–74. Aggregate oilseed production expanded rapidly between 1968–69 and 1971–72 in response to both increased oilseed prices and the introduction of wheat quotas. However, larger wheat quotas and higher prices for wheat and coarse grains, together with agronomic problems with some oilseeds and wet sowing conditions, culminated in a marked decline in the production of oilseeds in Australia in 1972–73 and 1973–74.

Linseed

Commercial production of linseed, a major oilseed crop, began in Victoria in 1947. For more than 20 years it was Victoria's only commercial oilseed crop, to be surpassed briefly in both area and production by rapeseed for the three years 1970–71 to 1972–73. Linseed meal is a valuable stock food. The oil is used in the production of oil-based paints, varnishes, and linoleum. Dissatisfaction with acrylic paints in the extreme winters of the northern hemisphere and a resultant swing back to oil-based paints resulted in a world shortage of linseed oil by 1973. Contract prices for linseed in Victoria for the 1973–74 crop almost doubled to an average $205 a tonne.

Linseed is grown mainly in the Western and Central Districts of Victoria. The crop is normally grown without fallow and with superphosphate as the only fertiliser. Following the introduction by the Victorian Department of Agriculture of disease resistant and better adapted varieties after 1955, the industry has exhibited greater stability in yields. The average yield is about 1 tonne a hectare. Linseed is very susceptible to competition from weeds and needs thorough preparation of the seedbed. The development of a number of selective herbicides has benefited linseed growers considerably.

Rapeseed

The introduction of wheat quotas in 1969–70 and a need to find suitable alternative crops, together with increased domestic and global demand for edible vegetable oils, led to a rapid expansion of rapeseed production in Victoria. From a base area of 4,000 hectares in 1969–70, yielding 4,000 tonnes of seed, production expanded in 12 months to a peak of almost 19,000 hectares, yielding over 16,000 tonnes of seed. However, by 1973–74, the production of rapeseed had declined to a harvested 3,500 tonnes from 6,000 hectares.

In spite of continuing high levels of demand for rapeseed, the crop is unlikely to be grown extensively in Victoria until certain agronomic weaknesses are overcome or until wheat and coarse grain markets weaken.

Rapeseed is normally grown under contract to the oilseed crushers. Sustained demand for edible vegetable oils together with an increased crushing capacity in Victoria offer growers a ready outlet for their production. The domestic market in Victoria is estimated at about 25,000 tonnes a year.

Safflower

Following its introduction in 1970–71 when 5,000 hectares were sown, safflower has been grown to a small extent in the Victorian cereal belt, particularly on land where wheat could not be sown due to winter flooding. Safflower produces a dual-purpose vegetable oil with application in the paint and textile industries, and in salad oils and table margarine. The area sown fell to 550 hectares in 1972–73, but recovered to 1,000 hectares in 1973–74, from which 520 tonnes of seed were harvested. The crop is generally grown under contract to oilseed crushers.

Sunflower

Sunflowers are summer growing plants which are not well adapted to dryland production in Victoria. In 1968–69, 380 hectares of sunflowers were sown in Victoria. By 1973–74, this area had been expanded to 3,325 hectares of which about 66.6 per cent was grown in the Northern District where irrigation is available to supplement low summer rainfall. Under favourable conditions, yields of 2.2 to 2.8 tonnes per hectare have been produced under irrigation.

Periodically, very high prices for sunflower seed have been obtained from sales to the bird seed trade, but most crops are grown under contract to oilseed crushers. The oil is edible and of high quality, and is used in salad and cooking oils and margarine.

The following table shows the area, yield, and value of selected oilseeds for each of the five seasons 1969–70 to 1973–74:

VICTORIA—SELECTED OILSEED PRODUCTION

Season	Area	Production	Average yield per hectare	Estimated gross value
	hectares	tonnes	tonnes	$'000
		LINSEED		
1969–70	7,640	9,502	1.24	1,167
1970–71	6,830	6,472	0.95	763
1971–72	3,694	3,388	0.92	343
1972–73	5,843	5,471	0.94	590
1973–74	4,336	4,668	1.08	999
		RAPESEED		
1969–70	4,367	3,946	0.90	459
1970–71	18,740	16,110	0.86	1,401
1971–72	14,881	12,610	0.85	1,152
1972–73	13,674	8,016	0.59	751
1973–74	5,967	3,498	0.59	479
		SAFFLOWER		
1969–70	n.a.	3	n.a.	3
1970–71	5,071	1,569	0.31	153
1971–72	1,272	722	0.57	70
1972–73	556	328	0.59	34
1973–74	971	520	0.54	87
		SUNFLOWER		
1969–70	1,217	918	0.75	90
1970–71	1,422	1,583	1.11	171
1971–72	2,141	2,384	1.11	274
1972–73	2,129	2,046	0.96	261
1973–74	3,325	2,526	0.76	624

Grain legumes

Interest in the production of cheap sources of protein for both human and livestock consumption is world-wide. The legumes, including soybeans, field peas, and lupins, comprise a major group of high protein grains. Of these, field peas have been grown on a limited scale over much of the wheat belt since

early settlement, and recent research by the Department of Agriculture has shown that lupins have some potential.

The average area sown to field peas in the decade 1963–64 to 1973–74 was about 5,500 hectares, more than 70 per cent of this area and 85 per cent of total production being in the Western and Central Districts. On the light Mallee soils, field peas are occasionally grown in preference to wheat as they are less demanding on soil moisture and fertility; and cropping soils infested with cereal cyst nematode may also be sown to field peas to provide a break in the life cycle of this pest. While peas contain on average 20 per cent to 22 per cent protein, these levels are not high enough for general use in stock feeds.

Lupins, which contain up to 30 per cent protein, are acceptable as a substitute for soybean meal in rations for poultry and pigs. A potential market also exists in the production of meat substitutes for human consumption. The lupin industry in Victoria is at present in its infancy and will depend on the development of domestic and export markets and on production economics relative to other crops.

PASTORAL AND DAIRYING

Pastoral

Livestock

The first great development in Victoria, or as it was then known, the Port Phillip District, was the pastoral interest. Millions of hectares of lightly timbered land lay before the newcomers, and the quickest way to wealth was evidently by the division of the land into runs and the depasturing of sheep and cattle. Settlers and stock came at first from Tasmania and eventually from New South Wales.

According to early statistical records there were 26,000 sheep, 100 cattle, and 57 horses in the District on 25 May 1836. On 1 January 1841, as a result of five years of livestock importation and breeding, there were 782,283 sheep, 50,837 cattle, and 2,372 horses. By 1 January 1851 the livestock population had increased to 6,032,783 sheep, 378,806 cattle, 21,219 horses, and 9,260 pigs.

The following table shows the numbers of livestock in Victoria at decennial intervals from 1861 to 1961, and the numbers of livestock on rural holdings for each of the five years 1970 to 1974. As from 1957, no allowance has been made for the small number of livestock not on rural holdings.

VICTORIA—LIVESTOCK : NUMBERS (*a*)

('000)

Year	Horses (including foals)	Cattle (*b*)		Sheep	Pigs
		Dairy	Beef		
1861 at 31 March	77	722		5,781	61
1871 ,, ,,	167	721		10,762	131
1881 ,, ,,	276	1,286		10,360	242
1891 ,, ,,	436	1,783		12,693	282
1901 ,, ,,	392	1,602		10,842	350
1911 at 1 March	472	1,548		12,883	333
1921 ,, ,,	488	1,575		12,171	175
1931 ,, ,,	380	1,430		16,478	281
1941 ,, ,,	318	1,922		20,412	398
1951 at 31 March	186	1,489	727	20,012	237
1961 ,, ,,	64	1,717	1,147	26,620	319
1970 ,, ,,	53	1,975	2,488	33,157	495
1971 ,, ,,	(*c*)	1,974	3,086	33,761	520
1972 ,, ,,	(*c*)	1,927	3,508	29,496	590
1973 ,, ,,	(*c*)	1,957	3,488	24,105	585
1974 ,, ,,	(*c*)	1,933	3,906	25,787	424

(*a*) A table showing livestock numbers for each year from 1837 to 1971 is published in the *Victorian Year Book* 1973, pages 1090–1.
(*b*) Separate figures for beef and dairy cattle are not available for years before 1943.
(*c*) Not collected.

A table showing the sizes of holdings and the numbers of holdings depasturing stock at 31 March 1971 appears on page 422 of the *Victorian Year Book* 1975. Dot maps showing the distribution of livestock on rural holdings in Victoria at 31 March 1962 appear on pages 577–80 of the *Victorian Year Book* 1964.

Following an investigation into the adequacy of the wording and layout of the cattle sections of the Agricultural Census form, changes were introduced to the 1963–64 form.

Before 1964 farmers were asked to classify their herds as either "beef cattle" or "dairy cattle". As these terms tended to confuse breed and purpose, farmers were asked in the new design to classify their cattle, with the exception of bulls, according to the main purposes of (i) milk production and (ii) meat production, irrespective of breed, and to report separately the number of cows and heifers kept for their own domestic milk supply; bulls were to be reported according to their breed and age, i.e., dairy or beef and over or under one year of age. Consequently, the detailed statistics of cattle for 1974 set out in the following table are not comparable with those for years prior to 1964.

VICTORIA—DISTRIBUTION OF LIVESTOCK AT 31 MARCH 1974
('000)

Particulars	Statistical district								Total
	Central	North Central	Western	Wimmera	Mallee	Northern	North Eastern	Gippsland	
Cattle—									
Bulls for service—									
Bulls, 1 year and over—									
Dairy breeds	4	1	8	(a)	(a)	7	1	8	29
Beef breeds	11	5	24	4	2	11	11	12	80
Bull calves—under 1 year—									
Dairy breeds	1	(a)	3	(a)	(a)	3	1	3	11
Beef breeds	4	2	8	1	1	4	3	4	27
Cows and heifers for milk and cream—									
Cows in milk	102	10	155	5	11	284	35	247	849
Cows—dry	51	6	157	3	3	42	27	105	394
Heifers—1 year and over	42	5	81	2	4	88	17	84	323
Heifer calves—under 1 year	35	4	75	2	4	87	15	83	305
House cows and heifers	3	1	4	3	2	2	2	2	19
Other cattle and calves for meat production—									
Cows and heifers	261	140	553	103	51	227	284	290	1,909
Calves—under 1 year	157	76	270	66	38	175	155	177	1,114
Other	107	61	183	31	17	116	117	142	774
Total cattle	778	311	1,521	220	133	1,046	668	1,157	5,834
Pigs	60	16	39	54	38	149	33	35	424
Sheep	1,758	2,081	9,894	4,804	1,607	3,297	1,236	1,109	25,786

(a) More than nil but less than 500.

The following table shows details of the stock slaughtered in Victoria during each of the five years 1969–70 to 1973–74:

VICTORIA—STOCK SLAUGHTERED IN ESTABLISHMENTS AND ON FARMS AND STATIONS
('000)

Particulars	1969–70	1970–71	1971–72	1972–73	1973–74
Sheep	8,209	8,554	11,954	7,856	3,384
Lambs	7,570	7,880	8,129	6,673	5,385
Cattle	1,336	1,382	1,516	1,895	1,706
Calves	495	464	558	665	567
Pigs	897	941	1,051	1,210	1,089

Fodder

Hay

The pattern of hay production in Victoria changed considerably in the 1950s. More complete mechanisation and the virtual disappearance of the working horse removed the previous emphasis from cereal hay. The harvesting of large areas of cereal crops, particularly oats, grown specifically for the production of hay for the maintenance of horse teams, is no longer necessary and so there has been a marked decline in the amount of cereal hay produced.

On the other hand, there were spectacular increases in the production of other forms of fodder. The annual production of meadow hay increased from about 400,000 tonnes to over 2 million tonnes during this period. There was also a substantial increase in the amount of lucerne hay conserved. Ensilage made mainly from pasture growth increased from about 25,000 tonnes annually to over 300,000 tonnes in the 1950s, yet it supplies something under 10 per cent of the dry nutrients in Victoria's fodder reserves.

This increase in fodder conservation has resulted in more efficient utilisation of the extra herbage grown as the result of pasture improvement in all districts. Large numbers of livestock are now being maintained with greater safety following the conservation of portion of the surplus spring growth for feeding out during periods of seasonal shortage or in drought.

As pastures have been improved and livestock production intensified, the provision of supplementary fodder has become an important factor in the Victorian grazing industry. The conservation of meadow hay fits in well with farm management routine and is a convenient method of ensuring continuity of fodder supplies.

VICTORIA—HAY PRODUCTION, 1973–74

Variety	Area	Production	Average yield per hectare
	hectare	tonne	tonne
Wheaten	7,509	21,335	2.84
Oaten	57,665	197,756	3.43
Lucerne	60,691	310,826	5.12
Barley and rye	4,464	14,623	3.28
Meadow and other	495,397	2,422,848	4.89
Total	625,726	2,967,388	4.74

Ensilage

Much ensilage is still made in open stacks using a mower and buckrake. This is simple, but wastage is high. The flail-type forage harvester is popular because of its simple cutting action and relative cheapness. It consists of swinging blades which rotate at high speed on a horizontal shaft. The crop is thrown into an accompanying trailer or truck for transport to storage. Flail cutting has opened the way to more effective ensilage making and control of the process, because the cut material packs better in storage. This excludes air and so prevents the heating which destroys nutrients and lowers digestibility of the resulting ensilage. Improved storage and feeding techniques are generally leading to more effective use of ensilage than is possible with high wastage open stack methods. Trenches and pits, if suitably sited and well made, provide excellent storage conditions. Stacks with clamp sides or bunkers give good storage, while plastic sheeting can also be used to exclude air and water and thus reduce waste when properly applied.

VICTORIA—ENSILAGE MADE AND FARM STOCKS OF ENSILAGE AND HAY
(tonne)

Statistical district	Ensilage made, 1973–74	Stocks at 31 March 1974	
		Ensilage	Hay
Central	72,535	62,146	388,795
North Central	9,909	10,800	184,522
Western	32,404	41,481	903,346
Wimmera	8,598	19,788	273,015
Mallee	11,342	15,378	122,883
Northern	27,691	50,893	661,940
North Eastern	29,026	32,062	268,851
Gippsland	97,888	51,795	487,056
Total	289,393	284,343	3,290,408

Further reference, 1975; Fodder conservation, 1975

Sheep industry

Sheep breeds

The first sheep to arrive in Victoria were Tasmanian Saxon Merinos which were brought to the Portland area by Edward Henty in December 1834. In the following year, William Furlonge landed Saxon Merinos at Port Phillip, and shared with Henty the distinction of founding the sheep industry in Victoria. Sheep numbers increased rapidly until the early 1840s, due largely to New South Wales pastoralists bringing their flocks southwards and John Batman's Port Phillip Association landing Saxon Merinos from Tasmania. In November 1836 there were only 41,000 sheep in Victoria, increasing to 310,000 by 1838, 782,000 by 1840, and 6 million by 1852 when most of the available pastoral land had been taken up and was being used for grazing. Despite periodic droughts there was a steady increase in Victorian sheep numbers until the early 1960s, followed by short term fluctuations with peaks in 1967 and 1971, and troughs due to a severe drought in 1968 and poor economic returns for sheep, wool, and meat since 1971. It is unlikely that sheep numbers will ever resume the upward trend so evident in Victoria's early history, particularly as cattle numbers have increased significantly and compete with sheep for grazing land, often on the same property. As a result of the expanding movement towards diversification, of the total of 28,000 producers carrying sheep in 1971, 21,000 also ran cattle.

The major proportion (41 per cent in 1974) of the Victorian sheep flocks are in the Western District, followed by the Wimmera (17.5 per cent). Although the Mallee has relatively few sheep, the major proportionate gains have been made in this region during recent years.

Relative to other States except Tasmania, the most noticeable feature of Victorian sheep numbers during 1974 was the smaller proportion of Merinos (48 per cent) and the larger proportion of crossbred and comeback sheep (32 per cent) and breeds other than Merino (20 per cent). By comparison, the Australian flock consists of Merinos (73 per cent), comebacks and crossbreds (15 per cent), and other recognised breeds (12 per cent). These figures indicate the importance to Victoria of the prime lamb industry, which is largely based on first cross ewes (Border Leicester by Merino) and British breed rams.

Although Victoria has relatively fewer Merinos, it produces the finest quality wool. In particular, wools from the Western District have a world-wide reputation for their colour, style, fineness of spinning count, and high yielding properties. With the exception of the Mallee and Wimmera, and parts of the Northern District where the South Australian types of Merino are more numerous, most Merinos in Victoria are fine-woolled and medium-woolled types.

In 1974, 10 per cent of Victorian sheep were Corriedales, a breed noted for both high quality, fine crossbred wool, and meat producing ability. The breed originated in 1874 in New Zealand and was established in Australia in 1882. Corriedales are found throughout most of Victoria with a heavier concentration in the Western District.

Like the Corriedale, the Polwarth is a dual-purpose animal and was developed in Victoria for areas too wet and cold for Merino wool growing. Polwarths comprise 3 per cent of the State's sheep numbers in 1974 and are concentrated in the southern parts of the Western District, the Central District, and the North Eastern District.

The main British breeds of sheep in Victoria are the Romney Marsh, Border Leicester, Dorset Horn, Poll Dorset, and Southdown. Romney Marsh and Border Leicester rams are often joined with Merino ewes to produce prime lamb dams. Southdown, Dorset Horn, and Poll Dorset rams are the most important sires for prime lamb production.

There are small changes in the proportions of each breed to total sheep numbers as the relative prices for sheep meats and wool change. In response to the recent pattern of prices, there has been a reduction in the proportion of Merinos, while crossbreds, which are largely used in the prime lamb industry, have increased proportionately. As the proportionate distribution has not changed significantly since 1971, the table on page 453 of the *Victorian Year Book* 1975 indicates the pattern.

Wool production

VICTORIA—SHEEP AND LAMBS SHORN, SEASON 1973–74

Statistical district	Shorn		Wool clipped (including crutchings)		Average	
	Sheep	Lambs	Sheep's	Lambs'	Per sheep	Per lamb
	'000	'000	'000 kg	'000 kg	kg	kg
Central	1,572	450	7,485	620	4.76	1.38
North Central	2,123	431	11,154	590	5.25	1.37
Western	9,759	2,405	45,504	3,273	4.66	1.36
Wimmera	4,545	1,007	24,093	1,409	5.30	1.40
Mallee	1,225	333	6,397	491	5.22	1.47
Northern	3,120	770	15,924	1,142	5.10	1.48
North Eastern	1,234	248	5,831	313	4.73	1.26
Gippsland	986	338	4,569	418	4.63	1.24
Total	24,564	5,982	120,957	8,256	4.92	1.38

VICTORIA—SHEEP SHORN AND WOOL CLIPPED

Season	Shorn		Wool clipped (including crutchings)		Average	
	Sheep	Lambs	Sheep's	Lambs'	Per sheep	Per lamb
	'000	'000	'000 kg	'000 kg	kg	kg
1969–70	30,646	8,546	148,249	11,745	4.84	1.37
1970–71	32,363	8,390	151,673	11,623	4.69	1.39
1971–72	31,316	7,502	141,434	10,247	4.52	1.37
1972–73	27,267	6,346	121,220	7,855	4.45	1.24
1973–74	24,564	5,982	120,957	8,256	4.92	1.38

VICTORIA—TOTAL WOOL PRODUCTION AND VALUE

Season	Clip	Stripped from and exported on skins, etc. (greasy)	Total quantity (greasy)	Estimated gross value	Average price per kg
	'000 kg	'000 kg	'000 kg	$'000	cents
1969–70	161,714	36,219	197,933	154,933	78.28
1970–71	163,296	37,991	201,287	118,123	58.68
1971–72	151,683	45,831	197,514	134,513	68.10
1972–73	129,075	43,248	172,323	254,434	147.65
1973–74	129,212	26,143	155,355	248,232	159.78

The largest proportion of the Australian wool clip is sold in Victoria, although this is not the largest producing State. This is because a good deal of the wool sold in Victoria comes from interstate, especially from southern New South Wales.

The gross value of production in Victoria reached a peak in 1972–73 when wool prices reached record levels, followed by low prices probably in reaction against such an expensive raw material for manufacturing.

Mutton and lamb meat production

Victoria has generally been Australia's biggest mutton-producing State, producing about the same amount of lamb as New South Wales. As with wool, correlation between where the meat is grown and where it is slaughtered is not exact, statistics being available only for the point of slaughter. In fact, many sheep and lambs which are slaughtered in Victoria come from other States, especially from the Riverina District of New South Wales. Mutton production in Victoria, at a peak in 1971–72 due to unsatisfactory wool prices, declined significantly in response to much improved wool prices. During the same period, lamb slaughterings also increased, but to nowhere near the same extent. In 1971–72, more than 10 million adult sheep and 8 million lambs were slaughtered, declining to 4.5 million sheep and 6 million lambs in 1972–73. Since then, slaughterings have been a little lower than expected because of lack of ready markets for mutton, largely caused by surpluses of beef in many major producing countries, together with restrictions aimed at controlling inflation in many major importing countries. Thus mutton has been displaced by cheap beef in many of its traditional outlets.

The table on slaughtering on page 410 and the section on the Australian Meat Board on pages 416–7 contain relevant information.

Lambing

Climatic conditions play a large part in determining the proportion of lambs marked to ewes mated, and thus the natural increase from season to season may vary considerably (as indeed may the number slaughtered). The following table shows the number of ewes mated and lambs marked in each of the five seasons 1969–70 to 1973–74:

VICTORIA—LAMBING

Season	Ewes actually mated	Lambs marked	Proportion of lambs marked to ewes mated
	'000	'000	per cent
1969–70	13,910	12,266	88
1970–71	14,841	12,724	86
1971–72	13,774	11,583	84
1972–73	11,381	9,452	83
1973–74	9,885	8,182	83

Sheep and lambs in statistical districts

The following table sets out the number of rams, ewes, wethers, and lambs depastured in each statistical district of Victoria at 31 March 1974:

VICTORIA—SHEEP AND LAMBS IN EACH STATISTICAL DISTRICT AT 31 MARCH 1974
('000)

Particulars	Statistical district								Total
	Central	North Central	Western	Wimmera	Mallee	Northern	North Eastern	Gippsland	
Rams	22	23	124	50	21	45	17	14	316
Ewes	935	962	4,959	2,342	1,016	1,953	704	600	13,471
Wethers	414	736	2,634	1,475	163	669	293	225	6,609
Lambs	388	360	2,177	937	408	630	221	271	5,392
Total sheep and lambs	1,759	2,081	9,894	4,804	1,608	3,297	1,235	1,110	25,788

Australian Wool Corporation

In 1972 the Australian Wool Industry Conference recommended to the Australian Government that the activities of the Australian Wool Board and the Australian Wool Commission be amalgamated. On 1 January 1973 the Australian Wool Corporation was established, bringing the activities of the Board and the Commission under one body. There are two divisions within the Corporation:
(1) The Corporate Services and Research Division which conducts all research, administrative, and service functions; and
(2) the Marketing Division which conducts all activities associated with purchases, processing, sale, and promotion of wool and wool products. A significant part of this activity takes in the Floor Price and Reserve Price operations of the Corporation in the Australian wool market.

The Australian Wool Testing Authority is also part of the Corporation structure.

The Corporation has a full-time Chairman and nine Corporation Members, comprising four woolgrower representatives, four persons with special qualifications, and one Government representative.

Australian Wool Board, 1972

Beef cattle

Cattle were introduced from Africa into Victoria by the first settlers. These early introductions were poor stock intended to meet the needs of draught, milk, and meat, and were quickly replaced by herds of the beef cattle breeds imported from Britain. Although the beef cattle industry initially faced many natural hazards, including drought, disease, and pests, changing economic conditions and patterns of land-use have been most important in determining the size and distribution of beef cattle herds. Refrigeration, pasture improvement, the relative prices for other primary products, and the development of overseas markets for beef meat have all been important factors.

High prices for beef meat and marketing difficulties in the sheep, dairy, and wheat industries, encouraged farmers to withhold stock from slaughter in order to build up breeding herds. As a result, from 1968 to 1972, beef cattle numbers in Victoria rose from 1.5 million to 3.5 million. With 2.0 million dairy cattle, total cattle numbers were 5.5 million in 1972. There was no increase in total cattle numbers from 1972 to 1973; in fact, there was a slight fall in beef cattle numbers, reflecting the drought conditions in many areas during the summer of 1972–73. A 17 per cent increase in beef cattle to 4.1 million in 1974, resulted in part from a 33 per cent increase in the number of steers and bullocks together with a 14 per cent increase in breeding females, which now number just below 2.0 million. The large increase in steers and bullocks was

due, in part, to the trend in 1972–73 and early 1973–74 to keeping animals for slaughter at older ages. This, together with the drop in price for cattle suitable for export markets, resulted in producers withholding fat stock from sale.

More than 60 per cent of Victorian farms run cattle for meat production, although the majority of herds are small. On most of these farms, beef is associated with other activities, including sheep, dairying, and cropping. The Victorian environment is very favourable for beef production, cattle being able to graze pasture throughout the year. Levels of reproductive performance are high; growth rates of slaughter animals are high; and animals can be sold for slaughter while young. Turn-off of slaughter animals from breeding herds is therefore high. During the early 1970s, beef production again increased rapidly and in 1973–74, Victorian beef and veal production was 378,000 tonnes. In that year, Victoria was the major beef producing State, being responsible for 29 per cent of Australian production.

The amount of beef and veal exported by Victoria declined by 25,000 tonnes from 1973 to 1974, closure of the Japanese and E.E.C. markets resulting in a reduction of exports. The quantity of meat exported to the U.S.A. also declined because of low prices and high shipping charges. The decline in domestic prices resulted in the annual use of beef and veal on the domestic market increasing from 42 to 44 kilograms per head of population.

Numbers and classes of livestock on Victorian properties and a table showing distribution of livestock at 31 March 1974 appears on page 410. Attention is also drawn to the historical table on page 409 and the table on slaughterings on page 410.

Australian Meat Board

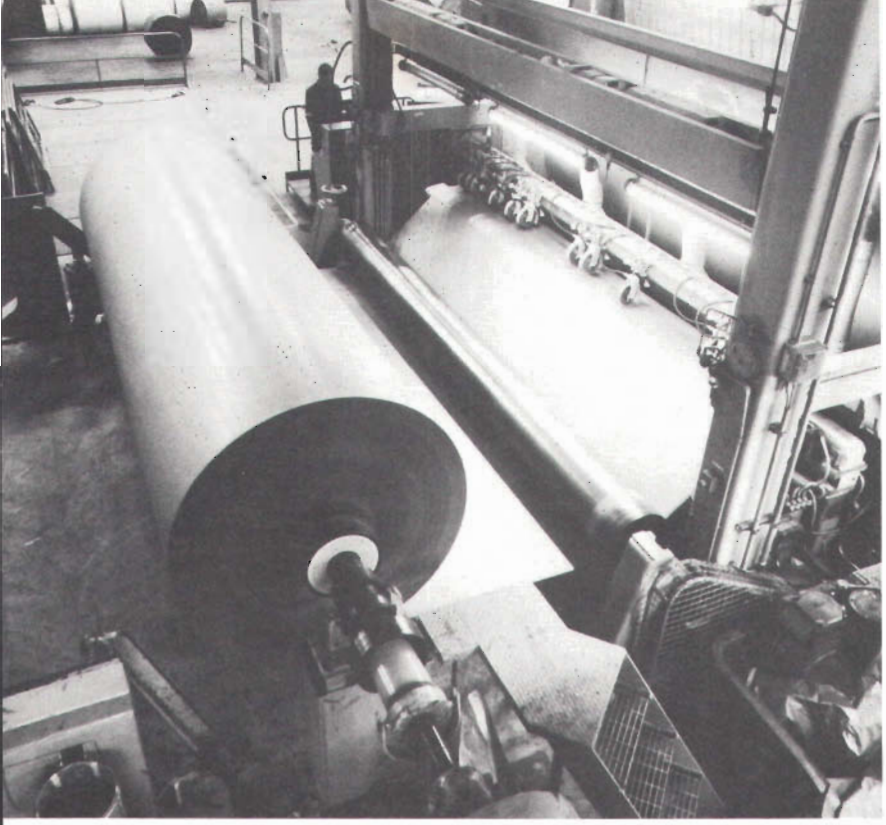
The Australian Meat Board, which first met in 1936, was reconstituted in 1946 and again in 1964. It operates under the *Meat Industry Act* 1964–1973. The Board's chairman is appointed by the Australian Minister for Agriculture; six members represent livestock producers, two represent the meat exporting industry, and there is a member representing the Australian Government. The Board advises the Australian Government on conduct of the Australian livestock and meat industries and their long-term interests; it works closely with the Australian Government in negotiating meat trade agreements with other countries.

The Board is financed by levies, paid by the producer, on cattle and sheep slaughtered for human consumption. The levy on cattle (at 30 June 1975) is 55 cents per head of which 25 cents goes towards industry research. On sheep, the levy is 4.75 cents per head of which 1.75 cents go towards research. A further levy, of 1 cent on cattle and 0.1 cent on sheep, is paid by the owner of the stock at the time of slaughter and these funds are directed to C.S.I.R.O. research into meat processing industry problems.

The Board exercises control over meat exports by the issue of licences, which may limit the products exported and the markets served. Detailed data on all export shipments is collected for statistical purposes. The Board has the power to trade in meat as, for example, in its sales to the U.S.S.R. in 1971 and 1975; but generally the industry operates on a private enterprise basis.

While the Australian meat industry's best customer is the domestic market, it now depends heavily on the export trade. In 1972–73 Australian exports of all meats exceeded 50 per cent of production, although exports fell off between 1973 and 1975 as a result of serious overseas trading problems. Meat exports from Victoria reached a value of $260.6m in 1972–73, but fell to $239.9m in 1973–74. Victoria exported 154,000 tonnes of Australia's 575,000 tonnes shipped weight meat exports in 1974–75, second only to Queensland, while for three years to 30 June 1973 it led all other States in meat exports.

The Board maintains offices in London, New York, Tokyo, and Teheran; these cover Europe, North America, Asia, and the Middle East, and closely



A reel of machine glazed ribbed Kraft paper being trimmed to size on the rewinder of the No. 3 paper machine at the Australian Paper Manufacturers Ltd pulp and paper mill at Maryvale.

Australian Paper Manufacturers Ltd

A collection and compaction vehicle discharges waste paper for recycling at the Australian Paper Manufacturers Ltd mill at Fairfield.

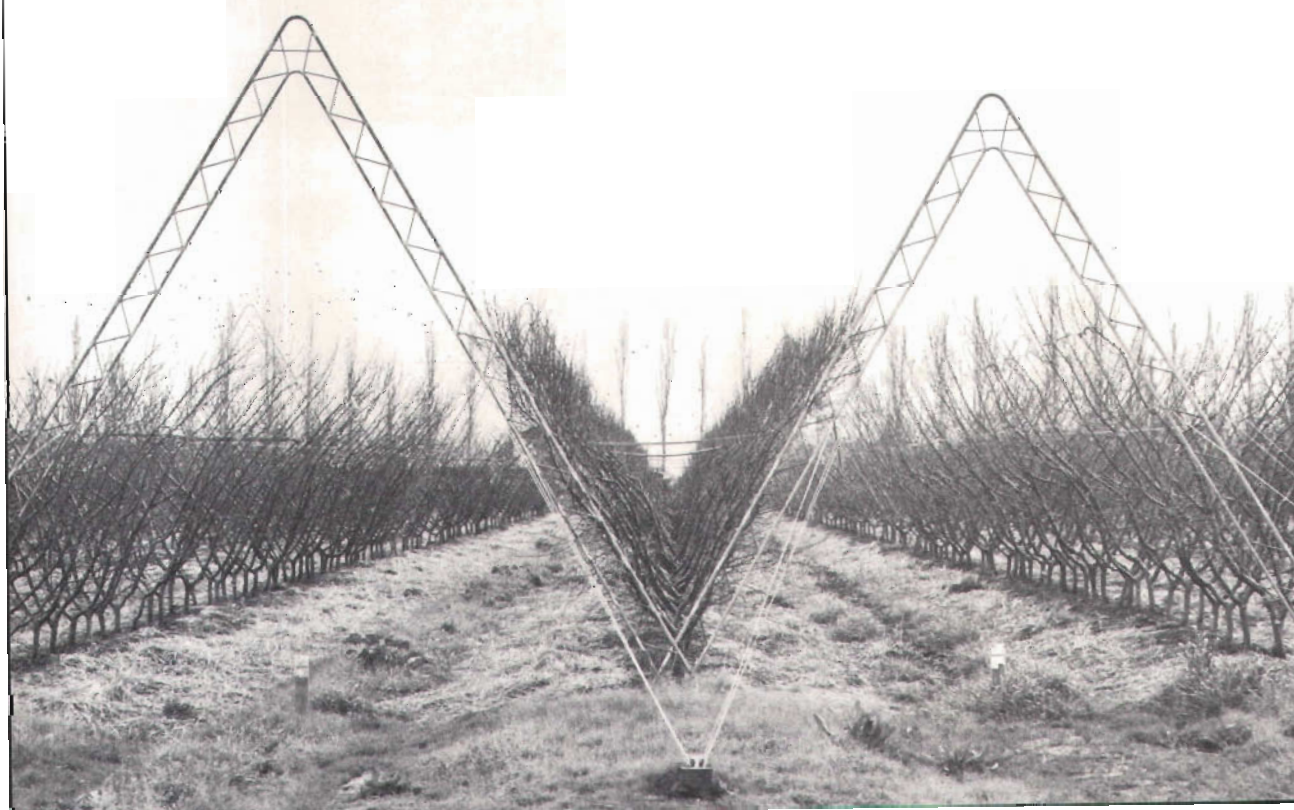
Australian Paper Manufacturers Ltd

District farmers examine the semi-circular design of a sheep yard on a property near Buangor in the Western District.

Department of Agriculture

Trellis growing at the Horticultural Research Station, Tatura.

Department of Agriculture



Glenormiston, near Terang. The old homestead is now used by the Agricultural College as its central administrative building.

Department of Agriculture

A circular shearing platform at Hillside, near Buangor, features circular swivel sorting tables, a wool press, and easy access to sheep through swing doors at the rear.

Department of Agriculture

Yallourn "W" base load power station at the completion of its first stage. The four units to comprise the station will have a total capacity of 1,450 MW.

State Electricity Commission

The West Gate Bridge in October 1975. Work on a steel box girder section is in progress. The bridge, now substantially completed, is scheduled to be opened in 1977.

West Gate Bridge Authority

observe the meat trade in their region and act in the interests of the Australian export trade. Promotion of Australian meat at wholesale and retail level is undertaken, often in conjunction with the Australian Department of Overseas Trade and exporting and importing interests. Board expenditure on direct promotion overseas in 1974–75 was $565,000, with the major expenditure in Japan.

The Board also engages in research, providing facilities and staff for the Australian Meat Research Committee which co-ordinates research expenditure. Funds are provided for projects conducted by the C.S.I.R.O., universities, State Agriculture Departments, and the Australian Bureau of Agricultural Economics. Between 1963 and June 1975, the Australian Meat Research Committee invested almost $25m in beef industry research. The lamb and mutton programme which began in 1967 was allocated some $7.2m to the same date. The Australian Government has supplemented producer contribution to research on a dollar for dollar basis.

Frozen meat exported, 1969; Meat industry, 1974

Dairying

General

Before the 1870s, dairy production was largely a small sideline on farms in Victoria, developing as a sole farm activity after the passing of the Land Act of 1862, which permitted selectors to take up holdings of up to 320 acres.

Introduction of the cream separator in 1886 led to the rapid establishment of small butter factories, most of which were farmers' co-operatives. Farmers could bring their milk to these factories, or to associated "creameries", or separating stations. Later, when separators became smaller and less costly, they were installed on the farms. By 1905, there were 195 butter factories in Victoria.

Climate eventually induced the industry to concentrate in the two areas most favoured by a good spread of rainfall, namely, west and south Gippsland, and the southern parts of the Western District. Government action brought into being further dairying districts by establishing irrigation settlements on the northern plains, by subdividing former grazing properties into dairy farms, and by developing former problem country in parts of Gippsland and the Western District. A specialist type of dairy farming developed to supply milk to Melbourne, Ballarat, Bendigo, and Geelong.

The most far-reaching dairying legislation is the Milk and Dairy Supervision Act in which three formerly separate Acts have been combined. Quality control under this legislation and under portions of the Health Act was further strengthened by the Milk Pasteurisation Act of 1949. Other legislation includes the Milk Board Act which set up a statutory Board to operate and control the marketing of fluid milk, and Acts controlling filled milk, imitation milk, and margarine.

Capital values of dairy farms have progressively risen from the $640 paid by an original settler (over 20 years) for a 320 acre selection, to some $100,000 for the modern fully equipped and stocked dairy farm. This increase in capital investment is largely a reflection of advances in dairy farming technology. Where some farmers in the early 1930s eked out a living by milking 10 to 15 cows, their successors who invested so heavily would have to milk 80 or more to meet all their costs and gain a livelihood. These larger herds tend to detract from the environment by creating mud problems and by adding to the difficulty of preventing animal excreta from entering watercourses. Dairy factories also are forced to protect the environment by treating wastes, especially whey, which are now too voluminous to be released into streams or sprayed on land.

Contract labour is used by dairy farmers mainly to meet peak labour demands such as hay making. Usually the contractor owns most of the equipment.

Economic structure

The size of the dairying industry in any district is indicated by the number of cows milked rather than by the number of farms, dairy licence records indicating that the industry is concentrating in three " growth areas " : Gippsland, Northern, and Western. In general, the trend has been to milk more cows, but on fewer farms. The number of cows milked in 1973–74 was 41,829 fewer than the all-time peak of 1,282,676 in 1972–73, some 13,000 farm families depending wholly or substantially on income from dairy farming. The number would still exceed 12,000 in 1975. In addition, there are nearly 2,000 share dairy farmers (1,966 in 1973–74) and an unknown number of partnerships in which the farm supports a father and son, or two or more brothers, and their families.

Progress in the mechanisation of milking, development of methods of handling and cooling milk in bulk, improvement of systems of cleaning and sterilising equipment and of disposal of dairy shed wastes, are the advances which have contributed most towards enlargement of the dairy enterprise which one, two or three men can operate. Advances in pasture production and grazing management and increased mechanisation in growing and harvesting fodder have made it possible to carry larger herds on farms. Aerial topdressing has become an important tool in pasture improvement on hilly country in the southern dairying areas and along the river valleys of the north-east.

Direct financial assistance to the industry has diminished with the phasing out of the former bounty, but the Australian and Victorian Governments each still provide a subsidy of $71,200 to the herd test movement. The Australian Government contributes to dairy research funds an amount matching that raised by the industry through a levy on its products. Victoria provides a great deal of less direct assistance to the industry in regulatory, research, extension, and teaching services.

These services differ from those provided to other industries mainly in that they are carried through to the manufacturing and processing sectors. This has arisen from the perishable nature of milk and dairy foods, and the consequent need to exercise regulatory control over them until they reach the consumer or leave the State.

The marketing function for products is divided between the Australian Dairy Corporation and individual companies within the industry, while the Victorian Milk Board is responsible for marketing liquid milk.

The Victorian Department of Agriculture's three main research groups within its Division of Dairying are the farm research workers at Ellinbank Dairy Research Station, the manufacturing research teams at the Gilbert Chandler Institute of Dairy Technology, and the personnel of the Milking Research Centre. The industry also benefits from research done elsewhere such as at the Veterinary Research Laboratories, Westmeadows.

Until recently there has been little formal training especially directed towards dairy farming other than at agricultural colleges or in related skills taught at some technical schools, but a special Dairy Certificate Course has now been commenced at Glenormiston Agricultural College.

As the number of cows milked is diminishing in the northern States and the national population is increasing, Victoria and Tasmania will be relied upon more and more to supply dairy foods for Australians and to supply the growing world demand for dairy products, especially in the developing nations.

Australian Dairy Corporation

The Australian Dairy Corporation came into being on 1 July 1975, succeeding the former Australian Dairy Produce Board, itself successor to the earlier Dairy Produce Control Board established in 1925 by a producer referendum. The Corporation has eleven members : a chairman appointed by the Australian

Government, three members representing dairy farmers, three representing manufacturers, two with special qualifications, one representing employees of butter and cheese factories, and one Australian Government representative. A levy imposed upon butterfat production supplies funds for the Corporation's promotional and administrative activities.

The Corporation recommends to the Australian Minister for Agriculture regulations to control exports of dairy products; reports to the Minister on matters of quality, standards and grading of dairy products for export; and, subject to the Minister's approval, takes action to improve dairy products and expand the markets for them, both domestic and export. The Corporation also controls the sale and distribution of dairy produce after export.

VICTORIA—DAIRYING

Year	Number of dairy cows (in milk or dry) at 31 March	Estimated total production of milk for all purposes (year ended 30 June)	Estimated gross value of dairy produce (*a*) (year ended 30 June)
	'000	'000 litres	$'000
1970	1,245	4,028,363	204,682
1971	1,244	4,062,068	215,412
1972	1,256	3,973,122	238,190
1973	1,274	3,944,600	237,670
1974	1,214	3,978,290	239,767

(*a*) Includes subsidy.

Further reference, 1975; Eradication of tuberculosis, 1962; Sharefarming in the dairying industry, 1967; Milk Board, 1971; Dairying industry, 1974

Other livestock

Pig industry

Victoria is a major pig producing State in Australia. In the past a substantial part of its supplies of pig meat came from other States, but as a result of the development of the pig industry in Victoria, most of the pig meat consumed in Victoria is now produced in the State.

Australians are relatively large meat eaters but eat much less pig meat than most other nations. Pig meat provides about only 11 per cent of the total meat consumed by Australians. This is due partly to traditional eating habits and partly to the relative costs of sheep, poultry, and cattle meat, produced on low cost pasture, and pig meat, produced from concentrated foods such as grain. The pig industry was developed largely in conjunction with the dairy industry. Pigs were used to salvage separated milk, buttermilk, and whey—the by-products of butter, cheese and casein manufacture—and those foods provided the greater part of their diet. In the 1950s and 1960s more milk was used for human food and less was available for pigs. Pig production then became less dependent on milk but more on grain feeding, protein foods, animal by-products such as meat, bone meal, fishmeal, and whale solubles. With this change in the major source of food for pigs, the structure of the pig industry changed to fewer but larger pig herds.

Pigs mature early, are prolific, and grow fast. A sow can produce a litter when she is twelve months old, her pigs can be ready for pork when three and a half to four months old, or for bacon when five to six months old, at which time the sow can be producing her second litter. There have been large variations in the annual production of pigs and these caused fluctuations in the prices farmers received for their pigs. The variations in supply are caused more by the rapid production potential of pigs, and the absence of adequate forward information on trends, than by changes in seasonal conditions. In recent years the increased demand for pig meat has resulted in a consistent upward trend in production, with prices remaining fairly stable. For example, between 1966

and 1972, production of pig meat increased by some 60 per cent, which was all consumed by the domestic market. However, during 1973, the situation altered. An oversupply of pigs led to a sharp decline in prices at a time when food costs were rising. Many people left the industry and by March 1974 the Victorian pig population had fallen by 27 per cent. The resultant shortage of pigs has since caused pig prices to rise to record levels. Despite this, high capital costs are tending to deter people from entering the industry. Usually there is ample grain to maintain pig production. There is no scheme to support pig prices in Australia.

In the 1930s and early 1940s Australia exported pig carcasses, mainly to the United Kingdom, where it had a protected market. In 1941 over one third of Australia's pig production was exported. Since then, production and local demand have come closer together and only an insignificant part of the country's production is exported. In 1972–73, as a result mainly of orders from Japan, exports amounted to only 6–7 per cent of production.

Pigs now provide the major part of the income from the farms on which they are kept. More capital and skilled management are involved in the individual units.

The number of pigs in Victoria at 31 March 1974 was 424,248. About 83 per cent of these were held in the Central, Northern, Wimmera, and Mallee districts. The following table shows classifications (in statistical districts) of pigs, together with the numbers of pig keepers; the historical table on page 409 and the table on slaughtering on page 410 contain further information.

VICTORIA—PIGS AND PIG KEEPERS AT 31 MARCH 1974

Statistical district	Boars	Breeding sows	All other	Total pigs	Pig keepers
Central	535	7,199	52,597	60,331	429
North Central	183	1,700	14,052	15,935	232
Western	578	5,386	32,705	38,669	566
Wimmera	834	7,007	46,427	54,268	859
Mallee	570	5,091	32,217	37,878	646
Northern	1,735	19,644	128,043	149,422	1,056
North Eastern	437	4,290	28,508	33,235	382
Gippsland	429	4,798	29,283	34,510	371
Total	5,301	55,115	363,832	424,248	4,541

Egg industry

The trend in the Victorian egg industry is towards large specialised farms—egg producers, hatcheries, and pullet growers—utilising modern poultry housing, equipment, and labour saving machinery.

The greater proportion of Victoria's estimated 4.5 million adult female fowls now forms part of the commercial egg industry. There are, however, small household flocks in country areas. The main areas of commercial production are centred on the outskirts of the Melbourne metropolitan area and in the Bendigo district, with large centres around Ballarat and Geelong, and substantial populations in the Wimmera, Goulburn Valley, and north-east.

One man or one family farms usually manage 5,000 to 10,000 layers. There are, however, many larger farms employing labour with up to 30,000 layers, and a few much larger farms.

Housing is planned on the intensive principle, with deep litter pens or multiple bird cage units. Most of the new housing is on the laying cage system. A small proportion of layers is kept in fully enclosed, windowless houses under a fully controlled environment. Artificial lighting is used on almost all commercial egg farms to stimulate egg production. Feeding is based on grains (wheat, oats, and barley) and their by-products (bran and pollard). Meatmeal is the major protein supplement. Wide ranges of commercial, ready-mixed poultry rations are also available.

Laying stock consists mainly of a specially produced cross between the White Leghorn and Australorp breeds. The average State egg production is estimated at approximately 216 eggs per bird per year. Commercial stock of the local breeding farms and hatcheries is tested for profitability at the Department of Agriculture's Random Sample Laying Test at Burnley. Chicks are hatched continuously throughout the year, with an emphasis on the June to November period. Hatcheries are large and use modern incubators of from 5,000 to 90,000 egg capacity. Most commercial egg-type chicks are sexed when a day old by machine or hand methods and the cockerels discarded. The main power source used in the brooding of chicks is electricity, but gas brooders and hot water brooders fired by oil burners are also used.

The marketing of eggs is controlled by the Victorian Egg and Egg Pulp Marketing Board. Flocks with over twenty adult female fowls come within the Board's jurisdiction and owners of flocks with over forty adult female fowls are required to market their eggs through the Board. Victoria produces a surplus of eggs which is exported through the Australian Egg Board.

Advisory and research services to the egg industry are provided by the Department of Agriculture, commercial firms concerned with the sale of feed,

VICTORIA—HEN EGGS SET AND CHICKENS HATCHED
('000)

Period	Hen eggs set (*a*)	Chicks hatched (*b*) intended to be raised for—				Total hatched
		Meat production	Egg production	Breeding		
				Pullets	Cockerels	
		MEAT STRAINS				
1970–71	29,400	22,104	(*c*)	n.a.	n.a.	(*e*)22,104
1971–72	35,097	26,951	(*c*)	n.a.	n.a.	(*e*)26,951
1972–73	36,487	27,746	(*c*)	n.a.	n.a.	(*e*)27,746
1973–74	41,902	32,089	(*c*)	n.a.	n.a.	(*e*)32,089
1974–75	34,772	27,306	(*c*)	n.a.	n.a.	(*e*)27,306
		EGG STRAINS (*d*)				
1970–71	15,342	1,096	5,349	(*e*)132	(*e*)23	(*e*) 6,601
1971–72	14,251	431	4,861	153	21	5,466
1972–73	14,354	489	4,875	146	14	5,524
1973–74	17,657	351	6,027	176	28	6,583
1974–75	14,924	315	5,005	181	39	5,540

(*a*) Includes eggs which failed to hatch.
(*b*) Excludes chicks destroyed.
(*c*) Not applicable.
(*d*) Egg strain chicks reported as " unsexed " have been allocated half to chicks for meat production and half to chicks for egg production. The number so reported was 93,031 in 1970–71 ; 99,462 in 1971–72; 81,875 in 1972–73 ; 79,199 in 1973–74 ; and 98,054 in 1974–75.
(*e*) Incomplete.

Egg marketing, 1974

Broiler industry

The raising of chickens for meat on a large scale has emerged in Victoria since the mid-1950s. Chickens are most efficient in converting poultry feeds, grain, and protein supplements to meat, and are also multiplied cheaply and rapidly through scientific breeding and modern artificial incubation methods.

It now takes approximately 1.0 kg of poultry feed to produce 0.5 kg of poultry meat, and a 2 kg chicken is grown in ten weeks. This efficient conversion and rapid growth has been achieved by extensive breeding programmes ; the use of " high energy " poultry feeds, highly supplemented with vitamins and minerals ; growth promoters and disease control drugs ; and by the development of enclosed, factory-like broiler houses with controlled temperature, humidity, ventilation, and light, all conducive to fast growth.

The organisation of the broiler industry as a continuous, production-line, factory-like operation has been a major factor in the great reduction in price to

consumers. Breeders, hatcheries, contract growers, poultry processors, and distributors have all been co-ordinated to ensure efficient and continuous production. Seasonal effects are no longer a consideration and prices do not fluctuate. As a result, poultry meat, once a luxury, is now cheap and a normal part of the diet.

The main broiler production centres are located on the Mornington Peninsula in areas south-east and east of Melbourne, in the Geelong area, and near the processing works and the main centres of consumption. Most of Victoria's production is consumed locally; very little is exported; but considerable numbers of interstate broilers are imported.

Broiler houses are fully enclosed; each house grows a "crop" of about 10,000 to 30,000 broilers about four times a year. A one-man or one-family farm raises approximately 120,000 to 200,000 birds a year. Growers are usually contracted to supply large broiler organisations which hatch and supply the specially bred meat chickens and receive broilers back for processing and distribution.

The following statistics have been compiled from statistical returns submitted by all known Victorian hatchers and all poultry slaughterers slaughtering more than 1,000 birds annually.

VICTORIA—POULTRY SLAUGHTERED FOR HUMAN CONSUMPTION
('000)

Period	Chickens (i.e., broilers, fryers, or roasters)	Hens and stags	Ducks and drakes
1969–70	16,562	1,643	246
1970–71	19,854	1,908	283
1971–72	23,347	2,140	322
1972–73	23,101	1,919	219
1973–74	27,270	1,752	124

DRESSED WEIGHT OF POULTRY SLAUGHTERED (*a*), AND INTENDED FOR SALE (*b*)
('000 kg)

	Fresh	Frozen	Fresh	Frozen	Fresh	Frozen
1969–70	12,134	8,305	1,997	645	355	44
1970–71	15,900	9,301	2,178	915	354	107
1971–72	19,788	10,337	2,519	967	367	123
1972–73	20,297	8,025	2,519	525	269	58
1973–74	23,972	9,861	2,317	437	185	n.a.

(*a*) Dressed weight of whole birds, pieces, and giblets as reported by producers.
(*b*) Fresh: Sold immediately after slaughter or chilled for sale soon after.
Frozen: Frozen hard for storage of indefinite duration.

Beekeeping

Beekeeping has been practised in Victoria since the early days of settlement. The native vegetation, especially the eucalypts, provided a rich natural source of nectar for bees, and many farms had a few colonies of bees to provide honey for the family and a surplus for sale. Specialised bee farms were also set up on a full or part-time basis, but yields were comparatively low. With the development of fast reliable road transport, migratory beekeeping became feasible and beekeepers were able to move their apiaries long distances without detriment to the bees, enabling yields to be increased by taking advantage of new honey resources remote from the home base.

With increased alienation and clearing of land for grazing and agricultural purposes, Victoria's natural honey resources became more limited and beekeepers came to rely heavily on reserved State forests and Crown lands. The recent growth of the woodchip industry may also pose a threat to some good honey

producing areas. Most parts of Victoria can be used at various times for honey production, either directly or indirectly. There are many tracts of land which, although not noted for their nectar resources, are very useful for building up colony strength between honey flows, or are valuable as wintering sites for bees.

Technological advances in beekeeping have probably been slower than in many other primary industries, a feature possibly deriving from the highly specialised nature of the occupation and the relatively small market. The development of the motor truck was the first significant advance in technology. The moveable frame hive increased the efficiency of production by eliminating the necessity to kill the bees and break down the comb to recover the honey. Tools for uncapping combs and extracting honey soon followed, but manual labour was still required for performing all essential tasks. The motorised barrow and the ramp reduced much of the heavy work of loading and unloading bees. The mobile extracting plant, with steam boiler and engine, facilitated uncapping and extracting in the apiary. The more recent development of boom loaders and other forms of lifting and stacking machinery, together with the introduction of sophisticated uncapping machines and large scale extractors set up in central plants fed by high speed road transport, have contributed to a degree of mechanisation in the industry. Nevertheless a high labour component still exists in the daily field management of the apiary.

The industry has always been self-supporting although the prosperity of the beekeepers has fluctuated markedly over the years. The producer does not receive any subsidies, direct or indirect, from the State or Australian Governments. In 1962, the Australian Government established the Australian Honey Board under the *Honey Industry Act* 1962. The functions of the Board are to control the export of honey and export prices, and to provide funds for promotion and research. The Board is financed by a levy on domestic market honey and, more recently, an additional smaller levy on export honey.

Honey generally passes from the hands of the producer to honey packers and semi-co-operatives; speculative buyers seem to have largely disappeared in Victoria. The disposal of crop is in the hands of the packers, who handle both domestic and export sales. Some beekeepers pack honey for a limited regional market and most have some door sales. About half of Australia's honey production finds its way to export markets, Britain being the principal buyer. Other markets include Europe, the Middle East, South East Asia, and Africa. More recently, Japan has become a significant buyer of selected types.

While traditionally the industry has serviced the demand for honey and beeswax, other apiary products have in later years been in increasing demand in Europe, the U.S.A., and to a lesser degree, in Australia. Some markets exist for royal jelly and propolis, and a larger market for pollen. While apiary products would return about $5m of export income, the major value of the industry to the community is the service rendered through pollination of agricultural and horticultural crops. This has been estimated at more than $200m.

Research into industry problems in Victoria is carried out by the Department of Agriculture's Apicultural Research Unit at Fern Tree Gully.

VICTORIA—BEE HIVES, HONEY, AND BEESWAX

Season ended 31 May—	Beekeepers	Hives	Production		Estimated gross value	
			Honey	Beeswax	Honey	Beeswax
	number	number	tonnes	tonnes	$'000	$'000
1970	1,256	102,100	3,729	47	800	65
1971	1,278	103,454	4,447	55	984	68
1972	1,321	105,709	2,170	24	793	32
1973	1,342	104,235	3,769	50	2,077	65
1974	1,160	98,539	3,161	47	1,947	72

INTENSIVE CROPS

Fruit

General

In Victoria, the production of fruit began with the first settlement; the Henty family, who settled at Portland in 1834, probably planted the first apple trees in the State. One of the earliest orchards was started on the banks of the Yarra at Hawthorn in about 1848, and the production of a great variety of fruits for the Melbourne market was the main source of income of many early settlers in areas surrounding Melbourne. In the second half of the nineteenth century, fruit growing gradually extended into the Geelong, Portland, Harcourt, and Stanley districts. The foundation of Mildura in 1887 marked the beginning of the development of one of Victoria's major fruit growing districts. With the extension of irrigation facilities in the Goulburn Valley and Murray Valley areas, a flourishing canning fruit industry was developed after the First World War.

In Victoria, in 1973–74, the area planted with fruit, nuts, and berries was 23,041 hectares, only slightly more than 1 per cent of the total area under crops in Victoria, yet fruit growing makes an important contribution to the State's economy. The total gross value of tree fruits, nuts, and berry fruits produced in Victoria during 1973–74 is estimated at about $58.4m. A considerable proportion of the fresh, dried, and preserved crop is exported.

Fruit growing districts

Fruit crops have specific requirements of climate, soil and water, which together with the availability of labour and the access to markets, were the main factors in the development of the fruit growing districts. Most of the fruit growing districts south of the Dividing Range receive an annual rainfall of between 600 and 900 millimetres. This rainfall is fairly evenly spread, but, in many areas, supplementary irrigation from natural catchments, rivers or town supplies is necessary from January to March. In the northern part of Victoria, rainfall varies from 600 to 1,200 millimetres in the east to 250 millimetres in the Mallee district, with an average of about 480 millimetres in the Goulburn Valley. Here the elaborate irrigation schemes of the Murray, Goulburn, and Campaspe Rivers made possible the large scale development of the fruit industry.

A large range of horticultural produce has been grown within an 80 kilometre radius of the City of Melbourne, with extensive plantings on the Mornington Peninsula. More recently new orchards have been planted mainly beyond the Dandenong Ranges, partly by fruit growers whose land to the north and east of the city has been taken over by suburban housing development. The other fruit growing districts in southern and central Victoria (Geelong and Bacchus Marsh, Portland, Harcourt, and West Gippsland) have also decreased in area or are only maintaining previous production levels.

The two most important fruit growing districts are the Goulburn and Murray Valley irrigation district and the Mallee. The main crops in the Goulburn and Murray Valleys are peaches, pears, apricots for canning, and apples and pears for local and export markets.

In the Mallee district, fruit crops are grown in a narrow band of irrigated land along both sides of the Murray River, mainly at Mildura, Robinvale, and Swan Hill. On the Victorian side, grape vines, citrus fruits, stone fruits, olives, and almonds are grown.

The typical orchard in Victoria is a family enterprise run by one man (usually the owner), often with the help of one permanent man and his family. During particularly busy periods, contractors or seasonal labourers are employed. The number of growers involved in the production of tree fruits and berries was 3,164 in 1973–74. Because of the labour intensity of fruit growing in the past, most orchards and vineyards had an area of not more than 6 to 10 hectares. Mechanisation and technological improvements make it possible now for one

family to look after a larger area. By providing employment opportunities for women in fruit drying and fruit preserving, the fruit growing industry makes an important contribution to the development of country areas.

Developments in technology

Changes in population and in the technology of production, handling, and transport have a great effect on the industry which has high capital and labour requirements. Many of the old, lower producing or marginal orchards have been pulled out. New orchards have been planted on more suitable soil and, with a small number of higher yielding and more popular varieties, and better management practices, including mechanical harvesting, these have contributed to increased productivity. The Department of Agriculture takes an active part in the testing of available machinery on various fruit crops. Suitable machines have been developed and are being used for the mechanical harvesting of grapes, canning-peaches, and nuts. Further tests are being conducted with machines for harvesting canning-pears and bramble berries.

Financial assistance

Because of the deteriorating situation on overseas markets for Australian dessert and canning fruits, the Australian Government is providing financial assistance to growers involved in export. Following revaluations of the Australian currency, a revaluation compensation for export fresh fruit was introduced as a temporary measure several years ago. In addition, an apple and pear stabilisation scheme was set up to reduce the effect of price fluctuations on overseas markets. In 1972, the Australian Government introduced the fruit growing reconstruction scheme to help growers who wanted to reconstruct, reduce their orchard area, or leave the industry.

Marketing

Within the limitations set by the Fruit and Vegetables Act and Regulations (which outline standards of produce, the size and marking of containers) and the relevant provisions of the Health Act, there is no restriction on the marketing of fresh fruit in Victoria. However, to prevent the spread of pests and diseases and, in particular, fruit fly, into the main fruitgrowing districts, there are restrictions on the introduction of fruit and certain vegetables from other States. A large number of growers still sell their own produce at the Melbourne Wholesale Fruit and Vegetable Market. Over recent years, increasing amounts of fruit are being sold direct to supermarkets.

Exporters find it increasingly difficult to ensure profit on fruit which is sent to Britain and Europe because of greatly increased freight charges and Britain's entry into the European Economic Community. However, increased quantities of pears are being shipped to the U.S.A., and the potential of the Japanese, South East Asian, and Middle East markets is being explored. To assist the apple and pear industry in overcoming the marketing problems, the Australian Government established the Apple and Pear Corporation in 1974. In addition to taking over the export control role of the Apple and Pear Board, the Corporation has powers to trade in its own right. It also has an important role in promotion and research concerning both apple and pear products and fresh fruit.

In 1973 the Citrus Marketing Board was established in Victoria to ensure that all citrus fruits are marketed in an orderly manner. Over the last two years, there has been a significantly increased demand for citrus fruits, especially Valencia oranges, for processing to satisfy the local juice market.

Research

The Victorian Department of Agriculture and other research institutions conduct basic and applied research aimed at increasing the efficiency and productivity of fruit growers. Details of this research may be found earlier in this chapter.

Fruit growing statistics

Particulars of fruit production, including nuts but excluding vines, for the five seasons 1969–70 to 1973–74 are given in the following table:

VICTORIA—FRUIT GROWING

Particulars	Unit	1969–70	1970–71	1971–72	1972–73	1973–74
Number of growers		3,937	3,660	3,388	3,268	3,164
Area	hectare	28,685	26,957	26,851	25,784	23,041
Estimated gross value of fruit	$'000	45,093	46,723	42,107	49,855	58,400
Production—						
Apples	bushel	5,330,770	5,078,604	3,628,886	5,081,703	3,220,272
Pears	,,	7,043,916	7,061,229	7,145,265	7,211,184	6,207,635
Quinces	,,	22,257	15,346	13,474	11,008	10,230
Apricots	,,	574,483	677,143	618,389	589,567	427,560
Cherries	,,	141,741	184,079	189,150	199,318	169,631
Nectarines	,,	34,502	35,897	42,618	61,198	55,486
Peaches	,,	2,974,700	2,925,282	2,924,656	3,258,556	1,682,768
Plums	,,	114,003	159,116	142,488	160,859	104,925
Prunes	,,	18,416	16,516	15,149	13,251	10,150
Lemons and limes	,,	163,930	236,450	229,415	265,119	248,839
Oranges—						
Navels	,,	504,589	641,704	679,874	727,507	611,239
Valencias	,,	742,038	1,111,198	980,581	1,290,147	970,592
Other	,,	33,216	32,870	17,094	20,680	27,273
Mandarins	,,	77,752	110,606	118,415	119,887	116,186
Grapefruit	,,	111,382	133,805	149,831	152,588	146,644
Figs	,,	626	1,840	2,599	2,058	702
Passionfruit	,,	4,534	3,274	2,269	1,052	1,044
Olives	,,	34,595	29,591	37,589	40,296	43,669
Gooseberries	kg	30,939	44,452	36,222	48,163	26,816
Loganberries	,,	23,877	57,711	12,599	11,259	9,425
Raspberries	,,	165,920	173,236	152,559	136,013	160,106
Strawberries	,,	1,951,571	1,514,721	1,400,924	1,351,925	1,333,615
Youngberries	,,	243,140	226,832	248,626	261,881	222,448
Other berries	,,	42,725	44,300	35,308	23,520	14,671
Almonds	,,	15,267	5,170	15,230	3,661	3,734
Filberts	,,	2,997	1,724	528	662	355
Walnuts	,,	67,902	122,663	71,538	46,435	72,898
Chestnuts	,,	12,582	18,682	19,605	14,053	17,015

The extent of cultivation of each important class of fruit and nuts grown on commercial holdings during the seasons 1972–73 and 1973–74 is shown in the following table:

VICTORIA—FRUIT TREES AND BERRY PLANTS IN ORCHARDS AND MARKET GARDENS (*a*)

Fruit and nuts	1972–73			1973–74		
	Bearing	Not bearing	Total	Bearing	Not bearing	Total
	number of trees					
Apples	1,323,644	282,302	1,605,946	1,210,426	261,394	1,471,820
Pears	1,472,759	160,046	1,632,805	1,356,513	178,955	1,535,468
Quinces	3,443	1,738	5,181	2,955	1,750	4,705
Plums	112,016	40,583	152,599	101,527	40,281	141,808
Prunes	10,854	3,545	14,399	9,164	1,706	10,870
Cherries	147,855	48,937	196,792	136,375	44,906	181,281
Peaches	1,030,293	249,925	1,280,218	726,581	215,928	942,509
Apricots	258,729	24,494	283,223	232,035	41,076	273,111
Nectarines	36,719	18,394	55,113	36,312	13,707	50,019
Oranges—						
Navels	226,197	47,554	273,751	211,300	43,086	254,386
Valencias	330,497	42,541	373,038	319,922	46,007	365,929
Other	5,099	1,251	6,350	8,125	593	8,718
Mandarins	50,587	9,036	59,623	50,098	9,199	59,297
Grapefruit	29,594	20,543	50,137	36,709	26,327	63,036
Lemons and limes	75,557	45,410	120,967	79,319	43,844	123,163
Figs	2,234	505	2,739	695	1,231	1,926
Olives	72,887	23,411	96,298	90,395	22,334	112,729
	hectares					
Passionfruit	14	6	20	6	6	12
Raspberries	50	7	57	44	4	48
Loganberries	4	..	4	4	..	4
Strawberries	151	22	173	154	28	182
Gooseberries	9	7	16	9	12	21
Youngberries	50	4	54	48	1	49
Other berries	7	2	9	4	3	7
	number of trees					
Almonds	7,546	28,398	35,944	6,080	48,265	54,345
Walnuts	5,684	3,476	9,160	5,131	4,047	9,178
Filberts	1,173	1,700	2,873	747	1,514	2,261
Chestnuts	717	6,260	6,977	825	7,047	7,872

(*a*) Berries and passionfruit collected on an area basis only.

The distribution of the fruit industry over Victoria is set out in the following table, where the number of trees of each kind in each statistical district is given for the season 1973–74 :

VICTORIA—NUMBER OF FRUIT TREES, PLANTS, ETC., SEASON 1973–74

Particulars	Unit	Statistical district								
		Central	North Central	Western	Wimmera	Mallee	Northern	North Eastern	Gippsland	Total
Growers	number	1,178	87	33	46	941	743	101	35	3,164
Area	hectare	5,544	567	125	787	3,557	11,828	499	134	23,041
Apples	tree	855,721	95,264	23,629	8,202	9,816	364,075	84,073	31,040	1,471,820
Pears	,,	81,310	33,571	332	2,999	1,424	1,415,001	471	360	1,535,468
Peaches	,,	118,749	425	210	4,960	10,497	804,369	2,161	1,138	942,509
Apricots	,,	11,143	40	40	2,759	76,486	182,190	263	190	273,111
Plums	,,	46,603	1,827	..	468	52,435	40,271	140	64	141,808
Prunes	,,	25	25	..	600	2,582	7,634	4	..	10,870
Cherries	,,	151,465	1,893	..	774	1,969	18,780	5,400	1,000	181,281
Quince	,,	2,474	15	..	91	33	2,080	7	..	4,700
Nectarines	,,	21,842	122	..	59	22,423	5,341	209	23	50,019
Figs	,,	742	..	..	..	377	805	2	..	1,926
Olives	,,	479	377	..	45,959	62,924	1,110	1,880	..	112,729
Oranges	,,	1,698	..	850	6	502,734	122,729	1,016	..	629,033
Mandarins	,,	4	..	..	..	57,124	2,169	..	..	59,297
Grapefruit	,,	455	..	400	..	51,661	10,481	39	..	63,036
Lemons and limes	,,	45,801	100	40	102	44,570	31,618	589	343	123,163
Passionfruit	hectare	6	..	..	..	2	..	8	2	18
Strawberries	,,	168	4	3	..	..	1	4	2	182
Raspberries	,,	48	..	..	..	..	..	..	..	48
Loganberries	,,	3	..	..	..	..	..	..	..	3
Gooseberries	,,	18	..	..	..	1	..	..	2	21
Youngberries	,,	48	..	..	..	..	..	..	..	48
Other berries	,,	6	..	..	..	1	..	..	..	7
Almonds	tree	819	50	..	3,110	46,135	992	3,227	12	54,345
Walnuts	,,	1,120	200	..	..	870	743	5,887	358	9,178
Filberts	,,	331	1,100	..	..	4	..	826	..	2,261
Chestnuts	,,	583	102	50	..	..	..	6,925	212	7,872

The production of the principal kinds of dried tree fruits for each of the seasons 1969–70 to 1973–74 is shown in the following table. Particulars in respect of dried vine fruits appear on page 429.

VICTORIA—DRIED TREE FRUITS
(kg)

Season	Apricots	Peaches	Pears	Prunes	Others	Total
1969–70	2,144	356	..	89,962	..	92,462
1970–71	4,463	317	2,540	43,913	726	51,959
1971–72	10,525	1,572	29,309	64,633	26	106,065
1972–73	18,463	711	18,797	77,796	2,540	118,307
1973–74	8,190	14	10,161	12,155	2,032	32,552

Cool storage

The cool storage of fruit in Australia dates from 1891 when the first Government cool store was established in Flinders Street, Melbourne. It was replaced in 1914 by a new store alongside Victoria Dock, mainly used for cooling export fruit, and for some local storage. Other early stores were also operated by the Victorian Government until the co-operative movement began in 1911, using stores built for the purpose by the Government in various apple growing areas. However, the first cool store used solely for fruit was a privately owned store at Pakenham, built in 1900. From the late 1930s, with electric power available in rural areas, large numbers of privately owned stores were erected. This trend has continued, the greatly increased size of stores leading to renewed interest in co-operative storage and marketing operations.

Much of the storage capacity in the Goulburn Valley is used for canning types of pears and peaches. These stores operate for only about five months a year, but are essential in the production of good quality canned fruits. Many

other stores in the same area also have a fairly short operational period as they are used for the pre-cooling and storage of export apples and pears. Some very small private stores are used for pre-cooling fruit and vegetables for local and interstate markets, mainly fruits with a short life, such as apricots, peaches, grapes and berry fruits, or for salad vegetables such as lettuce and celery. Most orchard cool stores are used throughout the year for apples and pears, including controlled atmosphere storage.

Research into the problems associated with fruit storage began in 1923, and is now carried out at the Scoresby Horticultural Research Station. The introduction of controlled atmosphere storage in 1968 was an important development in improving the storage quality of apples, requiring the conversion of existing cool stores or the construction of new gas-tight stores. As a result, apples and pears are now available throughout the whole year. This is unlikely to be achieved with stone fruit, but better quality and longer storage are still being sought.

The development of fruit and vegetable areas further away from Melbourne will require some additional pre-cooling and storage facilities, but the existing cool storage capacity is able to meet most of the demands which might be anticipated in the near future.

Vine fruits

Although the earliest recorded arrival in Victoria of vine material was that brought by Edward Henty from Launceston to Portland in 1834, the first recorded Victorian vineyard was at Yering, near Lilydale, probably planted in 1837. Ten acres were planted at Pascoe Vale in 1840 and the first planting at Geelong was probably in 1842. The Rutherglen vineyards began during the early 1850s and those at Great Western about 1860. All these vineyards were planted with the aim of producing light beverage-type table wines, comparable to the expensive wines of France and Germany. Swiss settlers were prominent in the early days of the industry.

The vine acreage increased steadily, encouraged by the successes of the wines at Colonial exhibitions and European wine shows, 1,464 acres being planted by 1861, and 3,886 by 1869.

The *phylloxera* devastation of the Geelong district vineyards in the 1870s was counterbalanced by the establishment of the Sunraysia vineyards by the Chaffey Brothers after 1886 and the reconstitution of some vineyards in the Rutherglen area.

The development of an export trade in dry red wines to London was an important achievement. Beginning in 1871, it increased steadily to nearly 1,000,000 gallons a year but declined markedly after the outbreak of *phylloxera* in the late nineteenth century.

After the First World War, vineyard development by soldier settlers favoured the dried vine fruit blocks of Sunraysia, while after the Second World War the economic boom led to dried vine fruit plantings in excess of 50,000 acres in the Murray River irrigation districts of Mildura, Robinvale, and Swan Hill. In the 1960s and 1970s, vineyards have re-appeared in old districts and in some new ones—notably south-west Victoria.

The demand for dry red and white table wine has been steadily increasing since the early 1950s, and planting of grapes for wine production accelerated in the mid-1960s in response to an acute shortage of suitable grapes at that time and a possible continuing shortage.

Allowing for a marked seasonal variation, dried vine fruit production has remained more or less constant since increases in efficiency during the early 1960s. In contrast, the production of wine grapes has been steadily increasing in the dried vine fruits districts, as also has the diversion of potential dried vine fruit to wine making, culminating in the establishment of several wineries in the Mildura, Robinvale, and Swan Hill districts. The wineries are usually associated

with, or established by, major Australian wine companies. They process the increasing quantities of wine grapes available in the areas and also absorb the larger quantities of grapes that would normally be dried. Their aim is to supply the large market for relatively cheap fair quality beverage table wine that currently exists in Australia. The appearance of the option of selling to wineries rather than drying is a significant development in districts that, in the past, have been restricted to the production of dried grapes or the marketing of fresh fruit. An innovation in grape harvesting, largely in response to the increasing difficulty in obtaining suitable harvest labour, particularly in the warm irrigated areas, has been the successful operation of mechanical harvesters.

The Victorian Department of Agriculture conducts research in connection with the selection of suitable vine material and prevention and control of pests and diseases.

Particulars of vine production for the five seasons 1969–70 to 1973–74 are given in the following table :

VICTORIA—VINE FRUIT PRODUCTION

Season	Number of growers	Area		Production				
		Bearing	Non-bearing	Grapes gathered	Wine made	Dried		
						Raisins	Sultanas	Currants
		hectare	hectare	tonnes	kilolitres	tonnes	tonnes	tonnes
1969–70	2,493	18,472	1,696	343,997	31,934	3,322	64,825	3,438
1970–71	2,487	18,558	2,052	218,452	30,078	3,894	37,342	3,083
1971–72	2,463	18,988	1,804	354,973	35,835	4,854	68,203	3,409
1972–73	2,485	20,036	1,582	227,805	34,966	3,838	36,576	2,323
1973–74	2,405	20,000	1,597	206,396	41,384	2,254	31,392	1,255

Growing of grapes for wine, 1964 ; Dried fruits industry, 1967 ; Wine, 1968

Vegetables

General

Victoria has 29 per cent of the area of vegetable crops in Australia. Most of Victoria's vegetables are grown in the Central District ; however, limited water supplies and urban expansion will limit increases in area, especially in the important Cranbourne and Koo-wee-rup regions. The State's principal vegetable crops are shown on page 431.

Over the last few years there has been a very significant decline in the area of onions and peas. Peas for processing are grown over a wide area of the Western District, from Geelong almost to the South Australian border. Potatoes and onions are the other main crops in the Western District.

Potatoes are also grown in Central and South Gippsland, and green beans and sweet corn for processing are grown in East Gippsland. Tomatoes for processing, gherkins for pickling, and a range of market vegetable crops are also grown in various areas of Gippsland.

The Northern District, which includes the Goulburn and mid-Murray Valleys and the Rochester and Bendigo regions, is the centre of the processing tomato industry. A number of warm season crops are grown in the area, including melons and capsicums. Onions and potatoes are also grown in the Murray Valley.

In the Mallee, along the Murray River, growers specialise in winter lettuce and carrots, autumn and spring beans, early tomatoes for market, and summer melons, pumpkins, and capsicums.

Due to difficulty in obtaining labour for vegetable production and harvesting, the trend has been to mechanisation of harvesting and handling of produce. It is estimated that there was enough machinery in Victoria to harvest about 40 per cent of the processing tomato crop in 1974–75.

Aircraft are used extensively for spraying broad area crops such as tomatoes, beans, and corn. Hydro-cooling and other pre-cooling techniques are used extensively for perishable produce. Many growers have their own cool stores which enable them to supply a better product and add flexibility to their marketing operations. Irrigation has lifted the yield of many crops, especially potatoes and onions.

The new vegetable varieties which have been introduced during the past ten years have not only been disease resistant but have facilitated the mechanisation of bean, tomato, cabbage, and brussels sprouts harvesting. Consumer demand has also led to some changes in varieties, and the light skinned New Zealand onion is rapidly forcing older varieties from the market.

In recent years, increased quantities of produce are by-passing wholesale markets and are being sold to retailers and retail chains. The trend to chain store marketing has led to a considerable increase in pre-packing for retail sales, especially such commodities as root crops, sweet corn, potatoes, and onions. As packaging is now the major component of production and marketing costs, the industry is seeking alternatives to cases and cartons. Bulk bins of a nominal capacity of 500 kilograms are widely used by supermarket chains and processors, and are finding their way into wholesale markets. Pallets with fold-down mesh sides are used to transport bulky vegetables such as cauliflowers. The recent introduction of 36 litre returnable, stackable, nestable containers was a major advance in produce marketing in Australia.

The main trend in the processing industry has been the takeover of a number of the smaller freezing companies and the interstate nature of operations. By operating plants in several States, processors have been able to optimise the use of harvesting equipment, particularly up and down the eastern coast. Produce also moves across State borders for processing ; for example, Queensland beans go to Victoria and Victorian beans to northern New South Wales, Riverina tomatoes to Melbourne, and Goulburn Valley tomatoes to the Murrumbidgee Irrigation Area of New South Wales. Probably the main development in canning has been the increased consumption of canned whole tomatoes and small potatoes. In the processing industry, the market for pickled gherkins and cucumbers has expanded, and there is a growing demand for pickled capsicums, cauliflower, and sauerkraut.

The large volume lines such as peas, beans, and tomatoes are grown on a broad area basis, but processors often contract with market gardeners for smaller quantities of particular vegetables such as cauliflower and celery.

Australian market gardeners have been under the pressure of housing development ever since settlement. During the past decade, suburban expansion has displaced market gardens from areas close to Melbourne, such as Heatherton, Mulgrave, and Doncaster, and many have been re-established in the Cranbourne area and the Yarra Valley. While there is still a good deal of suitable land for growing vegetables near many of Victoria's cities, many factors such as high land values and rates, and the competition of the cities for water supplies, are limiting the further development of market gardening in the urban fringe. Fortunately there is a good deal of suitable land in Victoria which has not yet been fully developed for vegetables. Improved transport and changes in marketing will mean that distance becomes less important in relation to farming in urban fringe areas.

The availability and the cost of petroleum products affect all aspects of vegetable production—fertilisers, agricultural chemicals, and packaging, in addition to fuel for cultivation, irrigation pumping, spraying, transportation, and even frost protection. In the long-term, labour could remain in relatively short supply ; consequently further mechanisation of operations is likely to continue. Already lines with high labour inputs are disappearing and bunched vegetables may become a rarity. The further development of new vegetable varieties suitable for machine harvesting will be most important.

VICTORIA—VEGETABLES FOR HUMAN CONSUMPTION, 1973–74

Main type	Area sown	Production	Estimated gross value
	hectares	tonnes	$'000
Potatoes	12,474	254,023	35,191
Onions	758	12,727	1,226
Carrots	928	30,781	3,538
Parsnips	173	3,966	916
Beetroot	97	2,330	153
Tomatoes	1,874	45,566	4,751
French beans	1,296	5,004	804
Green peas—			
Sold in pod	380	979	356
Processing	6,348	(a)10,387	987
Cabbages	701	18,183	1,681
Cauliflowers	867	31,520	2,585
Brussels sprouts	199	766	308
Lettuce	831	12,746	2,647
Pumpkins	891	10,694	786

(a) Shelled weight.

Potatoes

Victoria grows more than one third of the total production of potatoes in Australia. Although potatoes are usually sold as a fresh vegetable, the rapid development of the processing industry has added a new dimension to the outlet for this crop, some 30 per cent of the crop now being processed in various ways.

While the main crop is planted in spring and grows during the summer months, potato planting goes on in one district or another for at least ten months of the year, and harvest extends over the whole year. Early crops, which are planted in mid-year, are grown in areas where risk of frost is minimal, such as the Bellarine Peninsula and market garden areas. They are lifted as new potatoes from September to December. Mid-season crops from districts such as Koroit, Gembrook, Koo-wee-rup and Thorpdale come on to the market during January to March. The main or late crop is grown in the Central Highlands (Ballarat to Woodend), Kinglake, and Beech Forest; harvest begins during April and continues until October in some years. These late crops are often treated with post-maturity weedicides to prevent growth of weeds that would interfere with harvesting operations.

More than two thirds of the total area planted to potatoes in Victoria is spray irrigated to supplement natural rainfall at critical stages during plant growth and development. Irrigation is one of the main factors that has contributed to the improvement in yield of potatoes over the past decade.

More rapid harvesting methods have created a renewed interest in the storage of potatoes on the farm. Modern techniques of holding potatoes in refrigerated storages under conditions of high humidity and controlled ventilation are well established, and are being widely used for seed potatoes and as raw material for processing. However, their adoption for table potatoes is inhibited by the comparatively high cost of an insulated storage and its associated air-conditioning equipment, together with the uncertainties of the potato market.

Four varieties make up the bulk of the potato crop in Victoria: Kennebec, Sebago, Exton, and Sequoia. With the exception of Exton, these varieties are of North American origin. Two locally bred varieties, Coliban and Tasman, have been released by the Department of Agriculture and seed will become available to commercial growers in 1976. The Department of Agriculture assists growers to improve the quality and production of potatoes by research into potato agronomy and plant breeding at the Potato Research Station, Healesville, together with research in plant pathology at the Victorian Plant Research

Institute, Burnley. A recent development is the production of nuclear seed stocks from pathogen-tested tip cuttings taken from selected plants. This material is propagated under controlled conditions for several generations to produce Foundation Seed, now the basis of the Seed Potato Certification Scheme.

VICTORIA—POTATO PRODUCTION

Season	Area	Production (*a*)	Average yield per hectare	Estimated gross value
	hectares	tonnes	tonnes	$'000
1969–70	16,092	284,040	17.65	17,002
1970–71	14,150	303,901	21.48	20,916
1971–72	13,986	306,708	(*b*)21.93	15,002
1972–73	13,120	286,909	21.87	16,478
1973–74	12,474	254,023	20.36	35,191

(*a*) Includes amounts held on farms for seed, stock feed, etc., as follows : 30,094 tonnes in 1969–70 ; 27,332 tonnes in 1970–71 ; 37,384 tonnes in 1971–72 ; 28,098 tonnes in 1972–73 ; and 31,981 tonnes in 1973–74.
(*b*) Record average yield.

Onions

The principal onion growing areas are in the Central and Western Districts. In the season 1973–74 these areas were responsible for 79 per cent of the total onion production in Victoria.

VICTORIA—ONION PRODUCTION

Season	Area	Production	Average yield per hectare	Estimated gross value
	hectares	tonnes	tonnes	$'000
1969–70	1,334	21,681	16.25	1,469
1970–71	1,049	17,178	16.38	1,366
1971–72	951	19,678	20.69	1,354
1972–73	922	13,608	14.76	1,336
1973–74	758	12,727	16.79	1,226

Onion Marketing Board, 1974

Tobacco

Tobacco growing in Australia has traditionally been regarded as a rather speculative proposition, due to wide fluctuations in production and in market conditions. Technical advances in the use of fertiliser, disease control, and other cultural factors influencing crop production, have led in recent years to marked improvements in the level and consistency of average yields.

The introduction of a Tobacco Stabilisation Plan in 1965 promoted further stability in the industry. This scheme, now in its third term, provides for the annual sale, at a guaranteed minimum price, of 15,422,000 kg of leaf which meets defined quality standards. The operative bodies in the implementation of the Stabilisation Plan are the Australian Tobacco Board together with a Tobacco Leaf Marketing Board in each producing State.

Australian tobacco is mainly absorbed in the manufacture of cigarettes. The use of domestic leaf is encouraged by a statutory mixing percentage applied in conjunction with concessional rates of import duty. The statutory percentage is currently set at 50 per cent and, at this level, it is important that only leaf of high smoking quality is produced. This requires friable and well-drained soils, appreciable summer rainfall, and freedom from high winds and extremes of temperature.

The Victorian tobacco crop usually accounts for rather more than a third of the total Australian production. While the crop is predominantly of the flue-cured or Virginia type, a significant area of burley, a light air-cured tobacco, has been grown in Victoria in recent years, and is increasing. Suitable growing conditions are found in north-east Victorian river valleys, the industry being concentrated along the Ovens, Kiewa, and King rivers and their tributaries, with small outlying areas in the northern part of Victoria.

Most Victorian tobacco is produced under sharefarming agreements on the general basis that the landowner provides land, facilities and equipment, the sharefarmer provides labour, and operating costs and the proceeds of sale of produce are shared equally. The major proportion of tobacco production costs is accounted for by manual labour requirements, and in recent years, considerable attention has been given to the reduction of labour by mechanisation. As a result, equipment such as semi-automatic transplanters, topping machines, harvesting aids, stringing machines and bulk curing units, is now replacing tedious manual operations on many Victorian tobacco farms.

The Victorian Department of Agriculture assists tobacco growers to increase yield and improve leaf quality by research in agronomy, plant pathology, and plant breeding at the Tobacco Research Station, Myrtleford, and its substation at Gunbower, in conjunction with an intensive farm-to-farm tobacco advisory service in all producing districts. The Department has collaborated with the C.S.I.R.O. in developing varieties resistant to blue mould. Other current advances in tobacco production include the fungicidal control of petal drop rot, improved nursery practices to give more effective and economical control of blue mould in seedlings, determination of the best ways to handle crops which have been damaged by hail, and identification of the effects of soil and climatic variables on tobacco crop production.

VICTORIA—TOBACCO PRODUCTION

Season	Area	Production	Average yield per hectare	Estimated gross value
	hectares	tonnes (dry)	tonnes (dry)	$'000
1969–70	4,458	7,038	1.58	15,348
1970–71	4,241	6,902	1.63	16,087
1971–72	3,844	5,765	1.50	14,690
1972–73	4,068	5,769	1.42	13,918
1973–74	3,940	5,634	1.43	16,408

Marketing of tobacco, 1969

Hops

The hop is a summer growing perennial plant. The rootstock produces vines which may grow up to 10 metres high each season before being cut back during the autumn.

Because of the good quality and acceptability of Victorian hops on world markets, the area in the State has increased in recent years. Hops require a good rainfall, evenly distributed throughout the growing season, deep well-drained soils, and protection from wind. In Victoria, the industry is confined to alluvial soils in the valleys of the Ovens and King rivers where the availability of liberal supplies of good quality irrigation water is essential to supplement the natural summer rainfall.

Hops are planted from root cuttings or sets on a square spacing to give some 2,200 plants per hectare, supported on a system of trellising about 6 metres high above the planted area. The size of hop gardens in Victoria varies considerably from 2 to about 70 hectares.

In all cases production is by family and hired labour. The labour needs vary from month to month, being greatest at pruning, training, and harvest, and the average is about one man for each three hectares. Before the advent of mechanical harvesting much more than this was needed.

Machine harvesting is practically universal in Victorian hops, the whole vine being cut down and brought to a stationary picker which separates the cones from the rest of the plant. Conveyor belts and mechanical loaders ensure that the passage of the hops through the drying kiln generally requires little manual effort.

In small gardens, harvesting is commonly done under contract or by neighbours sharing fully mechanised equipment. Other processes, such as pruning, are also becoming increasingly mechanised.

Hops are normally grown under annual contract to merchants, known as hop factors. Annual hop production in Australia currently exceeds the total quantity demanded by domestic brewers, leaving a substantial proportion of the crop available for export. The high quality Victorian-bred variety Pride of Ringwood is being well received on world markets and is now virtually the only variety grown in Victoria.

The Department of Agriculture conducts research and extension services in the Victorian hop industry, current emphasis being on improvement of hop quality and control of certain soil-borne diseases. This work is to be intensified and additional investigations on long-term fertiliser requirements, and control of weeds and insect pests, are to be introduced.

Plant nurseries

Melbourne's well regarded parks and public gardens and many beautiful private gardens are due to the foresight of the early planners and the nurserymen and settlers who recognised the suitability of the climate and soils for the establishment of a very wide range of plants. This led to the establishment of a flourishing plant nursery industry.

John Pascoe Fawkner was the first nurseryman and horticulturist of early Melbourne, growing fruit, vegetables, and gardens on his allotment, including five acres of land for market gardening, and an orchard established at Pascoe Vale. Following his example, several other nurserymen and seedsmen established themselves over 100 years ago.

With the rapid expansion of Melbourne and surrounding districts, many plant nurseries were established during the late nineteenth and early twentieth centuries, and these have made a valuable contribution towards the large and flourishing orchard and market gardening industries of Victoria, and in fostering the State's gardening organisations.

The location of plant nurseries involves consideration of the plant species to be grown and the economics of production and marketing. The physical features and environmental conditions of the sites must be considered, together with availability of water, power and other services, and the access to markets. The actual area covered by a plant nursery depends on the size and type of operation. Small retail outlets or backyard propagators may operate in less than 0.25 hectare, while the larger fruit tree nurserymen or bulb growers may have 40 to 50 hectares.

With the great number of new homes, home units, and office buildings, and a renewed awareness and interest by the public of their environmental needs, the horticulture and plant nursery industry has expanded over the past 10 to 15 years with the development of specialist native plant growers and plant hire firms, and with growing numbers of part-time backyard nurserymen. Many of the larger nurserymen have increased the efficiency of their operations by establishing glasshouses with full environmental control, as well as soil sterilisation equipment and soil mixing and container filling machinery to enable greater

precautions to be taken against plant diseases. In addition to fertilisers and pesticides, plant growth regulating substances, plastic sheeting, and foam and plastic containers are important adjuncts to the modern nursery business.

The Nurserymen and Seedsmen's Association of Victoria, formed in 1903, sets and maintains standards in the industry. Since 1924, the annual Garden Week exhibition has been held as a horticultural trade show with proceeds for scholarships for the advancement of horticulture and, more recently, to establish a fund as the Association's contribution to the Research Project for Diseases of Ornamental Plants of the Victorian Plant Research Institute.

It is estimated that there are more than 400 retail and wholesale plant nurseries within 100 kilometres of Melbourne, with about 300 glasshouses, covering between 8 and 12 hectares, and a slightly greater area of shade houses. A conservative estimate of the total annual value of plant sales of all nurseries is between $25m and $30m.

VALUE OF PRODUCTION

The value of primary production, excluding mining, as estimated in the following tables is based to a large extent on returns received annually from individual producers throughout Victoria. A detailed account of the period covered for individual rural industries is given on page 395. Statistics for the non-rural industries refer to the year ended 30 June.

Gross value of production

Gross value is defined as the value placed on recorded production at the wholesale price realised in the principal market. In cases where primary products are absorbed locally, or where they become raw material for secondary industry, these points are presumed to be the principal markets. Care is taken to prevent, as far as possible, all overlapping or double counting. The primary value of dairy production, in accordance with the above definition, is the price paid at the factory for milk or cream sold by the farmer; the value added by the process of manufacturing into butter, etc., is included in manufacturing production value of production statistics.

VICTORIA—GROSS VALUE OF PRIMARY PRODUCTION
(EXCLUDING MINING)
($'000)

Industry	1969–70	1970–71	1971–72	1972–73	1973–74
Agriculture (*a*)	314,647	262,475	299,177	282,696	461,232
Pastoral	385,025	354,607	394,451	607,812	597,851
Dairying (*b*)	225,614	239,626	262,507	263,161	276,934
Poultry and bees	49,325	48,849	49,659	51,241	69,814
Trapping	3,078	1,749	2,406	3,225	5,634
Forestry	25,611	34,687	35,854	36,792	44,479
Fisheries	5,979	7,310	9,507	11,471	11,065
Total gross value	1,009,279	949,303	1,053,561	1,256,398	1,467,009

(*a*) Includes net payouts: 1970–71, $130,278; 1971–72, $455,939; 1972–73, $186,297; and 1973–74, $455,009 from the Apples and Pears Stabilization Fund.
(*b*) Includes subsidy: 1969–70, $16,597,000; 1970–71, $27,710,000; 1971–72, $25,700,000; 1972–73, $17,969,000; and 1973–74, $12,379,000,

Local value of production

The gross value of production, less costs of marketing (freight, cartage, brokerage, commission, insurance, and containers) represents the gross production valued at the place of production, that is, local value, details of which are shown in the following table:

VICTORIA—LOCAL VALUE OF PRIMARY PRODUCTION
(EXCLUDING MINING)
($'000)

Produce	1969–70	1970–71	1971–72	1972–73	1973–74
Agriculture—					
Barley	8,982	13,753	13,444	10,393	21,933
Maize	99	88	107	84	173
Oats	8,189	11,077	9,677	8,263	10,860
Wheat	86,198	41,030	77,604	53,719	139,010
Onions	731	1,148	913	1,058	994
Potatoes	13,680	18,305	10,766	12,649	31,311
Other vegetables for human consumption	19,978	21,865	18,954	19,693	22,265
Hay and straw	33,841	36,205	39,874	51,564	76,896
Fruit	37,077	38,277	34,010	42,093	48,447
Vineyards	21,344	15,706	24,119	24,670	34,482
Other crops	27,781	27,552	23,638	21,724	26,551
Total	257,900	225,006	253,107	245,910	412,922
Pastoral—					
Wool	143,040	108,215	122,043	235,638	213,199
Sheep slaughtered	67,430	50,794	68,256	97,298	95,670
Cattle slaughtered	146,015	166,353	171,723	227,813	228,004
Total	356,485	325,362	362,022	560,749	536,873
Dairying—					
Whole milk used for—					
Butter	109,859	104,476	120,428	121,434	129,252
Cheese	11,991	13,088	14,650	19,158	18,627
Condensing, concentrating, etc.	12,753	16,087	19,098	21,126	19,303
Human consumption and other purposes	41,455	40,253	43,199	42,673	44,806
Subsidy paid on wholemilk for butter and cheese	16,597	27,710	25,700	17,969	12,379
Pigs slaughtered	19,372	22,415	22,551	23,517	34,684
Total	212,027	224,029	245,627	245,877	259,051
Poultry and bees—					
Eggs	33,395	25,471	24,364	27,392	36,169
Poultry	11,830	14,068	15,333	14,946	23,722
Honey and beeswax	821	997	774	2,088	1,773
Total	46,046	40,536	40,471	44,426	61,664
Trapping, etc.—					
Rabbits and hares	2,371	1,196	1,889	2,473	3,556
Rabbit and hare skins, etc.	513	427	379	596	1,849
Total	2,884	1,623	2,268	3,069	5,405
Forestry—					
Sawmills	21,739	29,980	31,019	31,583	39,447
Hewn timber	2,076	2,619	2,736	3,385	3,764
Firewood	1,348	1,600	1,579	1,387	875
Bark for tanning	59	1	1	1	..
Other	52	87	124	89	174
Total	25,274	34,287	35,459	36,445	44,260
Fisheries—					
Fish	2,819	2,635	2,735	2,644	4,008
Rock lobster (*a*)	1,481	1,696	1,926	2,018	1,495
Scallops	196	901	2,502	4,461	1,715
Other	807	1,230	1,692	1,523	1,634
Total	5,304	6,462	8,855	10,646	8,852
Total local value	905,920	857,304	947,808	1,147,123	1,329,027

(*a*) Includes freshwater crayfish.