

## **CHAPTER 13**

# **AGRICULTURAL INDUSTRIES**



## CHAPTER 13

### AGRICULTURAL INDUSTRIES

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 values at constant prices and average unit 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 43 per cent of the total value of exports in 1978–79.

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

From 1976–77, data for an establishment has been included in these statistics if the legal entity operating the establishment had an Estimated Value of Agricultural Operations (EVAO) of \$1,500 or more. Details of the method used in the calculation of EVAO are contained in the publication *Agricultural Sector: Structure of Operating Units, Australia* (7102.0).

For 1975–76, the EVAO criterion was the same as for later years, but establishments with areas of 10 hectares or more were also included, even if EVAO was less than \$1,500. Prior to 1975–76, all agricultural establishments with areas of one hectare or more were included. In addition, establishments 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 establishments. 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 produce estimates of the financial performance of the agricultural sector and its component industries.

### 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 1977-78. 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 (ASIC)* (1201.0 and 1202.0). This publication provides details of the methodology used in determining the industry class of an economic unit.
- *Estimated Value of Agricultural 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 publication *Agricultural Sector: Structure of Operating Units, Australia* (7102.0).

NUMBER OF UNITS BY TYPE OF UNIT, 1977-78

<i>Unit</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>Australia</i>
Agricultural establishments . . . . .	50,852	48,104	33,947	19,994	16,871	6,016	176,155
Agricultural enterprises . . . . .	48,806	46,626	32,185	19,236	15,756	5,793	169,143

**AGRICULTURAL ENTERPRISES BY INDUSTRY AND ESTIMATED VALUE OF OPERATIONS: 1977-78**

*Estimated value of operations (\$'000)*

<i>Industry of enterprise</i>	2-9	10-19	20-29	30-39	40-49	50-59	60-74	75-99	100-149	150-199	200+	Total
Cereal grains . . . . .	1,838	2,451	2,495	2,205	1,640	1,345	1,345	1,207	994	332	308	16,160
Oilseeds n.e.c. . . . .	189	210	140	84	58	38	40	47	51	18	25	900
Sheep-cereal grains . . . . .	1,161	3,394	4,269	3,684	2,743	2,059	2,335	2,059	1,589	566	407	24,266
Meat cattle-cereal grains . . . . .	1,093	1,151	857	557	342	258	245	212	150	32	45	4,942
Sheep-meat cattle . . . . .	2,975	3,159	2,128	1,445	959	585	605	522	386	119	148	13,031
Sheep . . . . .	4,707	4,089	2,960	2,069	1,321	925	902	841	559	183	165	18,721
Meat cattle . . . . .	18,791	5,360	2,038	964	568	335	355	278	195	73	133	29,090
Milk cattle . . . . .	3,105	8,126	6,576	2,822	1,252	625	406	240	124	29	29	23,334
Pigs . . . . .	1,084	754	505	349	254	178	173	147	131	40	75	3,690
Poultry . . . . .	214	192	211	166	141	112	134	159	185	93	250	1,857
Fruit . . . . .	4,098	3,725	2,062	1,248	778	466	403	323	244	91	94	13,532
Vegetables . . . . .	1,761	1,702	1,142	751	527	378	352	339	317	139	200	7,608
Multi-purpose . . . . .	90	95	77	64	50	24	24	22	12	6	5	469
Sugar cane . . . . .	101	235	439	877	1,055	841	913	893	709	212	175	6,450
Peanuts . . . . .	15	70	79	58	54	28	28	26	6	3	1	368
Tobacco . . . . .	2	32	131	247	189	116	101	86	50	12	15	981
Cotton . . . . .	-	4	3	3	3	7	6	12	22	14	60	134
Nurseries and specialised horticultural activities (except forest nurseries) . . . . .	426	285	142	170	75	35	68	63	50	23	57	1,394
Agriculture n.e.c. . . . .	1,396	405	144	69	44	35	19	41	28	14	21	2,216
<b>Total . . . . .</b>	<b>43,046</b>	<b>35,439</b>	<b>26,398</b>	<b>17,832</b>	<b>12,053</b>	<b>8,390</b>	<b>8,454</b>	<b>7,517</b>	<b>5,802</b>	<b>1,999</b>	<b>2,213</b>	<b>169,143</b>

**AGRICULTURAL ENTERPRISES BY INDUSTRY, LEGAL STATUS AND ESTIMATED VALUE OF OPERATIONS: 1977-78**

*Legal status*

<i>Industry of enterprise—</i>	<i>Legal status</i>						<i>Total enterprises</i>
	<i>Sole operator</i>	<i>Family partnership</i>	<i>Other partnership</i>	<i>Private incorporated company</i>	<i>Public incorporated company</i>	<i>Other(a)</i>	
Cereal grains . . . . .	4,449	10,297	407	593	14	400	16,160
Oilseeds (n.e.c.) . . . . .	264	571	31	22	-	12	900
Sheep-cereal grains . . . . .	5,109	17,158	501	954	19	525	24,266
Meat cattle-cereal grains . . . . .	1,516	2,878	144	293	6	105	4,942
Sheep-meat cattle . . . . .	4,479	7,012	419	707	21	393	13,031
Sheep . . . . .	6,716	10,119	511	797	22	556	18,721
Meat cattle . . . . .	12,645	13,348	830	1,467	44	756	29,090
Milk cattle . . . . .	7,898	14,139	395	438	19	445	23,334
Pigs . . . . .	1,219	2,259	72	98	3	39	3,690
Poultry . . . . .	535	1,114	53	133	4	18	1,857
Fruit . . . . .	4,693	8,120	256	330	8	125	13,532
Vegetables . . . . .	2,682	4,521	146	189	6	64	7,608
Multi-purpose . . . . .	148	294	7	17	1	2	469
Sugar cane . . . . .	1,442	4,644	122	126	1	115	6,450
Peanuts . . . . .	99	251	6	5	-	7	368
Tobacco . . . . .	257	656	32	13	2	21	981
Cotton . . . . .	20	76	11	25	-	2	134
Nurseries and specialised horticultural activities (except forest nurseries) . . . . .	446	714	80	141	4	9	1,394
Agriculture n.e.c. . . . .	1,055	998	60	74	2	27	2,216
<b>Total . . . . .</b>	<b>55,672</b>	<b>99,169</b>	<b>4,083</b>	<b>6,422</b>	<b>176</b>	<b>3,621</b>	<b>169,143</b>
<b>Estimated value of operations (\$'000)—</b>							
2-9 . . . . .	21,811	18,420	897	924	28	966	43,046
10-19 . . . . .	14,183	19,013	683	737	23	800	35,439
20-29 . . . . .	8,034	16,632	555	622	15	540	26,398
30-39 . . . . .	4,479	11,993	398	571	19	372	17,832
40-49 . . . . .	2,495	8,488	304	528	10	228	12,053
50-59 . . . . .	1,509	5,988	231	467	13	182	8,390
60-74 . . . . .	1,243	6,209	290	530	14	168	8,454
75-99 . . . . .	951	5,592	235	572	11	156	7,517
100-149 . . . . .	566	4,243	252	635	6	100	5,802
150-199 . . . . .	190	1,351	101	309	8	40	1,999
200+ . . . . .	211	1,240	137	527	29	69	2,213
<b>Total, all size groups . . . . .</b>	<b>55,672</b>	<b>99,169</b>	<b>4,083</b>	<b>6,422</b>	<b>176</b>	<b>3,621</b>	<b>169,143</b>

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

**AGRICULTURAL ESTABLISHMENTS OPERATED BY AGRICULTURAL  
AND NON-AGRICULTURAL ENTERPRISES BY INDUSTRY OF  
ESTABLISHMENT: 1977-78**

<i>Industry of establishment</i>	<i>Operated by agricultural enterprises</i>	<i>Operated by non- agricultural enterprises</i>
Cereal grains	16,582	175
Oilseeds n.e.c.	921	26
Sheep-cereal grains	24,748	154
Meat cattle-cereal grains	5,054	98
Sheep-meat cattle	13,310	230
Sheep	19,250	219
Meat cattle	30,553	1,185
Milk cattle	23,603	155
Pigs	3,732	103
Poultry	1,878	61
Fruit	13,625	315
Vegetables	7,671	84
Multi-purpose	484	9
Sugar cane	6,568	49
Peanuts	378	4
Tobacco	990	4
Cotton	139	-
Nurseries and specialised horticultural activities (except forest nurseries)	1,416	49
Agriculture n.e.c.	2,265	68
<b>Total</b>	<b>173,167</b>	<b>2,988</b>

**AGRICULTURAL ESTABLISHMENTS OPERATED BY AGRICULTURAL ENTERPRISES BY INDUSTRY OF  
ENTERPRISE AND INDUSTRY OF ESTABLISHMENT: 1977-78**

<i>Industry of enterprise</i>	<i>Industry of establishment</i>														<i>Total estab- lish- ments</i>
	<i>Cereal 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	16,330	7	97	21	28	53	111	7	12	1	2	3	2	10	16,684
Oilseeds n.e.c.	6	904	1	3	-	1	8	-	-	-	1	-	-	-	924
Sheep-cereal grains	111	-	24,547	17	52	147	69	8	5	-	4	1	1	7	24,969
Meat cattle-cereal grains	24	-	8	4,958	11	9	91	3	2	-	1	2	1	3	5,113
Sheep-meat cattle	9	-	26	12	13,109	91	136	7	2	-	1	-	-	4	13,397
Sheep	26	1	41	6	62	18,903	73	5	-	-	5	-	-	4	19,126
Meat cattle	12	3	6	20	27	29,715	29	9	1	3	5	4	23	29,884	
Milk cattle	28	-	7	4	6	4	146	23,525	2	-	5	1	2	4	23,734
Pigs	9	-	4	1	2	-	17	3	3,696	1	-	-	1	2	3,736
Poultry	7	-	3	1	-	1	15	4	2	1,875	2	-	-	1	1,911
Fruit	4	-	6	1	4	7	34	2	-	-	13,590	3	-	6	13,657
Vegetables	5	2	2	3	3	5	33	3	2	-	5	7,652	3	3	7,721
Multi-purpose	2	-	-	-	1	-	4	1	-	-	2	2	467	1	480
Agriculture n.e.c. (a)	9	4	-	7	5	2	101	6	-	-	5	1	3	11,688	11,831
<b>Total</b>	<b>16,582</b>	<b>921</b>	<b>24,748</b>	<b>5,054</b>	<b>13,310</b>	<b>19,250</b>	<b>30,553</b>	<b>23,603</b>	<b>3,732</b>	<b>1,878</b>	<b>13,625</b>	<b>7,671</b>	<b>484</b>	<b>11,756</b>	<b>173,167</b>

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

### Financial statistics

Estimates of selected financial aggregates of agricultural enterprises are shown in the following tables. The notation 'S.E.%' appearing in some of the tables stands 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. A more detailed explanation of standard errors and other terms used in the tables, as well as more detailed statistics, is given in the publication *Agricultural Sector: Financial Statistics, Australia (7507.0)*.

ESTIMATES OF SELECTED FINANCIAL AGGREGATES OF AGRICULTURAL ENTERPRISES, 1973-74 TO 1977-78

Item	1973-74(a)		1974-75		1975-76		1976-77		1977-78	
	\$m	S.E. %	\$m	S.E. %	\$m	S.E. %	\$m	S.E. %	\$m	S.E. %
Sales from crops	1,599.6	3	2,345.5	2	2,545.2	3	2,900.4	2	2,281.5	2
Sales from livestock	2,079.8	3	1,099.7	5	1,103.5	3	1,404.3	2	1,677.9	2
Sales from livestock products	1,661.5	3	1,382.7	2	1,461.4	3	1,632.4	2	1,682.0	1
Turnover	5,319.3	2	4,985.8	2	5,237.1	2	6,133.6	1	5,874.2	1
Purchases and selected expenses	2,550.4	2	2,278.1	2	2,514.4	3	2,690.4	1	2,838.7	1
Value added	3,114.5	n.a.	2,897.3	3	2,783.1	5	3,310.0	1	2,869.9	1
Adjusted value added	2,785.4	n.a.	2,576.0	4	2,449.1	2	2,924.6	2	2,472.6	2
Gross operating surplus	2,356.9	n.a.	2,083.8	4	1,907.4	5	2,401.7	2	1,896.4	2
Cash operating surplus	1,783.7	n.a.	1,658.7	3	1,594.1	3	2,291.8	2	1,801.6	2
Total net capital expenditure	643.8	4	620.0	4	801.7	4	820.9	3	772.7	3
Gross indebtedness	2,921.6	4	2,972.5	4	3,422.2	4	3,397.0	3	3,395.8	3

(a) Not strictly comparable with later years—see Explanatory Notes for the publication *Estimates of Turnover, Expenditure and Cash Operating Surplus of Agricultural Producers, Australia, 1971-72 to 1973-74* (7506.0).

ESTIMATES OF SELECTED FINANCIAL AGGREGATES OF AGRICULTURAL ENTERPRISES, 1977-78 (\$ million)

Item	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Aust.(a)
Sales from crops	658.5	341.8	697.9	187.0	342.7	39.2	2,281.5
Sales from livestock	568.6	346.9	286.7	156.0	200.3	57.6	1,677.9
Sales from livestock products	499.4	455.5	189.9	170.4	280.8	65.1	1,682.0
Turnover	1,797.9	1,190.6	1,229.6	530.3	854.7	169.9	5,874.2
Purchases and selected expenses	866.7	591.5	553.3	266.9	426.9	82.4	2,838.7
Value added	863.9	572.6	664.5	234.7	399.9	87.2	2,869.9
Adjusted value added	727.7	491.3	587.0	198.8	350.6	77.4	2,472.6
Gross operating surplus	543.9	397.4	446.7	142.6	293.6	59.2	1,896.4
Cash operating surplus	534.7	365.4	406.0	149.0	287.7	49.7	1,801.6
Total net capital expenditure	217.1	151.2	172.3	69.0	133.7	19.4	772.7
Gross indebtedness	1,002.7	668.6	678.5	323.5	552.4	101.8	3,395.8

(a) Includes Northern Territory and Australian Capital Territory and estimates for multi-state enterprises.

ESTIMATES OF SELECTED FINANCIAL AGGREGATES OF AGRICULTURAL ENTERPRISES, BY INDUSTRY (ASIC)(a): 1977-78

(\$ 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 0118
Sales from crops	481.9	510.2	57.9	14.7	48.9	22.7	29.0
Sales from livestock	127.4	282.3	72.6	294.9	243.8	370.1	98.0
Sales from livestock products	62.4	355.3	8.5	210.9	379.4	20.9	454.8
Turnover	696.4	1,181.1	149.1	544.4	696.7	451.9	597.7
Purchases and selected expenses	332.9	574.7	73.7	256.9	332.6	247.8	263.7
Value added	351.0	593.8	61.6	235.5	334.9	174.1	321.7
Adjusted value added	295.3	515.0	47.2	193.9	287.9	127.7	288.1
Gross operating surplus	245.5	433.2	31.8	126.5	212.3	71.9	251.0
Cash operating surplus	221.5	403.5	35.7	150.4	211.3	67.0	232.4
Total net capital expenditure	129.9	176.1	25.4	50.7	61.8	56.3	71.8
Gross indebtedness	470.5	718.2	146.9	314.8	385.2	410.4	332.1

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	11.5	3.7	333.2	228.0	9.3	530.6	2,281.5
Sales from livestock	111.5	38.9	5.5	18.1	3.4	11.5	1,677.9
Sales from livestock products	11.0	156.1	2.2	6.2	1.7	12.6	1,682.0
Turnover	140.5	206.6	356.6	259.2	15.9	578.0	5,874.2
Purchases and selected expenses	92.6	135.9	153.2	123.0	8.5	243.4	2,838.7
Value added	46.8	70.6	204.7	134.0	6.9	334.3	2,869.9
Adjusted value added	39.7	62.5	187.6	120.4	5.9	301.5	2,472.6
Gross operating surplus	30.3	42.7	124.9	87.5	3.4	235.5	1,896.4
Cash operating surplus	25.3	39.4	114.7	79.8	3.5	217.2	1,801.6
Total net capital expenditure	16.0	21.3	42.7	33.0	2.6	85.1	772.7
Gross indebtedness	65.5	54.2	135.3	117.4	6.2	239.2	3,395.8

(a) Australian Standard Industrial Classification (Interim Revised Sub-Division 01: Agriculture, 1974).

## Value of agricultural commodities produced and indexes of values at constant prices and average unit 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* is the value placed on commodities at the place of production and is ascertained by deducting marketing costs from the gross value.

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

*Indexes of values at constant prices* 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: 1977-78

	Gross value of agricultural commodities produced	Marketing costs	Local value of commodities produced	Indexes of Agricultural Commodities produced and output (Base year: 1974-75 = 1000)	
				Value of constant prices	Average unit gross value
	\$m	\$m	\$m		
Crops . . . . .	3,037.7	430.7	2606.9	932	1001
Livestock slaughterings and other disposals . . . . .	1,969.7	189.1	1,780.6	1312	1468
Livestock products . . . . .	1,970.6	133.3	1,837.4	870	1372
<b>Total agriculture</b> . . . . .	<b>6,978.0</b>	<b>753.1</b>	<b>6,224.9</b>	<b>(a)1012</b>	<b>(a)1187</b>

(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, Australia* (7501.0) and *Value of Agricultural Commodities Produced, Second Estimates, Australia* (7502.0). A final publication, *Value of Agricultural Commodities Produced, Australia* (7503.0), contains Indexes of Values at Constant Prices and Average Unit Values.

### Indexes of Agricultural Commodities Produced

The indexes of values at constant prices of agricultural commodities produced and output are measures of change in value after the direct effects of price changes have been eliminated. The average unit value indexes measure changes in the average unit gross values of the included commodities. They are not price indexes in the generally accepted sense because they measure not only the effects of price changes but reflect also the effects of variations in the quality and composition of the commodities.

Both indexes, while consistent in scope with those of previous years, have been based on revised weights and a reference base of 1974-75 = 1000. The indexes of values at constant prices are weighted by the average unit values for the three years ended 1975-76 and the unit value indexes are weighted by the average of quantities produced during the three years ended 1975-76.

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, Australia* (7503.0).



GROSS VALUE OF AGRICULTURAL COMMODITIES 1973-74 TO 1978-79  
(Sheep and wool in perspective)

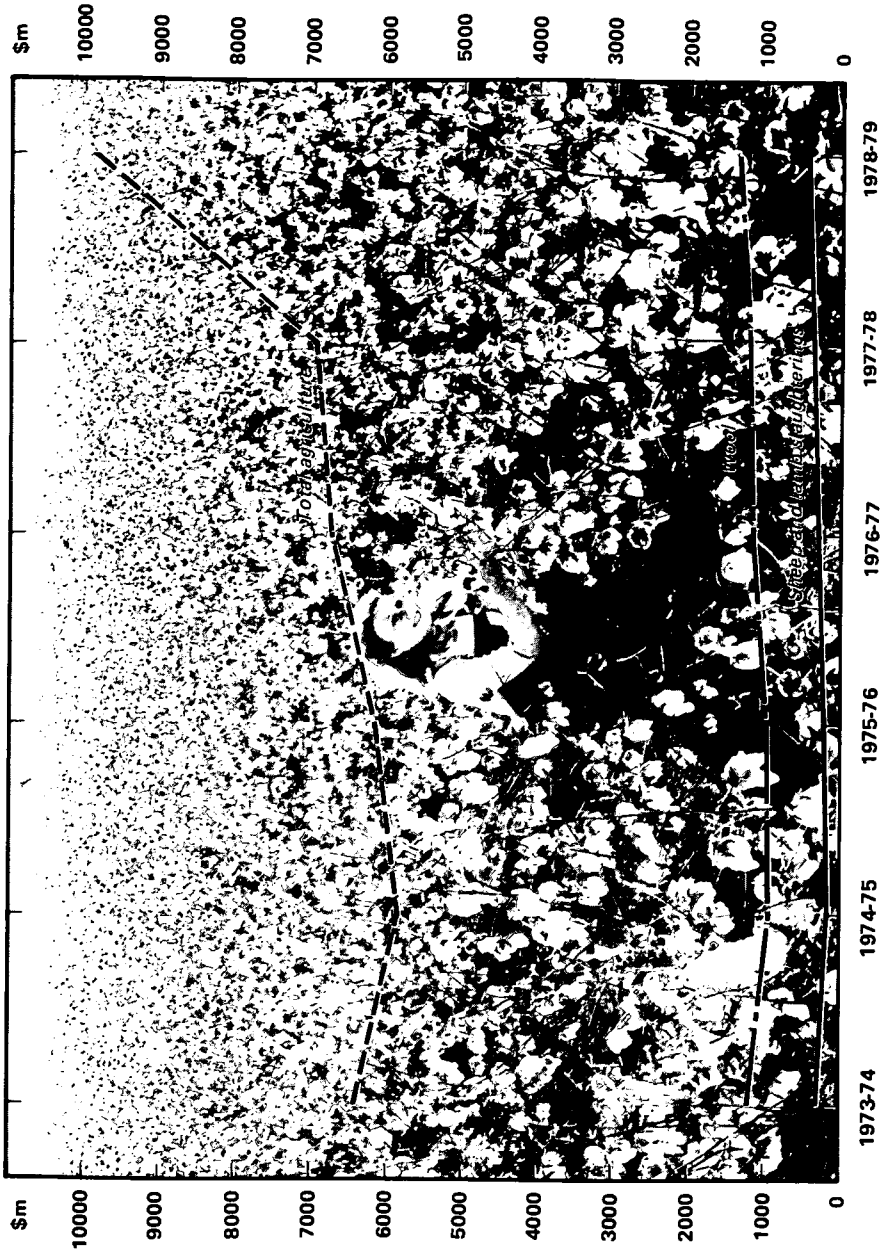


PLATE 35

## GROSS VALUE OF AGRICULTURAL COMMODITIES

(\$ million)

	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79 <sup>a</sup>
<b>Crops—</b>						
Wheat for grain . . . . .	1,312	1,256	1,249	1,051	934	2,141
Barley for grain . . . . .	190	257	314	295	205	329
Sugar cane cut for crushing . . . . .	219	491	436	472	421	385
Fruit . . . . .	217	267	269	291	320	370
Grapes . . . . .	83	101	102	129	142	148
Vegetables . . . . .	240	256	274	290	322	371
Pasture and grasses . . . . .	178	150	129	148	119	805
Other crops . . . . .	420	427	475	510	575	
<i>Total crops</i> . . . . .	<i>2,859</i>	<i>3,205</i>	<i>3,248</i>	<i>3,186</i>	<i>3,038</i>	<i>4,549</i>
<b>Livestock slaughterings and other disposals(a)—</b>						
Cattle and calves . . . . .	1,069	523	706	1,011	1,177	2,155
Sheep and lambs . . . . .	321	178	204	299	360	444
Pigs . . . . .	173	178	183	197	213	244
Poultry . . . . .	132	140	153	178	220	256
<i>Total</i> . . . . .	<i>1,696</i>	<i>1,019</i>	<i>1,246</i>	<i>1,686</i>	<i>1,970</i>	<i>3,099</i>
<b>Livestock products—</b>						
Wool . . . . .	1,229	953	1,000	1,173	1,206	1,354
Wholemilk . . . . .	468	519	490	521	549	669
Eggs . . . . .	148	172	179	182	201	205
Honey and beeswax . . . . .	12	10	11	9	15	16
<i>Total</i> . . . . .	<i>1,857</i>	<i>1,653</i>	<i>1,680</i>	<i>1,885</i>	<i>1,971</i>	<i>2,244</i>
<b>Total agriculture</b> . . . . .	<b>6,412</b>	<b>5,877</b>	<b>6,174</b>	<b>6,757</b>	<b>6,978</b>	<b>9,892</b>

(a) Includes adjustment for net exports of live animals.

## INDEXES OF VALUES AT CONSTANT PRICES OF AGRICULTURAL COMMODITIES PRODUCED AND OUTPUT

(Base year: 1974-75 = 1000)

	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78
<b>Crops—</b>						
Barley for grain . . . . .	687	953	1000	1264	1132	948
Oats for grain . . . . .	842	1267	1000	1305	1227	1133
Wheat for grain . . . . .	554	1050	1000	1060	1035	828
Other grain cereals . . . . .	1016	1113	1000	1185	1183	988
Sugar cane(a) . . . . .	930	945	1000	1078	1144	1150
Fruit and nuts . . . . .	1078	934	1000	884	870	827
Grapes . . . . .	856	769	1000	986	1154	1045
Vegetables . . . . .	959	839	1000	948	1031	1082
All other crops(b) . . . . .	923	1082	1000	869	874	918
<i>Total</i> . . . . .	<i>775</i>	<i>1002</i>	<i>1000</i>	<i>1036</i>	<i>1035</i>	<i>932</i>
<b>Livestock slaughterings and other disposals—</b>						
Cattle and calves(c) . . . . .	938	854	1000	1192	1288	1415
Sheep and lambs . . . . .	1224	871	1000	1083	1107	1116
Pigs . . . . .	1349	1205	1000	993	1057	1137
Poultry . . . . .	849	1021	1000	1078	1151	1297
<i>Total(d)</i> . . . . .	<i>1034</i>	<i>920</i>	<i>1000</i>	<i>1134</i>	<i>1210</i>	<i>1312</i>
<b>Livestock products—</b>						
Wool . . . . .	927	883	1000	951	879	851
Wholemilk . . . . .	1107	1064	1000	978	956	888
Eggs . . . . .	1036	984	1000	989	898	949
<i>Total(e)</i> . . . . .	<i>985</i>	<i>942</i>	<i>1000</i>	<i>962</i>	<i>900</i>	<i>870</i>
<b>Agricultural output(f)</b> . . . . .	<b>877</b>	<b>950</b>	<b>1000</b>	<b>1043</b>	<b>1045</b>	<b>1012</b>

(a) Cut for crushing and planting. (b) Includes pastures and grasses; excludes crops for green feed and silage. (c) Includes dairy cattle slaughtered. (d) Component series based on carcass weight. (e) Includes honey and beeswax. (f) Excludes seed, feed and fodder consumed or retained on farms.

INDEXES OF AVERAGE UNIT VALUE OF AGRICULTURAL COMMODITIES  
PRODUCED AND OUTPUT

(Base year: 1974-75 = 1000)

	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78
<b>Crops—</b>						
Barley for grain . . . . .	515	778	1000	967	1014	842
Oats for grain . . . . .	628	885	1000	999	1018	1023
Wheat for grain . . . . .	502	994	1000	939	813	899
Other grain cereals . . . . .	740	1018	1000	1034	1072	1119
Sugar cane(a) . . . . .	506	472	1000	825	842	745
Fruit and nuts . . . . .	785	870	1000	1142	1252	1444
Grapes . . . . .	751	1073	1000	1027	1098	1347
Vegetables . . . . .	731	1111	1000	1125	1162	1163
All other crops(b) . . . . .	873	922	1000	1076	1231	1394
<i>Total</i> . . . . .	<i>597</i>	<i>884</i>	<i>1000</i>	<i>972</i>	<i>956</i>	<i>1001</i>
<b>Livestock slaughterings and other disposals—</b>						
Cattle and calves(c) . . . . .	2083	2393	1000	1136	1506	1595
Sheep and lambs . . . . .	1280	2058	1000	1013	1462	1740
Pigs . . . . .	516	807	1000	1039	1051	1053
Poultry . . . . .	764	928	1000	1014	1109	1213
<i>Total(d)</i> . . . . .	<i>1478</i>	<i>1845</i>	<i>1000</i>	<i>1081</i>	<i>1361</i>	<i>1468</i>
<b>Livestock products—</b>						
Wool . . . . .	1408	1461	1000	1104	1401	1488
Wholemilk . . . . .	816	852	1000	968	1063	1214
Eggs . . . . .	660	875	1000	1051	1182	1232
<i>Total(e)</i> . . . . .	<i>1132</i>	<i>1198</i>	<i>1000</i>	<i>1054</i>	<i>1266</i>	<i>1372</i>
<b>Agricultural output(f)</b> . . . . .	<b>924</b>	<b>1172</b>	<b>1000</b>	<b>1012</b>	<b>1119</b>	<b>1187</b>

(a) Sugar cane cut for crushing and planting. (b) Includes pastures and grasses. Excludes crops for green feed or silage. (c) Includes dairy cattle slaughtered. (d) Component series based on value per unit of carcass weight. (e) Includes honey and beeswax. (f) Excludes seed, feed and fodder consumed or retained on farms.

**Apparent consumption of foodstuffs and nutrients**

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. The term "consumption" is used in a specialised sense, since the quantities actually measured are broadly the quantities available for consumption at a particular level of distribution, ie ex-market, ex-store or ex-factory depending on the method of marketing and/or processing. Because consumption of foodstuffs is measured, in general, at "producer" level no allowance is made for wastage before they are consumed. The effect of ignoring wastage is ultimately to overstate consumption but 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 capita 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 publications *Apparent Consumption of Foodstuffs and Nutrients, Australia* (4306.0) and *Apparent Consumption of Tea and Coffee, Australia* (4307.0). For some commodities, more timely information is contained in the publication *Apparent Consumption of Selected Foodstuffs, Australia (Preliminary)* (4315.0).

## APPARENT PER CAPITA CONSUMPTION OF FOODSTUFFS

(Kg—unless otherwise indicated)

Commodity	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78p
<b>Grain products—</b>						
Flour (including flour for bread making)	73.8	76.8	74.2	73.9	72.8	67.6
Table rice	2.2	2.0	2.4	2.4	2.4	2.5
Breakfast foods	6.7	6.6	6.6	7.1	7.9	8.0
<i>Total grain products</i>	<i>82.9</i>	<i>85.7</i>	<i>83.2</i>	<i>83.6</i>	<i>83.1</i>	<i>78.1</i>
<b>Fruit and fruit products—</b>						
Citrus fruit(a)	30.1	31.3	36.7	39.6	32.8	35.8
Other fresh fruit	35.7	33.5	32.7	33.3	33.0	29.9
Jams, conserves, etc.	2.5	2.2	2.5	1.9	2.0	1.8
Dried fruits	2.3	2.4	1.8	2.2	2.0	2.0
Canned and bottled fruit	10.3	10.2	10.1	9.7	10.1	10.6
<i>Total (fresh fruit equivalent)</i>	<i>90.1</i>	<i>89.4</i>	<i>91.2</i>	<i>95.7</i>	<i>88.2</i>	<i>88.3</i>
<b>Meat—</b>						
Carcass meat (total)	82.1	71.9	96.2	95.8	92.3	89.8
Beef and veal	40.1	41.1	64.3	67.6	69.7	68.1
Mutton	15.7	8.6	9.0	7.0	4.7	3.7
Lamb	18.5	15.4	17.7	16.7	13.4	13.8
Pigmeat	7.7	6.7	5.1	4.4	4.4	4.3
Offal	5.7	4.4	5.2	5.9	6.2	6.5
Canned meat (canned weight)	2.5	2.4	2.3	1.7	1.7	1.7
Bacon and ham (cured carcass weight)	5.4	5.4	4.9	5.2	5.6	6.3
<i>Total (carcass equivalent weight)</i>	<i>98.6</i>	<i>86.7</i>	<i>111.1</i>	<i>110.8</i>	<i>108.1</i>	<i>107.0</i>
Poultry (dressed weight)	13.1	13.6	13.6	14.5	15.8	16.9
<b>Vegetables—</b>						
White potatoes	47.9	45.5	51.7	46.6	48.9	50.7
Other root and bulb vegetables	16.7	17.5	17.7	15.9	16.0	17.0
Tomatoes	16.9	14.9	10.1	14.3	14.6	13.1
Leafy and green vegetables	20.0	21.0	21.6	23.0	22.4	23.0
Other vegetables	19.0	18.7	19.2	18.2	19.7	20.9
<i>Total (fresh equivalent weight)</i>	<i>120.4</i>	<i>117.6</i>	<i>120.3</i>	<i>118.1</i>	<i>121.5</i>	<i>124.7</i>
Fish, fresh and frozen (edible weight)	3.1	3.8	2.9	3.1	3.1	3.2
Eggs and egg products	12.4	12.4	12.4	12.5	12.4	12.4
Equivalent number of eggs	218	219	219	220	219	219
<b>Milk and milk products—</b>						
Fluid whole milk (litres)	120.6	114.5	106.6	101.1	104.8	102.4
Condensed, concentrated and evaporated milk	4.3	4.0	4.2	4.8	5.0	4.9
Powdered milk	6.0	5.0	5.4	5.2	3.6	4.6
Infants' and invalids' food	1.4	1.5	2.1	1.4	1.1	1.2
Cheese (natural equivalent weight)	5.1	5.3	5.2	5.7	5.3	6.6
<b>Oils and fats—</b>						
Butter	8.2	7.7	7.2	6.8	5.8	5.0
Margarine—Table	1.6	1.7	2.2	3.1	4.7	5.7
Other	4.0	4.0	3.8	3.9	3.5	2.9
Sugar(b)	n.a.	54.4	53.7	55.6	53.7	54.5
<b>Nuts (in shell)—</b>						
Peanuts	1.8	1.3	1.1	2.0	1.4	1.8
Tree nuts	2.7	3.0	3.2	3.3	3.2	3.1
<b>Beverages—</b>						
Tea	2.0	1.9	2.0	1.9	2.0	1.6
Coffee(c)	1.2	1.4	1.1	1.5	1.8	1.2
Aerated and carbonated waters (litres)	64.7	63.4	59.6	65.0	68.1	68.8
Beer (litres)	129.5	139.0	140.3	137.4	136.2	137.6
Wine (litres)	9.8	11.0	12.3	13.0	13.7	14.3
Spirits (litres alcohol)	1.2	1.2	1.2	1.1	1.3	1.3

(a) Includes fresh equivalent of manufactured goods. (b) In terms of refined sugar; includes the sugar content of syrups, honey, glucose and manufactured foods. (c) Coffee and coffee products in terms of roasted coffee.

### Nutrients

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

For further information on the level of nutrient intake see the publication *Apparent Consumption of Foodstuffs and Nutrients, Australia* (4306.0).

#### ESTIMATED SUPPLY OF NUTRIENTS AVAILABLE FOR CONSUMPTION<sup>(a)</sup> (Per capita per year)

<i>Nutrient</i>	<i>Unit</i>	<i>1975-76</i>	<i>1976-77</i>	<i>1977-78p</i>
Protein—				
Animal . . . . .	g	71.6	69.2	70.1
Vegetable . . . . .	g	31.7	31.5	30.1
<i>Total</i> . . . . .	g	103.3	100.7	100.2
Fat (from all sources) . . . . .	g	121.0	119.3	119.1
Carbohydrate . . . . .	g	415.6	407.4	403.5
Calcium . . . . .	mg	923.6	859.2	920.1
Iron . . . . .	mg	15.7	15.7	15.7
Vitamin A activity . . . . .	µg	1,558.8	1,580.6	1,616.2
Vitamin C (b)—				
Unadjusted . . . . .	mg	98.0	92.5	95.5
Adjusted . . . . .	mg	73.4	67.5	71.9
Thiamin (b)—				
Unadjusted . . . . .	mg	1.5	1.6	1.5
Adjusted . . . . .	mg	1.3	1.3	1.3
Riboflavin . . . . .	mg	3.1	3.1	3.2
Niacin (b)—				
Unadjusted . . . . .	mg	22.1	22.1	21.9
Adjusted . . . . .	mg	38.6	38.2	38.0
Energy value . . . . .	kJ	13,854	13,595	13,486

(a) Figures are based on conversion factors calculated from the revised and enlarged edition of S. Thomas and M. Corden *Metric Tables of Composition of Australian Food*, Canberra, 1977. (b) Data for vitamin C, Thiamin and Niacin show adjustments made for loss of nutrients in cooking and the extra niacin obtained from the metabolism of protein.

### Land tenures

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,  
(Thousand hectares)

State or Territory	Data: reference date	Private lands		Crown lands		Total area
		Alienated	In process of alienation	Leased or licensed	Other(a)	
New South Wales . . . . .	30.6.78	27,125	1,517	42,716	8,785	80,143
Victoria . . . . .	30.6.79	13,830	127	2,338	6,465	22,760
Queensland . . . . .	31.12.78	12,784	19,218	129,487	11,212	172,700
South Australia . . . . .	30.6.78	6,726	72	59,747	31,892	98,438
Western Australia . . . . .	31.12.78	16,225	2,554	99,319	134,452	252,550
Tasmania . . . . .	30.6.78	2,517	120	165	4,028	6,830
Northern Territory . . . . .	30.6.79	74	-	82,882	51,664	134,620
Australian Capital Territory(b) . . . . .	1.4.79	-	1	48	194	243
<b>Australia . . . . .</b>	<b>..</b>	<b>79,281</b>	<b>23,609</b>	<b>416,702</b>	<b>248,692</b>	<b>768,284</b>

(a) Occupied by Crown; reserved; unoccupied; unreserved. (b) Includes Jervis Bay.

## Land utilisation in Australia

The table on land tenures in Australia, above, 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 establishments (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 ESTABLISHMENTS WITH AGRICULTURAL ACTIVITY  
(Million hectares)

At 31 March	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	Aust. (incl. A.C.T.)
1974 . . . . .	68.9	15.2	154.5	64.8	114.7	2.6	79.5	500.3
1975 . . . . .	68.9	15.5	154.2	63.8	115.6	2.5	79.3	499.9
1976 . . . . .	68.8	15.1	155.6	63.6	116.3	2.5	78.8	500.7
1977 . . . . .	66.0	14.5	155.0	63.1	115.2	2.3	75.4	491.5
1978 . . . . .	64.8	14.7	155.1	62.5	114.5	2.3	75.5	489.4
1979p . . . . .	65.1	14.7	155.2	62.9	114.5	2.2	77.7	492.5

LAND UTILISATION: AUSTRALIA  
(Million hectares)

Year	Area used for crops(a)	Area under sown pastures and grasses	Balance (b)	Total		Percentage of Australian land area (768,284,000 hectares)
				Area of establishments		
1973-74 . . . . .	15.1	27.2	458.0	500.3		65.1
1974-75 . . . . .	13.8	28.6	457.5	499.9		65.1
1975-76 . . . . .	14.5	27.7	458.5	500.7		65.2
1976-77 . . . . .	15.0	26.2	450.3	491.5		64.0
1977-78 . . . . .	16.8	25.9	446.7	489.4		63.7
1978-79p . . . . .	17.4	26.5	448.5	492.5		64.1

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

The total area of rural establishments in 1978-79 constituted 64.1 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 data includes large areas of arid or rugged land held under grazing licences but not always used for grazing. Balance data also includes variable amounts of fallow land.

The crop area data represents up to 3.5 per cent of the area of rural establishments 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 362) 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<sup>(a)</sup>: 1860-61 TO 1978-79

('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	-	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	1,925	2,017	2,278	3,751	70	7	1	14,234
1972-73 . . . .	4,329	1,943	1,963	2,122	3,814	80	12	1	14,265
1973-74 . . . .	4,628	1,981	1,786	2,451	4,133	74	6	1	15,060
1974-75 . . . .	4,089	1,772	1,898	2,257	3,754	67	7	1	13,845
1975-76 . . . .	4,285	1,851	2,010	2,116	4,208	60	8	1	14,539
1976-77 . . . .	4,520	1,943	2,026	2,036	4,417	65	2	1	15,010
1977-78 . . . .	4,984	2,163	2,107	2,564	4,902	70	1	1	16,791
1978-79 <sup>p</sup> . . . .	4,950	2,235	2,297	2,826	4,996	81	1	1	17,386

(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 exclude 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)		
	1976-77	1977-78	1978-79p	1976-77	1977-78	1978-79p	1976-77	1977-78	1978-79p
<b>Cereals for grain—</b>									
Barley	2,321	2,803	2,777	2,847	2,383	3,995	295	205	329
Grain sorghum	532	394	470	956	714	n.y.a.	80	59	75
Maize	53	45	51	144	130	n.y.a.	13	12	15
Oats	995	1,076	1,355	1,072	990	1,756	74	69	116
Rice	92	91	110	530	490	692	59	61	80
Wheat	8,956	9,955	10,189	11,667	9,370	18,083	1,051	934	2,141
Legumes for grain	180	186	171	76	100	n.y.a.	25	30	38
<b>Crops for hay—</b>									
Barley	17	17	16	36	30	39	1	-	n.y.a.
Oats	208	221	223	684	604	75	23	27	n.y.a.
Wheat	59	68	51	159	146	150	6	7	n.y.a.
<b>Crops for green feed, silage—</b>									
Barley	57	76	55						
Forage sorghum	68	68	68						
Oats	464	573	594	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Wheat	39	54	24						
Sugar cane cut for crushing	288	295	252	23,344	23,493	21,457	472	421	385
Tobacco	9	9	10	16	15	n.y.a.	56	54	58
Cotton	35	42	47	83	132	n.y.a.	40	61	79
Peanuts	31	30	36	32	39	n.y.a.	14	20	25
Linseed	15	44	17	16	28	15	3	5	3
Rapeseed	8	19	20	9	16	21	2	3	4
Safflower	13	39	85	6	26	n.y.a.	1	5	11
Sunflower	135	220	256	75	158	n.y.a.	22	37	43
Fruit (excl. grapes)	96	94	98	-	-	-	291	320	370
Orchard fruit	81	79	83	-	-	-	227	242	n.y.a.
Oranges				322	357	369	52	63	n.y.a.
Apples				302	258	n.y.a.	83	78	100
Pears				105	108	n.y.a.	22	24	27
Peaches				66	62	64	16	17	19
Small and berry fruit	1	1	1	-	-	-	7	9	n.y.a.
Bananas	8	7	7	115	98	112	38	50	47
Pineapples	6	6	6	112	99	105	16	16	18
Grapes	71	71	71	728	694	n.y.a.	129	142	148
Vegetables	108	105	122	-	-	-	308	322	371
Potatoes	34	36	40	728	772	n.y.a.	89	94	117
<b>Total, all crops (excluding pastures)</b>	<b>15,010</b>	<b>16,791</b>	<b>17,386</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3,056</b>	<b>2,919</b>	<b>4,468</b>

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.

## 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 6 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	Export value f.o.b.				
	\$m	\$m	\$m	\$m	per cent	per cent
1973-74 . . . . .	1,715.0	747.4	6,412	6,707	26.7	11.1
1974-75 . . . . .	1,701.3	1,466.4	5,877	8,457	28.9	17.3
1975-76 . . . . .	1,798.2	1,376.4	6,174	9,340	29.1	14.7
1976-77 . . . . .	1,583.3	1,264.9	6,774	11,376	23.4	11.1
1977-78 . . . . .	1,353.7	1,261.9	6,978	11,922	19.4	10.6
1978-79p . . . . .	2,768.2	1,093.2	9,892	13,797	28.0	7.9

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

For more up-to-date and detailed information on cereals for grain see the following publications:

*Agricultural Sector: Structure of Operating Units, Australia (7102.0), Rural Land Use, Improvements and Agricultural Machinery, Australia (7103.0), Principal Agricultural Statistics: First Estimates, Australia (7201.0), Crop and Fruit Statistics, Australia (Preliminary) (7301.0), Crop Statistics, Australia (7302.0), Cereal Grains: Estimates of Intended Sowings, Australia (7304.0), Cereal Grains: Estimates of Area Sown, Australia (7305.0), Wheat Statistics, Australia (7307.0), Gross Value of Agricultural Commodities Produced: First Estimates, Australia (7501.0), Value of Agricultural Commodities Produced: Second Estimates, Australia (7502.0), Value of Agricultural Commodities Produced, Australia (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 major purpose in founding the Australian Wheat Board was the protection of wheat farmers by lowering financial risks on each crop. The strength of the Australian Wheat Board is derived from its ability to act as the single Australian agent for wheat sales abroad and to use that function as a basis for careful co-ordination of sales efforts and market development. The *Wheat Stabilization Act 1948* reconstituted the Australian Wheat Board to administer the first stabilisation plan, the concept of which was to provide growers with a "guaranteed price" for a specific quantity of exported wheat. Since then there have been six Five Year Stabilisation Plans. Details of the wheat marketing and pricing arrangements of the latest plan to operate over the five seasons commencing on 1 October 1979, are shown below.

Under the new plan the Australian Wheat Board continues to exercise sole authority for the export marketing of wheat, flour and certain wheaten products and for the marketing of wheat in Australia. However, wheatgrowers will have the option of delivering wheat direct to buyers under the authority of the Australian Wheat Board. It is intended that the Board be authorised to issue permits which enable growers to deliver wheat to other than licensed receivers. The plan provides for a formula determination of prices for wheat for human consumption on the domestic market, adjusted

annually, and for the price of stockfeed and industrial wheats, to be determined in the light of market conditions, by the Australian Wheat Board, with an upper limit at the figure set for grain for human consumption. The price of wheat for human consumption on the domestic market will be fixed in the enabling legislation for the initial year. For subsequent years the price will be determined by a formula which takes account of movements in export prices and domestic costs. Movements in the formula price from year to year would be subject to a 20 per cent limit. A loading on the domestic price to cover the cost of shipping wheat to Tasmania will be applied to wheat sold for human consumption only.

#### **World wheat**

Under the influence of high prices and expansionary production policies, world producers are attempting to expand production to cope with a 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 be able to adjust rapidly to fluctuations in the world market.

#### **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 *Wheat Statistics, Australia* (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 1954, Australian wheat has been marketed under distinct classifications. 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 wheat standards may be found in *Wheat Statistics, Australia* (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.

#### **High Court Action**

In an action brought before the full High Court of Australia, four stock-feed traders contested the validity of State and Commonwealth Wheat Stabilisation legislation which gave the Board the right to demand all wheat be delivered to it rather than be sold interstate by the traders themselves. It was argued that this contravened Section 92 of the Commonwealth of Australia Constitution Act which guarantees freedom of trade between the States. The High Court ruled (September 1978) that the Wheat Industry Stabilisation scheme as provided in the various Acts was constitutionally valid, notwithstanding Section 92. It was held that the proper regulation of trade among the States does not necessarily contravene Section 92 even if the regulation has within it an element of prohibition. An action involving a challenge to the High Court ruling was commenced in the High Court in May 1979.

WHEAT: AREA, PRODUCTION AND RECEIVALS

Season	Area		Production		Australian Wheat Board receipts(a)
	For grain	All purposes	Grain	Gross value	
	'000 ha	'000 ha	'000 tonnes	\$m	'000 tonnes
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	11,258
1976-77	8,956	9,053	11,800	1,050.8	10,932
1977-78	9,955	10,078	9,370	934.2	8,542
1978-79p	10,189	10,263	18,083	2,141.0	(b)17,446

(a) Australian Wheat Board receipts are for the season commencing 1 December; production data is for the year ending 31 March. (b) Receipts to 20 October 1979.

WHEAT FOR GRAIN: AREA AND PRODUCTION, BY STATE

Season	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Australia
AREA ('000 hectares)							
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
1976-77	3,116	1,103	582	839	3,314	2	8,956
1977-78	3,377	1,270	607	1,090	3,609	1	9,955
1978-79p	3,103	1,338	747	1,295	3,704	1	10,189
PRODUCTION ('000 tonnes)							
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	1,579	830	1,139	4,122	2	11,982
1976-77	5,141	1,780	794	832	3,249	4	11,800
1977-78	3,846	1,497	569	511	2,945	2	9,370
1978-79p	6,640	2,998	1,968	2,086	4,387	3	18,083

PRODUCTION AND DISPOSAL OF WHEAT FOR GRAIN

('000 tonnes)

Season	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78
Production	6,590	11,987	11,357	11,982	11,800	9,370
Less balance held on farms for--						
Seed usage	547	505	513	535	598	610
Feed and other uses	604	282	139	189	270	218
Gross receipts	5,439	11,200	10,705	11,258	10,932	8,542
Opening stocks(a)	1,448	478	1,882	1,658	2,665	2,137
Total availability for sale	6,887	11,678	12,587	12,916	13,597	10,679
Export shipments--						
Wheat	3,855	7,124	8,254	7,962	9,502	7,910
Flour and wheat products(a)	282	294	296	271	261	178
Domestic sales--						
Flour(a)	1,272	1,362	1,334	1,304	1,261	1,227
Stockfeed	923	911	1,006	620	380	431
Breakfast feeds etc. (a)	47	46	54	68	55	43
Total disposal	6,379	9,737	10,944	10,225	11,459	9,789
Availability (-) Disposals	508	1,941	1,643	2,691	2,138	830
Closing stocks(a)	478	1,882	1,658	2,665	2,137	816
Apparent wastage	30	59	-15	26	1	74

(a) Wheat and flour in terms of wheat.

NOTE: The Australian Wheat Board is the source of receipts, export shipments, domestic sales data, and opening and closing stocks; the ABS records other data.

**Other wheat statistics (Sixth Wheat Industry Stabilisation Plan)**

*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, Australia* (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, Australia* (7307.0).

**Wheat exports**

*International Wheat Agreement.* A number of Agreements have operated since 1949 to provide a valuable framework for continuing international consultations and co-operation on world wheat matters, including the regular monitoring of the world wheat situation. The 1971 International Wheat Agreement (which expired on 30 June 1974) was extended by protocol to 30 June 1979. Negotiations towards a new Agreement were held in 1978 and January 1979 under the auspices of the U.N. Conference on Trade and Development (UNCTAD). No consensus was reached on an Agreement with economic provisions (unlike the current Agreement) designed to bring about a measure of price stability by the accumulation and release of internationally controlled nationally-held reserve stocks. The January 1979 conference has been adjourned indefinitely. It was agreed to extend the current Agreement, by protocol, for a further two years to 30 June 1981.

Details of the earlier International Wheat Agreements are published in previous editions of the Year Book and in issues of *Wheat Statistics, Australia* (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
1973-74 . . . . .	5,128	517.1	6,707	7.7
1974-75 . . . . .	7,860	1,034.4	8,457	12.2
1975-76 . . . . .	7,567	922.5	9,340	9.9
1976-77 . . . . .	7,945	863.5	11,376	7.6
1977-78 . . . . .	10,949	1,011.1	11,922	8.5
1978-79p . . . . .	6,801	794.6	13,797	5.8

(a) These statistics exclude re-exports.

EXPORTS OF WHEAT AND FLOUR

Country of consignment	Quantity ('000 tonnes)			Value f.o.b. (\$m)		
	1976-77	1977-78	1978-79p	1976-77	1977-78	1978-79p
<b>WHEAT</b>						
Bangladesh	109.5	146.5	52.2	10.2	14.3	6.3
China—excl. Taiwan Province	745.2	4,603.1	1,437.7	74.1	376.4	139.6
Taiwan Province only	54.5	82.7	—	6.2	8.1	—
Cuba	—	122.5	—	—	13.8	—
Egypt, Arab Republic of	1,002.5	1,246.5	1,212.9	101.9	115.7	144.3
Indonesia	528.9	559.2	539.9	55.0	57.0	70.5
Iraq	524.2	520.0	419.0	61.3	54.7	55.9
Japan	1,075.9	1,158.0	968.8	114.9	116.0	117.6
Kuwait	143.2	178.8	193.5	16.0	18.1	23.8
Malaysia	339.7	376.9	378.8	35.4	37.8	46.2
Pakistan	15.8	229.9	239.9	1.5	21.4	30.2
Saudi Arabia	91.3	125.8	12.6	10.4	15.4	2.0
Singapore	208.8	229.1	186.7	20.7	22.4	20.7
Sri Lanka	114.3	102.7	84.0	12.4	9.7	8.9
U.S.S.R.	363.1	255.1	157.3	48.5	27.2	15.3
Yemen Arab Republic	272.7	250.1	80.0	30.8	27.2	10.5
Other countries	2,355.5	762.0	837.3	264.2	75.9	102.8
<b>Total</b>	<b>7,945.1</b>	<b>10,948.9</b>	<b>6,800.6</b>	<b>863.5</b>	<b>1,011.2</b>	<b>794.6</b>
<b>FLOUR(a)</b>						
Burma, Socialist Rep.	3.9	3.9	4.0	0.7	0.7	0.8
Mauritius	22.2	18.3	16.8	4.0	3.1	3.4
New Caledonia	1.5	2.7	3.7	0.3	0.5	0.7
Papua New Guinea	22.1	16.7	16.8	3.9	3.1	3.4
Philippines	4.4	6.2	0.9	0.7	1.1	0.2
Samoa (Western)	3.5	3.9	3.8	0.6	0.6	0.7
Saudi Arabia	4.1	2.8	2.4	0.6	0.4	0.4
Solomon Islands	1.6	1.9	2.4	0.3	0.3	0.5
Sri Lanka	9.9	9.5	10.4	1.7	1.7	2.1
Tonga	3.3	5.1	3.7	0.6	0.8	0.7
United Arab Emirates	42.0	17.3	0.1	7.0	2.8	—
Vietnam	32.2	32.3	—	5.1	5.2	—
Other countries	19.2	11.8	13.3	3.1	2.1	2.8
<b>Total</b>	<b>169.9</b>	<b>132.4</b>	<b>78.3</b>	<b>28.6</b>	<b>22.4</b>	<b>15.7</b>

(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

	1973-74		1974-75		1975-76		1976-77		1977-78		1978-79p	
	Area	Prod.	Area	Prod.	Area	Prod.	Area	Prod.	Area	Prod.	Area	Prod.
Europe . . . . .	26.5	82.2	27.3	90.7	25.3	76.8	26.8	85.4	24.8	81.9	26.2	93.8
EEC (9) . . . . .	10.8	41.4	11.2	45.4	10.5	38.0	11.2	39.1	10.1	38.4	11.0	47.2
U.S.S.R. . . . .	63.2	109.7	59.7	83.9	62.0	66.2	59.5	96.9	62.0	92.2	62.9	120.8
North & Central America . . . . .	32.0	65.2	36.2	64.6	38.4	77.5	40.8	85.3	37.8	77.8	34.4	72.7
Canada . . . . .	9.4	16.5	8.9	13.3	9.5	17.1	11.3	23.6	10.1	19.9	10.6	21.1
U.S.A. . . . .	21.9	46.6	26.5	48.5	28.6	57.8	28.6	58.3	26.9	55.4	22.9	49.0
South America . . . . .	6.2	10.0	7.6	10.7	9.6	11.8	11.4	16.3	8.0	8.7	8.4	11.9
Asia . . . . .	76.6	89.2	75.7	89.7	76.5	100.3	80.0	111.0	80.7	106.9	81.4	113.3
China (a) . . . . .	28.7	36.0	29.0	37.0	30.0	41.0	31.0	43.0	31.5	40.0	31.5	44.0
India . . . . .	19.5	24.7	18.6	21.8	18.0	24.2	20.5	28.8	20.9	29.0	21.2	31.3
Iran . . . . .	5.9	4.6	5.9	4.7	6.0	5.5	5.6	6.0	5.5	5.5	5.4	5.7
Pakistan . . . . .	6.0	7.4	6.1	7.6	5.8	7.7	6.1	8.7	6.4	9.1	6.4	8.3
Turkey . . . . .	8.9	10.0	8.8	11.0	9.3	14.8	9.3	16.5	9.5	16.7	9.5	16.0
Africa . . . . .	9.3	8.4	8.8	8.3	8.0	9.1	9.0	10.5	8.7	8.1	8.6	9.6
Oceania . . . . .	9.0	12.2	8.4	11.5	8.7	12.3	9.1	12.2	10.1	9.7	10.3	18.4
Australia . . . . .	8.9	12.0	8.3	11.4	8.6	12.0	9.0	11.8	10.0	9.4	10.2	18.1
<b>Total world</b> . . . . .	<b>222.9</b>	<b>376.8</b>	<b>223.7</b>	<b>359.4</b>	<b>228.5</b>	<b>354.1</b>	<b>236.6</b>	<b>417.5</b>	<b>232.0</b>	<b>385.2</b>	<b>232.2</b>	<b>440.5</b>

(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 EEC 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 returns in the sheep industry caused a resurgence of interest in coarse grain crops and the newer oilseed crops. The resultant higher level of plantings and production has been maintained, despite the lifting of wheat delivery quotas and a general improvement in 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 a high 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). Oats produced in New South Wales are marketed through a statutory board while the Victorian Oatgrowers' Pool and Marketing Company Ltd markets the bulk of oats produced in Victoria and acts as a marketing and handling agent for the N.S.W Board. In South Australia the Barley Marketing Act was amended in 1977 to give the Australian Barley Board powers over oat marketing in that State. Under the legislation amendments the Board controls export sales and grain resold on the local market; however, direct sales between producers and consumers are outside the Board's supervision. The Grain Pool of Western Australia conducts a voluntary pool for oats.

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	Area	Production		Exports	
		Quantity	Gross value	Quantity	Value f.o.b.
	'000 ha	'000 tonnes	\$m	'000 tonnes	\$m
1973-74 . . . . .	1,182	1,107	66.8	184	13.6
1974-75 . . . . .	897	874	59.6	236	19.8
1975-76 . . . . .	988	1,141	77.8	359	32.9
1976-77 . . . . .	995	1,072	74.4	364	33.4
1977-78 . . . . .	1,076	990	69.1	218	19.6
1978-79p . . . . .	1,355	1,756	115.6	309	26.5

**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, but considerable quantities are grown also in New South Wales, Victoria, Queensland and Western Australia.

**Barley Boards**

Barley is marketed in New South Wales and Queensland by statutory boards in both States, while the Australian Barley Board controls marketing in both Victoria and South Australia. Marketing of barley in Western Australia is the responsibility of the Grain Pool of Western Australia.

**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
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
1976-77 . . . . .	2,321	2,627	220	2,847	294.8	2,100	222.5
1977-78 . . . . .	2,803	2,261	123	2,383	205.0	1,325	121.8
1978-79p . . . . .	2,777	3,776	219	3,995	328.6	1,703	149.5

**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.

Grain sorghum has been grown extensively only in the last two decades. Rapid increases in production have resulted in a substantial increase in exports over this period. 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 sorghum. 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 Queensland, a degree of orderly marketing is ensured by the operation of the Central Queensland Grain Sorghum Marketing Board and the Queensland Graingrowers' Association, which receives sorghum mainly from southern Queensland. A state statutory marketing board handles sorghum grown in New South Wales.

**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
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 . . . . .	532.1	956.0	80.3	829.2	76.3
1977-78 . . . . .	394.1	714.4	59.5	384.5	35.4
1978-79p . . . . .	470.1	n.y.a.	74.8	516.3	45.5

**Maize**

Like sorghum, maize is a summer cereal demanding specific soil and climatic conditions. Maize for grain 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. Small amounts are grown in all States, except South Australia, for green feed and silage, particularly in association with the dairy industry.

A statutory board controls the marketing of maize in the Atherton Tablelands area of Queensland. In New South Wales, the Yellow Maize Marketing Board for the State of New South Wales (established in 1976) will, with respect to the 1979-80 crop, exercise its right of compulsory acquisition for the first time, with the intention of maximising sales on a promising export market, with a resultant benefit to growers.

**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
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	53.0	144.2	13.1	33.0	2.8
1977-78	45.4	130.1	12.2	11.1	1.6
1978-79p	50.9	n.y.a.	14.9	16.9	1.4

**Rice**

In Australia, rice was first grown commercially in 1924-25 in the Murrumbidgee irrigation area, one of three irrigation areas in southern New South Wales where rice is now produced. Today, about 96 per cent of Australia's rice is grown in New South Wales. The remainder is grown in the Burdekin River basin in Northern Queensland with small quantities grown in the Ord River region of Western Australia.

Rice is a summer growing crop in N.S.W. The combination of irrigation water and the relatively cloudless days characteristic of summers in temperate regions of the world is the main contributing factor to the extreme high yields per hectare often achieved by N.S.W. growers.

State statutory marketing boards are responsible for the marketing of the N.S.W. and Queensland crops.

**RICE: AREA, PRODUCTION AND EXPORTS**

Year	Area	Production		Exports	
		Quantity(a)	Gross value	Quantity	Value f.o.b.
	'000 ha	'000 tonnes	\$m	'000 tonnes	\$m
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	92.0	529.8	59.4	256.5	57.1
1977-78	91.4	489.7	61.1	277.5	66.6
1978-79p	110.1	692.0	80.0	241.0	70.4

(a) In terms of paddy (or rough) rice.

**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.

**Specialised Oilseeds**

In Australia, linseed, rapeseed, safflower and sunflower are grown specifically for crushing. These crops are located in the grain areas of several States and have shown spectacular increases in recent years.



*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. In more recent years, blackleg resistant varieties of low erucic acid content have been released. Production in 1979-80 is expected to approximate that of the peak levels of 1971-72.

*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. Growers are finding that safflower at current price levels are providing a more effective cash return than other traditional crops. 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 under rain-grown and irrigated conditions mainly in the three eastern mainland States of Australia. The cultivation of sunflowers has developed rapidly in recent years with improved varieties of open-pollinated and hybrid seeds and improved crop husbandry to make it the major oilseed crop.

The seed for which the plant is cultivated yields a high quality dual purpose oil which sells at a premium price compared with other oilseeds 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.

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, coarse grains 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 reviewed the assistance requirements of the fats and oil production sector as well as the seed producing industry and recommended changes to the structure of assistance. The recommendations, adopted by the Government resulted in some reduction in the overall level of assistance accorded the oilseeds crushing industry.

Constant attention is being paid to alternative marketing arrangements and to research to improve technical and economic efficiency. Legislation providing for the establishment of a joint Government-industry research scheme for the Australian oilseeds industry commenced operation in November 1977. Research undertaken by the scheme is aimed at the encouragement and improvement of the industry. The scheme is financed by way of a levy on the production of sunflowerseed, safflowerseed, linseed, rapeseed and soybean and a matching Commonwealth Government contribution.

#### **Other Oilseeds**

Soybeans, peanuts and cottonseed are grown for other purposes, but oil is a by-product.

*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, Argentina 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.

*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.

## SELECTED OILSEED CROPS: AREA, PRODUCTION AND GROSS VALUE

Year	<i>Specialised</i>				<i>Other</i>		
	<i>Linseed</i>	<i>Rapeseed</i>	<i>Safflower</i>	<i>Sunflower</i>	<i>Soybeans</i>	<i>Peanuts</i>	<i>Cotton(a)</i>
AREA ('000 hectares)							
1973-74	17.8	16.8	12.3	150.6	40.8	25.9	41.7
1974-75	35.6	11.8	36.2	209.5	45.9	24.1	38.5
1975-76	15.7	15.9	39.8	136.9	26.3	27.3	29.8
1976-77	15.3	7.7	12.9	134.6	34.6	31.0	35.3
1977-78	43.8	19.1	39.0	220.4	49.9	30.3	41.6
1978-79p	16.8	20.1	65.4	256.2	52.9	35.9	46.9
PRODUCTION ('000 tonnes)							
1973-74	14.3	10.6	6.9	84.3	62.5	29.2	86.4
1974-75	33.0	8.5	30.5	113.4	73.7	32.0	106.6
1975-76	12.2	11.9	18.2	80.4	44.6	35.5	80.1
1976-77	16.4	8.5	6.3	74.9	55.2	31.9	82.8
1977-78	27.9	15.7	26.3	158.3	76.5	39.0	131.5
1978-79p	15.5	20.7	n.y.a.	n.y.a.	n.y.a.	n.y.a.	n.y.a.
GROSS VALUE (\$ million)							
1973-74	3.1	1.5	1.0	19.4	11.2	10.9	26.6
1974-75	7.5	1.9	7.5	24.0	13.2	12.0	29.3
1975-76	2.1	1.9	2.7	15.7	7.2	15.8	37.5
1976-77	3.4	1.5	1.4	21.5	14.7	14.4	39.8
1977-78	5.0	3.0	5.4	36.6	17.6	20.2	61.2
1978-79p	3.2	3.8	10.8	43.1	n.y.a.	25.0	79.4

(a) Additional data is shown below.

*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.

About three-quarters of the country's cotton is grown in New South Wales, principally in the Namoi, Macquarie and Gwydir Valleys with water provided from the Keepit, Burrendong and Copeton dams. The rest is grown in Queensland, also under irrigation except for a small and fluctuating dryland area, in the Emerald, St. George and Biloela areas. Cotton, introduced into the Ord River area of Western Australia in 1963, ceased to be produced by 1975 due to rising production costs and insect infestation. Australian production has for some time satisfied most of the requirements of local mills for short and medium staple cotton. The recent surge in plantings has resulted in large amounts of cotton becoming available for export. Exports from the 1978-79 crop are expected to amount to about 37,000 tonnes of raw cotton. A further expansion in Australian cotton plantings is expected in 1979-80. In view of the reduced levels of production by local yarn spinners in recent years, this should ensure a continued significant export orientation by the domestic cotton growing industry.

## COTTON: AREA, PRODUCTION AND EXPORTS

Year	<i>Seed cotton (a)</i>			<i>Australian production</i>		<i>Raw cotton export</i>	
	<i>Area</i>	<i>Quantity</i>	<i>Gross value</i>	<i>Cottonseed</i>	<i>Lint</i>	<i>Quantity</i>	<i>Value f.o.b.</i>
	'000 ha	'000 tonnes	\$m	'000 tonnes	'000 tonnes	'000 tonnes	\$m
1973-74	41.7	86.4	26.6	49.9	30.5	3.1	1.7
1974-75	38.5	106.6	29.3	53.8	33.0	7.7	5.4
1975-76	29.8	80.1	37.5	40.7	24.9	16.0	11.5
1976-77	35.3	82.8	39.8	45.6	28.0	5.5	7.2
1977-78	41.6	131.5	61.2	72.1	44.2	9.8	10.9
1978-79p	46.9	n.y.a.	79.4	(b)89.7	(b)55.0	23.6	28.5

(a) Before ginning. (b) Estimated by the Bureau of Agricultural Economics.

## 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 1,000 mm per year, or where irrigation water is available. Queensland accounts for 95 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 50 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 obligations and commitments under the various international marketing arrangements to which Australia has been a party. Each of the thirty-three 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 significant degree of supervision by the Federal and Queensland governments. 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 1.66 million tonnes. Further storages are planned to give a total capacity of 2.14 million tonnes.

*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 cut for crushing			Raw sugar(a)		Sugar cane cut for crushing			Raw sugar(a)		
	Area harvested		Production	Yield	Quantity	Yield	Area harvested		Yield	Quantity	Yield
	'000 ha	'000 tonnes					'000 ha	'000 tonnes			
1973-74	9.9	999.5	100.8	121.1	12.2	215.9	18,278.5	84.7	2,405.8	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	
1976-77	11.6	1,074.2	92.4	132.3	11.4	276.6	22,269.4	80.5	3,163.2	11.5	
1977-78	14.7	1,162.4	79.0	134.4	9.1	280.4	22,330.8	79.6	3,209.3	11.4	
1978-79p	14.1	1,321.5	93.7	152.7	10.8	237.7	20,135.5	84.7	2,748.9	11.6	

(a) In terms of 94 net titre.

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

Year	Area harvested	Production			Exports		Apparent consumption in Australia(a)	
		Sugar cane		Raw sugar	Raw and refined sugar		Total	Per head
		Quantity	Gross value		Quantity	Value f.o.b.		
	'000 ha	mil. tonnes	\$m	mil. tonnes	mil. tonnes	\$m	'000 tonnes	kg
1973-74	225.9	19.3	218.9	2.5	1.8	222.3	664.5	49.3
1974-75	253.1	20.4	490.7	2.8	2.0	644.5	672.5	49.1
1975-76	256.8	22.0	435.6	2.9	2.0	569.7	708.2	51.1
1976-77	288.2	23.3	472.2	3.3	2.6	637.5	694.0	49.6
1977-78	295.2	23.5	420.5	3.3	2.5	536.6	712.3	50.3
1978-79p	251.7	21.5	384.7	2.9	1.8	448.2	n.y.a.	n.y.a.

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

To apply for five years from 1 January 1978, the new International Sugar Agreement (ISA) was negotiated against a background of large world stocks and the prospect of continuing depressed market prices. Consumption of sugar is relatively unresponsive to price changes but changes in the availability of sugar can lead to large price fluctuations. World sugar production currently exceeds consumption and world prices are consequently at depressed levels. There is little incentive for individual countries to reduce production to realise higher prices.

The ISA provides for an export supply control mechanism with special stock holding arrangements which come into operation at pre-determined price levels. The extent of the supply controls stipulated for member countries and the provisions for quantities to be stockpiled should help to reduce the current heavy supplies. Provision was made for the establishment of a Stock Financing Fund, to be constituted by means of a contribution on free market sugar exported to, or imported into, member countries. The Fund provides interest-free loans to exporting members for the purpose of helping them to defray the costs of holding the special stocks which they must hold under the terms of the Agreement. Details of other 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 108,000 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 capita per year)

Year	Potatoes	Other root and bulb vegetables	Tomatoes	Leafy and green vegetables	Other vegetables	Total, fresh equivalent weight
1972-73 . . . . .	47.9	16.7	16.9	20.0	19.0	120.4
1973-74 . . . . .	45.5	17.5	14.9	21.0	18.7	117.6
1974-75 . . . . .	51.7	17.7	10.1	21.6	19.2	120.3
1975-76 . . . . .	46.6	15.9	14.3	23.0	18.2	118.1
1976-77 . . . . .	48.9	16.0	14.6	22.4	19.7	121.5
1977-78p . . . . .	50.7	17.0	13.1	23.0	20.9	124.7

**VEGETABLES FOR HUMAN CONSUMPTION: AREA AND PRODUCTION**

Year	French and runner beans	Cabbages and brussel sprouts	Carrots	Cauli-flowers	Onions	Green peas	Potatoes	Tomatoes	Total vegetables
AREA ('000 hectares)									
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	110.7
1975-76 . . . . .	7.6	2.7	3.3	2.6	4.0	19.0	33.4	7.9	105.6
1976-77 . . . . .	7.3	2.8	3.3	2.6	4.3	19.0	33.9	8.6	107.9
1977-78 . . . . .	7.0	3.0	3.3	2.6	3.8	13.9	36.1	8.5	105.4
1978-79p . . . . .	n.y.a.	n.y.a.	n.y.a.	n.y.a.	3.8	n.y.a.	36.7	8.1	122.1

Year	French and runner beans	Cabbages and brussel sprouts	Carrots	Cauli-flowers	Onions	Green peas		Potatoes	Tomatoes
						Process-ing (shelled weight)	Sold in pod (pod weight)		
PRODUCTION ('000 tonnes)									
1973-74 . . . . .	38.9	70.3	86.6	61.4	93.8	44.4	4.1	649.1	132.7
1974-75 . . . . .	39.8	84.8	97.6	61.1	108.1	52.1	4.6	741.9	165.4
1975-76 . . . . .	40.2	73.6	81.4	70.5	94.6	44.1	2.5	696.5	162.2
1976-77 . . . . .	36.4	73.8	85.6	70.8	105.3	60.8	2.5	728.5	178.1
1977-78 . . . . .	33.4	81.1	91.9	86.4	106.8	42.7	2.4	772.4	182.1
1978-79p . . . . .	n.y.a.	n.y.a.	n.y.a.	n.y.a.	112.0	n.y.a.	n.y.a.	n.y.a.	n.y.a.

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

Year	Gross value	Export value
		f.o.b.(a)
	\$m	\$m
1973-74	239.7	7.2
1974-75	256.2	7.9
1975-76	274.3	7.9
1976-77	308.0	11.5
1977-78	321.8	10.4
1978-79p	370.7	12.5

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

**PROCESSED VEGETABLES: AUSTRALIAN PRODUCTION**

('000 tonnes—unless otherwise stated)

Item	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79p
Quick frozen vegetables—						
Beans	25.5	26.8	23.5	20.9	17.3	25.9
Peas	39.0	43.6	35.5	53.1	34.5	46.3
Potatoes	20.9	15.5	36.0	45.4	43.6	58.2
Other	12.3	19.6	20.8	15.9	17.3	25.1
Vegetables preserved, canned or bottled (excluding pickles, etc.)						
(a)—						
Asparagus	4.7	3.6	3.4	n.p.	n.p.	n.p.
Beans—Green	7.7	6.8	6.7	6.4	5.0	4.9
Baked (including pork and beans)	22.7	23.9	22.1	24.1	21.4	22.9
Beetroot	25.3	28.1	26.1	25.4	26.7	28.4
Cabbage (including sauerkraut)	1.6	1.4	1.3	1.2	1.8	1.2
Carrots	3.7	5.7	5.0	5.0	5.1	5.1
Cucumber (including pickled)	3.1	2.7	1.9	3.0	2.4	1.4
Gherkins—pickled	1.8	1.8	1.8	1.7	2.1	2.2
Olives—pickled	1.3	0.9	0.7	0.6	0.5	0.5
Onions (including pickled)	2.3	2.6	2.4	2.5	3.4	3.9
Peas—Green	14.8	10.6	10.5	12.7	9.2	15.8
Sweetcorn	9.8	10.8	6.8	n.p.	n.p.	n.p.
Tomatoes (excluding canned pulp)	6.6	9.1	12.0	10.7	13.0	15.7
Tomato juice (million litres)	8.4	13.9	5.9	7.5	8.8	6.8

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

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

### Fruit (excluding grapevines)

A wide variety of fruits are grown in Australia ranging from pineapples, mangoes and papaws in the tropics to pome, stone and berry fruits in the temperate regions.

Citrus fruits (predominantly oranges) are grown in all States except Tasmania and account for almost half of the production of all orchard fruits (including edible tree nuts). New South Wales has the highest production closely followed by South Australia. Pome fruits (apples and pears) account for about 40 per cent of orchard fruit grown in Australia. Tasmania, New South Wales and Victoria are the most important apple-growing States with significant quantities also being grown in the other States. About three-quarters of all Australian pears are produced in Victoria. Stone fruits (peaches, apricots, plums and prunes, cherries and nectarines) account for around one-eighth of orchard fruit production. Heaviest production is in Victoria, South Australia and New South Wales, with smaller quantities in the other States. Pineapples (about 80 per cent canned) and bananas (virtually all sold fresh) are the most important tropical fruits. Queensland produces almost all of the pineapples grown in Australia while about two-thirds of bananas are grown on the sub-tropical north coast of

New South Wales, most of the remainder on the Queensland coast and the balance in Western Australia. Other tropical fruits grown mainly in Queensland are passionfruit, papaws, mangoes, avocados, custard apples and macadamia nuts. Olives, almonds and figs are grown mainly in South Australia. Of the berry fruits, strawberries are widely grown, with heaviest production in Victoria and Queensland. Other berries (currants and raspberries) are grown predominantly in Tasmania.

Although fruit occupies less than 1 per cent of the total area planted to crops, the gross value of fruit production is currently about 9 per cent of the gross value of production of all crops (excluding pastures).

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	
1973-74	7,701	5,193	2,248	2,092	8,880	6,224	1,144	108,797
1974-75	7,004	5,076	2,256	1,940	7,982	5,851	1,059	102,370
1975-76	6,520	5,059	1,853	1,844	7,694	5,873	959	99,822
1976-77	6,229	5,126	1,679	1,634	7,555	5,875	976	96,248
1977-78	5,933	5,239	1,622	1,557	7,041	6,001	995	94,126
1978-79p	6,046	5,325	1,690	1,530	7,578	6,403	1,469	98,279

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

1973-74	331.3	37.7	105.8	9.3	310.0	81.6	164.7	114.8	23.0
1974-75	362.8	28.1	99.9	10.5	341.0	90.3	163.0	110.5	23.1
1975-76	274.8	26.2	103.2	9.7	361.5	79.1	140.0	102.9	26.5
1976-77	301.6	26.7	115.1	6.7	321.7	66.3	105.3	111.5	22.2
1977-78	258.4	24.8	97.8	7.3	356.5	62.2	108.0	98.6	18.6
1978-79p	n.y.a.	29.9	112.1	6.7	368.5	64.5	n.y.a.	105.2	24.6

GROSS VALUE OF PRODUCTION (\$ million)

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
1976-77	83.3	10.0	38.1	7.9	52.4	16.3	22.0	16.5	9.4
1977-78	77.7	11.0	49.7	7.8	63.4	16.6	24.3	16.1	9.4
1978-79p	100.2	n.y.a.	47.5	n.y.a.	n.y.a.	19.3	26.5	17.8	n.y.a.

Processed fruit and fruit products

After rapid expansion in the 1960s, output of canned fruit levelled off and then declined due to the effects of contracting overseas markets for Australian canned fruit. 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.

FRUIT PRODUCTION

Derived from the Annual Manufacturing Census and the recorded monthly production

Unit	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79p	
Fruit juice based cordials and syrups(a)	mil litres	70.0	60.1	72.9	68.4	74.6	68.0
Natural fruit juice(b)-							
Single strength	mil litres	166.3	179.8	187.8	156.5	n.y.a.	n.y.a.
Concentrated(c)	"	10.5	13.8	17.5	12.6	n.y.a.	n.y.a.
Cider and perry	"	11.1	10.5	10.5	11.9	n.y.a.	n.y.a.
Canned or bottled fruit (excl. canned pulp)	'000 tonnes	204.2	240.1	186.7	179.7	184.3	224.9
Jams	'000 tonnes	33.1	30.2	31.0	26.9	28.4	31.5

(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

(kg per capita per year)

Year	Fresh			Jams, conserves, etc.	Dried tree fruit	Canned and bottled fruit	Total, fresh equivalent weight
	Oranges	Other citrus	Other fresh fruit				
1972-73 . . . .	24.8	5.3	35.7	2.5	0.6	10.3	90.1
1973-74 . . . .	24.9	6.4	33.5	2.2	0.7	10.2	89.4
1974-75 . . . .	30.8	6.0	32.7	2.5	0.5	10.1	91.2
1975-76 . . . .	33.5	6.2	33.3	1.9	0.5	9.7	95.7
1976-77 . . . .	26.2	6.6	33.0	2.0	0.4	10.1	88.2
1977-78p . . . .	25.6	10.2	29.9	1.8	0.6	10.6	88.3

## Fruit exports

The gross value of exports of fruit and fruit products (excluding grapes) has in recent years accounted for some 3 per cent of the value of all food crops and their products. Fresh or chilled fruit (mostly apples, pears and citrus) account for about 40 per cent of this; preserved fruit (mostly canned pears and peaches) make up most of the remainder; only small quantities of dried fruits (other than grapes) are exported.

Value of exports of fresh, dried and preserved fruit in recent years peaked at \$90 million in 1972-73, trending downwards since that time although exports of preserved fruit showed some revival in 1976-77. In 1977-78 and 1978-79, there was a significant increase in the value of exports of fresh fruit while preserved fruit fell a little from the relatively high 1976-77 value.

Fresh fruit exports to Europe have been reduced in recent years mainly because of rising shipping costs and improved storage techniques in Europe. On the other hand, there has been some expansion to markets in other areas such as South East Asia.

## FRUIT EXPORTS: VALUE F.O.B.

(\$ million)

Year	Fresh and chilled			Canned or bottled					
	Apples	Pears	Oranges	Apricots	Peaches	Pears	Peaches and pears	Pine- apples	Fruit salad
1973-74 . . . .	20.1	7.7	3.2	1.8	16.8	15.4	3.0	1.1	6.0
1974-75 . . . .	16.1	8.2	2.1	1.5	9.7	11.9	3.1	1.3	5.7
1975-76 . . . .	12.8	10.1	2.9	1.1	13.3	10.5	2.0	1.6	4.1
1976-77 . . . .	9.4	8.1	1.0	0.9	14.5	16.1	2.1	1.7	4.5
1977-78 . . . .	13.8	9.5	4.3	0.8	13.4	13.6	2.3	1.5	3.8
1978-79p . . . .	15.6	15.7	5.6	0.8	12.2	17.2	1.9	1.2	4.3

## FRUIT: VALUE OF PRODUCTION AND EXPORTS

(\$ million)

Year	Gross value			Exports(a) value f.o.b.
	Orchard fruit	Berry and other	Total	
1973-74 . . . .	178	39	217	87
1974-75 . . . .	215	51	267	71
1975-76 . . . .	206	63	269	68
1976-77 . . . .	227	64	291	72
1977-78 . . . .	242	78	320	79
1978-79p . . . .	n.y.a.	n.y.a.	370	95

(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 international 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 established average seasonal export returns for each variety, which were 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 publications *Fruit Statistics, Australia* (7303.0), *Production Bulletin No. 3 Food, Drink and Tobacco, Australia* (8359.0), *Apparent Consumption of Foodstuffs and Nutrients, Australia* (4306.0) and *Value of Agricultural Commodities Produced, Australia* (7503.0).

**Grapevines**

Grapes require a warm to 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. 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 Area 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—			
	Bearing	Total	Winemaking	Drying	Quantity	Gross value
	'000 ha	'000 ha	'000 tonnes fresh weight	'000 tonnes fresh weight	'000 tonnes fresh weight	\$m
1973-74 . . . . .	62.5	70.0	327.9	209.7	555.2	83.2
1974-75 . . . . .	64.0	71.3	424.6	286.2	733.6	101.4
1975-76 . . . . .	63.1	70.4	418.5	274.1	714.6	102.3
1976-77 . . . . .	64.4	71.1	457.4	250.0	728.4	128.5
1977-78 . . . . .	64.9	71.1	430.3	236.3	693.6	141.6
1978-79p . . . . .	62.3	71.1	n.y.a.	n.y.a.	n.y.a.	147.6

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

The bearing area of grapes has risen by about 25 per cent since 1969-70, the new plantings being mainly of specialised wine grapes. Production of winegrapes has increased by over 30 per cent since 1969-70. The multipurpose grape production base has not shown much change over this period, apart from annual variations due to seasonal conditions. Multipurpose grapes are used predominantly for winemaking and drying, the latter process being particularly susceptible to any adverse seasonal conditions. There has been an increased diversion of multipurpose grapes to winemaking over the past decade and this has resulted in a decline in the volume of grapes dried. Since the domestic consumption of dried vine fruit is stable at about 1.5 kg per head per year, reductions in grapes dried, result in lower exports. However, a world shortage, caused by damage to crops, over the past three years has created a temporary buoyant market. The Australian Dried Fruit Corporation, which commenced operation on 1 January 1979, replacing the Australian Dried Fruit Control Board, is the body responsible for the organisation of the export trade in vine fruits. The Corporation has taken over the work of the Board and has the additional function of administering the new Dried Vine Fruit Stabilisation Scheme 1978-80. The scheme is based on many of the principles of the 1971-76 scheme with significant modifications to certain aspects of the former scheme. The new scheme covers sultanas only and assures a guaranteed minimum, which is to be indexed annually, for growers.

**Varietal Statistics: 1978 Season**

Varietal information relating to vines, grape production by end use and yield per hectare, is obtained in a special collection conducted at 30 June in New South Wales, Victoria, South Australia and Western Australia of all growers who reported vines in the Agricultural Census. No varietal information is collected in the other States and Territories. There is continuing research into correct identification of varieties to find out which are most suitable for different wine styles and different regions and several varieties have recently been re-named. The varieties used in the table below are those recommended by the Commonwealth Grape Advisory Subcommittee which was abolished in September 1977 but have not as yet been corrected by recent research. These varieties have been classified by the Bureau of Agricultural Economics (October 1978) according to four categories—red wine grapes, white wine grapes, multipurpose grapes and other grapes. The data are aggregated from the States of New South Wales, Victoria, South Australia and Western Australia only.

**VITICULTURE: AREA AND PRODUCTION BY VARIETY, 1978 SEASON**

<i>Variety</i>	<i>Area (hectares)</i>		<i>Production: grapes used for— (tonnes, freshweight)</i>		
	<i>Bearing</i>	<i>Total</i>	<i>Winemaking</i>	<i>Drying</i>	<i>Total(a)</i>
<b>Red Wine Grapes—</b>					
Cabernet Sauvignon . . . . .	3,557	4,313	20,504	—	20,606
Grenache . . . . .	5,744	5,968	46,990	—	47,587
Malbec . . . . .	392	418	3,782	—	3,794
Mataro . . . . .	1,750	1,874	14,342	—	14,527
Shiraz . . . . .	9,521	10,096	62,595	1,032	64,901
Other red wine grapes . . . . .	451	523	3,447	—	3,467
<i>Total</i> . . . . .	<i>21,415</i>	<i>23,192</i>	<i>151,660</i>	<i>1,032</i>	<i>154,882</i>
<b>White Wine Grapes—</b>					
Doradillo . . . . .	2,128	2,259	34,497	325	34,939
Palomino . . . . .	1,054	1,080	15,073	—	15,091
Pedro Ximenez . . . . .	1,430	1,454	15,650	—	15,659
Rhine Riesling . . . . .	2,695	3,624	17,464	—	17,496
Clare Riesling . . . . .	1,072	1,139	12,133	—	12,165
Semillon . . . . .	2,436	2,744	24,660	—	24,664
Trebbiano . . . . .	1,479	1,793	18,927	—	18,960
Other white wine grapes . . . . .	1,957	2,490	15,658	—	15,796
<i>Total</i> . . . . .	<i>14,251</i>	<i>16,583</i>	<i>154,062</i>	<i>325</i>	<i>154,769</i>
<b>Multipurpose Grapes—</b>					
Currant . . . . .	2,011	2,096	328	13,801	14,179
Muscat Gordo Blanco . . . . .	3,752	4,353	55,726	8,661	65,636
Sultana . . . . .	18,164	18,655	54,448	204,316	264,975
Waltham Cross . . . . .	1,494	1,578	3,164	8,105	16,158
<i>Total</i> . . . . .	<i>25,421</i>	<i>26,682</i>	<i>113,666</i>	<i>234,883</i>	<i>360,948</i>
<b>Other Grapes(b)—</b>					
Frontignan . . . . .	349	400	2,953	—	2,965
Muscat Hamburg . . . . .	520	584	1,624	—	2,929
Ohanez . . . . .	275	309	403	51	2,215
Purple Cornichon . . . . .	277	308	701	—	2,428
Other . . . . .	1,022	1,397	4,999	18	6,835
<i>Total</i> . . . . .	<i>2,443</i>	<i>2,998</i>	<i>10,680</i>	<i>69</i>	<i>17,372</i>
<b>Total Grapes</b> . . . . .	<b>63,530</b>	<b>69,454</b>	<b>430,069</b>	<b>236,311</b>	<b>687,973</b>

(a) Includes grapes used for table and other purposes. (b) With the exception of Frontignan (used predominantly in dessert wines) these grapes are specialist table grapes.

**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		
	'000 tonnes	'000 tonnes	'000 tonnes	'000 tonnes	'000 tonnes	'000 tonnes	'000 tonnes	Value f.o.b. \$m	
1973-74	3.2	40.6	3.6	47.4	25.6	1.2	26.9	17.7	1.7
1974-75	5.2	53.4	6.3	64.9	31.4	0.2	31.6	20.0	1.3
1975-76	5.6	55.3	4.3	65.2	51.3	2.4	53.7	27.1	1.6
1976-77	4.9	49.6	6.1	60.6	43.4	0.9	44.4	26.7	1.5
1977-78	5.4	50.9	4.3	60.6	33.9	2.0	36.1	35.8	1.3
1978-79p	n.y.a.	n.y.a.	n.y.a.	n.y.a.	45.4	1.8	47.5	46.9	n.y.a.

**Wine industry**

Australia produces brandy and wine of every type. 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 (sherries, ports, etc.) By 1970, however, table wines had exceeded the volume of fortified wines.

**PRODUCTION, CONSUMPTION AND EXPORT OF WINES**

Year	Pro-duction	Exports		Consumption in Australia per capita
		Quantity	Value f.o.b.	
		mil. litres	\$m	
1973-74	294.7	8.2	5.6	11.0
1974-75	361.2	6.5	5.3	12.3
1975-76	356.2	6.2	5.5	13.0
1976-77	383.1	5.0	5.4	13.7
1977-78	332.3	4.7	5.4	14.3
1978-79p	n.y.a.	5.4	6.3	16.5

For further details on viticulture, dried vine fruit, wine, etc. see the following publications: *Fruit Statistics, Australia* (7303.0), *Sales and Stocks of Australian Wine and Brandy* (8504.0) and *Viticulture, Australia* (7310.0)

**Miscellaneous crops**

The principal crops not covered above include fodder crops, tobacco, hops, mushrooms and nursery crops which, in 1977-78, had gross values as follows:

Crops	Gross value	Per cent of total crop gross value
	\$m	%
Fodder crops (hay)	35.4	1.2
Tobacco	53.8	1.8
Hops	5.4	0.2
Mushrooms	12.6	0.4
Nurseries	89.6	3.0

**Fodder crops**

As well as crops 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
1973-74	325	1,034	29.3	1,097	888
1974-75	216	669	19.8	853	532
1975-76	230	738	25.0	752	395
1976-77	287	891	30.1	709	311
1977-78	313	795	33.9	853	210
1978-79p	301	n.y.a.	n.y.a.	818	n.y.a.

(a) Principally oaten and wheat 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
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
1977	487	890	803	5,016	842
1978	463	819	760	3,928	709

**Tobacco**

Tobacco is a summer-growing annual which requires a temperate to tropical climate, adequate soil moisture and frost-free period of approximately five months. In Australia, 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 f.o.b.)		Imports (value)	
			Unmanu- factured	Manu- factures	Unmanu- factured	Manu- factures
			'000 tonnes	\$'000	\$'000	\$'000
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
1976-77	9.4	16.1	522	4,981	26,440	20,569
1977-78	8.5	15.1	823	7,601	38,640	24,072
1978-79p	9.5	n.y.a.	693	7,465	36,148	23,588

**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 near Manjimup in Western Australia is under hops.

The area planted to hops is about 1,000 hectares, with over 55 per cent in Tasmania. Production is about 2,200 tonnes, 60 per cent of which is used by breweries with the remainder being exported.

**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 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 . . . . .	481.1	2,136	4,480	6,616	10.0	(b)203
1976-77—						
New South Wales . . . . .	361.0	2,353	2,503	4,857	7.0	150
Australia . . . . .	555.9	(b)2,353	(b)2,503	7,130	9.9	(b)229
1977-78—						
New South Wales . . . . .	359.3	2,730	2,008	4,738	7.3	149
Australia . . . . .	545.4	(b)2,730	2,496	7,289	12.6	244

(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
1973-74 . . . . .	5,712	119	928	2,494	1,563
1974-75 . . . . .	6,881	88	664	3,903	2,857
1975-76 . . . . .	5,416	50	438	3,159	2,466
1976-77 . . . . .	6,789	82	870	4,497	5,532
1977-78 . . . . .	6,611	97	998	5,030	6,855
1978-79p . . . . .	5,718	88	964	2,956	1,180

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

## Nurseries

AREA USED FOR NURSERY AND CUT FLOWER ACTIVITIES  
(Hectares)

Year	Area
1972-73	2,599
1973-74	2,910
1974-75	2,960
1975-76	3,205
1976-77	3,534
1977-78	3,307

Additional information on nursery activities has been collected by some individual States and published by them. In 1974-75 and 1977-78 the collection was extended to all States. All known private establishments which undertook the propagation, cultivation or growing-on of plants were included. Results of the 1977-78 Australia-wide collection are shown below.

NURSERY STATISTICS: 1977-78

	Nursery products (\$'000)	
	Purchases	Sales
New South Wales	8,859	42,411
Victoria	6,854	30,596
Queensland	1,668	13,711
South Australia	2,079	10,079
Western Australia	1,825	9,329
Tasmania	551	4,496
Northern Territory	136	521
<b>Australia</b>	<b>21,971</b>	<b>111,143</b>
Seeds and bulbs	2,718	3,812
Seedlings	1,965	13,476
Cut flowers (incl. orchids)	2,098	16,315
Cultivated turf	180	3,454
Fruit trees and vines	1,664	6,518
Rose bushes	1,130	4,100
Shrubs and trees	9,940	48,549
Other plant material	2,275	14,918

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

### Livestock

Since 1861, annual enumerations of livestock 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 then from 1974 on in single years, are given in the following table.

LIVESTOCK: AUSTRALIA, 1861 TO 1979  
('000)

Year	Cattle	Sheep	Pigs	Year	Cattle	Sheep	Pigs
1861	3,958	20,135	351	1951	15,229	115,596	1,134
1871	4,276	41,594	543	1961	17,332	152,679	1,615
1881	7,527	62,184	816	1971	24,373	177,792	2,590
1891	10,300	97,881	891	1974	30,839	145,175	2,505
1901	8,640	70,603	950	1975	32,793	151,653	2,197
1911	11,745	98,066	1,026	1976	33,434	148,643	2,173
1921	13,500	81,796	674	1977	31,533	135,360	2,229
1931	11,721	110,568	1,072	1978	29,330	131,445	2,217
1941	13,256	122,694	1,797	1979p	27,107	134,231	2,268

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: 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. Although cattle numbers declined after 1957 because of drought conditions and heavy slaughterings, they began to increase 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 followed in the next three years by a decline to the 1972 level.

**CATTLE NUMBERS**  
(\*000)

31 March	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	Aust. (incl. A.C.T.)
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
1977 . . . . .	8,348	5,104	11,506	1,608	2,464	819	1,664	31,533
1978 . . . . .	7,330	4,572	11,490	1,242	2,271	733	1,674	29,330
1979p . . . . .	6,477	4,134	10,859	1,086	2,092	660	1,785	27,107

**Classification of cattle**

**CATTLE NUMBERS, BY AGE, SEX, PURPOSE**  
(\*000)

Classification	31 March					
	1974	1975	1976	1977	1978	1979p
<b>Milk cattle—</b>						
Bulls used or intended for service . . . . .	77	78	72	65	60	56
Cows, heifers and heifer calves . . . . .	3,558	3,527	3,407	3,095	2,903	2,733
House cows and heifers . . . . .	121	122	122	105	99	79
<b>Total, milk cattle . . . . .</b>	<b>3,757</b>	<b>3,727</b>	<b>3,602</b>	<b>3,265</b>	<b>3,062</b>	<b>2,867</b>
<b>Meat cattle—</b>						
Bulls used or intended for service . . . . .	652	702	687	628	571	545
Cows and heifers (1 year and over) . . . . .	13,800	14,897	15,202	14,021	12,728	11,770
Calves under 1 year . . . . .	7,079	7,751	8,055	7,385	6,513	5,835
Other cattle (1 year and over) . . . . .	5,551	5,716	5,888	6,235	6,456	6,090
<b>Total, meat cattle . . . . .</b>	<b>27,082</b>	<b>29,066</b>	<b>29,833</b>	<b>28,269</b>	<b>26,268</b>	<b>24,241</b>
<b>Total, all cattle . . . . .</b>	<b>30,839</b>	<b>32,793</b>	<b>33,434</b>	<b>31,533</b>	<b>29,330</b>	<b>27,107</b>

**Comparison with other countries**

**WORLD CATTLE NUMBERS(a)**  
(Millions)

(Source: Australian Meat and Livestock Corporation)

Country	1976	1977	1978	Country	1976	1977	1978
Argentina . . . . .	61	58	57	India . . . . .	n.a.	241	243
Australia . . . . .	33	32	29	Mexico . . . . .	29	29	29
Brazil . . . . .	98	97	100	United States of America . . . . .	128	123	116
European Economic Community . . . . .	78	77	78	U.S.S.R. . . . .	111	110	113

(a) Statistics are not shown for a number of Asian countries, including China.

Beef cattle production is often combined with cropping, dairying and sheep. 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, Australia* (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 1975, the numbers had increased to 151,653,000, but in March 1978 the numbers had fallen to 131,442,000, the lowest since 1955. Improved seasonal conditions during 1978, which continued into 1979 have enabled producers to begin rebuilding their flocks. By March 1979, numbers had risen to 134.2 million.

#### SHEEP NUMBERS (Millions)

31 March	N.S.W.	Vic.	Qld	S.A.	W.A.	Aust. (incl. N.T., A.C.T.)	
						Tas.	A.C.T.
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
1977	49.7	21.9	13.3	15.1	31.2	4.0	135.4
1978	48.0	22.0	13.4	14.1	29.8	4.0	131.4
1979p	48.4	22.8	13.6	14.9	30.3	4.2	134.2

#### SHEEP, BY AGE AND SEX (Millions)

31 March	Sheep: 1 year and over				Lambs and hoggets (under 1 year)	Total, sheep and lambs
	Rams	Breeding ewes	Other ewes	Wethers		
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
1977	1.7	64.7	6.3	34.8	27.8	135.4
1978	1.7	63.6	5.4	32.6	28.2	131.4
1979p	1.7	65.8	4.8	31.5	30.4	134.2

The sheep and wool industry is the most important rural industry in Australia; in 1978-79 provisional value of production data showed that the combined value of wool and sheep slaughtered accounted for nearly one-fifth the gross value of all agriculture. This proportion varies with wool and meat prices and seasonal conditions. In 1978 Australia had 14 per cent of the world's woolled sheep but produced 27 per cent of the world's greasy wool output. In addition, in 1978-79 the sheep industry produced just under 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.



Comparisons with other countries

**WORLD SHEEP NUMBERS AND WOOL PRODUCTION**  
(Compiled from the Commodities Division of the Commonwealth Secretariat)

Country	World sheep numbers			Est. raw wool production		
	1977	1978	1979p	1977	1978	1979p
	(millions)			('000 tonnes, greasy)		
Argentina . . . . .	34.0	34.8	n.y.a.	176	172	171
Australia . . . . .	135.4	131.4	134.2	703	677	703
Brazil . . . . .	25.1	25.1	n.y.a.	35	28	29
China (excl. Taiwan Province) . . . . .	59.0	59.0	n.y.a.	82	81	81
India . . . . .	40.0	40.0	n.y.a.	35	35	35
Iran . . . . .	35.3	35.4	n.y.a.	28	28	28
New Zealand . . . . .	59.1	59.5	n.y.a.	303	311	315
South Africa . . . . .	23.5	23.5	n.y.a.	103	106	105
Turkey . . . . .	41.5	42.7	n.y.a.	54	54	54
United Kingdom . . . . .	28.1	29.6	n.y.a.	48	47	49
Uruguay . . . . .	16.0	16.5	n.y.a.	63	62	63
U.S.A. . . . .	12.8	12.3	12.2	53	50	47
U.S.S.R. . . . .	139.8	141.0	143.1	436	459	462
<i>Total</i> . . . . .	<i>916.5</i>	<i>922.0</i>	<i>n.y.a.</i>	<i>2,508</i>	<i>2,509</i>	<i>2,533</i>

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

Year ended 31 March	Number at beginning of season	Lambs marked	Live sheep exports	Sheep and lambs slaughtered(a)	Estimated deaths on farms(b)	Number at end of season
1974 . . . . .	140.0	43.0	1.1	27.2	9.5	145.2
1975 . . . . .	145.2	46.2	1.4	27.2	11.2	151.7
1976 . . . . .	151.7	44.1	1.8	31.7	13.6	148.6
1977 . . . . .	148.6	38.4	3.0	34.1	14.6	135.4
1978 . . . . .	135.4	39.5	4.2	30.1	9.1	131.4
1979p . . . . .	131.4	42.7	3.7	26.8	9.4	134.2

(a) Comprises statistics from abattoirs and other major slaughtering establishments and includes estimates of animals slaughtered on farms and by country butchers; also includes animals condemned or those killed for boiling down. (b) Balance item.

**LAMBING**

Year ended 31 March	Number of breeding ewes at start 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
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	62
1977 . . . . .	68.5	63.0	58.0	92	38.4	66	56
1978 . . . . .	64.7	59.8	56.6	95	39.5	70	61
1979p . . . . .	63.6	58.5	57.4	98	42.5	74	67

For further details on sheep, see the publications *Livestock Statistics, Australia* (7203.0) and *Wool Statistics, Australia* (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 higher grain prices during the mid 1970s led to some contraction in the pig industry. Since 1975 numbers have stabilised at approximately 2.2 million pigs. 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)

31 March	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Aust.
							(incl. N.T., A.C.T.)
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
1977 . . . . .	760	397	441	317	242	65	2,229
1978 . . . . .	737	401	463	311	237	64	2,217
1979p . . . . .	725	390	487	330	271	61	2,268

For further details on pigs see the publication *Livestock Statistics, Australia* (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)

31 March	Chickens				Other Poultry			Total all poultry
	Hens and pullets for egg production	Meat strain chickens (broilers)	Other fowls and other chickens	Total chickens	Ducks	Turkeys	Other poultry	
1974 . . . . .	17,043	24,724	2,384	44,151	265	540	(b)	44,956
1975 . . . . .	16,409	22,592	1,758	40,759	164	413	(b)	41,336
1976 . . . . .	15,905	25,306	1,566	42,778	254	333	(b)	43,365
1977 . . . . .	15,982	27,184	(b)	43,166	187	347	397	44,097
1978 . . . . .	15,773	26,681	(b)	42,454	163	322	330	43,269
1979p . . . . .	14,920	27,603	(b)	42,524	247	448	323	43,542

(a) Data are for numbers of poultry on rural establishments as reported in the annual Agricultural Census. (b) Not collected.

*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)

Year	Chickens hatched, intended for—			
	Eggs set(a)	Meat strains(b)	Egg strains(c)	Egg production(d)
1973-74 . . . . .	253,881	151,654	1,686	17,624
1974-75 . . . . .	225,610	140,139	856	15,634
1975-76 . . . . .	242,351	158,088	585	14,664
1976-77 . . . . .	260,697	168,724	515	15,578
1977-78 . . . . .	277,563	186,987	473	13,933
1978-79p . . . . .	297,151	204,324	478	13,721

(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 publication *Livestock Statistics, Australia* (7203.0) and *Chicken Hatchings and Poultry Slaughterings, Australia* (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 those killed for boiling down.

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

Year	Carcass weight					Dressed weight(b)		
	Beef	Veal	Mutton	Lamb	Pig meat	Total meat	Chickens	Total all poultry(c)
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
1976-77	1,893	95	304	246	185	2,722	196	218
1977-78	2,082	102	261	253	199	2,897	220	246
1978-79p	1,954	69	239	248	198	2,708	244	271

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

**PRODUCTION OF MEAT : AUSTRALIA 1931-32 TO 1978-79**  
(’000 TONNES)

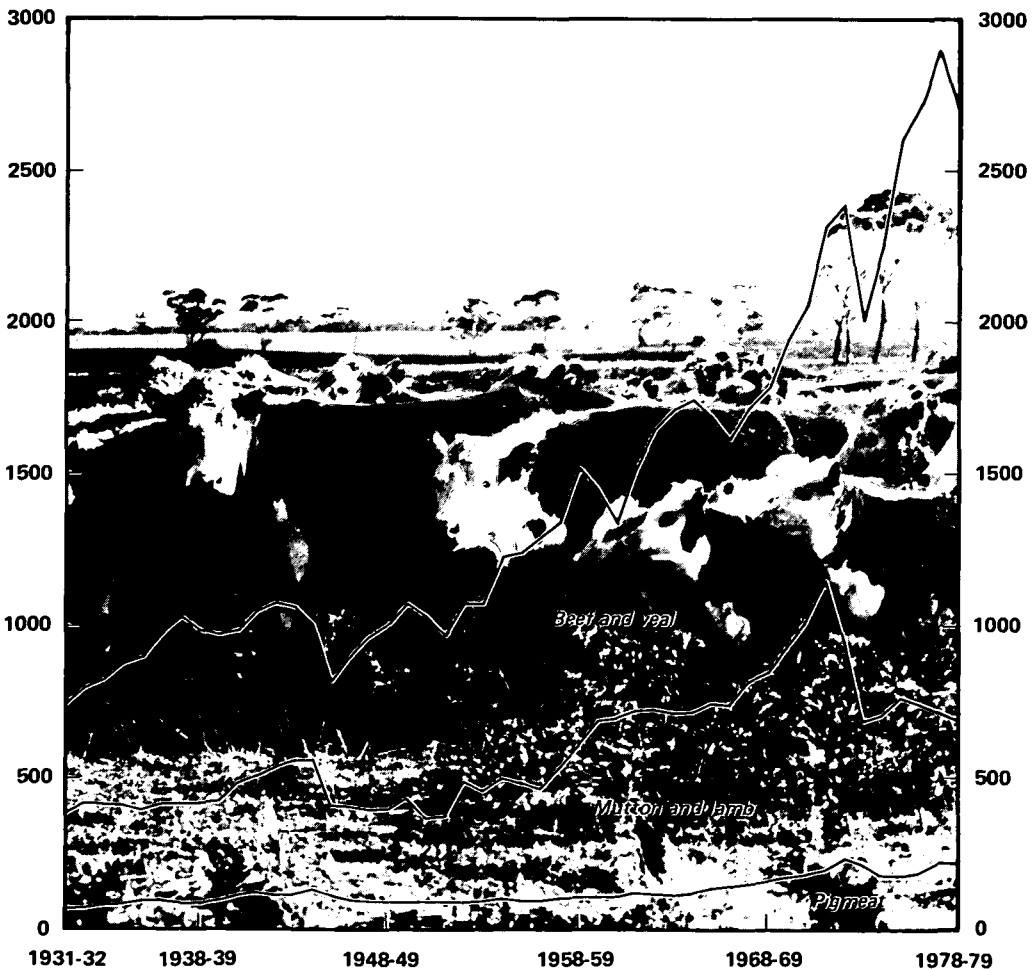


PLATE 36

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

<i>Year</i>	<i>Cattle</i>	<i>Calves</i>	<i>Sheep</i>	<i>Lambs</i>	<i>Pigs</i>	<i>Chickens (a)</i>	<i>Other fowls (b) and turkeys</i>	<i>Ducks and drakes</i>
1973-74 . . . . .	6.1	1.2	11.3	13.9	4.2	139.8	10.1	1.2
1974-75 . . . . .	6.9	1.5	12.7	16.0	3.4	134.2	10.5	1.3
1975-76 . . . . .	8.5	2.1	16.8	16.1	3.3	144.2	9.2	1.2
1976-77 . . . . .	9.5	2.4	16.3	15.3	3.5	155.1	9.8	1.3
1977-78 . . . . .	10.5	2.5	13.8	15.3	3.7	174.7	10.7	1.7
1978-79p . . . . .	9.5	1.8	12.1	14.6	3.6	191.0	10.8	1.8

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

### Mutton and lamb

Australian farming is dominated by multi-enterprise farms; in particular, wool and meat production are closely related activities and in some periods the need to compensate for low incomes from wool has led to increased emphasis on lamb production. The strengthening of wool prices during 1972-74 saw a marked decline in lamb and mutton production from the record levels of 1971-72 at which time wool prices were at their lowest level since 1946-47. Flock numbers had been declining from the March 1970 peak of 180.1 million as poor seasonal conditions and the rising trend in beef prices, apparent since 1964-65 and which accelerated in 1972-73, induced many woolgrowers to either diversify or switch completely into beef production. Beef prices were viewed as less volatile than those for wool. Sheep numbers started to expand slowly again after the sudden collapse in beef prices during 1973-74, although poor seasonal conditions over 1976-78 partially halted this build-up and saw a slight pick-up in mutton and lamb production. Numbers recovered somewhat during 1978-79 which saw an improved season, firm wool prices and continued strengthening of sheepmeat prices as production of sheepmeat levelled out.

Consumption of lamb and mutton dropped sharply in 1972-73 due to the high prices of these meats as farmers attempted to rebuild their flocks following the recovery in wool prices and the relatively low beef retail prices. Substitution of beef was especially significant after the 1973-74 fall in beef prices. However, this downward trend in sheepmeat consumption appeared to be slowing in 1978-79 as beef prices rose relative to sheepmeat prices. The market for sheepmeat has been relatively buoyant since 1978 due largely to increased demand on export markets. The domestic market absorbs a high proportion of Australian lamb production although the Middle East has purchased sizeable quantities in recent years. Australia is the world's largest exporter of mutton at present, the main outlets being Japan and Korea.

### Beef and Veal

Since the late 1960s, beef and veal production in Australia has more than doubled reaching a peak of 2.1 million tonnes in 1976-77 and 1977-78. While this rise followed a rapid expansion of the beef herd during the late 1960s and early to mid 1970s, the peak production levels were associated with low beef prices, poor seasonal conditions and producer liquidity pressure. The year 1978-79 has seen a change in this trend with beef and veal production at 2,023 thousand tonnes carcass weight, down 7.4 per cent on the 1977-78 record level of 2,184 thousand tonnes carcass weight, cattle numbers down 20 per cent on the 1976 level and slaughterings 12.4 per cent below the record 1977-78 level. The stimulus for expansion came mainly from the development of overseas markets as approximately half of all beef and veal produced in Australia is exported, with the U.S.A., Japan and Canada accounting for around 60 per cent of this. However, with poor economic conditions and heavy domestic supplies of beef in the mid 1970s many of the major importing countries imposed quantitative limitations on their beef imports. Major beef exporting countries, such as Australia, were hard hit: returns to Australian producers were depressed for four years. Beef and veal exports during 1978-79 totalled a record 1,212,300 tonnes carcass weight, 8.7 per cent above the level of 1977-78. This dramatic recovery in livestock saleyard and domestic beef retail prices, since 1977-78 in response to strengthened export demand has seen a growing proportion of total beef and veal output being shipped to export markets.

### Pigmeat

Pigmeat production peaked at 236,000 tonnes in 1972-73. Subsequent recovery has been slow and production has remained at around 200,000 tonnes carcass weight over 1977-78 and 1978-79, although numbers have fallen slightly over this period. Over half the pigmeat produced is sold as pork, with the remainder as bacon, ham and smallgoods.

A relatively small amount of pigmeat is exported, with levels fluctuating significantly from year to year. Papua New Guinea and Japan are major importers.

**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 helped to reduce production costs relative to other meats. The price competitiveness of chicken meat compared with other meats, especially beef, continues to improve consolidating the position of poultry meat as the second most important meat after beef in Australian diets.

**EXPORTS OF FRESH, CHILLED OR FROZEN MEAT**

<i>Year</i>	<i>Beef</i>	<i>Veal</i>	<i>Mutton</i>	<i>Lamb</i>	<i>Pork</i>	<i>Poultry</i>
QUANTITY (a) ('000 tonnes)						
1973-74	704.7	25.2	103.6	22.5	8.6	4.3
1974-75	601.0	10.2	120.7	24.6	1.1	5.1
1975-76	783.4	16.8	201.5	28.9	5.2	5.0
1976-77	919.7	17.1	241.5	59.8	3.1	4.7
1977-78	1,095.5	19.8	199.0	57.0	1.3	5.6
1978-79p	1,191.4	20.9	169.2	46.5	1.9	6.7
VALUE f.o.b. (\$ million)						
1973-74	610.6	25.1	62.5	16.7	8.1	3.3
1974-75	315.8	6.4	48.9	15.5	1.6	4.3
1975-76	475.3	11.5	81.2	20.3	7.6	4.3
1976-77	603.7	14.5	121.3	46.3	4.6	5.6
1977-78	807.8	18.1	123.9	57.2	2.2	6.6
1978-79p	1,339.5	26.6	135.2	52.0	3.7	8.0

(a) Quantity data on beef, veal, mutton and lamb exports are shown in carcass weight equivalents.

**Exports of live animals**

During the 1970s exports of live sheep to the Middle East for slaughter have substantially increased from 800,000 in 1971-72 to 3.9 million in 1978-79. Over the last five years a substantial trade in cattle for slaughter has developed, primarily with Hong Kong and other Asian countries and exports of breeding cattle especially have picked up in the past two years. During 1978-79 some 90,000 head of cattle were exported for either breeding or slaughter purposes.

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

**EXPORTS OF LIVE ANIMALS**

<i>Year</i>	<i>Livestock</i>			<i>Poultry</i>		
	<i>Sheep and Lambs</i>	<i>Total(a)</i>		<i>Day old chicks</i>	<i>Total</i>	
		<i>Number</i>	<i>Value f.o.b.</i>		<i>Number</i>	<i>Value f.o.b.</i>
		- '000-	\$'000		- '000-	\$'000
1973-74	1,061	1,086	26,528	347	436	250
1974-75	1,449	1,461	22,931	204	253	166
1975-76	1,845	1,869	23,231	256	284	242
1976-77	3,388	3,431	57,109	279	329	205
1977-78	4,124	4,188	98,069	503	584	387
1978-79p	3,871	3,961	110,634	441	617	621

(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	tonnes	\$'000 f.o.b.	tonnes	\$'000 f.o.b.
1973-74	23,143	37,802	55,760	492	813	22,517	25,289
1974-75	17,638	36,850	42,422	438	695	15,226	18,221
1975-76	16,042	38,218	45,193	386	761	20,605	24,541
1976-77	15,848	43,432	52,677	489	1,127	30,294	36,393
1977-78	15,746	49,030	49,347	539	1,479	24,114	35,660
1978-79p	19,748	51,868	45,356	564	1,730	29,135	52,330

(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. (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
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	706.3	203.9	183.3	152.9	1,246.4
1976-77	1,010.8	299.0	197.4	178.4	1,685.7
1977-78	1,177.1	359.9	212.8	220.0	1,969.7
1978-79p	2,155.2	444.0	244.4	255.6	3,099.1

(a) Includes adjustment for net exports (overseas and interstate) of live animals.

## 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)							
1973-74	555	116	208	90	73	33	184
1974-75	881	123	243	70	67	31	187
1975-76	936	98	231	61	72	23	201
1976-77	976	66	188	61	78	24	222
1977-78	964	53	195	61	89	24	239
1978-79p	784	64	199	53	n.y.a	n.y.a	269
PER CAPITA PER YEAR (kg)							
1973-74	41.1	8.6	15.4	6.7	5.4	2.4	13.6
1974-75	64.3	9.0	17.7	5.1	4.9	2.3	13.6
1975-76	67.6	7.0	16.7	4.4	5.2	1.7	14.5
1976-77	69.7	4.7	13.4	4.4	5.6	1.7	15.8
1977-78	68.1	3.7	13.8	4.3	6.3	1.7	16.9
1978-79p	54.7	4.5	13.9	3.7	n.y.a	n.y.a.	18.8

(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 publications: *Meat Statistics, Australia* monthly (7204.0), quarterly (7205.0) and annual (7206.0), *Chicken Hatchings and Poultry Slaughtering, Australia* (7207.0), *Value of Agricultural Commodities Produced, Australia* (7503.0) and *Apparent Consumption of Foodstuffs and Nutrients, Australia* (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 Producers 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**

A component of both the Livestock Slaughter Levy and Livestock Export Charge is used to finance the Corporation's activities.

#### **Beef Industry (Incentive Payments) Act**

This Act was promulgated on 31 October 1977. Its purpose was to enable payments to be made to beef producers, provided they met certain conditions related to cattle husbandry procedures, including carrying out recognised disease control. The legislation provided 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 included:

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

The subsidy was 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.

## **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'.

Since the 1946-47 season, the average clean yield of Australian wool has been assessed annually. This work was initiated by the former Australian Wool Realisation Commission and is carried on by the Australian Wool Corporation. 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 59.93 per cent in 1977-78.

Wool scoured and carbonised in Australia before export, however, has a somewhat lower clean yield than the whole clip, because much of greasy wool treated locally for export in this form is dirty low-grade wool. The quantity of scoured and carbonised wool exported during 1978-79 was about 12 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 37, page 349.

## SHEARING, WOOL PRODUCTION AND VALUE

Year	Wool production					Total wool	
	Sheep and lambs shorn	Average fleece weight	Shorn wool	Other wool(a)	Total wool		
					Quantity	Gross value (b)	
	million	kg	'000 tonnes	'000 tonnes	'000 tonnes	\$m	
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	
1976-77 . . . . .	145.8	4.28	623.9	78.8	702.7	1,173	
1977-78 . . . . .	143.5	4.22	605.5	71.6	677.0	1,206	
1978-79p . . . . .	147.1	4.38	644.4	59.0	703.4	1,354	

(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.





**Wool receivals**

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	Receivals			Dealers as per cent of total receivals	Shorn wool production(b)
	Brokers (NCWSB)	Dealers(a)	Brokers and dealers		
	—'000 tonnes—			per cent	'000 tonnes
1973-74	507.3	117.1	624.4	18.8	644.3
1974-75	593.9	135.3	729.2	18.5	725.3
1975-76	525.2	161.6	686.9	23.5	681.4
1976-77	476.5	151.5	628.0	24.1	623.9
1977-78	459.2	155.2	614.4	25.3	605.5
1978-79p	481.9	160.4	642.3	25.0	644.4

(a) Includes brokers who are not members of the National Council of Wool Selling Brokers of Australia (NCWSB). (b) Obtained from the annual Agricultural Census.

Some twenty "pastoral houses" operate as wool selling brokers and handle the greater part of the Australian wool clip, arranging the disposal of growers' consignments through the auction system. During the last 15 years, however, private treaty trading has re-emerged as a significant alternative method of disposal. In the seventies there has been a big increase in private trading reaching a quarter of the 1978-79 clip. The proportions vary between States, with Western Australian private buyers in 1973-74 taking 39 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 as a per cent of total agriculture	Value of wool exports as a per cent of total Australian exports
1973-74	19.2	18.6
1974-75	16.2	9.3
1975-76	16.2	11.0
1976-77	17.3	14.0
1977-78	17.3	10.8
1978-79p	13.7	12.3

**Stocks**

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)

<i>At 30 June</i>	<i>Stocks of—</i>					
	<i>Raw wool(a)</i>		<i>Semi-processed wool</i>		<i>Total wool</i>	
	<i>Greasy</i>	<i>Clean</i>	<i>Greasy</i>	<i>Clean</i>	<i>Greasy</i>	<i>Clean</i>
1973 . . . . .	114.5	63.6	11.2	6.3	125.7	70.1
1974 . . . . .	181.8	104.3	10.5	6.1	192.4	110.4
1975 . . . . .	450.1	268.7	7.5	4.5	457.7	273.2
1976 . . . . .	372.9	223.2	9.5	5.7	382.4	228.9
1977 . . . . .	265.6	156.3	8.7	5.2	274.2	161.4
1978 . . . . .	225.8	134.4	8.7	5.2	234.5	139.6

(a) Includes from about 1971 or 1972 varying amounts of stock held overseas by the Australian Wool Corporation: 1974, 5,600 tonnes greasy; 1975, 34,200 tonnes greasy; 1976, 35,600 tonnes greasy; 1977, 46,900 tonnes greasy; 1978, 46,600 tonnes greasy.

**Wool consumption**

Two series of calculations on Australian wool consumption are shown below.

1. Consumption of raw wool, which measures consumption in terms of scoured wool used by mills.
2. Consumption of processed wool, which is calculated from the usage of woollen and worsted yarn.

Raw wool comprises greasy, slipe, scoured and carbonised wool. This series has been included for comparison purposes with other countries.

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)

<i>Year</i>	<i>Consumption of raw wool</i>		<i>Consumption of processed wool</i>					
			<i>Worsted yarn used (a)</i>		<i>Woollen yarn used (b)</i>		<i>Total</i>	
	<i>Greasy</i>	<i>Clean</i>	<i>Greasy</i>	<i>Clean</i>	<i>Greasy</i>	<i>Clean</i>	<i>Greasy</i>	<i>Clean</i>
1972-73 . . . . .	55.5	32.2	21.4	12.2	17.6	10.6	40.0	23.3
1973-74 . . . . .	45.7	26.0	16.5	9.2	17.5	10.3	35.1	20.1
1974-75 . . . . .	31.3	18.2	10.9	6.3	14.3	8.6	26.3	15.4
1975-76 . . . . .	48.7	26.9	14.3	7.8	17.3	9.9	32.7	18.2
1976-77 . . . . .	49.1	27.0	12.7	6.8	15.0	8.5	28.7	15.9
1977-78 . . . . .	46.4	27.6	11.9	6.9	14.2	8.8	27.3	16.3

(a) Wool content of yarns containing a mixture of wool and other fibres.

(b) Comprises pure and mixed woollen yarn.

**Exports of wool**

In 1978-79, of the 566,577 tonnes of greasy and slipe wool exported, 154 thousand (27 per cent) went to Japan. Other large shipments were 15 per cent to the U.S.S.R., 8 per cent to Italy and 7 per cent to both the Federal Republic of Germany and France.

**EXPORTS OF WOOL**

Year	Selected exports ('000 tonnes: greasy basis)			Total exports	
	Greasy and slipe	Scoured and carbonised	Exported on skins	Greasy basis (a)	Value f.o.b.
				'000 tonnes	\$m
1973-74	488.1	41.4	51.0	591.7	1,248
1974-75	456.9	58.0	61.4	585.6	786
1975-76	583.5	67.9	65.5	731.1	1,032
1976-77	675.6	81.5	70.9	849.1	1,587
1977-78	493.6	69.5	64.5	645.9	1,291
1978-79p	566.6	88.3	53.1	728.4	1,693

(a) Includes processed wool.

**Wool marketing**

There is no Government control over the marketing of Australian wool, but the Australian Wool Corporation (AWC), a Commonwealth statutory authority, performs functions aimed at assisting the orderly and efficient disposal of wool, as well as encouraging demand. Central to this is a floor price scheme, under which the Government (since 1974-75) sets a minimum floor price for wool at the beginning of each season. The Corporation sets prices for each category, based on the Government's indicator price, and then buys wool which does not make the floor price at auction. It also buys wool during other temporary dips in the market, under its flexible reserve operations. The wool purchased is held in stock and sold when the market improves, with a view to stabilising the market. The major finance for the Scheme comes from a 5 per cent levy on growers' gross returns from wool, but in 1978-79 the reserve price operations returned a profit of \$24.1 million. Net profits earned and interest paid by the Corporation on use of the Fund are added to grower contributions in the Market Support Fund.

Growers also pay a 3 per cent levy on their income from wool to finance wool promotion world-wide and research, with substantial contributions also coming from the Commonwealth Government. Most of the promotion funds are remitted to the International Wool Secretariat, which is based in London, for promotion outside Australia. Australia provides two-thirds of the I.W.S. budget.

The Corporation has, as required under the *Wool Industry Act 1972*, been active since its formation on 1 January 1973 in encouraging more efficiency within the existing marketing system. Changes in the system include a swing to sale predominantly by samples of wool rather than by bales displayed on the showroom floor; denser and improved packaging and a substantially reduced rate of increase in overseas shipping freight rates for wool.

Funds for other activities of the Corporation (notably wool promotion) are provided jointly by woolgrowers, through a levy on shorn wool proceeds and the Commonwealth Government. In October 1977, the AWC commenced a wool marketing trial known as the Limited Offer to Purchase Scheme (LOPS). The object of the scheme is to demonstrate handling and selling economies which can be achieved by improved methods of wool handling, packing and transporting. Advantages of the scheme for woolgrowers include a 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 prices. Under the conditions laid down by the Government for the trial the AWC has authority to purchase up to 150,000 bales direct from woolgrowers in each twelve month period of the trial. The scheme will terminate on 30 June 1980.

*Objective measurement of wool.* Since the commercial introduction of this technique in 1971, an increasing proportion of the Australian wool clip has been sold by sample and objective measurement rather than by traditional showing and subjective appraisal. In 1978-79, almost 80 per cent of wool sold at auction was sold in this way. Sale by sample and objective measurement is a procedure in which a representative sample of wool together with a laboratory test certificate giving data on the important value-determining characteristics of the wool (yield, fibre diameter and vegetable matter content) is accepted by woolbuyers as a sufficient basis for their purchases.

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 publications: *Livestock Statistics, Australia* (7203.0), *Sheep Numbers, Shearing and Wool Production, Australia* (7211.0), *Wool Production and Shearing, Australia* (7210.0), *Wool Statistics, Australia* (7212.0), *Brokers and Dealers Receipts of Taxable Wool, Australia* (monthly) (7213.0), *Overseas Trade, Australia* (5409.0, 5410.0), *Production Bulletin No. 4, Australia* (8360.0) and *Value of Agricultural Commodities Production, Australia* (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	<i>Cows and heifers used or intended for production of milk or cream for sale</i>				
	<i>Bulls used or intended for service</i>	<i>Cows (in milk and dry)</i>	<i>Heifers</i>		<i>House cows and heifers(a)</i>
			<i>1 year and over</i>	<i>Under 1 year</i>	
1974	77	2,371	633	554	121
1975	78	2,355	634	537	122
1976	72	2,345	595	467	122
1977	64	2,174	537	385	105
1978	60	2,056	480	367	99
1979p	55	1,925	445	371	77

(a) One year and over, kept for the rural establishment's own milk supply.

The problems previously facing the Australian dairy industry are largely being solved by the attrition of smaller farms and factories and the concentration of milk production and processing facilities into larger units in the most suitable dairy areas of each State. The recent tendency for milk production and domestic butter consumption to stabilise, together with rising domestic demand for other dairy products such as cheese and improved average returns for the smaller quantities of exports, are benefiting both cost containment and income levels.

#### Domestic market

In recent years there has been a marked swing from the production of butter and its by-products, skim milk powder and casein, to cheese and whole milk powder, accompanied by an increased percentage of total milk production entering direct human consumption and wet products such as yoghurt and table cream. This latter aspect has been accompanied by the emergence of State Dairy Authorities and Milk Boards. Producer income disparities are appearing between States, mainly as a result of differences in the percentage of each State's production entering the higher priced direct human consumption liquid milk market.

The combination of the reduced milk production and growth in population has increased the importance of the domestic market and reduced the milk equivalent of exports, to the extent that permission to export prescribed products has been suspended from time to time to ensure adequate domestic butter and skim milk powder supplies. Increased emphasis is being placed on domestic distribution and quality and efforts to control cheese imports to prevent them disrupting its domestic price structure.

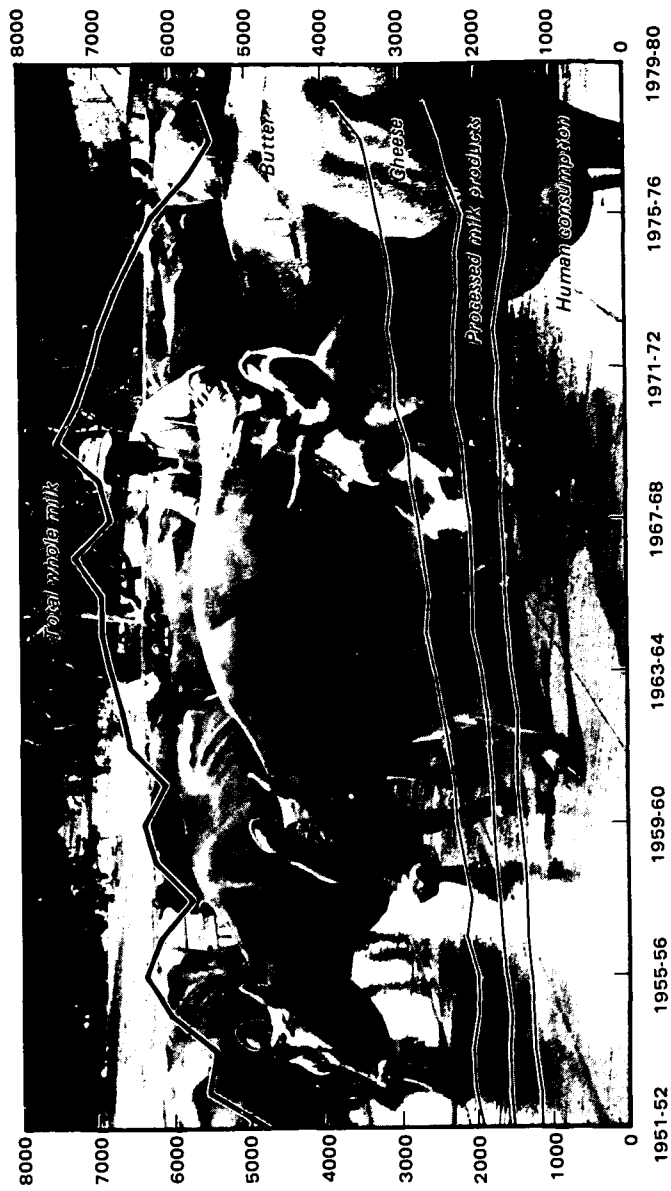
PRODUCTION, UTILISATION AND GROSS VALUE OF WHOLE MILK

Year	Whole milk used for—				Total whole milk
	Factory butter(a)	Non-processed cheese(a)	Processed milk products	Other purposes(a)(b)	
QUANTITY (million litres)					
1973-74	3,624	889	535	1,670	6,718
1974-75	3,345	936	627	1,589	6,497
1975-76	3,026	1,057	631	1,534	6,248
1976-77	2,447	991	734	1,601	5,773
1977-78	1,968	985	927	1,559	5,439
1978-79p	1,837	1,196	992	1,630	5,656
GROSS VALUE (\$ million)					
1973-74	184.5	47.0	32.7	196.3	(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
1976-77	(d)128.1	(d)54.3	(d)38.8	275.2	520.9
1977-78	(d)120.7	(d)62.7	(d)49.3	290.2	548.9
1978-79p	(d)156.9	(d)97.4	(d)78.3	336.3	668.9

(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) Principally fluid milk for domestic purposes. (c) Includes data not available for publication in the components. (d) Data are incomplete. Tasmanian data are shown in *Total Whole Milk*.

MILK PRODUCTION AND UTILISATION : AUSTRALIA  
1951-52 TO 1978-79

MILLION LITRES



**Exports**

The United Kingdom has, in the past, been Australia's main butter market, but this market was effectively closed when Britain joined the EEC. However, a recent 3,000 tonne cheese import quota has been obtained from the Community, and a further import quota for 4,000 tonnes of cheese from the United States of America. Whilst in the past there was some export diversification from the U.K. in the form of butteroil exports to South East Asia, together with the development of a substantial trade in skim milk powder, declining Australian butter production and the consequent reduction in skim milk powder manufacture has recently caused supply problems to Asia Dairy Industries (Hong Kong) Ltd. associated joint venture recombining plants. The export trade has become increasingly concentrated in cheese, wherein Japan and the Middle East have replaced the U.K. as the major export outlet.

**PRODUCTION AND TRADE OF BUTTER AND CHEESE**

Year	Butter			Cheese			Imports
	Factory production	Exports (a)		Factory production (c)	Exports (b)		
		Quantity	Value f.o.b.		Quantity	Value f.o.b.	
	'000 tonnes	'000 tonnes	\$m	'000 tonnes	'000 tonnes	\$m	'000 tonnes
1973-74	175.5	37.9	27.2	95.8	38.0	28.9	7.4
1974-75	161.3	18.9	19.5	98.6	34.2	34.6	8.0
1975-76	147.6	52.5	42.2	112.6	31.5	35.2	9.7
1976-77	118.2	22.6	26.0	103.5	52.5	56.2	10.6
1977-78	111.7	17.5	22.7	115.6	44.1	55.6	11.3
1978-79p	101.3	25.7	35.5	141.3	51.5	69.0	12.1

(a) Excludes ghee and butter concentrates. (b) Includes processed cheese exports. (c) 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 capita per year				
	Fluid whole milk	Butter	Cheese	Fluid whole milk	Butter	Cheese	Margarine	
							Table	Other
	mil. litres	'000 tonnes	'000 tonnes	litres	kg	kg	kg	kg
1973-74	1,544	104	71	114.5	7.7	5.3	1.7	4.0
1974-75	1,460	98	71	106.6	7.2	5.2	2.2	3.8
1975-76	1,401	93	79	101.1	6.8	5.7	3.1	3.9
1976-77	1,467	81	74	104.8	5.8	5.3	4.7	3.5
1977-78	1,450	71	94	102.4	5.0	6.6	5.7	2.9
1978-79p	1,486	61	91	103.7	4.2	6.3	6.2	3.0

**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. Following the inception of the prescribed products levy arrangements under the *Dairy Industry Stabilization Act 1977* and associated Levy Acts, the Prices Justification Tribunal has adopted the practice of exempting manufacturers of prescribed products from notification of increases in the domestic bulk wholesale prices upon the Corporation's advice to the Tribunal of the Minister for Primary Industry's approval of upward variations in assessed export prices and product levies.

**The Australian Dairy Industry Conference**

From August 1977, the Australian Dairy Industry Conference replaced the ADIC. The 34 member Conference comprises 17 members from the Australian Dairy Farmers' Federation, 15 manufacturing members from the Australian Dairy Products Federation, one member from the Australian Dairy Traders' Federation and one member from the Market Milk Federation.

For further details on the dairying industry see the publications, *Dairying and Dairy Products, Australia* (7209.0), *Milk Statistics, Australia* monthly (7208.0), *Production Bulletin No. 3, Food, Drink and Tobacco, Australia* (8359.0), and *Production of Non-Processed Cheese, Australia* (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 suitable flora.

NOTE: Statistics in the following table relate, for the years since 1974-75, to apiarists with forty or more hives. Information to 1973-74 covered the operations of apiarists with five or more hives (six or more in New South Wales).

#### 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
1972-73	5,926	395	528	18.1	45.7	8,130	261	294
1973-74(a)	5,779	409	544	21.2	51.8	11,768	324	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
1976-77	2,274	374	493	14.9	42.9	8,405	275	777
1977-78	2,151	363	479	18.6	51.2	13,480	329	1,096

(a) 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
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	6,330	217	399
1976-77	6.6	4,602	255	694
1977-78	4.5	4,462	145	542

#### Honey levy

Under the *Honey Levy Acts* 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 December 1978, is 1.8 cents per kg; it can be increased by regulation to a maximum of 2.2 cents per kg.

In April 1974, an export charge 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. The current rate of charge which became effective on 1 December 1978, is 0.5 cents per kg; it can be increased by regulation to a maximum of 1 cent per kg.

For further information, see the publication *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
1972-73 . . . . .	193.2	117.4	45.4	35.9	162.1	12.4
1973-74 . . . . .	189.0	147.8	23.0	31.5	165.0	12.4
1974-75 . . . . .	197.7	171.7	21.5	38.4	170.4	12.4
1975-76 . . . . .	196.0	178.5	29.7	32.5	172.6	12.5
1976-77 . . . . .	192.7	182.2	21.5	28.3	173.5	12.4
1977-78p . . . . .	200.7	195.0	20.4	34.4	176.0	12.4

(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 in Australia, by virtue of hen quota (licencing) legislation introduced by all States to more closely align production with domestic demand, is now trending to stabilise at economic levels. A noticeable effect of hen quotas has been overall improvement of production efficiency and increased capacity of the industry to sustain higher producer net returns as crippling production surpluses diminish.

**Egg Consumption**

In the absence of data for eggs produced in areas outside the control of the State Egg Boards and by hens kept in backyards throughout the country, egg consumption figures are uncertain. In 1978-79, most States were however recording increased commercial sales indicative of an increase in consumption and thought to be at least partially influenced by higher red meat price levels.

**Exports**

Egg exports from Australia are predominantly in egg pulp form with Japan the principal market. World markets continue to be over supplied with eggs and all forms of egg products are subject to severe price competition virtually on a year round basis. High and increasing freight costs from Australia are a barrier to trade with the more distant markets such as the Arabian Gulf and Middle East and emphasise the importance of closer markets in the Asian and Pacific areas. Trends towards self-sufficiency in egg production in all areas do not enhance export prospects.

**EXPORTS OF EGGS AND EGG PRODUCTS**

Year	Eggs not in shell					
	Eggs in shell		Liquid form		Dry	
	Quantity	Value f.o.b.	Quantity	Value f.o.b.	Quantity	Value f.o.b.
	'000 doz	\$'000	tonnes	\$'000	tonnes	\$'000
1973-74 . . . . .	2,203	872	12,974	5,521	401	654
1974-75 . . . . .	2,343	951	11,627	7,229	96	121
1975-76 . . . . .	2,684	1,033	15,858	9,412	58	96
1976-77 . . . . .	1,293	655	12,693	9,151	35	96
1977-78 . . . . .	1,249	655	9,739	10,272	56	158
1978-79p . . . . .	962	514	8,200	9,790	99	374

For further details on eggs and egg products see the publications *Chicken Hatchings and Poultry Slaughtering, Australia* (7207.0) and *Apparent Consumption of Foodstuffs and Nutrients, Australia* (4306.0).

**Rural improvements****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 currently dependent upon imported phosphate rock, but domestic rock deposits are available for development in the future.

The chief sources of Australia's supplies of natural phosphate have been Nauru, Christmas Island and Ocean Island. Sodium Nitrate is obtained chiefly from Chile and the U.S.A.

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**

<i>Year</i>	<i>Area fertilised</i>	<i>Super-phosphate used</i>	<i>Nitrogenous fertilisers used</i>	<i>Other fertilisers used</i>
	'000 ha	'000 tonnes	'000 tonnes	'000 tonnes
1972-73 . . . . .	26,076	3,491	276	392
1973-74 . . . . .	29,529	4,110	340	360
1974-75 . . . . .	24,858	3,349	335	360
1975-76 . . . . .	18,975	2,216	353	296
1976-77 . . . . .	21,266	2,303	326	428
1977-78 . . . . .	24,324	2,538	490	383

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>Year</i>	<i>Selected crops and pastures</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)						
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	18,975
1976-77 . . . . .	10,006	447	6,745	3,366	285	21,266
1977-78 . . . . .	11,324	469	7,827	3,960	289	24,324
SUPERPHOSPHATE USED ('000 tonnes)						
1972-73 . . . . .	2,220	80	677	408	20	3,491
1973-74 . . . . .	2,709	89	804	402	21	4,110
1974-75 . . . . .	2,070	112	719	326	21	3,349
1975-76 . . . . .	1,027	53	665	354	26	2,216
1976-77 . . . . .	1,166	63	615	351	27	2,303
1977-78 . . . . .	1,335	67	635	392	25	2,538

## PRODUCTION AND IMPORTS OF FERTILISERS

Item	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79p	
<b>PRODUCTION</b>							
Superphosphate (a) . . . . .	'000 tonnes	5,288	3,309	2,185	3,137	3,388	3,646
Mixed chemical fertilisers (including complete manures) . . . . .	'000 tonnes	1,503	1,049	708	870	n.y.a.	n.y.a.
Leaf and foliage type fertilisers (including dry and liquid form) . . . . .	tonnes	300	368	1,129	n.p.	n.y.a.	n.y.a.
Manures (without added chemical fertilisers) (b) . . . . .	tonnes	18,864	9,554	20,344	17,132	n.y.a.	n.y.a.
<b>IMPORTS</b>							
Crude fertilisers (mainly natural phosphate) . . . . .	'000 tonnes	3,113	2,651	1,464	1,330	1,612	2,381
	Value \$m	35.5	74.6	18.4	42.5	55.6	83.4
Manufactured, mineral or chemical fertilisers—							
Nitrogenous (c) . . . . .	'000 tonnes	7	12	6	22	23	29
	Value \$m	0.5	2.5	0.7	2.6	2.6	4.2
Potassic (d) . . . . .	'000 tonnes	183	211	110	165	162	169
	Value \$m	5.2	9.5	7.3	9.6	9.1	9.8
Other (e) . . . . .	'000 tonnes	7	5	18	71	35	72
	Value \$m	0.9	1.1	1.3	8.9	5.1	10.3

(a) Includes double and triple superphosphate and ammonium phosphate in terms of single superphosphate. (b) Blood, bone and/or offal, and other material. (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 compounds of the main elements nitrogen, phosphorus and potassium (N.P.K. complete fertilisers).

Note: Production data are derived from the Annual Manufacturing Census and the recorded monthly production.

**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. The statistics below have been compiled from returns collected from the operators of aircraft engaged in aerial agriculture. The collection was commenced in 1956 by the then Department of Civil Aviation and is now the responsibility of the Department of Transport.

**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	
1974 . . . . .	4,870	1,870	6,857	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
1978 . . . . .	2,403	1,782	4,260	287.2	3.8	69.5
1979 . . . . .	3,205	2,981	6,243	374.2	5.9	100.6

(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(a)  
(<sup>'000</sup> 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
1972-73 . . . . .	1,099.7	250.8	70.9	64.9	59.5	44.9	94.9	1,685.5	11.8
1973-74 . . . . .	983.5	177.4	66.2	59.2	54.6	44.3	85.4	1,470.6	9.7
1974-75 . . . . .	955.1	183.7	74.0	68.9	56.1	44.9	86.3	1,469.0	10.6
1975-76 . . . . .	920.4	252.7	73.3	63.4	52.9	45.6	66.6	1,474.9	10.1

(a) Irrigation statistics were not collected in 1976-77 or 1977-78.

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 previous table.

SOURCES OF IRRIGATION WATER: 1971-72 AND 1974-75  
(<sup>'000</sup> hectares)

State	Surface water					Town or country reticulated water supply	Total
	Other(a)						
	State irrigation schemes	Direct from rivers creeks, lakes, etc.	From farm dams	Underground water supply(b)			
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 publication *Rural Land Use, Improvements, Agricultural Machinery and Labour, Australia, 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, Australia* (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 rural establishments 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(a)

(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
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	

(a) Employment statistics have not been collected since 1975-76.

### EMPLOYED PERSONS IN AGRICULTURE AND SERVICES TO AGRICULTURE

Month of August	Males	Married women	All females	Persons
1974	312.2	58.4	70.9	383.1
1975	303.8	62.0	76.5	380.3
1976	287.6	71.0	82.9	370.5
1977	294.2	73.6	89.1	383.3
1978	274.9	63.7	78.1	353.0
1979	295.4	69.1	80.3	375.7

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

### 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.