

Chapter 6

PRIMARY INDUSTRY—RURAL

LAND TENURE AND SETTLEMENT

Introduction

The area of Tasmania is 16,885,000 acres, all of which was Crown property when the first settlers arrived in 1803. In the hundred and sixty years or so since their landing, 39 per cent of the State's total area has been alienated by grant or sale and is owned by individual persons, partnerships, companies and corporations; the balance, 61 per cent, is still vested in the Crown.

Historical

The first concern of the settlers on the Derwent and the Tamar in 1804 was the growing of grain for which small holdings were adequate; thus by 1820, land obtained as grants from the Crown was confined to areas within easy reach of Hobart and Launceston and of the 16,885,000 acres of Crown land, less than 70,000 acres had been alienated.

In the 1820's, the successful export of wool to Britain created a demand for land in very much larger holdings and annual alienation of Crown land by free grant increased rapidly as shown in the following table:

Area of Land Alienated by Grants in Van Diemen's Land, 1820 to 1843
(⁰⁰⁰ Acres)

Year	Area Granted	Year	Area Granted	Year	Area Granted	Year	Area Granted
1820 ..	69	1826 ..	60	1832 ..	33	1838 ..	45
1821 ..		1827 ..	77	1833 ..	24	1839 ..	15
1822 ..	(a)	1828 ..	165	1834 ..	9	1840 ..	10
1823 ..	434	1829 ..	208	1835 ..	9	1841 ..	7
1824 ..	43	1830 ..	108	1836 ..	8	1842 ..	..
1825 ..	(b)462	1831 ..	206	1837 ..	22	1843 ..	1

(a) Not available.

(b) Includes 350,000 acres granted to Van Diemen's Land Company.

From the previous table, it can be calculated that the alienation of Crown land by grant exceeded, in total, one million acres by 1825 and two million acres by 1843 (when this early system of free grants had virtually ceased). Apart from the 350,000 acres granted to the Van Diemen's Land Company in the north-west, the other alienated land included virtually the whole Midlands, the upper Derwent Valley and much of the east coast. At the same point in time—1843—less than 500,000 acres of Crown land had been sold, even though the price per acre ranged from 5s. (\$0.50) to 12s. (\$1.20).

A table in "Statistics of Van Diemen's Land" gives details of alienation, in aggregate, and of leasing of Crown land at the 1st January, 1850 as follows:

Total Area Granted and Sold to Settlers	2,722,513 Acres
Area of Land Held under Depasturing Licences ..	1,335,779 Acres

The Crown land under licence was a source of revenue to the Government which made available 1.3 million acres for a rental of £16,714 (\$33,428) in 1849. From this point of time, the process of alienation can be summarised as follows:

Land Alienation from 1860
(^{'000 Acres})

Year (a)	Land		Year (a)	Land	
	Aggregate Alienated	In Process of Alienation		Aggregate Alienated	In Process of Alienation
1860.. ..		3,069	1940	5,912	423
1870.. ..		3,806	1950	6,143	365
1880.. ..		4,233	1959	6,362	199
1890.. ..		4,695	1960	6,386	190
1900.. ..		4,835	1961	6,403	212
1910.. ..	4,932	1,104	1962	6,417	197
1920.. ..	5,242	964	1963	6,430	199
1930.. ..	5,721	542	1964	6,598	220

(a) At 31st December until 1948; at 30th June for 1950 and following years.

Sales of Crown Land

The sale of Crown land is currently carried out under the *Crown Lands Act* 1935 as amended. Sales fall into two broad categories: (i) by selection; (ii) by auction. In the case of selection, three classifications of rural land are established and purchase is made over a number of years by instalments, the term depending on the class of land. Land on which such instalments are being paid is defined as "Crown land in process of alienation". The following table shows details of sales made during 1963-64:

Sales of Crown Land, 1963-64

Particulars	Number of Lots	Area (Acres)	Value	
			Total (\$)	Average per Acre (\$)
Selections (Country Land) (a)—				
First-class land	22	2,461	37,418	15.20
Second-class land	56	9,911	42,092	4.25
Third-class land	11	20,339	31,844	1.57
Sold by Auction (Country Land)..	36	807	13,584	16.83
Total	125	33,518	124,938	3.73
Town and Suburban Lots.. ..	93	747	39,786	53.33
Grand Total	218	34,265	164,724	..

(a) Financial details refer to the contract price, the actual payment being made in instalments over a period of years.

The next table summarises sales of Crown land over a five-year period:

Sales of Crown Land—Summary

Year	Area of Land Sold (Acres)			Average Price Per Acre (\$)	
	Country Lots	Town and Suburban Lots	Total	Country Lots	Town and Suburban Lots
1959-60 ..	2,477	124	2,601	4.62	259.52
1960-61 ..	11,992	205	12,197	3.32	256.25
1961-62 ..	5,457	65	5,522	4.94	318.45
1962-63 ..	14,478	318	14,796	4.93	120.65
1963-64 ..	33,518	747	34,265	3.73	53.33

Present Use of Crown Lands

The total area of Tasmania is 16,885,000 acres, of which, at 30th June, 1964, 39.1 per cent had been alienated; 1.3 per cent was in the process of alienation; the balance, 59.6 per cent, was Crown land, a proportion of which was under lease or licence for pastoral, agricultural and mining purposes. Crown land reserved for forestry purposes, including the State Forests, accounted for 20.8 per cent of the State's area. ("Reservation" in the context of forestry does not imply land withheld from all types of use but simply land either used or to be used exclusively for forestry purposes.)

Alienation and Occupation of Crown Lands, 30th June, 1964

Classification of Land	Area	
	Acres	Acres
Alienated (Aggregate)		6,597,878
In Process of Alienation		219,934
Crown Lands—		
Leased or Licensed—		
By Lands Department—		
Pastoral	1,004,147	
Closer Settlement	15,747	
Soldier Settlement	40,882	
Short-term	1,128	
By Mines Department	42,000	
Total Leased or Licensed		1,103,904
Forestry Reservations—		
State Forests	2,391,291	
Other Land Reserved for Forestry Purposes	1,120,053	
Total Forestry Reservations		3,511,344
Other Crown Land		5,451,940
Area of State		16,885,000

In the previous table appears the item "forestry reservations". Over 1.5 million acres of this area are lands where cutting rights have been granted, either by exclusive forestry permit or by the award of pulpwood concessions.

Over 70 per cent (1963-64) of the logs for sawmills, paper mills, &c. were obtained from these forestry reservations. Fuller details of Crown land reserved for forestry appear in the Forestry section of Chapter 7, "Primary Industry—Non Rural".

The next table summarises the alienation and occupation of Crown lands over a five-year period:

**Alienation and Occupation of Crown Lands
At 30th June**

Classification of Land	1960	1961	1962	1963	1964
AREA ('000 ACRES)					
Alienated (Aggregate) ..	6,386	6,403	6,417	6,430	6,598
In Process of Alienation ..	190	212	197	199	220
Crown Lands—					
Leased or Licensed (a) ..	1,135	1,126	1,137	1,076	1,104
Forestry Reservations (b) ..	3,043	3,295	3,263	3,407	3,511
Other	6,131	5,849	5,871	5,773	5,452
PROPORTION OF TOTAL AREA (PER CENT)					
Alienated (Aggregate) ..	37.8	37.9	38.0	38.1	39.1
In Process of Alienation ..	1.1	1.3	1.2	1.2	1.3
Crown Lands—					
Leased or Licensed (a) ..	6.7	6.7	6.7	6.4	6.5
Forestry Reservations (b) ..	18.0	19.5	19.3	20.2	20.8
Other	36.4	34.6	34.8	34.1	32.3

(a) By Lands Department and by Mines Department.

(b) Including State Forests.

As shown in the previous table, Crown land at 30th June, 1964 occupies 59.6 per cent of the State's total area. The bulk of this land is located in the western half of the island where altitude, rainfall and soil, either individually or in combination, prevent successful farming development. The only other large concentration of Crown land is in the north-east.

Although the possibility of rapidly alienating more Crown land for farming purposes on any large scale may seem remote, it should be noted that much of this area is nevertheless of importance to the State's economy, specifically for forestry and tourism. The reservation of Crown land for forestry use occupies approximately 20.8 per cent of the area of the State while reservations classed as National Parks and Scenic Reserves account for nearly a further four per cent. Details of the latter type of reservation appear in the next section.

National Parks and Scenic Reserves

The Scenery Preservation Board is responsible for the administration of the State's National Parks and Scenic Reserves which occupy a part of the residual Crown land. Details of National Parks are as follows:

National Parks

Name	Locality	Area (Acres)
Cradle Mountain-Lake St. Clair	Central Highlands	338,501
Lake Pedder	South-West	59,000
Mt. Field	Derwent Valley	40,033
Ben Lomond	North-East	39,460
Frenchmans Cap	West Coast	25,240
Hartz Mountains	South	21,300
Mt. Barrow	North	1,134
Freycinet Peninsula	East Coast	18,000

The total area under reservation as National Park or Scenic Reserve exceeds 580,000 acres and the following list gives details of the various types of reserve, together with location and area (expressed to the whole number below where fractions of an acre are recorded):

Scenic Reserves

Type of Reserve and Name	Locality	Area (Acres)
Coastal Reserves—		
Stewarts Bay	Tasman Peninsula	4
Stewarts Bay, Esplanade, Pt. Puer	Tasman Peninsula	58
Pt. Puer-Crescent Bay	Tasman Peninsula	92
Brown Mt.-Remarkable Cave	Tasman Peninsula	150
Eaglehawk Neck and Foreshore	Tasman Peninsula	90
Eaglehawk Neck-Taranna	Tasman Peninsula	61
Tasman Arch-Blowhole	Tasman Peninsula	146
Waterfall Bay	Tasman Peninsula	30
Lookout Rock	Bicheno	5
Cookville-Penguin Island	Bruny Island	3
Fluted Cape-Cloudy Bay	Bruny Island	600
Port Davey Foreshore	South-West	1,350
Port Davey Islands	South-West	202
Waterfalls—		
St. Columba	Pyengana	775
Forth	Sheffield	135
Marriott	National Park	300
Liffey	Western Tiers	50
River Reserves—		
River Pieman	West Coast	8,215
River Gordon	West Coast	6,200
Roger River Pass	North-West	430
Derwent Cliffs	New Norfolk	11
Cave Reserves—		
Hastings	South	131
Marakoopa	Mole Creek	146
King Solomon	Mole Creek	500
Baldock (3 areas)	Mole Creek	{ 37
		{ 63
		{ 5
Gunns Plains	Ulverstone	24
Scenic Roads—		
Lyell Highway	Western Highlands	18,000
Zeehan-Renison Bell	West Coast	272
St. Marys Pass	St. Marys	674

Scenic Reserves—continued

Type of Reserve and Name	Locality	Area (Acres)
Fern Gullies, Forests, etc.—		
Thermal Springs	Kimberley	1
Thermal Springs	Hastings	19
Chalet	Hastings	1
Waterfall Creek	Bruny Island	60
Ferndene Gorge	Penguin	6
Notley Gorge	West Tamar	28
Hellyer Gorge	Waratah area	1,406
Corra Linn	Launceston	1
Corinna	West Coast	8
Bird Sanctuary	Steppes	16
Fairy Glade	Western Tiers	97
Bradys Lookout	Rosevears	1
Parramores Lookout	Port Arthur	1
Historic Sites, Buildings and Monuments—		
Town of Port Arthur	Tasman Peninsula	217
Mt. Arthur	Tasman Peninsula	10
Convict Coal Mines	Saltwater River	520
Bowen's Monument	Risdon	0
Bowen Park	Risdon	6
"George III" Monument	Southport	25
Tasman Monument	Dunalley	0
D'Entrecasteaux Monument	Gordon	1
York Town	West Tamar	6
Recherche Bay	Ramsgate	3
Settlement Island	Macquarie Harbour	15
Isle of Condemned	Macquarie Harbour	0
Old Gaol and Paddock	Richmond	1
Entally House	Hadspen	92
Steppes Homestead	Steppes	25
Shot Tower	Taroona	8
Waubadebar's Grave	Bicheno	0
Toll House	New Norfolk	0
Bluff Battery	Bellerive	4
Oatlands Mill	Oatlands	0
161 Davey Street	Hobart	0

War Service Land Settlement

After both World War I and World War II, Government schemes were operated with the aim of assisting ex-servicemen to settle on the land. The following section deals only with the scheme initiated to settle on the land eligible ex-servicemen from the 1939-45 War and the Korea-Malaya operations.

Finance for capital expenditure under the scheme is provided under the authority of the Commonwealth Parliament's Loan (War Service Land Settlement) Acts but the State Government is the administrative authority for actual operations, control being exercised through the War Service Land Settlement Division of the Agricultural Bank. The basic work of the Division has involved land acquisition and the development of rural holdings on which eligible ex-servicemen are then settled.

The following table summarises progress to 30th June, 1964 in physical terms (farms allotted, &c.) and in financial terms (loans to settlers, payments for acquisition, &c.):

War Service Land Settlement
(1939-45 War and Korea-Malaya Operations)
Summary to 30th June, 1964

Operations		Commonwealth Expenditure (Aggregate)	
Particulars	Total to 30th June, 1964	Advances in Respect of Tasmania	Total to 30th June, 1964 (\$'000)
Land Acquired (Acres) ..	447,624	For Acquisition of Land	5,044
Farms Allotted—		For Development and Improvement of	
Number	523	Land	32,236
Area (Acres) ..	421,000	Special Loans .. .. .	..
Farms Being Developed—		Contribution to Excess Cost over Val-	
Number	40	uation	1,440
Area (Acres) ..	20,000	Settlers' Credit Facilities	10,574
Other Land (Acres) (a) ..	6,624	Remission of Settlers' Rent and Interest	324
		Living Allowances For Settlers ..	324
		Irrigation Projects	6
		Loss on Advances	40
		Cost of Administration of Credit	
		Facilities	418
		Total	50,406

(a) Land disposed of outside the scheme and discrepancies to be corrected upon survey.

Of the farms allotted to 30th June, 1964, the largest concentrations were at King Island, Flinders Island, the Lawrenny estate and the Montagu project. The demand for properties under the scheme has not yet been completely satisfied since, at 30th June, 1964, there were still 152 eligible persons awaiting allocation of holdings.

Advances to Settlers

Although the principal efforts in land settlement since World War II have been made under the War Service Land Settlement Scheme, the State Government has also operated its own schemes to assist settlers by providing loans. The following table shows particulars of advances under various Acts to 30th June, 1964:

Advances to Settlers

Advances	Total Advances Made During 1963-64	Total Advances to 30th June, 1964	Balances Outstanding at 30th June, 1964	
			Number	Amount
	\$'000	\$'000		\$'000
Agricultural Bank—				
State Advances Act (including Rural Credits)	689	10,016	821	2,916
Commonwealth Re-establishment and Employment Act 1945 .. .. .	..	815	110	111
Primary Producers' Relief Act 1947 .. .. .	..	595	32	12
Minister for Agriculture—				
Soldier Settlers—Advances ..	20	2,060	204	98
Closer Settlers—Advances ..	28	336	53	314
Total	737	13,822	1,220	3,451

Details of the main forms of assistance now available to settlers are as follows:

The State Advances Act 1935

Under Part III of the Act, loans may be made to persons in rural industries for the purchase of farm properties, discharge of mortgage or for making improvements. Loans may be made for periods up to 30 years at an interest rate determined by the Treasurer. The rate during 1963-64 was five and three-quarter per cent. The present limit on any single advance is \$20,000.

Under Part IV of the Act (Short Term Rural Credits), loans may be made to persons engaged in prescribed rural industries for the purchase of stock, plant, seeds and manures and for other purposes considered necessary for carrying on their industry. There is no statutory limit to the amount which may be advanced to each applicant. Usual period of loans are: plant, 10 years; stock, 5 years; land development, 10-15 years; structural improvements, 20 years; working expenses, one to three years.

RURAL INDUSTRY

General

The predominating rural activity of some Australian States has been summarised, not very accurately, in short phrases such as: Queensland, "beef cattle, wool, and sugar"; N.S.W., "wheat and wool", etc. With Tasmania, no such convenient condensation is possible and if the phrase "apples and hops" comes to mind, it is only because these happen to be crops in which the State is the leading Australian producer. In actual fact, the Tasmanian rural economy is marked by a great diversity of activity and, even allowing for the special regional adaptations made necessary by soil, climate, terrain and altitude, there are many rural holdings which individually exhibit an extremely diverse range of activities.

In the early colonial days, Tasmania was actually famed as Australia's granary (because of its wheat) yet there is hardly any extensive area suitable for the large-scale mechanised farming as now practised in the continental wheat belt. At a later stage, the island acquired a reputation for potato growing, production in some years outstripping that of any other Australian State. The present pattern of farming puts far more emphasis on the rearing of livestock and on the increased production of wool, meat and dairy products; field crops now include vegetables for canning and freezing but the relatively large areas devoted to oats, green fodder and vegetables for stock fodder are indicative of an orientation towards livestock raising. The traditional "specialties", orchards and hop growing, are still important in the total picture but the major development in the years since World War II has been the rapid creation of large areas of sown and semi-improved pasture.

The next section deals with the early history of Tasmanian farming and emphasises the importance of wheat growing in the early colonial era.

Historical

In 1856 appeared the *Statistical Account of Van Diemen's Land or Tasmania* compiled by H. M. Hull from official records; the following extracts from this publication describe events in the colony when provision of food was undoubtedly the most urgent problem:

1804 February 19. Governor Collins landed in Sullivan's Cove from Port Phillip . . . 10s. an acre was charged for reaping wheat by the Convicts . . . Scurvy existed in the Settlement.

- 1805 Kangaroos were boiled down into Soup, and issued a quart at a time at the Colonial Hospital.
- 1806 Great scarcity of provisions. Grain prohibited from being used for brewing.
- 1807 Wheat crop failed.
- 1808 In July all the wheat and maize was gone, so 12 lb. of barley was issued. In August, the beef and pork were expended, so kangaroo meat was issued instead. In October the barley was all gone, so 1½ lb a week of rice was issued instead.
- 1809 In October all the grain was expended; 7 lb of kangaroo meat was issued instead. Seed wheat and barley issued in March and May to the Settlers on loan.
- 1811 Acres in wheat 1500.
- 1812 The *Cyclops* sailed for Sydney with a cargo of wheat grown in the Colony.

In the same publication appear farm statistics for the Tamar settlement in 1816 and the Derwent settlement in 1817. Records for the next year (1818) contain statistics for the whole colony as follows:

"Land in cultivation—Wheat, 5049 acres; barley, 214 ditto; peas and beans, 148½ ditto; potatoes, 268 ditto; total, 5679½ acres. Livestock in the colony—horses, 267; horned cattle, 12,356; sheep, 127,883."

The pattern of early agricultural development can be inferred from the following summary of official farm statistics:

Area Under Crops—Van Diemen's Land, 1818-1841
(Acres)

Year	Wheat	Barley	Oats	Peas	Beans	Pota- toes	Turnips	English Grasses	Tares	Total Crops
1818 ..	5,049	214	(a)	149		268	(a)	(a)	(a)	(b)
1828 ..	20,357	3,864	1,573	646	35	1,292	1,296	4,970	..	34,033
1838 ..	41,760	13,495	21,576	868	128	3,532	9,054	17,150	437	108,000
1841 ..	63,734	9,010	16,471	738	102	4,185	15,943	22,082	349	132,614

(a) Not reported.

(b) Not comparable.

Livestock statistics for the same period are summarised as follows:

Livestock—Van Diemen's Land, 1818-1841

Year	Horses	Horned Cattle	Sheep	Goats
1818	267	12,356	127,883	..
1828	2,034	84,476	553,698	708
1838	9,656	75,087	1,214,485	2,400
1841	12,000	90,498	1,167,737	2,630

Early Development—First Phase

Although the early colonists had come halfway round the globe, Tasmania's temperate climate allowed them to pursue a type of farming which was little different from that carried on in contemporary England—certainly the crops

grown were the same; however, the grazing of livestock on extensive bush-runs, the use of convict labour, the clearing of scrub and the occasional menace of the aborigine and bushranger were sufficient reminders that home lay 12,000 miles away.

Early farm development round the Derwent settlement occurred in what are now Hobart suburbs (New Town and Glenorchy) and further up-river at New Norfolk. The attraction of open plains and open forest country then drew settlers into the Coal River Valley (Richmond and Sorell), into the Midlands and parts of the East Coast. The Tamar settlers in the north first worked land on the plains around the site of Launceston, with early expansion to the Longford area and with grazing in the St. Leonards and White Hills districts; the Northern Midlands were also developed as farming country in this era.

As suggested by the previous table of areas, the principal crop was wheat. It is hard today to picture Tasmania as Australia's principal wheatgrower but, in 1842, the island colony with nearly 80,000 acres sown to this crop, outstripped N.S.W., W.A., Victoria and S.A. individually and contained nearly half the Australian wheat acreage. Throughout the 19th century, wheat was a principal cash crop, but eventually competition from the continental States (both in type and price) caused a decline, as shown in the following table:

Wheat for Grain—Area Under Crop and Total Production, Selected Years

Year	Area Under Crop	Production	Year	Area Under Crop	Production
	Acres	'000 bushels		Acres	'000 bushels
1860-61 ..	66,450	1,416	1930-31 ..	19,107	391
1870-71 ..	57,382	897	1940-41 ..	8,038	140
1880-81 ..	50,022	750	1945-46 (b) ..	4,982	67
1890-91 ..	32,452	643	1950-51 ..	5,318	95
1898-99 (a) ..	85,287	2,304	1960-61 ..	6,912	148
1900-01 ..	51,825	1,110	1963-64 ..	17,562	483
1910-11 ..	52,242	1,121	1964-65 ..	16,805	364
1920-21 ..	28,284	566			

(a) Peak production year.

(b) Record low production year.

As early as 1888, the Tasmanian Government Statistician, R. M. Johnston, deplored the fact that wheat and wheaten flour were being imported into Tasmania in increasing quantities: "To convert lands devoted to agriculture to pastoral purposes may be forced upon our farmers by the greatly reduced prices for wheat, &c. so far as a surplus for export is concerned; but surely the home market should be supplied by local agriculturists! It is certainly a great injury to the Colony to diminish in any way its agricultural areas in favour of pastoral pursuits, and thereby deprive the Colony of its agricultural population." Although, following this, production rose to a record level during the late 1890's, his warning failed to halt the eventual conversion of much wheat land to pastoral purposes.

The present position is that Tasmanian bread is made entirely from imported wheat and the home-grown product is used to make high quality biscuit flours for which it is peculiarly well suited.

Early Development—Second Phase

Before the 1850's, most farm land had been confined to the eastern half of the State where open plains and open forest country encouraged penetration. Further development, supported by the buoyant market during the Victorian

gold rush, required the clearing of more thickly timbered land, the principal attraction being the fertile chocolate-coloured volcanic soils of the North-West Coast; in the same decade, the discovery of the basalt lands in the Scottsdale-Ringarooma area was followed by settlement in the North-East.

Late in the 19th century, pioneers began to develop orchards, mainly for apples, in the thickly timbered country of the Huon, Tamar and lower Mersey Valleys. In the decade after Federation, annual apple production commenced to exceed one million bushels (as compared with the 1963-64 record crop of 8½ million bushels).

Because of the heavy clearing work necessary in the second phase of development (which lasted up till the First World War), it can appropriately be called the bush pioneering period.

Recent Development

Following World War I, the State fostered farming development through schemes for the settlement of returned soldiers, but this largely involved the acquisition and sub-division of existing properties, the only major conversion of virgin land being at Brittons Swamp on the North-West Coast. After World War II, soldier settlement and closer settlement schemes of a more ambitious nature were undertaken, the main areas of development being King and Flinders Islands, the Waterhouse and Tomahawk projects in the North-East and the reclamation of Montagu Swamp on the far North-West Coast. (Another project involved the sub-division of the Lawrenny estate in the Hamilton area of the Midlands.)

Rural Industry Statistics

Sources of Information

The statistics are, in the main, compiled from census returns of agricultural, pastoral and dairying production collected from rural holdings in Tasmania at 31st March each year. In conjunction with the general census, supplementary collections from farms are conducted where the harvesting of certain crops has not been completed by 31st March (e.g. apples, potatoes).

Additional information is also obtained from a number of entirely separate collections covering such data as slaughterings, meat production and dairy production and from various marketing and other authorities.

Period Covered

Data relating to area sown, production and number of holdings growing crops are, in general, for the season ended 31st March. In cases where harvesting has not been completed by 31st March (e.g. potatoes), total production is nevertheless collected and included in published figures. Livestock numbers also are reported at 31st March.

Rural Holdings

A "rural holding" is defined as a piece of land of one acre or more in extent, used for the production of agricultural products or for the raising of livestock and the production of livestock products. Care should be exercised in drawing conclusions from changes in the number of rural holdings over a series of years. There are many small sub-commercial holdings, a proportion being no more than large residential blocks with perhaps a small plot of potatoes or other crops, or carrying a house-cow or poultry. It is very difficult,

in some cases, to determine whether or not they should be regarded as rural holdings within the definition, and some variation in treatment over time has occurred.

Area of Crops

Total area of land sown or planted to crops is shown irrespective of whether the whole area was subsequently harvested or whether a portion or the whole of the crops failed and was not harvested. Where two *successive* crops are grown on the same land during the one season, the land is included twice in the area of crops.

Value of Production

The statistics in the following sections refer, in the main, to areas sown to crops and quantities produced. The value of the various crops is shown under "Value of Production" in Chapter 7.

Classification of Rural Holdings By Type of Activity

Because many Tasmanian holdings are devoted, in the main, to more than one specific type of farming activity, it is difficult to present, in summary form, the essential characteristics or structure of rural industry in the State today. Before considering in detail crop areas, production statistics and livestock numbers, it is logical to examine the "main line" of each farm and to determine what are the principal activities; from this study can be evolved a classification of holdings by type of activity. Details of such a study follow and from it emerges a general picture of Tasmanian farms as they were in 1960. There will have been minor changes since that year but the broad conclusions will still hold true today.

A classification of rural holdings by type of activity was undertaken in Tasmania in 1959-60 as part of the first Australia-wide classification of this type attempted.

Because of the large number of holdings on which more than one type of activity occurs, it was necessary to determine the principal activity before such holdings could be classified to particular types. Since it was desirable to exclude from the principal classification small sub-commercial holdings (generally operated only on part-time basis), it was also necessary to have some means of determining at what scale of operations holdings engaged in various activities could be considered as commercial propositions. The measuring of the importance of each type of activity was based on gross receipts at the farm (estimated from quantity details shown on the annual statistical returns together with price data from independent sources).

Holdings for which estimated farm gross receipts were less than \$1,200 were treated as "sub-commercial" and these, together with unused holdings, holdings used for intermittent grazing, and holdings attached to prisons, hospitals, &c. were not classified by type of farming activity. When these holdings had been eliminated, farms were classified according to the formulae that follow.

If a single activity accounted for 50 per cent or more of the total gross receipts, that activity determined the holding type. Where no single activity accounted for 50 per cent of the total gross receipts, the holdings were classified as "multi-purpose". Principal exceptions to this general rule were holdings reporting (i) sheep and cereal grains, and (ii) dairy cows and pigs. In the former case, the holding was treated as a composite sheep-cereal grain type if the combined receipts obtained from the two activities added to 75 per cent or

more of total gross receipts, so long as gross receipts from sheep were no more than four times and not less than one quarter of the gross receipts obtained from cereal grains. In the latter case, if the combined receipts obtained from dairying and pigs represented 50 per cent or more of total gross receipts, the holding was classified as dairying.

The following table provides details of the number of holdings classified to each type of activity in each Statistical Division:

Holdings Classified According to Type of Activity, 1959-60

Type of Holding	Statistical Division								Total
	South Central, North Central (a)	N.W.	N.E.	North Mid-land	Mid-land	S.E.	South-ern	West-ern	
Sheep-Cereal Grain ..	..	6	3	12	7	23	..	..	51
Sheep ..	5	355	336	405	403	407	71	1	1,983
Cereal Grain ..	..	2	..	1	..	2	..	..	5
Beef Cattle ..	..	96	34	5	1	3	12	2	153
Dairying ..	8	2,132	505	159	44	68	119	3	3,038
Fruitgrowing..	45	51	174	1	15	82	1,159	..	1,527
Vegetables—									
Potatoes ..	..	132	5	..	9	1	..	1	148
Other & Mixed	21	154	25	15	11	15	8	..	249
Poultry ..	8	19	19	13	2	5	17	1	84
Pigs ..	7	11	6	1	1	2	5	1	34
Other (One Main Purpose)	6	7	3	1	35	..	61	..	113
Multi-Purpose	5	409	63	89	50	73	54	..	743
Total "Classified" ..	105	3,374	1,173	702	578	681	1,506	9	8,128
Sub-Commercial	143	740	454	219	145	301	553	14	2,569
Unused, "Special", &c. ..	38	107	71	31	20	72	163	3	505
Total All Holdings	286	4,221	1,698	952	743	1,054	2,222	26	11,202

(a) Cities of Hobart, Launceston and Glenorchy.

Principal Activities

A number of interesting conclusions emerge from a consideration of "classified holdings" in the previous table: (i) the main activity of over 60 per cent of classified holdings is concerned with either cattle or sheep; (ii) cereal grain growing barely exists as a main activity and is principally carried out in conjunction with the grazing of sheep or cattle; (iii) three main types of holding, namely dairying, sheep and fruitgrowing in that order, account for over 80 per cent of classified holdings; (iv) nearly ten per cent of classified holdings must carry on at least three distinct activities, otherwise they could not be classified as "multi-purpose" in accordance with the 50 per cent formula prefacing the table; (v) dairying is clearly the major activity of the N.W. Statistical Division, fruitgrowing of the Southern Statistical Division but the importance of the Midland Statistical Division in sheep farming does not emerge since size of flocks is not covered in the table.

Size of Rural Holdings

A classification of rural holdings by size is carried out at irregular intervals, the last in 1960; the following table compares the size of holdings in selected years:

Classification of Rural Holdings by Size

Size of Holdings (Acres)	Number of Holdings		Area of Holdings (‘000 Acres)	
	1928	1960	1928	1960
Under 50	3,164	2,561	58	54
50 and Under 100	2,108	1,835	147	133
100 and Under 500	4,779	4,920	1,095	1,072
500 and Under 1,000	726	859	594	588
1,000 and Under 5,000	775	795	1,600	1,712
5,000 and Under 10,000	146	132	1,018	901
10,000 and Under 20,000	67	69	925	913
20,000 and Under 50,000	29	26	812	796
50,000 and Over	5	5	384	342
Total	11,799	11,202	6,633	6,511

Types of Farming Activity, 1963-64

At 31st March, 1964, there were 10,949 rural holdings (compared with 11,743 in 1955). The following table shows the number of holdings growing selected principal crops or carrying livestock; this gives some indication of farming activities but on a cruder basis than the earlier table since the same holding may be included more than once in the figures (in an extreme case, the one holding could be included eleven times):

Number of Holdings Growing Principal Crops or Carrying Livestock

Particulars	1954-55	1961-62	1962-63	1963-64
Holdings—				
Growing—				
Grain (a)—				
Barley	119	323	340	227
Oats	305	367	474	398
Wheat	114	222	243	251
Hops	84	104	106	108
Vegetables (b)—				
Potatoes	3,350	2,156	2,188	1,741
Onions	9	20	11	20
Fruit (b)—				
Orchard	1,808	1,382	1,383	1,358
Small Fruit	678	533	526	528
Carrying—				
Cattle	9,668	8,825	8,671	8,547
Sheep	5,270	5,675	5,415	5,255
Pigs	4,235	3,593	3,350	3,304
Total Rural Holdings (c) ..	11,743	11,117	10,974	10,949

(a) Twenty acres and over.

(b) One acre and over.

(c) Not the sum of figures above, since the one holding may be included more than once.

It should be noted that a fall in the number of holdings engaged in a particular activity does not necessarily involve decreased total activity. For example, holdings carrying cattle have decreased over the last ten years, whereas cattle numbers have shown a 41 per cent increase in the same period; on the other hand, the decline in holdings growing potatoes in the decade ended 1963-64 has been matched by an actual fall in acreage of potato crops and in production.

Land Utilisation on Rural Holdings

Rural holdings at present occupy over 37 per cent of Tasmania's total area which is 16,885,000 acres; details of utilisation follow:

Land Utilisation on Rural Holdings (Acres)

Particulars	1954-55	1961-62	1962-63	1963-64
Area Used for Crops (a)	325,903	382,994	408,128	391,182
Land Lying Fallow (b)	66,763	72,866	73,823	78,286
Sown Pasture Grazed (c)	897,707	1,255,743	1,273,774	1,363,155
Other Land Used for Grazing	3,631,806	3,274,002	3,204,078	3,106,738
Balance of Holdings	1,681,678	1,565,298	1,462,911	1,438,131
Total Area of All Holdings	6,603,857	6,550,903	6,422,714	6,377,492

(a) Includes area of sown pasture *cut* for hay, seed, silage or green fodder; includes also orchards and small fruits.

(b) Excludes short or summer fallow.

(c) Excludes area *cut* for hay, seed, silage or green fodder.

Definition of "Crops"

As defined in the previous table, crops are produced not only from cultivated fields and orcharding land but also from sown pasture if its growth is *cut* for hay, seed, silage or green fodder. The following table shows the total area of crops on this basis when double-cropping is taken into account:

Total Area of Crops (Acres)

Particulars	1954-55	1961-62	1962-63	1963-64
Area Used for Crops (a)	325,903	382,994	408,128	391,182
Area Double Cropped	133	2,761	4,893	3,732
Total Area of Crops	326,036	385,755	413,021	394,914

(a) First item in table on Land Utilisation on Rural Holdings.

Definition of "Sown Pasture"

Sown pasture is defined in these statistics as "clovers and grasses (other than native)." The next table shows the total area of sown pasture and distinguishes between areas *cut* for various purposes and areas simply grazed:

**Sown Pasture—Classification of Total Area
(Acres)**

Particulars of Usage	1954-55	1961-62	1962-63	1963-64
Clover for Seed	1,171	963	1,497	881
Grass for Seed	1,966	2,855	3,797	2,853
Clover and Grasses Cut—				
For Hay	67,694	135,561	150,121	128,525
For Silage and Green Fodder	25,395	21,526	18,334	15,116
Total "Under Crop" ..	96,226	160,905	173,749	147,375
Clover and Grasses Grazed (Not Cut)	897,707	1,255,743	1,273,774	1,363,155
Total Sown Pasture ..	993,933	1,416,648	1,447,523	1,510,530

The distribution in Statistical Divisions of sown pasture (1963-64) is given in acres: N.W., 459,074; Midland, 301,563; N.E., 300,389; North Midland, 214,481; S.E., 160,802; Southern, 70,221; remainder of State, 4,000.

Trend in Land Utilisation

The total area of rural holdings is still approximately the same as it was at the end of World War I. The most striking change is the rapid development of sown pasture, the previous table showing a 52 per cent increase in the decade ending 1963-64. Twenty years ago (1944-45), the area of sown pasture was under 500,000 acres, it passed 1,000,000 acres in 1955-56 and reached 1,500,000 acres in 1963-64. A similar marked increase has occurred in the area of sown pasture *cut* for hay, seed, silage or green fodder and since this is, for the purpose of these statistics, a component of the area used for crops, variations in crop areas are affected by this factor.

In actual fact, the area of land under the plough is slightly less than it was fifty years ago but this does not indicate a decline in activity but rather a change in the farming pattern; grain crops are no longer the dominant item and many primary producers, through their development of sown pasture, have become grassland farmers with the mower and pick-up baler as their main "harvesting" machines (as opposed to the reaper and binder on ploughed fields). The trend to grassland farming has meant greatly increased capacity to carry stock, the numbers of both sheep and cattle having more than doubled since World War I. (In the decade ending 1963-64, sheep have increased from 2.6 million to 3.6 million; cattle from 319,000 to 450,000. The percentage increases for the ten-year period are: sheep, 39 per cent; cattle, 41 per cent.)

Temporary and Permanent Pasture

It should be noted that some of the areas included as sown pasture are "temporary" in the sense that they may be put under crop after some years of use for grazing. In the same sense, specific areas used for crops in any year are also "temporary" since they may later be converted to sown pasture. This rotational pattern, characteristic of much of Tasmania's mixed farming, obviously is designed to maintain soil fertility at a high level and to guard against the soil exhaustion associated with the earlier era of intense cultivation of cash crops. "Ley" farming is the technical term for this rotational method.

In the sowing of temporary pastures, the main grasses and clovers used are: ryegrass (perennial, Italian and hybrid) and red clover. Permanent pastures are based on perennial ryegrass and white clover with *phalaris tuberosa* and subterranean clover especially suitable for the drier regions and cocksfoot in the wetter.

Tasmania's capacity for extending the area of sown pasture is certainly not yet exhausted since, in 1963-64, the area under sown pasture (1.5 million acres) was still less than half the area of "other land used for grazing" (3.1 million acres).

Agriculture

Sufficient has been said on land utilisation to emphasise the trend to grass-land farming. In the summary table below showing the area devoted to the principal crop types, the area of improved pasture *cut* for hay, seed, silage or green fodder is attributed to the appropriate crop, e.g. as a component of hay and green fodder areas.

Area of Principal Crops—Summary
(Acres)

Crop	1954-55	1961-62	1962-63	1963-64
Cereals for Grain	37,534	61,773	66,344	61,818
Hay	96,496	157,238	165,442	149,640
Green Fodder	96,340	78,526	83,274	86,120
Field Peas (Blue, Grey and Other)	14,501	8,101	9,459	10,982
Vegetables for Stock Fodder ..	18,684	23,740	28,447	31,785
Grass Seed	3,140	3,818	5,297	3,734
Industrial Crops (Hops and Mustard)	1,958	1,852	1,938	1,896
Vegetables for Human Consumption	32,763	27,141	29,047	25,294
Orchard Fruit	21,142	19,641	19,759	19,975
Small Fruit	2,545	2,218	2,184	2,159
All Other Crops	933	1,707	1,830	1,511
Total Area of Crops ..	326,036	385,755	413,021	394,914

Details of individual crops, their area, production and yield per acre, are shown in the next table:

Crops—Area, Production and Yield Per Acre

Crop and Unit of Quantity		Average, Ten Years Ended 1962-63			Year 1963-64		
		Area (Acres)	Production		Area (Acres)	Production	
			Total	Yield Per Acre		Total	Yield Per Acre
CEREALS FOR GRAIN							
Barley	(bushels)	11,401	348,752	30.59	13,790	414,230	30.04
Oats	(bushels)	23,431	500,360	21.35	30,344	843,643	27.80
Rye	(bushels)	495	7,823	15.80	122	2,549	20.89
Wheat	(bushels)	8,552	205,015	23.97	17,562	482,757	27.49
HAY							
Grass & Clover	(tons)	114,365	214,093	1.87	128,525	209,625	1.63
Oaten	(tons)	17,762	32,952	1.86	19,233	36,321	1.89
Other	(tons)	4,300	8,135	1.89	1,882	3,230	1.72
GRASS SEED							
Clover	(cwt)	1,194	848	0.71	881	483	0.55
Lucerne	(cwt)	13	12	0.97	..	..	..
Other (b)	(cwt)	2,694	4,526	1.68	2,853	6,878	2.12

Crops—Area, Production and Yield Per Acre—continued

Crop and Unit of Quantity	Average, Ten Years Ended 1962-63			1963-64		
	Area (Acres)	Production		Area (Acres)	Production	
		Total	Yield Per Acre		Total	Yield Per Acre
FIELD PEAS						
Blue (bushels)	5,076	109,098	21.49	5,157	98,939	19.19
Grey & Other (,,)	6,664	126,362	18.96	5,825	87,594	15.04
VEGETABLES FOR STOCK FODDER						
Horse Beans (bush)	557	13,537	24.29	714	15,128	21.19
Turnips—Swede and White (tons)	19,502	(a)	(a)	30,605	(a)	(a)
Other	198	..	..	466	..	..
INDUSTRIAL CROPS						
Hops (c) (lb)	1,387	2,801,617	2,019	1,462	1,579,560	1,080
Mustard (lb)	404	164,003	406	347	117,623	339
VEGETABLES FOR HUMAN CONSUMPTION						
Beans, French and Runner ('000 lb)	203	1,118	5.496	495	3,495	7.061
Peas, Green (d)— For Processing (,,)	7,562	17,676	2.272	11,884	32,757	2.729
Sold in Pod (,,)	370	342		186	187	
Potatoes (tons)	18,995	89,148	4.69	10,806	66,420	6.15
Turnips—Swede and White (tons)	1,370	8,926	6.52	649	4,061	6.26
Other Vegetables ..	1,303	..	..	1,274	..	..
ORCHARD FRUIT						
Bearing—						
Apples (bushels)	16,470	5,643,130	343	15,545	8,545,000	550
Apricots (bushels)	720	60,274	84	456	36,000	79
Pears (bushels)	1,507	452,122	300	1,460	625,000	428
Plums & Prunes (,,)	114	21,745	191	76	16,400	216
Other	122	..	..	92	..	..
Non-bearing Areas	1,647	..	..	2,346	..	..
SMALL FRUIT						
Bearing—						
Currants (Black & Red) (lb)	882	2,848,330	3,228	978	2,955,000	3,021
Gooseberries (lb)	47	351,835	7,486	32	347,000	10,844
Loganberries (lb)	205	1,286,430	6,278	166	977,000	5,886
Raspberries (lb)	1,035	4,871,620	4,708	753	3,841,000	5,101
Strawberries (lb)	86	354,100	4,108	80	175,000	2,188
Non-bearing Areas	183	..	..	150	..	..

(a) Not available.

(b) Production includes seed harvested from areas sown to oats for grain; this seed is excluded from the average yield figures.

(c) Non-bearing area excluded; production expressed in dry weight.

(d) Ex-shell weight.

Summary of Principal Crops

The following table summarises the area of selected principal crops and gives details of production for recent years:

Selected Principal Crops—Area and Production

Crop	1954-55	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
AREA (ACRES)							
Barley for Grain ..	7,256	9,333	12,396	15,330	18,728	19,751	13,790
Oats for Grain ..	22,621	22,199	22,017	23,350	26,953	31,104	30,344
Wheat for Grain ..	7,302	6,438	8,264	6,912	15,568	15,340	17,562
Hay	96,496	153,822	126,544	171,012	157,238	165,442	149,640
Field Peas	14,501	8,505	10,878	8,039	8,101	9,459	10,982
Grass Seed	3,140	4,085	2,446	5,139	3,818	5,297	3,734
Hops—Bearing ..	1,331	1,430	1,436	1,406	1,411	1,452	1,462
Peas, Green—							
For Processing ..	3,103	7,145	7,872	10,003	12,823	12,684	11,884
Sold in Pod	502	334	247	162	139	144	186
Potatoes	26,209	16,186	15,525	10,875	11,129	13,839	10,806
Bearing—							
Apples	17,025	16,435	16,083	15,825	15,417	15,489	15,545
Pears	1,592	1,476	1,460	1,451	1,471	1,454	1,460
Currants (Black & Red)	892	817	844	916	902	946	978
Loganberries ..	235	212	222	210	162	173	166
Raspberries ..	1,200	1,024	992	853	838	753	753
Strawberries ..	74	85	86	55	72	91	80
PRODUCTION							
Barley for Grain (bushels)	199,793	294,634	418,502	344,137	606,927	630,966	414,230
Oats for Grain (bushels)	451,659	490,633	511,796	391,285	587,183	827,508	843,643
Wheat for Grain (bushels)	158,605	163,660	181,728	148,128	345,111	418,921	482,757
Hay (tons)	157,960	302,075	221,227	325,974	285,390	313,004	249,176
Field Peas (bushels)	267,612	174,256	223,989	92,032	180,421	193,494	186,533
Grass Seed (cwt)	3,493	7,800	3,161	7,972	4,757	10,549	7,361
Hops .. ('000 lb)	2,983	3,384	2,800	2,819	2,837	2,862	1,580
Peas, Green—							
For Processing ('000 lb)	7,093	14,645	20,725	14,281	37,479	32,986	32,757
Sold in Pod ('000 lb)	455	387	324	152	161	138	187
Potatoes (tons)	101,000	85,900	98,000	39,050	71,560	82,545	66,420
Apples ('000 bushels)	5,009	4,983	5,473	5,594	7,844	6,262	8,545
Pears ('000 bushels)	426	433	463	461	566	415	625
Currants (Black and Red)							
('000 lb)	2,482	3,337	2,966	3,097	2,197	3,082	2,955
Loganberries ('000 lb)	1,150	1,528	1,526	1,196	1,431	1,188	977
Raspberries ('000 lb)	5,022	5,535	5,254	3,291	4,816	3,468	3,841
Strawberries ('000 lb)	253	487	367	172	275	370	175

Principal Crops

The data on acreage and production of crops are compiled, in general, to give totals for each municipality. In subsequent parts of this chapter dealing with geographical distribution, the information is presented only in Statistical Divisions; however, the component attributable to the South Central, North Central and Western Divisions is usually so small in relation to the State total that these three Divisions have been combined and described as "Rest of State". (The three combined Divisions include the Cities of Hobart, Glenorchy and Launceston, and the West Coast where mining is the predominant activity.)

Cereals for Grain

The next table shows the geographical distribution of cereal grain growing for 1963-64:

Cereals for Grain—Area of Crops in Statistical Divisions, 1963-64
(Acres)

Cereals for Grain	N.W.	N.E.	North Midland	Midland	S.E.	Southern	Rest of State	Total
Barley ..	6,262	1,629	2,233	757	2,633	199	77	13,790
Oats ..	1,397	1,964	12,472	10,753	3,332	426	..	30,344
Rye ..	4	16	10	55	37	..	..	122
Wheat ..	2,618	704	5,021	5,299	3,825	77	18	17,562
Total ..	10,281	4,313	19,736	16,864	9,827	702	95	61,818

The area for grain under barley, oats and wheat has tended to increase in recent years, 1954-55 total grain acreage being barley, 7,256; oats, 22,621; wheat, 7,302.

Hay and Green Fodder

The following table shows the geographical distribution of hay and green fodder crops for 1963-64:

Hay and Green Fodder—Area of Crops in Statistical Divisions, 1963-64
(Acres)

Crop	N.W.	N.E.	North Midland	Midland	S.E.	Southern	Rest of State	Total
Hay—								
Grass & Clover	65,218	24,767	22,020	5,369	4,843	5,872	436	128,525
Oaten ..	7,111	1,820	4,604	2,549	2,684	439	26	19,233
Other ..	324	282	159	424	553	140	..	1,882
Total Hay	72,653	26,869	26,783	8,342	8,080	6,451	462	149,640
Green Fodder	26,129	14,160	13,891	20,749	8,424	2,635	132	86,120

The primacy of the North West Division in acreage under hay and green fodder can be related to the fact that it carries more than 50 per cent of the State's cattle and is the principal dairying area.

The chief sources of green fodder are areas sown to oats (usually about 50 per cent of total green fodder acreage), and areas of grasses and clovers cut from sown pasture (17 per cent in 1963-64); other green fodder crops are obtained from chou moellier, barley, lucerne, millet, rape, ryecorn and wheat.

Vegetables for Human Consumption

As previous acreage and production tables indicated, there has been a decline in potato growing; the next table traces the history of this crop over the last 100 years:

Potatoes—Area Under Crop and Total Production, Selected Years

Year	Area	Production		Year	Area	Production	
		Total	Yield Per Acre			Total	Yield Per Acre
	Acres	Tons	Tons		Acres	Tons	Tons
1860-61 ..	7,621	33,589	4.41	1930-31 ..	37,229	95,289	2.56
1870-71 ..	9,823	36,028	3.41	1940-41 ..	37,364	114,041	3.05
1880-81 ..	10,421	32,548	3.12	1944-45 (a)	81,092	345,232	4.26
1890-91 ..	20,133	73,158	3.63	1950-51 ..	31,581	124,000	3.93
1900-01 ..	23,068	93,862	4.07	1960-61 ..	10,875	39,050	3.59
1910-11 ..	26,230	70,090	2.67	1963-64 ..	10,806	65,000	6.15
1920-21 ..	32,000	88,679	2.77	1964-65 ..	9,393	57,000	6.07

(a) Peak acreage and production year.

Potato growing was for many years a major activity in the N.W. Statistical Division and even in 1963-64, approximately 80 per cent of the acreage and production of the State's potato crop was located in that area. The decline in this export crop has been largely offset by increased opportunities for disposing of other vegetable crops to dehydrating, canning and deep-freezing plants developed on the North-West coast and in the Scottsdale area since World War II. The main crop now grown for processing is green peas, their area in 1963-64 exceeding the area planted to potatoes (12,070 acres as against 10,806 acres); a demand by processing plants also exists for other vegetables including french and runner beans, asparagus, beetroot, cabbages, cauliflowers, carrots, celery, broccoli, blue peas, parsnips, turnips, onions, tomatoes and potatoes.

The concentration of vegetable growing in certain areas of the State is illustrated in the following table which has been restricted to three selected crops:

Vegetables for Sale for Human Consumption (a)
Area Under Selected Crops in Statistical Divisions, Season 1963-64
(Acres)

Crop	N.W.	N.E.	North Midland	Midland	S.E.	Southern	Rest of State	Total
Beans, French and Runner	429	45	6	..	..	6	9	495
Peas, Green ..	8,423	989	2,538	8	56	26	30	12,070
Potatoes ..	8,429	971	106	661	318	260	61	10,806
All Other Veg- etables ..	690	517	61	44	225	175	211	1,923
Total ..	17,971	2,522	2,711	713	599	467	311	25,294

(a) Includes vegetables for processing.

Grass Seed

The geographical distribution (in acres) of areas yielding grass seed in 1963-64 was as follows: N.W., 776; N.E., 577; N. Midland, 1,776; Midland, 412; S.E., 171; Southern, 22; total, 3,734.

Field Peas and Vegetables for Stock Fodder

The geographical distribution of these crops in 1963-64 is shown as follows:

Field Peas and Vegetables for Stock Fodder—Area of Crops in Statistical Divisions, 1963-64
(Acres)

Crop	N.W.	N.E.	North Midland	Midland	S.E.	Southern	Rest of State	Total
Field Peas—								
Blue ..	1,636	229	3,132	73	87	..	..	5,157
Grey and								
Other ..	1,357	492	2,448	285	1,238	5	..	5,825
Vegetables for								
Stock Fodder—								
Horse Beans	355	73	80	..	206	..	..	714
Turnips ..	14,737	6,030	2,130	4,653	1,858	1,136	61	30,605
Other ..	333	45	19	20	..	47	2	466

Hops

The principal industrial crop is hops grown mainly in the Derwent Valley, with most production in the Southern Statistical Division, and, across the Derwent, in the Midland Division. In 1963-64, the State's hop-bearing area was 1,462 acres. Hop growing is now being developed in other parts of the State.

In the production of hops in Australia, Tasmania has for many years been the principal grower; the crop is mainly used in brewing beer.

Orchard Fruit and Small Fruit

The geographical distribution of orchards and small fruit areas is shown below for 1963-64 :

Orchard Fruit and Small Fruit—Area (Bearing & Non-Bearing) in Statistical Divisions, 1963-64
(Acres)

Fruit	N.W.	N.E.	North Midland	Midland	S.E.	Southern	Rest of State	Total
Orchard Fruit	947	3,594	6	5	1,106	14,123	194	19,975
Small Fruit ..	14	8	1	282	39	1,706	109	2,159

Orcharding is heavily concentrated in the Derwent and Huon Valleys (Southern Statistical Division); the other main area is in the Tamar Valley (N.E. Division). Small-fruit growing is almost entirely confined to the Derwent Valley and the Huon Valley.

On the average over recent years, the value of the apple crop alone has represented one third of the value of the State's total agricultural production. The next table gives recent details of area, production and average yield:

Apples—Area and Production

Year	Area		Number of Trees		Production		
	Bearing	Non-Bearing	Bearing	Non-Bearing	Total	Yield	
						Per Acre	Per Tree
	Acres	Acres	'000	'000	'000 bush.	Bushels	Bushels
1959-60	16,083	1,650	2,290	234	5,473	340	2.39
1960-61	15,825	1,726	2,308	252	5,594	353	2.42
1961-62	15,417	1,837	2,264	270	7,844	509	3.46
1962-63	15,489	1,894	2,277	278	6,262	404	2.75
1963-64	15,545	2,076	2,305	308	8,545	550	3.71
1964-65	15,532	2,543	2,310	378	6,207	400	2.70

Just after World War I, apple orchards had a bearing area of more than 26,000 acres; although this record area has since steadily declined, production is considerably higher due to increases in average yield. The following couplets show the highest and lowest average annual yields in each decade: ten years ended 1929-30, 185 and 74 bushels per acre; ten years ended 1939-40, 266 and 159; ten years ended 1949-50, 396 and 133; ten years ended 1959-60, 395 and 204; present incomplete decade, 550 and 353.

From the aspect of return to growers, the three most important orchard crops are apples, pears and apricots in that order although cherries, nectarines, peaches, plums and quinces are also grown.

Small fruit growing is occupying very much smaller areas than previously and there has been a drastic decline in production, as shown in the following table:

Principal Small Fruits—Area and Production

Year	Currants (Black & Red)		Gooseberries		Raspberries		Strawberries	
	Bearing Area	Pro-duction	Bearing Area	Pro-duction	Bearing Area	Pro-duction	Bearing Area	Pro-duction
	Acres	'000 lb	Acres	'000 lb	Acres	'000 lb	Acres	'000 lb
1948-49 (a) ..	2,006	6,030	209	1,632	2,086	7,603	250	871
1959-60 ..	844	2,966	39	356	992	5,254	86	367
1960-61 ..	916	3,097	35	389	853	3,291	55	172
1961-62 ..	902	2,197	37	356	838	4,816	72	275
1962-63 ..	946	3,082	39	314	753	3,468	91	370
1963-64 ..	978	2,955	32	347	753	3,841	80	175
1964-65 ..	875	2,300	35	241	703	3,374	70	317

(a) Representative year from period when small fruit areas were at record level.

"All Other Crops"

In the table "Area of Principal Crops" appears an item "All other crops", (1,511 acres in 1963-64). These crops, not specified in previous tables, include lavender, flower seeds, cut flowers, a variety of crops grown for seed, and green manure crops (e.g. lupins).

LIVESTOCK

Introduction

This subject is dealt with in two parts:

- (i) Number of Livestock on Rural Holdings;
- (ii) Livestock Products.

The first part needs no definition but the second part (livestock products) requires explanation. In relation to the various types of livestock, the following products are included:

Cattle — meat, milk, butter, cheese.

Sheep — meat, wool.

Pigs — meat.

Poultry — meat, eggs.

It should be noted that some of these products (e.g. butter and cheese) are made, in the main, in establishments classified as factories. From a theoretical point of view, it can therefore be correctly argued that some livestock products are attributable to secondary, rather than primary, industry; it is nevertheless impossible to describe adequately the pattern and scale of livestock farming without giving details of these basic products.

Number of Livestock on Rural Holdings

The following summary table shows the numbers of livestock on rural holdings over a period of 100 years:

Livestock on Rural Holdings—Selected Years

Year	Horses	Cattle	Sheep	Pigs
	No.	No.	'000	No.
1860 (a)	21,034	83,366	1,701	31,290
1870 (a)	22,679	101,459	1,350	49,432
1880 (a)	25,267	127,187	1,794	48,029
1890 (a)	31,165	162,440	1,619	81,716
1900 (a)	31,607	165,516	1,684	68,291
1910 (a)	41,388	201,854	1,788	63,715
1919-20 (a)	39,452	214,442	1,781	35,530
1929-30 (b)	34,336	214,643	2,091	52,899
1939-40 (b)	29,605	252,484	2,677	44,941
1949-50 (c)	21,197	274,740	2,170	35,841
1959-60 (c)	10,512	375,342	3,494	67,118
1963-64 (c)	7,638	449,998	3,600	82,534
1963-64—Tasmanian numbers as proportion of Australian total ..	1.4 per cent	2.4 per cent	2.2 per cent	5.6 per cent

(a) At varying dates.

(b) At 31st December.

(c) At 31st March.

Cattle

Classification

A desirable way of classifying cattle is to distinguish between "dairy" and "beef" cattle, but there is a possibility of confusion since the definition of

these terms may be based either on *purpose* or on *breed*. Such a classification presents no difficulty to farmers in the following categories:

- (i) running a dairy herd only, for milk only, with all cattle of recognised dairy breeds;
- (ii) running a beef herd only, for meat only, with all cattle of recognised beef breeds.

It is also apparent that the above two cases are not representative of all holdings and the following cases are frequently encountered:

- (i) herds wholly of dairy breeds used for milk production; from these, culled cows and heifers and some calves are fattened for slaughter;
- (ii) composite herds (i.e. with dairy-breed cows and heifers kept for milk production and with some dairy-breed and/or dairy-beef cross cows and heifers for vealer production).

As from 1942-43, the annual census questions on cattle were amended to require a dissection between "beef" and "dairy" but the terms were not defined as relating to either purpose or breed. The following table summarises cattle numbers in terms of this classification from 1942-43 to 1962-63 (when it ceased):

Number of Cattle on Rural Holdings—Dairy and Beef Classification

31st March	Dairy	Beef	31st March	Dairy	Beef	31st March	Dairy	Beef
1943	142,946	101,735	1950	157,959	116,781	1957	195,894	158,276
1944	128,775	101,352	1951	157,024	114,760	1958	204,773	166,636
1945	128,066	96,602	1952	155,536	110,727	1959	203,482	170,842
1946	126,167	90,139	1953	162,212	112,919	1960	206,770	168,572
1947	132,265	87,854	1954	173,595	121,583	1961	214,382	179,826
1948	144,041	100,066	1955	189,711	129,706	1962	228,637	196,514
1949	155,122	111,297	1956	183,602	147,987	1963	238,084	205,519

The geographical distribution of cattle in the last year of the "dairy and beef" classification was as follows:

Cattle on Rural Holdings—Distribution in Statistical Divisions, 31st March, 1963

Particulars	N.W.	N.E.	North Midland	Midland	S.E.	Southern	Rest of State	Total
Dairy ..	156,780	39,346	18,620	5,894	6,102	10,410	932	238,084
Beef ..	73,793	44,498	26,174	33,428	13,502	13,009	1,115	205,519
Total ..	230,573	83,844	44,794	39,322	19,604	23,419	2,047	443,603

In the 1963-64 annual census, the questions on cattle were amended to introduce the following principles:

- (i) Bulls to be classified according to breed (i.e. dairy or beef breed).
- (ii) All other cattle to be classified according to purpose (i.e. milk production or meat production).
- (iii) The number of "house" cows to be established (i.e. cows and heifers being kept primarily for the owner's own milk supply).

The results obtained from the two differing methods of approach are illustrated by showing, in total, the answers to questions asked in 1962-63 and 1963-64:

Description of Cattle on Rural Holdings

(1) 31ST MARCH, 1963

CATTLE At 31st March, 1963	Dairy—		
	Dairy Cows (in milk and dry)	141,255	
	Heifers 1 year and over (for dairying)	40,045	
	Calves (under 1 year)—Heifer calves	42,724	
	Other calves	9,539	
	Bulls, 1 year and over	4,521	
	Total Number of Dairy Cattle	238,084	
	Beef—		
	Cows (including heifers), 1 year and over	88,923	
	Calves, under 1 year	70,120	
	Bulls, 1 year and over	4,423	
	Other (including Speyed Cows, Bullocks, etc.)	42,053	
	Total Number of Beef Cattle	205,519	
	Total Number of all Cattle (Dairy and Beef)	443,603	

(2) 31ST MARCH, 1964

CATTLE and CALVES Number at 31st March, 1964	BULLS used or intended FOR SERVICE	Bulls (1 year and over)—Dairy Breeds Beef Breeds Bull Calves (under 1 year)	4,141 3,984 4,195
	COWS AND HEIFERS used or intended for production (for sale) of MILK AND CREAM	Cows—In Milk and Dry at 31st March Heifers (1 year and over) Heifer Calves (under 1 year)	140,425 39,928 43,082
	HOUSE COWS (in milk and dry) and HEIFERS (one year and over) being kept primarily for own milk supply		6,545
	OTHER CATTLE AND CALVES (not included above) i.e. mainly for MEAT PRODUCTION	Cows and Heifers (1 year and over) Calves (under 1 year) including Vealers Other (1 year and over) i.e. Steers, Bullocks, &c... .. .	89,292 75,108 43,298
	Total Cattle and Calves for all Purposes		449,998

The previous change in classification makes it impossible to compare, in full detail, the description of cattle in 1963-64 and subsequent years with descriptions reported in previous years but the following table is compiled to show broad groups regarded as generally comparable:

Description of Cattle on Rural Holdings

At 31st March	Number of Holdings with Cattle	Bulls (1 yr. & over)	Cows and Heifers (1 yr. & over)	Calves (Under 1 yr.)	Other Cattle	Total Cattle
1950	9,759	6,186	158,424	60,601	49,529	274,740
1955	9,668	7,002	194,016	78,252	40,147	319,417
1960	9,031	7,237	229,162	100,849	38,094	375,342
1961	8,868	7,639	238,329	107,975	40,265	394,208
1962	8,825	8,668	256,342	118,614	41,527	425,151
1963	8,671	8,944	270,223	122,383	42,053	443,603
1964	8,547	(a) 8,125	276,190	122,385	43,298	449,998
1965	8,384	(a) 8,311	283,955	119,455	39,750	451,471

(a) The specification of "Bull Calves (under 1 year)" from 1963-64 may have affected the comparability of this figure.

The distribution of holdings with cattle in 1963-64 is shown below:

Cattle on Rural Holdings in Statistical Divisions, 31st March, 1964

Particulars	N.W.	N.E.	North Mid-land	Mid-land	S.E.	South-ern	Rest of State	Total
Holdings with Cattle	3,679	1,387	749	556	665	1,390	121	8,547
Total Cattle (All Descriptions) ..	232,339	89,826	44,729	39,233	18,165	23,583	2,123	449,998
Cows in Milk and Dry (a)	96,140	24,134	9,968	2,424	2,383	5,059	317	140,425
Heifers (1 year and over) (a)	26,433	6,654	3,329	755	907	1,690	160	39,928
Heifer Calves (under 1 year) (a) ..	29,482	7,350	3,307	589	842	1,409	103	43,082
Bulls (1 yr. and over)—								
Dairy Breeds ..	2,642	705	330	90	121	229	24	4,141
Beef Breeds ..	1,246	828	646	663	255	319	27	3,984

(a) "Cows and heifers used or intended for production (for sale) of milk and cream".

Breeds of Cattle

The main breeds of dairy cattle in Tasmania are Jersey, Ayrshire, milking Shorthorn, Friesian and Guernsey, while beef breeds are Hereford, Devon, Aberdeen Angus and Shorthorn.

Sheep

The table below indicates the increase in sheep since the end of World War II:

Sheep on Rural Holdings At 31st March ('000)

Year	Sheep	Year	Sheep	Year	Sheep	Year	Sheep
1945 ..	2,156	1951 ..	2,182	1957 ..	2,943	1963 ..	3,570
1946 ..	1,926	1952 ..	2,338	1958 ..	3,298	1964 ..	3,600
1947 ..	1,933	1953 ..	2,422	1959 ..	3,536	1965 ..	3,793
1948 ..	2,087	1954 ..	2,465	1960 ..	3,494		
1949 ..	2,160	1955 ..	2,595	1961 ..	3,439		
1950 ..	2,170	1956 ..	2,673	1962 ..	3,532		

The next table shows the geographical distribution of sheep in 1963-64, also the various descriptions and the outcome of the lambing season:

Description of Sheep at 31st March, 1964, in Statistical Divisions

Particulars	N.W.	N.E.	North Mid-land	Midland	S.E.	South-ern	Rest of State	Total
Holdings with Sheep	1,661	931	735	646	784	461	37	5,255
Sheep—								
Rams (1 year and over)	6,981	6,195	10,034	10,758	5,538	1,060	118	40,684
Breeding Ewes ..	257,205	257,070	349,697	407,314	244,378	49,647	1,621	1,566,932
Other Ewes (1 year and over)	15,850	26,269	40,799	68,663	32,733	7,847	749	192,910
Wethers (1 year and over)	52,297	144,033	159,297	335,598	163,852	33,949	1,130	890,156
Lambs and Hoggets (under one year)	130,341	135,087	193,289	280,391	145,255	23,926	1,323	909,612
Total Sheep and Lambs	462,674	568,654	753,116	1,102,724	591,756	116,429	4,941	3,600,294
Lambing, Season 1963—								
Ewes Mated ..	255,642	222,814	327,177	383,124	223,582	43,628	1,727	1,457,694
Lambs Marked—								
Number ..	254,702	202,618	300,024	349,109	206,714	38,621	1,568	1,353,356
As Percentage of Ewes Mated	99.6	90.9	91.7	91.1	92.5	88.5	90.8	92.8

The following table summarises the description of sheep on a State basis since 1955 and also gives details of lambing:

Description of Sheep and Details of Lambing—Summary

Particulars	1955	1960	1961	1962	1963	1964	1965
Holdings with Sheep (No.)	5,276	5,950	5,764	5,675	5,415	5,255	5,114
Sheep ('000)—							
Rams (1 year and over)	29	41	42	43	42	41	43
Breeding Ewes ..	1,077	1,520	1,552	1,548	1,608	1,567	1,739
Other Ewes (1 year and over)	177	235	200	208	195	193	157
Wethers (1 year and over)	647	860	850	848	886	890	943
Lambs and Hoggets (under one year) ..	665	838	795	885	839	909	910
Total Sheep and Lambs	2,595	3,494	3,439	3,532	3,570	3,600	3,792
Lambing (a)—							
Ewes Mated .. ('000)	968	1,461	1,378	1,440	1,419	1,458	1,478
Lambs Marked—							
Number .. ('000)	884	1,354	1,267	1,368	1,310	1,353	1,374
As Percentage of Ewes Mated (%)	91.35	92.68	91.94	95.00	92.28	92.84	93.00

(a) In the season preceding the year named.

Breeds of Sheep

Over the last ten years, the breeds of sheep reported by growers have shown a marked trend in favour of Polwarths with a slight relative decline in Merinos and a greater decline in Comebacks and Crossbreds. The following table shows the percentage of the main breeds of sheep (including rams) since 1955:

Proportion of Breeds of Sheep at 31st March
(Per Cent)

Breed	1955	1959 (a)	1961 (a)	1962	1963	1964
Polwarth	24.1	29.8	31.2	34.0	35.8	36.7
Corriedale	17.6	14.7	14.0	14.6	16.1	16.3
Merino	11.5	9.2	10.2	9.5	9.7	9.7
Romney Marsh	2.0	2.5	2.6	2.4	2.5	2.3
Border Leicester	1.3	1.8	1.5	1.6	1.3	1.1
Other Breeds (b)	2.6	3.2	3.4	2.8	3.1	2.4
Comebacks	15.8	13.2	11.4	12.2	11.5	12.2
Crossbreds	25.1	25.6	25.7	22.9	20.0	19.3
Total	100.0	100.0	100.0	100.0	100.0	100.0

(a) Details of breeds of sheep for 1960 were not collected.

(b) Recognised breeds of sheep which individually, in 1964, accounted for less than 1 per cent of all sheep; includes Cheviot, Dorset Horn, English Leicester, Ryeland, Southdown, Suffolk, Lincoln, Poll Dorset and Shropshire.

The Polwarths and Merino Comebacks are well adapted to the sparse grazing of the plateau regions of the Midland Statistical Division. While the Corriedales are mainly run on improved pasture, the Merinos tend to thrive in the drier regions on native grasses; increasing numbers of Merinos are now being raised on sown and semi-improved pastures, the theory that they *had* to be run on hard country being discredited.

Pigs

The geographical distribution of pigs at 31st March, 1964, is shown in the next table:

Description of Pigs in Statistical Divisions
At 31st March, 1964

Particulars	N.W.	N.E.	North Mid- land	Mid- land	S.E.	South- ern	Rest of State	Total
Holdings with pigs ..	2,025	592	241	86	115	215	30	3,304
Pig Numbers—								
Boars	1,528	405	131	27	53	94	22	2,260
Breeding Sows	8,700	2,540	775	126	274	582	237	13,234
Other (a)	45,378	12,733	3,540	492	1,167	2,591	1,139	67,040
Total Pigs	55,606	15,678	4,446	645	1,494	3,267	1,398	82,534

(a) Includes baconers and porkers, backfatters, stores, weaners, suckers and slips.

The concentration of pigs in the North West Statistical Division can be related to the fact that this is the main dairying area and that pig-raising and dairying are almost invariably carried on as closely associated activities, separated milk providing an important item of pigfeed.

Pig Population

The pig population at 31st March each year is not, of itself, a very significant figure. It is possible for a sow to produce two litters within the one year and the offspring to number more than ten in each litter. Even allowing for high initial mortality, it is possible to wean anything from ten to twenty offspring, or even more, from a single sow within a year. It follows, therefore, that the real measure of activity in pig-raising is not so much the size of the pig herd at a particular point in time but rather the number of pigs slaughtered and the dressed carcass weight of the meat so produced; such information is given in the Livestock Products section of this chapter.

The following table summarises pig descriptions and pig numbers since 1950:

Description of Pigs on Rural Holdings

At 31st March	Boars	Breeding Sows	Other (a)	Total Pigs
1950	1,106	5,451	29,284	35,841
1955	1,608	9,065	47,709	58,382
1960	2,075	10,730	54,313	67,118
1961	2,168	11,371	57,343	70,882
1962	2,123	11,422	62,209	75,754
1963	2,112	11,447	56,443	70,002
1964	2,260	13,234	67,040	82,534
1965	2,327	14,578	75,116	92,021

(a) Includes baconers and porkers, backfatters, stores, weaners, suckers and slips.

In the previous table, the most significant increase is in the number of breeding sows. A sow can be mated at nine or ten months and the gestation period is a mere four months. The older technique was to allow the piglets to suckle for eight weeks before weaning but this could involve a 250 lb sow in the loss of 80 to 100 lbs live weight. A newer technique involves weaning within a fortnight so that the sow loses relatively little weight and can be remated within a fortnight or so after farrowing; the short gestation period and the planned synchronisation of farrowing with the maximum periods of food supply make possible the production of two litters within the one year.

LIVESTOCK PRODUCTS**Value of Production**

The statistics in the following section refer, in the main, to quantities of livestock products. The associated values will be found under "Value of Production" in Chapter 7.

Wool

In a report to Lieutenant-Governor Arthur in 1836, the Colonial Secretary, John Montagu, described the early export trade in wool: "From Parliamentary and Custom House Papers, to which I have had access, it appears that the quantity of Wool imported into England from N.S.W. and Van Diemen's Land in 1810 was 167 lbs; in 1820, it amounted to 99,415 lbs; in 1825, to 323,995 lbs. From 1827, the returns for the two Colonies are separated, and from that time I will confine my remarks to Van Diemen's Land." The report then quotes the following exports of wool from the island colony:

**Exports of Greasy Wool—Report of John Montagu
(lb)**

Year	Quantity	Year	Quantity	Year	Quantity
1827	192,075	1830	993,979	1833	1,547,201
1828	528,846	1831	1,359,203	1834	1,601,280
1829	925,320	1832	951,131	1835	1,942,800

Prices in 1824 varied from two and a half cents to five cents per lb but, by 1836, they had increased to range from 15 to 25 cents. The progress of wool production in the remainder of the 19th century can be gathered from the following table (compiled from export figures, since production details were not collected for the whole period):

**Exports of Wool (a) (Oversea and Interstate)—Historical Summary
(’000 lb)**

Year	Quantity	Year	Quantity	Year	Quantity
1835	(b) 2,429	1860	4,538	1885	5,774
1840	3,637	1865	4,924	1890	8,984
1845	3,662	1870	4,147	1895	7,223
1850	5,855	1875	6,199	1900	6,754
1855	5,858	1880	9,025	1905	9,566

(a) The figures relate basically to greasy wool but a small proportion of washed wool is included in the later years.

(b) An amendment of Montagu’s original figure.

Unfortunately the above series cannot be carried through the period 1910-1922 due to lack of interstate trade figures, or through the period 1922-1951 because “pure” greasy wool export figures (i.e. separated from scoured wools and tops and noils) are not available. The expansion of wool production in recent years is illustrated by the following export figures:

**Exports of Wool, Greasy (Oversea and Interstate) from 1950-51
(’000 lb)**

Year	Quantity	Year	Quantity	Year	Quantity
1950-51 ..	12,008	1955-56 ..	18,491	1960-61 ..	24,403
1951-52 ..	14,748	1956-57 ..	20,707	1961-62 ..	27,209
1952-53 ..	16,850	1957-58 ..	23,659	1962-63 ..	26,278
1953-54 ..	15,474	1958-59 ..	25,167	1963-64 ..	25,086
1954-55 ..	17,663	1959-60 ..	27,977		

It should be noted, however, that not all Tasmanian wool is exported in the grease, some being used for manufacturing purposes within the State; any locally processed wool exported would not be classified under greasy wool.

Wool Production

For statistical purposes, the total amount of wool produced in the State in any year does not just consist of the “clip” (shorn wool) but also of the wool on skins, irrespective of whether it is actually removed by local fellmongers or still on the skins when they are exported. Production figures, on this basis, are as follows:

Wool Production Since 1954-55
(^{'000 lb})

Year	Wool as in the Grease			Year	Wool as in the Grease		
	Shorn Wool (including Crutchings)	Fell- mongered and Dead Wool, and Wool on Skins Exported	Total		Shorn Wool (including Crutchings)	Fell- mongered and Dead Wool, and Wool on Skins Exported	Total
1954-55	21,149	2,648	23,797	1960-61	27,881	3,989	31,870
1955-56	20,790	2,632	23,422	1961-62	30,039	4,430	34,469
1956-57	25,705	2,974	28,679	1962-63	30,318	4,243	34,561
1957-58	26,110	3,065	29,175	1963-64	29,597	4,410	34,007
1958-59	28,892	3,742	32,634	1964-65	35,619	4,052	39,671
1959-60	29,091	4,509	33,600				

In the previous tables dealing with exports, a gap exists between 1905 and 1950-51 but production statistics are available as follows:

Total Wool Production—Historical Summary
(^{'000 lb})

Year	Production of Wool (as in the Grease) (a)	Year	Production of Wool (as in the Grease) (a)	Year	Production of Wool (as in the Grease) (a)
1905 ..	11,753	1924-25	12,483	1944-45	16,324
1910 ..	13,339	1929-30	15,000	1949-50	16,958
1914-15 ..	12,049	1934-35	14,035	1954-55	23,797
1919-20 ..	13,069	1939-40	18,334	1959-60	33,600

(a) Total wool production, including shorn, dead and fellmongered wool and wool exported on skins; fellmongered converted to greasy wool equivalent weight.

“Wool as in the Grease”

The above term is used to indicate that fellmongered wool included in total production has been attributed a weight as though it were untreated wool (i.e. wool in the grease) although the original information is supplied in terms of the weight of slipe wool emerging from the fellmongering process. (The relationship between greasy wool and fellmongered wool can be calculated from two yields: (i) Yield of clean wool from fellmongered wool. (ii) Yield of clean wool from greasy wool.) Conversion of such wool to a greasy wool equivalent is logically necessary since the components of total production—shorn wool, &c.—all need to be on a common basis. One hundred pounds of slipe wool may have a greasy wool equivalent weight from approximately 120 to 135 lbs, depending on the nature of the fellmongering process and of the wool itself.

Shorn Wool

The principal months for shearing in Tasmania are October, November and December. The following table gives shearing details for recent years:

Shearing and Shorn Wool Obtained

Year Ended 31st March	Numbers Shorn			Shorn Wool Obtained			Average Yield		
	Sheep	Lambs	Total	From Sheep (a)	From Lambs	Total	From Sheep (a)	From Lambs	Total
1954	'000 2,061	'000 492	'000 2,553	'000 lb. 16,760	'000 lb. 1,002	'000 lb. 17,762	lb. 8.13	lb. 2.04	lb. 6.96
1960	3,003	831	3,834	27,321	1,770	29,091	9.10	2.13	7.59
1961	2,945	733	3,678	26,193	1,688	27,881	8.89	2.30	7.58
1962	3,003	827	3,830	28,193	1,846	30,039	9.39	2.23	7.84
1963	3,021	762	3,783	28,524	1,794	30,318	9.44	2.35	8.02
1964	3,049	819	3,868	27,862	1,735	29,597	9.14	2.12	7.65
1965	3,171	807	3,978	33,752	1,867	35,619	10.64	2.31	8.95

(a) Includes crutchings from sheep.

The next table shows the geographical distribution of shorn wool production for the year 1963-64:

Shearing and Shorn Wool Obtained (a) in Statistical Divisions, 1963-64

Particulars	N.W.	N.E.	North Mid-land	Mid-land	S.E.	South-ern	Rest of State	Total
Number Shorn—								
Sheep (No.)	346,130	465,699	653,075	963,305	514,478	101,887	4,529	3,049,103
Lambs (No.)	112,258	121,525	171,309	273,161	122,185	17,865	918	819,221
Shorn Wool Obtained								
From Sheep ('000 lb)	3,004	4,381	5,898	9,267	4,442	831	39	27,862
From Lambs ('000lb)	358	307	346	464	217	41	2	1,735
Total ('000 lb)	3,362	4,688	6,244	9,731	4,659	872	41	29,597
Average Yield—								
Sheep .. (lb.)	8.68	9.41	9.03	9.62	8.63	8.16	8.61	9.14
Lambs (lb.)	3.19	2.53	2.02	1.70	1.77	2.27	2.18	2.12

(a) Includes crutchings from sheep.

Wool Auctions

The bulk of Tasmanian shorn wool is marketed in Hobart and Launceston at auctions organised by the wool-selling brokers; in a typical year, there are three sales usually in November, February-March, and May. Some wool, however, is bought direct from growers by dealers and by local manufacturers of woollen goods. A small proportion of the State's wool is marketed at Victorian auctions, growers on King Island and Flinders Island tending to use this outlet because of sea transport factors.

The following table shows the average price of shorn greasy wool sold at Tasmanian auctions since World War II and also the value of all wool produced:

Tasmanian Average Auction Price and Total Value of Wool Produced

Year	Average Auction Price per lb. of Shorn Greasy Wool	Total Value of Wool Produced (b)	Year	Average Auction Price per lb. of Shorn Greasy Wool	Total Value of Wool Produced (b)
	Cents	\$'000		Cents	\$'000
1944-45 (a)	16.17	2,680	1955-56 ..	54.60	12,380
1945-46 (a)	15.52	2,262	1956-57 ..	71.82	19,948
1946-47 ..	23.00	3,880	1957-58 ..	54.62	15,484
1947-48 ..	37.23	5,714	1958-59 ..	43.99	13,688
1948-49 ..	46.92	7,530	1959-60 ..	51.62	16,508
1949-50 ..	59.65	9,530	1960-61 ..	48.18	14,458
1950-51 ..	150.05	24,226	1961-62 ..	48.62	15,752
1951-52 ..	57.59	11,218	1962-63 ..	55.12	17,772
1952-53 ..	67.42	12,758	1963-64 ..	67.40	21,352
1953-54 ..	69.09	13,310	1964-65 ..	49.35	19,050
1954-55 ..	63.75	14,464			

(a) In years 1944-45 and 1945-46, price is the average appraised price fixed under an agreement with the British Government (the agreement operating from 1939-40 to 1945-46).

(b) Includes value of shorn wool, fellmongered and dead wool and estimated value of wool exported on skins. Excludes profits of \$3,201,510 arising from the War-time Wool Disposals Plan and distributed to growers in the period 1949-50 to 1954-55.

The preceding price series refers only to shorn greasy wool sold at auction. In arriving at the value series for all wool produced, account is taken not only of auction prices but also of dealers' transactions, manufacturers' direct purchases from growers, fellmongering operations and exports of wool on skins.

Classification of Greasy Wool Sold at Auction

The next table shows, on a percentage basis, the proportion of wool sold at auction according to its predominating quality:

Classification of Greasy Wool Sold at Tasmanian Auctions According to Quality (a)
(Source: Australian Wool Bureau)

Predominating Quality	Proportion of Each Quality (Per Cent)					
	1954-55	1959-60	1960-61	1961-62	1962-63	1963-64
70's and Finer	6.0	5.5	5.6	5.8	5.9	6.4
64/70's	2.6	2.6	2.8	2.7	3.3	2.8
64's	3.4	3.9	4.3	4.4	4.8	4.9
64/60's	0.6	0.5	0.7	0.4	0.6	0.8
60/64's	7.2	9.2	8.7	8.2	8.3	9.7
60's and 60/58's	14.8	17.4	18.7	17.7	17.5	19.1
Total 60's and Finer ..	34.6	39.1	40.8	39.2	40.4	43.7
58's	26.0	23.7	24.3	27.0	25.9	25.0
56's	22.9	20.1	19.3	18.5	18.4	16.9
50's	10.0	10.2	9.5	9.2	8.9	8.0
Below 50's	5.2	4.9	3.8	4.3	4.0	3.3
Oddments	1.3	2.0	2.3	1.8	2.4	3.1
Total All Wool ..	100.0	100.0	100.0	100.0	100.0	100.0

The above information is compiled by the Wool Statistical Service of the Australian Wool Board on the basis of catalogues of auction sales. "Quality" (64's, 60's, 58's, &c.) is a measure of the fineness and texture of wool for spinning purposes. Broadly, it means the maximum number of hanks of yarn, each of 560 yards in length, which can be spun from one pound of combed wool. For instance, wool of 64's quality is of a fineness and texture which will produce 64 hanks, each of 560 yards, from one pound of tops (combed wool) of that particular wool.

Clean Wool Yield

The Tasmanian proportion of auctioned greasy wool classified as "60's and finer" in recent years has approximated 40 per cent whereas the corresponding Australian proportion exceeds 70 per cent. In the matter of price, however, the Tasmanian auction average is usually a few cents above the Australian auction average. Tasmanian averages, with Australian equivalents in brackets, have been:—1960-61, 48.18c (43.38c); 1961-62, 48.62c (45.11c); 1962-63, 55.12c (49.17c); 1963-64, 67.40c (58.08c). This apparent contradiction is explained by taking into account a second factor, not included in the foregoing quality analysis, namely the yield of clean wool that can be obtained from greasy wool. In respect of this factor, Tasmanian wools tend to yield higher than Australian, both natural and artificial environmental factors operating to the advantage of the Tasmanian clip. Evidence of this peculiarity of Tasmanian wool is provided in the next table:

Average Clean Yield of Wool Clip, Tasmania and Other Australian States
(Source: Wool Statistical Service)

State of Sale (a)	Percentage of Clean Yield from Greasy Wool					
	1954-55	1959-60	1960-61	1961-62	1962-63	1963-64
N.S.W.	54.61	56.37	56.48	56.75	56.92	57.42
Victoria	59.69	59.35	59.05	59.19	58.99	59.63
Queensland	55.35	55.26	56.10	55.63	56.16	56.21
S.A.	52.72	53.10	53.67	54.07	53.12	53.98
W.A.	53.22	54.92	55.43	55.27	54.04	55.26
Tasmania	63.14	63.08	62.95	62.51	62.93	62.93
Australia	55.97	56.73	56.90	56.96	56.81	57.38

(a) Wool from the continental States is not sold at Tasmanian auctions so, for Tasmania, 'State of Sale' and 'State of Origin' are virtually the same except that some King and Flinders Islands' wool is sold at Victorian auctions.

As the above figures suggest, Tasmanian wool is freer from dust and vegetable fault than wool produced in the continental States.

While the proportion of fine wool (60's and finer) is comparatively low in the Tasmanian clip (since the State is historically and climatically a producer of crossbred wool), nevertheless growers offering "60's and finer" sell a very high proportion of superfine Merino wool at premium prices; this factor also operates to raise Tasmanian average auction prices above the Australian average.

Meat

Slaughtering

An obvious starting point in any description of meat production is the slaughtering of livestock for human consumption. To fully record the level of this activity, statistics should deal with operations in abattoirs, other

slaughtering establishments and factories; slaughtering on farms also needs to be taken into account since some owners consume their own livestock. Information on this complete basis did not become available before 1912, previous statistics relating only to slaughtering in Hobart and Launceston. The following table has been compiled to give an indication of slaughtering activity from 1912 to the present day:

Stock Slaughtered (a) For Human Consumption—Historical Summary ('000)

Year	Cattle and Calves	Sheep and Lambs	Pigs	Year	Cattle and Calves	Sheep and Lambs	Pigs
1912 ..	29	216	16	1954-55 ..	75	643	79
1915 ..	32	309	32	1959-60 ..	145	1,166	115
1924-25 ..	36	276	55	1960-61 ..	115	1,076	111
1929-30 ..	35	342	64	1961-62 ..	135	1,160	120
1934-35 ..	38	349	51	1962-63 ..	158	1,095	115
1939-40 ..	48	461	73	1963-64 ..	176	1,127	124
1944-45 ..	47	509	58	1964-65 ..	174	987	135
1949-50 ..	58	508	51				

(a) In all registered slaughtering establishments and on farms.

The next table, compiled on the same basis, covers the last ten years and analyses the items "Cattle and Calves" and "Sheep and Lambs":

Stock Slaughtered (a) for Human Consumption ('000)

Year	Cattle and Calves				Sheep and Lambs			Pigs
	Bulls, Bullocks & Steers	Cows and Heifers	Calves	Total	Sheep	Lambs	Total	
1954-55 ..	27	33	15	75	287	356	643	79
1959-60 ..	47	57	41	145	505	661	1,166	115
1960-61 ..	36	43	36	115	475	601	1,076	111
1961-62 ..	42	49	44	135	511	649	1,160	120
1962-63 ..	50	62	46	158	466	629	1,095	115
1963-64 (b) ..	51	71	54	176	545	582	1,127	124
1964-65 ..	53	71	50	174	425	562	987	135

(a) In all registered slaughtering establishments and on farms.

(b) In 1963-64, the farm component of total livestock slaughtered was: cattle and calves, 908; sheep and lambs, 84,762; pigs, 1,410.

Meat Production

Slaughtering statistics in the previous two tables suggest that there has been a very marked increase in meat production in the last ten years but a more certain indicator is the actual carcass weight produced. The necessary weight data are collected from abattoirs, factories and licensed slaughterhouses (including "country butchers"); in the case of livestock killed on farms, only the numbers are available and the resulting carcass weight has to be estimated.

Statistics in terms of carcass weight cover the same field as the previous tables on slaughtering. The following table shows, in summary form, details of meat production since 1924-25:

Production of Meat—Historical Summary
(’000 Tons—Carcass Weight)

Year	Beef and Veal	Mutton and Lamb	Pigmeat (a)	Total Meat	Year	Beef and Veal	Mutton and Lamb	Pigmeat (a)	Total Meat
1924-25 ..	8.1	5.0	2.5	15.6	1959-60	23.1	20.8	5.4	49.3
1929-30 ..	8.0	6.0	2.8	16.8	1960-61	16.9	18.9	5.1	40.9
1934-35 ..	8.1	6.0	2.3	16.4	1961-62	19.7	20.2	5.4	45.3
1939-40 ..	10.6	7.7	3.5	21.8	1962-63	23.7	19.4	5.4	48.5
1944-45 ..	9.2	9.2	3.0	21.4	1963-64	25.9	20.1	5.9	51.9
1949-50 ..	12.3	8.9	2.6	23.8	1964-65	26.3	18.1	6.6	51.0
1954-55 ..	13.7	11.9	3.4	29.0					

(a) Includes pork for manufacture into bacon and ham.

The next table, compiled on the same basis, covers the last ten years and analyses the items “Beef and Veal” and “Mutton and Lamb”:

Production of Meat
(’000 Tons—Carcass Weight)

Year	Beef and Veal			Mutton and Lamb			Pigmeat (a)	Total Meat
	Beef	Veal	Total	Mutton	Lamb	Total		
1954-55 ..	13.3	0.4	13.7	6.0	5.9	11.9	3.4	29.0
1959-60 ..	22.2	0.9	23.1	10.1	10.7	20.8	5.4	49.3
1960-61 ..	16.1	0.8	16.9	9.4	9.5	18.9	5.1	40.9
1961-62 ..	18.8	0.9	19.7	10.1	10.1	20.2	5.4	45.3
1962-63 ..	22.7	1.0	23.7	9.5	9.9	19.4	5.4	48.5
1963-64 ..	24.6	1.3	25.9	10.9	9.2	20.1	5.9	51.9
1964-65 ..	25.4	0.9	26.3	9.1	9.0	18.1	6.6	51.0

(a) Includes pork for manufacture into bacon and ham.

Export of Meat

As early as 1890, the Australian continental States were exporting frozen (and later, chilled) lamb, mutton, beef and veal to overseas destinations but the development of a similar meat export trade from Tasmania has been of comparatively recent origin. The first major step was in the field of fat lamb production when the 1931-32 season resulted in approximately 19,000 carcasses being exported overseas; unfortunately the birth of this activity coincided with the economic depression of the 1930's and the attempt to introduce a new line in “mixed” farming was at first discouraged by low prices. World War II saw a revival of demand with over 100,000 carcasses exported overseas in 1943-44, and, after something of a decline in the early post-war period, exports climbed to a record 161,815 carcasses in 1959-60.

The other major development has been the growth of an export trade in beef and veal, the first shipments overseas commencing in 1954-55. The following are meat export figures for 1963-64 expressed in tons. Unfortunately export weights cannot be directly compared with production weights since the former include boneless meat while the latter are in terms of carcass weight.

**Exports of Meat, 1963-64
(Tons)**

Exported from Tasmania—	Beef and Veal	Lamb	Mutton	Pork	Offal (Edible)	Bacon and Ham
Interstate	1,272	131	454	1,017	..	13
Oversea	4,636	893	1,886	1	524	..
Total	5,908	1,024	2,340	1,018	524	13

The importance of the overseas meat trade can be judged from Australian Meat Board estimates of the percentage of Tasmanian production actually exported. The trend in recent years is shown in the following table:

**Proportion of Tasmanian Meat Production Exported Overseas (a)
(Source: Australian Meat Board)
(Per Cent)**

Meat	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64 (b)
Beef & Veal	2.2	..	..	2.5	4.5	8.7	7.7	14.7	20.0	26.1
Mutton	..	..	..	1.8	1.4	6.0	3.2	10.9	17.6	27.5
Lamb	13.6	10.6	13.0	13.2	25.5	23.0	17.7	12.7	13.6	9.6

(a) The estimated percentages are derived by converting actual export weights to a carcass weight equivalent, thus giving a basis for comparison with production figures.

(b) Subject to revision.

Meat Export Works

In 1963-64, the three main meat export works listed by the Australian Meat Board were at Hobart, Launceston and Burnie, (i.e. establishments with chilling, freezing and storage facilities). There were five other meat export works without storage facilities or with limited storage facilities and these were located at Hobart, Launceston, Devonport, King Island and Sorell.

In broad terms, it is true to say that Tasmania has changed from a meat importing to a meat exporting State and this development can be related to the changed pattern of farming, the most significant indicator being the increase in the area of sown pasture and in the number of livestock carried.

Bacon and Ham

In the tables on meat production, the product from pig slaughtering has been referred to as "pigmeat". Approximately 25 per cent of pigmeat was converted to bacon and ham in 1964-65. The next table shows the production of bacon and ham since 1939-40 in summary form:

**Production of Bacon and Ham
(Tons)**

Year	Bacon and Ham			Year	Bacon and Ham		
	Factory	Farm	Total		Factory	Farm	Total
1939-40	1,142	150	1,292	1960-61	1,100	20	1,120
1944-45	1,122	68	1,190	1961-62	1,112	19	1,131
1949-50	948	43	991	1962-63	1,165	17	1,182
1954-55	992	35	1,027	1963-64	1,151	15	1,166
1959-60	1,120	24	1,144	1964-65	1,158	13	1,171

Previous reference has been made to the close association between pig-raising and dairying, many dairy holdings raising pigs as a subsidiary activity.

Dairy Products

In 1964-65, Tasmania's production of milk reached a record level of 87,112,000 gallons. The following table summarises milk production since World War II:

Milk Production and Milk Utilisation—Summary

Year	Quantity of Milk Used For—			Total Milk Production	Dairy Cows at 31st March	Average Annual Production of Milk per Dairy Cow (b)
	Butter Making (Factory and Farm)	Cheese Making (Factory and Farm)	Other Purposes (a)			
	'000 Gals.	'000 Gals.	'000 Gals.	'000 Gals.	No.	Gals.
1944-45 ..	19,019	2,629	7,080	28,728	75,435	382
1949-50 ..	25,680	929	10,277	36,886	89,546	424
1954-55 ..	39,836	548	11,637	52,021	111,781	485
1959-60 ..	55,269	819	14,138	70,226	126,183	554
1960-61 ..	48,264	888	14,706	63,858	126,611	505
1961-62 ..	56,621	1,415	15,170	73,206	134,048	562
1962-63 ..	61,322	1,501	15,695	78,518	141,255	570
1963-64 ..	63,970	2,994	16,160	83,124	(c) 140,425	(c) 577
1964-65 ..	64,835	5,265	17,012	87,112	(c) 143,257	(c) 588

(a) Milk used for "other purposes" goes into the making of cream, ice cream, milk powder, concentrated milk, and other preserved milk products. It includes milk consumed as such.

(b) Milk yielding population is taken as mean of "dairy cows—in milk and dry" at 31st March in year of production and in preceding year. The figures should therefore be treated as an index rather than as an actual average quantity of milk produced per dairy cow.

(c) The 1963-64 farm census recorded house cows (i.e. kept primarily for own milk supply) as a separate item excluded from the dairy cow population. It follows that 1963-64 and following figures are not strictly comparable with those of previous years.

Production of Butter and Cheese

The Australian dairying industry is capable of producing butter and cheese in quantities considerably greater than are required for domestic consumption, but competition from other countries in overseas markets has resulted in low prices which tend to discourage exports. The solution to this problem has been, in general terms, to pool the returns from both domestic sales and overseas sales and to distribute from the pool to each individual factory, irrespective of whether its products are sold at home or abroad; in effect, a process of price equalisation operates, the higher domestic price being used as an offset to the lower overseas price. The administrative body implementing this scheme is the Commonwealth Dairy Produce Equalisation Committee Ltd.

The industry also receives subsidies from the Commonwealth Government under the provisions of the various Dairy Industry Assistance Acts, the first of which was passed in 1942. Subsidies are distributed by the Commonwealth Dairy Produce Equalisation Committee through factories to milk producers by payments on milk and cheese manufactured. It follows, then, that in the marketing of butter and cheese, two factors are in operation: (i) price equalisation directly affecting the return to factories; (ii) subsidies directly affecting the return to milk producers.

It should be noted that the Commonwealth subsidy is applicable to factory butter and cheese but not to the same products manufactured on farms; the decline in farm production is probably related in part to this factor.

Although Tasmanian butter factories had been in operation before the turn of the century, it was not till 1911 that annual factory production exceeded 1,000 tons and even by 1938-39, factory butter output was only approximately 4,000 tons. The next table summarises total production of butter and cheese since 1939-40:

**Production of Butter and Cheese
(Tons)**

Year	Butter			Cheese		
	Factory (a)	Farm	Total	Factory	Farm	Total
1939-40 ..	4,156	1,139	5,295	1,395	52	1,447
1944-45 ..	3,643	448	4,091	1,122	59	1,181
1949-50 ..	5,069	456	5,525	418	3	421
1954-55 ..	8,334	236	8,570	274	..	274
1959-60 ..	11,744	144	11,888	328	38	366
1960-61 ..	10,258	127	10,385	348	45	393
1961-62 ..	12,063	118	12,181	605	26	631
1962-63 ..	13,097	96	13,193	643	27	670
1963-64 ..	13,667	96	13,763	1,337	..	1,337
1964-65 ..	13,903	96	13,999	2,350	(b)	2,350

(a) Includes butter equivalent of butter oil.

(b) Not available.

Disposal of Butter

Tasmania is a butter exporting State as shown in the following table:

**Butter—Production, Exports and Local Sales
(Tons)**

Year	Production (Farm and Factory)	Net Exports (a)	Local Sales (b)	Year	Production (Farm and Factory)	Net Exports (a)	Local Sales (b)
1955-56	10,214	5,696	4,620	1960-61	10,385	5,301	4,685
1956-57	10,664	6,003	4,620	1961-62	12,181	7,457	4,467
1957-58	10,845	5,845	4,703	1962-63	13,193	8,642	4,521
1958-59	11,001	6,956	4,300	1963-64	13,763	8,227	4,885
1959-60	11,888	7,741	4,612	1964-65	13,903	10,231	4,527

(a) Net and gross are identical except in 1960-61 when 35 tons were imported. Includes overseas and interstate.

(b) Source: Commonwealth Dairy Produce Equalisation Committee Ltd. Includes factory consumption of butter.

Bee-Farming

Originally bee-farming statistics were collected from all apiarists irrespective of the number of hives operated but, as from 1956-57, the collection was restricted to apiarists operating five or more hives. The next table summarises bee-keeping statistics from 1956-57:

Bee-Farming

Year	Apiarists	Total of Hives	Honey Produced		Beeswax Produced	
			Quantity	Average Per Productive Hive	Quantity	Average Per Productive Hive
1956-57 ..	No. 183	No. 5,422	'000 lb. 372.2	lb. 87.6	'000 lb. 4.8	lb. 1.13
1959-60 ..	187	6,885	296.2	59.2	3.9	0.78
1960-61 ..	175	6,429	441.0	92.7	4.8	1.02
1961-62 ..	164	6,651	278.6	57.1	3.8	0.78
1962-63 ..	153	7,156	547.3	103.3	6.2	1.16
1963-64 ..	160	7,261	632.1	111.9	6.3	1.11
1964-65 ..	202	8,373	715.3	114.5	10.1	1.61

A proportion of the larger commercial apiarists can be described as "migratory", in the sense that they seasonally move their hives into the leatherwood areas of the West Coast; some hives are also moved into the orchard and small fruit areas at flowering time.

Poultry Farming

Egg Production

Not only farmers, but also many persons on holdings in rural and urban areas not coming within the "rural holding" definition keep poultry, and it therefore follows that the annual farm census cannot give an indication of the total number of eggs produced annually. Some indication of the trend in commercial egg production in other States is available from the reports of the Australian Egg Board which publishes data supplied by the various State egg marketing boards. Until the year 1957-58, details were also published for Tasmanian commercial production but from February, 1958, the operation of the Tasmanian Egg Marketing Board was modified by the lifting of restrictions on the private sale of eggs by producers and by the withdrawal of the requirement that producers should notify the Board progressively of quantities sold.

Details of commercial production of eggs in Tasmania (expressed in millions of dozens) and published by the Australian Egg Board were: 1944-45, 1.2; 1945-46, 1.2; 1946-47, 0.9; 1947-48, 0.8; 1948-49, 1.1; 1949-50, 1.5; 1950-51, 1.3; 1951-52, 1.0; 1952-53, 1.1; 1953-54 to 1956-57, 0.9 annually. Operations of the State Egg Board continue but there is insufficient information to extend the series beyond 1956-57.

Poultry Slaughterings

As from 1960-61, a collection was instituted covering the operations of commercial poultry slaughtering establishments in Tasmania. The results are set out below:

Poultry Slaughterings (a)
('000)

Kind of Poultry	1960-61	1961-62	1962-63	1963-64
Boiler Hens	79	91	88	99
Broilers—Under 2 lb. dressed weight ..	57	76	110	140
2 lb. and over, dressed weight ..	203	288	267	273
Ducks	9	12	7	9
Geese	1	1	1	1
Turkeys	6	9	6	8

(a) In commercial poultry slaughtering establishments only.

RURAL POPULATION AND EMPLOYMENT

Permanent Residents on Rural Holdings

Persons of all ages residing permanently on rural holdings (as defined for statistical purposes) numbered 26,148 males, 23,478 females, or 49,626 persons at the 31st March, 1964. The corresponding number of persons in 1963 was 30,161 and in 1962, 31,101.

When those of school and lower ages, and women engaged in domestic duties, &c. have been excluded, the remaining rural population is not necessarily engaged full-time in farming. In actual fact, some who are included in farm population devote much of their time to non-farming activities such as working in commercial or industrial enterprises, commercial fishing, sawmilling, &c. (which is only to be expected since a rural holding may be as small as one acre).

Employment on Rural Holdings

The following table gives details of males working on rural holdings as reported in the annual farm census at 31st March:

Male Farm Workers at 31st March

Particulars	1954	1961	1962	1963	1964
Number of Rural Holdings, 1 Acre and Over	11,818	11,201	11,117	10,974	10,949
Males Working Permanently Full-time on Holdings—					
Owners, Lessees or Share Farmers	9,610	7,615	7,614	7,457	7,685
Relatives of Owners, &c. over 14 years not Receiving Wages	500	189	93	111	40
Employees including Managers and Relatives Working for Wages or Salary	4,672	4,293	4,090	4,053	4,038
Total Permanent Males	14,782	12,097	11,797	11,621	11,763
Males Working Temporarily on Holdings on Wages or Contract	5,205	5,300	5,332	5,139	5,733

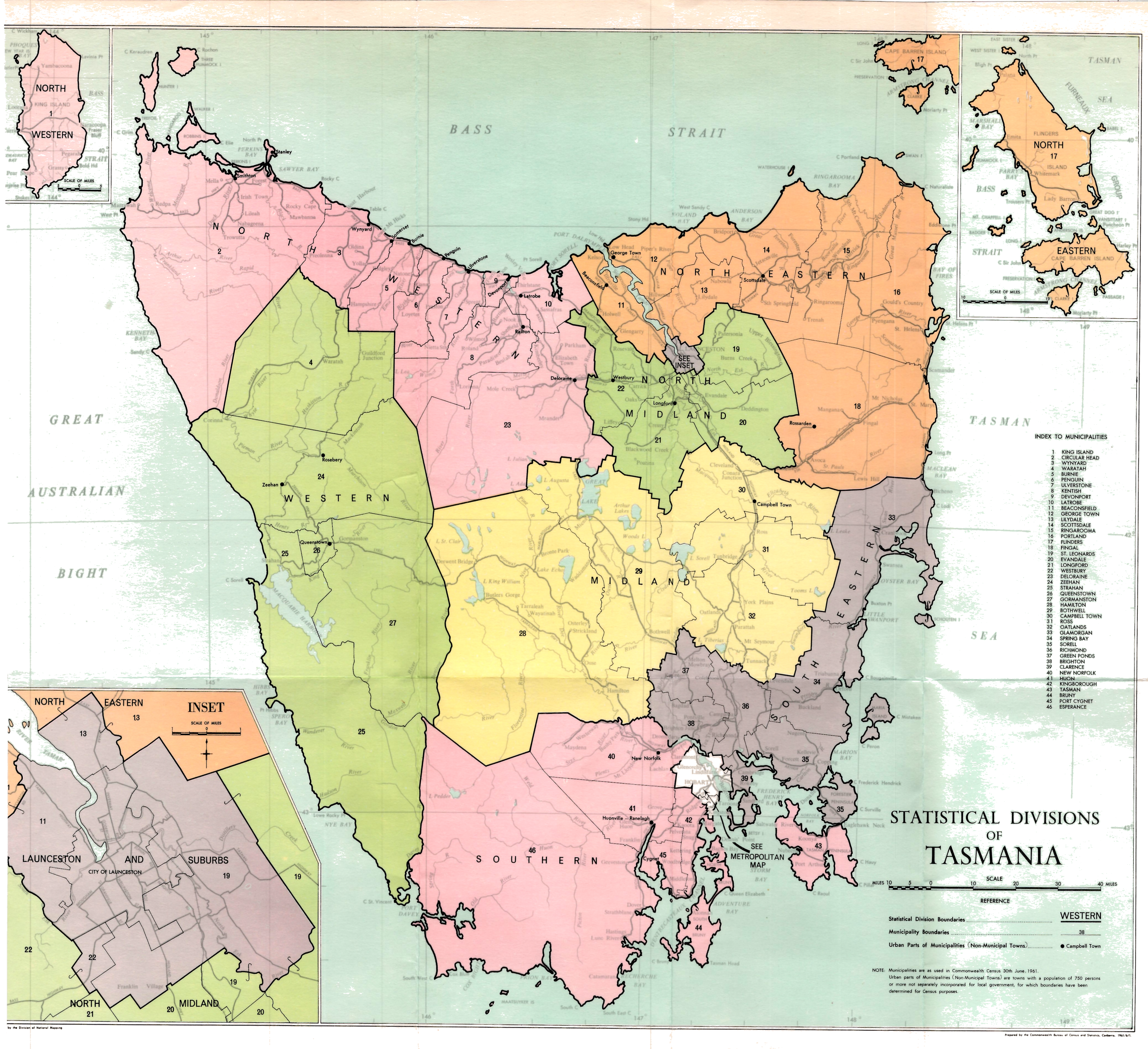
Female Workers on Rural Holdings

Similar details of female employment are not available due to a difficulty of definition; the difficulty is to establish in what degree a woman performing ordinary domestic duties on a rural holding performs other tasks that justify her classification as a *permanent full-time worker*, in the same sense that the term is applied to a male.

TECHNICAL ASPECTS OF RURAL INDUSTRY

Farm Machinery on Rural Holdings

The previous table showing male farm workers over a ten-year period indicated a substantial fall in the rural work force. This decline must be associated, in some degree, with the increasing use of machinery on farms. Perhaps the best indicator of the trend in farm mechanisation is the number of tractors on rural holdings:



INDEX TO MUNICIPALITIES

- 1 KING ISLAND
- 2 CIRCULAR HEAD
- 3 WYNYARD
- 4 WARATAH
- 5 BURNIE
- 6 PENGUIN
- 7 ULVERSTONE
- 8 KENTISH
- 9 DEVONPORT
- 10 LATROBE
- 11 BEACONSFIELD
- 12 GEORGE TOWN
- 13 ULYDALE
- 14 SCOTSDALE
- 15 RINGAROOMA
- 16 PORTLAND
- 17 FLINDERS
- 18 FINGAL
- 19 ST. LEONARDS
- 20 EVANDALE
- 21 LONGFORD
- 22 WESTBURY
- 23 DELORAIN
- 24 ZEEHAN
- 25 STRAHAN
- 26 QUEENSTOWN
- 27 GORMANSTON
- 28 HAMILTON
- 29 BOTHWELL
- 30 CAMPBELL TOWN
- 31 ROSS
- 32 OATLANDS
- 33 GLAMORGAN
- 34 SPRING BAY
- 35 SORELL
- 36 RICHMOND
- 37 GREEN PONDS
- 38 BRIGHTON
- 39 CLARENCE
- 40 NEW NORFOLK
- 41 HUON
- 42 KINGBOROUGH
- 43 TASMAN
- 44 BRUNY
- 45 PORT CYGNET
- 46 ESPERANCE

STATISTICAL DIVISIONS
OF
TASMANIA

MILES 10 5 0 10 20 30 40 MILES

REFERENCE

- Statistical Division Boundaries _____
- Municipality Boundaries _____
- Urban Parts of Municipalities (Non-Municipal Towns) _____
- WESTERN 38
- Campbell Town

NOTE: Municipalities are as used in Commonwealth Census 30th June, 1961.
Urban parts of Municipalities (Non-Municipal Towns) are towns with a population of 750 persons or more not separately incorporated for local government, for which boundaries have been determined for Census purposes.

Number of Tractors on Rural Holdings at 31st March

Type of Tractor	1954	1961	1962	1963	1964
Wheeled	5,111	8,641	9,035	9,605	9,831
Crawler	547	974	962	1,022	1,073
Total	5,658	9,615	9,997	10,627	10,904

In reviewing the complete field of farm mechanisation, it is not possible to make a ten-year comparison since some items have only become available in the required detail since 1959. The following table gives details of machinery on rural holdings at 31st March:

Machinery on Rural Holdings at 31st March

Type of Machinery	1959	1960	1961	1962	1963	1964
Cultivating Equipment—						
Rotary Hoes—						
Self Contained Power Unit						
Type	1,134	1,088	1,073	1,112	1,127	1,218
Tractor Mounted Type ..	525	548	576	605	610	681
Harvesting Equipment—						
Headers, Strippers and Other						
Harvesters	699	662	601	656	687	637
Mowers—						
Power Drive	3,639	3,866	4,050	4,341	4,592	4,703
Ground Drive	2,000	1,887	1,603	1,510	1,324	1,294
Hay Rakes—						
Side Delivery	1,650	1,709	1,904	1,977	2,121	2,198
Buck	923	948	984	1,027	1,005	1,034
Dump	1,448	1,389	1,312	1,233	1,161	1,147
Forage Harvesters	69	122	159	186	216	231
Pick-up Balers	1,025	1,100	1,232	1,346	1,405	1,494
Stationary Hay Presses ..	500	461	416	382	(a)	(a)
Potato Diggers	1,139	1,095	1,053	1,020	995	1,002
Seeding and Planting Equipment—						
Grain Drills (All Types) ..	3,871	3,840	3,867	3,899	3,884	4,002
Fertiliser Distributors and Broad-						
casters—						
Rotary	2,989	3,060	3,151	3,225	3,338	3,455
Direct Drop	1,778	1,851	1,945	1,947	1,917	1,970
Potato Planters	(a)	196	206	210	214	204
Other Equipment—						
Shearing Machines (No. of						
Stands)	3,798	3,899	4,052	4,113	4,249	4,371
Milking Machines (No. of						
Stands)	10,721	11,051	11,704	12,220	12,701	13,382
Hammer Mills	225	227	261	301	343	415
Power Driven Spray Plants—						
Fruit	1,273	1,226	1,171	1,165	1,179	1,214
Vegetable and Pasture ..	744	830	1,046	1,186	1,283	1,528
Power Driven Irrigation Plants	862	937	1,089	1,280	1,330	1,865

(a) Not available.

Artificial Fertilisers

The trend over the last ten years has been to greater use of artificial fertilisers as illustrated in the next table:

Artificial Fertilisers Used

Particulars	Unit	1954-55	1960-61	1961-62	1962-63	1963-64
Vegetables (a)—						
Area Fertilised	'000 Acres	52	39	48	26	25
Fertiliser Used—Total ..	'000 Cwt.	178	135	164	142	132
Per Acre	Cwt.	3.39	3.45	3.43	5.53	5.26
Fruit—						
Area Fertilised	'000 Acres	20	19	19	20	21
Fertiliser Used—Total ..	'000 Cwt.	113	111	97	133	149
Per Acre	Cwt.	5.65	5.94	5.21	6.64	7.08
Pastures—						
Area Fertilised	'000 Acres	767	1,080	1,154	1,165	1,291
Fertiliser Used—Total ..	'000 Cwt.	1,043	1,702	1,767	1,905	2,165
Per Acre	Cwt.	1.36	1.58	1.53	1.63	1.68
Other Crops—						
Area Fertilised	'000 Acres	111	98	110	160	189
Fertiliser Used—Total ..	'000 Cwt.	181	193	228	310	384
Per Acre	Cwt.	1.66	1.96	2.07	1.95	2.04
Total Usage—						
Area Fertilised	'000 Acres	950	1,236	1,331	1,371	1,526
Fertiliser Used	'000 Cwt.	1,515	2,141	2,256	2,490	2,830

In the twenty-year period ending in 1963-64, artificial fertiliser usage has risen rapidly, the area treated increasing by 250 per cent and the quantity applied by over 300 per cent. Two factors mainly account for these movements: (i) the marked increase in the area of treated pasture; (ii) the trend to more intensive application per acre generally.

Types of Artificial Fertiliser

The basic types of artificial fertiliser employed are phosphatic (e.g. super phosphate), nitrogenous (e.g. sulphate of ammonia) and potassic (e.g. muriate of potash), their essential chemical contribution to plant nutrition being phosphoric acid (P_2O_5), nitrogen (N) and potash (K_2O). Superphosphate, either "straight" or with additives, is most widely used in Tasmania, the additives consisting of trace elements such as cobalt, molybdenum, copper, boron, zinc, etc. In addition to the basic fertiliser types, the following combinations are also in use: mixed nitrogenous and phosphatic; mixed nitrogenous and potassic; mixed phosphatic and potassic; mixed nitrogenous, phosphatic and potassic. Due to the numerous combinations on the market, it has not been possible to obtain any detailed analysis of the fertiliser types applied to various purposes.

Mere weight of artificial fertiliser applied is a relatively crude measure of efforts to provide plant nutrients. For example, as a supplier of nitrogen and phosphoric acid, ammonium phosphate weighs only one third of the mixture of ammonium sulphate and superphosphate calculated to give the same amount of nutrients (assuming that the soil to be treated is not deficient in either calcium or sulphur). It follows that the tendency to increasingly use this and other concentrated fertilisers will have the effect of reducing the weight of fertiliser applied but nevertheless lead to an actual increase in the supply of plant nutrients.

Aerial Agriculture

The term "aerial agriculture" is applied to the use of aircraft for top-dressing and seeding, for spraying and dusting of crops and pastures, and for pest and vermin destruction. In Tasmania, the obvious limitations to more extensive development of this technique are small holdings and the nature of the terrain. The area treated from aircraft in the year 1963-64 (in '000 acres) was as follows: N.S.W., 8,692; Victoria, 1,640; Queensland, 516; S.A., 1,314 W.A., 1,529; Tasmania, 102. Even though the area treated in Tasmania is relatively small compared with that in the continental States, there has nevertheless been rapid development of this technique.

The following table gives details:

Aerial Agriculture
(Source: Department of Civil Aviation)

Year	Total Area Treated (a)	Superphosphate and Seed					Aircraft Utilisation (Flying Time)
		Area Treated			Material Used		
		Super-phosphate Alone	Super-phosphate and Seed	Seed Alone	Super-phosphate	Seed	
	Acres	Acres	Acres	Acres	Tons	lb.	Hours
1956-57	41,260	26,410	14,850	..	3,361	31,900	1,861
1957-58	104,055	95,780	7,025	..	6,167	7,800	2,234
1958-59	61,910	59,010	300	..	3,484	300	1,224
1959-60	72,617	63,295	2,675	80	4,759	582	1,270
1960-61	82,931	81,060	..	..	6,237	..	1,782
1961-62	88,200	78,430	..	100	4,612	300	1,107
1962-63	80,290	58,330	21,820	..	5,631	24,280	1,122
1963-64	101,986	62,570	20,656	..	7,668	10,560	1,640

(a) Including spraying and dusting of crops and pastures with insecticides, herbicides, etc.

Area of Land Irrigated

Comparison

In 1963-64, both N.S.W. and Victoria each had over one million acres of irrigated land; by way of contrast, the Tasmanian total was only 33,570 acres. Owing to the generally more reliable rainfall in Tasmania, scarcity of water is not such a problem as it is in the continental States, though not all streams are by any means permanently flowing.

Farm Storages

Until a few years ago, Tasmanian irrigated areas were negligible except for long-established hop fields, but there is a rapidly expanding use of spray irrigation on orchards and pastures and to some extent on potatoes and other vegetable crops. Up to the present, there has been an almost complete dependence on natural stream flows, but the need for some regulating storages is now apparent. Farmers are constructing storages of their own, and the extension of this practice is seen as the logical solution in most areas, as valleys are narrow and steep sided. Single large reservoirs cannot economically serve large areas of suitable land, as nearly every valley is separated from others by pronounced hills, prohibiting the construction of cross-country channels.

Water Resources

It is true that the State has very large volumes of water stored in the central lakes and behind the dams of the State Hydro-Electric Commission but no large irrigation scheme based on power-house discharge has yet been initiated. Unlike the Snowy River scheme, Tasmanian hydro-electric construction has been undertaken with production of power as the primary goal although the resulting storages of water at high level could obviously be the logical starting point for extensive irrigation schemes if the decision were taken to develop them.

The Derwent affords an example of the benefits of hydro-electric power development in regulating the flow of a river. Prior to the installation of the Waddamana Power Station in 1916, when the river was completely unregulated, the summer minimum flow was known to have fallen as low as 200 cusecs, and it is estimated that the lowest ever was possibly 120 cusecs. Today, regulated by the highland storages, the minimum summer flow in normal operating conditions is about 1,400 cusecs and the average summer flow is considerably above this figure. In actual fact, the long term average flow at present being maintained in the River Derwent at its lower levels is about 4,500 cusecs (i.e. 2,250 million gallons per day or approximately nine times the average amount consumed daily from the water supply system serving Sydney and Wollongong). A flow of 4,500 cusecs, assuming no evaporation, would fill Australia's largest storage—the Eucumbene—in just over a year, the Eildon in 10 months, the Hume in nine months, the Menindee Lakes in seven months, or the Warra-gamba in six months. The Derwent is an obvious example of a river from which large quantities of water can now be obtained without the creation of storages and similar opportunities exist on the South Esk, Huon, Lake, Mersey and Forth Rivers. The State's biggest rivers, the Gordon and Pieman, flow out to the West Coast and no diversion to the eastern half of the watersheds has been planned, if indeed such a scheme were practicable.

There are no State irrigation projects at present, but the State Rivers and Water Supply Commission is investigating the possibility of establishing a storage for the Coal Valley and preliminary investigations have also been made in the Jordan Valley. Discussions between the Commonwealth and State Governments have been held on the possibility of irrigating the Cressy-Longford area with power-house discharge from the Poatina turbines at the north-east of the Great Lake. (In 1965, the Commonwealth Government refused to make a grant available for this project.)

To summarise, it can be said that irrigation still plays only a minor role in Tasmanian farming generally but the basic resource—water—is available in plenty if ever the decision is taken to exploit the possibilities more fully.

Irrigation Methods

A small proportion of the area under irrigation is watered by gravitational systems and the remainder comprises areas devoted to fruit and vegetables and served by municipal water supplies or private spray systems.

Area Irrigated

Details of the area of crops and pastures irrigated in Tasmania are shown in the following table:

**Area of Land Irrigated
(Acres)**

Year	Area of Irrigated Land Used For—						Total
	Hops	Green Fodder	Fruit	Pasture	Potatoes	Other Crops	
1958-59	1,292	782	1,737	7,502	471	1,647	13,431
1959-60	1,311	1,286	2,350	11,339	467	1,355	18,108
1960-61	1,364	1,177	3,311	10,369	863	1,850	18,934
1961-62	1,447	1,589	3,930	11,713	1,374	3,136	23,189
1962-63	1,465	2,043	4,446	11,435	1,688	3,208	24,285
1963-64	1,463	2,703	5,933	15,693	1,984	5,794	33,570
1964-65	1,553	2,583	5,955	14,194	2,246	7,791	34,322

TASMANIAN DEPARTMENT OF AGRICULTURE

Historical

The State Department of Agriculture was preceded by Agricultural and Pastoral Societies which were concerned with agricultural practices and the quality of farm products.

In the late 1880's, the Department was formed with "Inspectors" and "Experts", the former to administer the various plant and animal regulations, and the latter to advise the Government on all phases of agriculture.

Gepp Commission

Following a request to the Commonwealth for financial aid, an investigation was made by the Development and Migration Commission under the Chairmanship of Mr. H. W. Gepp (later Sir Herbert Gepp).

Alerted by the Commission's report regarding the need to improve the agriculture of the State, mainly by spreading scientific knowledge among primary producers, the State Government agreed in 1927 to a re-organisation of the Department of Agriculture. The Department then consisted of a Director (appointed in 1926), three officers in the Farm Crops Division, a poultry supervisor, three officers in the Dairy Division, a horticulturist, veterinarian, agricultural economist, plant pathologist, and stock and port inspectors. The headquarters' officers were divided between Hobart and Launceston.

Re-organisation

The re-organisation provided for the strengthening of both extension and technical services, and appointments were made to the positions of Superintendent of Extension Services and Superintendent of Research. An Extension Service on a "general-practitioner district-officer" basis commenced when six "agricultural organisers" were distributed throughout the State. The recommendation of the Development and Migration Commission was that the duties of this service would be "to transmit information from the experts at headquarters effectively to the farmers".

A new concept was evolved, that officers of the Department were no longer to be merely concerned with purely regulatory duties or with acting as

advisers to the Government. This new view of function was expressed in the first issue of the *Tasmanian Journal of Agriculture* in 1929 by the then Director (Mr. F. E. Ward):

"To make two blades of grass grow where one grew before is a worthy enterprise but the objectives of the Department of Agriculture are much wider than this.

When the resuscitation of the agricultural industry of Tasmania was seriously attempted about two years ago, the aim was at least two fold: firstly, to increase the wealth of the community, and secondly, to improve the social and educational standards of rural life, so that those engaged in it would receive their deserved measure of stability and prosperity."

Present Functions

Today, the primary objectives of the Department are still very much akin to those stated in 1929—only the methods in achieving the end have altered and been expanded. The functions can be broadly defined under three main headings: (i) maintenance of an active policy of research and investigation into problems affecting agriculture; (ii) the provision of an intensive information dissemination service, which, by changing the knowledge, attitude and skills of the rural population, will enable farmers to make their own decisions in achieving improved standards of living and obtaining a measure of stability and prosperity; (iii) the execution of regulatory and administrative duties required under the relevant State Government Acts.

Present Structure

The present structure of the Department which is designed to carry out these functions, comprises the Agronomy, Horticultural, Dairy, Plant Pathology, Entomology and Fisheries Divisions, the Extension, Animal Health and Administrative Services, and the Sheep and Wool, Piggery, and Poultry Sections.

A brief description of the activities of these divisions, services and sections follows.

Agronomy

The division is divided into four main sections: pastures and soils; potatoes; cereal and pulse; and weeds. Work is carried out at the Mount Pleasant laboratories, Departmental research farms and on Crown and private land.

Pasture and Soils

The pasture and soils section conducts investigations into problems of pasture and crop establishment and the introduction and development of suitable pasture species and varieties. Pasture seed certification and seed production is also supervised. Pasture seeds concerned are perennial ryegrass, short rotation ryegrass, cocksfoot and white clover.

A seed testing laboratory located in Launceston conducts germination and purity tests under the *Seeds Act* and *Quarantine Act*, as well as tests on commercial samples. Referee tests are also carried out in collaboration with the International Seed Testing Association.

Potatoes

The breeding and introduction of new selections of potatoes suitable for Tasmanian conditions feature largely in the work of this section. Increased yields through the use of irrigation and improved cultural techniques are important aspects of present investigations.

The section also maintains, through the Tewkesbury Potato Station, supplies of "foundation" seed of the main commercial varieties—Bismark, Brownell, Up-to-date, Pink-eye and King Edward. A potato blight warning service is maintained, in co-operation with the Plant Pathology Division, for the benefit of commercial potato growers.

Cereals and Pulse

Continuing investigations over the years into the breeding and development of suitable strains of cereals and pulse have resulted in the release of a number of strains more suitable to local conditions. Testing under Tasmanian conditions of oversea-developed varieties and hybrids also features largely in the work of this section.

Another important aspect is the supervision of the cereal and pulse certified seed production scheme, embracing the following varieties: Algerian Oats A236, Blythe and Onward oats, Macquarie and Pinnacle wheat, Blue and Maple peas and Proctor barley. A malting barley competition, conducted in conjunction with Tasmanian Breweries Pty. Ltd. has proved of considerable benefit to barley growers in this State.

Weed Control

This section assumes responsibility for investigations into weed control problems in pasture and crops as well as for the supervision of the work of regional weed inspectors appointed under the *Noxious Weeds Act* 1964.

The supervision of the policing of noxious weeds quarantine areas is another obligation. Weed identification and advice on control methods are further services provided for the public.

Horticulture

The Horticultural Division is concerned with research and extension, and is also closely associated with the work of the port section in the inspection of horticultural crops for export, and the examination of plants imported from oversea countries, on behalf of the Commonwealth under the *Plant Quarantine Act*.

The Plant Quarantine Station at Bruny Island facilitates the handling and growth of plant material introduced from overseas.

Research

The research side is concerned with the problems associated with growing, harvesting, packing, storing and processing the main horticultural crops. Research into problems of apple and pear production is mainly conducted at the Grove Horticultural Research Station in the Huon and at the New Town Laboratories.

Vegetable investigations are now mainly concentrated at the new Forthside Vegetable Research Farm in the north, although a number of trials are still being carried out with the co-operation of private landholders.

A hop propagation area containing original basic selections is maintained at Grove, while the facilities of the New Town Laboratories are used to raise hop seedlings from special crosses.

Extension

Extension activities are organised on a regional basis. Three regions, South, North and North-West, are sub-divided into districts for ease of management. District Horticultural Officers are located throughout the fruit and vegetable areas to advise growers on both technical and management aspects.

Other functions of District Officers include the assessment and reporting upon loan applications for the Agricultural Bank, and assessing hail damage to pome fruit on behalf of the Tasmanian Government Insurance Office. A vital part of extension work is that of crop forecasting, upon which depends the forward ordering of shipping for the export crop.

Dairying

The administration by the Dairy Division can be considered from two aspects—regulatory and advisory.

Regulatory

Under the *Dairy Produce Act 1932*, *Dairy Produce (Margarine) Regulations* and the *Filled Milk Act 1957*, the Department of Agriculture is responsible for the observance of the law with respect to production, manufacture and sale (other than by retail) of dairy produce, filled milk, and of substitutes such as margarine.

Under the powers of this Act, Dairy Officers inspect premises, take samples for analysis, examine books and records kept on the premises, and grade produce.

Advisory

The work undertaken by this Division is concerned principally with milk and cream quality (both on the farm and at the factory); herd improvement by means of herd recording; advice on feeding and breeding; the provision of a cheese starter and legume inoculation service.

Entomology and Plant Pathology Divisions

The work of both these Divisions is predominantly of an investigational and research nature. Investigations are currently under way on a number of insect and disease problems affecting the various economic crops of the State.

One particular line of investigation is the evaluation of newly developed pesticides and herbicides. The two Divisions also maintain advisory services to handle individual queries on identification and control.

Animal Health Service

The Chief Veterinary Officer in charge of the Animal Health Service is also the Chief Quarantine Officer (Animals) for Tasmania. Quarantine stations for animals coming from overseas are located at Taroona in the south and at Kings Meadows in the north. The southern station is also used for interstate cattle quarantine.

Veterinary officers are located at various district centres to carry out disease control and investigational work. Where no private practitioner is established, Departmental veterinary officers attend clinical cases for stock-owners, as well as carry out their departmental duties. An extensive investigational programme into many of the diseases affecting Tasmanian animals is undertaken at the Mt. Pleasant Laboratories.

Animal Reproduction Section

This section was, until recently, providing an artificial insemination service for farmers. Now the Artificial Breeding Board has assumed responsibility for all artificial insemination activities. Investigation into infertility in herds has continued and has resulted in a considerable decrease in its incidence.

Animal Nutrition Division

Investigation into the various factors affecting animal nutrition is the major role of this Division and covers such aspects as feed quality, pasture utilisation, performance testing, micronutrients, and intake and digestibility trials.

Stock Inspectorial Service

Through the medium of stock inspectors, the Service has been able to provide an effective team of men to inoculate sheep and cattle in areas where disease is affecting stock.

Quite a large proportion of their time is devoted to disease control work under the guidance of veterinarians and their work includes the collection of blood samples for testing, and the policing of the *Stock Act* 1932, in matters directly relating to animal health.

Vermin Destruction

Vermin inspectors, working in close collaboration with local government authorities, are concerned, under the *Vermin Destruction Act* 1950, with rabbit eradication and control. This section provides a service for farmers for a small charge whereby the inspectors carry out the actual laying of the poison baits, using 1080 poison.

Extension

Advice on current problems using all available forms of mass media, is undertaken by a Veterinary Extension Officer located in Launceston. Active liaison is maintained with the Tasmanian Hydatid Eradication Council.

Other Specialist Livestock Sections

Sheep and Wool

This section investigates current problems associated with sheep breeding and management, and conducts demonstrations on various aspects of sheep and wool production. These investigations and demonstrations are largely located on the Cressy and Elliott Research Farms but others are run on properties of co-operating private landholders. Competitions and shearing courses are also arranged.

An advisory service on wool, particularly as regards classing and preparation of the clips, is a prominent feature of the Section's extension activities.

Piggery Section

This is a dual purpose section, carrying out investigations into various problems of pig production, as well as providing an advisory service with Piggery Officers located in the various districts of high pig density.

The section assists the pig producer in many ways, e.g. pig raising competitions, a sow recording scheme, and the progeny testing of stock raised at Cressy. Research work is mainly confined to the Cressy Research Farm but some investigational and demonstrational work is carried out on private properties.

Poultry Section

The poultry section provides an advisory service on all aspects of the poultry industry—stock raising, commercial egg production and table poultry production.

A random sample laying test run each year at a special poultry centre on the Cressy Research Farm provides entrants with detailed information on the performance of their stock, and provides valuable information for intending purchasers of breeding stock. Advice is also provided on the management of other poultry ventures, e.g. geese, ducks and turkeys.

Fisheries Division

The functions of the Fisheries Division are described in Chapter 7, "Primary Industry—Non-Rural".

Research and Investigations*Introduction*

The fundamental work, undertaken in the State's research farms and laboratories, is aimed at increased production through improvements in plant and animal performance.

At present, there are three research stations and one laboratory associated with agronomical research, two research stations and a laboratory involved in horticultural research, one bacteriological laboratory devoted to dairy research and bacterial investigations, and laboratories which deal with entomological and pathological investigations. Livestock studies are conducted on two of the stations associated with agronomical research.

The following shows current work programmes:

Cressy Research Farm

This station is comprised of two properties which together total more than 1,500 acres. Since its foundation in 1937, a wide range of research has been undertaken in crop, pasture and livestock production.

The major activity has been, and still is, the production of cereal, pulse and pasture species foundation seed. This work involves the evaluation and field testing of the strains and varieties of crop and pasture seeds offering most promise under local conditions, as well as breeding programmes to grow the suitable types as foundation seed.

The most noteworthy achievements in this field have been obtained with Algerian, Onward and Blythe varieties of oats; Macquarie wheat; Proctor barley; blue and grey field peas; Tasmanian No. 1 Strain perennial ryegrass. All these certified lines have given better production results than the ones

they superseded. In the current programme, new strains and varieties of crop seeds and pasture plants such as white clover, phalaris, lucerne, &c. are under review.

Livestock pursuits to date have been, in the main, concentrated on poultry, sheep and pigs.

Poultry: The facilities of the Cressy Poultry Centre have, since 1960, been used exclusively for poultry random sample testing. Five "tests" have been successfully completed in that time and it is already felt that the effects are evident in the superior strains of laying stock now being bred for egg production.

Sheep: Sheep studies conducted at Cressy include the evaluation of grazing management systems; breed performance tests; winter feeding trials; autumn versus spring shearing investigations; seasonal woolgrowth studies; sucker versus carryover lamb trials to ascertain their relative suitability to the prime-lamb trade; oestrus studies with Corriedale weaners; late lambing trials and nutrition trials.

Pigs: The pig research investigations conducted on the farm have been directed, in the main, by the trend of the industry. At the present time the following investigations are in progress; temperature studies involving the use of artificial heat in pig housing; the investigation of growth stimulants by the supplementation of the standard Cressy Research Farm ration with copper, terramycin and nitrofurans; the investigation of grain supplements to a skim milk diet; comparative feed trials using protein feed supplements and including fish meal, meat meal and skim milk; observations on the efficiency of different types of sleeping floors; investigations into the need for mineral supplements to pig rations; a comparison trial involving the simple Cressy feed ration and a complex ration in pelleted form.

In addition to the research programme, a breeding programme involving Large White and Berkshire stud stock is also conducted. The young stock resulting from this programme are progeny tested and released to the public to improve the overall quality of livestock in the local industry, after the requirements of the research projects, which take precedence, have been satisfied.

Elliott Research Farm

This station was established in 1950 as a second testing area for Cressy-proven materials and for some specific crop and livestock investigations. The station is located on basalt soil which is representative of the North-West region of the State, and which differs markedly from the alluvial and lateritic soils at Cressy.

At the present time, the foundation seed production programme on the farm incorporates the following crops: Algerian oats, Proctor barley, blue field peas and potatoes. Pasture plant investigations, including plant selections, also constitute an important segment of the farm work. In practice, it is common for the same strains and varieties of pasture species used at Cressy to be grown and evaluated concurrently on the two stations.

Other crop investigational work includes a multi-species forage crop, fertiliser trials, and several undertakings with potato crops. These include the screening of all promising potato seedling selections by growing them from the third year up, under irrigation, and a "time of planting" investigation to determine the optimum planting dates for the main varieties. In addition, potato varieties are selected for their suitability to local conditions, and

fertiliser requirements, particularly the type and application rates, are assessed with regard to their effect on yield and quality. The spacing of setts under conditions of irrigation is also being investigated to determine the optimum space with regard to yield.

In livestock research, activities on the farm are restricted to sheep investigations and, of these, the carpet-wool breeding project is of primary importance at the moment. Other projects include a replacement ewe trial comparing the breeding performance of ewe lambs with two-tooths and cast-for-age ewes, and a stock management trial comparing the set-stocking method of grazing, on a whole farm basis, with conventional rotational grazing methods.

Tewkesbury Potato Station

The primary function of this station (the first established and dating from 1933), is to improve the cropping capacity of seed potatoes. In practice, this is realised by maintaining a healthy condition in the foundation seed supplies of the major potato varieties, through heavy roguing and plant selection.

A limited research programme is conducted under which a study of the effect of time of planting on a seed crop with regard to the number and size of tubers is currently in progress. Selections of varieties suited to local conditions are continuously made, and the effect of type and application rates of fertilisers on potato yield and quality is also being measured. Investigations into the treatment of seed and cut setts with dips and dusts, &c. are also conducted to determine effects on germination.

Laboratories

Both laboratories with agronomical associations are located at Launceston. At the main centre, the Mt. Pleasant Laboratories, the current programme involves plant breeding and selection studies; pot culture investigations of problem soils; quality testing of potatoes including specific gravity determinations, ability to withstand bruising, and resistance to black spot as well as cooking and tasting tests; seed testing for the Certification Scheme; chemical soil analyses with particular regard to their fertiliser requirements.

At the bacteriological laboratory, one of the functions is the production of cultures of *Rhizobium* species for all legume hosts of economic importance and these are maintained and released for inoculation purposes on request.

Huon Horticultural Research Station

At this station, most of the projects undertaken are long term and have been primarily designed to answer practical problems. The results are making a useful contribution towards improved orchard management.

The current work programmes are confined almost exclusively to the pome fruits and some ninety projects are being handled. These include rootstock trials to investigate their suitability under local conditions; pruning trials to determine its influence on crop production; combined rootstock, pruning and management trials which are designed to study the economics of varying tree size and tree numbers per acre; manurial and cultural trials; propagation trials which are directed towards the establishment of cheaper methods of propagating rootstocks of fruit trees; the evaluation of improved varieties, bud sports and selections.

Subsidiary trials related to "guard" and "inter-plant" trees are currently contained in the main planting designs and also included are: (i) studies on the effects of top and root treatments when applied to a wide range of commercial

varieties worked on medium and dwarfing rootstocks; (ii) the interacting effects of early fruit loads on trees; (iii) tree establishment factors under local conditions.

Forthside Vegetable Research Farm

The primary aim on this farm is to undertake general research on all appropriate horticultural crops, including performance testing of new strains and varieties. With certain crops, the reselecting and multiplication of promising stocks are carried out for the production of foundation seed. Those crops at present under consideration in the current research programme include green peas, french beans, broad beans, carrots, onions, brassica crops, tomatoes and oil poppies.

Other aspects considered with regard to some vegetables are seeding rates and plant densities, evaluation of their canning and freezing qualities, fertiliser requirements and optimum harvest maturity.

New Town Experimental Station

The main investigations and research conducted at this centre relate to the post-storage behaviour of apples and pears held under regulated temperatures in modified ripening rooms. Factors examined and assessed in these investigations include bruising and break-down.

The facilities are also used for the raising of hop seedlings produced from seed of special crosses. After preliminary selection, these are then transferred to plots. Examination and analysis for hop alpha resin is also carried out at this centre.

Other work involves pot trials to investigate the possible interaction of basic and acidic forms of nitrogen on the availability of phosphorus, and the effects of variation in localised pH (acidity or alkalinity measure) in certain soils under various treatments. Several comprehensive trials concerning swedes and green peas have been performed, routine propagations have been carried out on certain plants and the use of "mist" apparatus in the multiplication of blue-berries and certain pome fruits evaluated.

Extension

The Extension Service of this State is organised on a regional basis. Extension officers, known as Agricultural Officers, are stationed within three main regions, where they work in the field as general practitioners and maintain contact with the farming community. Horticultural Officers are similarly located within the major fruit growing areas.

The main function of these Extension Officers is the provision of a farmer's advisory service. To enable these officers to be kept up to date with the research findings of the scientific divisions of the Department, they are kept continually informed of the results of research work. They are, therefore, in a position to bring to the notice of the farming community all new and improved practice relating to farm management programmes. This information is relayed to the farmer in the following ways:

Extension Methods

Farm Visits: While it is realised that the personal visit of an officer on to the property has many advantages, and is often essential if assistance is to be given, it is not feasible to visit all of the eleven thousand primary producers in the State. However, as many farm visits as possible are made during the year.

Field Demonstrations and Field Days: The demonstration of new practices is carried out with the co-operation of farmers who make suitable land available on their property for the demonstration of a new variety or a new technique. These farmers then allow their properties to be used for a field day to which members of the farming community are invited. Until recently it had been the practice to hold a number of large-scale field days in different parts of the State. The emphasis has now changed towards smaller but more frequent field days with more of a local interest.

Meetings: Opportunity is taken by Extension Officers of contacting farmers through invitations to address them at branch meetings of their organisations. By this method, officers are able to contact a large number of farmers during the year.

Short Courses, Congresses and Schools: Officers of the various divisions and sections co-operate to assist the Extension Service in conducting courses, congresses and schools. These, which may vary from one to five days, sometimes take the form of meetings in local halls or drives from property to property where points of special interest to farmers are studied and discussed.

Mass Media

Other extension work is carried on by radio talks and television appearances, special articles for the press, and by the publishing of a Departmental Journal of Agriculture, bulletins, pamphlets and similar publications.

In general, the farming community can regard their local Agricultural or Horticultural Officer as their direct liaison with the work of the Department. Being intimately associated with the problems of the farming community of their district, these officers are readily available to provide the information required by the primary producer.