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); 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; Agricultural improvements and employment.

Introduction

The development of Australian agricultural 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.

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

From 1980, establishments with agricultural activity have been included in the statistics if the enterprises operating the establishments had or were expected to have estimated value of agricultural operations of $1,500 or more during the current season.

Details of the method used in the calculation of the estimated value of agricultural operations are contained in the publication *Agricultural Sector: Structure of Operating Units, Australia* (7102.0). 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). For the agricultural sector, a 'multi-State enterprise' is an enterprise which belongs to an enterprise group which undertakes agricultural activities in more than one State.
- *Establishment* (the smallest economic unit). The establishment covers all operations carried out by one enterprise at a single physical location.

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 1978–79. 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). These publications provide 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, 1978–79

Unit	*N.S.W.*	*Vic.*	*Qld*	*S.A.*	*W.A.*	*Tas.*	*Australia(a)*
Agricultural establishments	50,369	48,847	34,440	19,978	17,144	6,143	177,218
Agricultural enterprises	48,562	47,536	32,867	19,391	16,065	5,847	170,989

(*a*) Includes enterprises in the Northern Territory, Australian Capital Territory and multi-State enterprises.

AGRICULTURAL ENTERPRISES, INDUSTRY AND ESTIMATED VALUE OF OPERATIONS: 1978–79

ASIC Code (1978 edition)	*Industry of enterprise*	*Estimated value of operations ($'000)*											
		2–9	*10–19*	*20–29*	*30–39*	*40–49*	*50–59*	*60–74*	*75–99*	*100–149*	*150–199*	*200+*	*Total*
0124	Poultry for meat	72	83	105	95	60	44	43	38	31	18	36	625
0125	Poultry for eggs	120	105	92	84	76	65	99	115	166	67	210	1,199
0134	Grapes	1,531	1,686	662	287	159	84	92	83	144	114	199	5,041
0135	Plantation fruit	351	487	391	256	162	99	98	94	39	26	24	2,027
0136	Orchard and other fruit	1,986	1,268	962	718	507	365	333	337	247	114	131	6,968
0143	Potatoes	196	244	226	239	156	131	159	146	146	46	56	1,745
0144	Vegetables (except potatoes)	1,389	1,231	688	452	319	231	243	250	226	114	184	5,327
0181	Cereal grains (incl. oilseeds n.e.c.)	1,723	1,786	1,930	1,999	1,937	1,671	2,112	2,395	2,421	981	1,145	20,100
0182	Sheep-cereal grains	784	1,865	2,670	2,812	2,570	2,184	2,442	2,718	2,380	961	793	22,179
0183	Meat cattle-cereal grains	919	929	709	602	481	312	359	374	347	138	132	5,302
0184	Sheep-meat cattle	2,329	2,449	1,986	1,449	1,014	776	778	780	681	222	271	12,735
0185	Sheep	4,411	3,598	2,796	1,987	1,410	996	1,028	1,012	754	270	235	18,497
0186	Meat cattle	17,143	6,536	2,734	1,473	828	582	569	526	459	163	429	31,442
0187	Milk cattle	2,350	5,860	6,334	3,457	1,656	852	672	390	173	42	37	21,823
0188	Pigs	889	622	390	262	238	140	132	173	135	42	73	3,096
0191	Sugar cane	89	220	482	975	988	775	870	804	622	203	317	6,345
0192	Peanuts	22	58	79	82	54	39	50	38	25	8	7	462
0193	Tobacco	33	13	88	188	184	140	132	91	53	11	32	965
0194	Cotton	1	1	–	4	1	5	10	19	22	30	82	175
0195	Nurseries	380	271	109	171	87	67	97	74	71	34	74	1,435
0196	Agriculture n.e.c.	2,402	513	185	110	61	47	29	27	25	14	88	3,501
	Total (ASIC Code 01)	**39,120**	**29,825**	**23,618**	**17,702**	**12,948**	**9,605**	**10,347**	**10,484**	**9,167**	**3,618**	**4,555**	**170,989**

AGRICULTURAL ENTERPRISES, INDUSTRY, LEGAL STATUS AND ESTIMATED VALUE OF OPERATIONS: 1978–79

ASIC Code (1978 edition)	*Industry of Enterprise*	*Legal status*						
		Sole operator	*Family partnership*	*Other partnership*	*Private incorporated company*	*Public incorporated company*	*Other(a)*	*Total enterprises*
0124	Poultry for meat	138	390	26	62	3	6	625
0125	Poultry for eggs	349	708	37	84	5	16	1,199
0134	Grapes	1,498	3,258	107	130	5	43	5,041
0135	Plantation fruit	732	1,205	49	26	2	13	2,027
0136	Orchard and other fruit	2,237	4,234	177	254	5	61	6,968
0143	Potatoes	537	1,099	36	59	1	13	1,745
0144	Vegetable (except potatoes)	1,729	3,292	120	149	3	34	5,327
0181	Cereal grains (incl. oilseeds n.e.c.)	4,902	13,400	503	838	19	438	20,100
0182	Sheep-cereal grains	4,545	15,647	577	921	7	482	22,179
0183	Meat cattle-cereal grains	1,559	3,165	165	299	6	108	5,302
0184	Sheep-meat cattle	4,069	6,968	512	804	22	360	12,735
0185	Sheep	6,338	10,082	637	860	25	555	18,497
0186	Meat cattle	13,244	14,678	1,010	1,647	55	808	31,442
0187	Milk cattle	6,643	13,894	418	470	18	380	21,823
0188	Pigs	1,010	1,884	74	95	2	31	3,096
0191	Sugar cane	1,399	4,573	121	135	2	115	6,345
0192	Peanuts	122	315	10	6	1	8	462
0193	Tobacco	234	663	32	13	2	21	965
0194	Cotton	32	95	14	28	–	6	175
0195	Nurseries	444	723	103	147	3	15	1,435
0196	Agriculture n.e.c.	1,646	1,524	133	160	3	35	3,501
	Total (ASIC Code 01)	**53,407**	**101,797**	**4,861**	**7,187**	**189**	**3,548**	**170,989**
	Estimated value of operations ($'000)—							
	2–9	5,606	4,169	356	391	5	308	10,835
	10–19	3,717	3,411	243	337	2	261	7,971
	20–29	2,396	3,248	168	262	2	174	6,250
	30–39	1,555	2,901	171	256	1	161	5,045
	40–49	1,012	2,402	128	252	6	117	3,917
	50–59	636	1,947	130	196	–	81	2,990
	60–74	560	2,104	149	270	5	83	3,171
	75–99	453	2,103	187	340	3	86	3,172
	100–149	317	1,840	154	385	2	73	2,771
	150–199	102	736	73	165	–	18	1,094
	200 and more	126	715	112	352	9	32	1,346
	Total all size groups	**16,480**	**25,576**	**1,871**	**3,206**	**35**	**1,394**	**48,562**

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

AGRICULTURAL ESTABLISHMENTS OPERATED BY AGRICULTURAL AND NON-AGRICULTURAL ENTERPRISES BY INDUSTRY OF ESTABLISHMENT: 1978–79

ASIC Code (1978) edition)	*Industry of establishment*	*Operated by agricultural enterprises*	*Operated by non-agricultural enterprises*
0124	Poultry for meat	630	11
0125	Poultry for eggs	1,210	23
0134	Grapes	5,064	148
0135	Plantation fruit	2,036	21
0136	Orchard and other fruit	7,007	140
0143	Potatoes	1,763	23
0144	Vegetables (except potatoes)	5,344	66
0181	Cereal grains (incl. oilseeds n.e.c.)	20,467	245
0182	Sheep-cereal grains	22,498	142
0183	Meat cattle-cereal grains	5,379	109
0184	Sheep-meat cattle	12,882	251
0185	Sheep	18,887	268
0186	Meat cattle	32,590	1,243
0187	Milk cattle	22,029	165
0188	Pigs	3,142	85
0191	Sugar cane	6,457	42
0192	Peanuts	475	4
0193	Tobacco	967	3
0194	Cotton	177	1
0195	Nurseries	1,443	61
0196	Agriculture n.e.c.	3,583	137
	Total (ASIC Code 01)	**174,030**	**3,188**

AGRICULTURAL ESTABLISHMENTS OPERATED BY AGRICULTURAL ENTERPRISES BY INDUSTRY OF ENTERPRISE AND INDUSTRY OF ESTABLISHMENT: 1978–79

		Industry of establishment														
						Cereal grains sheep cattle and pigs (ASIC Code 018)										
ASIC Code (1978 edition)	*Industry of enterprise* / *Description*	*Poultry (012)*	*Fruit (013)*	*Vege-tables (014)*	*Total (012)-(014)*	*Cereal grains (incl. oilseeds (0181)*	*Sheep cereal grains (0182)*	*Meat cattle-cereal grains (0183)*	*Sheep-meat cattle (0184)*	*Sheep (0185)*	*Meat cattle (0186)*	*Milk cattle (0187)*	*Pigs (0188)*	*Total (018)*	*Other agri-culture (019)*	*Tot esta lishmen (0*
A	Agriculture, Forestry, Fishing and Hunting															
01	Agriculture															
012	Poultry	1,838	2	–	1,840	7	2	–	1	2	15	2	2	31	2	1,8
013	Fruit	–	14,063	–	14,063	4	3	–	2	6	26	5	–	46	2	14,1
014	Vegetables	–	5	7,096	7,101	5	–	–	2	2	26	5	2	42	4	7,1
	Total (ASIC Codes 012-014)	**1,838**	**14,070**	**7,096**	**23,004**	**16**	**5**	**–**	**5**	**10**	**67**	**12**	**4**	**119**	**8**	**23,1**
018	Cereal grains, sheep, cattle and pigs															
0181	Cereal grains (incl. oilseeds)	–	7	1	8	20,244	96	31	23	42	103	5	8	20,552	17	20,5
0182	Sheep-cereal grains	–	4	–	4	111	22,330	11	39	141	49	6	4	22,691	4	22,6
0183	Meat cattle-cereal grains	–	1	–	1	19	1	5,287	11	8	73	6	8	5,413	7	5,4
0184	Sheep-meat cattle	1	2	–	3	12	13	5	12,713	77	107	3	1	12,931	5	12,9
0185	Sheep	–	7	4	11	13	37	7	59	18,579	65	2	2	18,764	7	18,7
0186	Meat cattle	1	7	1	9	13	7	23	26	22	31,910	42	14	32,057	37	32,1
0187	Milk cattle	–	5	2	7	20	8	11	3	4	117	21,943	1	22,107	6	22,1
0188	Pigs	–	1	–	1	6	1	–	–	3	7	2	3,098	3,117	1	3,1
	Total (ASIC Code 018)	**2**	**34**	**8**	**44**	**20,438**	**22,493**	**5,375**	**12,874**	**18,876**	**32,431**	**22,009**	**3,136**	**137,632**	**84**	**137,7**
019	Other agriculture	–	3	3	6	13	–	4	3	1	92	8	2	123	13,010	13,1
	Total (ASIC Code 01)	**1,840**	**14,107**	**7,107**	**23,054**	**20,467**	**22,498**	**5,379**	**12,882**	**18,887**	**32,590**	**22,029**	**3,142**	**137,874**	**13,102**	**174,0**

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: 1978–79

	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 at constant prices	*Average unit gross value*
	$m	$m	$m		
Crops	4,931.2	735.1	4,196.1	1393	1107
Livestock slaughterings and other disposals	3,081.6	249.5	2,832.1	1238	2422
Livestock products	2,219.9	186.0	2,033.9	903	1501
Total agriculture	**10,232.7**	**1,170.6**	**9,062.1**	(*a*)**1232**	(*a*)**1485**

(*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

($ million)

	1974–75	1975–76	1976–77	1977–78	1978–79	1979–80p
Crops—						
Wheat for grain	1,256	1,249	1,051	934	2,296	2,179
Barley for grain	257	314	295	205	339	435
Sugar cane cut for crushing	491	436	472	421	396	549
Fruit and Nuts	267	269	290	334	401	431
Grapes	101	102	129	142	151	199
Vegetables	256	274	295	328	408	423
Pasture and grasses	150	129	147	118	161 }	936
Other crops	426	475	510	576	779 }	
Total crops	*3,204*	*3,247*	*3,189*	*3,058*	*4,931*	*5,152*
Livestock slaughterings and other disposals(*a*)—						
Cattle and calves	523	706	1,011	1,177	2,155	2,300
Sheep and lambs	178	204	299	357	429	614
Pigs	178	183	197	213	254	310
Poultry	140	153	178	220	244	299
Total	*1,019*	*1,246*	*1,686*	*1,967*	*3,082*	*3,523*
Livestock products—						
Wool	953	1,000	1,173	1,206	1,374	1,647
Whole milk	519	490	521	549	632	633
Eggs	170	175	179	196	199	211
Honey and beeswax	10	11	9	15	15	18
Total	*1,651*	*1,676*	*1,881*	*1,966*	*2,220*	*2,508*
Total agriculture	**5,874**	**6,170**	**6,756**	**6,991**	**10,233**	**11,183**

(*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)

	1973–74	1974–75	1975–76	1976–77	1977–78	1978–79
Crops—						
Barley for grain	953	1000	1264	1132	948	1606
Oats for grain	1267	1000	1305	1227	1133	2058
Wheat for grain	1078	1000	1081	1061	836	1636
Other grain cereals	1113	1000	1185	1183	988	1462
Sugar cane(*a*)	892	1000	1017	1165	1171	1013
Fruit and nuts	935	1000	885	867	815	971
Grapes	769	1000	986	1154	1013	1015
Vegetables	838	1000	944	1040	1086	1174
All other crops(*b*)	1082	1000	869	874	925	1264
Total	*1012*	*1000*	*1044*	*1046*	*934*	*1393*
Livestock slaughterings and other disposals—						
Cattle and calves(*c*)	854	1000	1192	1288	1415	1305
Sheep and lambs	871	1000	1083	1107	1116	1076
Pigs	1205	1000	993	1057	1137	1134
Poultry	1021	1000	1078	1151	1179	1281
Total(d)	*920*	*1000*	*1134*	*1211*	*1299*	*1238*
Livestock products—						
Wool	883	1000	951	886	851	887
Whole milk	1036	1000	971	928	862	931
Eggs	984	1000	989	898	949	922
Total(e)	*935*	*1000*	*960*	*897*	*863*	*903*
Agricultural output(*f*)	**954**	**1000**	**1046**	**1049**	**1008**	**1232**

(*a*) 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 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)

	1973–74	*1974–75*	*1975–76*	*1976–77*	*1977–78*	*1978–79*
Crops—						
Barley for grain	778	1000	967	1014	842	822
Oats for grain	885	1000	999	1018	1023	819
Wheat for grain	968	1000	921	794	890	1122
Other grain cereals	1018	1000	1030	1081	1119	1165
Sugar cane(*a*)	504	1000	881	828	730	802
Fruit and nuts	865	1000	1138	1289	1564	1579
Grapes	1073	1000	1027	1098	1421	1508
Vegetables	1104	1000	1123	1083	1164	1332
All other crops(*b*)	922	1000	1076	1231	1374	1281
Total	*873*	*1000*	*963*	*944*	*1004*	*1107*
Livestock slaughterings and other disposals—						
Cattle and calves(*c*)	2393	1000	1136	1506	1595	3160
Sheep and lambs	2058	1000	1013	1462	1740	2320
Pigs	807	1000	1039	1051	1052	1259
Poultry	928	1000	1014	1108	1334	1363
Total(*d*)	*1845*	*1000*	*1081*	*1360*	*1485*	*2422*
Livestock products—						
Wool	1461	1000	1104	1390	1488	1626
Whole milk	872	1000	973	1098	1251	1346
Eggs	875	1000	1051	1182	1204	1287
Total(*e*)	*1208*	*1000*	*1056*	*1273*	*1383*	*1501*
Agricultural output(*f*)	**1168**	**1000**	**1008**	**1114**	**1196**	**1485**

(*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	*1973–74*	*1974–75*	*1975–76*	*1976–77*	*1977–78*	*1978–79p*
Grain products—						
Flour (including flour for bread making)	76.8	74.2	73.9	72.8	67.6	70.2
Table rice	2.0	2.4	2.4	2.4	2.5	2.5
Breakfast foods	6.6	6.6	7.1	7.9	8.0	8.4
Total grain products	*85.7*	*83.2*	*83.6*	*83.1*	*78.1*	*81.1*
Fruit and fruit products—						
Citrus fruit(*a*)	31.3	36.7	39.6	32.8	35.8	35.9
Other fresh fruit	33.5	32.7	33.3	33.0	30.0	30.2
Jams, conserves, etc.	2.2	2.5	1.9	2.0	1.8	2.3
Dried fruits	2.4	1.8	2.2	2.0	2.0	1.0
Canned and bottled fruit	10.2	10.1	9.7	10.1	10.6	10.8
Total (fresh fruit equivalent)	*89.4*	*91.2*	*95.7*	*88.2*	*88.3*	*85.4*
Meat—						
Carcass meat (total)	71.9	96.2	95.8	92.3	90.1	77.8
Beef and veal	41.1	64.3	67.6	69.7	68.1	55.5
Mutton	8.6	9.0	7.0	4.7	3.7	4.6
Lamb	15.4	17.7	16.7	13.4	13.8	14.1
Pigmeat	6.7	5.1	4.4	4.4	4.6	3.7
Offal	4.4	5.2	5.9	6.2	6.5	5.6
Canned meat (canned weight)	2.4	2.3	1.7	1.7	1.7	1.4
Bacon and ham (cured carcass weight)	5.4	4.9	5.2	5.6	6.1	6.6
Total (carcass equivalent weight)	*86.7*	*111.1*	*110.8*	*108.1*	*107.0*	*94.2*
Poultry (dressed weight)	13.6	13.6	14.5	15.8	16.9	18.9
Vegetables—						
White potatoes	45.5	51.7	46.6	48.9	50.7	52.0
Other root and bulb vegetables	17.5	17.7	15.9	16.0	17.0	17.3
Tomatoes	14.9	10.1	14.3	14.6	13.2	13.8
Leafy and green vegetables	21.0	21.6	23.0	22.4	23.0	27.3
Other vegetables	18.7	19.2	18.2	19.7	21.7	23.3
Total (fresh equivalent weight)	*117.6*	*120.3*	*118.1*	*121.5*	*125.6*	*133.6*
Fish, fresh and frozen (edible weight)	3.8	2.9	3.1	3.0	3.3	3.1
Eggs and egg products	12.4	12.4	12.5	12.4	12.4	12.5
Equivalent number of eggs	219	219	220	219	219	221
Milk and milk products—						
Fluid whole milk (litres)	114.5	106.6	101.1	104.8	102.4	104.5
Condensed, concentrated and evaporated milk	4.0	4.2	4.8	5.0	4.9	4.8
Powdered milk	5.0	5.4	5.2	3.6	4.7	5.9
Infants' and invalids' food	1.5	2.1	1.4	1.1	1.2	1.1
Cheese (natural equivalent weight)	5.3	5.2	5.7	5.3	6.0	6.5
Oils and fats—						
Butter	7.7	7.2	6.8	5.8	5.0	4.2
Margarine—Table	1.7	2.2	3.1	4.7	5.7	5.9
Other	4.0	3.8	3.9	3.5	2.9	2.9
Sugar(*b*)	54.4	53.7	55.6	53.7	54.1	53.8
Nuts (in shell)—						
Peanuts	1.6	1.3	2.3	1.8	3.4	3.0
Tree nuts	3.0	3.2	3.3	3.2	3.1	2.6
Beverages—						
Tea	1.9	2.0	1.9	2.0	1.6	1.7
Coffee(*c*)	1.4	1.1	1.5	1.8	1.3	1.7
Aerated and carbonated waters (litres)	63.4	59.6	65.0	68.1	68.8	67.0
Beer (litres)	139.0	140.3	137.4	136.2	137.6	134.2
Wine (litres)	11.0	12.3	13.0	13.7	14.3	16.5
Spirits (litres alcohol)	1.2	1.2	1.1	1.3	1.3	1.1

(*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(*a*)
(Per capita per year)

Nutrient	*Unit*	*1976–77*	*1977–78*	*1978–79p*
Protein—				
Animal	g	69.2	70.1	67.1
Vegetable	g	31.5	30.1	31.3
Total	*g*	*100.7*	*100.2*	*98.4*
Fat (from all sources)	g	119.3	119.1	113.7
Carbohydrate	g	407.4	403.5	408.3
Calcium	mg	859.2	920.1	965.4
Iron	mg	15.7	15.7	15.1
Vitamin A activity	μg	1,580.6	1,616.2	1,568.0
Vitamin C (*b*)—				
Unadjusted	mg	92.5	95.5	103.4
Adjusted	mg	67.5	71.9	76.6
Thiamin (*b*)—				
Unadjusted	mg	1.6	1.5	1.5
Adjusted	mg	1.3	1.3	1.3
Riboflavin	mg	2.7	2.8	2.8
Niacin (*b*)—				
Unadjusted	mg	22.1	21.9	21.2
Adjusted	mg	38.2	38.0	37.0
Energy value	kJ	13,595	13,486	13,342

(*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	30.6.79	27,319	1,471	42,676	8,677	80,143
Victoria	30.6.80	13,857	130	2,378	6,395	22,760
Queensland	31.12.79	12,929	19,584	129,334	10,853	172,700
South Australia	30.6.79	6,749	61	55,473	36,155	98,438
Western Australia	31.12.79	16,519	2,386	97,074	136,571	252,550
Tasmania	30.6.79	2,494	96	148	4,092	6,830
Northern Territory	27.9.80	10,296	232	77,104	46,988	134,620
Australian Capital Territory(b)	1.4.80	1	1	49	192	243
Australia	..	**90,164**	**23,961**	**404,236**	**249,923**	**768,284**

(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 agricultural 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.)
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
1979	65.1	14.4	156.3	62.7	116.2	2.2	76.2	493.2
1980p	65.5	14.8	159.5	62.0	115.1	2.2	77.1	496.3

LAND UTILISATION: AUSTRALIA
(Million hectares)

Year	Area used for crops(a)	Area under sown pastures and grasses	Balance (b)	Total	
				Area of establishments	Percentage of Australian land area (768,284,000 hectares)
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
1978–79	17.4	26.7	449.1	493.2	64.2
1979–80p	17.9	26.5	451.9	496.3	64.6

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

The total area of agricultural establishments in 1979–80 constituted 64.6 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 represent up to 3.6 per cent of the area of agricultural 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 agricultural labour force (*see* page 338) is used on large areas of land with low carrying capacity.

Crops

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

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

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

AREA OF CROPS(*a*): 1860–61 TO 1979–80

('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	67	7	1	14,231
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	4,910	70	1	1	16,800
1978–79 . . .	5,020	2,209	2,307	2,827	4,993	80	2	1	17,438
1979–80p . .	5,232	2,302	2,313	2,759	5,254	65	2	1	17,928

(*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)*		
	1977–78	*1978–79*	*1979–80p*	*1977–78*	*1978–79*	*1979–80p*	*1977–78*	*1978–79*	*1979–80p*
Cereals for grain—									
Barley	2,803	2,785	2,486	2,383	4,006	3,723	205	339	435
Grain sorghum	394	469	518	714	1,125	n.y.a.	59	97	100
Maize	45	50	56	130	169	n.y.a.	12	16	16
Oats	1,076	1,359	1,128	990	1,763	1,419	100	100	91
Rice	91	110	116	490	692	603	61	98	92
Wheat	9,955	10,249	11,159	9,370	18,090	15,968	934	2,296	2,179
Legumes for grain	186	168	217	100	203	n.y.a.	30	43	49
Crops for hay—									
Barley	17	16	11	30	39	27	–	1	–
Oats	221	220	198	604	749	640	27	32	n.a.
Wheat	68	50	52	146	149	139	7	6	–
Crops for green feed, silage—									
Barley	76	52	63						
Forage sorghum	68	73	55	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Oats	573	595	653						
Wheat	54	22	53						
Sugar cane cut for crushing	295	252	267	23,493	21,457	21,149	421	396	549
Tobacco	9	8	8	15	15	n.y.a.	54	55	56
Cotton	42	50	56	132	155	n.y.a.	61	76	100
Peanuts	30	37	32	39	62	n.y.a.	20	29	26
Linseed	44	13	17	28	13	15	5	3	4
Rapeseed	19	22	41	16	23	39	3	5	10
Safflower	39	75	46	26	58	29	5	11	5
Sunflower	220	261	225	158	186	n.y.a.	37	46	40
Fruit (excl. grapes)	94	97	100	–	–	–	334	401	431
Orchard fruit	79	81	83	–	–	–	256	319	n.y.a.
Oranges				357	369	392	63	74	n.y.a.
Apples	n.a.	n.a.	n.a.	258	345	n.y.a.	83	100	110
Pears				108	128	n.y.a.	35	45	45
Peaches				62	65	69	17	21	24
Small and berry fruit	1	1	1	–	–	–	9	10	n.y.a.
Bananas	7	8	8	98	113	n.y.a.	50	51	51
Pineapples	6	6	7	99	105	n.y.a.	16	18	25
Grapes	71	71	70	694	716	n.y.a.	142	151	199
Vegetables	105	107	109	–	–	–	328	408	423
Potatoes	36	35	38	772	795	n.y.a.	94	123	124
Total, all crops (excluding pastures)	**16,800**	**17,438**	**17,928**	–	–	–	**3,058**	**4,934**	**5,152**

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 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 grass, subterranean clover, medics or lucerne. 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 and Western Australia 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	Total Australian exports—all produce	Gross value of cereal grains as a percentage of gross value of	Export value of cereal grains as a percentage of total Australian
	Gross value	Export value f.o.b.	gross value	value f.o.b.	agriculture	exports
	$m	$m	$m	$m	per cent	per cent
1974–75	1,701.3	1,466.4	5,876	8,457	29.0	17.3
1975–76	1,798.2	1,376.4	6,173	9,340	29.1	14.7
1976–77	1,583.3	1,264.9	6,759	11,376	23.4	11.1
1977–78	1,353.8	1,261.9	6,995	11,922	19.4	10.6
1978–79	2,957.7	1,082.0	10,241	14,243	28.9	7.6
1979–80p	2,924.4	2,766.7	11,183	18,882	26.2	14.7

(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), *Agricultural Land Use, Improvements and Labour, Australia* (7103.0), *Principal Agricultural Statistics: Australia (First Estimates)*, (7201.0), *Crops, Australia (Preliminary)* (7301.0), *Crops, Australia* (7302.0), *Cereal Grains: Estimates of Intended Sowings, Australia* (7304.0), *Cereal Grains: Estimates of Area Sown, Australia (Advance Release)* (7305.0), *Wheat, Australia* (7307.0), *Gross Value of Agricultural Commodities Produced: Australia, First Estimates* (7501.0), *Value of Agricultural Commodities Produced: Australia (Second Estimates)* (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. 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.

Wheat marketing and pricing arrangements: 1979–80 to 1983–84

On 29 November 1979 the Wheat Marketing Act 1979 received Royal Assent and new wheat marketing and pricing arrangements became operative for the period 1 October 1979 to 30 September 1984. The basic elements of the new arrangements were negotiated between the Australian Wheatgrowers' Federation and Commonwealth and State Governments and necessitated the enactment of complementary Commonwealth and State legislation.

The new wheat marketing and pricing arrangements carry forward a number of features of the previous Stabilization Plan. In this respect the main features are: the Australian Wheat Board (AWB) is maintained as the sole statutory authority responsible for the marketing of wheat in Australia and of wheat and wheat products sold overseas; the constitution and general powers of the Wheat Board remain unchanged; the provisions for delivery quota arrangements remain, purely as a contingency measure; the legislation applies to a seven-year period except for the pricing provisions which run for five years.

The discounted payments scheme, which was introduced during the life of the last Stabilization Plan, has also been carried forward. The scheme enables the Board to offer to growers a payment, appropriately discounted, some months before a scheduled payment is due to be made. The operation of the scheme, in which growers may participate at their option, will not affect the rate at which the Board arranges for normal Pool payments to be made to those growers who do not use the discount facility.

The following are important new features:

Guaranteed Minimum Delivery Price

Shortly after delivery of wheat to the Australian Wheat Board or upon wheat coming under the Board's control, wheatgrowers receive a first payment known as the Guaranteed Minimum Delivery Price (GMDP). The GMDP is set at 95 per cent of the average of the pool return for the two previous seasons and an estimate of the pool return for the subject season, all converted to a net basis and is guaranteed by the Commonwealth Government with any deficiency between the net pool return and the GMDP being met by the Government. The GMDP will represent a substantial proportion of a grower's return from a pool, after deductions are made for the particular State's storage and handling charges, individual grower's rail freight and for contributions to research (Wheat Tax) and to the Wheat Finance Fund (Wheat Levy). Movements in the GMDP from one season to the next are subject to a limit of 15 per cent.

These arrangements provide the industry with support from the Government that is designed to help it overcome any short-run down-turn in producers' returns. At the same time the basis for determining the GMDP ensures that the support will be inevitably modified with longer run adjustments in market returns whether those adjustments be for a rising or a falling market. The GMDP for 1979–80 is $114.71 per tonne for Australian Standard White (ASW) Wheat.

The Act also provides for an interim payment to be made to growers who deliver wheat to the Board prior to the determination of the GMDP for that season. It is the intention that the GMDP for each season be announced before 1 December each year when the bulk of the harvest commences to be delivered. The interim advance for the 1979–80 season was $75 per tonne, less freight.

Financial Arrangements

Traditionally the AWB has borrowed from the Rural Credits Department (RCD) of the Reserve Bank of Australia to obtain funds to make first advances to growers and to meet pool marketing expenses. Under the Reserve Bank Act a statutory twelve months repayment period applies to RCD loans and the Commonwealth Government has customarily provided a guarantee of AWB repayment within the statutory period.

It has become necessary to develop new financing arrangements to enable the Board to borrow to meet the changed character of the first payment arrangements. Under the new arrangements more flexible borrowing rights and obligations have been granted to the Board. Arrangements embodied in the Act provide for the Board to borrow from the RCD, and, subject to the approval of the Minister for Primary Industry, from the commercial market and from the Wheat Finance Fund (see below).

Should the Government require the Board to borrow commercially within the statutory twelve months period for purposes for which RCD moneys would normally have been available, the Commonwealth will meet any borrowing costs that are additional to those that would have occurred had the borrowing been from the RCD. However, if the Board is unable to borrow from commercial sources for paying the GMDP or to meet marketing expenses within the statutory period, it is the Commonwealth Government's intention that the RCD should provide the necessary finance.

The Wheat Finance Fund established by the Wheat Marketing Act 1979 is a $100 million revolving trust fund of growers' moneys. The $80 million previously held in the former Wheat Prices Stabilization Fund was transferred into the Finance Fund and will be supplemented by the proceeds of levy each season ($2.50 per tonne) on wheat marketed under the control of the Board. Any excess above $100 million in the Fund will be returned to growers on a first-in-first-out basis. The Finance Fund provides a source of funds from which the Board will be able to borrow on a seasonal basis to clear any outstanding debt to the RCD on a season's pool at the end of the statutory twelve months period. Borrowings from the Fund will be made at a rate of interest determined by the Minister having regard to rates applying to Reserve Bank fixed deposits or Commonwealth securities.

Domestic Pricing

The arrangements for the pricing of wheat sold on the domestic market recognise the different components of the market, namely, the use of wheat for milling into flour for human consumption and the use of wheat for stockfeed and for industrial purposes.

The 1979–80 season price for Australian Standard White Wheat for human consumption sold domestically is $130.78 per tonne; Australian Standard White Wheat f.o.r. ports basis. This amount

includes a $3 per tonne component as the Tasmanian freight loading (see later). The price will be varied in subsequent years according to a formula which takes account of movements in export prices and an index of prices paid by farmers while providing, over time, a margin above export prices. Movements in the formula price from year to year will be subject to a limit of 20 per cent.

The formula used in fixing the price of wheat for human consumption may be found in the Attachment, as it is set out in the Schedule to the Wheat Marketing Act 1979.

A loading is included in the price of wheat for human consumption and is paid into the Tasmanian Freight Fund, which is used exclusively to cover the cost of shipping wheat from the mainland to Tasmania each season. This loading existed under previous plans but with the difference that the loading was placed on wheat sold domestically for all purposes. For 1979–80 the loading is $3 per tonne.

The domestic consumption prices for industrial and stockfeed wheats will be set from time to time by the Board in the light of its commercial judgment and having regard to orderly marketing considerations. (At the beginning of the marketing year (1 December 1979) the Board set the price of industrial wheat at $131.00 per tonne f.o.r. ports for the period through to 30 June 1980 and the price of stockfeed wheat at $130.00 per tonne the latter being subject to fortnightly review). Under the provisions of the Wheat Marketing Act 1979 the Board has appointed an advisory panel representing grower and user interests to assess the accuracy, comprehensiveness and relevance of data that should be taken into account in determining prices for stockfeed wheat. That panel does not recommend price levels. A similar panel is to be appointed to advise the Board in relation to the pricing of wheat for industrial purposes. The information received by the Board, its assessment of this information and its subsequent pricing decisions are subject to review by the Australian Agricultural Council.

Domestic Marketing Arrangements

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 domestically. However, the Board is now authorised to issue permits to enable wheatgrowers to deliver their wheat, subject to certain conditions, other than to an authorised receiver of the Board. It is permitted to issue permits to growers:

(i) to deliver wheat from a property on which it is grown to another farm under the same or joint ownership for use on the latter; or

(ii) to deliver wheat to a miller for gristing and return the produce of the gristing to the farm on which it was grown for use on that farm; or

(iii) to sell wheat under new authorized grower-to-buyer transactions. Under these arrangements the Board is authorised to grant a permit for delivery by a grower direct to a buyer subject to conditions the Board determines as to price, freight allowance and any premiums or discounts in relation to the home consumption price of Australian Standard White Wheat. The proceeds of sale of the wheat involved are incorporated in the Board's pooling arrangements and the provisions for payments to growers apply as if the wheat had in fact been delivered to the Board's pool. However, provision is made for any quality differential agreed by the grower and buyer and for any cartage cost adjustment to be passed back to the buyer. Provision is also made for the Board to deduct from the payment to the grower a charge (covering capital, depreciation and costs of maintaining capital equipment) relating to costs associated with the bulk handling authority relevant to the particular grower. The specific charge is determined under State legislation.

The following wheat does not come under the control of the Wheat Board:

(i) seed wheat;

(ii) inferior quality wheat including screenings unacceptable for receival by the Board; and

(iii) wheat which is retained by a grower on a farm on which it is grown for use on that farm.

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, 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-improved 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, 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.

WHEAT: AREA, PRODUCTION AND RECEIVALS

Season	*Area*		*Production*		*Australian Wheat Board receivals(a)*
	For grain	*All purposes*	*Grain*	*Gross value*	
	'000 ha	'000 ha	'000 tonnes	$m	'000 tonnes
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
1978–79	10,249	10,321	18,090	2,295.8	17,456
1979–80p	11,159	11,264	15,968	2,178.7	(b)15,300

(a) Australian Wheat Board receivals are for the season commencing 1 December; production data is for the year ending 31 March. (b) Receivals to 9 October 1980.

WHEAT FOR GRAIN: AREA AND PRODUCTION, BY STATE

Season	*N.S.W.*	*Vic.*	*Qld*	*S.A.*	*W.A.*	*Tas.*	*Australia*
AREA ('000 hectares)							
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
1978–79	3,162	1,337	747	1,295	3,706	1	10,249
1979–80p	3,415	1,493	732	1,418	4,099	2	11,159
PRODUCTION ('000 tonnes)							
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
1978–79	6,640	2,998	1,962	2,086	4,400	3	18,090
1979–80p	6,000	3,136	887	2,199	3,741	4	15,968

PRODUCTION AND DISPOSAL OF WHEAT FOR GRAIN

('000 tonnes)

Season	*1973–74*	*1974–75*	*1975–76*	*1976–77*	*1977–78*	*1978–79*
Production	11,987	11,357	11,982.	11,800	9,370	18,090
Less balance held on farms for—						
Seed usage	505	513	535	598	610	595
Feed and other uses	282	139	189	270	218	39
Gross receivals	11,200	10,705	11,258	10,932	8,542	17,456
Opening stocks(*a*)	478	1,882	1,658	2,665	2,137	816
Total availability for sale	11,678	12,587	12,916	13,597	10,679	18,272
Export shipments—						
Wheat	7,124	8,254	7,962	9,502	7,918	11,478
Flour and wheat products(*a*)	294	296	271	261	180	167
Domestic sales—						
Flour(*a*)	1,362	1,334	1,304	1,261	1,259	1,292
Stockfeed	911	1,006	620	380	438	619
Breakfast feeds etc. (*a*)	46	54	68	55	43	41
Total disposal	9,737	10,944	10,225	11,459	9,838	13,597
Availability (—) Disposals	1,941	1,643	2,691	2,138	841	4,675
Closing stocks(*a*)	1,882	1,658	2,665	2,137	816	4,629
Apparent wastage	59	-15	26	1	25	46

(*a*) Wheat and flour in terms of wheat.

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

Wheat pools

Details of wheat receivals 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, 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 (first due to expire on 30 June 1974) has been extended by protocol to 30 June 1981. Negotiations towards a new Agreement were held in 1978 and January–February 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 co-ordinated nationally-held reserve stocks. The January 1979 conference was adjourned indefinitely. Following the extension of the Agreement to June 1981, work has continued within the International Wheat Council towards formulating an agreement that will be acceptable to all parties.

Details of the earlier International Wheat Agreements are published in previous editions of the Year Book and in issues of *Wheat, Australia* (7307.0).

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

	Wheat for grain: Exports		*Total Australian exports— all produce:*	*Export value of wheat for grain as a percentage of total Australian exports*
Year	*Quantity*	*Value f.o.b.*	*Value f.o.b.*	
	'000 tonnes	$m	$m	per cent
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
1978–79	6,824	794.2	14,243	5.6
1979–80p	14,840	2,178.1	18,882	11.5

(*a*) These statistics exclude re-exports.

EXPORTS OF WHEAT AND FLOUR

Country of consignment	*Quantity ('000 tonnes)*			*Value f.o.b. ($m)*		
	1977–78	*1978–79*	*1979–80p*	*1977–78*	*1978–79*	*1979–80p*
WHEAT						
Bangladesh	146.5	52.2	449.8	14.3	6.3	67.9
China—excl. Taiwan Province	4,603.1	1,437.7	3,572.0	376.4	139.6	452.9
Egypt, Arab Republic of	1,246.5	1,212.9	1,683.3	115.7	144.3	251.1
Indonesia	559.2	563.0	659.6	57.0	70.5	98.2
Iran	–	12.5	753.4	–	1.6	120.0
Iraq	520.0	431.5	1,200.8	54.7	57.5	179.3
Japan	1,158.0	968.8	984.8	116.0	117.6	147.0
Korea, Dem. Peoples Rep.	76.4	90.9	182.3	8.0	10.6	29.5
Kuwait	178.8	193.5	147.1	18.1	23.8	21.8
Malaysia	376.9	378.8	365.8	37.8	46.2	53.6
Pakistan	229.9	239.9	288.1	21.4	30.2	37.9
Saudi Arabia	125.8	105.4	168.1	15.4	14.4	32.3
Singapore	229.1	186.7	350.7	22.4	20.7	45.4
U.S.S.R.	255.1	157.3	2,617.1	27.2	15.3	432.0
Viet Nam, Socialist Rep.	61.7	143.2	154.9	5.5	15.8	23.1
Other countries	1,182.0	649.4	1,262.5	121.3	79.8	186.1
Total	**10,948.9**	**6,823.7**	**14,840.3**	**1,011.2**	**794.2**	**2,178.1**
FLOUR(*a*)						
Mauritius	18.3	16.7	12.7	3.1	3.4	2.9
New Caledonia	2.7	4.2	4.4	0.5	0.7	1.0
Papua New Guinea	16.7	16.8	17.3	3.1	3.4	4.3
Polynesia (FR)	0.3	0.4	2.0	0.1	0.2	0.5
Samoa (Western)	3.9	4.5	3.6	0.6	0.7	0.8
Saudi Arabia	2.8	1.9	1.4	0.4	0.4	0.3
Solomon Islands	1.9	2.5	3.1	0.3	0.5	0.7
Sri Lanka	9.5	10.4	–	1.7	2.1	–
Tonga	5.1	3.7	3.5	0.8	0.7	0.8
Other countries	71.2	16.7	8.8	11.8	3.6	2.0
Total	**132.4**	**77.8**	**56.8**	**22.4**	**15.7**	**13.3**

(*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

	1974–75		*1975–76*		*1976–77*		*1977–78*		*1978–79p*	
	Area	*Prod.*	*Area*	*Prod.*	*Area*	*Prod.*	*Area*	*Prod.*	*Area*	*Prod.*
Europe	27.3	90.7	25.4	77.2	26.8	85.4	24.8	81.9	26.1	94.3
EEC (9)	11.2	45.3	10.5	38.0	11.2	39.1	10.1	38.4	11.0	47.6
U.S.S.R.	59.7	83.9	62.0	66.2	59.5	96.9	62.0	92.2	62.9	120.8
North & Central America	36.2	64.6	38.4	77.7	40.8	85.3	37.8	77.8	34.4	72.8
Canada	8.9	13.3	9.5	17.1	11.3	23.6	10.1	19.9	10.6	21.1
U.S.A.	26.5	48.5	28.1	57.8	28.6	58.3	26.9	55.4	23.0	48.9
South America	8.2	10.7	9.6	12.0	11.4	16.3	8.0	8.7	8.5	12.2
Asia	78.8	93.6	79.3	105.5	83.3	118.0	84.0	111.9	85.8	122.2
China(*a*)	32.0	41.0	32.8	46.0	34.3	50.0	35.0	45.0	36.0	52.0
India	18.6	21.8	18.0	24.2	20.5	28.8	20.9	29.0	21.5	31.8
Iran	5.9	4.7	6.0	5.5	5.6	6.0	5.5	5.5	5.4	5.7
Pakistan	6.1	7.6	5.8	7.7	6.1	8.7	6.4	9.1	6.4	8.4
Turkey	8.8	11.0	9.3	14.8	9.3	16.5	9.3	16.7	9.3	16.7
Africa	8.8	8.4	8.2	9.5	9.0	10.6	8.6	8.0	8.6	9.1
Oceania	8.4	11.5	8.7	12.3	9.1	12.2	10.1	9.7	10.3	18.4
Australia	8.3	11.4	8.6	12.0	9.0	11.8	10.0	9.4	10.2	18.1
Total world	**227.3**	**363.4**	**231.5**	**360.4**	**239.9**	**424.6**	**235.3**	**390.2**	**236.6**	**449.9**

(*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.

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 as a grain crop although in some areas it is used as a fodder crop for grazing with grain being subsequently harvested if conditions are suitable. It is often grown as a rotation crop with wheat; oats and pasture. 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, Western Australia, Victoria and Queensland.

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				Exports	
		2-row	6-row	Total quantity	Total gross value	Quantity	Value f.o.b.
	'000 ha	—'000 tonnes—			$m	'000 tonnes	$m
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
1978–79	2,785	3,787	220	4,006	339.1	1,744	149.5
1979–80p	2,486	3,555	168	3,723	435.0	2,962	354.3

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 two main uses—as a fodder crop, following sowing or fallow or rough sowing into stubble or clover pastures or as a main crop. Fodder crops can either be grazed and then harvested for grain after removal of live stock or else mown and baled or cut for chaff. 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
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
1978–79	1,359	1,763	100.5	290	24.9
1979–80p	1,128	1,419	91.3	472	43.8

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 Darling Downs, Fitzroy and Wide Bay-Burnett Divisions. 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 Northern and Central Queensland Grain Sorghum Marketing Board (a statutory authority in a defined area in central Queensland) 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	$m
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
1978–79	468.7	1,125.2	97.4	516.3	45.5
1979–80p	518.3	n.y.a.	99.9	580.4	59.8

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 slopes and tablelands and the Murrumbidgee Irrigation Area in 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 while the Queensland Graingrowers Association markets maize grown in the south-east. In New South Wales, the Yellow Maize Marketing Board for the State of New South Wales (established in 1976) handles the marketing of maize.

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
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
1978–79	50.0	168.8	15.6	16.9	1.3
1979–80p	55.9	n.y.a.	16.4	7.7	0.9

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 and at Mareeba 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. In Western Australia and Queensland, a winter and summer crop is grown.

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
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
1978–79	110.2	692.2	97.8	241.2	66.2
1979–80p	116.1	602.9	92.3	457.3	129.9

(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, sunflower and soybean 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. Linseed is a temperate winter growing annual, the seeds of which, when crushed, yield 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 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 and production is expected to increase.

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

Sunflower. Sunflowers are summer growing annuals produced under raingrown 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.

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 and Indonesia, the greater part of world output is crushed for oil and meal. The oil is used for salad oils, cooking oils and margarine as well as in a wide range of industrial processes such as paint, detergent and plastic manufacture. The meal is a high protein feed for livestock but it is also used for the manufacture of synthetic fibres, adhesives and synthetic meats.

Soybeans are a summer growing crop and are largely grown under irrigation in Australia. The greater part of Australian production takes place in the Darling Downs, Burnett and Lockyer districts of Queensland and in the Moree and Gunnedah districts of New South Wales.

Trends in the production of these specialised oilseed crops are closely tied to development in markets and prices not only for oilseeds but also for wheat, 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

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

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

	Specialised				*Other*		
Year	*Linseed*	*Rapeseed*	*Safflower*	*Sunflower*	*Soybeans*	*Peanuts*	*Cotton(a)*
			AREA ('000 hectares)				
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
1978–79	13.1	22.3	74.7	260.7	53.7	36.9	49.8
1979–80p	17.4	40.7	46.4	225.4	56.3	31.6	56.4
			PRODUCTION ('000 tonnes)				
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
1978–79	12.9	23.4	57.7	186.2	98.7	62.3	155.2
1979–80p	14.6	39.5	29.0	n.y.a.	n.y.a.	n.y.a.	n.y.a.
			GROSS VALUE ($ million)				
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
1978–79	2.6	4.8	11.0	45.8	24.6	28.7	76.0
1979–80p	3.6	10.0	5.4	39.5	n.y.a.	26.5	99.7

(*a*) Additional data are 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. 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 1979–80 crop are expected to amount to about 60,000 tonnes of raw cotton. A further expansion in Australian cotton plantings is expected in 1980–81 although low levels of water held in some dams may restrict the number of irrigations possible during the growing season. In view of the reduced levels of production by local yarn spinners overall developments in recent years should ensure a continued significant export orientation by the domestic cotton growing industry.

COTTON: AREA, PRODUCTION AND EXPORTS

Year	Seed cotton (a)					Raw cotton export	
	Area	Quantity	Gross value	Cottonseed(b)	Lint(c)	Quantity	Value f.o.b.
	'000 ha	'000 tonnes	$m	'000 tonnes	'000 tonnes	'000 tonnes	$m
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
1978–79	49.8	155.2	76.0	87.0	53.0	23.6	28.9
1979–80p	56.4	n.y.a.	99.7	137.4	83.9	48.6	67.3

(a) Before ginning. (b) Estimated by the Bureau of Agricultural Economics. (c) Provided by the Raw Cotton Marketing Advisory Committee.

Sugar

Sugar cane is grown commercially along 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 second 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 Commonwealth 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 1.95 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 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	Production	Yield	Quantity	Yield
	'000 ha	'000 tonnes	t/ha	'000 tonnes	t/ha	'000 ha	'000 tonnes	t/ha	'000 tonnes	t/ha
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	11.4
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
1978–79	14.1	1,321.5	94.1	152.7	10.9	237.7	20,135.5	84.7	2,748.9	11.6
1979–80p	11.8	1,291.5	109.4	155.8	13.2	255.3	19,857.6	77.8	2,807.2	11.0

(a) In terms of 94 net titre.

The average yields of cane per hectare has increased to 11 tonnes raw sugar equivalent 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 Asian and Pacific countries. Australia now exports over 1.2 million tonnes annually to Japan, Korea, Malaysia, Singapore, New Zealand and China under long-term contracts, the balance of sugar exports being disposed of on the free market. About 760,000 tonnes of raw sugar are processed for home consumption each year.

SUGAR: AREA, PRODUCTION, EXPORTS AND CONSUMPTION

		Production			*Exports*			
		Sugar cane		*Raw sugar*	*Raw and refined sugar*		*Apparent consumption in Australia(a)*	
Year	*Area harvested*	*Quantity*	*Gross value*	*Quantity*	*Quantity*	*Value f.o.b.*	*Total*	*Per head*
	'000 ha	mil. tonnes	$m	mil. tonnes	mil. tonnes	$m	'000 tonnes	kg
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	704.0	49.7
1978–79	251.7	21.5	396.5	2.9	1.8	448.2	710.1	49.5
1979–80p	267.2	21.1	548.7	3.0	2.2	666.9	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 consumption currently exceeds production and world prices consequently are buoyant. Stocks are estimated to have fallen to 25.1 million tonnes, representing 27.5 per cent of the year's consumption, at the end of 1979–80.

The ISA provides for an export supply control mechanism with special stock holding arrangements which come into operation at pre-determined price levels. These presently do not apply because of the buoyant world sugar prices. A Stock Financing Fund, constituted by means of a contribution on free market sugar exported to, or imported into, member countries has been approved to operate from 1 July 1980. 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 are required to store under the terms of the Agreement.

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 to variety breeding for increased yields, greater use of irrigation and better control of disease 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 frozen chips, crisps, dehydrated granule and flake. Other, but less important, processed potato products are 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 Tasmania, South Australia and Western Australia, potato marketing is controlled by Potato Marketing Boards.

Around 80 per cent 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 on the open market direct from growers or 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
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
1977–78	50.7	17.0	13.2	23.0	21.7	125.6
1978–79	52.0	17.3	13.8	27.3	23.3	133.6

VEGETABLES FOR HUMAN CONSUMPTION: AREA AND PRODUCTION

Year	French and runner beans	Cabbages and brussels sprouts	Carrots	Cauli-flowers	Onions	Green peas	Potatoes	Tomatoes	Total vege-tables
				AREA ('000 hectares)					
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
1978–79	8.1	3.2	3.5	3.1	3.7	15.7	34.6	8.2	107.4
1979–80p	n.y.a.	n.y.a.	n.y.a.	n.y.a.	4.0	n.y.a.	37.7	8.5	109.5

Year	French and runner beans	Cabbages and brussels sprouts	Carrots	Cauli-flowers	Onions	Green peas: Processing (shelled weight)	Green peas: Sold in pod (pod weight)	Potatoes	Tomatoes
				PRODUCTION ('000 tonnes)					
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	182.4
1978–79	45.0	133.3	105.1	116.5	105.3	51.4	2.4	794.7	172.6
1979–80p	n.y.a.	n.y.a.	n.y.a.	n.y.a.	122.3	n.y.a.	n.y.a.	n.y.a.	194.3

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

Year	*Gross value*	*Export value f.o.b.(a)*
	$m	$m
1974–75	256.2	7.9
1975–76	274.3	7.9
1976–77	295.1	11.5
1977–78	328.3	10.4
1978–79	408.3	12.5
1979–80p	423.3	20.4

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

PROCESSED VEGETABLES: AUSTRALIAN PRODUCTION

('000 tonnes—unless otherwise stated)

Item	*1974–75*	*1975–76*	*1976–77*	*1977–78*	*1978–79*	*1979–80p*
Quick frozen vegetables—						
Beans	26.8	23.5	20.9	17.3	25.9	16.1
Peas	43.6	35.5	53.1	34.5	46.3	38.9
Potatoes	15.5	36.0	45.4	43.6	58.2	65.8
Other	19.6	20.8	15.9	17.3	25.1	28.3
Vegetables preserved, canned or bottled (excluding pickles, etc.) (*a*)—						
Asparagus	3.6	3.4	n.p.	n.p.	n.p.	n.p.
Beans—Green	6.8	6.7	6.4	5.0	4.9	3.7
Baked (including pork and beans)	23.9	22.1	24.1	21.4	22.9	26.1
Beetroot	28.1	26.1	25.4	26.7	28.4	25.9
Cabbage (including sauerkraut)	1.4	1.3	1.2	1.8	1.2	n.p.
Carrots	5.7	5.0	5.0	5.1	5.1	6.1
Cucumber (including pickled)	2.7	1.9	3.0	2.4	1.4	1.0
Gherkins—pickled	1.8	1.8	1.7	2.1	2.2	1.9
Olives—pickled	0.9	0.7	0.6	0.5	0.5	0.3
Onions (including pickled)	2.6	2.4	2.5	3.4	3.9	4.1
Peas—Green	10.6	10.5	12.7	9.2	15.1	9.7
Sweetcorn	10.8	6.8	n.p.	n.p.	n.p.	n.p.
Tomatoes (excluding canned pulp)	9.1	12.0	10.7	13.0	11.8	13.1
Tomato juice (million litres)	13.9	5.9	7.5	8.8	7.6	9.4

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

For further information on vegetables *see* the following publications: *Crops, 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 and South Australia produce the greatest quantity of citrus, followed by Victoria; Queensland's production is much lower while that of Western Australia is very small. 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 60 per cent of bananas are grown on the sub-tropical north coast of New South Wales, most of the remainder on the Queensland coast and around 6 per cent in Western Australia. Other tropical fruits grown mainly in Queensland are passionfruit, papaws, mangoes, avocadoes, custard apples and macadamia nuts. Olives are grown mostly in Victoria. 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.

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*	
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
1978–79	5,964	5,299	1,602	1,531	8,062	6,391	1,015	96,998
1979–80p	6,131	5,570	1,525	1,616	8,234	6,683	1,201	99,671

Year	*Apples*	*Apricots*	*Bananas*	*Cherries*	*Oranges*	*Peaches*	*Pears*	*Pine-apples*	*Plums and Prunes*
	PRODUCTION ('000 tonnes)								
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
1978–79	344.9	31.0	113.1	6.7	368.5	64.8	127.6	105.1	28.9
1979–80p	n.y.a.	27.3	n.y.a.	4.0	391.6	68.8	n.y.a.	n.y.a.	26.0
	GROSS VALUE OF PRODUCTION ($ million)								
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	82.9	10.0	38.1	7.9	52.4	16.3	22.0	16.5	9.4
1977–78	81.3	11.0	49.7	7.8	63.4	16.6	35.1	16.1	9.4
1978–79	100.1	13.5	50.8	9.3	74.1	20.6	44.7	18.4	15.3
1979–80p	109.8	n.y.a.	51.0	n.y.a.	n.y.a.	24.4	45.1	24.9	n.y.a.

Processed fruit and fruit products

After rapid expansion in the 1960s, output of canned fruit declined and then levelled off due to the effects of contracting overseas markets for Australian canned fruit. Production of natural fruit juices has increased markedly in the last decade and this has reflected improvements in marketing methods, effective promotion and public awareness of the nutritious value of natural juices.

FRUIT PRODUCTION

Derived from the Annual Manufacturing Census and the recorded monthly production

	Unit	*1974–75*	*1975–76*	*1976–77*	*1977–78*	*1978–79*	*1979–80p*
Fruit juice based cordials and syrups(*a*)	mil litres	60.1	72.9	68.4	77.7	70.3	75.0
Natural fruit juice(*b*)—							
Single strength	mil litres	179.8	187.8	156.5	227.5	n.y.a.	n.y.a.
Concentrated(*c*)	"	13.8	17.5	12.6	17.8	n.y.a.	n.y.a.
Cider and perry	"	10.5	10.5	11.9	11.7	n.y.a.	n.y.a.
Canned or bottled fruit (excl. canned pulp)	'000 tonnes	240.1	186.7	179.7	184.3	224.9	208.1
Jams	'000 tonnes	30.2	31.0	26.9	28.4	31.5	21.1

(*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				
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
1977-78	25.6	10.2	30.0	1.8	0.6	10.6	88.3
1978-79p	28.0	7.9	30.2	2.3	1.0	10.8	85.4

Fruit exports

The gross value of exports of fruit and fruit products (excluding grapes) has in recent years accounted for some 4 per cent of the value of all food crops and their products. Fresh or chilled fruit (mostly apples, pears and citrus) account for about 27.5 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. Since 1977-78 there has been a significant increase in the value of exports of fresh fruit while preserved fruit fell a little from the relatively high 1976-77 value. Exports of fresh citrus will continue to be greatly influenced by crop prospects in the U.S.A.

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. Effects of the E.E.C. import regime has shown in a decrease in processed fruit exports to Europe, although the U.K. remains Australia's main market.

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
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
1978-79	15.6	15.7	5.6	0.8	12.2	17.2	1.9	1.2	4.3
1979-80p	20.1	18.3	9.9	1.5	19.3	20.0	3.6	3.1	7.6

FRUIT: VALUE OF PRODUCTION AND EXPORTS

($ million)

Year	Gross value			Exports(a) value f.o.b.
	Orchard fruit	Berry and other	Total	
1974-75	215	51	267	71
1975-76	206	63	269	68
1976-77	226	64	290	72
1977-78	256	78	334	79
1978-79	319	82	401	95
1979-80p	n.y.a.	n.y.a.	431	131

(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). Imports of orange juice have increased considerably from 33.5 million litres in 1975–76 to 54.0 million litres in 1979–80.

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 covering apples and pears was introduced with the 1971 season. It has been decided that the scheme for pears should lapse with the 1980 season and the scheme for apples to be phased down over the four seasons, 1981 to 1984. The scheme which stabilizes returns from exports to approved 'at risk' markets, establishes average seasonal export returns for each variety of fruit which are then compared with the corresponding support price to determine the extent of the deficiency or surplus. Separate Export Underwriting Schemes covering apple and pear exports are to be introduced for the seasons 1981 to 1985. These will establish a guaranteed minimum export return for each kind of fruit at 95% of the corresponding average export return over the previous four seasons.

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

Canned Fruit. On 1 January 1980 the Commonwealth enacted legislation restructuring the industry's marketing arrangements. Similar complementary State legislation has been enacted by the N.S.W., Victorian and South Australian State Governments and is expected to be enacted by the Queensland Government in the near future.

Under the legislation the Australian Canned Fruits Corporation (replacing the Australian Canned Fruits Board) is empowered to acquire and sell the production of canned apricots, peaches and pears and is responsible for determining prices and terms and conditions for sales in all markets. Sales are made through marketers nominated by canners and approved by the Corporation. Markets are classified as Pool and Non-Pool with returns from Pool markets equalised by the Corporation. Entitlements for sales in Pool markets are allocated to canners prior to the start of each season.

The Corporation's administrative expenses are financed by a levy imposed on the production of canned fruits under the Canned Fruits Levy Act 1979.

The Corporation is advised in the performance of its functions by the Australian Canned Fruits Industry Advisory Committee.

The Australian Canned Fruit Sales Promotion Committee was established to promote the sale of canned deciduous fruit. The Committee is financed by a levy on canned fruit under the Canning-Fruit Charge Act 1959.

For further data on fruits and fruit products *see* the publications *Fruit, 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 are a temperate crop which requires warm to hot summer conditions for ripening 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 River Valley, Sunraysia (N.S.W. and Victoria); Barossa, Clare, Riverland, Southern Districts and Coonawarra (S.A.); North Eastern Victoria and Great Western (Vic.), Hunter and Riverina (N.S.W.); Swan Valley and Margaret River (W.A.).

Nearly all the dried fruit is produced along the River Murray and its tributaries in Victoria and N.S.W. with small localised areas in other States.

VITICULTURAL STATISTICS: AREA, PRODUCTION AND VALUE

Year	Area		Production: grapes used for—			
					Total(a)	
	Bearing	Total	Winemaking	Drying	Quantity	Gross value
	'000 ha	'000 ha	'000 tonnes fresh weight	'000 tonnes fresh weight	'000 tonnes fresh weight	$m
1974–75	64.0	71.3	424.6	280.5	728.7	101.4
1975–76	63.1	70.4	418.5	270.4	711.0	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
1978–79	65.8	70.6	465.6	227.1	716.4	150.8
1979–80p . . .	66.1	71.2	521.8	350.9	897.3	198.7

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

The bearing area of grapes has risen by about 24 per cent since 1970–71, the new plantings being mainly of specialised wine grapes. Production of winegrapes has increased by over 70 per cent since 1970–71. 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 and unstable political conditions over the past three years has created a return to buoyant market conditions. The Australian Dried Fruits Corporation, is the body responsible for the organisation of the export trade in vine fruits. The Corporation also administers the statutory Dried Vine Fruit Equalisation Scheme.

Varietal Statistics: 1979 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 next table 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, 1979 SEASON

Variety	Area (hectares)		Production: grapes used for-(tonnes, freshweight)		
	Bearing	Total	Winemaking	Drying and Table	Total
Red Wine Grapes—					
Cabernet Sauvignon	3,792	4,228	24,609	62	24,671
Grenache	5,606	5,731	52,267	645	52,912
Mataro	1,730	1,782	12,523	164	12,687
Shiraz	9,337	9,608	71,644	800	72,444
Other red wine grapes	1,840	2,093	12,877	2,437	15,314
Total	*22,305*	*23,442*	*173,920*	*4,108*	*178,028*
White Wine Grapes—					
Doradillo	2,083	2,148	35,544	422	35,966
Palomino, Pedro Ximenez	2,712	2,773	35,657	25	35,682
Rhine Riesling	2,960	3,831	23,107	10	23,117
Clare Riesling	1,059	1,137	13,946	–	13,946
Semillon	2,537	2,804	29,205	32	29,237
Trebbiano	1,597	1,808	20,366	48	20,414
Other white wine grapes	2,460	3,393	18,427	1,210	19,637
Total	*15,408*	*17,894*	*176,252*	*1,747*	*177,999*
Multipurpose Grapes—					
Currant	1,967	2,042	218	16,960	17,178
Muscat Gordo Blanco	3,998	4,445	60,090	7,630	67,720
Sultana	18,262	18,599	49,731	199,836	249,567
Waltham Cross	1,571	1,663	2,809	11,877	14,686
Total	*25,798*	*26,749*	*112,848*	*236,303*	*349,151*
Other Grapes(*a*)—					
Muscat Hamburgh	546	589	1,917	1,234	3,151
Ohanez	286	326	366	1,561	1,927
Total	*832*	*914*	*2,283*	*2,795*	*5,078*
Total Grapes	**64,342**	**68,999**	**465,303**	**244,953**	**710,256**

(*a*) These grapes are specialist table grapes.

DRIED VINE FRUIT: PRODUCTION, EXPORTS AND CONSUMPTION

(Dried weight)

Year	Production				Exports				Consumption of dried vine fruit
							Total		
	Raisins	Sultanas	Currants	Total	Raisins/ sultanas	Currants	Quantity	Value f.o.b.	
	'000 tonnes	'000 tonnes	'000 tonnes	'000 tonnes	'000 tonnes	'000 tonnes	'000 tonnes	$m	kg
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
1978–79	4.7	46.4	4.1	55.3	45.4	1.8	47.5	46.9	0.5
1979–80p	n.y.a.	n.y.a.	n.y.a.	n.y.a.	39.0	2.3	41.5	55.1	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	Production	Exports		Consumption in Australia per capita
		Quantity	Value f.o.b.	
	mil. litres	mil. litres	$m	litres
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	339.6	4.7	5.4	14.3
1978–79	335.1	5.3	6.3	16.5
1979–80p	414.2	6.1	8.4	17.4

For further details on viticulture, dried vine fruit, wine, etc. *see* the following publications: *Fruit, 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, and mushrooms which, in 1978–79, had gross values as follows:

Crops	Gross value	Per cent of total crop gross value
	$m	%
Fodder crops (hay)	40.2	0.8
Tobacco	76.0	1.6
Hops	5.6	0.1
Mushrooms	14.7	0.3
Other	137.1	2.9

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 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
1974–75	216	669	20.4	853	529
1975–76	230	738	25.5	752	392
1976–77	287	891	31.4	709	311
1977–78	313	795	35.4	862	210
1978–79	293	955	40.7	823	335
1979–80p	268	n.y.a.	n.y.a.	912	n.y.a.

(a) Principally oaten and wheaten hay. (b) Principally from oats, barley, wheat and forage sorghum.

FARMSTOCKS OF CEREAL GRAINS, HAY AND SILAGE

('000 tonnes)

At 31 March	Cereal grains			Hay	Silage
	Barley	Oats	Wheat		
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
1979	637	1,256	880	5,355	753

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 Gunbower (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)	
			Unmanufactured	Manufactures	Unmanufactured	Manufactures
	'000 ha	'000 tonnes	$'000	$'000	$'000	$'000
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
1978–79	8.1	15.0	693	7,074	36,148	23,588
1979–80p	7.6	n.y.a.	4,161	9,137	42,394	25,234

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.

MUSHROOMS: AREA, PRODUCTION, GROSS VALUE AND IMPORTS

Year	Area	Total production		Canned or bottled production	Imports			
					Dried		Canned or bottled	
		Quantity	Gross value		Quantity	Value f.o.b.	Quantity	Value f.o.b.
	hectares	tonnes	$m	tonnes	tonnes	$'000	'000 litres	$'000
1974–75	50	6,007	7.1	6,881	88	664	3,903	2,857
1975–76	48	6,616	10.0	5,416	50	438	3,159	2,466
1976–77	56	7,130	9.9	6,789	82	870	4,497	5,532
1977–78	55	7,289	12.6	6,611	97	998	5,030	6,855
1978–79	53	7,806	14.7	5,718	88	964	3,738	4,723
1979–80p	n.y.a.	n.y.a.	n.y.a.	4,856	93	1,082	4,482	5,486

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 ten-yearly intervals from 1861 to 1971, and then from 1975 on in single years, are given in the following table.

LIVESTOCK: AUSTRALIA, 1861 TO 1980

('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	1975	32,793	151,653	2,197
1901	8,640	70,603	950	1976	33,434	148,643	2,173
1911	11,745	98,066	1,026	1977	31,533	135,360	2,229
1921	13,500	81,796	674	1978	29,330	131,445	2,217
1931	11,721	110,568	1,072	1979	27,112	134,222	2,301
1941	13,256	122,694	1,797	1980p	26,321	135,706	2,488

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 four years by a decline to below the 1972 level.

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 *Livestock, Australia* (7203.0).

CATTLE NUMBERS

('000)

31 March	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	Aust. (incl. A.C.T.)
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
1979	6,484	4,134	10,859	1,086	2,092	657	1,785	27,112
1980p	6,099	4,252	10,332	1,067	2,065	649	1,730	26,208

Classification of cattle

CATTLE NUMBERS, BY AGE, SEX, PURPOSE

('000)

	31 March					
Classification	*1975*	*1976*	*1977*	*1978*	*1979*	*1980p*
Milk cattle—						
Bulls used or intended for service	78	73	65	60	55	56
Cows, heifers and heifer calves	3,527	3,407	3,095	2,902	2,733	2,697
House cows and heifers	122	122	105	99	78	77
Total, milk cattle	*3,727*	*3,602*	*3,265*	*3,062*	*2,867*	*2,830*
Meat cattle—						
Bulls used or intended for service	702	687	628	571	544	545
Cows and heifers (1 year and over)	14,897	15,202	14,021	12,728	11,774	11,732
Calves under 1 year	7,751	8,055	7,385	6,513	5,837	5,445
Other cattle (1 year and over)	5,716	5,888	6,235	6,456	6,090	5,656
Total, meat cattle	*29,066*	*29,833*	*28,269*	*26,268*	*24,245*	*23,378*
Total, all cattle	**32,793**	**33,434**	**31,533**	**29,330**	**27,112**	**26,208**

Comparison with other countries

SELECTED COUNTRIES CATTLE NUMBERS

(Millions)

(*Source:* Australian Meat and Livestock Corporation)

Country	*1978*	*1979*	*1980p*	*Country*	*1978*	*1979*	*1980p*
Argentina	62	60	60	India	243	243	241
Australia	29	27	26	Mexico	30	29	30
Brazil	89	90	93	United States of America	116	111	111
European Economic Community	77	78	78	U.S.S.R.	113	114	115

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 grain and 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 1980, numbers had risen to 136.0 million.

SHEEP NUMBERS
(Millions)

31 March	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Aust. (incl. N.T., A.C.T.)
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
1979	48.4	22.8	13.6	14.9	30.3	4.2	134.2
1980p	48.6	24.4	12.2	16.0	30.4	4.2	136.0

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		
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
1979	1.7	65.9	4.7	31.6	30.4	134.2
1980p	1.7	66.5	5.0	30.5	32.3	136.0

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
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
1979	131.4	42.5	3.7	26.9	9.1	134.2
1980p	134.2	45.8	5.4	29.9	8.7	136.0

(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
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
1979	63.6	58.5	57.1	98	42.5	74	67
1980p	65.9	61.9	59.6	96	46.2	78	70

In 1979–80 provisional value of production data for the sheep and wool industry showed that the combined value of wool and sheep slaughtered accounted for about one-fifth the gross value of all agriculture. This proportion varies with wool and meat prices and seasonal conditions. In 1979 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 1979–80 the sheep industry produced over 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. Since 1973–74 there has been a strong growth in exports of live sheep for slaughter, exports reaching 6 million head in 1979–80.

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*		
	1978	*1979*	*1980p.*	*1978*	*1979*	*1980p*
	(millions)			('000 tonnes, greasy)		
Argentina	34.8	35.2	n.y.a.	172	171	172
Australia	131.4	134.2	136.0	677	706	720
Brazil	25.1	25.1	n.y.a.	28	29	29
China (excl. Taiwan Province)	90.4	95.2	102.3	100	100	100
India	40.0	40.0	n.y.a.	35	35	35
Iran	35.4	35.5	n.y.a.	28	28	28
New Zealand	62.2	63.7	n.y.a.	311	321	338
South Africa	25.0	24.3	n.y.a.	106	101	99
Turkey	42.7	42.7	n.y.a.	55	57	57
United Kingdom	29.7	30.0	n.y.a.	46	49	48
Uruguay	16.5	17.5	n.y.a.	62	64	73
U.S.A.	12.3	12.2	12.5	50	47	47
U.S.S.R.	141.0	142.6	143.6	459	463	472
Total	**961.0**	**978.5**	**n.y.a.**	**2,578**	**2,636**	**2,689**

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

Pigs

In line with the general trend of increased specialisation common to most agricultural industries, pig farming has developed into a separate industry, no longer being 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. After 1975 numbers stabilised at approximately 2.2 million pigs. Over the past year, pig numbers rose by 10 per cent to 2.5 million. 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.)*
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
1979	759	390	487	330	271	61	2,301
1980p	830	422	510	398	293	63	2,519

For further details on pigs *see* the publication *Livestock, 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 many agricultural industries.

POULTRY NUMBERS(*a*)
('000)

	Chickens				*Other poultry*			
31 March	*Hens and pullets for egg production*	*Meat strain chickens (broilers)*	*Other fowls and other chickens*	*Total chickens*	*Ducks*	*Turkeys*	*Other poultry*	*Total all poultry*
1975	16,409	22,592	1,758	40,759	164	413	(*b*)	41,336
1976	15,905	25,306	1,566	42,917	254	333	(*b*)	43,504
1977	15,982	27,184	(*b*)	43,341	187	347	397	44,272
1978	15,773	26,681	(*b*)	42,637	163	322	330	43,452
1979	16,281	26,825	(*b*)	43,214	247	448	321	44,229
1980p	16,433	29,967	(*b*)	46,749	272	1,016	218	48,255

(*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)

		Chickens hatched, intended for—	
		Chicken meat	
Year	*Eggs set(a)*	*Meat strains(b)*	*Egg strains(c)*	*Egg production(d)*
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	277,572	186,984	473	13,938
1978–79	297,177	204,291	482	13,713
1979–80p	353,837	248,497	571	14,454

(*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 publications *Livestock, 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 relate 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)*
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	1,890	98	304	246	185	2,722	196	218
1977–78	2,080	104	261	253	199	2,897	220	246
1978–79	1,947	71	239	253	199	2,708	240	267
1979–80p	1,502	56	274	265	216	2,313	282	313

(*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 1979-80

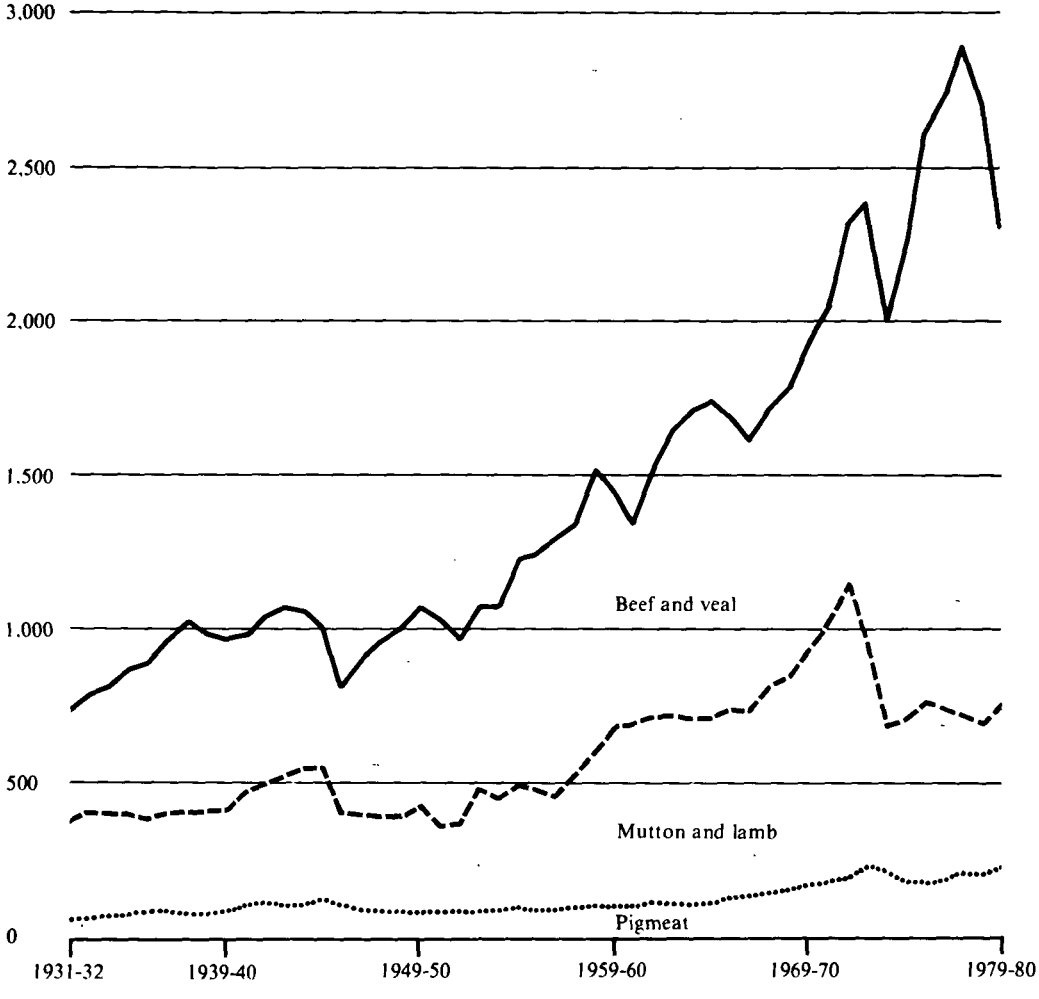

PLATE 36

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

Year	Cattle	Calves	Sheep	Lambs	Pigs	Chickens (a)	Other fowls (b) and turkeys	Ducks and drakes
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	2.5	16.3	15.3	3.5	155.1	9.8	1.3
1977-78	10.4	2.5	13.8	15.3	3.7	174.7	10.7	1.7
1978-79	9.5	1.8	12.0	14.8	3.6	188.2	10.8	1.8
1979-80p	7.3	1.6	13.9	16.0	3.8	222.4	11.2	2.2

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

Mutton and lamb

Production of sheepmeats in Australia is closely associated with the wool industry. Sheep grazing often occurs on mixed farms in conjunction with beef and/or grain enterprises and in some areas producers specialise in lamb production. The supply of sheepmeat depends greatly on seasonal conditions, decisions to build up or reduce flock numbers, expectations of wool prices, live sheep exports and the pattern of domestic consumption of meat.

There was a movement out of sheep raising in Australia early in the 1970's principally as a result of low wool prices and many producers diversified into cattle and grains. Flock numbers declined from a peak of 180 million in 1970 to a low of 131 million by 1978. Since 1978, wool and sheepmeat prices have improved, the trade in live sheep for slaughter overseas has continued to expand and the national flock size has increased slightly to 136 million by March 1980.

Sheepmeat production declined rapidly from the high levels of the early 1970s, which were associated with flock reduction, to annual levels of between 500,000 and 600,000 tonnes since 1973–74. Lamb production has remained close to 250,000 tonnes per year in recent years, while mutton production has varied greatly between 216,000 tonnes and 304,000 tonnes.

A high proportion of lamb is consumed in Australia with per capita consumption remaining steady at about 14-16 kilograms per year, though in recent years export markets for lamb in the Middle East have been developed. A high proportion of mutton produced is exported. Australia is the world's largest exporter of mutton, with Japan and the U.S.S.R. being the main markets.

Live sheep exports for slaughter overseas have increased from one million head in 1973–74 to six million head in 1979–80 equivalent to 22,000 tonnes of mutton in 1973–74 and 130,000 tonnes of mutton in 1979–80, representing about one third of all sheepmeat (lamb, mutton and live sheep) exported in 1979–80.

Beef and Veal

The cattle industry is very dependent on international trade in beef and is subject to great fluctuations. About half of Australia's beef and veal production is exported, with the U.S.A. and Japan as the main outlets.

Beef and veal production in Australia rose markedly in the seventies, reaching peak levels of over 2 million tonnes in 1977–78 and 1978–79, but declining to 1.6 million tonnes in 1979–80. The increase in production followed the rapid expansion of the beef herd that had occurred during the late sixties and early seventies mainly in response to relatively profitable beef prices and increased demand from overseas markets.

In the mid 1970's, poor economic conditions and heavy domestic supplies of beef in major importing countries led them to impose severe restrictions on their imports. With reduced international demand and heavy supplies in Australia, saleyard prices fell greatly and remained low for about four years. The depressed conditions were accompanied by a severe reduction in the national herd.

Movements in beef prices in Australia have closely followed those in the cyclical U.S. industry in recent years. Greatly improved prices in 1979 and 1980 led Australian cattle producers to retain, rather than turn-off, breeding stock for slaughter thus pointing to slow herd expansion and continued low levels of beef production in the early eighties.

Pigmeat

Historically, pigmeat production has been cyclical and linked with dairying. Over the past 15 years, pig raising has become a specialised pursuit based on intensive rearing of grain fed pigs. This has facilitated growth in numbers of larger units and greater concentration on quality of pigmeat. The proportion of pigmeat going to processing has risen markedly over the period.

Production of pigmeat rose in the late seventies to reach 216,000 tonnes in 1979–80. The continuing rise in average slaughter weight has reflected the increased quantities of pigmeat going to canning and curing and the expanding sales of heavier pigs (e.g. between 50 and 70 kilograms) for the fresh pork trade compared with the traditional porker weight pigs of under 40 kilograms.

The industry disposes of almost all of its output on the domestic market.

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

Year	*Beef*	*Veal*	*Mutton*	*Lamb*	*Pork*	*Poultry*
	QUANTITY (*a*) ('000 tonnes)					
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
1978–79	1,193.7	23.0	169.2	46.5	1.9	6.7
1979–80p	854.2	17.4	197.8	49.6	1.9	7.3
	VALUE f.o.b. ($ million)					
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
1978–79	1,341.1	27.1	125.2	52.0	3.7	8.0
1979–80p	1,269.5	31.9	172.7	62.4	3.7	10.6

(*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 5.6 million in 1979–80. Over the last five years a substantial trade in cattle for slaughter has developed, primarily with Asian countries and exports of breeding cattle especially have picked up in the past two years. During 1979–80 some 63,000 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

	Livestock			*Poultry*		
		Total(a)			*Total*	
Year	*Sheep and Lambs*	*Number*	*Value f.o.b.*	*Day old chicks*	*Number*	*Value f.o.b.*
	—'000—		$'000	—'000—		$'000
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
1978–79	3,865	3,955	110,611	448	624	626
1979–80p	6,162	6,225	195,577	409	711	747

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

PRODUCTION AND EXPORT OF BACON, HAM AND CANNED MEAT

Year	Production			Exports			
	Bacon and ham(a)			Bacon and ham(c)		Canned meat(d)	
	Bone-in	Bone-out	Canned meat(b)	Quantity	Value	Quantity	Value
	tonnes	tonnes	tonnes	tonnes	$'000 f.o.b.	tonnes	$'000 f.o.b.
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	24,643	35,660
1978–79	19,751	51,863	44,775	564	1,730	25,205	52,330
1979–80p	18,455	52,520	38,836	861	2,734	21,185	51,327

(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
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	1,176.9	357.0	212.7	220.0	1,966.5
1978–79	2,154.6	429.0	253.8	244.2	3,081.6
1979–80p	2,300.2	613.8	309.6	299.2	3,522.9

(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)						
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	65	86	24	239
1978–79	795	66	202	53	95	21	271
1979–80p	662	57	222	67	n.y.a.	n.y.a.	293
	PER CAPITA PER YEAR (kg)						
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	4.6	6.1	1.7	16.9
1978–79	55.5	4.6	14.1	3.7	6.6	1.4	18.9
1979–80p	45.6	3.9	15.3	4.6	n.y.a.	n.y.a.	20.2

(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, Australia* monthly (7204.0), quarterly (7205.0) and annual (7206.0), *Chicken Hatchings and Poultry Slaughterings, 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 December 1977. This Corporation, which regulates and promotes meat and livestock exports, replaced the Australian Meat Board.

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.

Wool

The Australian Flock contains nearly 15 per cent of the world's total number of sheep, and produces nearly 30 per cent of the total annual production of wool. Approximately 75 per cent of Australian flock are of a single breed, the Merino, raised primarily for their heavy fleeces of fine quality wool.

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. In the early years, the average clean yield was assessed on the basis of a small number of tests and subjective appraisal while in later years an increasing proportion of the Australian wool clip was subjected to laboratory tests. 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 63.39 per cent in 1978–79.

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 1979–80 was about 13 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 325.

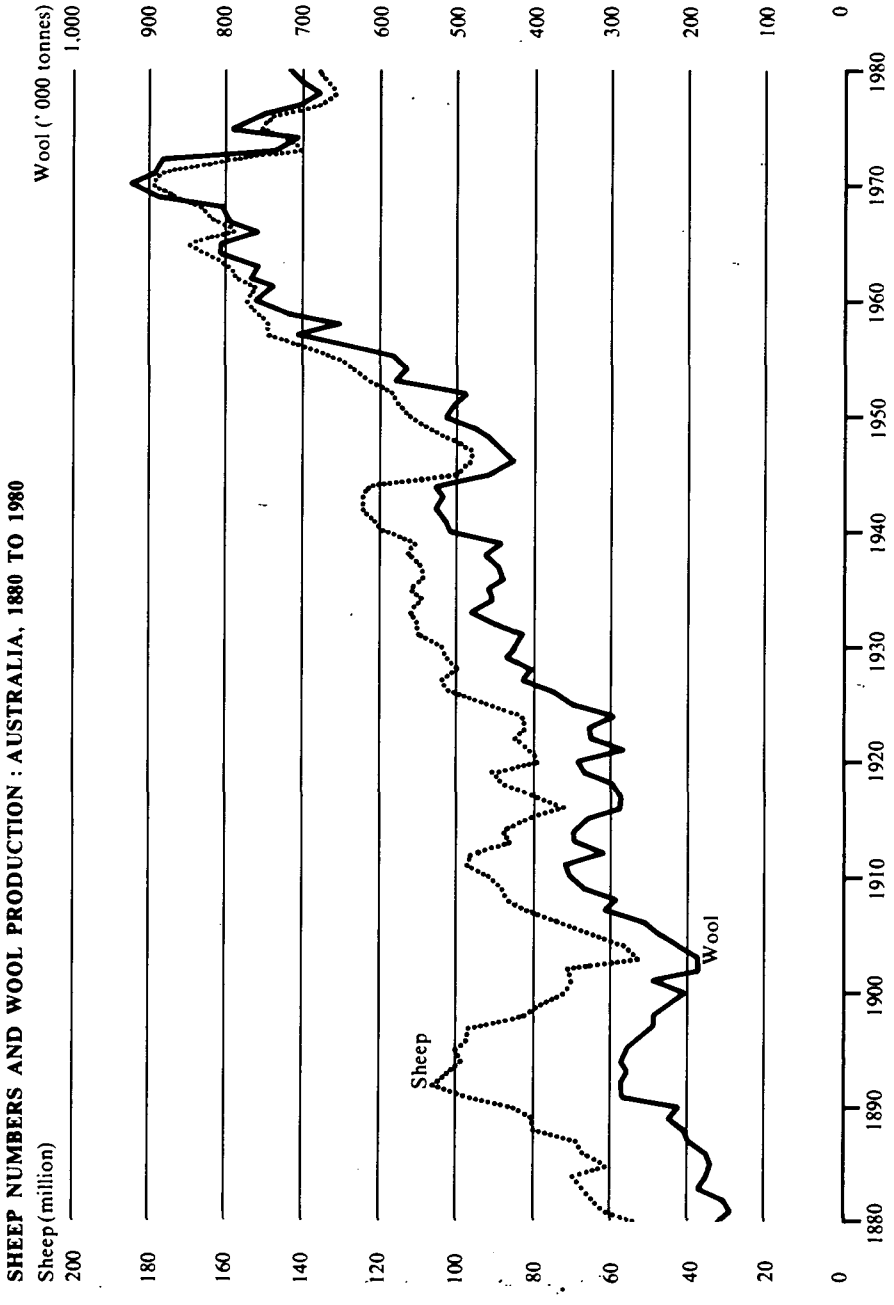
SHEEP NUMBERS AND WOOL PRODUCTION : AUSTRALIA, 1880 TO 1980
Sheep (million)
Wool ('000 tonnes)
200
180
160
140
120
100
80
60
40
20
0
1,000
900
800
700
600
500
400
300
200
100
0
1880
1890
1900
1910
1920
1930
1940
1950
1960
1970
1980
Sheep
Wool

PLATE 37

SHEARING, WOOL PRODUCTION AND VALUE

Year	Sheep and lambs shorn	Average fleece weight	Wool production: Shorn wool	Wool production: Other wool(a)	Wool production: Total wool: Quantity	Wool production: Total wool: Gross value (b)
	million	kg	'000 tonnes	'000 tonnes	'000 tonnes	$m
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
1978–79	146.9	4.38	643.6	62.1	705.7	1,375
1979–80p	150.3	4.32	648.9	71.1	720.0	1,647

(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.

The wool market

The two principal methods used by woolgrowers in selling their wool are by private treaty or through public auction. In the case of auction, the wool is consigned to selling brokers who arrange for it to be stored, displayed for valuation and then offered for sale by auction. Though there has been a decline in the portion of the national clip passing through auction sales in recent years it remains the principal method of sales. Seventeen 'pastoral houses' plus a number of other independent companies operate as wool selling brokers and handle three quarters of the Australian wool clip.

Private sales account for the remainder, where the transaction price is agreed between buyer and seller and the sale concluded without the presence of other parties. These sales are often transacted on the farm. This method of sale has its greatest support in Western Australia (35 per cent of the State clip), with New South Wales (26 per cent) and Victoria (24 per cent) also strong supporters of this type of sale.

Wool receivals

Under the terms of the Wool Tax Act, all growers pay a tax on the gross value of first hand wool sales, to provide financial backing for wool promotion, research and the operation of a statutory reserve price scheme. The ABS collects details of the total amounts of taxable wool received by wool selling brokers and dealers each year. These figures exclude wool received by brokers on which tax had already been paid by other dealers (private buyers) or brokers.

TAXABLE WOOL RECEIVALS

Year	Receivals: Brokers (NCWSB)	Receivals: Dealers(a)	Receivals: Brokers and dealers	Dealers as per cent of total receivals	Shorn wool production(b)
	—'000 tonnes—			per cent	'000 tonnes
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	476.3	151.5	627.8	24.1	623.9
1977–78	459.7	155.2	614.9	25.2	605.5
1978–79	481.4	164.8	646.2	25.5	643.6
1979–80p	483.0	167.3	650.3	25.7	648.9

(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.

Wool marketing arrangements

The Australian Wool Corporation (AWC), established on 1 January 1973 through the amalgamation of the former Australian Wool Commission and Australian Wool Board, performs a number of functions within the market aimed at encouraging the demand for Australian wool and assisting the efficient and orderly disposal of the national clip. Central to these activities is a reserve price scheme, operated by the Corporation on behalf of the woolgrowing industry and with the support of the Commonwealth Government. This scheme introduced by the Wool Commission in November 1970 mainly to provide a measure of protection to woolgrowers against unduly low prices resulting from temporary variations of demand at auctions only applies for wool sold at approved public auctions.

The reserve price scheme has two component parts, a fixed and published 'floor' price for each wool type, and a flexible or floating reserve which is not disclosed.

Initially, the reserve price scheme was operated on a flexible basis whereby the Commission, and later the Corporation, bought wool which failed to reach a reserve price determined on a day-to-day basis. Since September 1974, as part of the reserve price program, the Corporation has been authorised to operate a floor price scheme. Under the floor price arrangements the Government sets a minimum average price for wool at the beginning of each season. The Corporation, which sets minimum prices for each wool type based on the Government's indicator floor price, purchases wool at auction which does not attract bids above the level of the appropriate floor price for that type. Above the level of the floor price the Corporation continues to operate a flexible reserve price scheme to prevent 'pot-holes' in the market. The wool purchased by the Corporation is held in stock, some of it in Australia and some overseas, and sold when prices improve with a view to stabilising the market.

In order to finance losses arising from the Corporation's reserve price activities woolgrowers, since September 1974, have been paying 5 per cent of gross proceeds from the sale of wool into a special fund called the Market Support Fund. To date annual amendments to the wool industry legislation have been necessary to continue arrangements for collection of the 5 per cent levy. In May 1980 amending legislation placed these arrangements on a continuing basis. The new legislation also provided for repayments of grower contributions to the Market Support Fund on a 'first-in-first-out' basis once the Fund has accumulated a sound level of reserves. At the same time formal recognition was given in the legislation to the recently formed Wool Council of Australia as the organisation representing Australian woolgrowers.

The Australian Wool Corporation has other responsibilities which include the provision of a service for the testing of wool, participation in negotiations in respect of freight rates, administration of wool stores and the encouragement of greater efficiency within the existing wool marketing system. Wool testing services are provided through the Australian Wool Testing Authority. While the Authority has been in existence since 1957, its role has become more prominent since the introduction in 1971 of the technique whereby wool is sold by sample with objective measurements of important value—determining characteristics such as mean fibre diameter, clean yield and vegetable matter content. In 1979–80 over 90 per cent of wool sold at auction was sold in this way.

As a means of further demonstrating increased efficiency and cost savings that can be achieved in wool marketing procedures the AWC was authorised by the Government to operate a Wool Marketing Service (WMS) following the termination of the Limited Offer to Purchase Scheme (LOPS) on 30 June 1980. The WMS has the general aim of developing and demonstrating wool handling and selling economies. It retains the central features of the LOP Scheme with direct purchases from woolgrowers limited to 150,000 bales throughput of wool per year and is funded and operated on a commercial basis.

Wool promotion

The Australian Wool Corporation is responsible for the promotion of the greater use of wool both in Australia and overseas. The cost of promotion is shared by the Government and the woolgrowing industry. The woolgrowers' contribution for promotion is raised by means of a tax on wool sale proceeds which is currently at the rate of 2.5 per cent (part of a total 3 per cent levy used to finance both wool research and promotion) while the level of Government contribution is reviewed and determined annually. Most of the promotion funds are remitted to the International Wool Secretariat (IWS) with headquarters in London. Australia provides approximately two thirds of the IWS budget.

Wool research

The wool research program covers five broad areas; research into wool production, wool harvesting and distribution, and economic and textile research. Wool research activities funded from the Wool Research Trust Fund (WRTF) are financed by growers and the Government on a 50:50 basis with the grower's contribution raised by means of a 0.5 per cent levy on wool sale proceeds (part of the total 3 per cent levy mentioned above). In addition to the wool research which is funded in this manner the CSIRO and the Bureau of Agricultural Economics carry out considerable additional wool research which is funded by Consolidated Revenue.

Wool income

Fluctuations in wool prices have a marked effect on agricultural and national income. In 1945–46 the gross value of wool production 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 $1,303.8 million, or 55.6 per cent of total agricultural industries. More recent figures for the contribution of wool income to total agricultural production and national exports reflect the growth in other commodities over the intervening years, rather than a decline in the fortunes of the wool industry.

Year	Value of wool as a per cent of total agriculture	Value of wool exports as a per cent of total Australian exports
1974–75	16.2	9.3
1975–76	16.2	11.0
1976–77	17.4	14.0
1977–78	17.3	10.8
1978–79	13.4	11.2
1979–80p	14.7	9.2

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)

	Stocks of—					
	Raw Wool(a)		Semi-processed wool		Total wool	
At 30 June	Greasy	Clean	Greasy	Clean	Greasy	Clean
1974	181.8	104.3	10.5	6.1	192.4	110.4
1975	450.2	268.8	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	8.6	5.1	274.2	161.4
1978	225.8	134.4	8.7	5.2	234.5	139.6
1979	162.0	101.2	7.9	5.0	169.9	106.2

(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; 1979, 31,400 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 of wool at retail level. It has not been possible to estimate wool consumption at 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)

	Consumption of raw wool		Consumption of processed wool					
			Worsted yarn used (a)		Woollen yarn used (b)		Total	
Year	Greasy	Clean	Greasy	Clean	Greasy	Clean	Greasy	Clean
1973–74	45.7	26.0	16.5	9.3	17.5	10.3	35.1	20.1
1974–75	31.3	18.2	10.9	6.2	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	12.6	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
1978–79p	51.0	30.0	11.9	6.8	14.7	9.0	27.7	16.4

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

Exports of wool

From its earliest days the Australian wool industry has been export oriented, and today approximately 95 per cent of total annual production of wool is exported.

The great bulk of this leaves the country in its natural 'greasy' state, but significant quantities are also exported as fellmongered (i.e. wool removed from skins after slaughter), on sheepskins, and in part processed forms (i.e. scoured, carbonised, top and noil).

Figures for 1979–80 show that 505,337 tonnes of greasy and slipe wool was exported from Australia, with principal markets being Japan (122,259 tonnes or 24.2 per cent of total exports), Western Europe (170,431 tonnes or 33.7 per cent), Eastern Europe (128,119 tonnes or 25.4 per cent) and the Asian countries of India, China, Republic of Korea and Taiwan Province (60,550 tonnes or 12 per cent).

EXPORTS OF WOOL

	Selected exports ('000 tonnes: greasy basis)			*Total exports*	
Year	*Greasy and slipe*	*Scoured and carbonised*	*Exported on skins*	*Greasy basis (a)*	*Value f.o.b.*
				'000 tonnes	$m
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	1,289
1978–79	566.6	83.5	56.0	726.1	1,593
1979–80p	505.3	86.4	64.0	679.1	1,743

(*a*) Includes processed wool.

For further details on sheep shorn, wool production and overseas trade *see* the following publications: *Livestock, Australia* (7203.0), *Sheep Numbers, Shearing and Wool Production Forecast, Australia* (7211.0), *Wool Production and Shearing, Australia* (7210.0), *Wool, Australia* (7212.0), *Brokers and Dealers Receivals 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; the use of artificial insemination; better feeding resulting from the use of improved pastures; and better farming methods arising from the application of new management practices and the use of the latest technology; and a contraction of the industry to climatically more favourable areas. Typical of the developments which have occurred are the almost total change from on-farm separation and delivery of cream to the collection of whole milk by milk tankers from on-farm refrigerated milk vats and the introduction of Herringbone and Rotary type dairies on farms.

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

MILK CATTLE NUMBERS
('000)

31 March	Bulls used or intended for service	Cows and heifers used or intended for production of milk or cream for sale			
		Cows (in milk and dry)	Heifers		House cows and heifers(a)
			1 year and over	Under 1 year	
1975	78	2,355	634	537	122
1976	73	2,345	595	467	122
1977	65	2,174	537	385	105
1978	60	2,056	480	367	99
1979	55	1,921	442	369	78
1980p	56	1,869	431	396	77

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

The economic position of the industry

During much of the 1970's the Australian dairy industry faced reducing demand and low export prices for dairy products. Major producing and consuming countries such as the EEC and U.S.A. adopted production policies, coupled with protection of their domestic markets, which resulted in world production of most dairy products in excess of market opportunities.

Considerable contraction and rationalisation of production has occurred in Australia in response to a changed economic and trading environment.

Improved domestic and export prices have combined with reduced production to significantly improve producers' returns in 1979–80 and the outlook for 1980–81.

Government assistance

The downturn in the Australian dairy industry, resulting largely from the low international prices for dairy products, led in 1976–77 to the introduction of a Government scheme to underwrite minimum prices for the major dairy products. Since that time underwritten minimum prices have been set each year. For the 1980–81 season, the manufacture of prescribed dairy products—butter, skim milk powder, casein, cheese and whole milk power—was underwritten at $2.10 per kilogram butterfat in milk.

The voluntary equalisation arrangements which had operated in the dairy industry since 1923 were considered to be in danger of collapse because of seriously depressed export returns and the phasing out of a production bounty which had applied for butter and cheese.

Legislative backing for a levy/disbursement scheme has become the basis for stabilised marketing arrangements. It is aimed at protecting the domestic price structure for prescribed dairy products from disruptive price competition and providing each manufacturer with an equalised return for their domestic and export sales of such products.

PRODUCTION, UTILISATION AND GROSS VALUE OF WHOLE MILK

Year	*Whole milk used for—* Factory butter	Non-processed cheese	Processed milk products(a)	Other purposes(b)	Total whole milk
	QUANTITY (million litres)				
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	1,963	986	929	1,612	5,490
1978–79	1,830	1,198	1,022	1,625	5,676
1979–80p	1,533	1,289	979	1,665	5,465
	GROSS VALUE ($ million)				
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	128.1	54.3	38.8	275.2	(c) 520.9
1977–78	120.7	62.7	49.3	290.2	(c) 548.9
1978–79	133.4	95.8	68.2	334.2	631.5
1979–80p	116.6	107.2	67.3	341.6	632.8

(*a*) Quantities of milk used to produce two or more products (e.g., initially as full cream milk and subsequently as skim milk) are counted once only. (*b*) Principally fluid milk for domestic purposes. (*c*) Includes data not available for publication in the components.

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. This has been accompanied by an increased percentage of total milk production going to the fluid milk market and being used in the manufacture of wet products such as yoghurt and table cream.

The combination of reduced total milk production in Australia and the growth in population has increased the importance of the domestic market and reduced the milk equivalent of exports. Increased emphasis is being placed by manufacturers on meeting the requirements of the domestic market. Attempts are being made to supply the consumer with a more readily usable product. Recent developments include the introduction of ultra high temperature (UHT) treated milk products and test marketing of butter-vegetable oil blends.

Except for cheese, the domestic market is virtually supplied from Australian produced dairy products. Cheese imports, particularly from New Zealand, have increased significantly in recent years. The Industries Assistance Commission conducted an inquiry into the cheese industry during 1978 and 1979 and reported that New Zealand imports had the potential to undermine domestic marketing arrangements. Recently, an understanding was reached between the Australian and New Zealand dairy industries under which the New Zealand Dairy Board has agreed to exercise a reasonable restraint policy with respect to cheese exports to Australia.

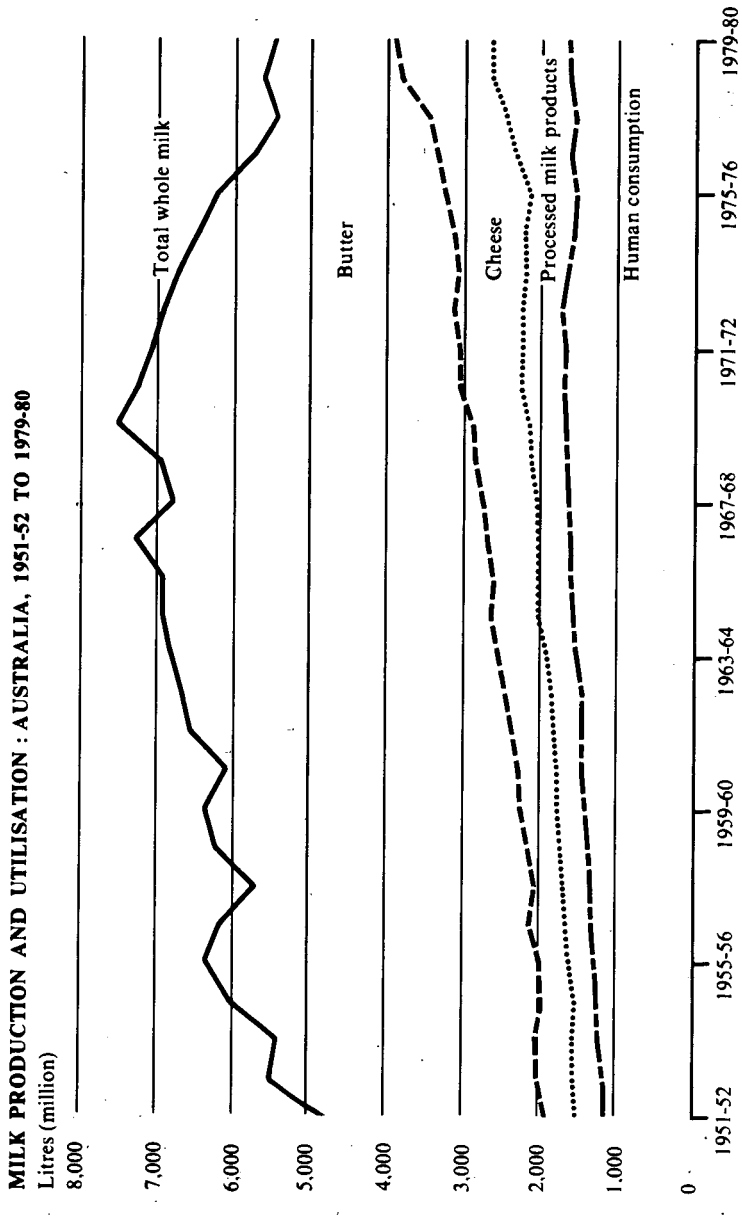
MILK PRODUCTION AND UTILISATION : AUSTRALIA, 1951-52 TO 1979-80
Litres (million)
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Total whole milk
Butter
Cheese
Processed milk products
Human consumption
1951-52
1955-56
1959-60
1963-64
1967-68
1971-72
1975-76
1979-80

PLATE 38

Exports

Australia's export trade in dairy products has undergone a considerable change in recent years both in terms of the volume and type of product traded and the direction of trade.

Declining milk production in Australia has reduced the overall availability of dairy products for export. In particular the decline in the production of butter and skim milk powder has led to a decline in exports of those products. On the other hand production and exports of cheese and whole milk powder have increased.

Britain was Australia's major outlet for dairy products until she joined the EEC. From 1973 until the beginning of 1980 Australia did not sell any dairy products to Britain or the EEC. From 1 January 1980, however, Australia has been granted access to the EEC for 3000 tonnes of cheese per annum in return for certain concessions on EEC cheese imports into Australia.

Japan and the Middle East are currently the principal market outlets for Australia's dairy products.

PRODUCTION AND TRADE OF BUTTER AND CHEESE

	Butter			*Cheese*			
		Exports (a)			*Exports (b)*		
Year	*Factory production*	*Quantity*	*Value f.o.b.*	*Factory production(c)*	*Quantity*	*Value f.o.b.*	*Imports*
	'000 tonnes	'000 tonnes	$m	'000 tonnes	'000 tonnes	$m	'000 tonnes
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	115.7	47.0	55.6	11.3
1978–79	104.8	28.2	37.8	141.8	51.4	69.0	12.1
1979–80p	84.3	17.9	28.7	151.2	61.1	94.4	11.9

(*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

	Apparent consumption Total			*Apparent consumption Per capita per year*				
							Margarine	
Year	*Fluid whole milk*	*Butter*	*Cheese*	*Fluid whole milk*	*Butter*	*Cheese*	*Table*	*Other*
	mil. litres	'000 tonnes	'000 tonnes	litres	kg	kg	kg	kg
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	86	102.4	5.0	6.0	5.7	2.9
1978–79	1,497	61	94	104.5	4.2	6.5	5.9	2.9
1979–80p	1,520	60	98	104.7	3.8	6.8	n.y.a.	n.y.a.

Wholesale prices of butter and cheese in Australia

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

For further details on the dairying industry *see* the publications, *Dairying and Dairy Products, Australia* (7209.0), *Milk, Australia* (monthly) (7208.0), *Production Bulletin No. 3: Food, Drink and Tobacco, Australia* (8359.0), and *Production of Non-Processed Cheese, Australia* (8307.0).

Beekeeping

Although practised as a separate industry, beekeeping is also carried on in conjunction with other branches of agriculture. A feature of the industry is that many apiarists operate 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 for 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
		'000	'000	'000 tonnes	kg	$'000	tonnes	$'000
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	56.8	10,453	368	633
1976–77	2,274	348	493	14.9	42.9	8,405	275	777
1977–78	2,151	363	479	18.6	51.2	13,480	329	1,096
1978–79	2,201	369	501	18.3	49.5	14,111	349	1,213

(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	tonnes	$'000
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	4.3	4,228	145	542
1978–79	7.4	6,164	194	743

Honey levy

Under the *Honey Levy Act* 1962, a levy is imposed on domestic sales of honey. 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. 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.

The domestic levy and export charge proceeds finance the export control and promotional activities of the Australian Honey Board.

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
1973–74	189.0	147.8	23.5	31.5	165.0	12.4
1974–75	197.7	171.7	21.8	38.4	170.4	12.4
1975–76	196.0	178.5	30.1	32.5	172.6	12.5
1976–77	192.7	182.2	21.8	28.3	173.5	12.4
1977–78	200.7	200.8	20.8	34.3	176.0	12.4
1978–79p	195.6	203.9	17.3	26.7	179.2	12.5

(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 1979–80, all States recorded 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. Export availability has declined as the gap between domestic consumption and production has narrowed.

EXPORTS OF EGGS AND EGG PRODUCTS

	Eggs in shell		*Eggs not in shell*			
			Liquid form		*Dry*	
Year	*Quantity*	*Value f.o.b.*	*Quantity*	*Value f.o.b.*	*Quantity*	*Value f.o.b.*
	'000 doz	$'000	tonnes	$'000	tonnes	$'000
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
1978–79	962	514	8,200	9,790	99	374
1979–80p	1,364	779	5,833	5,816	74	322

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

Agricultural 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 some limited development of domestic rock deposits is underway.

The chief sources of Australia's supplies of phosphate rock are Nauru and Christmas Island.

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

Sulphur for use in superphosphate manufacture is obtained mainly from Canada and Mexico.

Principal crops and pastures fertilised, etc.

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

ARTIFICIAL FERTILISERS: AREA AND USAGE

Year	*Area fertilised*	*Super-phosphate used*	*Nitrogenous fertilisers used*	*Other fertilisers used*
	'000 ha	'000 tonnes	'000 tonnes	'000 tonnes
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
1978–79	25,403	2,651	485	398

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.

The main artificial fertiliser used in Australia is 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.

SUPERPHOSPHATE USAGE

Year	*Selected crops and pastures*					
	Sown and native pastures	*Lucerne*	*Wheat*	*Other cereals*	*Sugar cane*	*Total*
	AREA FERTILISED ('000 hectares)					
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
1978–79	12,079	379	8,004	4,220	266	25,403
	SUPERPHOSPHATE USED ('000 tonnes)					
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
1978–79	1,451	55	634	409	22	2,651

PRODUCTION AND IMPORTS OF FERTILISERS

Item		1974–75	1975–76	1976–77	1977–78	1978–79	1979–80p
PRODUCTION							
Superphosphate (*a*)	'000 tonnes	3,309	2,185	3,137	3,388	3,646	4,179
Mixed chemical fertilisers (including complete manures)	'000 tonnes	1,049	708	870	828	n.y.a.	n.y.a.
Leaf and foliage type fertilisers (including dry and liquid form)	tonnes	368	1,129	n.p.	n.p.	n.y.a.	n.y.a.
Manures (without added chemical fertilisers) (*b*)	tonnes	9,554	20,344	17,132	11,472	n.y.a.	n.y.a.
IMPORTS							
Crude fertilisers (mainly natural phosphate)	'000 tonnes	2,651	1,464	1,330	1,612	2,381	2,181
	Value $m	74.6	18.4	42.5	55.6	83.4	80.4
Manufactured, mineral or chemical fertilisers—							
Nitrogenous (*c*)	'000 tonnes	12	6	22	23	29	75
	Value $m	2.5	0.7	2.6	2.6	4.2	9.4
Potassic (*d*)	'000 tonnes	211	110	165	162	174	215
	Value $m	9.5	7.3	9.6	9.1	9.9	15.5
Other (*e*)	'000 tonnes	5	18	71	35	72	81
	Value $m	1.1	1.3	8.9	5.1	10.3	7.2

(*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 treated ('000 hectares)			Materials used ('000 tonnes)		Productive hours flown ('000 hours)
	Top dressed and seeded	Sprayed	Total(*a*)	Super-phosphate	Seed	
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	3,212	2,955	6,223	374.5	5.9	101.2
1980	4,195	2,381	6,654	487.6	6.4	123.8

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

Irrigation on agricultural establishments

Irrigation is one of the factors by which agriculture 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 (approximately 1.4 million hectares in 1978–79) forms about 10 per cent of the total area under crops and only 0.3 per cent of the total area of agricultural establishments.

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 reservoirs and private investment by farmers in irrigation plant and earthworks. Irrigation statistics are collected irregularly. Chapter 15, Water Resources, contains details of water conservation and irrigation with international, national and interstate aspects.

Agricultural machinery on agricultural establishments

Statistics on the type of agricultural machinery on agricultural establishments 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 *Sales and Stocks of New Tractors, Australia* (8507.0).

Employment in Agriculture

Employment on agricultural establishments

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 agricultural 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 agricultural labour force is now producing a larger output of farm products.

AGRICULTURAL EMPLOYMENT(*a*)

(*Source:* Annual Agricultural Census)

	Males, permanent ('000)				*Persons working more than 15 hours a week ('000)*		
31 March	*Owners, lessees or share farmers*	*Relatives, etc.*	*Employees (b)*	*Total*	*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*
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
1980	285.9	77.1	92.4	378.3

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.