

CHAPTER 13

RURAL INDUSTRY

This chapter is divided into the following major parts:—Introduction; Sources of statistics and definitions of units; Structural statistics (provides data on the legal arrangements, size and industry class of the business organisations operating within the agricultural sector); Financial statistics (provides estimates of the financial performance of business organisations engaged in agricultural activities); Value of agricultural commodities produced and indexes of quantum and average unit gross values; Apparent consumption of foodstuffs and nutrients; Land tenure and land utilisation; Crop statistics; Livestock statistics; Livestock products; Rural improvements and employment.

Introduction

The development of Australian rural industries has been determined by interacting factors such as profitable markets, the opening up of new land (including the development of transport facilities) and technical and scientific achievements. Subsistence farming, recurring gluts, low prices and losses to farmers were gradually overcome by the development of an export trade. Profitable overseas markets for merino wool and wheat, and the introduction of storage and refrigerated shipping for the dairying and meat industry combined to make the agricultural sector Australia's main export earner. Until the late 1950's, agricultural products comprised more than 80 per cent of the value of Australia's exports. Since then, the proportion of Australia's exports coming from the agricultural sector has declined markedly; the value of agricultural products exported was only 44 per cent of the total value of exports in 1975–76.

However, this decline in importance has been due not to a decline in agricultural activity but rather to an increase in the quantity and values of the exports of the mining and manufacturing sectors. In fact, the agricultural sector experienced an increase in total output over that period. The index of quantum of agricultural production and output (*see* page 292) illustrates this by displaying a steady increase from approximately 70 in 1959–60 to 114 in 1975–76.

One interesting aspect of this increase in output is that it was accompanied by a large reduction in the size of the agricultural labour force. The number of males working permanently on rural holdings, for example, decreased from 356,000 in 1955 to 244,000 in 1975, implying a large growth in productivity within the sector.

Sources of statistics and definitions of units

Agricultural Census

The major source of the statistics in this chapter is the Agricultural Census conducted at 31 March each year. This collects a wide range of information from agricultural holdings covering the physical aspects of agriculture such as area and production of crops, fertilisers used, number of livestock disposed of, etc. In conjunction with the census, certain supplementary collections are conducted in some States where this has proved expedient, e.g. where the harvesting of certain crops has not been completed by 31 March (apples, potatoes, etc.), special returns covering the crops concerned are collected after the completion of the harvest.

In the past two years the ABS has been gradually excluding from the statistics holdings whose contribution to agricultural production is small. While this has reduced the number of holdings appearing in publications, the effect on statistics of production of major commodities is minimal. Statistics of minor commodities normally associated with smaller scale operations may be affected to a greater extent.

For 1976–77, holdings have been included in the statistics where the legal entities operating these holdings had Estimated Values of Operations (EVAO) from agricultural activity of \$1,500 or more. Details of the method used in the calculation of EVAO are contained in the publication *Structure of Operating Units* (7102.0).

For 1975-76 the EVAO criterion was the same as for 1976-77, but holdings with areas of 10 hectares or more were also included, even if EVAO was less than \$1,500. Prior to 1975-76, all agricultural holdings with areas of one hectare or more were included. In addition, holdings of less than one hectare tended to be included where significant agricultural activity was undertaken, e.g. poultry farms, commercial market gardens and nurseries.

Integrated Agricultural Register

The Agricultural Census is one of the sources of information used to update the Integrated Agricultural Register (IAR). The IAR contains information about the area, type, legal status, level of activity and location of units engaged in agriculture, and is used for the despatch of most of the agricultural statistical collections. The IAR was originally compiled by adding data in a special census of economic units conducted in 1974 to existing data relating to physical characteristics of agricultural holdings. Details of the structure of economic units engaged in agriculture are compiled from the IAR. These economic units, in hierarchical order, are:

Enterprise (the second level of economic unit). The enterprise is that unit comprising all operations in Australia of a single operating legal entity. (The term 'single legal entity' means a sole trader, partnership, company, trust, co-operative or estate in the private sector, or a department, local government authority or statutory authority in the government sector).

Establishment (the smallest economic unit). The establishment covers all operations carried out by one enterprise at a single physical location.

Agricultural Finance Survey (AFS)

The AFS collects detailed financial statistics from a sample of agricultural enterprises. The main purpose of the survey is to enable financial statistics related to the economic performance of the agricultural sector and its components to be made available on the same basis as statistics for other sectors of the economy.

Other Statistical Collections

The ABS conducts a number of other collections to obtain agricultural statistics. These include collections from wool brokers and dealers, livestock slaughterers and other organisations involved in the marketing and selling of agricultural commodities.

Structural statistics

The following tables provide information relating to the structure of operating units during 1975-76. Although the definitions of the operating units have been provided above, the following terminology is also used:

Industry. As set out in the *Australian Standard Industrial Classification 1969* (ASIC) (1201.0).

This publication provides details of the methodology used in determining the industry class of an economic unit.

Estimated Value of Operations (EVAO). This is determined by valuing the physical crop and livestock information collected in the Agricultural Census.

A further explanation of this terminology and more detailed statistics are given in the bulletin *Agricultural Sector: Part I. Structure of Operating Units, 1975-76* (7102.0).

NUMBER OF UNITS BY TYPE OF UNIT, 1975-76

Unit	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Australia
Agricultural establishments	53,336	48,953	33,990	19,712	16,488	6,298	180,138
Agricultural enterprises	52,344	48,163	32,297	19,342	16,175	6,143	176,489

**AGRICULTURAL ENTERPRISES BY INDUSTRY AND ESTIMATED VALUE OF OPERATIONS
1975-76**

Industry of enterprise	Estimated value of operations (\$'000)											Total
	2-9	10-19	20-29	30-39	40-49	50-59	60-74	75-99	100-149	150-199	200+	
Cereal grains	1,399	2,311	2,599	2,682	2,285	1,637	1,671	1,651	1,428	552	463	18,678
Oilseeds (n.e.c.)	131	126	75	29	18	21	18	14	19	7	9	467
Sheep-cereal grains	895	2,724	3,672	3,561	2,877	2,152	2,273	2,060	1,639	504	398	22,755
Meat cattle-cereal grains	1,161	1,127	780	506	331	212	226	176	135	34	40	4,728
Sheep-meat cattle	3,414	3,472	2,295	1,402	835	508	518	383	300	96	83	13,306
Sheep	5,031	4,654	3,307	2,143	1,430	899	881	643	501	130	135	19,754
Meat cattle	19,733	4,915	1,872	848	513	299	276	228	187	71	132	29,074
Milk cattle	4,931	11,354	6,324	2,193	919	431	282	155	72	28	23	26,712
Pigs	1,148	735	467	340	218	124	150	114	79	42	42	3,459
Poultry	273	271	225	183	143	110	150	166	173	80	190	1,964
Fruit	4,041	4,310	2,449	1,197	603	351	302	228	166	66	55	13,768
Vegetables	2,191	1,770	1,047	684	424	310	275	279	198	94	124	7,396
Multi-purpose	155	134	85	48	47	17	20	16	6	3	3	534
Sugar cane	143	307	678	1,212	1,032	743	867	786	557	173	111	6,609
Peanuts	24	53	87	84	50	39	33	26	10	3	3	412
Tobacco	7	54	222	278	167	93	84	71	32	9	14	1,031
Cotton . . . . .	..	2	2	2	..	3	4	9	20	17	39	98
Nurseries and specialised horticultural activities (except forest nurseries)	425	305	150	140	58	37	55	47	40	17	33	1,307
Agriculture (n.e.c.)	2,962	743	290	154	85	49	42	44	35	7	26	4,437
Total	48,064	39,367	26,626	17,686	12,035	8,035	8,127	7,096	5,597	1,933	1,923	176,489

**AGRICULTURAL ENTERPRISES BY INDUSTRY, LEGAL STATUS AND ESTIMATED
VALUE OF OPERATIONS: 1975-76**

Industry of enterprise—	Legal status							Total enterprises
	Sole operator	Family partnership	Other partnership	Private incorporated company	Public incorporated company	Other(a)		
Cereal grains	5,224	12,148	339	573	3	391	18,678	
Oilseeds (n.e.c.)	137	310	6	9	..	5	467	
Sheep-cereal grains	5,448	15,654	412	776	10	455	22,755	
Meat cattle-cereal grains	1,531	2,664	115	305	8	105	4,728	
Sheep-meat cattle	5,031	6,948	290	669	16	352	13,306	
Sheep	7,692	10,269	429	711	14	639	19,754	
Meat cattle	13,246	12,949	712	1,354	41	772	29,074	
Milk cattle	10,129	15,241	360	461	7	514	26,712	
Pigs	1,311	1,950	66	81	1	50	3,459	
Poultry	625	1,174	41	110	4	10	1,964	
Fruit	5,282	7,865	203	297	10	111	13,768	
Vegetables	2,710	4,350	131	158	6	41	7,396	
Multi-purpose	160	344	7	12	..	11	534	
Sugar cane	1,670	4,676	97	56	1	109	6,609	
Peanuts	113	281	3	6	..	9	412	
Tobacco	292	677	31	11	1	19	1,031	
Cotton	14	49	12	20	..	3	98	
Nurseries and specialised horticultural activities (except forest nurseries)	470	672	51	104	2	8	1,307	
Agriculture (n.e.c.)	2,121	1,960	119	189	4	44	4,437	
Total	63,206	100,181	3,424	5,902	128	3,648	176,489	
Estimated value of operations (\$'000)—								
2-9	25,595	19,613	824	907	15	1,110	48,064	
10-19	16,489	20,708	631	681	16	842	39,367	
20-29	8,911	16,035	495	628	12	545	26,626	
30-39	4,845	11,519	356	589	10	367	17,686	
40-49	2,717	8,351	235	481	7	244	12,035	
50-59	1,508	5,792	196	389	6	144	8,035	
60-74	1,291	6,059	182	460	4	131	8,127	
75-99	931	5,389	169	499	9	99	7,096	
100-149	584	4,198	167	554	6	88	5,597	
150-199	175	1,385	72	266	8	27	1,933	
200 +	160	1,132	97	448	35	51	1,923	
Total, all size groups	63,206	100,181	3,424	5,902	128	3,648	176,489	

(a) Includes co-operative societies, trusts and estates.

**AGRICULTURAL ESTABLISHMENTS OPERATED BY AGRICULTURAL
AND NON-AGRICULTURAL ENTERPRISES BY INDUSTRY OF
ESTABLISHMENT: 1975-76**

<i>Industry of establishment</i>	<i>Operated by agricultural enterprises</i>	<i>Operated by non- agricultural enterprises</i>
Cereal grains	18,750	184
Oilseeds (n.e.c.)	468	5
Sheep-cereal grains	22,854	135
Meat cattle-cereal grains	4,750	88
Sheep-meat cattle	13,443	207
Sheep	19,931	195
Meat cattle	29,472	1,060
Milk cattle	26,785	163
Pigs	3,469	96
Poultry	1,969	48
Fruit	13,802	270
Vegetables	7,406	76
Multi-purpose	540	15
Sugar cane	6,616	48
Peanuts	413	5
Tobacco	1,036	8
Cotton	99	3
Nurseries and specialised horticultural activities (except forest nurseries)	1,307	35
Agriculture (n.e.c.)	4,466	194
Total	177,576	2,835

**AGRICULTURAL ESTABLISHMENTS OPERATED BY AGRICULTURAL ENTERPRISES BY
INDUSTRY OF ENTERPRISE AND INDUSTRY OF ESTABLISHMENT: 1975-76**

<i>Industry of enterprise</i>	<i>Industry of establishment</i>													<i>Total estab- lish- ments</i>	
	<i>Cereals grains</i>	<i>Oil- seeds n.e.c.</i>	<i>Sheep- cereal grains</i>	<i>Meat cattle- cereal grains</i>	<i>Sheep- meat cattle</i>	<i>Sheep</i>	<i>Meat cattle</i>	<i>Milk cattle</i>	<i>Pigs</i>	<i>Poultry</i>	<i>Fruit</i>	<i>Vege- tables</i>	<i>Multi- pur- pose</i>	<i>Agri- culture n.e.c.</i>	
Cereal grains	18,712	..	18	2	17	15	33	3	1	..	3	1	..	4	18,809
Oilseeds (n.e.c.) . . . . .	..	466	2	..	..	..	1	..	..	..	1	..	..	..	470
Sheep-cereal grains	12	..	22,794	2	15	32	20	1	..	..	3	..	..	2	22,881
Meat cattle-cereal grains	4	..	5	4,729	9	10	42	2	2	..	..	1	2	2	4,808
Sheep-meat cattle	1	..	8	3	13,342	30	34	3	1	..	2	1	..	1	13,426
Sheep	4	..	12	6	39	19,819	23	2	..	..	..	..	1	3	19,909
Meat cattle	5	..	11	3	16	17	29,232	9	3	..	1	..	..	10	29,307
Milk cattle	1	1	..	3	4	4	39	26,757	1	..	2	..	2	2	26,816
Pigs . . . . .	..	..	1	..	..	..	1	..	3,460	..	..	..	1	1	3,464
Poultry	3	..	1	..	..	..	6	2	1	1,969	1	..	..	..	1,983
Fruit	1	..	..	1	1	1	5	1	..	..	13,789	1	..	3	13,803
Vegetables	4	..	..	..	..	1	5	1	..	..	..	7,401	..	1	7,413
Multi-purpose . . . . .	..	1	..	..	..	..	1	..	..	..	..	1	534	1	538
Agriculture (n.e.c.) (a)	3	..	2	1	..	2	30	4	..	..	..	..	..	13,907	13,949
Total	18,750	468	22,854	4,750	13,443	19,931	29,472	26,785	3,469	1,969	13,802	7,406	540	13,937	177,576

(a) Includes sugar cane, peanuts, tobacco, cotton, nurseries and specialised horticultural activities and agriculture, n.e.c.

Financial statistics

The following tables show the main aggregates describing the economic performance of agricultural enterprises. The initials 'S.E.—' appearing in some of the tables stand for 'standard error %' which is a measure of the sampling error resulting from the use of sampling techniques as opposed to the results which would have been obtained from a comparable complete collection. Standard errors for the 1975-76 data have not yet been calculated. A more detailed explanation of standard errors and other terms used in the tables, as well as more detailed statistics, are given in *Agricultural Sector: Part IV—Financial Statistics (7507.0)*.

FINANCIAL STATISTICS, AGRICULTURAL ENTERPRISES,
1971-72 TO 1975-76

Item	1971-72(a)		1972-73(a)		1973-74(a)		1974-75		1975-76p	
	\$m	S.E. %	\$m	S.E. %	\$m	S.E. %	\$m	S.E. %	\$m	S.E. %
Sales from crops	1,187.1	3	1,169.1	4	1,599.6	3	2,345.5	2	2,486.4	n.a.
Sales from livestock	1,372.4	3	1,870.1	3	2,079.8	3	1,099.7	4	1,000.4	n.a.
Sales from livestock products	1,047.2	3	1,598.2	3	1,661.5	3	1,382.7	2	1,320.3	n.a.
Turnover	3,614.7	2	4,653.1	2	5,319.3	2	4,985.8	2	4,956.2	n.a.
Purchases and selected expenses	1,822.8	2	2,094.3	2	2,550.4	2	2,278.1	2	2,291.9	n.a.
Value added	2,052.9	n.a.	2,551.5	n.a.	3,114.5	n.a.	2,897.3	2	2,717.2	n.a.
Adjusted value added	1,812.0	n.a.	2,280.4	n.a.	2,785.4	n.a.	2,576.0	3	2,340.0	n.a.
Gross operating surplus	1,508.9	n.a.	1,936.6	n.a.	2,356.9	n.a.	2,083.8	3	1,821.7	n.a.
Cash operating surplus	1,023.0	n.a.	1,731.2	n.a.	1,783.7	n.a.	1,658.7	3	1,555.3	n.a.
Total net capital expenditure	418.3	5	596.7	4	643.8	4	620.0	4	751.5	n.a.
Gross indebtedness	3,292.5	4	2,714.5	4	2,921.6	4	2,972.5	4	3,008.1	n.a.

(a) Not strictly comparable with later years—see Explanatory Notes for bulletin *Agricultural Sector: Part IV, Financial Statistics, 1974-75(7507.0)*

FINANCIAL STATISTICS, AGRICULTURAL ENTERPRISES, 1975-76p
(\$ million)

Item	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Aust.
Sales from crops	619.4	369.4	725.2	281.3	463.3	27.8	2,486.4
Sales from livestock	337.4	211.9	196.0	100.4	118.2	36.6	1,000.4
Sales from livestock products	403.0	341.9	140.4	149.7	232.8	52.5	1,320.3
Turnover	1,402.9	974.8	1,083.2	540.6	835.1	119.6	4,956.2
Purchases and selected expenses	716.5	468.8	439.3	222.5	381.6	63.2	2,291.9
Value added	680.8	507.9	663.1	337.9	469.5	58.0	2,717.2
Adjusted value added	549.2	421.9	595.4	305.0	419.5	48.9	2,340.0
Gross operating surplus	384.6	321.4	481.1	247.2	359.3	28.1	1,821.7
Cash operating surplus	321.5	266.6	422.6	210.0	318.3	16.3	1,555.3
Total net capital expenditure	201.5	116.0	166.7	91.9	157.8	17.5	751.5
Gross indebtedness	954.3	718.1	579.4	287.2	361.0	108.0	3,008.1

FINANCIAL STATISTICS, AGRICULTURAL ENTERPRISES, BY INDUSTRY (ASIC) (a): 1975-76p
(\$ million)

Item	Cereal grains, oilseeds (n.e.c.) 0111-0112	Sheep-cereal grains 0113	Meat cattle-cereal grains 0114	Sheep-meat cattle 0115	Sheep 0116	Meat cattle 0117	Milk cattle 0118
Sales from crops	702.3	602.4	66.5	16.5	55.2	20.2	17.3
Sales from livestock	83.3	135.7	44.1	143.8	120.4	227.9	66.7
Sales from livestock products	56.5	264.8	3.0	140.7	317.4	15.3	390.7
Turnover	858.7	1,017.1	116.3	310.4	504.3	300.7	492.6
Purchases and selected expenses	330.7	429.6	50.9	163.3	252.0	202.8	239.5
Value added	520.2	588.4	65.7	164.6	260.3	123.9	256.4
Adjusted value added	466.4	523.2	55.0	131.8	217.8	65.2	214.7
Gross operating surplus	213.1	458.7	43.5	84.7	160.8	11.6	162.3
Cash operating surplus	394.9	429.3	32.5	40.9	134.4	-47.3	125.4
Total net capital expenditure	210.5	184.4	18.7	25.9	44.8	50.1	55.4
Gross indebtedness	370.0	425.9	114.7	305.6	307.1	594.6	392.2

Item	Pigs 0119	Poultry 0121-0122	Fruit 0131-0133	Vegetables 0141-0142	Multi-purpose farming 0150	Other agriculture 0161-0166	All industries 01
Sales from crops	6.1	3.0	253.4	176.0	8.1	559.5	2,486.4
Sales from livestock	93.3	39.9	3.4	15.6	2.5	23.8	1,000.4
Sales from livestock products	8.0	106.3	3.5	5.4	1.4	7.2	1,320.3
Turnover	111.2	149.7	267.6	199.8	13.1	614.6	4,956.2
Purchases and selected expenses	76.4	106.7	122.6	95.0	7.5	214.9	2,291.9
Value added	38.6	43.3	145.3	105.1	4.6	400.7	2,717.2
Adjusted value added	33.4	38.0	128.7	92.6	3.7	369.5	2,340.0
Gross operating surplus	24.8	21.8	70.6	60.6	2.1	307.0	1,821.7
Cash operating surplus	16.6	18.8	64.4	50.5	2.6	292.2	1,555.3
Total net capital expenditure	10.7	10.0	28.3	25.4	2.0	85.2	751.5
Gross indebtedness	47.5	33.6	113.9	90.4	9.0	203.7	3,008.1

(a) Australian Standard Industrial Classification (1201.0).

Gross value of agricultural commodities produced and indexes of quantum and average unit gross values

Definitions

Gross value of commodities produced is the value placed on recorded production at the wholesale prices realised in the principal market.

Marketing costs include freight, cost of containers, commission and other charges incurred in marketing.

Local value of commodities produced (i.e. gross value of commodities produced valued at place of production) is ascertained by deducting marketing costs from the gross value.

Average unit gross values are calculated by dividing the gross value of each commodity produced by the total production of each corresponding commodity.

Indexes of quantum are the indexes of the gross value of commodities produced at constant prices, i.e. they are measures of change in value after the direct effects of price changes have been eliminated.

VALUES OF AGRICULTURAL COMMODITIES: 1975-76

	Gross production valued at principal markets	Marketing costs	Local value of production	Indexes of Agricultural Commodities produced and output (Base year: 1968-69 = 100)	
				Quantum	Average unit gross value
	\$m	\$m	\$m		
Crops	3,249.5	395.7	2,853.8	96.7	199.6
Livestock slaughterings and other disposals	1,254.6	129.1	1,125.5	165.7	96.3
Livestock products	1,679.5	149.7	1,529.8	89.2	141.0
Total agriculture	6,183.7	674.6	5,509.1	(a)113.6	(a)150.1

(a) Excludes seed, feed and fodder consumed or retained on farms.

Publications

Two preliminary estimates of value of commodities produced are published: *Gross Value of Agricultural Commodities Produced, First Estimates (7501.0)* and *Value of Agricultural Commodities Produced, Second Estimates (7502.0)*. A final publication, *Value of Agricultural Commodities Produced (7503.0)*, contains Indexes of Quantum and Average Unit Gross Value.

Indexes of Agricultural Commodities Produced

In issues of the Year Book prior to No. 60, these indexes were referred to as 'indexes of farm production'. In issue No. 60 they were referred to as 'indexes of agricultural production'. In these tables data show indexes of quantum of agricultural commodities produced, and unit value of agricultural commodities produced, by industrial group.

For further details on how these and earlier series were calculated see Year Book No. 61, pages 1063-65 and *Value of Agricultural Commodities Produced (7503.0)*.

GROSS VALUES OF AGRICULTURAL COMMODITIES

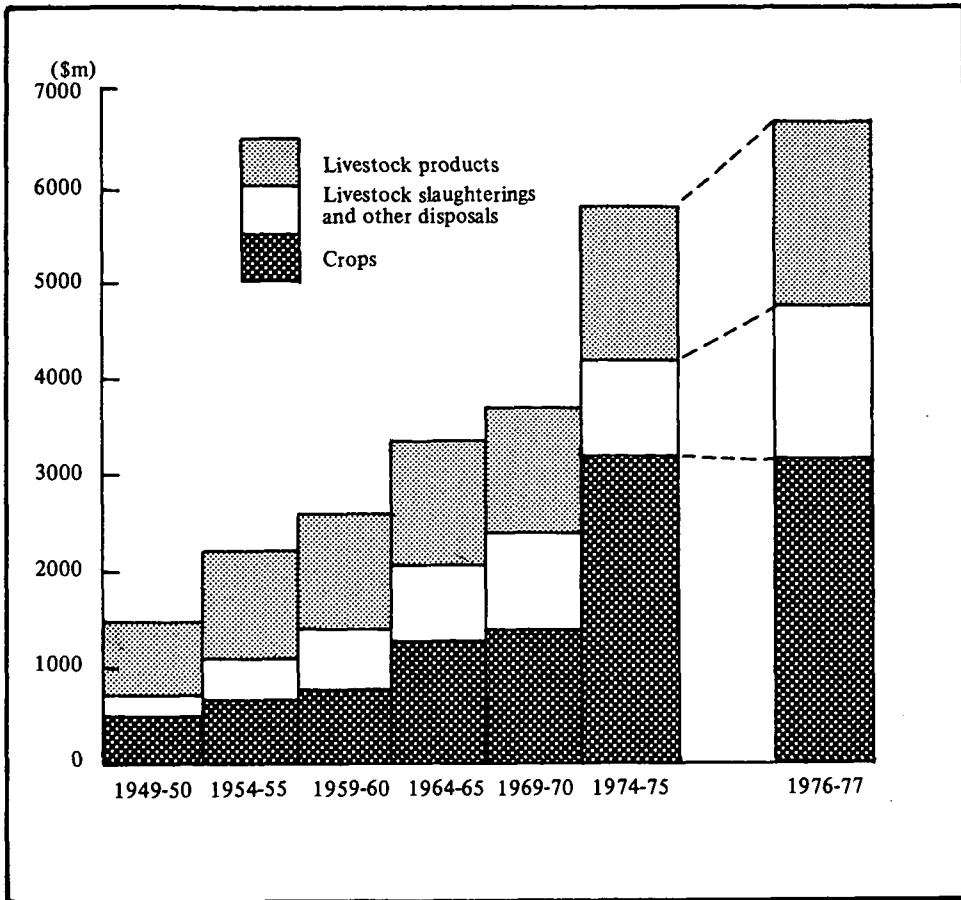


PLATE 31

GROSS VALUE OF AGRICULTURAL COMMODITIES

(\$ million)

	1949-50	1954-55	1959-60	1964-65	1969-70	1972-73	1973-74	1974-75	1975-76	1976-77 ^p
Crops—										
Wheat for grain	297	215	276	518	531	357	1,312	1,256	1,249	1,060
Barley for grain	21	37	33	56	66	91	191	257	314	295
Sugar cane cut for crushing	36	78	87	131	148	230	219	491	436	467
Fruit	53	93	104	146	193	223	217	267	269	294
Grapevines	18	25	29	50	59	65	83	101	102	123
Vegetables	52	77	86	134	138	181	240	258	275	290
Pastures and grasses ^(a) . . . . .	..	..	..	..	96	115	178	150	129	677
Other crops	67	157	206	253	223	320	419	426	476	
Total crops	544	682	821	1,288	1,454	1,582	2,859	3,206	3,250	3,205
Livestock slaughterings and other disposals^(b)—										
Cattle and calves	113	235	375	483	628	1,022	1,069	523	709	961
Sheep and lambs	60	(c)151	147	175	214	306	321	178	208	300
Pigs	29	43	60	75	96	124	173	178	184	189
Poultry	15	22	29	43	70	91	133	140	153	165
Total	217	451	612	776	1,007	1,542	1,696	1,019	1,255	1,616
Livestock products—										
Wool	576	691	780	841	735	1,243	1,229	953	1,000	1,135
Dairy products	(d)167	(d)302	337	384	414	464	468	519	490	548
Eggs	52	81	90	95	115	117	148	172	179	191
Honey and beeswax	2	3	5	5	5	8	12	9	11	11
Total	797	1,077	1,213	1,325	1,269	1,832	1,857	1,653	1,680	1,885
Total agriculture	1,558	2,208	2,646	3,389	3,730	4,957	6,412	5,878	6,184	6,706

(a) Not recorded prior to 1969-70. (b) Includes adjustment for net exports of live animals. (c) Includes value of wool on skins, felled and exported. (d) Includes a subsidy paid on whole milk for all processed milk products.

INDEXES OF QUANTUM OF AGRICULTURAL COMMODITIES PRODUCED AND OUTPUT^(a)
(Base of each index: Year 1968-69 = 100)

	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
Crops—										
Barley for grain	84.9	50.7	100.0	103.2	142.8	186.3	104.9	145.6	152.8	192.6
Oats for grain	113.6	42.0	100.0	72.9	94.3	74.6	43.0	64.7	51.1	66.7
Wheat for grain	85.7	50.8	100.0	71.2	53.2	58.0	43.2	80.3	76.6	80.9
Other grain cereals	102.9	96.9	100.0	142.0	241.0	220.7	192.0	209.1	187.1	223.7
Sugar cane ^(b)	90.8	91.2	100.0	84.7	94.4	103.6	101.2	102.9	108.8	117.3
Fruit and nuts	95.8	95.5	100.0	105.6	117.6	107.5	111.7	98.2	103.0	93.6
Grapevines	133.3	120.2	100.0	138.8	105.4	142.5	105.5	94.9	123.6	122.0
Vegetables	92.3	85.4	100.0	99.2	104.0	111.8	100.0	88.8	105.4	99.1
All other crops ^(c)	86.6	65.1	100.0	91.0	99.4	116.1	90.8	106.8	97.5	85.8
Total	90.4	67.2	100.0	86.2	85.9	92.8	75.7	94.6	94.2	96.7
Livestock slaughterings and other disposals—										
Cattle and calves ^(d)	94.3	97.0	100.0	107.7	111.7	124.4	154.7	140.7	164.8	196.9
Sheep and lambs	85.6	93.9	100.0	109.0	120.0	135.5	103.5	70.4	78.8	86.1
Pigs	87.6	92.3	100.0	107.5	112.0	119.9	145.6	130.1	108.0	107.2
Poultry	81.1	94.1	100.0	113.4	138.8	149.5	147.3	177.2	173.5	187.0
Total^(e)	91.0	95.7	100.0	108.3	115.2	127.9	143.4	128.5	143.0	165.7
Livestock products—										
Wool	90.5	90.8	100.0	104.5	100.2	99.6	83.2	79.3	89.8	85.4
Milk	102.9	98.1	100.0	106.5	104.1	101.9	101.0	99.7	93.4	91.2
Eggs	96.6	106.1	100.0	105.5	116.7	113.7	110.5	105.0	106.7	105.5
Total^(f)	95.2	94.7	100.0	105.4	103.0	101.8	91.6	88.5	92.6	89.2
Agricultural output^(g)	91.5	83.6	100.0	98.5	98.3	104.9	97.6	100.9	107.3	113.6

(a) Indexes at value of constant price (i.e. at average unit gross value of the 3 years ended 1970-71). (b) Cut for crushing and planting. (c) Includes pastures and grasses; excludes crops for green feed and silage. (d) Includes dairy cattle slaughtered. (e) Component series based on carcass weight. (f) Includes honey and beeswax. (g) Excludes seed, feed and fodder consumed or retained on farms.

GROSS VALUE OF AGRICULTURAL COMMODITIES PRODUCED AND
INDEXES OF QUANTUM AND AVERAGE UNIT GROSS VALUES

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INDEXES OF AVERAGE UNIT GROSS VALUE OF AGRICULTURAL COMMODITIES
PRODUCED AND OUTPUT(a)

(Base of each index: Year 1968-69 = 100)

	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
Crops—										
Barley for grain	123.2	118.0	100.0	90.7	110.0	94.5	122.8	185.5	238.4	231.1
Oats for grain	124.9	138.4	100.0	77.8	97.9	85.3	124.7	175.6	198.5	198.4
Wheat for grain	109.8	117.2	100.0	101.8	103.9	109.1	112.8	224.0	225.3	210.8
Other grain cereals	83.9	90.4	100.0	95.3	87.7	85.7	124.1	169.7	169.5	175.0
Sugar cane(b)	96.0	95.6	100.0	112.5	117.8	128.3	145.8	136.1	288.2	237.9
Fruit and nuts	102.7	98.0	100.0	109.9	102.3	104.7	123.2	138.2	159.7	184.0
Grapevines	83.9	88.1	100.0	94.5	96.5	105.7	138.9	203.4	180.4	186.2
Vegetables	101.9	123.3	100.0	100.2	116.5	102.3	130.1	198.5	178.0	202.0
All other crops(c)	104.4	118.3	100.0	92.5	91.6	85.9	129.5	133.0	144.7	156.7
<i>Total</i>	<i>105.4</i>	<i>112.3</i>	<i>100.0</i>	<i>100.2</i>	<i>103.4</i>	<i>103.6</i>	<i>123.8</i>	<i>182.8</i>	<i>203.9</i>	<i>199.6</i>
Livestock slaughterings and other disposals—										
Cattle and calves(d)	100.0	98.5	100.0	104.0	102.7	102.8	117.9	135.5	56.6	64.5
Sheep and lambs	117.3	111.1	100.0	106.3	81.0	84.5	157.3	257.5	128.4	132.8
Pigs	110.4	111.7	100.0	103.0	107.9	106.8	97.8	153.1	189.6	197.9
Poultry	115.9	103.0	100.0	94.8	93.5	92.6	94.9	115.3	124.2	126.0
<i>Total(e)</i>	<i>105.8</i>	<i>102.8</i>	<i>100.0</i>	<i>103.7</i>	<i>97.9</i>	<i>98.6</i>	<i>122.5</i>	<i>161.1</i>	<i>89.6</i>	<i>96.3</i>
Livestock products—										
Wool	107.0	93.1	100.0	83.9	63.9	79.0	178.1	184.8	126.5	139.6
Milk	101.9	98.4	100.0	101.5	107.0	117.7	120.0	122.5	144.5	139.6
Eggs	102.9	90.1	100.0	97.6	85.6	87.6	95.4	126.5	144.6	152.1
<i>Total(f)</i>	<i>105.2</i>	<i>94.4</i>	<i>100.0</i>	<i>90.2</i>	<i>78.4</i>	<i>91.1</i>	<i>154.4</i>	<i>161.9</i>	<i>133.5</i>	<i>141.0</i>
Agricultural output(g)	105.3	102.0	100.0	98.2	93.2	99.1	135.3	171.7	147.6	150.1

For footnotes see previous table.

APPARENT CONSUMPTION OF FOODSTUFFS AND NUTRIENTS

APPARENT CONSUMPTION OF FOODSTUFFS PER HEAD OF POPULATION

(Kg—unless otherwise indicated)

Commodity	Average 3 years ended—					
	1938-39	1948-49	1958-59	1972-73	1973-74	1974-75
Grain products—						
Flour (including flour for bread making)	84.9	91.6	82.3	74.9	78.1	76.1
Rice, whole milled	1.8	0.4	n.a.	2.2	2.1	2.4
Breakfast foods	4.8	6.1	6.2	6.8	6.8	6.8
<i>Total grain products</i>	<i>92.5</i>	<i>98.6</i>	<i>n.a.</i>	<i>84.2</i>	<i>87.2</i>	<i>85.4</i>
Sugar(a)	50.8	56.8	53.0	50.8	55.3	53.7
Pulse and nuts—						
Peanuts (kernel equivalent)	0.4	1.1	0.8	1.2	1.0	1.2
Tree nuts (kernel equivalent)	0.4	0.6	0.7	1.0	1.1	1.1
Vegetables—						
Potatoes, white	47.1	56.3	51.7	48.6	46.3	52.5
Other root and bulb vegetables	n.a.	19.1	15.9	17.4	18.2	18.5
Tomatoes	7.1	11.5	13.0	17.2	15.1	10.2
Leafy and green vegetables	n.a.	20.5	17.9	20.3	21.3	22.0
Other vegetables	n.a.	22.3	18.6	15.1	15.2	15.6
<i>Total (fresh equivalent weight)</i>	<i>n.a.</i>	<i>129.7</i>	<i>117.1</i>	<i>118.6</i>	<i>116.1</i>	<i>118.8</i>
Fruit and fruit products—						
Citrus fruit(b)	14.5	16.9	16.1	30.6	31.8	37.4
Other fresh fruit	42.6	39.5	35.6	36.3	34.1	33.2
Jams, conserves, etc.	5.2	5.6	3.9	2.5	2.2	2.6
Dried fruit	3.8	3.9	2.8	2.3	2.4	1.8
Canned fruit	3.5	3.4	6.0	10.5	10.3	10.2
<i>Total (fresh fruit equivalent)</i>	<i>78.7</i>	<i>80.9</i>	<i>72.2</i>	<i>91.5</i>	<i>90.9</i>	<i>92.8</i>
Meat—						
Carcass meat (total)	101.5	84.6	97.2	82.5	73.3	97.8
Beef and veal	63.6	49.5	56.2	40.1	41.6	65.4
Mutton	27.2	20.5	23.1	15.9	9.0	9.1
Lamb	6.8	11.4	13.3	18.7	15.9	18.0
Pigmeat	3.9	3.2	4.6	7.9	6.8	5.2
Offal	3.8	4.0	5.2	5.8	4.5	5.3
Canned meat (canned weight)	1.0	1.2	1.9	2.6	2.4	2.2
Bacon and ham (cured carcass weight)	4.6	5.3	3.2	5.5	5.5	5.0
<i>Total (carcass equivalent weight)</i>	<i>118.5</i>	<i>103.0</i>	<i>112.4</i>	<i>99.2</i>	<i>88.4</i>	<i>112.7</i>
Poultry (dressed weight)	n.a.	n.a.	n.a.	13.3	13.9	13.9
Eggs and egg products	12.1	12.7	10.2	12.4	12.4	12.4
Equivalent number of eggs	243	255	206	218	219	219
Fish, fresh and frozen (edible weight)	2.7	2.4	2.5	3.2	3.8	2.8
Milk and milk products—						
Fluid whole milk (in litres)	106.4	138.7	128.7	122.8	120.0	108.9
Condensed, concentrated and evaporated milk	2.0	3.4	4.7	4.5	4.1	4.2
Powdered milk	1.2	1.8	2.2	6.0	5.0	5.4
Infants and invalids' food	0.5	0.6	1.0	1.4	1.5	2.2
Cheese	2.0	2.5	2.6	5.1	5.3	5.2
Oils and fats—						
Butter	14.9	11.2	12.3	8.3	7.9	7.3
Margarine—Table	0.4	0.4	n.a.	1.6	1.8	2.2
Other	1.8	2.4	2.2	4.1	4.1	3.9
Beverages—						
Tea	3.1	2.9	2.7	2.1	2.0	2.0
Coffee(c)	0.3	0.5	0.6	1.3	1.4	1.2
Aerated and carbonated waters (in litres)	n.a.	n.a.	n.a.	65.7	64.4	60.6
Beer (in litres)	53.2	76.8	103.2	131.5	141.3	142.7
Wine (in litres)	2.7	5.9	5.0	9.9	11.2	12.5
Spirits (in litres alcohol)	0.5	0.8	0.8	1.3	1.3	1.2

(a) In terms of refined sugar; includes the sugar content of manufactured products consumed. (b) Includes fresh equivalent of manufactured products. (c) Coffee and coffee products in terms of processed whole or ground pure coffee.

Apparent consumption

Estimates of consumption in Australia are compiled by deducting net exports from the sum of production and imports and allowing for recorded movement in stocks of the respective commodities. Consumption of foodstuffs is measured in general at 'producer' level and, as a result, no allowance is made for wastage before they are consumed. It is believed that more efficient distribution and storage methods in recent years have cut down wastage. Furthermore, it is likely that many of the foodstuffs are being supplemented by householders' self-supplies over and above the broad estimate already made.

The estimates of consumption per head of population have been derived by dividing the total apparent consumption of each commodity or commodity group in a given year by the mean population of Australia in the same period.

More detailed information on the consumption of foodstuffs is contained in the bulletins *Apparent Consumption of Foodstuffs and Nutrients* (4306.0) and *Apparent Consumption of Tea and Coffee* (4307.0).

Nutrients

The nutrients table has been compiled by the Nutrition Section of the Commonwealth Department of Health and is based on the estimates of the quantity of foodstuffs available for consumption per head of population.

ESTIMATED SUPPLY OF NUTRIENTS AVAILABLE FOR CONSUMPTION (Per head per year)

Nutrient	Unit	Average 3 years ended					
		1938-39	1948-49	1958-59	1972-73(a)	1973-74(a)	1974-75(a)
Protein—							
Animal	g	58.7	57.4	59.6	65.3	60.5	69.6
Vegetable	g	30.9	35.3	32.3	32.8	33.0	32.2
Total	g	89.6	92.7	91.9	98.1	93.5	101.8
Fat (from all sources)	g	133.5	121.7	131.7	115.1	113.0	120.2
Carbohydrate	g	377.4	424.8	416.7	402.0	423.4	419.4
Calcium	mg	642.0	785.0	817.0	1,003.0	962.7	972.2
Iron	mg	15.4	15.1	14.0	14.0	13.4	15.2
Vitamin A (Retinol Activity)	i.u.	4,905.0	4,630.0	4,568.0	(b)1,563.0	(b)1,205.6	(b)1,541.0
Vitamin C (Ascorbic Acid)	mg	86.0	96.0	89.0	97.0	89.4	103.3
Thiamin	mg	1.4	1.5	1.3	1.6	1.6	1.6
Riboflavin	mg	1.7	1.9	1.8	2.8	2.9	3.2
Niacin	mg	18.7	17.6	18.6	19.6	19.0	21.7
Energy value	Kcal	3,117	3,245	3,297	3,176	3,223	3,267

(a) Not comparable with years prior to 1968-69. Figures are based on conversion factors calculated from the revised and enlarged edition of 'Tables of Composition of Australian Foods' (Suey Thomas and Margaret Corden, Canberra, 1970). (b) Micrograms (μ g).

NOTE: One international unit (i.u.) of Vitamin A is equivalent to 0.3 micrograms of Retinol.

Land tenure

Descriptions of the land tenure systems of the States and the Territories, and conspectuses of land legislation in force were provided in Year Book No. 48 and previous issues (*see also* Year Book No. 50, page 85 and the List of Special Articles preceding the General Index in this Year Book).

Disposal of crown lands

For a description of the provisions that exist in all mainland States for the disposal of crown lands for public purposes, for unconditional purchase and occupation under lease or licence, *see* Year Book No. 61, page 742.

Closer settlement and war service settlement

Particulars of these are given in issues of the Year Book up to No. 22, and in Year Book Nos. 48, 55 and 61.

Alienation and occupation of crown lands

LAND TENURES, 1976(a) (Million hectares)

State or Territory	Private lands		Crown lands		Total area
	Alienated	In process of alienation	Leased or licensed	Other(b)	
New South Wales	26.1	1.4	43.8	8.8	80.1
Victoria	13.7	0.1	2.4	6.5	22.8
Queensland	12.7	18.3	125.4	16.4	172.8
South Australia	6.7	0.1	59.7	32.0	98.4
Western Australia	15.5	3.2	100.1	133.8	252.6
Tasmania	2.8	0.2	2.2	1.7	6.8
Northern Territory	0.1	..	82.9	51.6	134.6
Australian Capital Territory(c) . . . . .	..	..	0.1	0.2	0.2
Australia	77.5	23.3	416.5	251.1	768.4

(a) Queensland data is at 31 December 1975; Western Australia at 31 December 1976; all other States and Territories at 30 June 1976. (b) Occupied by Crown; reserved; unoccupied; unreserved. (c) Includes Jervis Bay.

Land utilisation in Australia

The table on Land Tenures in Australia, page 295, shows the proportions of Australia and of the States and Territories which are held under freehold tenure ('alienated or in process of alienation') or leasehold tenure ('leased or licensed'). The total area under tenure differs from the total area of rural holdings (shown below) by amounts which represent unused land or land held for non-agricultural purposes. In general, land in the more fertile regions tends to be mostly freehold, while the less productive land is held under Crown lease or licence.

AREA OF RURAL HOLDINGS: STATES (Million hectares)

	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>N.T.</i>	<i>Aust. (incl. A.C.T.)</i>
1950	68.8	15.5	144.0	59.3	85.4	2.6	n.a.	(a)375.8
1955	68.6	15.3	146.6	60.7	92.6	2.7	n.a.	(a)386.4
1960	69.9	15.3	150.5	62.9	99.0	2.6	64.3	464.6
1965	69.7	15.3	152.6	63.5	108.7	2.6	69.4	481.9
1970	69.1	15.8	153.9	65.8	113.6	2.6	73.7	494.7
1973	68.8	15.8	155.1	65.4	114.0	2.6	78.0	499.8
1974	68.9	15.5	154.5	64.8	114.7	2.6	79.5	500.5
1975	68.9	15.2	154.2	63.8	115.6	2.5	79.3	499.6
1976	68.8	15.1	155.6	63.6	116.3	2.5	78.8	500.7
1977p	66.6	14.7	154.8	63.3	117.7	2.3	76.0	495.6

(a) Excludes the Northern Territory.

LAND UTILISATION: AUSTRALIA (Million hectares)

<i>At 31 March</i>	<i>Area used for crops(a)</i>	<i>Area under sown pastures and grasses</i>	<i>Balance of holdings(b)</i>	<i>Total</i>	
				<i>Area of holdings</i>	<i>Percentage of Australian land area (768,686,000 hectares)</i>
1950	8.3	7.4	360.2	375.8	48.9
1955	8.5	10.3	367.6	386.4	50.3
1960	10.1	13.5	441.0	464.6	60.0
1965	13.1	19.1	449.7	481.9	62.7
1970	15.6	26.2	452.8	494.7	64.4
1973	14.3	26.1	459.4	499.8	65.0
1974	15.1	27.2	458.2	500.5	65.1
1975	13.8	28.6	457.2	499.6	65.0
1976	14.5	27.7	458.4	500.7	65.1
1977p	15.0	26.9	453.7	495.6	64.5

(a) Excludes duplication on account of area double cropped. (b) Used for grazing, lying idle, fallow, etc.

The total area of rural holdings in 1976-77 constituted 64.5 per cent of the Australian land area, the remainder being urban areas, State forests and mining leases, with an overwhelming proportion of unoccupied land (mainly desert). The balance of holding data included large areas of arid or rugged land held under grazing licences but not always used for grazing. Balance data also included variable amounts of fallow land.

The crop area data represents up to 3.5 per cent of the area of rural holdings and emphasises the relative importance of the livestock industry in Australia—sheep in the warm, temperate, semi-arid lands and beef cattle in the tropics. The diminishing rural labour force (see page 344) is used on large areas of land with low carrying capacity.

Crops

For this section, statistics relating to crop areas and production have been obtained from the annual Agricultural Census. The census returns are collected in all States and the two Territories at 31 March each year and relate mainly to crops sown in the previous twelve months.

Where harvests are not completed by March (e.g. potatoes), provision is made in some States for a special collection after the harvest is completed. Additional statistics relating to value of agricultural commodities produced, manufactured production and overseas trade are also included. Agricultural Census data published in this section refer to the 'agricultural' year ended 31 March, while other data refer to the year ended 30 June; but for most purposes there will be little error involved in considering 'agricultural year' data as applying to the financial year.

The following table shows the area of crops in each of the States and Territories of Australia since 1860-61.

AREA OF CROPS(a): 1860-61 TO 1975-76
(*000 hectares)

Year	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
1860-61	100	157	2	145	10	62	..	..	475
1870-71	156	280	21	325	22	64	..	..	868
1880-81	245	627	46	846	26	57	..	..	1,846
1890-91	345	822	91	847	28	64	..	..	2,197
1900-01	990	1,260	185	959	81	91	..	..	3,567
1910-11	1,370	1,599	270	1,112	346	116	..	..	4,813
1920-21	1,807	1,817	316	1,308	730	120	..	1	6,099
1930-31	2,756	2,718	463	2,196	1,939	108	1	2	10,184
1940-41	2,580	1,808	702	1,722	1,630	103	..	2	8,546
1949-50	2,295	1,881	832	1,518	1,780	114	n.a.	4	8,424
1954-55	2,183	1,904	1,049	1,711	2,069	122	..	2	9,040
1959-60	2,888	1,949	1,184	1,780	2,628	130	1	3	10,564
1964-65	4,182	2,621	1,605	2,414	3,037	163	2	4	14,028
1965-66	3,663	2,517	1,667	2,440	3,513	156	2	3	13,961
1966-67	5,027	2,738	1,863	2,626	3,568	180	2	4	16,007
1967-68	4,590	2,208	1,883	2,191	3,592	106	6	2	14,578
1968-69	5,509	2,529	2,071	2,596	3,839	110	6	3	16,665
1969-70	4,999	2,212	2,208	2,290	3,912	98	6	2	15,728
1970-71	3,967	1,732	1,791	1,998	3,826	80	2	1	13,397
1971-72	4,186	1,968	1,985	2,312	3,714	67	7	1	14,240
1972-73	4,328	1,935	1,959	2,084	3,855	80	12	1	14,255
1973-74	4,628	1,980	1,787	2,452	4,131	74	5	1	15,059
1974-75	4,090	1,772	1,898	2,257	3,754	67	8	1	13,846
1975-76	4,285	1,852	2,010	2,116	4,208	61	8	1	14,540

(a) The classification of crops was revised in 1971-72 and adjustments made to statistics back to 1967-68. After 1966-67 lucerne for green feed, hay and seed, and pasture cut for hay are excluded.

NOTE: From 1970-71 data excludes duplication on account of area double cropped.

The wide range of climatic and soil conditions over the agricultural regions of Australia has resulted in a diversity of crops being grown throughout the country. Generally, cereal crops (excluding rice and sorghum) are grown in all States over wide areas, while other crops are confined to specific locations in a few States. However, scanty or erratic rainfall, limited potential for irrigation and unsuitable soils or topography have restricted intensive agriculture. Despite this, agricultural production has increased over time to meet increased demands both in Australia and overseas.

The following table provides an Australian summary of the area, production and gross value of the principal crops.

CROPS—AREA, PRODUCTION AND GROSS VALUE

Crop	Area ('000 hectares)			Production ('000 tonnes)			Gross value (\$m)		
	1974-75	1975-76	1976-77p	1974-75	1975-76	1976-77p	1974-75	1975-76	1976-77p
Cereals for grain—									
Barley	1,826	2,329	2,320	2,515	3,179	2,850	257	314	295
Grain sorghum	511	504	521	901	1,124	n.a.	76	96	n.a.
Maize	51	47	55	133	131	n.a.	12	12	n.a.
Oats	897	987	991	874	1,141	1,073	60	78	73
Rice	76	75	92	388	417	528	36	41	n.a.
Wheat	8,308	8,555	8,943	11,357	11,982	11,825	1,256	1,249	1,060
Legumes for grain	193	192	171	97	69	n.a.	18	23	n.a.
Crops for hay—									
Barley	13	13	17	34	31	39	1	1	n.a.
Oats	150	167	211	481	557	691	15	20	n.a.
Wheat	47	47	60	136	138	162	4	4	n.a.
Crops for green feed, silage—									
Barley	76	57	62						
Forage sorghum	77	85	74				n.a.		
Oats	549	500	475						
Wheat	52	32	45						
Sugar cane cut for crushing	253	257	288	20,418	21,959	23,344	491	436	467
Tobacco	9	9	9	15	15	n.a.	49	51	n.a.
Cotton	39	30	34	103	80	n.a.	29	38	n.a.
Peanuts	24	27	30	32	35	n.a.	12	16	n.a.
Linseed	36	16	16	33	12	17	7	2	n.a.
Rapeseed	12	16	8	9	12	8	2	2	n.a.
Safflower	36	40	15	31	18	7	8	3	n.a.
Sunflower	210	137	134	113	80	n.a.	24	16	n.a.
Fruit	103	100	91	..	..	..	267	269	294
Orchard fruit	87	85	n.a.	..	..	..	215	206	n.a.
Oranges				341	362	323	43	46	n.a.
Apples		n.a.		368	275	n.a.	74	74	n.a.
Pears				138	140	n.a.	26	20	n.a.
Peaches				91	79	74	24	18	n.a.
Berry and other	16	15	n.a.	..	..	..	51	63	n.a.
Bananas	8	8	8	118	97	103	31	40	n.a.
Pineapples	6	6	6	110	103	112	12	14	n.a.
Grapevines	71	71	72	728	712	n.a.	101	102	123
Vegetables	111	106	109	..	..	..	258	275	290
Potatoes	38	34	37	736	696	n.a.	87	91	n.a.
Pastures and grasses cut for hay	1,033	937	918	457	3,591	3,528	136	119	n.a.
Total, all crops (including pastures)	15,025	15,575	16,015	..	..	..	3,206	3,250	3,205

In the tables that follow, crop statistics are shown in these groupings: wheat, coarse grains, rice, oilseeds, sugar, vegetables, fruit, grapevines and other crops such as tobacco, mushrooms, nurseries and fodder crops. A further grouping shows farm consumption of cereals, etc., artificial fertilisers, aerial agriculture and irrigation from page 340.

Cereal grains

In Australia, cereals are conveniently divided into autumn-winter-spring growing ('winter' cereals) and spring-summer-autumn growing ('summer' cereals). Winter cereals such as wheat, oats, barley and rye are usually grown in rotation with some form of pasture such as subterranean clover, medics and clover. In recent years, alternative winter crops such as rapeseed, field peas and lupins have been introduced into cereal rotation in areas where they had not previously been grown. Rice, maize, sorghum and the millets are summer cereals and, except for rice, are also used for stock feed. In Northern Queensland there are two rice growing seasons—a dry season winter crop and a wet season summer crop.

Cereals for grain form a significant percentage of both the value of Australia's agricultural commodities and of the country's export earnings. The following table shows the significance of cereal grains in the last 28 years.

CEREAL GRAINS IN AUSTRALIA: A PERSPECTIVE

Year	Cereal grains(a)		Total agriculture Gross value	Total Australian exports— all produce Value f.o.b.	Gross value of cereal grains as a percentage of gross value of agriculture	Export value of cereal grains as a percentage of total Australian exports
	Gross value \$m	Export value f.o.b. \$m				
1949-50 . . .	346.4	203.2	1,558	1,217	22.2	16.7
1954-55 . . .	300.7	167.6	2,208	1,532	13.6	10.9
1959-60 . . .	372.6	202.8	2,646	1,839	14.1	11.0
1964-65 . . .	653.7	393.3	3,421	2,582	19.1	15.2
1969-70 . . .	684.7	431.9	3,730	3,966	18.4	10.9
1972-73 . . .	575.0	421.6	4,957	5,961	11.6	7.1
1973-74 . . .	1,715.0	747.4	6,412	6,707	26.7	11.1
1974-75 . . .	1,701.3	1,466.4	5,878	8,404	28.9	17.4
1975-76 . . .	1,798.2	1,376.4	6,184	9,553	29.1	14.4
1976-77p . . .	1,592.0	n.a.	6,706	n.a.	23.7	n.a.

(a) Principally wheat, barley, oats, grain sorghum, rice and maize, with panicum/millet, canary seed and rye being minor cereals.

In the tables that follow, area, production, gross value and trade data are shown at five yearly intervals from 1949-50. For more up-to-date and detailed information on cereals for grain see the following publications:

Agricultural Sector—Part I, Structure of Operating Units (7102.0), Rural Land Use: Improvements and Agricultural Machinery (7103.0), Agricultural Statistics of the A.C.T. (7104.0), Agricultural Statistics of the N.T. (7105.0), Principal Agricultural Statistics: First Estimates (7201.0), Principal Agricultural Statistics: Second Estimates (7202.0), Crop and Fruit Statistics (Preliminary) (7301.0), Crop Statistics (7302.0), Cereal Grains: Estimates of Intended Sowings (7304.0), Cereal Grains: Estimates of Area Sown (7305.0), Cereal Grains: Estimates of Production (7306.0), Wheat Statistics (7307.0), Gross Value of Agricultural Commodities Produced: First Estimates (7501.0), Value of Agricultural Commodities Produced: Second Estimates (7502.0), Value of Agricultural Commodities Produced (7503.0).

Wheat

Wheat is grown extensively in all States except Tasmania, and is the most important crop in Australia in terms of area, production and value of exports.

The present limits of the wheat belt have been established after considerable fluctuations over the last half century. Prominent factors in the early development of the industry were the increase in population following the discovery of gold and the redistribution of labour after the surface gold had been won. The economic depression of 1893 interrupted its progress, but its subsequent recovery was assisted by the invention of mechanical appliances, the use of superphosphate as an aid to production, and the introduction of new and more suitable varieties of wheat for Australian conditions. The establishment of closer settlement schemes and the settling of returned soldiers and others on the land were additional factors in its expansion.

Two further factors which have contributed to the development of the industry are the organisation of overseas marketing and of research. As a large proportion of the wheat crop is exported, wheat marketing plays an important role. The Australian Wheat Board was constituted in September 1939, under *National Security (Wheat Acquisition) Regulations*, to purchase, sell or dispose of wheat or wheat products and to manage or control all matters connected with the handling, storage, protection, shipment, etc. of wheat acquired and such other matters as were necessary to give effect to the regulations. The *Wheat Industry Stabilization Act 1948* reconstituted the Australian Wheat Board to administer the first stabilisation plan, and the Board maintained the *Wheat Industry Stabilization Acts 1954, 1958, 1963-66, 1968-73 and 1974-75* for the purpose of administering the second, third, fourth, fifth and sixth Five Year Stabilisation Plans. Details of the more recent plans were published in Year Book numbers 40, 44, 48, 54, 55 and 61.

World wheat

Under the influence of high prices and expansionary production policies, world producers have in recent years attempted to expand production to cope with a critically low level of wheat stocks and increasing wheat consumption. Forecasts of longer term prospects in the world wheat economy are extremely hazardous in view of the critical influence and unpredictability of the weather but, because of the need for longer term planning, wheat producers must consider the more important factors likely to influence future development. The international wheat market is partly residual and sensitive to changes in the overall world supply/demand situation, and producers in Australia and the other main exporting countries need to react rapidly if they are to avoid surplus production, the building of excess stock and, hence, depressed prices.

Wheat delivery quota plan

In March 1969, the Australian Wheat Growers Federation put forward proposals for the allotment of quotas on wheat deliveries designed to bring marketable supplies of wheat more into line with available outlets. The proposals became effective following the record 1968-69 harvest of 14.8 million tonnes. Quotas were subject to annual review and, while wheat in excess of a quota was received if storage space was available, 'quota wheat' received preference. Only deliveries made within the established quotas received a first advanced payment. In an effort to stimulate output during the 1975-76 season (and so take advantage of the favourable international market situation), wheat delivery quotas were suspended and the first advanced payment to growers was announced well before planting. Producers reacted to the overall market conditions by increasing their plantings. A summary of quota allocation is given in Year Book No. 61, pages 842-3.

Wheat varieties and standards of wheat

The breeding of wheat suitable to local conditions has long been established in Australia. William Farrer (1845-1905) did invaluable work in pioneering this field and the results of his labour and the continued efforts of those who have followed him have proved of immense benefit to the industry. Their efforts have resulted in the development of disease-resistant varieties, better average yields, and a greater uniformity of sample, with which have accrued certain marketing advantages as well as an improvement in the quality of wheat grown. A detailed table of wheat varieties sown appears in the annual bulletin *Wheat Statistics* (7307.0). The continuation of wheat breeding activities has led to expansions in the areas sown to wheat as well as in yields per hectare, but it is difficult to distinguish progress due to improved wheat varieties from that due to wider rotations, increased mechanisation and superphosphate-increased pastures.

The quality of wheat (its flour yielding capacity, protein content, hardness and physical dough properties) is governed by a combination of the wheat variety and the climatic and growing characteristics of its region of origin. Since 1966-67, Australian wheat has been marketed under district classification. This practice of segregation has been widely employed to enhance the marketability of Australian wheat, and in recent years up to twenty-two separate grades have been made available for export. Within the Australian wheatbelt there exist wide ranges of soil fertility, rainfall, day length and ambient temperature, and, by developing varieties which complement the growing conditions, it has been possible to produce varieties with qualities suitable for virtually every commercial application. Particulars of Australian standard weights for the different grades of wheat may be found in the annual bulletin *Wheat Statistics* (7307.0).

Central Grain Research Laboratory

In 1976, the Australian Wheat Board established this laboratory in Sydney as an addition to the facilities of the Bread Research Institute of Australia. The main functions of the laboratory are to test and report on the Australian crop, to analyse and compare competitor wheats from other countries and to develop research programs to aid the marketing of wheat.

Wheat Stabilisation—I.A.C. Inquiry

The Industries Assistance Commission has been asked to report on whether assistance should be given to the wheat industry to stabilise its returns after the Sixth Wheat Industry Stabilisation Plan expires on 30 September 1979 and, if so, the nature and extent of such assistance.

WHEAT: AREA, PRODUCTION AND RECEIVALS

Season	Area		Production		Australian Wheat Board receivals(a)
	For grain	All purposes	Grain	Gross value	
	'000 ha	'000 ha	'000 tonnes	\$m	'000 tonnes
1949-50	4,953	5,145	5,939	297.2	5,523
1954-55	4,319	4,546	4,589	215.1	4,157
1959-60	4,926	5,089	5,402	275.5	4,881
1964-65	7,251	7,389	10,037	517.7	9,430
1969-70	9,486	9,736	10,547	531.1	9,755
1972-73	7,604	7,773	6,590	356.6	5,439
1973-74	8,948	9,066	11,987	1,311.9	11,200
1974-75	8,308	8,406	11,357	1,256.4	10,705
1975-76	8,555	8,633	11,982	1,249.2	11,257
1976-77p	8,943	9,057	11,825	1,060.0	(b)10,928

(a) Australian Wheat Board receivals are for the season commencing 1 December; production data is for the year ending 31 March. (b) Receivals to 22 October 1977.

WHEAT FOR GRAIN: AREA AND PRODUCTION, BY STATE

	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Australia
AREA ('000 hectares)							
1971-72	2,426	1,040	556	1,069	2,042	5	7,138
1972-73	2,618	1,087	471	986	2,437	4	7,604
1973-74	2,883	1,258	395	1,432	2,978	3	8,948
1974-75	2,646	1,141	489	1,220	2,810	2	8,308
1975-76	2,774	1,073	576	958	3,171	2	8,555
1976-77p	3,116	1,103	579	839	3,304	2	8,943
PRODUCTION ('000 tonnes)							
1971-72	2,410	1,894	722	1,407	2,165	8	8,606
1972-73	1,954	1,405	405	815	2,003	8	6,590
1973-74	3,962	1,490	526	1,795	4,211	4	11,987
1974-75	3,809	2,091	692	1,486	3,277	2	11,357
1975-76	4,310	1,578	830	1,139	4,122	2	11,982
1976-77p	5,141	1,775	798	832	3,274	4	11,825

A graph showing the area sown to wheat for grain in Australia for the years 1900-01 to 1970-71 appears in Year Book No. 58, page 746, and a map showing the distribution of areas growing wheat for grain throughout Australia in 1962-63 appears on page 1013 of Year Book No. 50. Similar maps showing the distribution of wheat areas in 1924-25, 1938-39, 1947-48, and 1954-55 appeared respectively in Year Books No. 22, page 695; No. 34, page 451; No. 39, pages 977-8; and No. 43, page 833. A graph showing production of wheat from 1940-41 appeared in Year Book No. 61, page 756.

PRODUCTION AND DISPOSAL OF WHEAT FOR GRAIN*

('000 tonnes)

Year ended 30 November	1971-72	1972-73	1973-74	1974-75	1975-76
Production	8,606	6,590	11,987	11,357	11,982
Less balance held on farms for—					
Seed usage	467	547	505	511	539
Feed and other uses	473	604	282	141	186
Gross receipts	7,666	5,439	11,200	10,705	11,257
Opening stocks(a)	3,400	1,448	478	1,882	1,658
Total availability for sale	11,066	6,887	11,678	12,587	12,915
Export shipments—					
Wheat	7,426	3,855	7,124	8,254	7,962
Flour and wheat products(b)	334	282	294	296	271
Domestic sales—					
Flour	1,276	1,272	1,362	1,334	1,304
Stockfeed	534	935	911	1,007	633
Breakfast feeds	38	36	46	55	55
Total disposal	9,608	6,380	9,737	10,946	10,225
Availability (—) Disposals	1,458	507	1,941	1,641	2,690
Closing stocks	1,448	478	1,882	1,658	2,605
Apparent wastage	10	29	59	-17	25

(a) Includes the wheat equivalent of flour. (b) In terms of wheat.
 * NOTE: The Australian Wheat Board is the source of export shipments, domestic sales data, and opening and closing stocks; the ABS records other data.

Other wheat statistics

Prices. The *home consumption price* is the price of Australian Standard White (ASW) bulk wheat f.o.r. (ports) sold by the Australian Wheat Board on the home market. It includes a loading of a variable amount to meet freight charges on wheat shipped to Tasmania. Prior to 1973-74 the home consumption price varied according to the end usage, viz. human consumption, manufacture of flour for industrial use, basic stockfeed or stockfeed where the purchaser undertook to buy the entire season's requirements from the Wheat Board.

The *monthly export price* is the Wheat Board's basic export selling price for ASW bulk wheat f.o.b. . Much of the wheat exported is sold under contract for delivery over lengthy periods and these prices do not necessarily reflect the prices received for all wheat shipped during those months.

For details of these price series see earlier issues of the Year Book and the latest issue of *Wheat Statistics* (7307.0).

Wheat pools. Details of wheat receipts by State of origin for the several Pools together with Pool payments and times of payment will be found in the latest issue of *Wheat Statistics* (7307.0).

Wheat exports

International Wheat Agreement. Details of the first and second International Wheat Agreements operative from 1 August 1949 to 31 July 1953, and from 1 August 1953 to 31 July 1956 respectively were published in Year Book No. 42, pages 840-1 or previous issues. Details of the third, fourth and fifth International Wheat Agreements which covered the periods from 1 August 1956 to 31 July 1959, 1 August 1959 to 31 July 1962 and 1 August 1962 to 31 July 1968 were published in Year Books Nos.—43, page 836; 48, page 906; and 55, page 836, respectively.

Details of the third International Wheat Agreement, which came into force on 1 July 1971 and which was extended three times by protocol to expire on 30 June 1978, will be found in the latest issue of *Wheat Statistics* (7307.0).

WHEAT EXPORTS: A COMPARISON WITH OTHER EXPORT COMMODITIES(a)

Year	Wheat for grain: Exports		Total Australian exports— all produce: Value f.o.b.	Export value of wheat for grain as a percentage of total Australian exports
	Quantity	Value f.o.b.		
	'000 tonnes	\$m	\$m	per cent
1949-50	2,134	124.3	1,216.9	10.2
1954-55	1,717	90.4	1,531.8	5.9
1959-60	2,483	123.4	1,839.4	6.7
1964-65	5,715	297.2	2,581.9	11.5
1969-70	6,886	337.6	3,965.9	8.5
1972-73	5,391	273.1	5,961.4	4.6
1973-74	5,128	517.1	6,707.0	7.7
1974-75	7,860	1,034.4	8,404.4	12.3
1975-76	7,559	921.5	9,552.7	9.6
1976-77	7,945	863.5	n.a.	n.a.

(a) These statistics exclude re-exports.

EXPORTS OF WHEAT AND FLOUR

Country of consignment	1971-72		1972-73		1973-74		1974-75		1975-76	
	'000 tonnes	\$m	'000 tonnes	\$m	'000 tonnes	\$m	'000 tonnes	\$m	'000 tonnes	\$m
WHEAT										
Bangladesh	13.9	0.7	52.6	3.7	241.7	32.9	310.2	39.6	98.0	11.5
Chile	296.9	13.9	508.7	24.2	303.1	37.6	142.7	21.5	..	..
China—excl. Taiwan Province	..	..	324.0	16.5	1,163.1	83.7	1,398.6	158.1	1,082.9	120.2
—Taiwan Province only	143.3	7.1	164.1	8.2	26.1	3.7	74.7	11.0	65.2	7.9
Egypt, Arab Republic of	1,801.1	83.8	777.0	32.9	714.8	71.1	861.4	115.9	1,015.6	143.2
India	55.2	2.8	..	..	666.1	53.1	236.2	31.6	312.5	29.3
Indonesia	104.6	5.4	71.6	4.7	114.6	16.1	597.5	80.1	294.2	34.1
Iran	396.8	21.0	..	..	..	..	424.2	53.6	83.4	8.0
Iraq	191.6	10.4	..	..	116.4	11.4	254.9	41.3	302.7	53.4
Japan	1,466.3	72.1	751.8	42.5	423.7	57.9	995.0	136.8	1,065.4	124.3
Korea, Dem. Peop. Rep.	50.4	2.4	..	..	104.7	13.3	49.9	5.5	156.1	17.4
Malaysia	310.0	15.8	299.5	15.2	314.8	29.3	284.9	38.9	316.8	36.6
Singapore	133.6	6.5	175.2	10.8	166.9	18.0	158.6	21.2	127.6	13.4
U.K.	573.2	27.5	520.1	28.7	..	..	..	..	..	..
U.S.S.R.	502.4	27.5	907.5	41.0	17.5	0.9	634.7	92.1	1,309.6	166.0
Yemen Arab Rep.	99.3	5.9	45.6	3.0	35.5	5.1	38.5	5.5	178.6	23.0
Other countries	2,320.9	115.7	793.3	41.6	719.2	83.0	1,398.0	181.7	1,158.5	134.0
Total	8,459.5	418.5	5,391.0	273.1	5,128.2	517.1	7,860.0	1,034.4	7,567.1	922.5
FLOUR(a)										
Burma, Socialist Rep.	8.9	0.7	4.0	0.3	2.9	0.5	1.0	0.2	..	..
Fiji	33.9	1.5	31.6	1.7	10.4	1.5	2.3	0.5	1.9	0.3
Gilbert and Ellice Islands	1.7	0.1	1.9	0.2	2.0	0.4	2.5	0.5	2.0	0.4
Mauritius	17.3	1.2	17.5	1.4	17.2	2.1	16.0	3.0	16.0	2.9
New Caledonia	1.8	0.2	2.5	0.2	0.8	0.2	1.6	0.3	1.1	0.2
Oman	6.2	0.4	5.2	0.4	6.6	1.0	5.6	1.1	6.0	1.0
Papua New Guinea	19.5	1.7	19.7	2.0	18.6	3.1	21.7	4.1	19.8	3.7
Philippines	0.8	0.1	8.2	0.7	8.2	1.3	5.5	1.3	3.9	0.7
Samoa (Western)	2.5	0.2	2.5	0.3	3.1	0.5	3.8	0.8	2.8	0.5
Saudi Arabia	9.5	0.7	10.0	0.8	11.0	1.3	8.0	1.3	6.3	1.0
Solomon Islands	1.7	0.1	2.1	0.2	1.4	0.2	1.8	0.3	1.2	0.2
Sri Lanka	14.9	1.1	13.5	1.5	21.7	4.5	126.9	27.9	94.0	15.9
Timor	2.1	0.1	2.8	0.3	1.2	0.2	2.4	0.5	0.4	0.1
Tonga	3.4	0.3	4.1	0.3	3.2	0.5	3.4	0.7	2.3	0.4
United Arab Emirates	18.0	1.1	23.2	1.9	26.2	3.7	31.6	6.3	40.0	7.6
Other countries	54.1	4.4	35.9	1.0	13.3	1.2	15.3	1.8	29.9	5.2
Total	196.5	14.0	184.6	13.2	147.8	22.0	249.3	50.6	227.5	40.1

(a) Plain, white and self-raising flour, sharps and wheatmeal for baking.

WORLD WHEAT: AREA AND PRODUCTION

Source: International Wheat Council, *World Wheat Statistics* (various issues)

Unit: Area in million hectares; production in million tonnes

	1971-72		1972-73		1973-74		1974-75		1975-76	
	Area	Prod.	Area	Prod.	Area	Prod.	Area	Prod.	Area	Prod.
Europe	27.8	81.3	27.7	82.0	26.5	82.2	27.3	90.7	25.3	77.0
E.E.C. (9)	11.1	40.1	11.1	41.4	10.8	41.4	11.2	45.4	10.5	38.1
U.S.S.R.	64.1	98.8	58.5	85.8	63.2	109.7	59.7	83.9	62.0	66.2
North & Central America	27.8	60.2	28.5	58.4	32.0	65.0	36.3	65.0	38.5	77.9
Canada	7.9	14.4	8.6	14.5	9.4	16.5	8.9	13.3	9.5	17.1
U.S.A.	19.3	44.0	19.1	42.0	21.9	46.4	26.6	48.9	28.2	58.1
South America	7.9	9.8	8.7	9.9	6.3	10.0	7.7	10.7	9.6	11.8
Asia	73.9	86.7	75.9	94.2	76.5	89.2	75.5	89.7	76.4	100.3
China(a)	28.9	33.0	29.1	35.0	28.7	36.0	29.0	37.0	30.0	41.0
India	18.2	23.8	19.1	26.4	19.5	24.7	18.6	21.8	18.0	24.2
Iran	5.6	3.7	5.5	4.5	5.9	4.6	5.9	4.7	6.0	5.5
Pakistan	6.0	6.5	5.8	6.6	6.0	7.4	6.1	7.6	5.8	7.7
Turkey	8.7	13.5	8.7	12.2	8.9	10.0	8.8	11.0	9.3	14.8
Africa	8.9	9.1	9.9	9.7	8.9	9.8	8.5	9.2	8.7	8.6
Oceania	7.3	9.0	7.7	7.0	9.0	12.2	8.4	11.5	8.6	12.3
Australia	7.1	8.6	7.6	6.6	8.9	12.0	8.3	11.4	8.6	12.0
Total world.	217.7	354.5	216.7	344.1	223.4	377.2	223.7	359.9	229.1	354.2

(a) Excludes Taiwan Province; FAO estimates.

NOTE: 1. Crop years shown cover northern hemisphere harvests combined with those of the southern hemisphere which immediately follow.

2. The 9 members of the E.E.C. are: Belgium, Denmark, France, Federal Republic of Germany, Ireland, Italy, Luxembourg, Netherlands and the United Kingdom.

Coarse grains

In the late sixties and early seventies, restrictions on wheat deliveries and low prices for output from sheep enterprises resulted in a resurgence of interest in coarse grain crops and the newer oilseed crops. Expanded plantings and productions resulted, but this expansion tended to fall off with improvements in the market prospects for wheat, wool and meat.

Oats

Oats is traditionally a cereal of moist temperate regions. However, improved varieties and management practices have enabled oats to be grown over a wide range of soil and climatic conditions. It has excellent feed value and produces a greater bulk of growth than other winter cereals; it needs less cultivation and responds well to superphosphate and nitrogen. Oats has a variety of uses—as a pasture plant when rough sown into heavy stubble or heavy clover pastures, as a fodder crop when mown and baled or cut for chaff, or as a grain when stripped (the stubble then being grazed off). The grain is sold through voluntary pools in Victoria, South Australia and Western Australia. In New South Wales, a State Statutory Marketing Board was set up in 1971.

Oats is usually next in importance to wheat and barley among the grain crops. About three-quarters of the crop is used domestically as stockfeed or for human consumption.

OATS FOR GRAIN: AREA, PRODUCTION AND EXPORTS

Year	Production			Exports	
	Area	Quantity	Gross value	Quantity	Value f.o.b.
	'000 ha	'000 tonnes	\$m	'000 tonnes	\$m
1949-50	707	497	16.5	120	4.8
1954-55	1,042	596	28.1	52	2.8
1959-60	1,226	850	36.8	217	10.1
1964-65	1,415	1,271	51.4	366	15.6
1969-70	1,374	1,247	33.4	219	7.6
1972-73	995	736	31.5	115	5.0
1973-74	1,182	1,107	66.8	184	13.6
1974-75	897	874	59.6	236	19.8
1975-76	987	1,141	77.8	359	32.9
1976-77p	991	1,073	73.0	364	33.4

World production of oats for grain for 1976-77 is estimated by the Bureau of Agricultural Economics to amount to about 49 million tonnes; Australia's share is about 2.2 per cent.

Barley

This cereal contains two main groups of varieties, 2-row and 6-row. The former is generally, but not exclusively, preferred for malting purposes. Barley is grown principally on pasture land worked up early in the year of sowing. In this way it forms an important phase in the rotation of crops. Like oats, it may also be sown for fodder production or for grain. When sown for fodder, sowing may take place either early or late in the season, as it has a short growing period. It may thus provide grazing or fodder supplies when other sources are not available. Barley grain may be crushed to meal for stock or sold for malting.

Crops sown for malting purposes require a combination of light textured soil of moderate fertility, reliable rainfall, and mild weather during ripening. The main barley-growing areas in Australia are situated in South Australia (South Adelaide Plains, Eyre and Yorke Peninsulas), but considerable quantities are grown also in New South Wales, Victoria, Queensland and Western Australia.

Barley Boards

There are State statutory marketing boards operating in New South Wales, Victoria, Queensland and South Australia. The Western Australian Barley Marketing Board was abolished at the end of 1975 and the marketing of barley in Western Australia is now the responsibility of the Grain Pool of Western Australia. Pooled returns from sales are distributed to growers at standard rates for the individual grades and varieties delivered. The Victorian and South Australian crops are marketed by the Australian Barley Board (a joint board established by the two State Governments), and the Queensland and New South Wales Boards and the Grain Pool of Western Australia handle the crops of their respective States.

BARLEY FOR GRAIN: AREA, PRODUCTION AND EXPORTS

Year	Area	Production		Total		Exports	
		2-row	6-row	Quantity	Gross value	Quantity	Value f.o.b.
		'000 ha	—	'000 tonnes		\$m	'000 tonnes	$m
1949-50	421	398	45	443	21.4	243	12.9
1954-55	684	581	86	667	36.5	428	20.7
1959-60	963	592	183	775	33.2	567	23.1
1964-65	835	947	171	1,118	55.6	369	18.0
1969-70	1,521	1,398	300	1,699	66.0	631	22.7
1972-73	2,140	1,441	286	1,727	90.9	804	38.5
1973-74	1,894	2,076	322	2,397	190.5	808	68.5
1974-75	1,826	2,272	243	2,515	256.9	1,760	186.7
1975-76	2,329	2,872	307	3,179	313.9	1,954	199.8
1976-77p	2,320	2,628	222	2,850	295.0	2,100	222.5

The Bureau of Agricultural Economics has estimated the 1976-77 world production at 179 million tonnes; Australia's share is about 1.7 per cent.

Grain sorghum

The sorghums are summer growing crops which are used in three ways: grain sorghum for grain; sweet or fodder sorghum, sudan grass and, more recently, columbus grass for silage, green feed and grazing; and broom millet for brooms and brushware.

The growing of grain sorghum on an extensive scale did not attain a position of prominence until the last two decades. Operations are highly mechanised and rapid increases in production have resulted in a substantial increase in exports. The grain is used primarily as stockfeed and is an important source for supplementing other coarse grains for this purpose.

The climatic conditions of Queensland and northern New South Wales are particularly suited to the growing of sorghums. In Queensland, grain sorghum production is concentrated in the Burnett and Dawson-Callide areas and in the Central Highlands. In New South Wales, the north-western slopes and plains are the main areas.

In Central Queensland, orderly marketing of the crop is arranged through the Central Queensland Grain Sorghum Marketing Board and in Southern Queensland the Grain Sorghum Export Committee of the Queensland Grain-growers Association. A State statutory marketing board commenced operations in New South Wales with the marketing of the 1972 crop.

GRAIN SORGHUM: AREA, PRODUCTION AND EXPORTS

Year	Area	Production		Exports	
		Quantity	Gross value	Quantity	Value f.o.b.
	'000 ha	'000 tonnes	\$m	'000 tonnes	\$m
1949-50	41.7	60.6	1.8	19.0	0.7
1954-55	87.3	145.8	5.3	44.8	1.7
1959-60	109.9	220.1	7.9	60.2	2.2
1964-65	139.9	195.0	8.3	2.1	0.1
1969-70	358.7	547.4	24.1	53.8	2.4
1972-73	697.2	1,017.5	59.0	735.5	35.3
1973-74	539.7	1,060.6	80.4	747.9	54.3
1974-75	511.1	900.8	76.2	855.8	73.3
1975-76	504.0	1,123.7	96.1	815.0	71.8
1976-77	521.4	n.a.	n.a.	829.2	76.3

For the 1976-77 season, the Bureau of Agricultural Economics has estimated the world production of grain sorghum at 53 million tonnes; Australia's share is about 2.1 per cent.

Maize

Like sorghum, maize is a summer cereal demanding specific soil and climatic conditions. For grain, growing is almost entirely confined to the south-east regions and Atherton Tablelands of Queensland and the north coast and northern tablelands of New South Wales. On the Atherton Tablelands in Queensland, and generally in New South Wales and Victoria, the cereal provides a stock feed for dairy cattle, fat stock, poultry and pigs. In times of drought it is used also as a sheep feed. In all States except South Australia, however, this crop is grown to some extent for green feed and silage, particularly in connection with the dairying industry. There is practically no difference between grain and fodder varieties.

There has been a continuing increase in recent years in the growing of maize from hybrid strains of seed. Varieties have been developed which are capable of producing yields per hectare considerably in excess of the older open pollinated types. The expansion in areas sown to hybrid maize has led to a parallel development in the specialised industry of growing hybrid strains for seed.

A State statutory board controls marketing in the Atherton Tablelands area of Queensland. In New South Wales in 1975 growers voted for the formation of a marketing board.

World maize production in 1976-77 is estimated by the Bureau of Agricultural Economics at 326 million tonnes.

MAIZE: AREA, PRODUCTION AND EXPORTS

Year	Area	Production		Exports	
		Quantity	Gross value	Quantity	Value f.o.b.
	'000 ha	'000 tonnes	\$m	'000 tonnes	\$m
1949-50	78.3	152.3	5.6	30.5	1.2
1954-55	68.7	128.9	7.2	11.6	0.6
1959-60	74.8	170.8	8.1	0.1	..
1964-65	85.9	174.7	10.0	0.1	..
1969-70	79.6	191.6	10.5	0.1	..
1972-73	59.3	138.8	8.7	9.2	0.5
1973-74	45.6	105.8	9.0	2.7	0.2
1974-75	51.4	133.3	11.7	1.2	0.2
1975-76	46.8	131.5	12.2	10.8	1.0
1976-77	54.7	n.a.	n.a.	33.0	2.8

Rice

Rice is cultivated generally between latitudes 49° N and 35° S wherever sufficient water is available and where low temperatures do not limit growth and development. The principal rice-growing areas are confined almost entirely to Asia. In Australia, rice was first grown commercially in the Murrumbidgee Irrigation Area in 1924-25, and it was not long before a surplus became available for export. In the late 1960s, irrigation in the Burdekin area of northern Queensland enabled significant plantings to be made with two rice-growing seasons—a dry winter crop and a wet summer crop. In both the M.I.A. and the Burdekin Delta, limited irrigation water controls rice plantings.

RICE: AREA, PRODUCTION AND EXPORTS

Year	Area	Production		Exports	
		Quantity	Gross value	Quantity	Value f.o.b.
	'000 ha	'000 tonnes	\$m	'000 tonnes	\$m
1949-50	15.2	72.1	3.3	27.1	2.4
1954-55	15.7	96.8	6.9	18.5	3.0
1959-60	19.8	128.3	8.9	67.1	6.9
1964-65	24.9	153.0	8.5	64.9	8.0
1969-70	40.2	246.7	14.5	128.8	17.1
1972-73	45.2	308.6	25.0	157.6	21.2
1973-74	67.5	408.8	50.5	136.6	28.6
1974-75	75.6	388.3	35.9	164.3	43.0
1975-76	74.8	417.0	41.2	218.0	51.4
1976-77	92.1	528.0	n.a.	256.5	57.1

Oilseeds

The restrictions on wheat deliveries and low wool and meat prices in the late 1960s and early 1970s increased interest in the newer oilseed crops such as rapeseed. This was aided by a buoyant world market for oilseeds.

In Australia, sunflower, soybeans, rapeseed, linseed and safflower are grown specifically for crushing. These crops are located in the grain areas of several States and have shown spectacular increases in recent years. Peanuts, cottonseed and, to a lesser extent, maize are grown for other purposes, but oil is a by-product.

Linseed. Varieties of the summer-growing annual flax plant have been developed for the production of linseed which, when crushed, yields an industrial oil used in the manufacture of paint and linoleum. The introduction of synthetics into these fields has reduced the demand for linseed oils. The main producing areas are the wheat belt of New South Wales, western and north-eastern districts of Victoria, the Esperance district of Western Australia, the Darling Downs in Queensland and the south-eastern district of South Australia.

Rapeseed. This is obtained from several varieties of brassica which are cultivated in temperate and warm temperate zones for their oil-producing seed. Rapeseed oil is used mainly as a salad and cooking oil with some minor amounts being utilised for industrial purposes. A protein meal is derived as a by-product in the crushing process. Rapeseed is winter growing and is produced mainly in the higher rainfall areas of southern New South Wales, Victoria, South Australia and Western Australia. From virtually nil production in 1967-68 it rose to a peak of 55,000 tonnes in 1971-72 but declined rapidly due partly to blackleg disease in Western Australian crops.

Safflower. Safflower is best cultivated either in the warm temperate zones or as a winter crop in the tropical or sub-tropical regions, on moderately fertile, weed-free, clay or sandy loams. Adequate moisture is required up to the flowering stage, after which it is relatively drought resistant. The soil preparation and sowing techniques are similar to those employed for small grains; it is usually harvested by headers when the seed is hard and dry. The oil, produced by crushing, is used in the manufacture of margarine, soaps, paints, varnishes, enamels, and textiles.

Sunflower. Sunflowers are summer growing annuals produced mainly under raingrown conditions in the three eastern mainland States of Australia. The cultivation of sunflowers has developed rapidly in recent years to make it the major oilseed crop.

The seed for which the plant is cultivated yields a high quality dual purpose oil and a by-product protein meal used for stockfeed. Main uses for the oil are in the manufacture of margarine, as a salad and cooking oil, and for industrial purposes.

Soybeans. The soybean is cultivated widely throughout the world in temperate zones where hot damp summers provide adequate growing conditions. Although large quantities of beans are directly consumed in countries such as Japan, China (excluding Taiwan Province) and Indonesia, the greater part of world output is crushed for meal and oil. Major soybean producing countries are the United States of America, Brazil and China (excluding Taiwan Province).

The greater part of Australian production takes place in the Darling Downs, Burnett and Lockyer districts of Queensland and in the Moree and Gunnedah districts of New South Wales.

Trends in the production of these specialised oilseed crops are closely tied to development in markets and prices not only for oilseeds but also for wheat, wool and meat. In 1975-76, due to lower world and domestic market prices and an increase in oil imports, the industry requested greater import protection. The Industries Assistance Commission is reviewing the assistance requirements of the fats and oils production sector as well as the seed producing industry. While any recommendations will have significant influence on the development of the oilseed industry, increased attention is being paid to alternative marketing arrangements and to research to improve technical and economic efficiency.

Peanuts. Peanuts, or groundnuts, are a sub-tropical legume (and hence summer growers), the pods of which mature beneath the surface of the soil. They thus require well drained, light textured soils. At harvest the plant is pulled, wind-rowed, field-cured for two to four weeks, and then threshed to recover the pods. The main products of the industry are nuts, peanut oil and oil cake.

In Australia, peanuts for crushing for oil arise as a by-product in the production of nuts for edible purposes. The oil is used extensively as a cooking and salad oil and in the manufacture of margarine.

The production of peanuts in Australia is confined mainly to Queensland, although small quantities are grown in New South Wales, the Northern Territory and, in some years, Western Australia.

Lupins. The lupin is an annual legume with a growing season closely following that of winter cereals. It prefers well drained soil but is otherwise fairly adaptable. In the past a small amount has been grown for grazing but a recent rapid expansion has followed the development in Australia of lupins with alkaloid-free seed. The seed has a high protein content and is finding use as a substitute for soya protein in human and animal food preparations. The main producing area is in the south-west of Western Australia.

SELECTED OILSEED CROPS: AREA, PRODUCTION AND GROSS VALUE

Year	Specialised				Other			
	Linseed	Rapeseed	Safflower	Sunflower	Soybeans	Peanuts	Cotton(a)	Lupins
AREA ('000 hectares)								
1949-50	11.7	..	..	2.9	..	7.2	1.1	} n.a.
1954-55	7.9	..	..	1.3	..	16.0	3.1	
1959-60	40.3	..	4.7	4.1	0.5	17.3	8.2	
1964-65	54.2	..	19.2	3.1	1.8	18.6	15.3	
1969-70	49.2	4.9	10.8	26.0	5.0	33.6	31.3	} n.a.
1972-73	16.3	77.1	10.6	241.8	28.0	29.1	43.6		45.6
1973-74	17.8	16.8	12.3	150.6	40.8	25.9	41.7	66.6
1974-75	35.6	11.8	36.2	209.6	45.9	24.1	38.5	124.6
1975-76	15.7	15.9	39.8	136.9	26.3	27.3	29.8	139.3
1976-77p	15.8	7.6	14.5	133.5	32.9	30.1	34.4	n.a.
PRODUCTION ('000 tonnes)								
1949-50	6.5	..	..	1.7	..	8.1	0.3	} n.a.
1954-55	5.5	..	..	0.7	..	14.7	1.6	
1959-60	27.2	..	2.3	2.8	0.5	19.1	4.3	
1964-65	47.3	..	12.7	2.0	1.1	10.5	28.6	
1969-70	36.7	4.5	4.2	13.2	5.0	42.7	84.9	} n.a.
1972-73	9.8	25.0	4.2	102.1	37.9	38.5	96.6		15.5
1973-74	14.3	10.6	6.9	84.3	62.5	29.2	86.4	51.2
1974-75	33.0	8.5	30.5	113.4	73.7	32.0	103.3	87.8
1975-76	12.2	11.9	18.2	80.4	44.6	35.5	80.1	103.9
1976-77p	16.6	7.9	6.9	n.a.	n.a.	n.a.	n.a.	n.a.
GROSS VALUE (\$ million)								
1949-50	0.8	..	..	0.2	..	0.8	0.1	} n.a.
1954-55	0.7	..	..	0.1	..	2.4	0.4	
1959-60	3.8	..	..	0.1	..	3.6	1.1	
1964-65	6.5	..	1.2	0.3	..	2.2	7.7	
1969-70	4.3	..	0.4	1.5	0.6	9.0	19.1	} n.a.
1972-73	1.0	2.9	0.5	15.4	5.4	10.5	32.6		26.6
1973-74	3.1	1.5	1.0	19.4	11.2	10.9	26.6	29.3
1974-75	7.5	1.9	7.5	24.0	13.2	12.0	29.3	37.5
1975-76	2.1	1.9	2.7	15.7	7.2	15.8	37.5	

(a) Additional data is shown on page 309.

Cotton. This annual shrub requires a hot climate and inter-row weed control. Lint (long fibres) is extracted from the seed cotton in the ginneries and is used for yarn. The residue, consisting of linters (short fibres), kernels and hulls (outer seed coat), is treated in oil mills. Linters are used in the manufacture of felts and other materials where fibre length is of little importance. The kernels, when crushed, produce an oil which is used for food and for industrial purposes. The residual meal is a useful high protein stockfeed; the hulls may be used as fuel.

Apart from a few thousand hectares in Queensland, Australia's cotton crop is grown under irrigation. Most of the country's cotton is grown in the Namoi and Macquarie valleys in New South Wales with water provided from the Keepit and Burrendong dams. Cotton introduced into the Ord River area of Western Australia in 1963 had failed by 1975 due to rising production costs and insect infestation. Australian production currently satisfies all the requirements of local mills for short and medium staple cotton and should, in the future, supply the comparatively small quantities of longer staple combing cottons currently imported.

COTTON: AREA, PRODUCTION AND EXPORTS

Year	Area	Seed cotton(a)		Cotton seed	
		Quantity	Gross value	Quantity	Export quantity
	'000 ha	'000 tonnes	\$m	'000 tonnes	'000 tonnes
1966-67	21.5	54.6	12.5	30.4	6.1
1967-68	31.1	97.4	19.7	54.5	8.3
1968-69	33.0	101.3	20.7	55.6	6.7
1969-70	31.3	84.9	19.1	46.2	5.5
1970-71	34.5	56.8	13.3	33.0	2.5
1971-72	39.6	132.0	30.1	72.7	6.8
1972-73	43.6	96.6	32.6	51.3	6.3
1973-74	41.7	86.4	26.6	49.9	4.0
1974-75	38.5	103.3	29.3	53.8	3.3
1975-76	29.8	80.1	37.5	40.6	..
1976-77p	34.4	n.a.	n.a.	48.6	n.a.

(a) Before ginning.

Sugar

The growing of sugar cane is restricted to the east coast (from Mossman in northern Queensland south to the Clarence River in northern New South Wales) which has suitable soil and where the average rainfall is over 1000 mm per year, or where irrigation water is available. Queensland accounts for 96 per cent of Australia's cane crop, most of which grows in the tropical zone where sugar is a major industry and source of employment. Cane farms average about 45 hectares.

Australia is the world's third largest exporter of raw sugar. It has a reputation as a reliable supplier and has always fulfilled its quota obligations under the system of quotas, which can be adjusted according to the availability of markets and the commitments under the various international marketing arrangements to which Australia has been a party. Each of the thirty-four mills is assigned a quota of sugar which is translated into cane quotas for growers.

The organisation of the industry is complex: the industry is subject to a degree of supervision by the Federal and Queensland governments, but is largely self-governing. The price of refined sugar for sale is fixed by agreements between the two regulating governments, with the Queensland government controlling raw sugar production and contracts for refining of home consumption needs, and arranging for export marketing of raw sugar.

The Australian sugar industry was the first in the world to introduce mechanical cultivation and harvesting techniques. By 1964 the entire industry was converted to bulk handling. Continuing improvements in bulk handling equipment have substantially increased the efficiency in bulk handling installations. The total storage capacity of the six Australian bulk sugar terminals is nearly one and a half million tonnes—the largest storage facilities in the world.

Production. Climatic conditions in some areas in New South Wales are such that the crop matures in from 20-24 months, whereas in Queensland a period from 12-16 months is sufficient. Allowance should be made in interpreting the figures below for the disparity in the maturing periods in the respective States.

SUGAR CANE: AREA, PRODUCTION AND YIELD

Year	New South Wales				Queensland					
	Sugar cane		Raw sugar		Sugar cane		Raw sugar			
	Area harvested	Production	Yield	Quantity	Yield	Area harvested	Production	Yield	Quantity	Yield
	'000 ha	'000 tonnes	t/ha	'000 tonnes	t/ha	'000 ha	'000 tonnes	t/ha	'000 tonnes	t/ha
1949-50	3.4	336.0	97.5	41.4	12.0	110.4	6,622.6	60.0	910.8	8.3
1954-55	2.7	225.8	85.0	26.7	10.1	148.8	10,022.6	67.4	1,322.1	8.9
1959-60	5.8	583.7	101.2	71.8	12.5	121.3	8,563.0	70.6	1,237.3	10.2
1964-65	7.9	796.7	101.3	96.7	12.3	182.5	14,515.6	79.5	1,884.6	10.3
1969-70	8.0	848.6	105.7	99.3	12.4	204.8	14,935.7	72.9	2,114.4	10.3
1972-73	9.4	841.1	89.9	102.9	12.9	232.3	18,087.2	77.9	2,714.1	11.7
1973-74	9.9	999.5	100.8	121.1	12.2	215.9	18,278.5	84.7	2,405.0	11.1
1974-75	9.9	996.7	100.6	121.0	12.2	243.2	19,421.1	79.9	2,727.5	11.2
1975-76	11.0	889.7	80.8	104.1	9.5	245.8	21,068.9	85.7	2,751.4	11.2
1976-77p	11.6	1,074.2	92.6	n.a.	n.a.	276.6	22,269.4	80.5	n.a.	n.a.

The average yields of sugar per hectare has increased to 11 tonnes owing to the development of new varieties and improved practices.

For many years Australia sold its sugar in each of three distinct market categories—the domestic market, sales under formal agreement (Commonwealth Sugar Agreement and the U.S. Sugar Act), and the residual world free market. Following international failure to regulate and stabilise world sugar market prices, the loss of the United Kingdom to the EEC and the expiry of the U.S. Sugar Act, the industry developed long-term export contracts with the Near East. These long-term contracts and the domestic market provide secure outlets for about 65 per cent of the industry's capacity, the balance of the export sugar going on the free market.

SUGAR: AREA, PRODUCTION, EXPORTS AND CONSUMPTION

	Production			Exports			Apparent consumption in Australia(a)		
	Area harvested	Sugar cane		Raw sugar		Raw and refined sugar		Total	Per head
		Quantity	Gross value	Quantity	Quantity	Value f.o.b.			
	'000 ha	mil. tonnes	\$m	mil. tonnes	mil. tonnes	\$m	'000 tonnes	kg	
1949-50	113.9	7.0	36.0	1.0	0.4	28.4	424.1	47.0	
1954-55	151.4	10.2	77.5	1.3	0.7	31.1	465.2	45.6	
1959-60	127.1	9.1	87.1	1.3	0.7	53.5	508.9	44.6	
1964-65	190.4	15.3	130.6	2.0	1.3	114.0	563.2	44.7	
1969-70	212.8	15.8	148.1	2.2	1.4	116.1	618.9	49.7	
1972-73	241.7	18.9	230.2	2.8	2.1	249.8	664.4	50.8	
1973-74	225.9	19.3	218.9	2.5	1.8	222.3	666.0	50.2	
1974-75	253.1	20.4	490.7	2.8	2.0	644.5	660.9	49.1	
1975-76	256.8	22.0	435.6	2.9	2.0	569.7	n.a.	n.a.	
1976-77p	288.2	23.3	467.0	n.a.	2.6	637.5	n.a.	n.a.	

(a) Total quantity of sugar available for consumption in Australia comprises refined sugar and refined sugar contained in manufactured products.

A brief outline of the development of the industry was included in earlier issues of the Year Book (see No. 38, page 985). Details of recent sugar Agreements and marketing arrangements will be found in Year Book No. 61, page 843.

Vegetables

Vegetables for human consumption

The wide range of climate in Australia enables most vegetable varieties to be grown in some part of the country. The area sown to vegetables reached a peak of over 200,000 hectares during the last year of the Second World War, but has remained static at around 105,000 hectares since 1970. However yields from most vegetable crops have increased, due in part to irrigation and in part to the control of diseases and insect pests.

Because of the wide climatic range, supplies for main city markets are drawn from widely different areas, depending on the times of maturity of the various crops. Historically, market gardens were located near urban centres and, while many small scale growers still produce crops close to city markets, urban expansion, rising urban land values, improvements in transport and irrigation and developments in freezing, canning and drying have extended the industry far from the cities. Transport costs are reduced by the location of processing establishments in producing areas, although city markets still absorb the bulk of fresh and processed produce.

Potatoes. Potatoes require deep friable soils which, in Australia, are usually basaltic, alluvial or swampy in origin. Fertiliser requirements, which are generally high, vary with the type of soil. While potatoes require only moderate temperatures for growth, the greatest proportion of Australia's potatoes are grown as a summer crop because potato plants are killed by heavy frosts. In recent years an increasing proportion of potatoes has been grown under irrigation and potato growing has become increasingly mechanised, with individual growers having larger areas and becoming more specialised.

Seed certification schemes or approvals which operate in most States provide supplies of seed. In Australia, potatoes are used almost entirely for human consumption or seed. Approximately 25 per cent of Australian potato consumption is in a processed form and this proportion is rising. The main processed potato products are crisps, frozen chips, dehydrated granule and flake, soup, baby foods, salads and canned potatoes.

Potato marketing. The majority of table potatoes are marketed through potato merchants and agents. In some instances they are marketed through a primary merchant and then a secondary merchant (wholesale). In South Australia and Western Australia, potato marketing is controlled by potato marketing boards.

Overall, probably more than half of the potatoes used for processing are purchased by forward contract made directly by the processor with the grower. The remainder of the processors' requirements are usually purchased from merchants and, in some instances, merchants' contracts with growers as agents for processors. Seed potatoes are purchased either through a merchant or directly from a seed grower.

APPARENT CONSUMPTION OF VEGETABLES
(Kilograms per head per year)

Year	Potatoes	Other root and bulb vegetables(a)		Tomatoes	Leafy and green vegetables	Other vegetables	Total, fresh equivalent weight
1959-60	52.3	15.4	11.5	18.1	16.2	113.5	
1964-65	41.9	15.8	14.2	20.9	17.7	110.4	
1969-70	55.5	17.7	12.5	21.4	19.1	126.0	
1971-72	58.8	17.8	15.0	21.7	17.7	131.0	
1972-73	48.6	17.4	17.2	20.3	15.1	118.6	
1973-74	46.3	18.2	15.1	21.3	15.2	116.1	
1974-75	52.5	18.5	10.2	22.0	15.6	118.8	

(a) Includes sweet potato from 1968-69.

VEGETABLES FOR HUMAN CONSUMPTION—AREA AND PRODUCTION

Year	French Cabbages and runner beans		Cauli-flowers		Onions	Green peas	Potatoes	Tomatoes	Total vegetables
	and brussel sprouts								
AREA ('000 hectares)									
1949-50	6.4	3.0	1.9	2.9	3.0	16.2	54.2	7.7	120.0
1954-55	5.7	2.5	1.6	2.7	3.2	14.9	43.5	6.0	101.6
1959-60	6.8	2.5	1.9	2.8	3.8	18.3	43.9	6.4	107.3
1964-65	6.8	2.4	2.3	2.8	3.9	23.5	35.6	6.6	105.6
1969-70	8.1	2.6	3.0	2.8	4.2	25.0	43.3	7.2	119.2
1972-73	7.5	2.6	2.9	2.6	4.5	21.5	36.6	7.7	110.9
1973-74	8.3	2.8	3.2	2.5	4.2	19.4	34.1	7.1	105.5
1974-75	8.6	2.9	3.5	2.5	4.4	18.5	37.6	7.9	110.5
1975-76	7.6	2.7	3.3	2.6	4.0	19.0	33.8	7.9	105.9
1976-77p	n.a.	n.a.	n.a.	n.a.	3.8	n.a.	37.4	8.4	109.1
PRODUCTION ('000 tonnes)									
1949-50	16.0	82.8	31.5	85.9	48.5	31.6	478.6	103.1	
1954-55	19.8	67.3	32.7	73.7	49.8	35.8	475.7	89.4	
1959-60	27.0	70.0	47.1	82.0	57.7	59.2	588.5	128.2	
1964-65	30.8	67.0	63.6	75.5	70.8	102.2	516.2	149.6	
1969-70	39.9	69.9	82.1	93.8	85.5	137.4	761.8	162.9	
1972-73	35.5	70.7	81.6	77.8	93.2	106.7	720.7	177.5	
1973-74	40.2	72.9	86.5	72.8	93.7	102.9	649.2	135.6	
1974-75	40.9	84.6	97.6	71.9	108.1	121.6	736.0	168.9	
1975-76	40.2	73.5	81.4	70.5	94.6	101.1	696.5	162.2	
1976-77p	n.a.	n.a.	n.a.	n.a.	93.8	n.a.	n.a.	171.4	

**VEGETABLES FOR HUMAN CONSUMPTION—VALUE OF PRODUCTION AND
VALUE OF EXPORTS**

Year	Gross value	Export value	Year	Gross value	Export value
		f.o.b.(a)			f.o.b.(a)
	\$m	\$m		\$m	\$m
1949-50	51.7	3.8	1972-73	181.4	8.1
1954-55	76.9	2.7	1973-74	239.7	7.2
1959-60	85.8	1.8	1974-75	257.6	7.9
1964-65	134.4	2.7	1975-76	275.4	7.9
1969-70	138.3	6.3	1976-77	290.0	n.a.

(a) Fresh, frozen, simply or otherwise preserved or prepared vegetables.

PROCESSED VEGETABLES: AUSTRALIAN PRODUCTION

('000 tonnes—unless otherwise stated)

Item	1971-72	1972-73	1973-74	1974-75	1975-76
Quick frozen vegetables—					
Beans	19.1	18.3	22.2	22.8	23.5
Peas	40.4	41.6	38.1	41.0	35.5
Potatoes	32.1	34.5	20.1	14.7	36.0
Other.			12.8	17.7	20.8
Vegetables preserved, canned or bottled (excluding pickles, etc.) (a)—					
Asparagus	5.2	5.9	6.7	5.6	3.4
Beans—Green	5.8	5.8	5.9	4.1	6.7
Baked (including pork and beans)	21.3	22.0	23.2	24.8	22.1
Beetroot	29.6	23.6	27.3	30.0	26.1
Cabbage (including sauerkraut)	1.2	1.6	1.6	1.4	1.3
Carrots	2.3	1.8	4.2	5.5	5.0
Cucumber (including pickled)	1.6	1.7	2.8	2.4	2.1
Gherkins—pickled	1.5	1.5	1.8	1.7	1.8
Olives—pickled	0.4	0.7	1.2	0.9	0.7
Onions (including pickled)	2.2	2.1	2.4	2.6	2.4
Peas—Green	11.9	11.0	13.1	12.2	10.5
Sweetcorn	6.6	5.1	7.9	8.9	6.8
Tomatoes (excluding canned pulp)	8.6	5.6	6.8	9.8	12.0
Tomato juice (million litres)	15.1	9.8	9.8	14.2	5.5

(a) Canned in tins or aluminium cans; bottled in glass bottles.

For further information on vegetables see the following publications: *Crop Statistics* (7302.0), *Production Bulletin No. 3—Food, Drink and Tobacco* (8359.0), *Apparent Consumption of Foodstuffs and Nutrients* (4306.0) and *Value of Agricultural Commodities Produced* (7503.0).

Fruit (excluding grapevines)

The varieties of fruit grown differ in various parts of the States, ranging from pineapples, papaws and mangoes in the tropics to strawberries, raspberries and currants in the colder parts of the temperate zone. In New South Wales, citrus fruit (oranges, lemons, etc.) and bananas are the principal crops, although apples, peaches, plums, pears and cherries are grown extensively. The principal fruits grown in Victoria are apples, pears, peaches, oranges, and apricots. In Queensland, apples, pineapples, bananas, oranges, mandarins, peaches and plums are the major fruits cultivated. In South Australia, in addition to oranges, apples, peaches, apricots and pears, almonds and olives are grown extensively. In Western Australia, apples, oranges, plums, and pears are the chief fruits. In Tasmania, apples are by far the most important type of fruit grown, but small fruits, such as currants, raspberries and gooseberries, are also grown extensively, the balance of the area being occupied mainly with pears and apricots.

Although fruit occupies less than 1 per cent of the total area planted to crops, the value of fruit production is currently about 10 per cent of the total value of crop production. Fruit exports in recent years peaked at \$90 million in 1972-73, although this has fluctuated due to price and quantity changes. With the loss of the U.K.'s market after its entry into the EEC and other factors such as rising shipping costs and improved storage techniques in the northern hemisphere, export markets have been reduced.

SELECTED FRUIT STATISTICS

Year	Orchard fruit: number of trees ('000)				Berry and other fruits: area (ha)			Total area of fruit (ha)
	Apples	Oranges	Pears	Peaches	Bananas	Pineapples	Small, and berry fruit	
1949-50	8,666	4,029	2,154	2,596	12,007	3,891	2,429	113,283
1954-55	8,502	4,349	2,146	2,318	12,335	5,319	1,377	115,542
1959-60	9,121	4,463	2,449	2,607	12,832	5,112	1,649	116,956
1964-65	10,201	5,603	2,716	3,002	10,830	4,687	1,347	125,714
1969-70	9,935	5,562	2,694	2,867	10,649	6,445	1,219	125,233
1972-73	8,737	5,351	2,447	2,521	9,619	6,281	1,214	115,499
1973-74	7,701	5,193	2,248	2,092	8,880	6,224	1,158	108,803
1974-75	7,004	5,076	2,246	1,940	7,982	5,851	1,084	102,770
1975-76	6,520	5,059	1,853	1,844	7,694	5,873	984	99,822
1976-77p	6,285	5,153	1,808	1,633	7,600	5,900	n.a.	91,100

Year	Apples	Apricots	Bananas	Cherries	Oranges	Peaches	Pears	Pine-apples	Plums and Prunes
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PRODUCTION: ('000 tonnes)

1949-50	175.7	31.9	85.9	5.8	109.0	47.0	58.4	46.0	21.2
1954-55	222.5	33.6	79.7	6.7	124.8	62.9	96.1	69.9	21.6
1958-60	268.0	33.7	124.8	6.7	162.2	59.5	107.5	90.3	23.7
1964-65	360.0	42.9	127.7	7.7	235.9	103.7	120.8	83.1	28.1
1969-70	424.1	39.5	131.1	7.3	234.3	112.5	190.5	120.9	25.9
1972-73	431.3	43.6	123.8	9.9	351.7	116.1	190.2	126.4	27.4
1973-74	334.7	37.2	124.7	8.7	309.9	81.1	162.2	114.8	23.1
1974-75	368.0	27.3	118.3	9.8	340.8	90.5	158.0	110.5	23.2
1975-76	274.8	26.2	97.1	9.7	361.5	79.1	140.1	102.9	26.5
1976-77p	n.a.	n.a.	103.0	n.a.	323.0	74.0	n.a.	111.9	n.a.

GROSS VALUE OF PRODUCTION (\$ million)

1949-50	15.4	2.7	7.8	1.5	9.5	3.4	4.2	2.6	1.6
1954-55	27.9	4.0	14.7	2.1	14.3	7.2	9.3	4.7	2.4
1959-60	34.3	4.0	15.2	2.7	14.8	6.6	10.7	3.8	3.2
1964-65	46.6	5.5	18.6	3.5	23.5	12.7	14.8	5.5	4.5
1969-70	56.1	7.4	25.0	4.3	29.0	15.1	23.8	7.1	5.8
1971-72	50.3	7.8	21.0	5.9	30.4	15.9	19.4	9.6	5.2
1972-73	63.5	9.2	28.2	5.7	33.6	17.7	23.9	12.2	6.0
1973-74	63.7	9.1	21.9	7.5	33.7	14.5	24.9	11.0	7.0
1974-75	73.6	9.0	31.3	10.3	43.3	24.2	26.2	11.9	8.5
1975-76	73.7	9.2	39.8	8.6	46.0	18.3	19.6	14.2	9.4

Processed fruit and fruit products

After rapid expansion in the 1960s, output of canned fruit levelled off and then declined following reduced plantings of peaches and pears. Production of natural fruit juices has doubled in the last seven years and this has reflected improvements in marketing methods, effective promotion and public awareness of the nutritious value of natural juices. Rapidly rising packing and marketing costs for fresh citrus has also influenced the swing to processing.

PRODUCTION

Derived from the Annual Manufacturing Census and the recorded monthly production

	Unit	1972-73	1973-74	1974-75	1975-76	1976-77p
Fruit juice based cordials and syrups(a)	mil litres	62.4	70.6	64.3	73.7	n.a.
Natural fruit juice(b)—						
Single strength	mil litres	186.8	166.3	179.8	n.a.	n.a.
Concentrated(c)	"	18.2	10.5	13.8	n.a.	n.a.
Cider and perry	"	10.5	11.1	10.5	n.a.	n.a.
Canned or bottled fruit (excl. canned pulp)	'000 tonnes	272.9	213.1	240.2	186.4	177.2
Jams	'000 tonnes	34.8	32.7	30.2	31.1	27.0

(a) Containing at least 25 per cent by volume of pure fruit juices. (b) Excludes fruit drinks consisting of diluted fruit juices with or without artificial flavourings. (c) Excludes grape must, and comprises actual quantity of concentrated juices.

APPARENT CONSUMPTION OF FRUIT

(Fresh fruit equivalent: kg per head per year)

Year	Fresh			Jams, conserves, etc.	Dried tree fruit	Canned fruit	Total, fresh equivalent weight
	Oranges	Other citrus	Other fresh fruit				
1959-60	15.1	3.5	39.0	3.9	1.0	6.9	71.5
1964-65	19.3	3.9	35.5	3.5	0.8	8.9	82.0
1969-70	17.7	6.5	37.1	3.0	0.7	9.9	92.4
1971-72	20.6	7.1	42.4	2.9	0.7	9.5	93.5
1972-73	25.2	5.4	36.3	2.5	0.6	10.5	91.5
1973-74	25.3	6.5	34.1	2.2	0.7	10.3	90.9
1974-75	31.3	6.1	33.2	2.6	0.5	10.2	92.8

Fruit exports

About a third of Australia's fruit export returns are from fresh and/or chilled apples, pears and oranges, while canned or bottled deciduous fruit—peaches, pears, etc.—are increasing in importance.

FRUIT EXPORTS: VALUE F.O.B.

(\$ million)

Year	Fresh and chilled			Canned or bottled			Pine- apples	Fruit salad
	Apples	Pears	Oranges	Apricots	Peaches	Pears		
1949-50.	4.9	1.3	1.2	0.7	2.3	2.2	2.2	0.2
1954-55.	10.9	4.4	1.5	3.9	10.3	9.2	5.6	0.7
1959-60.	12.2	3.9	1.8	1.5	6.6	11.8	3.1	0.1
1964-65.	21.1	5.3	3.3	1.1	10.6	10.9	1.3	2.1
1969-70.	20.4	6.5	2.9	1.6	14.8	10.7	1.8	5.0
1972-73.	18.0	9.1	4.0	2.1	18.6	15.5	1.0	6.8
1973-74.	20.1	7.7	3.2	1.8	16.8	15.4	1.1	6.0
1974-75.	16.1	8.2	2.1	1.5	9.7	11.9	1.3	5.7
1975-76.	12.8	10.1	2.9	1.1	13.3	10.5	1.6	4.1
1976-77p	9.4	8.1	1.0	0.9	14.5	16.1	1.7	4.5

FRUIT: VALUE OF PRODUCTION AND EXPORTS
 (\$ million)

Year	Gross value			Exports(a) value f.o.b.	Year	Gross value			Exports(a) value f.o.b.
	Orchard fruit	Berry and other	Total			Orchard fruit	Berry and other	Total	
1949-50 .	40	12	53	26	1972-73 .	177	47	223	90
1954-55 .	72	22	93	53	1973-74 .	178	39	217	87
1959-60 .	82	22	104	47	1974-75 .	215	51	267	71
1964-65 .	118	28	146	64	1975-76 .	206	63	269	68
1969-70 .	154	39	193	73	1976-77p	n.a.	n.a.	294	n.a.

(a) Fruit and nuts, excluding grapes (fresh and dried); includes fresh, dried and preserved and fruit preparations.

Fruit imports

Imports of fresh fruit are negligible, while most dried fruit imports consist of dates from Iran, the United States of America and China (excluding Taiwan Province).

Marketing and regulation of the fruit industry

Apples and pears. The Australian Apple and Pear Corporation replaced the Australian Apple and Pear Board in September 1974, absorbing that Board's export control and regulation functions. The Corporation has a wider role than the former Board, e.g. powers to trade under certain circumstances, to charter shipping for such trade, to borrow funds, subject to Government approval, for trading operations, and to promote and research both fresh and processed apple and pear products.

A Government-approved stabilisation scheme was introduced with the 1971 season. This plan establishes average seasonal returns for each variety, which are then compared with the agreed support price for each variety to determine the extent of the deficiency or surplus.

Fruitgrowing Reconstruction Scheme. For details see Year Book No. 61, pages 846-7.

Canned Fruit. For details on the operations of the Australian Canned Fruits Board and the Australian Canned Fruit Sales Promotion Committee see Year Book No. 61, page 847.

For further data on fruits and fruit products see the bulletins *Fruit Statistics* (7303.0), *Production Bulletin No. 3 Food, Drink and Tobacco* (8359.0), *Apparent Consumption of Foodstuffs and Nutrients* (4306.0) and *Value of Agricultural Commodities Produced* (7503.0).

Grapevines

Grapes require a warm hot climate and predominantly winter rainfall. Freedom from late spring frosts is essential. They are grown for wine-making, drying and, to a minor extent, for table use. In Australia, wine is produced very largely from irrigated crops, as are dried fruits. Some of the better known wine producing areas are the Murray Valley (South Australia and Victoria), Barossa Valley and Southern Vales Areas (South Australia), the Murrumbidgee Irrigation Areas and the Hunter Valley (New South Wales), the Mildura, Rutherglen and Stawell districts (Victoria), and the Swan Valley (Western Australia). Nearly all the dried fruit is produced along the River Murray and its tributaries, with small localised areas in other States.

VITICULTURAL STATISTICS: AREA, PRODUCTION AND VALUE

Year	Area		Production: grapes used for—				Gross value \$m
	Bearing	Total	Winemaking	Drying	Total(a)		
					Quantity	Gross value	
	'000 ha	'000 ha	'000 tonnes fresh weight	'000 tonnes fresh weight	'000 tonnes fresh weight		
1949-50 . . .	49.7	54.8	165.3	260.8	438.8		17.8
1954-55 . . .	51.5	55.2	131.2	320.6	467.0		24.6
1959-60 . . .	49.7	52.7	152.0	282.6	452.0		29.4
1964-65 . . .	50.7	56.2	228.5	436.6	690.5		50.4
1969-70 . . .	52.1	60.8	341.1	386.3	757.6		58.7
1972-73 . . .	59.7	68.5	340.3	243.5	603.2		64.9
1973-74 . . .	62.5	70.0	332.6	206.8	552.2		83.2
1974-75 . . .	64.0	71.3	430.2	280.5	727.8		101.4
1975-76 . . .	63.4	70.9	425.8	270.8	711.9		102.3
1976-77p . . .	n.a.	71.8	n.a.	n.a.	n.a.		123.0

(a) Includes grapes used for table and other purposes.

The bearing area of grapes has risen by about 11 per cent in the last five years due mainly to substantial new plantings of specialised winegrapes. Grape production has increased markedly in winegrapes (20 per cent since 1971-72). However, with grapes dried, the quantity is the residual between multi-purpose grape production and winery requirements—weather permitting—and an increased diversion of grapes to winemaking has resulted in a decline in grapes dried. The production of multi-purpose grapes has not shown much change. Since the domestic consumption of dried vine fruit is stable at about 1.5 kg per head per year, reductions in grapes dried will result in lower exports. The Industries Assistance Commission has recommended that equalisation should be replaced by a two pool pricing system in which growers would have quotas for the limited domestic market while their remaining production would be valued at export prices.

GRAPE PRODUCTION : END USAGE

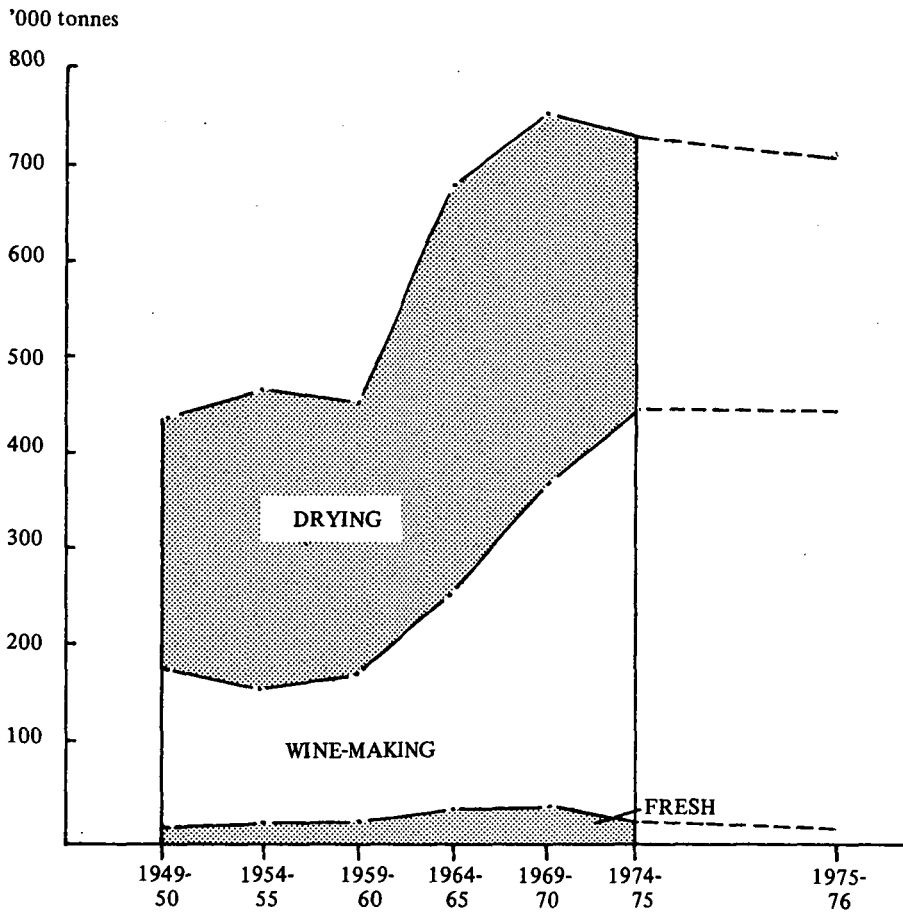


PLATE 32

DRIED VINE FRUIT: PRODUCTION, EXPORTS AND CONSUMPTION
(Dried weight)

Year	Production				Exports			Total	Consumption of dried vine fruit
	Raisins	Sultanas	Currants	Total	Raisins/ sultanas	Currants	Quantity			Value f.o.b.
	'000 tonnes	'000 tonnes	'000 tonnes	'000 tonnes	'000 tonnes	'000 tonnes	'000 tonnes	'000 \$m		kg
1949-50	5.5	49.4	14.0	68.9	29.0	7.2	36.2	2.6	n.a.
1954-55	9.9	60.8	11.3	82.0	60.9	8.5	69.4	15.3	n.a.
1959-60	10.5	52.3	8.2	70.9	46.4	4.6	51.0	16.7	2.1
1964-65	11.6	85.3	12.7	109.6	64.6	6.6	71.3	22.3	2.5
1969-70	4.3	81.4	8.6	94.3	41.2	2.8	44.1	14.3	1.5
1972-73	5.5	45.9	5.7	57.0	70.0	2.6	72.6	24.8	1.8
1973-74	3.2	40.6	3.6	47.4	25.6	1.2	26.9	17.7	1.8
1974-75	5.2	53.4	6.3	64.9	31.4	0.2	31.6	20.0	1.7
1975-76	5.6	55.3	4.3	65.2	51.3	2.4	53.7	27.1	1.3
1976-77p	n.a.	n.a.	n.a.	n.a.	43.4	0.9	44.4	26.7	n.a.

Wine industry

Australia produces wine of every type and also brandy. In recent years there has been a distinct trend towards greater consumption and production of unfortified or table wines. Until 1957-58 production of these wines (which include burgundy, claret, riesling, sauterne and sparkling wines) was less than half that of the fortified varieties (sherris, ports, etc.). By 1970, however, table wines had exceeded the volume of fortified wines.

PRODUCTION, CONSUMPTION AND EXPORT OF WINES

Year	Exports		Consumption in		Year	Exports		Consumption in	
	Pro- duction	Quantity	Value f.o.b.	Australia per head		Pro- duction	Quantity	Value f.o.b.	Australia per head
	mil. litres	mil. litres	\$m	litres		mil. litres	mil. litres	\$m	litres
1949-50	154.4	5.0	1.0	6.8	1971-72	290.2	8.0	4.2	9.0
1954-55	108.9	5.7	1.6	5.0	1972-73	279.9	4.7	3.2	9.9
1959-60	129.3	7.9	2.5	5.3	1973-74	294.7	8.2	5.6	11.2
1964-65	176.9	9.1	3.5	5.6	1974-75	361.2	6.5	5.3	12.5
1969-70	286.9	5.9	3.0	8.9	1975-76	(a)	6.2	5.5	13.3
					1976-77p	(a)	5.0	5.4	13.7

(a) Not available. There has been a change in the scope of the collection from which this data has been compiled.

For further details on viticulture, dried vine fruit, wine etc. see the following publications: *Fruit Statistics* (7303.0), *Sales of Australian Wine and Brandy* (8504.0) and an unpublished limited circulation issue *Viticulture Statistics* which contains varietal data collected as an additional collection to the annual Agricultural Census.

Miscellaneous crops

The principal crops not covered above include fodder crops, tobacco, hops and nursery crops which, in 1975-76, had gross values as follows:

Crops	Gross value	Percent of total crop gross value
	\$m	
Fodder crops (hay)	25.5	0.8
Tobacco	50.1	1.6
Hops	3.1	0.1
Mushrooms	10.0	0.3
Nurseries	48.0	1.5

Fodder crops

As well as crops grown specifically for grain, considerable areas of Australia are devoted to fodder crops. These crops are utilised either for grazing (as green feed), or conserved as hay, ensilage, etc.

This development of fodder conservation as a means of supplementing pasture and natural sources of stockfeed is the result of the comparatively unreliable nature of rainfall in Australian agricultural and pastoral areas.

FODDER CROPS: AREA AND PRODUCTION

Year	Hay(a)			Green feed or silage(b)	
	Area	Production		Area	Silage made
		Quantity	Gross value		
	'000 ha	'000 tonnes	\$m	'000 ha	'000 tonnes
1971-72	341	1,247	21.3	998	767
1972-73	453	1,224	35.1	1,204	484
1973-74	325	1,034	29.9	1,097	888
1974-75	216	669	20.4	853	532
1975-76	230	738	25.5	752	395
1976-77p	292	n.a.	n.a.	730	n.a.

(a) Principally oaten and wheaten hay.

(b) Principally from oats, barley, wheat and forage sorghum.

FARMSTOCKS OF CEREAL GRAINS, HAY AND SILAGE
(**'000 tonnes**)

At 31 March	Cereal grains				
	Barley	Oats	Wheat	Hay	Silage
1972	636	1,126	815	7,955	1,380
1973	570	798	839	5,309	1,040
1974	609	1,043	849	7,157	1,399
1975	442	861	731	6,582	1,250
1976	494	918	769	5,684	1,096

ON FARM CONSUMPTION OF MAJOR GRAINS AND HAY: CONSUMED BY LIVESTOCK
(**'000 tonnes**)

Year	Cereal grains			Hay		
	Barley	Oats	Wheat	Cereal hay	Lucerne hay	Other hay
1971-72	415	537	436	1,130	1,026	3,261
1972-73	540	791	634	1,167	1,045	3,030
1973-74	474	591	458	762	664	2,539
1974-75	351	329	388	601	578	2,628
1975-76	337	406	317	684	571	2,845

Tobacco

Tobacco is a summer-growing annual which requires a temperate to tropical climate, adequate soil moisture and a frost-free period of approximately five months. In Australia, almost all tobacco is grown under irrigation. Because of specialised requirements, production is limited to areas with suitable soils and climate. The main centres of production are the Mareeba-Dimbulah districts of north Queensland and Myrtleford in north-eastern Victoria. Other areas where tobacco is grown include Bundaberg, Beerwah and Texas (Queensland), Ashford (New South Wales) and Wangaratta (Victoria). All tobacco grown in Australia is of the flue-cured type except for small quantities of burley tobacco produced mainly in Victoria.

TOBACCO: AREA, PRODUCTION AND OVERSEAS TRADE

Year	Area	Production (dried leaf)	Exports (value)		Imports (value)	
			Unmanu- factured	Manu- factures	Unmanu- factured	Manu- factures
	'000 ha	'000 tonnes		\$'000		
1949-50	1.9	1.9	..	378	13,776	11,012
1954-55	3.9	3.1	..	529	29,365	5,266
1959-60	8.0	8.8	21	546	24,531	3,024
1964-65	10.6	11.4	205	1,621	18,564	6,299
1969-70	10.8	17.0	240	2,094	24,159	7,816
1971-72	10.0	16.0	118	3,294	18,247	9,950
1972-73	9.6	15.4	78	2,742	16,725	10,841
1973-74	9.3	14.9	79	3,044	20,701	12,161
1974-75	9.2	15.5	34	3,100	26,076	15,474
1975-76	9.2	14.9	27	3,824	30,315	18,994
1976-77p	9.3	n.a.	n.a.	n.a.	n.a.	n.a.

Marketing. In 1965 the Commonwealth and State Governments agreed to a stabilisation plan and an overall marketing quota was decided upon. The plan is administered by the Australian Tobacco Board. Further information on tobacco marketing, research and factories may be found in Year Book No. 61, pages 845-6.

Hops

Hops are grown from perennial rootstocks over deep, well-drained soils in localities sheltered from the wind. The hop-bearing vine shoots are carried upon wire and coir trellises, from which they are later harvested. The green hops are kiln-dried and bleached with sulphur dioxides fumes, following which the cured hops are pressed into bales.

Hop growing in Australia is confined to the Derwent, Huon and Channel areas in the south-east and the Scottsdale-Ringarooma district in the north-east of Tasmania, and the Ovens and King Valleys in Victoria. A small area is also under hops in Western Australia, near Manjimup.

The area planted to hops is about 1,100 hectares, with over 60 per cent in Tasmania. Production is about 2,000 tonnes, most of which is used in breweries.

Mushrooms

Statistics of mushroom growing were collected for the first time in all States for the year ended 30 June 1975, with the exception of New South Wales where they have been collected since 1972-73.

MUSHROOMS: AREA, PRODUCTION, GROSS VALUE AND SPAWN USED

Year	Total area of beds(a) used during year (counted each time cropped)	Production			Total		Total quantity of spawn used during year
		For processing	For fresh market	Quantity	Gross value		
	'000 sq m	tonnes	tonnes	tonnes	\$m	tonnes	
1972-73—							
New South Wales	336.7	2,344	1,531	3,875	3.9	94	
1973-74—							
New South Wales	306.4	2,002	1,720	3,723	3.5	95	
1974-75—							
New South Wales	338.1	2,329	1,789	4,118	4.8	141	
Australia	501.3	(b)2,460	(b)3,463	6,007	7.1	(b)209	
1975-76—							
New South Wales	339.7	2,028	2,452	4,480	5.7	139	
Australia	461.0	2,231	5,294	7,525	10.0	(b)203	
1976-77p—							
New South Wales	361.0	2,353	2,503	4,857	n.a.	150	
Australia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	

(a) For 'bag-grown' mushrooms, the area has been expressed in terms of the equivalent area of 15 cm fill beds.
 (b) Incomplete; some individual States' data is either not available for publication or was not collected.

PRODUCTION AND IMPORTS OF CANNED, BOTTLED OR DRIED MUSHROOMS

Year	Production (canned or bottled)	Imports			
		Dried		Canned or bottled	
		Quantity	Value f.o.b.	Quantity	Value f.o.b.
	tonnes	tonnes	\$'000	'000 litres	\$'000
1971-72	5,643	n.a.	n.a.	n.a.	n.a.
1972-73	6,006	78	515	1,504	1,027
1973-74	5,712	119	928	2,494	1,563
1974-75	6,832	88	664	3,903	2,857
1975-76	5,416	50	438	3,159	2,466
1976-77p	6,473	n.a.	n.a.	n.a.	n.a.

For further details on mushrooms see *Mushroom Statistics* (7308.0)

Nurseries

**AREA USED FOR NURSERY AND CUT FLOWER ACTIVITIES
(Hectares)**

Year	Area	Year	Area
1949-50	2,082	1971-72	2,499
1954-55	1,974	1972-73	2,599
1959-60	1,876	1973-74	2,913
1964-65	1,932	1974-75	2,992
1969-70	2,416	1975-76	3,290

Additional information on nursery activities has been collected by some individual States and published by them but it was only for the year 1974-75 that the collection was extended to all States. All known private establishments which undertook the propagation, cultivation or growing-on of plants were included.

NURSERY STATISTICS: 1974-75

1974-75	Nursery products (\$'000)	
	Purchases	Sales
New South Wales	3,500	17,391
Victoria	2,996	17,659
Queensland	1,003	5,831
South Australia	899	5,176
Western Australia	925	4,682
Tasmania	276	1,160
Australia	9,599	51,899
Seeds and bulbs	1,658	2,892
Seedlings	1,121	8,492
Cut flowers (incl. orchids)	794	10,117
Cultivated turf	98	1,242
Fruit trees and vines	746	3,199
Rose bushes	462	2,745
Other shrubs and trees	4,719	23,214

For further details on nurseries see *Nursery and Flower Statistics* (7309.0).

Livestock

A detailed account of the various enumerations of livestock in Australia made prior to 1860 was given on page 748 of Year Book No. 35. Since 1861 annual enumerations have been made, based, with few exceptions, on actual collections made through the agency of the State police or by post. Particulars concerning the numbers of each of the principal kinds of livestock in Australia at decennial intervals from 1861 to 1971, and from then on in single years, are given in the following table.

LIVESTOCK: AUSTRALIA, 1861 TO 1977

('000)

Year	Horses	Cattle	Sheep	Pigs	Year	Horses	Cattle	Sheep	Pigs
1861	432	3,958	20,135	351	1951	999	15,229	115,596	1,134
1871	717	4,276	41,594	543	1961	598	17,332	152,679	1,615
1881	1,069	7,527	62,184	816	1971	n.a.	24,373	177,792	2,590
1891	1,522	10,300	97,881	891	1972	n.a.	27,373	162,910	3,199
1901	1,610	8,640	70,603	950	1973	n.a.	29,101	140,029	3,259
1911	2,166	11,745	98,066	1,026	1974	n.a.	30,839	145,175	2,505
1921	2,416	13,500	81,796	764	1975	n.a.	32,793	151,652	2,197
1931	1,793	11,721	110,568	1,072	1976	n.a.	33,434	148,643	2,173
1941	1,666	13,256	122,694	1,797	1977p	n.a.	31,545	135,350	2,221

While livestock numbers (particularly sheep) have increased substantially since 1861, marked fluctuations have taken place during the period, mainly on account of widespread droughts which have from time to time left their impressions on the pastoral history of Australia. These occurred in 1868, 1877, 1883-84, 1892, 1893, 1895, 1901-2, 1912, 1914, 1918, 1919, 1922-23, 1925-26, 1927-28, 1929-30, 1940-41, 1944-45 to 1946-47, and 1965-67. The years in which the numbers of livestock attained their peaks are as follows: horses, 1919 (2,527,000); cattle, 1976 (33,434,000); sheep, 1970 (180,080,000); and pigs, 1973 (3,259,000).

Cattle

Cattle-raising is carried out in all States, the main object in certain districts being the production of stock suitable for slaughtering purposes and in others the raising of profitable dairy herds. While dairy cattle are restricted mainly to coastal districts, beef cattle are more widely distributed in areas such as the tropical area of northern Queensland, the Northern Territory and the Kimberley district in the north of Western Australia. Increasing numbers of beef cattle are being raised in conjunction with sheep. Although cattle numbers declined after 1957 because of drought conditions and heavy slaughterings, they began to rise again in 1960 and in 1964 reached 19,055,000. Again because of drought in the eastern States, this figure declined to 17,936,000 in 1966. There was a continuous increase in the total number of cattle in Australia until 1976.

CATTLE NUMBERS

('000)

31 March	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	Aust. (incl. A.C.T.)
1950	3,440	2,231	6,305	464	865	275	1,049	14,640
1955	3,461	2,456	7,238	524	861	319	969	15,836
1960	3,841	2,624	7,012	500	1,030	375	1,111	16,503
1965	4,619	3,316	7,393	697	1,258	451	1,067	18,816
1970	5,637	4,462	7,515	1,026	1,681	646	1,179	22,162
1973	7,918	5,464	9,795	1,583	2,182	900	1,237	29,101
1974	8,456	5,840	10,297	1,692	2,330	884	1,321	30,839
1975	8,935	6,192	10,879	1,869	2,544	921	1,434	32,793
1976	9,138	5,868	11,347	1,891	2,654	909	1,603	33,434
1977p	8,350	5,104	11,506	1,608	2,474	819	1,664	31,545

Classification of cattle

CATTLE NUMBERS, BY AGE, SEX, PURPOSE
(^{'000})

Classification	31 March				
	1973	1974	1975	1976	1977 ^p
Milk cattle—					
Bulls used or intended for service	81	77	78	73	67
Cows, heifers and heifer calves	3,778	3,558	3,527	3,407	3,116
House cows and heifers	124	121	122	122	105
<i>Total, milk cattle</i>	<i>3,984</i>	<i>3,757</i>	<i>3,727</i>	<i>3,602</i>	<i>3,289</i>
Meat cattle—					
Bulls used or intended for service	611	651	702	687	626
Cows and heifers (1 year and over)	12,660	13,800	14,897	15,202	14,013
Calves under 1 year	6,957	7,079	7,751	8,055	7,382
Other cattle (1 year and over)	4,889	5,551	5,716	5,888	6,235
<i>Total, meat cattle</i>	<i>25,117</i>	<i>27,082</i>	<i>29,066</i>	<i>29,833</i>	<i>28,257</i>
Total, all cattle	29,101	30,839	32,793	33,434	31,545

Comparison with other countries

WORLD CATTLE NUMBERS
(Millions)
(Compiled from USDA Foreign Agriculture Circulars)

Country	1974	1975	Country	1974	1975
Argentina	57	58	European Economic Community	80	79
Australia	31	34	India	239	241
Brazil	88	91	Mexico	28	28
China (excluding Taiwan Province)	93	93	United States of America	128	132
Columbia	23	23	U.S.S.R.	106	109
Ethiopia	25	25	Total	1,317	1,343

Beef cattle production is often combined with cropping, dairying and sheep and has gained in importance, with good market prospects. In the north (north of the 26th parallel), cattle properties are very large, pastures are generally unimproved and fodder crops are rare. Beef is usually the only product and herd sizes are large. The industry is more intensive in the south because of the more favourable environment including more improved pasture.

For further details on cattle see *Livestock Statistics* (7203.0).

Sheep

With the exception of a short period in the early eighteen-sixties, when the flocks in Victoria outnumbered those of New South Wales, the latter State has occupied the premier position in sheep-raising. Western Australia is the second largest sheep raising State followed by Victoria. Sheep numbers reached a peak in Australia in 1970. They then declined up to March 1973 as producers turned off large numbers for slaughter and moved from wool-growing towards beef production. By 1976 the numbers had increased to 148,642,000, but in March 1977 the numbers had fallen to 135,300,000, the lowest since 1955.

SHEEP NUMBERS
(Millions)

<i>31 March</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>Aust. (incl. N.T., A.C.T.)</i>
1950 . . .	53.3	19.2	17.6	9.5	10.9	2.2	112.9
1955 . . .	59.2	22.3	20.2	12.8	13.4	2.6	130.8
1960 . . .	71.0	26.6	23.3	14.0	16.4	3.5	155.2
1965 . . .	72.4	30.4	24.0	17.3	22.4	3.8	170.6
1970 . . .	72.3	33.2	16.4	19.7	33.6	4.6	180.1
1973 . . .	52.0	24.1	13.3	15.7	30.9	3.8	140.0
1974 . . .	53.3	25.8	13.1	16.4	32.5	4.0	145.2
1975 . . .	55.0	26.4	13.9	17.6	34.5	4.1	151.7
1976 . . .	53.2	25.4	13.6	17.3	34.8	4.2	148.6
1977p . . .	49.7	21.9	13.3	15.1	31.1	4.0	135.3

SHEEP, BY AGE AND SEX
(Millions)

<i>31 March</i>	<i>Sheep: 1 year and over</i>				<i>Lambs and hoggets (under 1 year)</i>	<i>Total, sheep and lambs</i>
	<i>Rams</i>	<i>Breeding ewes</i>	<i>Other ewes</i>	<i>Wethers</i>		
1950 . . .	1.5	52.1	7.0	29.3	23.0	112.9
1955 . . .	1.6	58.6	7.8	37.6	25.1	130.8
1960 . . .	1.9	68.5	9.3	43.0	32.5	155.2
1965 . . .	2.0	75.6	9.0	49.3	34.8	170.6
1970 . . .	2.2	85.5	6.5	45.4	40.5	180.1
1973 . . .	1.8	68.7	6.7	34.7	28.1	140.0
1974 . . .	1.8	70.0	5.8	34.6	32.9	145.2
1975 . . .	1.9	70.6	7.0	37.1	35.0	151.7
1976 . . .	1.9	68.5	7.7	37.5	33.1	148.6
1977p . . .	1.7	64.7	6.3	34.8	27.8	135.3

The sheep and wool industry is the most important rural industry in Australia; in 1976-77 provisional value of production data showed that the combined value of wool and sheep slaughtered accounted for over one-fifth the gross value of all agriculture. This proportion varies with wool and meat prices and seasonal conditions. In 1975 Australia had 15 per cent of the world's woolled sheep but produced 30 per cent of the world's greasy wool output. In addition, in 1976-77 the sheep industry produced half a million tonnes of mutton and lamb, a big decrease from the record production of 956,000 tonnes in 1971-72, which resulted from high slaughtering rates linked to very low wool prices prevailing at the time. The graph on page 324 shows the increasing importance of other rural industries such as wheat, sugar cane, beef and dairy products.

Comparisons with other countries

WORLD SHEEP NUMBERS AND WOOL PRODUCTION

(Compiled from USDA Foreign Agricultural Circulars, and the Commodities Division of the Commonwealth Secretariat)

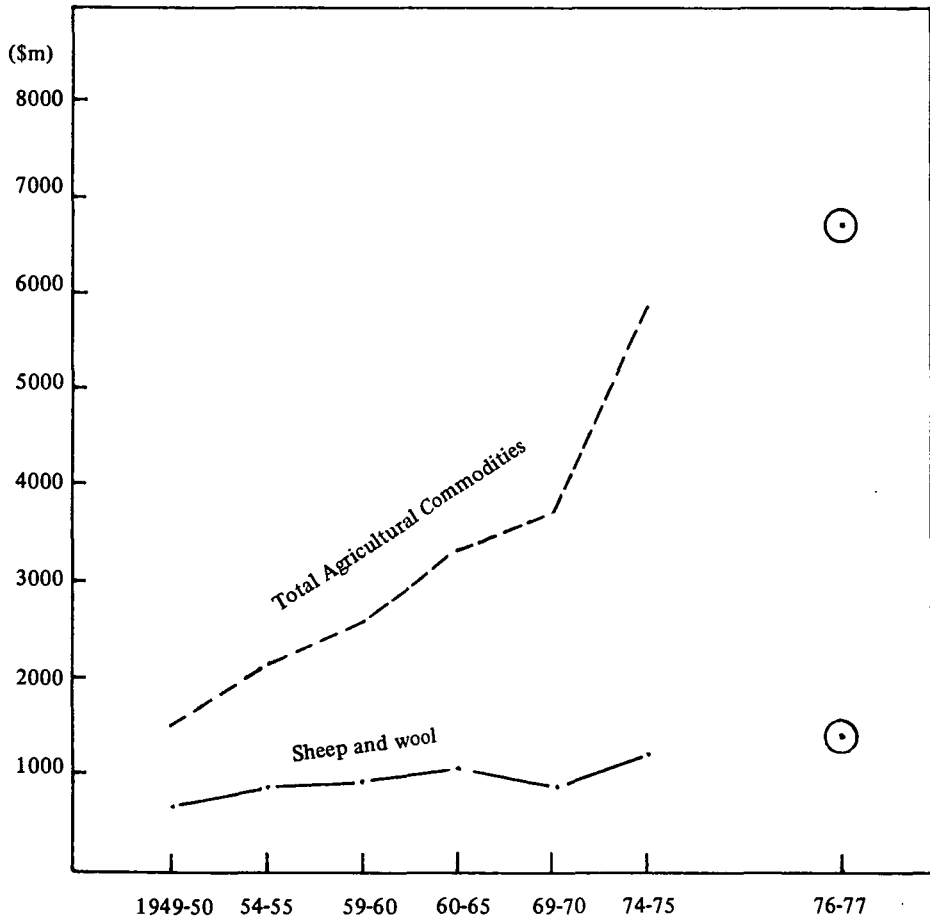
<i>Country</i>	<i>World sheep numbers (millions)</i>		<i>Estimated raw wool production ('000 t, greasy)</i>		<i>Country</i>	<i>World sheep numbers (millions)</i>		<i>Estimated raw wool production ('000 t, greasy)</i>	
	<i>1975</i>	<i>1976</i>	<i>1975</i>	<i>1976</i>		<i>1975</i>	<i>1976</i>	<i>1975</i>	<i>1976</i>
Argentina . . .	39	37	184	191	South Africa . . .	34	35	105	109
Australia . . .	152	149	794	754	Turkey . . .	38	41	48	47
Brazil . . .	27	25	34	34	United Kingdom . . .	20	20	49	51
China (excl. Taiwan Province) . . .	73	n.a.	81	81	Uruguay . . .	16	15	62	63
India . . .	41	n.a.	35	35	U.S.A. . .	15	13	65	57
Iran . . .	36	38	28	28	U.S.S.R. . .	145	141	462	463
New Zealand . . .	55	57	294	300	Total . . .	1,018	n.a.	2,607	2,582

SHEEP AND LAMBS: ANALYSIS OF MOVEMENT IN NUMBERS
(Millions)

<i>Year ended 31 March</i>	<i>Number at beginning of season</i>	<i>Lambs marked</i>	<i>Live sheep exports</i>	<i>Sheep and lambs slaughtered(a)</i>	<i>Estimated deaths on farms(b)</i>	<i>Number at end of season</i>
1968 . . .	164.2	50.6	0.4	38.0	9.6	166.9
1969 . . .	166.9	51.2	0.4	35.6	7.5	174.6
1970 . . .	174.6	56.8	0.5	40.9	10.0	180.1
1971 . . .	180.1	54.5	0.8	43.9	12.2	177.8
1972 . . .	177.8	51.7	0.8	52.2	13.6	162.9
1973 . . .	162.9	39.8	1.1	47.0	14.6	140.0
1974 . . .	140.0	43.0	1.1	26.5	10.2	145.2
1975 . . .	145.2	46.2	1.4	26.6	11.8	151.7
1976 . . .	151.7	44.1	1.8	31.3	14.0	148.6
1977p . . .	148.6	38.4	3.0	33.6	15.0	135.4

(a) Comprises statistics from abattoirs and other major slaughtering establishments and includes estimates of animals slaughtered on farms and by country butchers; does not include animals condemned or those killed for boiling down.
(b) Balance item.

GROSS VALUE : SHEEP AND WOOL INDUSTRY*



* Comprises wool and meat

LAMBING

Year ended 31 March	Number of breeding ewes at beginning of season	Mating intentions at start of season	Actual matings	Ratio of actual matings to intended matings	Lambs marked	Ratio of lambs marked to actual matings	Ratio of lambs marked to breeding ewes
	million	million	million	per cent	million	per cent	per cent
1950 . . .	50.9	45.9	44.0	96	30.4	69	60
1955 . . .	55.5	48.9	46.9	96	32.8	70	59
1960 . . .	69.5	63.5	61.2	96	44.2	72	64
1965 . . .	72.9	67.0	63.9	95	47.6	75	65
1970 . . .	83.6	76.5	73.1	96	56.8	78	68
1973 . . .	75.6	66.8	59.1	89	39.8	67	53
1974 . . .	68.7	62.8	58.7	93	43.0	73	63
1975 . . .	70.0	65.2	60.9	93	46.2	76	66
1976 . . .	70.6	65.1	60.5	93	44.1	73	63
1977p . . .	68.5	63.0	56.5	90	38.4	68	56

For further details on sheep, see the bulletins *Livestock Statistics* (7203.0) and *Wool Statistics* (7212.0).

Pigs

In line with the general trend of increased specialisation common to most rural industries, pig farming has developed into a separate industry, being no longer associated with the dairy industry. During the period of wheat quotas and generally low grain prices, pig raising became a profitable outlet for non-quota wheat, but, later, higher grain prices led to some contraction in the pig industry. Pig raising became increasingly associated with inland areas, though most are raised on farms, usually in association with dairy and cereal production. Grains form the basis of most pig rations and this has assisted with the movement to inland grain-growing districts. This is less marked in coastal regions where skim milk, the traditional source of pig feed, is being diverted to other uses.

PIG NUMBERS

('000)

At 31 March—	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Aust. (incl. N.T., A.C.T.)
1950	333	213	392	70	79	36	1,123
1955	375	264	407	85	107	58	1,297
1960	399	285	429	109	131	67	1,424
1965	449	378	406	196	137	92	1,660
1970	708	495	480	351	250	111	2,398
1973	1,065	585	542	499	476	85	3,259
1974	835	424	441	385	344	68	2,505
1975	729	383	400	349	264	64	2,197
1976	709	393	409	326	260	70	2,173
1977p	760	397	441	317	234	65	2,221

For further details on pigs see the bulletin *Livestock Statistics* (7203.0).

Poultry

Once part of the mixed farming sector, the poultry industry is now a highly specialised and distinct industry. The bulk of production is obtained from this commercial source, though many farm households and some private homes in suburban areas keep poultry to supply their domestic needs. Some supplies from this source are also marketed. Because the data from this latter sector is incomplete, total poultry numbers for Australia are not available. There is an increasing tendency for specialisation within the industry into hatcherymen, egg producers and broiler producers. These sectors of the industry each have separate statistics. There are also separate research schemes for the egg and meat chicken industries. Both sectors are good examples of the general movement towards specialised, large scale, capital-intensive production which is common to all rural industries.

POULTRY NUMBERS(a)
(**'000**)

<i>At 31 March—</i>	<i>Hens and pullets for egg production</i>	<i>Meat strain chickens (broilers)</i>	<i>Other fowls and other chickens</i>	<i>Total</i>	<i>Ducks</i>	<i>Turkeys</i>
1972.	16,615	21,708	2,212	40,535	282	591
1973.	15,580	23,497	2,661	41,738	310	645
1974.	17,043	24,724	2,384	44,151	265	540
1975.	16,409	22,592	1,758	40,759	164	413
1976.	15,915	25,306	1,566	42,787	254	333
1977.	16,099	27,757	n.a.	n.a.	347	399

(a) Data is for numbers of poultry on rural holdings as reported in the annual Agricultural Census.

Hatchings. These details relate to all eggs set and to chicks hatched in commercial hatcheries whether for sale as day-old chicks or for replenishment of own flocks.

EGGS SET AND CHICKENS HATCHED IN COMMERCIAL HATCHERIES
(**'000**)

<i>Year</i>	<i>Eggs set(a)</i>	<i>Chickens hatched, intended for—</i>		
		<i>Meat strains(b)</i>	<i>Egg strains(c)</i>	<i>Egg production(d)</i>
1972-73	217,557	125,822	1,853	16,078
1973-74	253,881	151,654	1,602	17,492
1974-75	225,610	140,139	856	15,634
1975-76	242,351	158,088	559	14,637
1976-77p	259,735	168,736	511	15,962

(a) Includes meat and egg strains and eggs which failed to hatch. (b) Unsexed. (c) Crossbred and other cockerels; unsexed egg strain chickens are evenly distributed to chicken meat chickens and egg production chickens. (d) Pullets.

For further details on poultry see the bulletins *Livestock Statistics* (7203.0) and *Chicken Hatchings and Poultry Slaughterings*. (7207.0).

Meat production, slaughterings and other disposals

The ABS collects details of slaughterings and meat production from abattoirs, commercial poultry and other slaughtering establishments and includes estimates of animals slaughtered on farms and by country butchers. The data relates only to slaughterings for human consumption and does not include animals condemned or these killed for boiling down.

PRODUCTION OF MEAT BY TYPE(a)
(**'000 tonnes**)

<i>Year</i>	<i>Carcass weight</i>					<i>Dressed weight(b)</i>		
	<i>Beef</i>	<i>Veal</i>	<i>Mutton</i>	<i>Lamb</i>	<i>Pig meat</i>	<i>Total meat</i>	<i>Chickens</i>	<i>Total all poultry(c)</i>
1949-50	584	32	209	155	92	1,072	n.a.	n.a.
1954-55	690	41	244	150	101	1,227		
1959-60	719	45	376	206	102	1,449		
1964-65	968	58	367	227	122	1,743		
1969-70	975	35	441	314	174	1,940	105	124
1972-73	1,385	53	435	278	236	2,388	138	161
1973-74	1,279	43	231	236	211	2,000	171	193
1974-75	1,494	53	258	269	175	2,249	166	189
1975-76	1,759	82	326	262	174	2,602	184	204
1976-77p	1,843	90	309	244	185	2,699	195	217

(a) Excludes offal. (b) Dressed weight of whole birds, pieces and giblets. (c) Includes other fowls, turkeys, ducks and drakes.

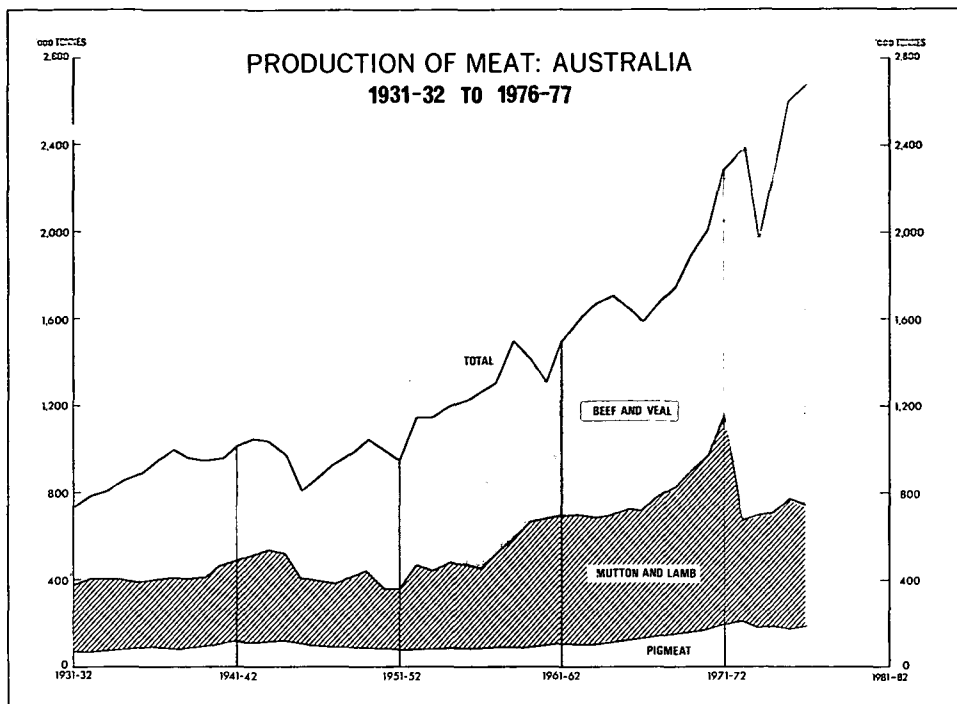


PLATE 34

**NUMBERS OF LIVESTOCK AND POULTRY SLAUGHTERED FOR HUMAN CONSUMPTION
(Million head)**

Year	Cattle	Calves	Sheep	Lambs	Pigs	Chickens(a)	Other fowls (b) and turkeys	Ducks and drakes
1949-50	2.5	1.1	10.5	9.8	1.6	n.a.	n.a.	n.a.
1954-55	3.2	1.3	12.3	9.9	1.9			
1959-60	3.4	1.5	19.5	13.6	2.0			
1964-65	4.9	1.9	19.0	14.4	2.5			
1969-70	4.8	1.1	22.3	19.9	3.6			
1972-73	6.8	1.4	23.2	17.9	4.7	84.6	8.0	1.0
1973-74	6.1	1.2	11.3	13.9	4.2	113.2	10.1	1.3
1974-75	6.9	1.5	12.7	16.0	3.4	139.8	10.1	1.2
1975-76	8.5	2.1	16.8	16.1	3.3	144.2	10.5	1.3
1976-77p	9.3	2.4	16.5	15.1	3.5	154.5	9.2	1.2
							9.8	1.2

(a) Comprises broilers, fryers and roasters. (b) Comprises hens, roosters, etc.

Mutton and lamb

Wool production and meat production are closely related and movements in the prices of wool or sheepmeat can cause a shift from one to the other as relative profitability changes. The decline in wool prices after 1956-57, and after 1963-64 led to increases in prime lamb production as diversification occurred in wool-growing areas. These record slaughterings were followed by improved wool prices in 1972-73 which, together with a substantial fall in the total sheep flock, resulted in a sharp decline in sheepmeat production and sheep and lamb prices rose steeply. Exports of mutton peaked in the early seventies and there has been a noticeable increase in exports of boneless meats. Live sheep exports to the Middle East have increased from 800,000 in 1971-72 to over 3 million in 1976-77. Much of the expanded lamb production has been absorbed in the domestic market.

Beef and veal

The expansion in production of beef and veal has shown a steady annual increase in the last 20 years, although there have been wide fluctuations along the upward trend. The export market for beef increased dramatically after 1969-70, when exports exceeded Australian consumption, and a growing proportion of beef and veal output has been shipped to export markets.

Production is running at record levels, although 1976-77 cattle numbers decreased by about 6 per cent over the 1975-76 level. However, the depressed state of the beef industry in recent years is revealed by the steep fall in the indexes of average unit gross value (*see* page 293) from a peak of 135.5 in 1973-74 to 56.6 in 1974-75 and 64.5 in 1975-76. Statistics derived from the Agricultural Finance Survey (*see* page 289) also indicate the depressed state of the meat cattle industry by a negative cash operating surplus for the years 1974-75 and 1975-76.

Pigmeat

Over half the pigmeat produced is sold as pork, with the remainder as bacon, ham and small-goods. A relatively small amount of pigmeat is exported, with Japan taking significant amounts in some years.

Poultry

The poultry meat industry has developed rapidly since 1970 and both output and consumption have risen steeply. Genetic and technical improvements and the organisation of the industry into large-scale enterprises have raised efficiency and reduced production costs relative to other meats.

EXPORTS OF FRESH, CHILLED OR FROZEN MEAT

	<i>Beef</i>	<i>Veal</i>	<i>Mutton</i>	<i>Lamb</i>	<i>Pork</i>	<i>Poultry</i>
QUANTITY(a) ('000 tonnes)						
1949-50	80.8	1.9	31.6	56.0	6.8	n.a.
1954-55	123.3	2.1	15.3	43.1	3.0	n.a.
1959-60	188.1	3.1	32.6	26.9	0.4	0.1
1964-65	445.5	15.7	122.0	30.2	0.4	0.4
1969-70	477.1	5.4	136.5	41.4	5.2	1.7
1972-73	826.5	26.6	156.8	31.7	20.1	4.0
1973-74	704.7	25.2	103.6	22.5	8.6	4.3
1974-75	601.2	10.2	120.7	24.6	1.1	5.1
1975-76	783.7	16.8	201.5	28.9	5.2	5.0
1976-77p	919.7	17.1	241.5	59.8	3.1	4.7
VALUE f.o.b. (\$ million)						
1949-50	13.0	0.4	3.4	11.5	2.1	5.6
1954-55	42.8	1.0	3.3	20.4	1.6	1.1
1959-60	109.1	1.8	9.4	8.8	0.3	0.1
1964-65	192.4	8.0	29.5	10.8	0.3	0.3
1969-70	286.9	5.2	60.9	20.5	4.1	1.1
1972-73	623.0	29.2	100.6	17.9	17.1	2.5
1973-74	610.6	25.1	62.5	16.7	8.1	3.3
1974-75	315.9	6.4	48.9	15.5	1.6	4.3
1975-76	475.3	11.5	81.2	20.3	7.6	4.3
1976-77p	602.8	12.9	121.4	46.3	4.6	4.5

(a) Since 1964-65 quantity data on beef, veal, mutton and lamb exports is shown in carcass weight equivalents; previous years are in actual weight shipped.

Exports of live animals

For details of the regulation governing the export (and import) of live animals *see* Year Book No. 61 page 848.

EXPORTS OF LIVE ANIMALS

Year	Livestock numbers ('000)		Poultry numbers ('000)		Value f.o.b. (\$'000)	
	Sheep and lambs	Total(a)	Day old chicks	Total	Livestock	Poultry
	1949-50	97	98	74	79	604	21
1954-55	97	105	57	67	1,409	19
1959-60	226	240	426	443	2,562	127
1964-65	286	296	720	736	3,246	184
1969-70	563	566	397	419	4,585	125
1972-73	1,135	1,146	360	380	15,343	170
1973-74	1,061	1,086	347	436	26,528	250
1974-75	1,449	1,461	204	253	22,931	166
1975-76	1,845	1,869	256	284	23,231	242
1976-77p	3,386	3,403	279	290	52,448	165

(a) Also includes cattle, calves, buffaloes and pigs.

PRODUCTION AND EXPORT OF BACON, HAM AND CANNED MEAT

Year	Production			Exports			
	Bacon and ham(a)		Canned meat(b)	Bacon and ham(c)		Canned meat(d)	
	Bone-in	Bone-out		Quantity	Value	Quantity	Value
	tonnes		tonnes	tonnes	\$'000 f.o.b.	tonnes	\$'000 f.o.b.
1949-50	41,229	57,090	57,090	n.a.	n.a.	n.a.	n.a.
1954-55	38,982	73,524					
1959-60	37,506	69,304					
1964-65	44,062	50,709					
1969-70	54,330	46,737	259	416	17,045	10,209	
1972-73	24,740	34,492	50,476	401	575	22,749	16,800
1973-74	23,143	37,802	55,760	492	813	22,517	25,289
1974-75	17,638	36,745	42,422	570	1,047	15,224	18,221
1975-76	15,986	38,531	44,725	385	761	20,604	24,541
1976-77p	15,820	41,534	52,255	489	810	30,291	36,712

(a) Production of bacon and ham 'on the bone' is shown in terms of 'bone-in' weight, while production of boneless bacon and ham is shown in terms of 'bone-out' weight. Production of canned bacon and ham, which is reported in terms of 'stated net weight of packs', is included in the 'bone-out' category. Production prior to 1972-73 is shown in 'bone-in' terms.
 (b) Canned weight. Includes bacon, ham and meat and vegetables, but excludes rabbit, poultry and baby foods. (c) Cured carcass weight of smoked or cooked bacon and ham. Includes 'stated net weight of packs' of canned bacon and ham.
 (d) Canned weight; excludes canned bacon and ham.

GROSS VALUE OF LIVESTOCK SLAUGHTERINGS AND OTHER DISPOSALS(a)
(\$ million)

Year	Cattle and calves	Sheep and lambs	Pigs	Poultry	Total
1949-50	113.0	60.3	28.6	15.5	217.4
1954-55	235.1	(b)151.3	42.5	21.7	450.6
1959-60	375.4	147.3	60.2	29.2	612.1
1964-65	482.8	175.0	75.4	42.9	776.1
1969-70	627.5	214.4	96.1	69.8	1,007.7
1971-72	717.6	215.7	111.2	89.8	1,134.4
1972-73	1,021.7	306.1	123.7	90.6	1,542.2
1973-74	1,069.1	321.4	173.0	132.5	1,696.0
1974-75	523.4	178.3	177.7	139.8	1,019.2
1975-76	709.2	208.3	184.2	152.9	1,254.6
1976-77p	961.0	300.0	189.0	165.0	1,616.0

(a) Includes adjustment for net exports (overseas and interstate) of live animals. (b) Includes value of wool on skins, fellmongered and exported.

Consumption

Owing to diverse cutting practices by butchers and because of the difficulty of clearly defining the term 'retail weight of meat', it is considered impractical to derive a satisfactory factor for the purpose of expressing estimated meat consumption in terms of retail weight. Depending on cutting practices employed and whether or not bones, etc. sold to customers are included in retail weight of meat, the following retail weights as a proportion of carcass weight are generally acceptable: beef, 60 per cent to 75 per cent; mutton and lamb, 80 per cent to 95 per cent; pork 90 per cent to 95 per cent.

APPARENT CONSUMPTION OF MEAT AND MEAT PRODUCTS AS HUMAN FOOD

Year	Beef and veal	Mutton	Lamb	Pigmeat(a)	Bacon and ham	Canned meat	Poultry meat
TOTAL ('000 tonnes)							
1949-50	454	167	100	26	35	13	n.a.
1954-55	480	215	107	42	33	10	n.a.
1959-60	450	293	180	48	32	19	n.a.
1964-65	510	236	201	61	39	23	n.a.
1969-70	481	211	267	94	47	29	131
1972-73	524	209	244	103	72	34	174
1973-74	552	119	211	90	73	32	184
1974-75	881	123	243	70	67	30	187
1975-76	969	105	232	70	65	29	201
1976-77p	926	64	186	75	n.a.	n.a.	213
PER HEAD PER YEAR (kg)							
1949-50	56.4	20.7	12.4	3.3	4.4	1.6	n.a.
1954-55	52.8	23.7	11.8	4.6	3.6	1.1	n.a.
1959-60	44.2	28.9	17.6	4.7	3.2	1.9	n.a.
1964-65	45.5	21.0	17.8	5.4	3.4	2.1	n.a.
1969-70	38.8	17.0	21.5	7.6	3.8	2.3	10.5
1972-73	40.1	15.9	18.7	7.9	5.5	2.6	13.3
1973-74	41.6	9.0	15.9	6.8	5.5	2.4	13.9
1974-75	65.4	9.1	18.0	5.2	5.0	2.2	13.9
1975-76	71.2	7.7	17.0	5.1	4.8	2.1	14.8
1976-77p	66.2	4.6	13.3	5.4	n.a.	n.a.	15.6

(a) Comprises pork and includes smallgoods and estimates for trimmings from baconer carcasses.

NOTE: Beef, veal, mutton, lamb and pigmeat are expressed in terms of carcass weight, bacon and ham in cured carcass weight, canned meat in canned weight and poultry meat in dressed weight.

For further details on meat production and slaughtering see the following bulletins: *Meat Statistics*, monthly (7204.0), quarterly (7205.0) and annual (7206.0), *Chicken Hatchings and Poultry Slaughtering* (7207.0), *Value of Agricultural Commodities Produced* (7503.0) and *Apparent Consumption of Foodstuffs and Nutrients* (4306.0).

The Australian Meat and Livestock Corporation

Legislation was enacted to establish the Australian Meat and Livestock Corporation from 1 October 1977. This Corporation, which regulates and promotes meat and livestock exports, replaced the Australian Meat Board. (See Year Book No. 61, page 851 for particulars of that Board's functions.)

Two groups—The Meat and Livestock Exporters and Abattoir Operators Consultative Group and the Livestock Producer Consultative Group—are responsible for nominating corporation members and will:

- advise the Corporation on important matters such as trade and market matters; and
- disseminate information on Corporation decisions and policies to people engaged in the meat and livestock industries.

In addition to the Consultative Groups, an Australian Meat Industry Conference has been established. It is representative of all parties with an interest in matters for which the Corporation is responsible and includes representatives of producers, exporters, meatworks, packers, processors,

livestock agents, unions and consumers. The Conference, meeting annually, provides a forum in which organisations representing the diverse interests of the meat and livestock industries debate issues of concern to them.

The Corporation's main functions are to encourage, assist, promote and control the export of meat and livestock from Australia, and to promote the sale of meat in Australia. It has the authority, also, to perform a range of other functions aimed at improving the production of meat and livestock and for the general benefit of the meat and livestock industries.

Finance

As with the Meat Board, one component of the Livestock Slaughter Levy will be used to finance the Corporation's activities. The other components will continue for research and disease eradication in cattle.

The Beef Industry (Incentive Payments) Scheme

This Act was promulgated on 31 October 1977. Its purpose is to enable payments to be made to beef producers, provided they meet certain conditions related to cattle husbandry procedures, including carrying out recognised disease control. The legislation provides for producers owning fifty or more marked cattle kept for beef production to make claims for recognised procedures taken between 23 September 1977 and 22 September 1978. Recognised disease control processes include:

- dipping and similar treatment for external parasites,
- drenching for internal parasites,
- brucellosis and tuberculosis eradication, and
- vaccinations.

The subsidy is limited to \$2,000 per producer, with companies, partnerships and trusts being treated as individual producers.

For further details on topics such as the Livestock Slaughter Levy, various meat research schemes and international agreements, see Year Book No. 61, pages 851-853. For additional details on the Australian Meat and Livestock Corporation, see the latest issue of *Meat Statistics* (annual) (7206.0).

Wool

With about one-seventh of the world's woolled sheep, Australia produces about one-third of the world's wool and more than half the world's fine-quality Merino wool. More than 90 per cent of the production is exported, mainly as greasy wool, although substantial amounts of scoured and carbonised wool, wool on sheep skins and small quantities of semi-manufactured wool are also shipped.

Wool production

Wool as shorn from the sheep contains an appreciable amount of grease, dirt and other extraneous matter, and is termed 'greasy wool'. The quantity of grease and other matter in a fleece differs not only between countries, but between districts in the same country. It fluctuates with the vagaries of the season, and with the breed and the condition of the sheep. To allow for this factor, the weight of greasy wool is sometimes given on a 'clean' basis, i.e. minus the estimated amount of impurities. The net wool fibre content of greasy wool, expressed as a percentage, is termed 'clean yield'.

From 1946-47 to 1952-53 the Australian Wool Realisation Commission, and from 1953-54 the Wool Statistical Service, has assessed annually the clean yield of the Australian wool clip. During the period of assessment the clean yield showed a continuous rise up to 1951-52, when it reached 57.5 per cent. It was 59.21 per cent in 1976-77.

Wool scoured, washed and carbonised in Australia before export, however, has a somewhat lower clean yield than the whole clip, because the grade of greasy wool treated locally for export as scoured, washed or carbonised contains quantities of dirty and low-grade wool. The quantity of scoured and carbonised wool exported during 1976-77 was about 9.4 per cent of total raw wool exports in terms of greasy. For the clean yield of Australian scoured wools exported a standard factor of 93 per cent has been adopted.

The following table shows details of total wool (i.e. shorn, dead, fellmongered, and exported on skins) as well as the numbers of animals shorn, the average fleece weight and the gross value of the wool. A graph showing the production of wool in relation to the number of sheep appears on plate 35, page 332.

SHEARING, WOOL PRODUCTION AND VALUE

Year	Wool production						Gross value (b)
	Sheep and lambs shorn	Average fleece weight	Wool production		Total wool		
			Shorn wool	Other wool(a)	Quantity		
	million	kg	'000 tonnes	'000 tonnes	'000 tonnes	\$m	
1949-50 . . .	117.6	3.96	466.3	51.7	518.0	576	
1954-55 . . .	137.0	3.89	532.5	49.3	581.8	691	
1959-60 . . .	169.5	4.09	693.7	68.3	762.1	780	
1964-65 . . .	182.3	4.06	739.1	70.1	809.2	841	
1969-70 . . .	192.7	4.34	837.4	88.4	925.8	735	
1972-73 . . .	155.4	4.14	643.6	91.6	735.2	1,243	
1973-74 . . .	150.6	4.28	644.3	56.6	700.9	1,229	
1974-75 . . .	161.9	4.48	725.3	68.2	793.5	953	
1975-76 . . .	159.6	4.27	681.4	72.8	754.3	1,000	
1976-77p . . .	145.7	4.32	629.3	79.7	709.0	1,135	

(a) Comprises dead and fellmongered wool, and wool exported on skins. (b) Gross value is based, for shorn wool, upon the average price realised for greasy wool sold at auction and, for skin wools, on prices recorded by fellmongers and skin exporters.

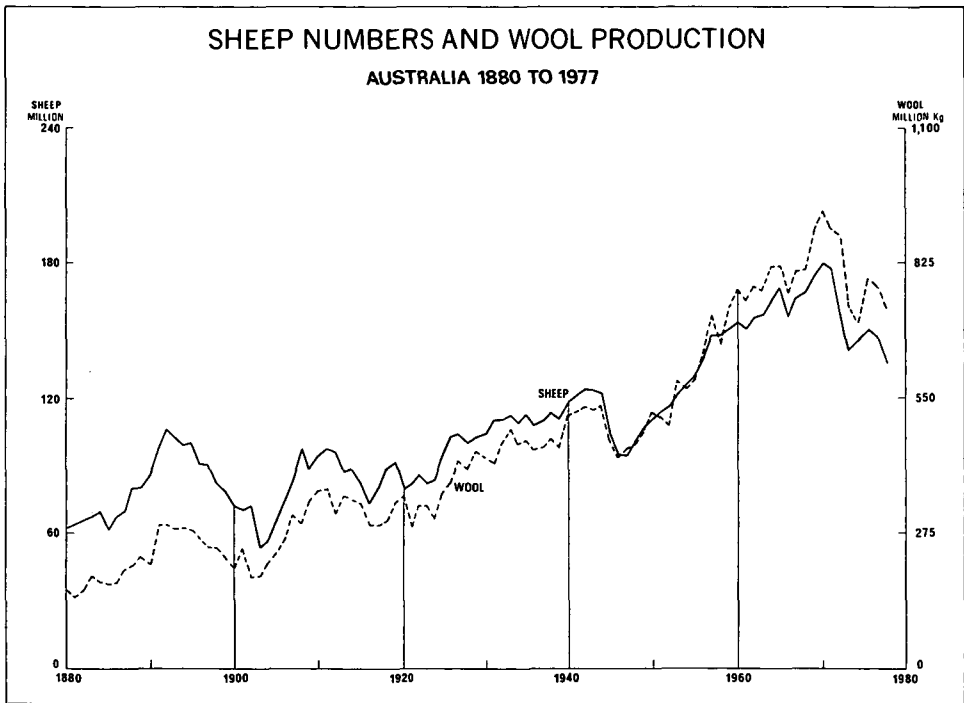


PLATE 35

Wool receipts

The ABS collects details of the amount of taxable wool received by brokers and dealers from wool producers; this excludes wool received by brokers on which tax has already been paid by other dealers (private buyers) or brokers.

TAXABLE WOOL RECEIVALS

Year ended 30 June	Receivals		Brokers and dealers	Dealers as per cent of total receivals	Shorn wool production(a)
	Brokers	Dealers			
	per cent	'000 tonnes	per cent	per cent	'000 tonnes
1972	674.8	99.2	774.0	12.8	777.0
1973	513.7	129.8	643.6	20.2	643.6
1974	507.3	117.1	624.4	18.8	644.3
1975	593.9	135.3	729.2	18.5	725.3
1976	525.2	161.6	686.9	23.5	681.4
1977p	476.5	150.3	626.9	24.0	629.3

(a) Obtained from the annual Agricultural Census.

The large pastoral houses have been responsible for handling the bulk of Australian wool since the early years of the industry and they have done this through the auction system. Following the Second World War, private treaty trading has become a significant alternative method of disposal. In the 'seventies there has been a big increase in private trading reaching nearly a quarter of the 1976-77 clip. The proportions vary between States, with Western Australian private buyers in 1972-73 taking 37 per cent of the total receivals in that State.

Prices

Fluctuations in Australian wool prices have a marked effect on rural and national income. In 1945-46 the gross value of wool was \$117.2 million, representing 17.4 per cent of the gross value of all agricultural commodities produced, while in 1950-51, when prices reached a peak during the Korean War, wool was valued at \$1303.8 million or 55.6 per cent of total agricultural industries.

Year	Value of wool production as a per cent of total agriculture	Value of wool exports as a per cent of total Australian exports	Year	Value of wool production as a per cent of total agriculture	Value of wool exports as a per cent of total Australian exports
1949-50	37.0	51.4	1972-73	25.1	19.0
1954-55	31.3	46.1	1973-74	19.2	17.3
1959-60	29.5	42.0	1974-75	16.2	9.0
1964-65	24.6	31.2	1975-76	16.2	10.1
1969-70	19.7	19.2	1976-77p	16.9	n.a.

Stock

Stocks shown below of raw and semi-processed wool were held by wool processors, scourers, fellmongers, brokers, dealers and the Australian Wool Corporation. They exclude wool on skins since this wool is not recorded as production until fellmongered in Australia or exported on skins.

WOOL STOCKS
('000 tonnes)

At 30 June	Stocks of—					
	Raw wool(a)		Semi-processed wool		Total wool	
	Greasy	Clean	Greasy	Clean	Greasy	Clean
1950	65.7	35.3	8.6	4.8	74.3	40.1
1955	31.9	17.2	7.4	4.3	39.3	21.5
1960	111.1	62.1	11.7	6.8	122.8	68.9
1965	141.0	79.2	10.3	5.9	151.3	85.1
1970	171.9	95.7	13.1	7.5	185.1	103.2
1972	224.6	126.4	11.4	6.5	236.0	132.9
1973	114.5	63.7	11.3	6.4	125.8	70.1
1974	181.9	104.4	10.5	5.9	192.4	110.3
1975	450.3	268.8	7.5	4.3	457.8	273.1
1976	388.8	232.8	9.3	5.5	398.1	238.3

(a) Includes from about 1971 or 1972 varying amounts of stock held by the Australian Wool Corporation: 1974, 5,600 tonnes greasy; 1975, 34,300 tonnes greasy; 1976, 35,600 tonnes greasy.

Wool consumption

Two series of calculations on Australian wool consumption are shown below. The first measures consumption in terms of scoured wool used by mills (on the woollen and worsted systems) and for the manufacture of felt (including hats); this series has been included for comparison purposes with other countries. The second is calculated from the usage of woollen and worsted yarn (including wool and other fibre mixtures) and scoured wool for felt manufacture (including hats). This second series is considered to be a more satisfactory measure of Australian wool consumption, principally because allowance is made for significant quantities of wool tops exported. However, both series relate to consumption of wool by the wool textile industry, and should not be used as measures of consumption in terms of retail purposes. It has not been possible to estimate wool consumption at the retail level because of the impracticability of obtaining reliable data concerning the wool content of the multiplicity of woollen and worsted piece-goods and finished articles exported and imported and held as stock by manufacturers, wholesalers and retailers.

CONSUMPTION OF RAW AND PROCESSED WOOL
(^{'000 tonnes})

Year	Consumption of raw wool		Consumption of processed wool					
			Worsted yarn used(a)		Woollen yarn used(b)		Total	
	Greasy	Clean	Greasy	Clean	Greasy	Clean	Greasy	Clean
1949-50	48.4	26.5	24.4	13.5	17.1	9.8	45.7	25.3
1954-55	41.0	23.8	18.6	10.8	12.1	7.4	34.1	19.8
1959-60	58.3	35.2	20.1	12.0	16.5	10.3	38.9	23.4
1964-65	56.4	33.2	21.4	12.3	18.4	11.1	41.1	24.0
1969-70	58.2	34.0	17.8	11.0	17.2	10.4	36.1	21.9
1971-72	55.3	31.5	21.5	12.1	18.6	11.0	41.2	23.7
1972-73	56.2	32.2	18.9	10.7	17.5	10.4	37.5	21.6
1973-74	45.6	26.0	15.0	8.4	17.1	10.0	33.3	18.9
1974-75	31.2	17.8	10.4	6.3	14.6	8.6	26.0	15.4
1975-76	52.1	29.9	15.3	8.6	17.2	10.2	33.6	19.3

(a) Wool content of yarns containing a mixture of wool and other fibres. (b) Comprises pure and mixed woollen yarn.

Exports of wool

In 1975-76, of the 583,500 tonnes of greasy and slipe wool exported, 198 thousand (34 per cent) went to Japan. Other large shipments were 11 per cent to France, 10 per cent to the USSR and 9 per cent to Italy.

EXPORTS OF WOOL

Year	Selected exports (^{'000 tonnes} : greasy basis)			Total exports(a)	
	Greasy and slipe	Scoured and carbonised	Exported on skins	Greasy basis	Value f.o.b.
1949-50	479.8	139.5	28.2	^{'000 tonnes} 651.3	\$ m 626
1954-55	437.1	70.2	29.2	541.3	706
1959-60	587.3	84.5	50.7	741.3	772
1964-65	606.4	63.8	57.9	743.8	806
1969-70	713.0	65.6	78.6	872.0	761
1972-73	666.5	55.0	83.8	822.7	1,130
1973-74	488.1	41.4	52.6	593.3	1,157
1974-75	456.9	58.0	66.2	590.6	753
1975-76	583.5	68.0	72.8	735.6	961
1976-77p	675.6	78.2	79.7	(b)833.5	1,427

(a) Includes semi-processed wool.

Wool marketing

There is no Government control over the marketing of wool, but the Australian Wool Corporation, which is a statutory body, performs functions aimed at assisting the orderly and efficient disposal of wool as well as encouraging demand for wool. The Wool Corporation came into operation on 1 January 1973 through the amalgamation of the former Australian Wool Commission and Australian Wool Board.

The functions of the Corporation relate to wool marketing, wool use promotion, wool testing, wool research and the management of wool stores. In addition, the Corporation is required to enquire into methods of marketing wool and to report on matters relating to marketing. A comprehensive report on wool marketing was released on 17 January 1974 in which the Corporation recommended the adoption of procedures aimed at stabilising wool prices and regulating availability. The central recommendation of the report was that the Corporation acquire ownership of all wool for export. The proposal was submitted by the Corporation to the Commonwealth Government and is under study.

For the 1974-75, 1975-76 and 1976-77 seasons, the Corporation was authorised by the Government to operate a minimum reserve (floor) price at wool auctions. Credit facilities for \$350 million were provided by the Government to the Corporation for this purpose. These are additional to credit available to the Corporation from commercial sources. Woolgrowers are required to pay a levy of 5 per cent on sales proceeds of shorn wool for a reserve against possible losses from the scheme.

Funds for other activities of the Corporation (notably wool promotion) are provided jointly by woolgrowers, through a levy on shorn wool proceeds (*see* below), and the Commonwealth Government. The Corporation is embarking on a limited offer to purchase scheme (LOPS) which is a trial of its commercial ability to purchase, handle and sell wool. Advantages of the scheme for growers include an immediate reduction in standard handling charges, payment in full no later than 15 working days after receipt of the last bale of a clip or portion of a clip purchased, and a purchase price set on current market price. The scheme is to concentrate on efficiency in wool-store operations and the Corporation will not limit its total purchase for the scheme to particular clip sizes or lot sizes. If it wishes to receive part of a clip, the grower retains the right to require purchase of the whole clip.

A key part of the planning is the flexipack—a giant poly bag which can hold up to 450 kg of greasy wool in the shape of a giant 8 ft sausage. The flexipack is loaded in the woolshed, doing away with the need for either woolpress or conventional pack. It is then loaded onto a special truck by crane, and vacuum-shrunk by sucking the air out to bring it down to a more manageable size. Being an impervious plastic it needs no special storage and can be left in the open.

Objective measurement of wool. Sealed tender sales have been developed since the early 1970s and are based on an inspection sample which had been tested and certificated by the Australian Wool Testing Authority. These objective measurement certificates are also used in auction sales, replacing subjective testing by wool buyers.

Year Book No. 61 contains a description of some of the regulations, statutory bodies, levies, etc., operating in the wool industry. Topics covered include: the Australian Wool Industry Conference, the Randall Committee, Wool Levy, the Commonwealth Government's contribution to wool research and promotion, and the development of objective measurement of wool.

For further details on sheep shorn, wool production and overseas trade *see* the following bulletins: *Livestock Statistics* (7203.0), *Sheep numbers, shearing and wool production* (7211.0), *Wool production and shearing* (7210.0), *Wool Statistics* (7212.0), *Brokers and Dealers Receipts of Taxable Wool* (monthly) (7213.0), *Overseas Trade* (5409.0, 5410.0), *Production Bulletin No. 4* (8360.0) and *Value of Agricultural Commodities Production* (7503.0).

Dairying

Dairying in Australia occurs mainly in the south-eastern region of the mainland, and in Tasmania, where rainfall is ample and fairly reliable. It is predominantly coastal, but has also developed inland in small areas close to population centres and, on a larger scale, in some irrigated regions in the Riverina of New South Wales and northern Victoria.

Australian dairy cattle have shown steady improvement in quality, as demonstrated by milk yield, over the years. This is attributable to improved breeding associated with herd recording, better feeding resulting from the use of improved pastures, and better farming methods arising from the development of modern farm machinery and the application of the results of research.

A significant development in recent years has been the shift away from on-farm separation and delivery of cream to factories to a widespread system of refrigerated bulk milk delivery. The Commonwealth Government encouraged this transformation by providing interest-free loans under the Australian Dairy Adjustment Program.

The manufacturing and processing sections of the industry are well advanced technologically and certain techniques and equipment developed in Australia are now being adopted overseas. State Agricultural Departments give advice on approved methods of production and inspect animals, buildings and marketable produce, to ensure that the latest advances in technology are passed on to the farmer and that hygiene standards are maintained at a high level.

MILK CATTLE NUMBERS
(^{'000})

31 March	Bulls used or intended for service	Cows and heifers used or intended for production of milk or cream for sale			House cows and heifers(a)
		Cows (in milk and dry)	Heifers		
			1 year and over	Under 1 year	
1965	(b)95	3,012	843	690	202
1970	(b)69	2,673	703	631	156
1973	81	2,532	655	601	124
1974	77	2,371	633	554	121
1975	78	2,355	634	537	122
1976	73	2,345	595	467	122
1977p	67	2,185	543	388	105

(a) One year and over, kept for rural holdings' own milk supply. (b) Excluded bull calves under 1 year which were intended for service in milk herds.

The late sixties and early seventies saw the elimination of many of the smaller, less productive herds, and the industry has increasingly concentrated in the environmentally more favoured regions. Typically, labour on dairy farms is provided by the owner operator and his family, but wide variations exist between regions and sectors.

In the past, fluctuations in milk production have been absorbed by the manufacturing sector, especially for butter production which, in 1949-50, accounted for 64 per cent of total milk output. Domestic consumption of butter has fallen from 11.4 kg per head per year in 1949-50 to 6.9 kg in 1975-76 and butter production now accounts for 43 per cent of total milk output. Cheese has now become the major growth product in dairying, with domestic consumption rising steadily from 2.9 kg per head per year in 1949-50 to 5.9 kg per head per year in 1975-76.

PRODUCTION, UTILISATION AND GROSS VALUE OF WHOLE MILK

	Whole milk used for—				Total whole milk
	Factory butter(a)	Non-processed cheese(a)	Processed milk products	Human consumption(a)	
QUANTITY (million litres)					
1949-50	3,657	440	407	1,126	5,630
1954-55	4,031	448	293	1,256	6,027
1959-60	4,147	459	376	1,413	6,395
1964-65	4,268	617	441	1,588	6,914
1969-70	4,642	730	471	1,680	7,523
1972-73	3,817	871	542	1,721	6,952
1973-74	3,624	889	535	1,707	6,756
1974-75	3,345	936	627	1,589	6,497
1975-76	3,026	1,057	631	1,534	6,248
1976-77p	2,483	955	734	1,568	5,740
GROSS VALUE (\$ million)					
1949-50	78.1	10.9	11.8	49.0	(b)166.7
1954-55	135.6	18.4	15.1	100.8	(b)302.0
1959-60	169.8	22.7	20.7	123.5	336.7
1964-65	182.5	32.6	23.8	145.3	384.2
1969-70	196.3	32.8	23.5	161.3	413.9
1972-73	193.1	47.2	34.1	184.4	(c) 464.1
1973-74	184.5	47.0	32.4	196.6	(c) 467.6
1974-75	191.1	61.6	39.0	217.7	(c) 518.5
1975-76	151.6	57.1	34.1	238.2	(c) 490.3
1976-77p	n.a.	n.a.	n.a.	n.a.	548.0

(a) Prior to 1963-64 milk used to produce farm butter and cheese was included with factory production; subsequently milk used in farm production is included with human consumption and other purposes. (b) Included a subsidy paid on whole milk for all processed milk products. (c) Includes data not available for publication in the components.

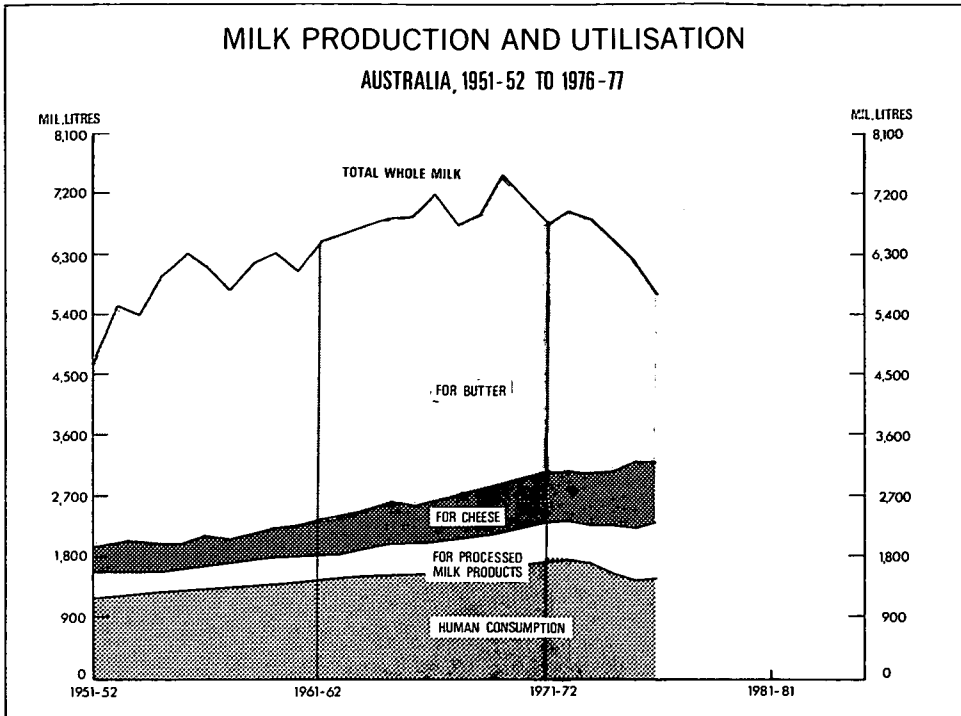


PLATE 36

Exports

The United Kingdom has, in the past, been Australia's main butter market, but this market was effectively closed with Britain's joining the European Economic Community. There has been some diversification in the form of butter oil exports to South East Asia, in line with the development of milk recombining plants there. Japan has replaced the United Kingdom as the major outlet for Australian cheese.

PRODUCTION AND TRADE OF BUTTER AND CHEESE

Year	Butter			Cheese			
	Factory production(c)	Exports(a)		Factory production(d)	Exports(b)		Imports
		Quantity	Value f.o.b.		Quantity	Value f.o.b.	
	'000 tonnes	'000 tonnes	\$m	'000 tonnes	'000 tonnes	\$m	'000 tonnes
1949-50	176.4	80.5	49.3	45.5	23.3	8.3	..
1954-55	194.1	63.5	49.2	45.9	22.5	10.1	0.8
1959-60	200.7	78.2	57.3	45.7	19.2	10.0	1.1
1964-65	206.3	91.7	62.2	62.6	27.6	14.2	3.4
1969-70	223.0	81.6	43.8	76.3	40.8	19.6	6.7
1972-73	184.9	57.8	48.0	93.4	29.6	21.7	7.5
1973-74	175.5	37.9	27.2	95.8	38.0	28.9	7.4
1974-75	161.3	18.9	19.5	98.8	34.2	34.6	8.0
1975-76	147.6	52.5	42.2	112.6	31.5	35.2	9.7
1976-77p	118.1	22.6	26.0	103.4	52.5	56.2	n.a.

(a) Excludes ghee and butter concentrates. (b) Includes processed cheese exports. (c) Prior to 1964-65 included estimates of butter produced on farms. (d) Prior to 1964-65 included estimates of cheese produced on farm. Factory production is shown only for non-processed cheese.

Apparent consumption

CONSUMPTION OF MILK, BUTTER, CHEESE AND MARGARINE

Year	Apparent consumption Total			Apparent consumption Per head per year			Margarine	
	Fluid whole milk	Butter	Non- processed cheese	Fluid whole milk	Butter	Non- processed cheese	Table	Other
	mil. litres	'000 tonnes	'000 tonnes	litres	kg	kg	kg	kg
1949-50	1,100	86	18	144.6	11.4	2.9	0.5	2.9
1954-55	1,173	125	24	132.0	13.7	2.6	1.0	2.4
1959-60	1,323	121	29	133.6	11.9	2.9	1.6	2.6
1964-65	1,487	115	38	136.0	10.3	3.4	2.0	2.8
1969-70	1,596	116	46	131.8	9.3	3.7	1.3	3.8
1971-72	1,565	112	54	121.4	8.7	4.2	1.4	4.0
1972-73	1,622	109	61	124.0	8.3	4.6	1.6	4.1
1973-74	1,592	104	63	120.0	7.9	5.3	1.8	4.1
1974-75	1,466	99	70	108.9	7.3	5.2	2.2	3.9
1975-76	1,479	94	80	108.7	6.9	5.9	3.1	4.0

The problems facing the industry can be reduced to contracting milk production, a dwindling domestic market, a continuation of exports at a fairly constant percentage of production to uncertain depressed markets characterised by price instability. Cheese and whole milk powder have relatively better market returns and prospects.

Wholesale prices of butter and cheese in Australia

These prices, in the past, were set by the Australian Dairy Industry Council (ADIC) in association with manufacturers. Since the inception of the Prices Justification Tribunal, the ADIC on behalf of the manufacturers, makes applications for increases in the domestic bulk wholesale (ex-factory) prices.

For further details on the dairying industry see the bulletin *Dairying and Dairy Products* (7209.0), *Milk Statistics*, monthly (7208.0), *Production Bulletin No. 3, Food, Drink and Tobacco* (8359.0), and *Production of Non-Processed Cheese* (8307.0). Year Book No. 61, pages 854-857 contains a detailed description of the various bounties, stabilisation funds, schemes and programs that regulate the industry.

Beekeeping

Although practised as a separate industry, beekeeping is also carried on in conjunction with other branches of farming. A feature of the industry is that it consists mainly of apiarists operating on a large scale with mobile equipment. Some of these apiarists move as far afield as from Victoria to Queensland in an endeavour to provide a continuous supply of nectar from flora suitable for their bees.

NOTE: Statistics in the following table relate, for the years 1974-75 and 1975-76, to apiarists with forty or more hives. Information from 1956-57 to 1973-74 covered the operations of apiarists with five or more hives (six or more in New South Wales), and previous to that year generally all apiarists were included.

BEEKEEPING STATISTICS

Year	Number of apiarists	Number of beehives		Honey produced			Beeswax produced	
		Productive	Total	Quantity	Average production per productive hive	Gross value	Quantity	Gross value
				'000 tonnes	kg	\$'000	tonnes	\$'000
1949-50	7,643	328	509	11.6	35.5	1,577	147	97
1954-55 (a)	7,573	326	457	15.3	46.8	2,930	200	266
1959-60	5,768	362	465	20.7	57.1	4,780	275	310
1964-65	5,768	326	457	19.1	58.5	4,916	249	228
1969-70	5,518	368	482	22.3	60.5	4,427	307	397
1971-72	5,803	384	524	20.2	52.7	6,136	264	320
1972-73	5,926	395	528	18.1	45.7	8,130	261	294
1973-74 (b)	5,779	409	544	21.2	51.8	11,768	322	525
1974-75	2,266	381	491	20.6	54.2	9,292	326	515
1975-76	2,285	377	497	21.4	57.2	10,453	368	633

(a), (b) see Note above.

EXPORTS OF HONEY AND BEESWAX

Year	Honey		Beeswax	
	Quantity	Value f.o.b.	Quantity	Value f.o.b.
	'000 tonnes	\$'000	'000 tonnes	\$'000
1949-50	9.4	1,628	161	107
1954-55	10.6	2,079	118	126
1959-60	6.2	1,090	95	97
1964-65	6.2	1,431	117	112
1969-70	6.7	1,773	113	166
1971-72	8.8	3,622	97	135
1972-73	8.0	4,722	41	56
1973-74	4.7	3,505	234	356
1974-75	9.6	5,783	243	459
1975-76	11.5	6,325	217	399

Honey levy

Under the *Honey Levy Act 1962*, a levy is imposed on domestic sales of honey for the purpose of financing the operations of the Australian Honey Board. The current rate of levy, which became effective on 1 October 1975, is 1.3 cents per kg; it can be increased by regulation to a maximum of 2.2 cents per kilogram.

In April 1974 an export charge of 0.3 cents per kg was introduced under the *Honey Export Charge Act 1973* to provide necessary additional finance for the Honey Board to regulate Australian honey exports and undertake associated promotional and research activities. This levy may be increased by regulation to a maximum of 1 cent per kg.

For further information, see *Beekeeping, Australia* (7214.0).

Eggs and egg products

EGGS AND EGG PRODUCTION: SUPPLY AND UTILISATION
(Eggs in shell weight)

Year	Production(a)		Exports	Processed food(b)	Apparent consumption in Australia as human food	
	Quantity	Gross value			Total	Per head per year
	'000 tonnes	\$ million	'000 tonnes	'000 tonnes	'000 tonnes	kg
1949-50	119.9	51.5	14.2	19.7	86.7	10.8
1954-55	117.3	81.3	12.5	17.8	87.2	9.6
1959-60	118.3	90.5	2.0	16.2	99.7	9.8
1964-65	153.1	94.5	2.9	21.7	128.4	11.4
1969-70	185.3	114.6	3.5	36.5	145.3	11.7
1971-72	201.5	110.9	4.7	46.2	150.3	11.7
1972-73	193.2	117.4	4.5	35.9	152.8	11.7
1973-74	189.0	147.8	2.1	31.5	155.0	11.7
1974-75	197.7	171.7	2.0	38.4	157.3	11.7
1975-76	n.a.	178.5	n.a.	n.a.	n.a.	n.a.

(a) Includes estimates for uncontrolled commercial production and production by self-suppliers. (b) Includes egg products as pulp and powder; also includes wastage.

Commercial egg production rose steeply following the introduction in 1965 of the Council of Egg Marketing Authorities of Australia (CEMA) Stabilisation Plan. However, disposals of eggs-in-the-shell lagged, and exports and stocks of egg pulp packed for export rose substantially. Average net returns to producers fell in 1971-72 to the lowest level since 1950-51. By 1972-73 producer returns rose significantly through improved domestic and export prices, and, as part of a scheme to control commercial egg production, a national hen quota was agreed to by the states in October 1972. It was believed that hen quotas encouraged changes in husbandry practices which boosted average productivity of laying hens.

Egg consumption.

There is a large section of the industry, including eggs produced in areas outside the control of the Egg Board and by backyard poultry keepers, for which production and consumption data are not available. This has been variously estimated at about 40 per cent of recorded production.

Exports

Egg pulp is Australia's major egg export product, with Japan being the most important market. As Japan is aiming at self-sufficiency, the prospects for expanding Australia's exports to Japan are not encouraging. Increased transport costs are likely to affect the export of shell eggs, particularly to the Middle East.

EXPORTS OF EGGS AND EGG PRODUCTS

Year	<i>Eggs not in shell</i>					
	<i>Eggs in shell</i>		<i>Liquid form</i>		<i>Dry</i>	
	Quantity	Value f.o.b.	Quantity	Value f.o.b.	Quantity	Value f.o.b.
	'000 doz	\$'000	tonnes	\$'000	tonnes	\$'000
1949-50	23,047	5,897	7,633	3,812	360	311
1954-55	20,266	7,042	9,751	4,630	441	319
1959-60	2,581	1,012	7,327	3,998	3	13
1964-65	3,327	921	7,765	3,840	72	123
1969-70	3,956	987	17,461	6,211	57	94
1971-72	5,909	1,455	16,581	6,261	303	380
1972-73	5,552	1,470	23,728	9,578	282	458
1973-74	2,203	872	12,974	5,521	401	654
1974-75	2,343	951	11,627	7,229	96	121
1975-76	2,618	1,033	15,858	9,412	58	96

For further details on eggs and egg products see the monthly bulletins *Chicken Hatchings* (7207.0) and *Apparent Consumption of Foodstuffs and Nutrients* (4306.0).

Rural improvements**The Soils of Australia**

Year Book No. 52 contains an article (pages 873-9) on the soils of Australia which deals with the following matters: nature and development of Australian soils, including the agricultural development of soils, and types of Australian soils. A soil map of Australia and illustrations are included on plates 47 to 51 of Year Book No. 52.

Fertilisers

The bulk of Australia's requirements of nitrogenous and phosphatic fertilisers is supplied by the domestic industry. Requirements of potassic fertilisers are primarily imported. Production of nitrogenous fertilisers is based on both Australian natural and refinery gas and imported naphtha feedstocks. Production of phosphatic fertilisers is dependent upon imported phosphate rock but, with the development of domestic rock deposits, rock from these sources will be phased out of local manufacture.

As a result of widespread phosphate deficiency in Australian soils, phosphatic fertilisers account for a large proportion of usage both on crops and pastures.

Principal crops and pastures fertilised, etc.

Information regarding the principal crop and pasture areas treated with artificial fertilisers, and the quantity of artificial fertilisers (superphosphate, nitrates, etc.) used, is given in the following tables.

ARTIFICIAL FERTILISERS: AREA AND USAGE

Year	Area fertilised	Super-phosphate used	Nitrogenous fertilisers used	Other fertilisers used
	'000 ha	'000 tonnes	'000 tonnes	'000 tonnes
1949-50	11,316	1,328	149	
1954-55	14,092	1,735	175	
1959-60	17,262	2,127	234	
1964-65	24,542	3,224	379	
1969-70	28,133	3,780	662	
1971-72	24,149	3,160	259	367
1972-73	26,076	3,522	276	392
1973-74	29,529	4,110	367	360
1974-75	24,858	3,367	335	360
1975-76	18,976	2,222	353	298

Since the Second World War there has been a great expansion of the area of sown pasture accompanied by an increased use of fertilisers. New pasture varieties (including tropical species) have been developed, and nutrient or trace element deficiencies in soils identified.

Up to 90 per cent of all artificial fertilisers used in Australia are made up of superphosphate, over half of which is used on pastures, mainly in areas with moderate to good rainfall. Large quantities are also used on cereal crops. The increased use of fertilisers, combined with improved grass and crop species, and more scientific methods of crop and pasture rotation, has probably succeeded in reversing the declining trend in the fertility of Australian soils, at least in the more developed regions.

SUPERPHOSPHATE USAGE

<i>Selected crops and pastures</i>						
<i>Year</i>	<i>Sown and native pastures</i>	<i>Lucerne</i>	<i>Wheat</i>	<i>Other cereals</i>	<i>Sugar cane</i>	<i>Total</i>
AREA FERTILISED ('000 hectares)						
1949-50	5,269		5,610	1,446	100	11,316
1954-55	7,950		4,379	2,886	130	14,092
1959-60	9,919		4,112	2,546	138	17,262
1964-65	15,227		6,044	2,580	215	24,542
1969-70	16,211		7,623	3,381	228	28,133
1971-72	13,296	483	5,619	4,009	234	24,149
1972-73	15,256	497	6,071	3,535	240	26,076
1973-74	17,994	495	7,147	3,258	236	29,529
1974-75	14,484	639	6,358	2,678	248	24,858
1975-76	8,568	346	6,276	3,092	267	18,976
SUPERPHOSPHATE USED ('000 tonnes)						
1949-50	707		562	172	6	1,328
1954-55	1,069		444	345	13	1,735
1959-60	1,321		406	289	12	2,127
1964-65	2,170		648	308	11	3,224
1969-70	2,353		867	413	18	3,780
1971-72	1,896	77	623	456	19	3,160
1972-73	2,233	80	688	411	20	3,522
1973-74	2,709	89	804	402	21	4,110
1974-75	2,077	113	728	326	21	3,367
1975-76	1,031	53	665	354	26	2,222

Pasture improvement

An article on pasture improvement, which includes notes on indigenous and introduced species of grasses and traces the development of pasture research in Australia, appears on pages 1001-1002 of Year Book No. 49.

Soil conservation

Year Book No. 49 contains an article (pages 1003, 1004) on soil conservation which deals with the following matters: land use and soil erosion, agents of erosion, prevention and control, and the activities of various Federal and State authorities which promote and co-ordinate research into the problems of soil erosion and the initiation of preventive measures.

The chief sources of Australia's supplies of natural phosphate are Nauru, Christmas Island (Indian Ocean), Gilbert and Ellice Islands and Morocco. Sodium nitrate is obtained chiefly from Chile and the U.S.A.

PRODUCTION AND IMPORTS OF FERTILISERS

Item	1971-72	1972-73	1973-74	1974-75	1975-76
PRODUCTION					
Superphosphate (a) . . . '000 tonnes		4,962	5,288	3,092	n.a.
Mixed chemical fertilisers (including complete manures) . '000 tonnes		1,039	1,503	1,049	n.a.
Leaf and foliage type fertilisers (including dry and liquid form) . . . tonnes	n.a.	394	300	368	n.a.
Manures (without added chemical fertilisers) (b) . . tonnes		12,218	18,864	9,554	n.a.
IMPORTS					
Crude fertilisers (mainly natural phosphate) . . . '000 tonnes	1,658	2,285	3,113	2,651	1,462
Value \$m	18.4	22.9	35.5	74.6	53.7
Manufactured, mineral or chemical fertilisers—					
Nitrogenous(c) . . . '000 tonnes	13	13	7	12	8
Value \$m	0.8	0.8	0.5	2.5	0.6
Potassic(d) . . . '000 tonnes	147	165	183	211	101
Value \$m	4.2	4.7	5.2	9.5	6.1
Other(e) . . . '000 tonnes	18	8	7	5	4
Value \$m	1.3	0.7	0.9	1.1	1.1

(a) Includes double and triple superphosphate and ammonium phosphate in terms of single superphosphate. (b) Blood, bone and/or offal. (c) Mainly ammonium nitrate, ammonium sulphate, calcium ammonium nitrate, sodium nitrate and urea containing in the dry state more than 45 per cent by weight of nitrogen. (d) Mainly potassium chloride and potassium sulphate. (e) Includes phosphatic fertilisers and N.P.K. complete fertilisers.

NOTE: Production data for 1971-72 is not available as no Manufacturing Census was held in that year.

Aerial agriculture

Extensive use is made of aircraft for top-dressing and seeding, for spraying and dusting of crops and pastures and for pest and vermin extermination.

AERIAL AGRICULTURE

Year ended 31 March	Area ('000 hectares)			Materials used ('000 tonnes)		Total flying time '000 hours
	Top dressed and seeded	Sprayed	Total(a)	Super- phosphate	Seed	
1960	1,050	389	1,485	127.8	0.3	n.a.
1965	5,725	978	6,734	666.6	1.6	108.8
1970	4,156	1,507	6,017	559.8	1.3	102.6
1973	3,359	1,355	4,788	446.2	1.6	89.4
1974	4,870	1,870	6,776	546.0	2.5	93.3
1975	3,378	1,544	5,080	473.8	4.8	89.2
1976	1,164	2,059	3,314	105.2	3.5	53.8
1977	1,381	1,624	3,064	151.5	2.5	49.6

(a) Includes other types of treatment (rabbit baiting, etc.).

Irrigation on rural holdings

Irrigation is one of the factors by which rural industry is further developed. The variability in stream flow and annual rainfall means that successful irrigation of crops and pastures is dependent on storage. Ground water supplies are also used in areas where the quantity is adequate and the quality is suitable. The area of land irrigated (nearly 1.5 million hectares in 1975-76) forms about 10 per cent of the total area under crops and only 0.3 per cent of the total area of rural holdings.

CROPS AND PASTURES: AREA IRRIGATED
(^{'000} hectares)

Year	Sown and native pastures (including lucerne)	Cereals for all purposes	Sugar cane	Vegetables for human consumption	Fruit	Grapevines	All other	Total	Percent of total crops
1949-50	277.9	66.3	19.8	24.7	60.1		145.9	594.8	7.1
1954-55	441.4	.	25.2	26.6	67.1		143.7	704.0	7.8
1959-60	559.5	(a)	25.2	29.1		72.0	161.4	847.3	8.0
1964-65	664.2		48.8	38.1	51.9	37.0	329.9	1,169.9	8.3
1969-70	868.8		61.2	68.9	70.5	33.5	305.1	1,476.9	9.4
1971-72	1,085.7	252.9	58.4	67.9	61.0	44.7	92.8	1,663.4	11.7
1972-73	1,099.7	250.8	70.9	64.9	59.5	44.9	98.0	1,688.6	11.8
1973-74	973.1	177.4	66.2	59.2	54.6	44.3	85.8	1,460.6	9.7
1974-75	955.1	184.4	74.0	67.1	56.0	45.0	85.6	1,467.3	10.6
1975-76	920.4	252.7	73.1	63.4	52.9	45.6	66.6	1,474.9	10.1

(a) Included in 'All other'.

Sources of irrigation water

Most irrigation areas in Australia are supplied with water by a State authority, although there are also private schemes operating. The major reasons for expansion of the area irrigated have been public investment in the building of dams and major reservoirs and private investment by farmers in irrigation plant and earthworks. Sources of irrigation water are collected irregularly. The data may differ slightly from the above table.

SOURCES OF IRRIGATION WATER: 1971-72 AND 1974-75

(^{'000} hectares)

State	Surface water						Total
	Other(a)						
	State irrigation schemes	Direct from rivers creeks, lakes etc	From farm dams	Underground water supply(b)	Town or country reticulated water supply		
1971-72							
New South Wales	436.3	239.9	12.4	58.0	1.2	747.8	
Victoria	500.8	67.0	18.8	14.2	3.3	604.2	
Queensland	21.7	43.6	12.5	105.4	0.3	183.6	
South Australia	21.7	18.7	2.4	32.7	0.6	76.1	
Western Australia	18.0	3.7	5.1	4.3	0.1	31.3	
Tasmania	n.a.	9.7	9.8	0.2	0.1	19.9	
Australia	998.6	382.5	61.1	214.9	5.7	1,662.7	
1974-75							
New South Wales	264.1	226.3	12.5	33.9	1.6	538.4	
Victoria	421.9	68.1	54.1	30.6	18.5	593.1	
Queensland	25.1	48.4	14.2	109.3	0.1	197.1	
South Australia	20.6	18.9	3.0	35.6	0.8	78.9	
Western Australia	12.9	4.2	5.9	4.5	0.6	28.1	
Tasmania	0.8	9.9	12.3	0.4	0.2	23.7	
Australia	745.4	375.9	101.9	214.4	20.1	1,457.8	

(a) Includes private group schemes. (b) E.g. bore, well, spear.

Agricultural machinery on rural holdings

Statistics on the type of agricultural machinery on rural holdings were published in early issues of the Year Book. Additional information was published in the bulletin *Rural Land Use, Improvements, Agricultural Machinery and Labour, 1974-75* (7103.0). Details of the sales of new tractors for agricultural purposes are given in the quarterly publication *Receipts, Sales and Stocks of New Tractors* (8507.0).

Rural employment

Employment on rural holdings

Prior to 1976 data on employment collected at the annual Agricultural Census differentiated between permanent full-time employees and temporary employees. Full-time workers excluded casual or seasonal workers and other persons working only part-time. Casual or seasonal workers were shown as temporary employees.

In the past it has been difficult to maintain comparability of employment on holdings from year to year because of the changing number of lessees and share farmers and because of the tendency of many farmers to include part-time family helpers as full-time workers in their returns.

Since the second World War there has been a decline in the percentage of people living in rural areas due, in part, to a rising standard of living accompanying the introduction of new techniques and increasing use of capital equipment, fuel, fertilisers, and pesticides. As a result, a smaller rural labour force is now producing a larger output of farm products.

RURAL EMPLOYMENT: MALES WORKING ON RURAL HOLDINGS

(Source: annual Agricultural Census)

31 March	Males, permanent ('000)				Total	Persons working more than 15 hours a week ('000)		
	Owners, lessees or share-farmers	Relatives, etc.	Employees (b)			Males	Females	Persons
1950	235.3	25.9	90.9	352.1	n.a.	n.a.	n.a.	
1955	240.9	23.5	91.5	355.9	n.a.	n.a.	n.a.	
1960	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
1965	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
1970	201.5	9.9	75.8	287.2	n.a.	n.a.	n.a.	
1972	194.9	8.8	65.3	269.0	n.a.	n.a.	n.a.	
1973	189.3	7.8	62.6	259.6	n.a.	n.a.	n.a.	
1974	185.9	7.3	62.2	255.4	n.a.	n.a.	n.a.	
1975	181.6	7.0	55.0	243.6	n.a.	n.a.	n.a.	
1976	n.a.	n.a.	n.a.	n.a.	256.0	80.3	336.3	

EMPLOYMENT IN AGRICULTURE

Month of May	Males	Married women	All females	Persons
1965	378.5	39.1	54.4	432.9
1970	348.0	49.9	64.1	412.1
1973	305.1	54.7	65.3	370.4
1974	305.9	48.9	59.9	365.8
1975	297.6	52.1	62.4	360.0
1976	284.2	57.1	67.8	352.0
1977	290.2	63.4	75.2	365.4

Source: Quarterly population survey conducted by the ABS throughout Australia. For further details see *The Labour Force* (6203.0, 6204.0).

Regulation of Australian agricultural industries

Year Book No. 61, pages 837-57, contains a summary of the means by which agricultural industries are assisted and regulated. It is not intended as a comprehensive statement of all the consultative and legislative assistance and control measures that exist, but rather as a description of the way in which these processes affect the crops, livestock and livestock products referred to earlier in this chapter.

Many of the processes are also referred to in this Year Book in the relevant section of the chapter. For details on the operations of the Australian Agricultural Council, the Rural Reconstruction Scheme and the agricultural extension services provided by the States' Departments of Agriculture see Year Book No. 61, pages 837-839.