CHAPTER 13

AGRICULTURAL INDUSTRIES

This chapter is divided into the following major parts:—Introduction; Sources of statistics and definitions of units; Structural statistics (provides data on the legal arrangements, size and industry class of the business organisations operating within the agricultural sector); Financial statistics (provides estimates of the financial performance of business organisations engaged in agricultural activities); Value of agricultural commodities produced and index of values at constant prices; Apparent consumption of foodstuffs and nutrients; 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.

The ABS excludes from the Census those establishments which make only a small contribution to overall agricultural production. Thus, establishments with agricultural activity have been included in the 1983–84 Census if they had, or were expected to have, an estimated value of agricultural operations of $2,500 or more. In previous years the value cut off was applied at the enterprise level—for 1981–82 the value was $2,500 and for earlier years, $1,500.

While these changes have resulted in some changes in the counts of numbers 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.

Details of the method used in the calculation of the estimated value of agricultural operations are contained in the publication *Agricultural Industries: 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 Register Information System (IRIS)

The former register, the Integrated Agricultural Register, contained information about the area, type, legal status, level of activity and location of units engaged in agriculture and 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 agricultural units from

1982–83 have been derived from the Integrated Register Information System (IRIS) which has absorbed the IAR. Details of the structure of economic units engaged in agriculture, 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.

Agricultural Finance Survey (AFS)

The triennial AFS collects detailed financial statistics from a sample of agricultural enterprises. The main purpose of the survey is to produce estimates of the financial performance of the agricultural sector and its component industries.

Other Statistical Collections

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

Structural statistics

The following tables provide information relating to the structure of operating units during 1982–83. 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 Industries: Structure of Operating Units, Australia* (7102.0).

NUMBER OF UNITS BY TYPE OF UNIT

Year/unit	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	*Aust.* (*a*)
1980–81—							
Agricultural establishments	52,030	46,581	34,173	19,629	17,054	5,953	175,756
Non-agricultural establishments with agricultural activity				—n.a.—			
Agricultural enterprises	50,133	45,060	32,677	19,113	15,767	5,685	169,158
Non-agricultural enterprises operating agricultural establishments	884	872	439	276	342	202	3,065
1981–82(*b*)—							
Agricultural establishments	52,695	46,167	33,820	19,170	16,613	5,664	174,166
Non-agricultural establishments with agricultural activity	(*c*)952	737	411	(*d*)502	457	116	3,175
Agricultural enterprises	50,872	44,873	32,342	18,699	15,354	5,439	168,309
Non-agricultural enterprises operating agricultural establishments	831	793	407	251	316	164	2,795
1982–83p—							
Agricultural establishments	(*c*)53,055	46,661	33,764	(*d*)20,078	16,471	5,702	175,731
Non-agricultural establishments with agricultural activity	(*c*)753	506	272	(*d*)287	338	138	2,294
Agricultural enterprises				—n.a.—			
Non-agricultural enterprises operating agricultural establishments				—n.a.—			

(*a*) Includes enterprises in the Northern Territory, Australian Capital Territory and multi-State enterprises. (*b*) Not comparable with figures for previous periods. Prior to 1981–82 an enterprise was not included if the estimated value of agricultural operations derived was less than $1,500: for 1981–82 this estimated value was increased to exclude enterprises below $2,500. For direct comparisons with previous periods refer to Explanatory Notes to the publication *Agricultural Industries: Structure of Operating Units, Australia,* 1981–82 (7102.0). (*c*) Includes the A.C.T. (*d*) Includes the N.T.

AGRICULTURAL ESTABLISHMENTS, INDUSTRY AND ESTIMATED VALUE OF AGRICULTURAL OPERATIONS: 1982–83

ASIC Code	Industry of establishment Description	Estimated value of agricultural operations ($'000) 3–9	10–19	20–29	30–39	40–49	50–59	60–74	75–99	100–149	150–199	200 and more	Total enterprises(a)
0124	Poultry for meat	27	53	49	66	77	65	88	87	73	21	72	693
0125	Poultry for eggs	52	63	41	43	45	47	50	81	144	118	370	1,075
0134	Grapes	680	830	893	704	545	297	278	151	110	26	45	4,687
0135	Plantation fruit	241	443	368	217	184	139	133	127	87	28	41	2,039
0136	Orchard and other fruit	1,306	1,170	837	646	502	407	439	449	433	178	221	7,057
0143	Potatoes	58	116	126	121	150	135	171	225	260	134	215	1,722
0144	Vegetables (except potatoes)	737	818	561	386	268	242	249	297	374	211	443	4,726
0181	Cereal grains (incl. oilseeds n.e.c.)	1,089	1,300	1,180	1,043	937	831	1,066	1,503	1,525	816	1,771	13,399
0182	Sheep-cereal grains	668	1,712	2,472	2,715	2,513	2,279	2,664	3,179	3,299	1,527	1,869	24,966
0183	Meat cattle-cereal grains	482	703	626	521	427	337	385	406	407	166	179	4,682
0184	Sheep-meat cattle	1,487	1,874	1,648	1,418	1,102	858	1,004	1,164	1,076	465	575	12,994
0185	Sheep	3,698	3,699	2,928	2,401	1,805	1,479	1,610	1,707	1,533	555	577	23,226
0186	Meat cattle	11,705	7,580	3,608	2,133	1,359	993	961	1,002	969	396	731	34,686
0187	Milk cattle	595	1,337	2,194	3,283	3,340	2,542	2,429	1,945	1,238	311	176	19,558
0188	Pigs	350	430	355	283	220	179	252	318	320	178	269	3,230
0191	Sugar cane	18	57	125	234	380	524	924	1,299	1,441	599	606	6,214
0192	Peanuts	12	40	56	64	54	46	65	64	49	18	16	486
0193	Tobacco	1	3	21	38	60	95	155	186	139	36	16	754
0194	Cotton	2	2	5	2	6	5	7	12	40	39	235	358
0195	Nurseries	246	242	250	118	140	210	89	119	216	87	203	1,959
0196	Agriculture n.e.c.	2,294	1,599	823	500	285	211	192	195	159	52	73	7,220
	Total (ASIC Code 01)	**25,748**	**24,071**	**19,166**	**16,936**	**14,399**	**11,921**	**13,211**	**14,516**	**13,892**	**5,961**	**8,703**	**175,731**
02	Services to agriculture	97	73	25	18	18	5	12	6	3	—	1	290
03	Foresty and logging	24	19	3	5	5	2	—	1	3	—	1	85
04	Fishing and hunting	10	1	2	1	—	1	—	1	—	—	—	20
	Total (ASIC Division A)	*25,879*	*24,164*	*19,196*	*16,960*	*14,422*	*11,929*	*13,223*	*14,524*	*13,898*	*5,961*	*8,705*	*176,126*
B	Mining	8	6	1	—	2	—	—	1	2	—	—	25
C	Manufacturing	47	35	32	15	5	5	10	8	18	6	18	239
D	Electricity, Gas and Water	—	1	—	—	2	—	—	—	—	—	1	4
E	Construction	148	97	33	17	11	11	7	5	4	2	1	391
F	Wholesale and Retail Trade	106	76	45	27	24	29	8	12	9	3	12	402
G	Transport and Storage	134	95	36	17	15	7	7	3	9	1	3	365
H	Communication	—	—	—	—	—	—	—	—	—	—	—	—
I	Finance, Property and Business Services	33	17	6	2	4	1	—	1	—	1	—	74
J	Public Administration and Defence	—	1	—	1	—	—	1	1	—	—	—	4
K	Community Services	38	23	24	16	16	12	24	25	33	14	29	271
L	Recreation, Personal and Other Services	47	29	18	4	1	1	—	—	1	1	—	124
	Total all industries	**26,440**	**24,544**	**19,391**	**17,059**	**14,502**	**11,995**	**13,280**	**14,580**	**13,974**	**5,989**	**8,769**	**178,025**

(a) Includes establishments with an EVAO of less than $3,000.

AGRICULTURAL ESTABLISHMENTS(a) INDUSTRY: 1982–83

ASIC Code	Industry of establishment Description	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Australia(b)
0124	Poultry for meat	351	125	97	65	43	11	693
0125	Poultry for eggs	361	242	206	111	116	33	1,075
0134	Grapes	749	1,876	142	1,701	210	8	4,687
0135	Plantation fruit	1,061	—	867	—	108	—	2,039
0136	Orchard and other fruit	2,138	1,260	1,080	1,580	646	348	7,057
0143	Potatoes	202	654	252	141	202	271	1,722
0144	Vegetables (except potatoes)	1,054	816	1,244	830	528	244	4,726
0181	Cereal grains (incl. oilseeds n.e.c.)	3,520	2,447	3,432	1,427	2,533	39	13,399
0182	Sheep-cereal grains	8,341	4,846	358	5,774	5,547	99	24,966
0183	Meat cattle-cereal grains	1,887	439	2,140	142	50	21	4,682
0184	Sheep-meat cattle	4,980	4,404	906	1,144	901	628	12,994
0185	Sheep	8,256	7,109	1,303	3,113	2,185	1,231	23,226
0186	Meat cattle	11,564	9,197	9,695	987	1,894	1,129	34,686
0187	Milk cattle	3,257	10,248	2,814	1,369	633	1,234	19,558

For footnote *see* end of table.

AGRICULTURAL ESTABLISHMENTS(*a*) INDUSTRY: 1982–83—*continued*

ASIC Code	Description	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Australia(b)
	Industry of establishment							
0188	Pigs	1,014	564	841	466	214	129	3,230
0191	Sugar cane	529	—	5,684	—	1	—	6,214
0192	Peanuts	5	—	480	—	1	—	486
0193	Tobacco	49	276	429	—	—	—	754
0194	Cotton	205	—	153	—	—	—	358
0195	Nurseries	790	378	342	197	195	49	1,959
0196	Agriculture n.e.c.	2,639	1,780	1,299	793	464	228	7,220
	Total (ASIC Code 01)	**52,952**	**46,661**	**33,764**	**19,840**	**16,471**	**5,702**	**175,731**
02	Services to agriculture	87	78	56	25	41	3	290
03	Foresty and logging	36	8	13	1	7	20	85
04	Fishing and hunting	5	—	2	4	8	1	20
	Total (ASIC Division A)	*53,080*	*46,747*	*33,835*	*19,870*	*16,527*	*5,726*	*176,126*
B	Mining	13	5	2	2	3	—	25
C	Manufacturing	73	41	20	55	40	10	239
D	Electricity, Gas and Water	—	3	—	1	—	—	4
E	Construction	135	112	29	48	49	18	391
F	Wholesale and Retail Trade	120	89	44	68	57	24	402
G	Transport and Storage	121	95	23	32	53	41	365
H	Communication	—	—	—	—	—	—	—
I	Finance, Property and Business Services	35	15	5	12	7	—	74
J	Public Administration and Defence	2	—	—	2	—	—	4
K	Community Services	83	14	71	21	57	17	271
L	Recreation, Personal and Other Services	43	46	7	8	16	4	124
	Total all industries	**53,705**	**47,167**	**34,036**	**20,119**	**16,809**	**5,840**	**178,025**

(*a*) Includes establishments with an EVAO of less than $3,000. (*b*) Includes the Northern Territory and the Australian Capital Territory.

Financial statistics

Estimates of selected financial aggregates of enterprises predominantly engaged in agricultural activity are shown in the following tables. The estimates have been derived from the triennial Agricultural Finance Survey. Up to 1977–78 the survey was conducted on an annual basis. The notation 'S.E.%' stands for 'standard error %' which is a measure of the sampling error resulting from the use of sampling techniques as opposed to the results which would have been obtained from a comparable complete collection. A more detailed explanation of standard errors and other terms used in the tables, as well as more detailed statistics, is given in the publication *Agricultural Industries, Financial Statistics, Australia, 1980–81* (7507.0). The next Agricultural Finance Survey will be conducted in 1985–86 with reference to the year 1984–85.

ESTIMATES OF SELECTED FINANCIAL AGGREGATES OF AGRICULTURAL ENTERPRISES, 1974–75 TO 1977–78 AND 1980–81

	1974–75		*1975–76*		*1976–77*		*1977–78*		*1980–81*	
	$m	*S.E. %*	*$m*	*S.E. %*	*$m*	*S.E. %*	*$m*	*S.E. %*	*$m*	*S.E. %*
Sales from crops	2,345.5	2	2,545.2	3	2,900.4	2	2,281.5	2	4,543.7	1
Sales from livestock	1,099.7	5	1,103.5	3	1,404.3	2	1,677.8	2	3,134.6	2
Sales from livestock products	1,382.7	2	1,461.4	3	1,632.4	2	1,682.0	1	2,422.2	2
Turnover	4,985.8	2	5,237.1	2	6,133.6	1	5,874.2	1	10,439.7	1
Purchases and selected expenses	2,278.1	2	2,514.4	3	2,690.4	1	2,838.7	1	5,283.5	1
Value added	2,897.3	3	2,783.1	5	3,310.0	1	2,869.9	1	5,034.9	2
Adjusted value added	2,576.0	4	2,449.1	2	2,924.6	2	2,472.6	2	4,471.7	2
Gross operating surplus	2,083.8	4	1,097.4	5	2,401.7	2	1,896.4	2	3,669.1	2
Cash operating surplus	1,658.7	3	1,594.1	3	2,291.8	2	1,801.6	2	3,419.1	2
Total net capital expenditure	620.0	4	801.7	4	820.9	3	772.7	3	1,301.3	3
Gross indebtedness	2,972.5	4	3,422.2	4	3,397.0	3	3,395.8	3	4,941.0	3

ESTIMATES OF SELECTED FINANCIAL AGGREGATES OF AGRICULTURAL ENTERPRISES, 1980–81
($ million)

	N.S.W	*Vic.*	*Qld*	*S.A.*	*W.A.*	*Tas.*	*Aust. (a)*
Sales from crops	1,048.8	737.5	1,413.4	559.3	710.6	49.1	4,543.7
Sales from livestock	989.2	658.2	617.7	278.1	372.1	97.3	3,134.6
Sales from livestock products	667.1	715.5	249.2	281.9	407.9	81.4	2,422.2
Turnover	2,798.3	2,166.2	2,383.7	1,143.5	1,536.9	238.2	10,439.7
Purchases and selected expenses	1,570.3	1,030.3	1,151.7	515.2	800.8	135.0	5,283.5
Value added	1,136.8	1,121.1	1,192.8	651.8	727.7	115.1	5,034.9
Adjusted value added	961.6	998.2	1,079.6	594.6	659.3	100.3	4,471.7
Gross operating surplus	750.7	852.0	869.7	508.7	569.7	71.3	3,669.1
Cash operating surplus	733.4	797.9	834.2	448.7	514.0	44.9	3,419.1
Total net capital expenditure	312.8	223.4	334.4	184.4	200.2	31.3	1,301.3
Gross indebtedness	1,320.7	870.3	1,030.7	571.0	870.6	171.3	4,941.0

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

ESTIMATES OF SELECTED FINANCIAL AGGREGATES OF AGRICULTURAL ENTERPRISES, BY INDUSTRY, 1980–81
($ million)

	Poultry (0124–0125)	*Fruit (0134–0136)*	*Vege-tables (0143–0144)*	*Cereal grains oilseeds (n.e.c.) (0181)*	*Sheep-cereal grains (0182)*	*Meat cattle-cereal grains (0183)*	*Sheep-meat cattle (0184)*
Sales from crops	6.3	508.0	357.4	1,083.5	1,133.5	173.5	37.6
Sales from livestock	67.0	9.1	26.2	173.5	442.1	156.8	580.1
Sales from livestock products	199.9	2.2	5.6	87.5	528.7	5.8	311.4
Turnover	290.6	549.7	399.1	1,372.7	2,151.7	349.1	964.5
Purchases and selected expenses	193.2	242.4	203.2	684.8	1,046.7	185.7	520.1
Value added	98.5	307.3	197.0	701.6	1,084.1	152.0	366.2
Adjusted value added	88.0	278.3	182.3	634.4	979.9	131.1	297.7
Gross operating surplus	60.6	187.7	135.3	575.3	885.3	110.8	191.3
Cash operating surplus	52.2	175.6	125.5	496.5	830.3	111.4	241.5
Total net capital expenditure	20.9	66.0	39.4	202.3	297.0	53.7	85.8
Gross indebtedness	81.8	198.5	103.2	801.0	1,018.5	163.4	483.6

ESTIMATES OF SELECTED FINANCIAL AGGREGATES OF AGRICULTURAL ENTERPRISES, BY INDUSTRY—*continued*
1980–81
($ million)

	Sheep (0185)	*Meat cattle (0186)*	*Milk cattle (0187)*	*Pigs (0188)*	*Other agriculture (0191–0196)*	*All Industries (01)*
Sales from crops	82.5	38.2	32.3	10.0	1,080.9	4,543.7
Sales from livestock	351.5	906.8	195.9	187.3	38.3	3,134.6
Sales from livestock products	513.2	25.2	714.2	14.7	13.8	2,422.2
Turnover	970.9	1,013.2	965.1	217.4	1,195.8	10,439.7
Purchases and selected expenses	511.0	595.6	447.9	157.7	495.1	5,283.5
Value added	463.1	362.6	535.4	64.4	702.7	5,034.9
Adjusted value added	403.7	283.8	486.5	56.4	649.7	4,471.7
Gross operating surplus	320.4	188.2	432.7	39.3	542.1	3,669.1
Cash operating surplus	271.1	214.7	371.1	26.1	502.9	3,419.1
Total net capital expenditure	99.3	123.8	101.9	26.1	184.9	1,301.3
Gross indebtedness	514.0	525.2	550.0	105.2	396.4	4,941.0

Value of agricultural commodities produced and index of values at constant prices

Definitions

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

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.

Index of values at constant prices is the index of the gross value of commodities produced at constant prices, i.e. it is a measure of change in value after the direct effects of price changes have been eliminated.

VALUES OF AGRICULTURAL COMMODITIES: 1982–83

	Gross value of agricultural commodities produced	*Marketing costs*	*Local value of commodities produced*	*Index of values at constant prices of agricultural commodities produced(a) (Base year: 1979–80 = 1000)*
	$m	$m	$m	
Crops	5,010.3	692.6	4,317.7	763
Livestock slaughterings and other disposals	3,452.2	271.9	3,180.3	998
Livestock products	3,245.8	208.1	3,037.7	985
Total agriculture	**11,708.3**	**1,172.6**	**10,535.7**	**885**

(*a*) Weighted by average unit values for the year 1979–80.

Publications

Two preliminary estimates of value of commodities produced are published: *Value of Agricultural Commodities Produced, Australia, First Estimates* (7501.0) and *Value of Agricultural Commodities Produced, Australia, Second Estimates* (7502.0). A final publication, *Value of Agricultural Commodities Produced, Australia* (7503.0), contains Indexes of Values at Constant Prices.

Index of Agricultural Commodities Produced

The index is consistent in scope with those of previous years. The indexes are weighted by the average unit values for the year 1979–80 with a reference base of 1979–80=1000.

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 PRODUCED

($m)

	1978–79	*1979–80*	*1980–81*	*1981–82*	*1982–83*	*1983–84p*
Crops—						
Barley for grain	339.1	449.8	380.9	463.4	290.8	846.0
Oats for grain	100.5	98.8	139.5	155.7	116.1	249.2
Wheat for grain	2,295.8	2,478.0	1,684.1	2,599.4	1,566.2	3,408.4
Other cereal grains	222.3	218.9	327.6	294.1	260.4	361.9
Sugar cane cut for crushing	396.5	548.2	799.7	590.2	508.9	507.9
Fruit and nuts	387.7	406.6	459.8	464.4	498.0	543.0
Grapes	150.1	231.1	178.2	222.8	212.5	217.6
Vegetables	403.4	402.3	509.0	554.3	556.9	696.5
All other crops (*a*)	617.2	707.3	827.2	967.6	1,000.5	1,281.6
Total crops	*4,912.5*	*5,540.8*	*5,305.9*	*6,311.9*	*5,010.3*	*8,112.1*
Livestock slaughterings and other disposals (*b*)—						
Cattle and calves (*c*)	2,154.6	2,386.0	2,056.5	1,890.1	2,076.2	2,039.5
Sheep and lambs	445.1	654.3	718.9	646.7	548.0	561.9
Pigs	253.8	311.3	337.5	396.1	414.9	385.7
Poultry	244.2	307.2	361.4	362.7	413.1	404.2
Total livestock slaughterings and other disposals	*3,097.7*	*3,658.8*	*3,474.3*	*3,295.6*	*3,452.2*	*3,391.4*
Livestock products—						
Wool	1,374.5	1,651.4	1,669.5	1,788.7	1,760.9	2,003.0
Milk	627.7	676.0	(*d*) 885.1	(*d*) 1,033.9	1,186.5	(*d*)1,185.3
Eggs	196.9	216.1	(*d*) 227.4	(*d*) 253.4	275.3	(*d*)280.6
Total livestock products (e)	*2,214.5*	*2,564.3*	*2,803.8*	*3,100.6*	*3,245.8*	*3,493.3*
Total value of agricultural commodities produced	**10,224.7**	**11,763.9**	**11,584.1**	**12,708.2**	**11,708.3**	**14,997.0**

(*a*) Includes pastures and grasses. Excludes crops for green feed or silage. (*b*) Includes net exports of livestock. (*c*) Includes dairy cattle slaughtered. (*d*) Excludes the A.C.T. (*e*) Includes honey and beeswax.

INDEX OF VALUES AT CONSTANT PRICES OF AGRICULTURAL COMMODITIES PRODUCED (*a*)

(*Base year:* 1979 - 80 = 1000)

	1977–78	*1978–79*	*1979–80*	*1980–81*	*1981–82*	*1982–83*
Crops—						
Barley for grain	644	1082	1000	724	932	524
Oats for grain	702	1250	1000	799	1146	603
Wheat for grain	579	1127	1000	663	1017	545
Other cereal grains	821	1207	1000	1233	1417	975
Sugar cane (*b*)	1142	983	1000	1120	1162	1192
Fruit and nuts	851	1022	1000	1069	994	1017
Grapes	801	783	1000	825	984	963
Vegetables	913	998	1000	1011	1056	1044
All other crops (*c*)	753	991	1000	964	1106	931
Total	*728*	*1066*	*1000*	*838*	*1053*	*763*
Livestock slaughterings and other disposals—						
Cattle and calves (*d*)	1396	1290	1000	938	1005	986
Sheep and lambs	863	830	1000	1032	946	1018
Pigs	906	904	1000	1061	1038	1040
Poultry	785	866	1000	968	893	1000
Total (*e*)	*1206*	*1138*	*1000*	*968*	*988*	*998*
Livestock products—						
Wool	956	994	1000	990	1012	995
Milk	948	1031	1000	947	956	970
Eggs	1046	1017	1000	959	927	961
Total (*f*)	*959*	*1004*	*1000*	*974*	*990*	*985*
Total agricultural commodities produced	**928**	**1075**	**1000**	**909**	**1019**	**885**

(*a*) Indexes of values at constant prices (weighted by average unit values of the year 1979-80). (*b*) Sugar cane cut for crushing and planting. (*c*) Includes pastures and grasses. Excludes crops for green feed or silage. (*d*) Includes dairy cattle slaughtered. (*e*) Component series based on carcass weight. (*f*) Includes honey and beeswax.

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, i.e. 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 using Estimated Resident Population (ERP), which is compiled according to the place of usual residence of the population and includes an estimate for those persons temporarily overseas. Following intercensal revisions of ERP, data in the following two tables have been extensively revised.

More detailed information on the consumption of foodstuffs is contained in the publication *Apparent Consumption of Foodstuffs and Nutrients, Australia* (4306.0). 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	*1978–79*	*1979–80*	*1980–81*	*1981–82*	*1982–83*	*1983–84p*
Meat and meat products—						
Beef and veal	*58.2*	*47.3*	*46.9*	*50.7*	*46.5*	*40.9*
Beef	54.8	44.9	44.5	48.2	43.1	38.7
Veal	3.3	2.4	2.4	2.5	3.4	2.2
Lamb	14.1	15.5	15.8	16.3	16.2	16.1
Mutton	4.3	4.7	4.9	3.7	4.6	4.3
Pigmeat (*a*)	13.4	14.0	15.6	14.9	15.1	16.3
Total	*89.9*	*81.6*	*83.2*	*85.5*	*82.3*	*77.5*
Offal and meat, n.e.i.	5.1	4.0	4.3	4.5	4.5	4.3
Total meat (converted to carcass equivalent weight)	**95.0**	**85.6**	**87.7**	**90.0**	**86.8**	**81.8**
Poultry—						
Poultry (dressed weight)	18.8	20.2	20.3	19.6	20.4	19.3
Seafood—						
Fresh and frozen (edible weight)—						
Fish—						
Australian	1.7	1.4	1.8	1.6	1.2	n.y.a.
Imported	1.5	1.9	2.1	1.4	1.8	n.y.a.
Crustacea and molluscs	0.8	0.5	1.0	0.9	1.0	n.y.a.
Seafood otherwise prepared (product weight)—						
Australian	0.6	0.5	0.4	0.4	0.6	n.y.a.
Imported—						
Fish	1.6	1.9	1.8	1.9	1.5	n.y.a.
Crustacea and molluscs	0.3	0.3	0.4	0.5	0.4	n.y.a.
Total seafood	**6.6**	**6.6**	**7.5**	**6.7**	**6.6**	**n.y.a.**
Milk and Milk Products—						
Market milk (fluid whole) (b) (litres)	100.6	103.4	104.0	103.1	102.9	102.3
Condensed, concentrated and evaporated milk—						
Full cream sweetened	0.7	0.7	0.9	0.6	0.9	n.y.a.
Full cream unsweetened	2.5	2.2	2.7	2.5	1.6	n.y.a.
Skim	1.6	1.4	1.0	1.2	0.8	n.y.a.
Powdered milk—						
Full cream	0.9	0.8	0.9	0.9	0.8	n.y.a.
Skim	3.2	3.7	3.2	2.8	2.7	n.y.a.
Infants' and invalids' food	1.1	1.1	1.0	1.3	1.2	n.y.a.
Cheese (natural equivalent weight)	6.0	6.6	6.6	7.0	7.4	7.7
Total (converted to milk solids, fat and non-fat)	**22.5**	**23.5**	**23.1**	**23.0**	**22.8**	**n.y.a.**
Fruit and Fruit Products—						
Fresh fruit (incl. fruit for fruit juice)—						
Citrus	35.5	40.2	41.4	39.1	42.6	n.y.a.
Other	34.4	39.3	35.8	38.8	38.8	n.y.a.
Jams, conserves, etc	2.3	1.5	1.5	1.8	1.8	n.y.a.
Dried fruit	2.1	2.5	2.2	2.3	2.4	n.y.a.
Processed fruit	10.5	12.4	11.7	10.9	9.5	n.y.a.
Total (fresh fruit equivalent)	**93.0**	**106.1**	**102.2**	**102.4**	**104.4**	**n.y.a.**
Vegetables—						
White potatoes	51.5	54.9	54.9	57.6	52.3	n.y.a.
Other root and bulb vegetables	17.2	17.3	17.5	18.7	16.9	n.y.a.
Tomatoes	13.5	14.6	15.7	16.7	16.4	n.y.a.
Leafy and green vegetables	27.5	25.1	22.3	20.8	21.3	n.y.a.
Other vegetables	19.5	17.6	17.5	17.2	18.1	n.y.a.
Total (fresh equivalent weight)	**129.2**	**129.5**	**127.8**	**130.9**	**125.0**	**n.y.a.**
Grain Products—						
Flour(c)	69.7	70.5	70.7	72.0	67.1	n.y.a.
Breakfast foods—						
Oatmeal and rolled oats	0.9	0.3	0.8	0.9	1.2	n.y.a.
Other (from grain)	7.4	6.9	6.9	7.1	7.6	n.y.a.
Total breakfast foods	*8.3*	*7.2*	*7.8*	*8.0*	*8.7*	*n.y.a.*
Table rice	2.5	2.5	2.9	2.9	3.0	n.y.a.
Total grain products	**80.5**	**80.2**	**81.3**	**82.9**	**78.8**	**n.y.a.**

For footnotes *see* end of table.

APPARENT PER CAPITA CONSUMPTION OF FOODSTUFFS—*continued*

(Kg—unless otherwise indicated)

Commodity	*1978–79*	*1979–80*	*1980–81*	*1981–82*	*1982–83*	*1983–84p*
Bread	46.8	48.0	46.1	47.5	48.4	n.y.a.
Eggs and Egg Products—						
Total (eggs in shell weight)	12.5	12.5	12.4	12.5	12.5	n.y.a.
Equivalent number of eggs	221	220	220	222	221	n.y.a.
Nuts (in shell)—						
Peanuts	1.6	1.3	1.5	1.5	2.1	n.y.a.
Tree nuts	2.6	2.9	3.2	3.3	3.3	n.y.a.
Oils and fats—						
Butter	4.5	4.6	4.3	4.3	4.0	4.0
Total margarine	*8.8*	*8.9*	*9.2*	*9.5*	*9.6*	*9.6*
Table margarine	5.9	6.4	6.7	6.8	6.8	6.9
Other margarine	2.9	2.4	2.5	2.7	2.8	2.7
Total (fat content)(d)	**21.4**	**21.5**	**21.5**	**21.8**	**21.6**	**21.7**
Sugar—						
As refined sugar	14.1	12.8	13.7	12.5	12.0	n.y.a.
In manufactured foods	35.1	34.6	35.0	34.8	33.5	n.y.a.
Total	*49.2*	*47.4*	*48.7*	*47.2*	*45.5*	*n.y.a.*
Honey	0.8	0.9	0.6	0.9	0.8	n.y.a.
Total(e)	**53.1**	**51.6**	**52.7**	**51.4**	**49.1**	**n.y.a.**
Beverages—						
Tea	1.7	1.6	1.5	1.6	1.4	1.5
Coffee(f)	1.7	1.7	1.9	1.9	2.0	2.1
Aerated and carbonated waters (litres)	66.1	63.9	67.6	64.2	65.7	63.4
Beer (litres)	130.8	132.3	129.3	128.6	121.6	118.5
Wine (litres)	16.4	17.3	18.2	19.1	19.7	20.5
Spirits (litres alcohol)	1.1	1.0	1.1	1.2	1.2	1.1

(*a*) Includes bacon and ham. (*b*) Prior to 1978–79 was known as Fluid Whole Milk. (*c*) Includes flour used for breadmaking. (*d*) Includes an estimate for vegetable oils and other fats. (*e*) Includes sugar content of syrups and glucose. (*f*) Coffee and coffee products in terms of roasted coffee.

Nutrients

The nutrients table has been compiled by the Nutrition Section of the Commonwealth Department of Health and is based on the estimates of the quantity of foodstuffs available for 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 day)

Nutrient	*Unit*	*1977–78*	*1978–79*	*1979–80*	*1980–81*	*1981–82*	*1982–83*
Protein—							
Animal	g	69.9	66.6	64.4	65.2	65.4	64.4
Vegetable	g	31.5	32.3	32.3	32.7	33.3	32.1
Total	*g*	*101.4*	*98.7*	*96.7*	*98.0*	*98.7*	*96.5*
Fat (from all sources)	g	151.9	145.2	142.4	145.6	147.3	145.0
Carbohydrate	g	389.7	395.3	396.1	400.6	400.8	384.9
Calcium	mg	891	899	932	924	920	908
Iron	mg	15.6	15.2	14.6	14.8	15.1	14.8
Vitamin A activity	μg	1,640	1,552	1,441	1,501	1,522	1,503
Vitamin C (*b*)—							
Unadjusted	mg	101.4	105.5	109.0	109.1	108.3	109.7
Adjusted	mg	72.9	77.2	80.5	81.3	80.1	82.9
Thiamin (*b*)—							
Unadjusted	mg	1.7	1.8	1.7	1.8	1.8	1.8
Adjusted	mg	1.5	1.5	1.5	1.5	1.5	1.5
Riboflavin	mg	2.8	2.7	2.6	2.6	2.7	2.6
Niacin (*b*)—							
Unadjusted	mg	24.0	23.0	22.1	22.4	22.7	22.7
Adjusted	mg	40.8	39.4	38.2	38.7	39.1	38.8
Energy value	kJ	14,501	14,312	14,163	14,385	14,478	14,088

(*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

Land tenure statistics, in the main, relate to land held under freehold tenure ('alienated or in process of alienation') or leasehold tenure ('leased or licenced') with all agricultural establishments falling within these categories. 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.).

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

For data relating to Land Tenures, in the States and Territories, *see* Year Book No. 66, page 285 and Year Book No. 67, page 321.

Land utilisation in Australia

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.)*
1979	65.1	14.4	156.3	62.7	116.2	2.2	76.2	493.2
1980	65.0	14.7	157.7	62.8	114.9	2.2	78.2	495.6
1981	65.2	14.7	157.5	62.4	115.8	2.2	77.6	495.4
1982	63.4	14.4	157.1	62.9	113.5	2.2	77.1	490.8
1983	64.0	14.2	155.9	60.2	112.0	2.2	75.2	483.8
1984p	63.5	14.1	155.5	60.0	114.3	2.2	70.5	480.0

LAND UTILISATION: AUSTRALIA

(Million hectares)

	Area of			*Total*	
Year	*crops(a) (b)*	*sown pastures and grasses (b)*	*Balance (c)*	*Area of establishments*	*Percentage of Australian land area (768,284,000 hectares)*
1978–79	17.4	27.7	448.0	493.2	64.2
1979–80	18.0	27.1	450.6	495.6	64.5
1980–81	18.3	24.9	452.3	495.4	64.5
1981–82	19.6	26.9	444.2	490.8	63.9
1982–83	19.4	25.6	438.8	483.8	63.0
1983–84	21.9	25.8	432.3	480.0	62.5

(*a*) Excludes pastures and grasses harvested for hay and seed which have been included in 'sown pastures and grasses'.

(*b*) Prior to 1981-82 figures related to area 'used for' crop or pasture, i.e., an area used for more than one purpose during the year was counted only once. From 1981-82, an area double cropped or an area of pasture also planted to crop has been counted separately each time used.

(*c*) Used for grazing, lying idle, fallow, etc.

The total area of agricultural establishments in 1983–84 constituted 62.5 per cent of the Australian land area, the remainder being urban areas, State forests and mining leases, with an overwhelming proportion of unoccupied land (mainly desert). The balance 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 4.0 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 agricultural labour force (*see* page 303) 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 supplementary 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 1983–84

('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
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
1979–80 . . .	5,243	2,243	2,334	2,771	5,281	79	2	1	17,954
1980–81 . . .	5,208	2,180	2,481	2,772	5,547	84	1	1	18,273
1981–82 . . .	5,744	2,184	2,765	2,865	5,963	90	2	1	19,613
1982–83 . . .	5,200	2,234	2,648	2,856	6,379	98	3	1	19,419
1983–84p . .	6,534	2,643	3,065	3,075	6,492	95	4	2	21,910

(*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 and harvested for seed or green feed are excluded.

NOTE: From 1970–71 to 1980–81 figures related to area 'used for' crops, ie, an area used for more than one purpose during the year was counted only once. From 1981–82, an area double cropped has been counted separately each time used.

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, maize 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 from 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

	1981-82			1982-83			1983-84		
	Area ('000 ha)	Production ('000 tonnes)	Gross value ($m)	Area ('000 ha)	Production ('000 tonnes)	Gross value ($m)	Area ('000 ha)	Production ('000 tonnes)	Gross value ($m)
Cereals for grain—									
Barley	2,685	3,450	464	2,452	1,939	291	3,163	4,937	846
Grain sorghum	649	1,317	140	707	958	124	738	n.y.a.	208
Maize	61	212	30	64	139	23	63	n.y.a.	n.y.a.
Oats	1,388	1,617	156	1,212	848	116	1,743	2,270	249
Rice	123	854	104	85	548	88	113	635	n.y.a.
Wheat	11,885	16,360	2,599	11,520	8,876	1,566	12,909	22,064	3,408
Legumes for grain	267	261	44	407	238	40	502	n.y.a.	137
Crops for hay—									
Oats	275	788	59	273	645	73	275	961	n.y.a.
Wheat	79	201	14	106	202	22	77	215	n.y.a.
Crops for green feed, silage—									
Barley	59			117			61		
Forage sorghum	77	n.a.	n.a.	112	n.a.	n.a.	74	n.a.	n.a.
Oats	628			723			618		
Wheat	32			130			31		
Sugar cane cut for crushing	316	25,094	590	318	24,817	509	307	24,263	508
Tobacco	7	13	59	7	13	62	7	n.y.a.	68
Cotton	92	325	182	96	286	168	106	n.y.a.	267
Peanuts	33	58	37	36	23	18	33	n.y.a.	n.y.a.
Linseed	7	6	2	5	2	1	6	5	n.y.a.
Rapeseed	16	15	3	12	7	2	18	16	n.y.a.
Safflower	33	20	5	12	5	2	50	33	n.y.a.
Sunflower	178	115	28	176	104	27	201	n.y.a	n.y.a.
Fruit (excl. grapes)	102	–	464	104	–	498	108	–	409
Fruit—									
Orchard	85	–	365	87	–	385	89	–	n.y.a.
Oranges		376	90		410	101		381	n.y.a.
Apples	n.a.	294	24	n.a.	301	132	n.a.	n.y.a.	134
Pears		110	31		119	31		n.y.a.	n.y.a.
Peaches		65	23		63	21		53	n.y.a.
Bananas	9	130	61	9	140	70	9	163	n.y.a.
Pineapples	6	126	21	6	111	25	6	121	n.y.a.
Grapes	68	885	223	66	768	213	65	856	218
Vegetables	107	–	554	110	–	557	109	–	423
Potatoes	36	919	181	37	858	169	32	n.y.a.	273
Total, all crops (excluding pastures)	**19,613**	–	**5,998**	**19,420**	–	**4,694**	**21,910**	–	**n.y.a.**

In the tables that follow, crop statistics are shown in these groupings: wheat, coarse grains, rice, oilseeds, sugar, vegetables, fruit, grapes 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 with the latter two being grown in association with winter cereals in some areas. 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—	Gross value of cereal grains as a	Export value of cereal grains as a
	Gross value	Export value f.o.b.	gross value	all produce value f.o.b.	percentage of gross value of agriculture	percentage of total Australian exports
	$m	$m	$m	$m	per cent	per cent
1978–79	2,957.6	1,082.0	10,225	14,247	28.9	7.6
1979–80	3,245.4	2,764.7	11,764	18,870	27.6	14.7
1980–81	2,532.0	2,160.6	11,610	19,169	21.8	11.3
1981–82	3,512.6	2,367.9	12,708	19,581	27.6	12.1
1982–83	2,233.6	1,669.7	11,708	22,060	19.1	7.6
1983–84p	4,865.5	2,573.1	14,997	24,805	32.4	10.4

(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 Industries: Structure of Operating Units, Australia* (7102.0); *Agricultural Land Use and Selected Inputs, Australia* (7411.0); *Principal Agricultural Commodities, Australia (Preliminary)* (7111.0); *Selected Agricultural Commodities, Australia (Preliminary)* (7112.0); *Crops and Pastures, Australia* (7321.0); *Cereal Grains: Estimates of Area Sown, Australia* (7312.0); *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 in all States except the Northern Territory, 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 increasing demand from and the organisation of overseas markets as well as research and the availability of suitable cropping land. As a large proportion of the wheat crop is exported, wheat marketing arrangements play an important role. The first 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 with responsibility for acquiring and marketing the Australian wheat crop 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 authority responsible for marketing of wheat domestically and abroad and to use that function as a basis for careful co-ordination of sales efforts and market development. The *Wheat Industry Stabilization Act 1948* established the present 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 export wheat. Until 1978 there were six Stabilisation Plans. The *Wheat Marketing Act 1979* replaced the stabilisation plans with a guaranteed minimum price scheme, applicable to an unlimited quantity of wheat. Amendments to this legislation in 1982 and 1983 gave the Board additional powers in financial matters, including the ability to operate on futures markets.

Wheat marketing and pricing arrangements 1984-85 to 1988-89. On 28 October 1984 the *Wheat Marketing Act 1984* received Royal Assent and new wheat marketing and pricing arrangements became operative for the period ending 30 June 1989. The basic elements of the new arrangements were negotiated between the Australian Wheatgrowers' Federation and Commonwealth and State Governments. The enactment of State legislation complementary to the Commonwealth legislation is necessary for the implementation of a national scheme.

The new wheat marketing and pricing provisions contain most features of the previous scheme, the most important of which are: the Australian Wheat Board continues to be the sole statutory authority responsible for the marketing of wheat in Australia and overseas; the general powers of the Board remain largely unchanged; the legislation applies to a seven-year period, except for the pricing provisions, which run for five years (approximately); and the concept of a guaranteed minimum price is retained.

The following are important features in the current plan.

Guaranteed Minimum Price. Under the 1984 Act, the Commonwealth Government continues to underwrite 95% of wheat returns on a net basis through a Guaranteed Minimum Price (GMP) for Australian Standard White (ASW) wheat, although the method of calculating and the timing of payment of the GMP has been changed. The ASW GMP is to be set at 95% of the average of the estimated return per tonne for ASW wheat from the subject season and the lowest two of the previous three seasons less the estimated pool costs per tonne for the subject season. There is provision in the Act for separate GMPs to be established for specified categories other than ASW, based on the expected market value of the wheat in those categories relative to ASW.

Growers will receive a split first advance payment. Upon delivery of his wheat, a grower will be paid 90% of the estimated GMP for the relevant category (i.e. 90% of the relevant preliminary GMP) less contributions to research (wheat tax), dockages for non-preferred varieties and for defects (if any), and allowances for storage, handling and transportation charges. When the final GMP has been determined (before 1 March during the subject season), the grower will receive the final GMP, increased or decreased by an allowance for the quality of his wheat (in addition to the deductions made at the time of delivery), less the interim advance payment he has received. Initial allowances may be adjusted by the Board at a later date to reflect actual costs and returns. If the net return per tonne exceeds the GMP, the excess will be returned to growers by way of a final payment, which may be made by instalments over a number of years.

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, modified by longer-run adjustments in market returns whether these adjustments be for a rising or a falling market. To date, it has not been necessary for the Government to meet any deficiency between the net pool return rate and the GMP.

For the 1984-85 season, the preliminary GMP is $145.64 per tonne for ASW wheat. Four additional categories have been specified with preliminary guaranteed minimum prices ranging from $100.46 to $160.64.

Financial Arrangements. Prior to the 1978-79 season, the Board's borrowing was limited to Reserve Bank of Australia Rural Credits Department borrowings. In that season approval was granted for partial borrowings on the domestic money market. In 1981-82 and 1982-83 funding was moved exclusively to the Domestic Money Market. For 1983-84 and subsequent seasons the Loan Council approved the AWB borrowing up to 50% of its prospective net borrowing requirement overseas, and up to 50% on the Domestic Money Market. For the 1984-85 season the Board has approval to borrow up to $A2,621,000.00 split between offshore and domestic facilities.

The Wheat Finance Fund, a $100 million revolving funds of growers' monies, is to be wound up under the 1984 Act. Existing contributions, plus accumulated interest, will be repaid during 1985.

Domestic Pricing. The arrangements for the pricing of wheat sold on the domestic market recognise the different segments 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 1983–84 season price for Australian Standard White wheat for human consumption sold domestically is $219.41. This amount includes a $4.57 per tonne component as the Tasmanian freight levy (see later). The 1984 Act has changed the method of setting the domestic price for human consumption wheat. The price will now be determined each quarter by averaging the export prices for the forward and past quarters and adding a margin to cover the additional costs of servicing the domestic market. The price for October-December 1984 quarter has fallen to $195.25 per tonne, including $1.40 per tonne Tasmanian freight levy, primarily as a result of legislative changes. Tasmanian freight levy now applies to all domestic wheat sales. It is used exclusively to cover the cost of shipping wheat from the mainland to Tasmania each season.

The domestic prices for industrial and stockfeed wheats are quoted by the Board in the light of its commercial judgment and having regard to orderly marketing considerations. Prices are quoted by the Board each day and buyers may enter into contracts to fix the price of wheat for delivery up to six months in advance.

Domestic Marketing Arrangements. The Australian Wheat Board exercises sole authority for the marketing of wheat domestically and overseas. The Board also has the power to import wheat. The Board is also 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 sell seed wheat;
(ii) to sell inferior quality wheat which is unacceptable for receival by the Board;
(iii) 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;

(iv) 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

(v) to sell wheat on behalf of the Board under grower-to-buyer direct delivery transactions authorised by the Board. The grower and buyer negotiate the sale price, which may be at a premium or a discount to the Board's domestic ASW price applicable for the same end use. The proceeds of sale are incorporated in the Board's pooling arrangements. The grower receives payment from the Board as if he had delivered ASW wheat, adjusted by the abovementioned discount or premium and a reduction in the relevant bulkhandling authority's charge.

Under the 1984 Act, the Board is also empowered to issue permits to stockfeed buyers to purchase wheat direct from growers for stockfeed use. The availability of these permits will be governed by guidelines issued by the Federal Minister for Primary Industry and the relevant State Ministers. Wheat sold pursuant to a stockfeed purchase permit will be subject to a deduction to cover wheat research tax, Tasmanian freight, the Board's administration costs and a reduced bulk handling authority charge. No pooling or GMP provisions or minimum or maximum prices apply in respect of such wheat.

Wheat which is retained by a grower on the farm on which it is grown, for use on that farm, does not come under the control of the Board.

Overseas Marketing Arrangements. The 1984 Act extends the powers of the Board in relation to overseas marketing to enable it to enter into tripartite barter arrangements and the sale and shipment of other grains in combination with wheat.

Wheat varieties and standards of wheat

The practice of breeding 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 with higher yields and improved quality which, when combined with a greater uniformity of sample, have created certain marketing advantages for Australia's wheat crop. 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 crop/pasture rotations, increased mechanisation and superphosphate-improved pastures.

Wheat quality is a complex subject but can be broadly described in terms of four parameters; grain hardness, protein content, milling performance and physical dough properties. These parameters are governed by a combination of the wheat variety and the environmental conditions under which the wheat is grown.

Australia produces only white grained wheats. This is in contrast to our major competitors who predominantly produce red-grained wheats. Within the Australian wheatbelt there exist wide ranges of soil fertility, rainfall, daylength and temperature. Through the development of varieties which complement these diverse growing conditions, it has been possible to produce wheats with qualities that are suitable to virtually all commercial applications.

Australian wheats may be classified into two broad types, namely the milling and non-milling Classes. Since 1974 there have been five Classes of Australian wheats suitable for milling purposes:

Australian Prime Hard
Australian Hard
Australian Standard White (ASW)
Australian Soft
Australian Durum

There exists within each Class a number of individual grades. In some seasons a total in excess of 30 different grades of Australian wheat have been marketed. This large number has developed to meet individual customer requirements and also to reflect the wide range of wheat types available from Australia. Prior to 1974 the majority of the Australian wheatcrop was marked under the single classification Fair Average Quality (F.A.Q.). Particulars of Australian wheat standards may be found in *Crops and Pastures, Australia* (7321.0).

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
1978–79	10,249	10,321	18,090	2,295.8	17,457
1979–80	11,153	11,249	16,188	2,478.0	15,328
1980–81	11,283	11,436	10,856	1,684.1	10,059
1981–82	11,885	11,995	16,360	2,599.4	15,545
1982–83	11,520	11,755	8,876	1,566.2	(b)7,927
1983–84p	12,909	13,017	22,064	3,408.4	21,033

(a) Australian Wheat Board receivals are for the season commencing 1 October; production data are for the year ending 31 March.
(b) Receivals to 30 September 1984.

WHEAT FOR GRAIN: AREA AND PRODUCTION, BY STATE

Season	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Australia
AREA ('000 hectares)							
1978–79	3,162	1,337	747	1,295	3,706	1	10,249
1979–80	3,415	1,457	733	1,424	4,121	2	11,153
1980–81	3,345	1,431	727	1,445	4,333	2	11,283
1981–82	3,600	1,322	941	1,427	4,593	1	11,885
1982–83	3,162	1,327	767	1,398	4,865	1	11,520
1983–84p	4,000	1,609	1,053	1,527	4,718	1	12,909
PRODUCTION ('000 tonnes)							
1978–79	6,640	2,998	1,962	2,086	4,400	3	18,090
1979–80	6,000	3,250	846	2,349	3,739	4	16,188
1980–81	2,865	2,538	485	1,650	3,315	3	10,856
1981–82	5,910	2,467	1,482	1,695	4,803	2	16,360
1982–83	1,499	394	754	692	5,534	1	8,876
1983–84p	8,966	3,989	1,950	2,839	4,316	3	22,064

PRODUCTION AND DISPOSAL OF WHEAT FOR GRAIN

('000 tonnes)

Season	1977–78	1978–79	1979–80	1980–81	1981–82	1982–83
Production	9,370	18,090	16,188	10,856	16,360	8,876
Less balance held on farms for—						
Seed usage	618	633	860	797	815	949
Feed and other uses	212					
Gross receivals	8,540	17,457	15,328	10,059	15,545	7,927
Opening stocks(a)	2,071	816	4,646	4,268	2,044	4,879
Total availability for sale	10,611	18,273	19,974	14,327	17,589	12,806
Export shipments—						
Wheat	7,918	11,526	13,049	9,451	10,890	7,157
Flour and wheat products(a)	180	167	148	163	178	123
Domestic sales—						
Flour(a)	1,259	1,298	1,371	1,402	954	
Stockfeed	438	621	1,068	1,179	563	3,117
Breakfast foods etc. (a)	43	41	45	49	58	
Total disposal	9,838	13,653	15,681	12,244	12,643	10,397
Availability (—) Disposals	773	4,620	4,293	2,083	4,946	2,409
Closing stocks(a)	816	4,646	4,268	2,044	4,879	2,409
Apparent wastage	–43	–26	25	39	67	

(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 *Crops and Pastures, Australia* (7321.0).

International Wheat Agreement

A number of Agreements have operated since 1949 to provide a valuable framework for continuing international consultation and co-operation on world wheat matters, including the regular monitoring of the world wheat situation. The 1971 International Wheat Agreement (the first expiring on 30 June 1974) has been extended seven times by protocol, the most recent extension expiring on 30 June 1986. It comprises two separate legal instruments, the Wheat Trade Convention and the Food Aid Convention, linked by a common preamble. Negotiations towards a new Agreement were held in January 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 designed to bring about a measure of price stability by the accumulation and release of internationally co-ordinated nationally-held reserve stocks. The 1979 conference was adjourned indefinitely. Subsequently, in 1980 and 1981, the International Wheat Council considered other possible bases for an Agreement with its attention focussing on a more flexible approach to stockholding with reserve stock action being taken on the basis of a consensus within the Council rather than applying automatically at a particular time as a result of price movements. With strong opposition of the U.S. Administration to the international co-ordination of holding of wheat, this approach proved not negotiable. However, the Council agreed, in December 1981, on immediate steps to strengthen the operation of the existing Agreement. The Council also decided that it was imperative to continue the search for an agreed basis for a new Agreement, keeping in view the paramount objectives of market stability and food security. At the 1984 session some members of the International Wheat Council re-emphasised the need for the council to vigorously pursue efforts towards the conclusion of a new agreement with appropriate provisions to meet the aspirations of developing countries. While there has been no progress on a basis for a new Agreement, the current Agreement has been extended to 1986.

EXPORTS OF WHEAT AND FLOUR

Country of consignment	*Quantity ('000 tonnes)*			*Value f.o.b. ($m)*		
	1981–82	*1982–83*	*1983–84p*	*1981–82*	*1982–83*	*1983–84p*
WHEAT						
Bangladesh	124.2	50.0	427.7	19.2	7.6	67.6
China—excl. Taiwan Province	1,361.0	1,210.0	1,486.0	212.0	182.0	244.9
Egypt, Arab Republic of	1,575.2	1,852.8	1,708.3	246.9	303.6	303.2
India	782.9	—	—	123.2	—	—
Indonesia	480.3	168.8	488.3	75.5	28.6	89.1
Iran	544.3	847.9	—	83.8	136.0	—
Iraq	750.5	443.8	832.1	119.8	77.8	150.7
Japan	995.1	1,000.0	999.1	156.4	167.7	179.6
Kuwait	228.6	238.6	174.6	33.9	41.0	29.9
Malaysia	294.2	160.5	152.0	44.4	26.7	26.7
Saudi Arabia	122.2	166.3	96.3	21.5	28.9	17.7
Singapore	50.7	103.6	408.9	7.6	17.1	72.9
Sri Lanka	129.8	31.0	49.7	20.8	5.4	8.6
U.S.S.R.	2,408.0	1,017.6	1,554.7	386.0	196.3	256.5
Yemen Arab Republic	332.0	119.3	19.9	51.2	18.6	3.4
Other countries	733.4	611.8	2,194.5	117.5	105.8	371.2
Total	**10,912.4**	**8,022.0**	**10,592.1**	**1,719.7**	**1,343.1**	**1,822.0**
FLOUR(*a*)						
Kenya	—	14.9	—	—	4.2	—
Mauritius	21.2	16.4	8.5	5.9	4.6	2.4
New Caledonia	8.1	6.6	5.0	1.9	1.5	1.3
Papua New Guinea	0.5	0.4	—	0.1	0.1	—
Polynesia (FR)	3.2	2.6	2.3	0.8	0.7	0.7
Samoa (Western)	5.0	4.7	4.3	1.1	1.1	1.0
Solomon Islands	3.0	4.2	4.4	0.7	1.1	1.2
Tonga	4.9	3.7	5.4	1.1	0.9	1.4
Other countries	15.7	16.0	21.4	4.1	4.5	5.9
Total	**61.6**	**69.4**	**51.3**	**15.7**	**18.7**	**13.9**

(*a*) Meal and flour of wheat and flour of meslin.

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

Year	*Wheat for grain: Exports*		*Total Australian exports—all produce: Value f.o.b.*	*Export value of wheat for grain as a percentage of total Australian exports*
	Quantity	*Value f.o.b.*		
	'000 tonnes	$m	$m	per cent
1978–79	6,824	794.2	14,247	5.6
1979–80	14,876	2,176.8	18,870	11.5
1980–81	10,552	1,729.4	19,169	9.0
1981–82	10,912	1,719.7	19,581	8.8
1982–83	8,022	1,343.1	22,060	6.1
1983–84p	10,592	1,822.0	24,805	7.3

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

WORLD WHEAT: AREA AND PRODUCTION

Source: International Wheat Council, *World Wheat Statistics, 1984*

	Area (million hectares)			*Production (million tonnes)*		
	1981–82	*1982–83*	*1983–84p*	*1981–82*	*1982–83*	*1983–84p*
Europe	25.4	26.2	27.1	91.4	103.1	103.3
EEC (10)	12.7	13.0	13.2	54.3	59.9	59.3
U.S.S.R.	59.2	57.3	50.9	80.0	85.0	80.0
North & Central America	46.1	45.6	39.5	104.2	107.8	96.4
Canada	12.4	12.6	13.7	24.8	26.8	26.9
U.S.A.	32.8	32.0	24.9	76.2	76.5	66.0
South America	8.8	11.1	9.7	11.8	18.0	15.9
Asia	80.0	79.5	81.4	140.6	150.3	169.2
China(*a*)	28.3	27.9	28.5	59.6	68.4	81.4
India	22.3	22.1	23.2	36.3	37.5	42.5
Iran	5.9	6.0	6.0	6.6	6.5	6.5
Pakistan	7.0	7.1	7.3	11.5	11.1	12.4
Turkey	9.5	9.4	9.2	17.0	17.5	16.4
Africa	8.2	8.0	7.9	8.9	10.0	8.8
Oceania	12.0	11.6	13.0	16.7	9.2	22.4
Australia	11.9	11.5	12.9	16.4	8.9	22.1
Total world	**239.7**	**239.3**	**229.5**	**453.5**	**483.5**	**496.0**

(*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 10 members of the EEC are: Belgium, Denmark, France, Federal Republic of Germany, Greece, Ireland, Italy, Luxembourg, Netherlands and the United Kingdom.

Coarse grains

In the late sixties and early seventies, restrictions on wheat deliveries and low returns in the sheep industry caused a resurgence of interest in coarse grain crops and the newer oilseed crops. The resultant higher level of plantings and production has been maintained, despite the lifting of wheat delivery quotas and a general improvement in market prospects for wheat, wool and meat.

Oats

Oats are 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. They have a high feed value and produce a greater bulk of growth than other winter cereals; they need less cultivation and respond well to superphosphate and nitrogen. Oats have two main uses—as a fodder crop, following sowing or fallow or rough sowing into stubble or clover pastures or as a grain crop. Fodder crops can either be grazed and then harvested for grain after removal of livestock 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 and private merchants market the bulk of oats produced in Victoria. 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. In Western Australia, oats are marketed under a warehousing system operated by Co-operative Bulk Handling Ltd.

Oats are 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

		Production		Exports	
Year	Area	Quantity	Gross value	Quantity	Value f.o.b.
	'000 ha	'000 tonnes	$m	'000 tonnes	$m
1978-79	1,359	1,763	100.5	290	24.9
1979-80	1,123	1,411	98.8	472	43.8
1980-81	1,093	1,128	139.5	196	27.7
1981-82	1,388	1,617	155.7	153	24.1
1982-83	1,212	848	116.1	83	13.2
1983-84p	1,743	2,270	249.2	289	40.9

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. In December 1980 a joint Commonwealth/Industry research scheme for the barley industry commenced operation. The scheme is financed by a levy on barley production and a Commonwealth contribution not exceeding the total of the levy.

Barley is marketed by statutory marketing authorities in each of the mainland States. The Australian Barley Board controls marketing in both South Australia and Victoria while separate authorities operate in the three other States.

BARLEY FOR GRAIN: AREA, PRODUCTION AND EXPORTS

		Production				Exports	
				Total			
Year	Area	2-row	6-row	Quantity	Gross value	Quantity	Value f.o.b.
	'000 ha	—'000 tonnes—			$m	'000 tonnes	$m
1978-79	2,785	3,787	220	4,006	339.1	1,744	149.5
1979-80	2,482	3,545	159	3,703	449.8	2,962	353.5
1980-81	2,451	2,563	119	2,682	380.9	1,598	242.7
1981-82	2,685	3,252	198	3,450	463.4	1,577	241.3
1982-83	2,452	1,785	153	1,939	290.8	834	131.4
1983-84p	3,163	4,617	320	4,937	846.0	3,122	499.4

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 northern and north-western slopes and plains are the main areas.

In Queensland, a degree of orderly marketing is ensured by the operation of the Central Queensland Grain Sorghum Marketing Board (a statutory authority in a defined area in central Queensland). A State statutory marketing board handles sorghum grown in New South Wales.

GRAIN SORGHUM: AREA, PRODUCTION AND EXPORTS

		Production		Exports	
Year	*Area*	*Quantity*	*Gross value*	*Quantity*	*Value f.o.b.*
	'000 ha	'000 tonnes	$m	'000 tonnes	$m
1978–79	468.7	1,125.2	97.4	516.3	45.5
1979–80	518.6	922.0	96.1	580.4	59.8
1980–81	657.9	1,203.9	152.0	462.7	57.5
1981–82	648.6	1,316.7	140.1	1,270.9	152.8
1982–83	706.5	958.0	124.4	445.0	53.9
1983–84p	737.9	n.y.a	208.1	772.1	110.7

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, the north coast, 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. A large proportion of the crop is sold directly to food processors.

MAIZE: AREA, PRODUCTION AND EXPORTS

		Production		Exports	
Year	*Area*	*Quantity*	*Gross value*	*Quantity*	*Value f.o.b.*
	'000 ha	'000 tonnes	$m	'000 tonnes	$m
1978–79	50.0	168.8	15.6	16.9	1.3
1979–80	54.1	150.9	19.8	7.7	0.9
1980–81	56.5	172.8	26.1	29.1	3.4
1981–82	61.0	212.4	29.6	14.2	1.9
1982–83	64.3	139.1	23.3	18.3	2.4
1983–84p	63.4	n.y.a	34.0	19.0	2.8

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.

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 very high yields per hectare often achieved by N.S.W. growers. In Queensland, a winter and a summer crop are grown.

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

RICE: AREA, PRODUCTION AND EXPORTS

		Production		Exports	
Year	*Area*	*Quantity(a)*	*Gross value*	*Quantity*	*Value f.o.b.*
	'000 ha	'000 tonnes	$m	'000 tonnes	$m
1978–79	110.2	692.2	97.8	241.2	66.2
1979–80	116.4	613.2	93.8	457.3	129.9
1980–81	103.9	727.5	138.2	281.3	99.9
1981–82	122.9	853.9	103.5	596.3	195.4
1982–83	84.8	547.7	88.4	404.7	120.3
1983–84p	113.5	634.9	89.9	245.3	91.9

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

Oilseeds

Specialised Oilseeds

The oilseeds industry is a relatively young industry by Australian agricultural standards.

Following the extremely poor, drought affected, 1982–83 crop, improved seasonal conditions and the attractive prices have led to a significant increase in the production of specialist oilseeds in 1983–84 with further increases in production forecast for the 1984–85 season. The expected profitability of oilseeds relative to crops such as wheat and coarse grains will continue to influence future production levels in the industry. This profitability will be related to domestic and international markets for protein meals and vegetable fats and oils.

The specialist oilseed crops grown in Australia are, sunflower, soybeans, rapeseed, safflower and linseed. Sunflower and soybeans are summer grown whilst the others are winter crops. In Australia, oilseeds are crushed for their oil, which is used for both edible and industrial purposes and protein meals for livestock feeds.

Oilseed crops are grown in all States but the largest producing regions are the grain growing areas of the Eastern States.

Sunflower

When crushed, sunflower seed yields a high quality dual purpose oil used primarily to manufacture margarine, salad and cooking oils.

Queensland produces about two thirds of the Australian crop with the Darling Downs and Central Highlands being the major regions. New South Wales is the next largest producer with the North West of the State dominating production. Smaller amounts are produced in all other states except Tasmania.

Soybeans

The major uses of soybean oil are in salad and cooking oils and margarine. Small amounts are used in the production of paints, detergents and plastics. Soybean also yields a high protein feed for livestock with a small proportion used to manufacture adhesives and synthetic fibres and meats.

Queensland and New South Wales produce virtually all of Australia's soybean crop. The main producing areas are the irrigation districts of the Darling Downs and northern New South Wales. Lesser areas include the Burnett and Lockyer regions of Queensland while production of raingrown soybeans is expanding on the North Coast of New South Wales.

In irrigated areas, soybeans have increasingly been used as a rotational crop for cotton.

Rapeseed

The main use of rapeseed oil has been in salad and cooking oils and in margarine with a small amount being used for industrial purposes.

The major production area is the south east of South Australia followed by the tablelands and slopes of New South Wales. Smaller levels of production also occur in Victoria, mainly in the Western Districts and in the south coast region of Western Australia.

Following significant increases in the 1960's and 1970's, rapeseed production declined rapidly due to problems of blackleg disease and erucic acid content. Production has recovered in recent years with the development of varieties to overcome these problems and in response to the crop rotation benefits of rapeseed.

Safflower

The oil from safflower is used in the production of cooking oil, margarine, soaps, paints, varnishes, enamels and textiles. In recent years, New South Wales and Queensland together have produced around 90 per cent of Australian output. In Queensland, most production occurs in the Central Highlands with smaller amounts coming from the Dawson-Callide Valley and the Darling Downs. New South Wales production is centred on the Central West.

Wide fluctuations in safflower production since the mid 1960's have been due to variable seasonal conditions affecting yields and the profitability of other crops which has influenced plantings.

Linseed

The oil from crushed linseed is used in the manufacture of paints, varnishes, technical inks and linoleum.

The main producing areas are the wheat belt of New South Wales, the Darling Downs in Queensland, the Western Districts of Victoria and, to a lesser extent, the south-eastern districts of Victoria. Linseed production has been generally declining in recent years.

SELECTED OILSEED CROPS: AREA, PRODUCTION AND GROSS VALUE

Year	Sunflower	Soybeans	Rapeseed	Safflower	Linseed	Total
			Area ('000 hectares)			
1978–79	260.7	53.7	22.3	74.7	13.1	424.5
1979–80	221.1	56.5	41.6	53.6	17.2	390.0
1980–81	197.7	39.6	23.6	18.3	10.0	289.2
1981–82	177.5	40.5	15.7	33.4	6.6	273.7
1982–83	176.1	48.3	12.4	11.5	4.9	253.2
1983–84p	200.7	46.7	17.8	49.7	5.6	320.4
			Production ('000 tonnes)			
1978–79	186.2	98.7	23.4	57.7	12.9	378.9
1979–80	141.7	82.0	41.1	30.0	14.4	309.2
1980–81	139.0	73.2	17.2	8.1	7.4	244.9
1981–82	115.1	77.1	14.5	19.6	6.0	232.3
1982–83	104.0	53.2	6.7	5.3	2.5	171.7
1983–84p	n.y.a.	n.y.a.	16.5	32.8	4.6	n.y.a.
			Gross Value ($ million)			
1978–79	45.8	24.6	4.8	11.0	2.6	88.8
1979–80	36.3	21.6	9.1	6.0	3.1	76.1
1980–81	34.3	22.4	4.5	2.2	2.2	65.6
1981–82	28.3	19.8	3.3	5.2	1.6	58.2
1982–83	27.2	15.1	1.6	1.6	0.7	46.2
1983–84p	47.0	n.y.a.	4.6	12.0	0.9	n.y.a.

Other Oilseeds

Peanuts and cottonseed are summer crops grown primarily for human consumption and fibre purposes respectively. The rapid expansion of the cotton industry in recent years has resulted in cottonseed becoming the major oilseed in Australia. Cottonseed oil is used mainly in the manufacture of compound cooking fats and margarine. The least important source of vegetable oils in Australia is peanuts as it is only the low quality kernels which are crushed for oil. Crushings may vary between 3000 and 7000 tonnes per annum depending on the quality of the crop. Peanut oil is a high quality oil which is used in the manufacture of margarine and in compound cooking fats and is also used as a cooking and salad oil.

Peanuts

The major peanut growing areas are around Kingaroy in South Queensland and the Atherton Tablelands in North Queensland, with smaller pockets of production around Tweed Heads in New South Wales, the Ord River area of Western Australia and around Douglas in the Northern Territory.

About 80 per cent of peanuts grown in Australia are of Virginia variety, the remainder is of Red and white Spanish variety.

Peanut production has been rising gradually for a number of years and 1978–79 was a record year due mainly to record yields. In 1982–83 the crop was severely affected by drought and the production was down to 23,000 tonnes (in shell basis) from 58,000 tonnes in the previous year. The 1983–84 output was estimated at some 51,000 tonnes.

Local demand for peanuts and peanut products is comparatively static with a limited potential for growth corresponding to population growth. The local growing industry normally supplies most of the domestic demand for edible peanuts in its major outlets—peanut butter, packaged trade and confectionery. Any surplus is sold on export markets. Exports vary according to the size of the crop.

PEANUTS: AREA, PRODUCTION AND GROSS VALUE

Year	Area	Production	Gross value
	('000 hectares)	('000 tonnes)	($ million)
1978–79	36.9	62.3	28.7
1979–80	31.7	38.9	22.3
1980–81	27.1	43.2	36.6
1981–82	33.4	57.6	37.0
1982–83	35.9	23.3	17.8
1983–84p	32.9	n.y.a.	41.0

Cotton

Cotton is grown primarily for its fibre (lint). When the cotton is matured, seed cotton is taken to a gin where it is separated (ginned) into lint, seed, and thrash. Lint is used for yarn while seed is further processed at an oil mill. There the short fibres (linters) remaining on the seed after ginning are removed. They are too short to make into cloth but are used for wadding, upholstery and paper. The seeds are then separated into kernels and hulls. Hulls are used for stock feed and as fertilizer while kernels are crushed to extract oil. The remaining cake is ground into meal which is protein roughage used as stock feed.

Over three-quarters of Australia's total production of cotton lint is grown in New South Wales, principally in the Namoi, Macquarie, Gwydir and McIntyre Valleys and the Bourke area. Irrigation water for these areas is provided from the Keepit, Burrendong, Copeton and Glenlyon dams and the Darling River. The rest is grown in Queensland, in the Emerald, Biloela, St George, and Darling Downs areas. Most of these areas are also irrigated. Australian production has for some time satisfied most of the requirements of local mills for short and medium staple cotton. Since the mid 1970s there has been very strong investment growth in the cotton industry and the resultant surge in plantings has resulted in large amounts of cotton becoming available for export.

Exports from the 1983–84 crop will account for about 86 per cent of production, and are expected to be about 124,000 tonnes of raw cotton (or lint), valued at over $200 million, with Japan, Taiwan and South Korea being the main markets.

A further expansion in Australian cotton plantings is expected in 1984-85. It is unlikely that local yarn spinners will increase production significantly in the medium term. Consequently any further growth in production is likely to be accompanied by a growth in cotton exports.

COTTON: AREA, PRODUCTION AND EXPORTS

	Seed cotton (a)					*Raw cotton export*	
Year	*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
1978–79	49.8	155.2	76.0	78.5	53.0	23.6	28.9
1979–80	75.0	243.7	135.3	135.8	83.2	48.5	66.9
1980–81	77.9	236.6	147.2	161.2	98.9	58.7	92.1
1981–82	92.3	324.9	182.0	219.0	134.0	79.2	117.2
1982–83	96.4	285.6	167.5	164.0	101.0	129.2	197.6
1983–84p	106.5	n.y.a.	266.9	190.0	141.0	81.5	147.9

(*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 in Australia along the east coast over a distance of some 2,100 kilometres in a number of discontinuous areas from Maclean in northern New South Wales to Mossman in Queensland. The geographical spread contributes to the overall reliability of the sugar cane crop and of Australia's record as a reliable sugar supplier.

Approximately 95 per cent of production occurs in Queensland, with some 75 per cent of the crop grown north of the Tropic of Capricorn in areas where rainfall is reliable and the warm, moist and sunny conditions are ideal for the growing of sugar cane. The total area of land allocated to cane growing, among the 6,500 farms in 1983–84 was 378,000 hectares. Farm sizes range between 20-70 hectares.

Australian cane farmers are regarded as amongst the most efficient in the world and employ a high degree of mechanisation in ploughing, planting, harvesting, and transportation activities. The Australian industry was the first in the world to introduce mechanical cultivation and harvesting techniques and by 1964 the entire industry had converted to bulk handling.

The cane crop is generally planted in April/May and harvested from June to December the following year. The major proportion of each year's crop is from ratoons while in New South Wales most crops are allowed to grow for two seasons due to the slower growing conditions.

The organisation of the Australian sugar industry is complex. The Queensland Government controls the quantity of raw sugar produced through a system of mill peaks which is translated into cane quotas for growers. In addition the Queensland Government contracts with CSR Limited and Millaquin Sugar Company Pty Limited for the refining, marketing and distribution of home consumption needs, arranges through CSR Limited the export marketing of raw sugar, and regulates the division of industry proceeds between growers and millers.

There are 33 raw sugar mills located throughout the growing regions: 30 are located in Queensland and the remaining 3 in New South Wales. Fifteen of the mills are co-operatively owned by canegrowers and the remaining eighteen by proprietary companies. Refineries are located in each mainland capital city and at Bundaberg. The six bulk sugar export terminals located in Queensland are at present capable of storing 1.91 million tonnes. While raw sugar is the main product from mills, important by-products are bagasse (fibre), molasses, ash and filter mud.

In recent years sugar cane production has been around 24 million tonnes yielding between 3.1 and 3.5 million tonnes of sugar. In 1984 approximately 25 million tonnes of cane are expected to be crushed to produce 3.5 million tonnes of sugar.

Area, production and yield levels for sugar cane from 1977-78 to 1982-83 are provided in the following table.

SUGAR CANE: AREA, PRODUCTION AND YIELD

	New South Wales					*Queensland*				
	Sugar cane cut for crushing			*Raw sugar(a)*		*Sugar cane cut for crushing*			*Raw sugar(a)*	
Year	*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
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
1979-80	11.8	1,291.5	109.1	155.8	13.2	255.4	19,859.6	77.8	2,807.2	11.0
1980-81	14.0	1,435.3	102.4	181.2	12.9	274.3	22,540.4	82.2	3,148.5	11.5
1981-82	14.3	1,505.9	105.4	184.7	13.4	301.7	23,587.9	78.2	3,250.4	10.8
1982-83	16.0	1,702.3	106.5	175.9	11.0	302.5	23,114.8	76.4	3,324.2	11.0
1983-84p	15.2	1,539.8	101.3	159.0	10.5	292.0	22,723.0	77.8	3,011.6	10.3

(*a*) In terms of 94 net titre.

The domestic market is reserved entirely for sugar produced in Australia. This is achieved by an embargo on the import of sugar. The maximum price of refined sugar for sale to wholesalers and manufacturers is fixed each six months under a formula contained in the Commonwealth/Queensland Sugar Agreement.

Domestic sales account for about 770,000 tonnes annually or approximately twenty per cent of the total industry sales. Granulated sugars account for about 75 per cent of the total domestic sales with liquid sugars (15 per cent), castor sugar (5 per cent), and raw sugar taking up the bulk of the remainder. About two-thirds of the sales of refined sugar products go to processed food and drink manufacturers.

The Australian sugar industry exports about 80 per cent of its annual raw sugar production and is one of the world's largest sugar exporters. In 1983 exports totalled 2.40 million tonnes compared with exports from Cuba of 6.79 million tonnes, Brazil 2.80 and the EEC 4.91 million tonnes.

In 1983–84 the domestic market and long-term contracts with Korea, Malaysia, Singapore, New Zealand and China provided secure outlets for approximately 50 per cent of the industry's capacity, the balance of export sugar being sold on the free market.

The disposal pattern of Australia's sugar production is shown in the following table.

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
1978-79	251.7	21.5	396.5	2.9	1.8	448.2	710.1	49.2
1979-80	267.2	21.5	548.2	3.0	2.2	666.9	692.5	47.4
1980-81	288.3	24.0	799.7	3.3	2.6	1,146.2	721.4	48.7
1981-82	315.9	25.1	590.2	3.4	3.4	777.7	710.8	47.2
1982-83	318.5	24.8	508.9	3.5	3.9	557.7	696.0	45.5
1983-84p	307.1	24.3	507.9	3.2	3.0	621.3	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.

Australia has regularly participated in arrangements to regulate the international sugar market and was a signatory to the 1977 International Sugar Agreement (ISA) which expired at the end of 1984. A new ISA commenced on 1 January 1985 but has none of the economic provisions of earlier Agreements due to the failure of negotiations on the details of such provisions.

Vegetables

Vegetables for human consumption

The area sown to vegetables reached a peak of over 200,000 hectares in 1945, but has remained static at around 106,000 hectares since 1975–76. 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 in Australia, 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.

Over the last two decades increases in per capita consumption have followed population increases. Consumption of processed potato products is forecast to continue to increase slightly. 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. Seventy per cent of total production is sold through fresh market outlets with the remaining 30% going to processing. The principal forms of potato processing are canning, drying and freezing. The majority of processing potatoes are purchased by the three frozen french fry potato processors who operate in Tasmania and Victoria. Processors negotiate contracts directly with growers. South Australia and Western Australia have marketing authorities which monitor production, pricing and the sale of potatoes. Other States rely on potato merchants and agents for marketing.

Potato trading. Exports of fresh potatoes, and potato flour, meal and flakes have shown an overall increase in the last decade, until 1982–83 when due to seasonal conditions there was a marked decrease in exports of fresh potatoes. Imports of processed potatoes are generally insignificant.

Tomatoes. Tomatoes are grown generally for the fresh market. The major producing States are Queensland and Victoria. Processing is undertaken mainly in Victoria, New South Wales and South Australia.

Onions. Onions are grown throughout Australia with the major producing States being South Australia and Queensland. Processing is relatively insignificant.

Other Vegetables. The other major vegetables produced are carrots, cauliflowers and cabbages (mainly for the fresh market) and peas and beans (processing).

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*
1977–78	50.4	16.9	13.3	22.5	17.7	120.9
1978–79	51.5	17.2	13.5	27.5	19.5	129.2
1979–80	54.9	17.3	14.6	25.1	17.6	129.5
1980–81	54.9	17.5	15.7	22.3	17.5	127.8
1981–82	57.6	18.7	16.7	20.8	17.2	130.9
1982–83	52.3	16.9	16.4	21.3	18.1	125.0

VEGETABLES FOR HUMAN CONSUMPTION: AREA AND PRODUCTION

Year	French and runner beans	Cabbages	Carrots	Cauli-flowers	Onions	Green peas	Potatoes	Tomatoes	Total vege-tables
				AREA ('000 hectares)					
1978–79	8.1	2.7	3.5	3.1	3.7	15.7	34.6	8.2	107.4
1979–80	7.1	2.5	3.6	3.3	4.0	14.5	36.7	8.5	106.5
1980–81	(a)6.3	2.4	3.7	(a)2.8	4.0	(a)10.8	35.7	9.1	103.0
1981–82	7.1	(a)2.4	3.9	3.1	4.0	12.1	(a)36.1	9.1	106.7
1982–83	6.7	2.5	3.8	3.3	4.2	14.8	(a)37.4	8.7	103.2
1983–84p	n.y.a.	n.y.a.	n.y.a.	n.y.a.	3.8	n.y.a.	32.3	12.3	108.8

Year	French and runner beans	Cabbages	Carrots	Cauli-flowers	Onions	Green peas: Processing (shelled weight)	Green peas: Sold in pod (pod weight)	Potatoes	Tomatoes
				PRODUCTION ('000 tonnes)					
1978–79	45.0	127.6	105.0	116.4	105.2	51.4	2.4	794.6	172.6
1979–80	34.3	74.7	101.6	94.6	119.9	43.0	2.1	857.4	196.9
1980–81	(a)34.0	76.1	112.6	(a)79.2	114.8	(a)32.6	(a)1.5	865.8	216.8
1981–82	34.6	(a)71.0	112.5	85.4	127.4	38.4	1.7	(a)918.6	228.4
1982–83	33.5	67.2	105.0	76.5	129.0	45.9	2.0	858.5	224.1
1983–84p	n.y.a.	n.y.a.	n.y.a.	n.y.a.	118.7	n.y.a.	n.y.a.	n.y.a.	267.7

(a) Incomplete; information on this commodity was not separately collected in some States.

Value of production and value of exports

Gross value of production for 1983-84p amounted to 696.5 million dollars. Export value of fresh, frozen, or otherwise prepared vegetables amounted to 48 million dollars for the same period. For details of previous years *see* Year Book No. 68, p277.

PROCESSED VEGETABLES: AUSTRALIAN PRODUCTION

('000 tonnes—unless otherwise stated)

Derived from the recorded monthly production of the Manufacturing Census

Item	1978–79	1979–80	1980–81	1981–82	1982–83	1983–84p
Quick frozen vegetables—						
Beans	25.9	16.1	19.2	22.5	16.7	21.2
Peas	46.3	38.9	35.5	47.3	42.4	41.7
Potatoes	58.2	65.8	77.9	94.3	94.8	107.8
Other	25.1	28.3	25.2	34.3	25.5	25.2
Vegetables preserved, canned or bottled (excluding pickles, etc.) (*a*)—						
Beans—Green	4.9	3.7	3.4	5.7	4.1	4.1
Baked (including pork and beans)	22.9	26.1	21.3	25.0	27.4	n.a.
Beetroot	28.4	25.9	23.3	26.1	n.a.	n.a.
Carrots	5.1	6.1	4.4	3.7	4.4	2.5
Cucumber (including pickled)	1.4	1.0	1.6	0.9	n.a.	1.2
Gherkins—pickled	2.2	1.9	2.3	2.2	2.0	2.1
Olives—pickled	0.6	0.3	0.5	0.5	0.5	0.6
Onions (including pickled)	3.9	4.1	4.9	3.4	3.5	2.7
Peas—Green	15.1	9.7	9.4	11.2	13.7	11.9
Tomatoes (excluding canned pulp)	11.8	13.1	15.3	15.4	9.9	17.8
Tomato juice (million litres)	7.4	9.3	7.0	8.3	4.5	n.a.

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

For further information on vegetables *see* the following publications: *Crops and Pastures, Australia* (7321.0), *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 grapes)

A wide variety of fruit is 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. 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. Victoria, Tasmania and New South Wales are the most important apple-growing States with significant quantities also being grown in the other States. About 80 per cent 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 the pineapples and about 46 per cent of the bananas grown in Australia. Banana production on the sub-tropical north coast of New South Wales is equivalent to that of Queensland with the remaining 8 per cent of production grown in Western Australia.

In recent years there has been rapid expansion in the cultivation of many relatively new fruit crops in Australia. The combined gross value of output of these new fruits is presently worth about $40m a year and there is considerable scope for continued growth in the future.

Avocado is perhaps the most commonly known of these crops and production has expanded considerably during the past decade to a current gross value of over $6m. Avocado production is mainly in Queensland and New South Wales with minor quantities produced in Western Australia, South Australia, and Victoria.

Kiwifruit is a relatively new temperate fruit crop to Australia. Production has been expanding rapidly mainly in Victoria and New South Wales and further expansion is expected. Of the berry fruits, strawberries are widely grown, with largest production in Victoria and Queensland. Interest in the production of blueberries in Australia has developed only recently and plantings of blueberries have increased rapidly mainly in Victoria and New South Wales. Other berries (currants and raspberries) are grown predominantly in Tasmania and production has been reasonably constant over the past five years.

Tropical fruit such as mangoes, papaws, passionfruit, custard apples and guavas, are grown mainly in Queensland. Smaller quantities of tropical fruit are produced in the north coast region of New South Wales, Western Australia and more recently Northern Territory. The largest expansion has been of mango production which has more than doubled since 1979. Given the large number of non-bearing mango trees production is expected to continue to increase dramatically. There is also considerable interest in many other exotic tropical and subtropical fruits. Production of lychees and persimmons has recently commenced and some plantings of rambutan, sapote and longans have been made, mainly in Queensland and the north coast region of New South Wales.

Almond is still the major nut crop in Australia with almost the entire almond crop produced in South Australia and Victoria. Pecan nut production increased substantially in the 1970s, mainly in northern New South Wales. More recently plantings of pistachio trees have commenced in South Australia, Victoria, New South Wales and Western Australia. The major expansion in the nut crops has been with macadamias, a native Australian tree. The main growing regions are the coastal region of northern New South Wales and southern Queensland. During the past decade production of macadamia nuts has increased rapidly to a current gross value of about $3m.

SELECTED FRUIT STATISTICS

Year	Orchard fruit: number of trees ('000)				Tropical, and other fruits: area (ha)			Total area of fruit (ha)
	Apples	Oranges	Pears	Peaches	Bananas	Pineapples	Other fruit	
1978–79	5,964	5,299	1,602	1,531	8,062	6,390	1,676	96,998
1979 80	6,113	5,532	1,601	1,570	8,136	6,784	1,744	98,451
1980–81	6,099	5,872	1,622	1,649	8,558	6,583	1,831	100,516
1981–82	6,065	6,055	1,703	1,669	8,740	6,373	1,738	102,068
1982–83	6,098	6,219	1,556	1,642	9,040	6,010	1,774	104,325
1983–84p	6,068	6,520	1,500	1,634	9,103	5,949	2,078	107,214

Year	Apples	Apricots	Bananas	Cherries	Oranges	Peaches	Pears	Pine-apples	Plums and Prunes
PRODUCTION ('000 tonnes)									
1978 79	344.9	31.0	113.1	6.8	368.6	64.8	127.6	105.1	28.9
1979 80	298.8	26.4	125.1	(a) 3.9	392.1	71.5	124.3	123.3	(a) 15.0
1980 81	306.9	30.6	124.3	6.5	424.5	79.2	145.6	123.3	20.8
1981–82	294.5	27.1	129.6	5.4	376.3	64.6	(a) 109.7	125.5	16.4
1982–83	300.8	26.9	140.5	4.2	410.0	63.0	119.2	111.3	20.6
1983 84p	n.y.a.	23.2	163.5	3.5	381.4	53.5	n.y.a.	121.3	19.5
GROSS VALUE OF PRODUCTION ($ million)									
1978 79	100.1	13.5	50.8	9.3	74.1	20.6	31.7	18.4	15.3
1979 80	107.7	13.9	45.9	5.8	77.9	24.0	36.5	20.2	10.6
1980 81	118.9	16.9	59.5	10.0	86.0	25.7	41.4	19.8	15.2
1981 82	124.2	18.1	61.4	13.2	89.6	23.0	(a) 30.8	20.5	11.2
1982 83	132.4	18.3	70.1	7.9	101.0	21.3	31.2	25.4	16.9
1983–84p	133.9	n.y.a.	83.9	n.y.a.	n.y.a.	25.4	36.8	30.6	n.y.a.

(a) Incomplete; information on this commodity was not separately collected in some States.

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	1978–79	1979–80	1980–81	1981–82	1982–83	1983–84p
Fruit juice based cordials and syrups(a)	mil litres	73.6	76.3	77.8	80.4	78.7	69.6
Natural fruit juice(b)—							
Single strength	mil litres	186.2	208.4	232.6	187.3	n.y.a.	n.y.a.
Concentrated(c)	"	15.7	24.6	32.6	27.3	n.y.a.	n.y.a.
Cider and perry	"	14.7	17.1	15.0	19.0	n.y.a.	n.y.a.
Canned or bottled fruit (excl. canned pulp)	'000 tonnes	224.9	257.5	226.4	146.7	157.6	153.0
Jams	'000 tonnes	31.8	21.8	29.1	32.6	29.3	30.3

(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	Processed fruit	Total, fresh equivalent weight
	Oranges	Other citrus	Other fresh fruit				
1977–78	29.1	6.3	33.2	1.8	0.7	10.7	91.1
1978–79	28.1	7.4	34.4	2.3	0.4	10.5	93.0
1979–80	33.8	6.4	39.3	1.5	0.6	12.4	106.1
1980–81	33.8	7.7	35.8	1.5	0.4	11.7	102.2
1981–82	32.1	7.0	38.8	1.8	0.6	10.9	102.4
1982–83	36.0	6.6	38.8	1.8	0.6	9.5	104.4

Fruit exports

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

Value of exports of fresh, dried and preserved fruit in recent years peaked at $90 million in 1972–73, trending downwards since that time although exports of preserved fruit showed some revival in 1976–77.

Fresh apple exports to Europe have been markedly 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 and the Middle East. Fresh pear exports to Europe have also declined but not to the same extent as apples. Other export markets for pears such as in South East Asia, have gained in importance in recent years. Exports of citrus, predominantly oranges, have been relatively steady in recent years but are sensitive to competition from the U.S.A. Exports of oranges were made to Japan for the first time in 1983–84. The Australian industry sees this as an important first step in establishing a potentially important trade with Japan. Effects of the E.E.C. import regime have 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)

	Fresh and chilled			*Canned or bottled*					
Year	*Apples*	*Pears*	*Oranges*	*Apricots*	*Peaches*	*Pears*	*Peaches and pears*	*Pine-apples*	*Fruit salad*
1978–79	15.6	15.7	5.6	0.8	12.2	17.2	1.9	1.2	4.3
1979–80	20.1	18.3	9.9	1.5	19.3	20.0	3.6	3.1	7.6
1980–81	15.3	20.0	8.0	1.3	16.0	20.6	3.0	3.5	9.6
1981–82	19.0	13.7	8.9	1.0	15.4	13.7	2.1	3.6	7.5
1982–83	15.7	17.8	12.6	1.1	13.8	16.5	2.4	2.2	9.8
1983–84p . . .	13.7	16.0	9.5	1.2	13.4	10.9	1.8	2.5	10.7

FRUIT: VALUE OF PRODUCTION AND EXPORTS

($ million)

	Gross value			
Year	*Orchard fruit*	*Tropical, berry and other*	*Total*	*Exports(a) value f.o.b.*
1978–79 . .	306	82	388	95
1979–80 . .	325	82	407	131
1980–81 . .	366	94	460	131
1981–82 . .	365	99	464	122
1982–83 . .	385	113	498	135
1983–84p . .	n.y.a.	n.y.a.	543	117

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

Fruit imports

Small quantities of fresh fruit, mainly off-season citrus from the U.S.A., are imported, while most imports of dried fruit consist of dates from China, Iraq, Iran, Pakistan and the U.S.A. Dried apricots became a significant import in 1984. Imports of orange juice have increased to around 100 million litres in recent years to meet the shortfall in Australian production.

Marketing and regulation of the fruit industry

Apples and pears. The Australian Apple and Pear Corporation has the function of promoting and controlling the export of Australian apples and pears as well as the promotion of trade and commerce in apples and pears within Australia. It also has power to promote, or engage in, research relating to the production, packaging, handling, transportation or marketing of apples and pears and to promote new apple and pear products.

The current underwriting schemes for export apples and pears terminate at the end of the 1985 export season. Under the schemes the Government guarantees a minimum return of 95 per cent of the weighted average returns for all apple and pear exports over the preceding four seasons. The Industries Assistance Commission is to report in mid-1985 on what Government assistance measures may be appropriate for the apple and pear industry after the 1985 season.

Canned Fruit. On 29 November 1979 the Commonwealth enacted legislation restructuring the industry's marketing arrangements. Similar complementary legislation has been enacted by the four States of New South Wales, Victoria, South Australia and Queensland.

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, terms and conditions for sales in both Australian and export markets. Sales are made through markets 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.

In August 1984, the operation of the Australian Canned Fruits Corporation (ACFC) was extended for a further three years to the end of 1987. A more commercially orientated and flexible corporation is envisaged with the expansion of the corporation's board to make it more effective in its commercial operations, more accountable to industry and government and more capable of achieving its objective of improving returns to growers.

As of 30 June 1984, the Fruit Industry Sugar Concession Committee ceased to operate and guidelines for minimum prices paid to growers for canning fruit are now set independently by the Canning Fruit Committee of the ACFC.

For further data on fruits and fruit products *see* the publications *Fruit, Australia* (7322.0), *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).

Grapes

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 Barossa, Clare, Riverland, Southern Districts and Coonawarra (S.A.); North Eastern Victoria and Great Western (Vic.); Hunter and Riverina; (N.S.W.); Sunraysia (N.S.W. and Victoria); 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

	Area		*Production: grapes used for—*			
					Total(a)	
Year	*Bearing*	*Total*	*Winemaking*	*Drying*	*Quantity*	*Gross value*
	'000 ha	'000 ha	'000 tonnes fresh weight	'000 tonnes fresh weight	'000 tonnes fresh weight	$m
1978–79	65.8	70.6	465.6	227.1	716.4	150.1
1979–80	65.2	69.7	502.5	339.2	865.3	231.1
1980–81	64.7	69.5	473.1	248.1	743.4	178.2
1981–82	63.7	68.4	499.9	361.7	884.9	222.8
1982–83	61.9	66.5	431.3	310.3	768.1	212.5
1983–84p	62.3	66.3	510.2	321.2	862.4	217.6

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

The bearing area of vines fell by 5 per cent between 1978–79 and 1983–84. Area of vines not yet bearing has also decreased slightly from 1978–79 to 1983–84. Production of wine grapes has remained at around 500,000 tonnes in recent vintages, except for a reduced 1983 vintage of 431,000 tonnes due to adverse climatic conditions. Production of wine grapes has increased by over 65 per cent since 1972–73.

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 adverse seasonal conditions. There was a diversion of multipurpose grapes to winemaking during most of the 1970s and this resulted in a decline in the volume of grapes dried. However, in the early 1980s, there has been some reversal in this trend, and production of dried vine fruit in 1980, 1982, 1983 and 1984, while assisted by seasonal conditions, reached higher levels than had prevailed since the late 1960s. Whilst it is possible that domestic consumption of dried vine fruit could rise (as real prices fall) variations in the quantity of grapes dried will be directly reflected in quantities available for export. Currently, the world market for dried vine fruits is oversupplied, with about 200,000 tonnes or fruit surplus to known demand. Average to above average packs are expected from the 1984 Northern Hemisphere harvests, adding further to the oversupply of fruit. The most immediate effect of surplus fruit has been a fall in world prices in all markets, except the EEC, where the minimum import price is underpinning market price levels. Australian exporters have continued to make significant sales on international markets (assisted by the high quality of the Australian product) but have recently experienced some difficulties in selling to the UK and Japan as a result of increased price competition. The Australian Dried Fruits Corporation is the body responsible for the organisation of the export trade in dried vine fruits. The Corporation also administers the statutory Dried Vine Fruits Equalisation Scheme and the Dried Sultana Production Underwriting Scheme. Until 1983 imports of dried vine fruit had been largely insignificant. However, in 1982–83 imports totalled 2,473 tonnes with 2,017 tonnes coming from Greece. Greek fruit is subsidised and in August 1984 provisional countervailing measures were introduced against fruit imports from Greece.

Varietal Statistics: 1983 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 data are aggregated from the States of New South Wales, Victoria, South Australia and Western Australia only.

VITICULTURE: AREA AND PRODUCTION BY VARIETY, 1983 SEASON

	Area of vines at harvest			*Grubbings (actual and/or intended)*	*Production*			
					Grapes used for—			
	Bearing	*Not yet bearing*	*Total*		*Wine-making*	*Drying*	*Table*	*Total*
	—hectares—			hectares	—tonnes (fresh weight)—			
Red Grapes—								
Cabernet Sauvignon	3,462	302	3,764	109	19,842	—	115	19,957
Currant (incl. Carina)	1,703	121	1,824	53	260	15,915	41	16,216
Grenache	4,001	33	4,034	308	35,535	—	276	35,811
Mataro	1,159	13	1,173	65	11,980	—	157	12,137
Shiraz	6,958	84	7,042	324	45,787	1	294	46,082
Other red grapes	2,029	427	2,457	108	9,347	55	4,279	13,681
Total red grapes	*19,312*	*980*	*20,293*	*968*	*122,752*	*15,971*	*5,162*	*143,885*
White grapes—								
Chardonnay	881	724	1,605	5	4,627	—	17	4,644
Doradillo	1,597	13	1,610	90	31,026	102	171	31,299
Muscat Blanc	586	94	681	14	5,203	—	81	5,284
Muscat Gordo Blanco	4,203	280	4,484	114	67,625	6,917	581	75,123
Palomino and Pedro Ximenes	2,267	63	2,330	132	26,711	—	16	26,726
Rhine Riesling	4,282	515	4,796	76	28,867	—	67	28,934
Semillon	2,697	172	2,869	60	28,447	—	87	28,533
Sultana	17,311	776	18,084	232	50,804	280,676	7,955	339,436
Waltham Cross	1,434	49	1,483	55	6,694	6,501	3,911	17,106
Other white grapes	5,834	752	6,586	179	57,923	107	3,174	61,205
Total white grapes	*41,092*	*3,438*	*44,530*	*957*	*307,926*	*294,305*	*16,059*	*618,289*
Total grapes	**60,404**	**4,418**	**64,823**	**1,924**	**430,678**	**310,275**	**21,221**	**762,174**

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
1978–79	4.7	46.4	5.5	56.6	45.6	1.9	47.5	46.9	1.7
1979–80	5.3	71.8	5.8	82.8	39.2	2.3	41.5	55.1	1.9
1980–81	5.7	50.7	4.8	61.1	50.1	1.9	52.0	75.5	1.8
1981–82	5.8	78.5	5.9	90.2	38.5	0.8	39.4	49.5	1.7
1982–83	3.9	64.9	4.7	73.4	57.1	2.4	59.5	59.7	1.9
1983–84p	n.y.a	n.y.a	n.y.a.	n.y.a.	51.6	0.9	52.5	54.1	n.y.a.

Wine industry

Australia produces a wide range of wine and brandy products. Over the past five years there has been a distinct trend towards greater production and consumption of unfortified or table wines. In the twelve months ending June 1984 sales of table wine accounted for almost 75 per cent of all sales of Australian wine. The large growth in table wine sales over the past five years has been principally due to the successful marketing of wine in casks. Imports and exports of wine are roughly equivalent and represent about 3% of the total domestic market for wine. The Australian Wine and Brandy Corporation, which commenced operation on 1 July 1981, replacing the Australian Wine Board, is the body responsible for the control of the export trade in grape products. Like its predecessor, the Corporation has the power to regulate exports as well as promotion and publicity functions in export markets and in Australia. The Corporation has the power to trade with the approval of the Minister for Primary Industry but, to date, this power has not been invoked.

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
1978–79	335.1	5.3	6.3	16.4
1979–80	414.2	6.1	8.4	17.3
1980–81	374.3	7.5	11.9	18.2
1981–82	402.7	8.4	14.0	19.1
1982–83	340.1	8.1	13.5	19.7
1983–84p	n.y.a.	9.0	16.8	20.5

For further details on viticulture, dried vine fruit, wine, etc. *see* the following publications: *Fruit, Australia* (7322.0), *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 1982–83, had gross values as follows:

Crops	Gross value	Per cent of total crop gross value
	$m	%
Fodder crops (hay)	100.6	2.0
Lupins	30.3	0.6
Tobacco	61.9	1.2
Hops	9.8	0.2
Mushrooms	27.1	0.5
Other (incl. nurseries)	232.8	4.6

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

	Hay(a)				
		Production		*Green feed or silage(b)*	
Year	*Area*	*Quantity*	*Gross value*	*Area*	*Silage made*
	'000 ha	'000 tonnes	$m	'000 ha	'000 tonnes
1978–79	293	955	40.2	823	335
1979–80	265	819	39.1	947	270
1980–81	320	826	58.3	1,096	338
1981–82	380	1,033	77.1	936	413
1982–83	408	879	100.6	1,292	301
1983–84p	382	1,221	91.9	920	n.y.a.

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

Lupins

Lupins are grown primarily as a grain crop, but grazing of standing crops and harvested stubble is also an important use. Because of their high protein content lupins are becoming increasingly important in livestock feed and for human consumption, particularly in some of the Asian countries.

There was a significant expansion in lupin production in recent years, particularly in Western Australia which is the major producer and exporter of lupins in Australia. Smaller quantities are also grown in New South Wales, Victoria and South Australia mainly for domestic use.

The value of lupin exports in 1983–84 was estimated at about $46 million, main markets being the EEC and Taiwan.

FARMSTOCKS OF CEREAL GRAINS, HAY AND SILAGE

('000 tonnes)

	Cereal grains				
At 31 March	*Barley*	*Oats*	*Wheat*	*Hay*	*Silage*
1978	463	819	760	3,928	709
1979	637	1,256	880	5,355	753
1980	542	1,207	815	4,872	722
1981	518	933	860	4,764	578
1982	628	1,356	832	4,941	502
1983	506	710	970	2,983	333

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) and Yetman and Coraki (New South Wales). 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	Manufactured	Unmanufactured	Manufactured
	'000 ha	'000 tonnes	$'000	$'000	$'000	$'000
1978–79	8.1	15.0	693	7,074	36,148	23,588
1979–80	7.5	15.1	4,161	9,138	42,394	25,234
1980–81	7.1	14.5	2,893	8,559	44,007	31,129
1981–82	6.6	13.3	2,080	8,551	46,268	23,187
1982–83	6.7	13.4	4,835	9,667	52,916	30,420
1983–84p	6.8	n.y.a.	2,435	12,173	58,938	31,424

Marketing. In 1965 the Commonwealth and State Governments agreed to a stabilisation plan which provided for an annual Australian tobacco leaf marketing quota of flue-cured tobacco and a guaranteed minimum average reserve price. The plan is administered by the Australian Tobacco Board, constituted under the Tobacco Marketing Act 1965 and is comprised of representatives of the Commonwealth Government, tobacco-growing States, growers and manufacturers.

Following a review by the Industries Assistance Commission of the tobacco industry in 1982, the government announced a new 5 year stabilisation scheme which began in 1984. The new scheme is designed to rationalise marketing arrangements in the industry. The scheme provides that the annual tobacco leaf quotas are adjusted in line with consumption, that manufacturers' stocks are reduced to a level equivalent to 13 months' consumption by 1988, and that prices be adjusted so as to significantly reduce the gap between Australian and World prices by 1990.

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 trellises, from which they are later harvested. The green hops are kiln-dried and baled on the farm. The dried hops can be further processed at centralised processing establishments into pellets, extract or high density packs. The pelleted form constitutes the bulk of the exported hops.

The area planted to hops in Australia is about 1,300 hectares. Nearly 60 per cent of plantings are in Tasmania (confined to the Derwent, Huon and Channel areas in the southeast, the Scottsdale-Ringarooma district in the north east, and the Gun Plains in the northwest of the state). The other hop producing areas are the Ovens and King Valleys in Victoria and a small area near Manjimup in Western Australia.

Australian hop production is about 2,100 tonnes, approximately 50 per cent of which is used by domestic 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	Total production			Canned or bottled production	Imports			
					Dried		Canned or bottled	
	Area	Quantity	Gross value		Quantity	Value f.o.b.	Quantity	Value f.o.b.
	hectares	tonnes	$m	tonnes	tonnes	$'000	'000 litres	$'000
1978–79	53	7,806	14.7	5,718	88	964	3,738	4,723
1979–80	57	8,340	16.9	4,793	93	1,082	4,482	5,486
1980–81	56	8,265	18.5	3,743	93	1,140	5,864	7,120
1981–82	57	9,382	21.7	n.p.	120	1,478	6,413	8,454
1982–83	67	10,389	27.1	n.p.	58	895	5,845	8,447
1983–84p	n.y.a.	n.y.a.	n.y.a.	n.p.	94	1,447	4,760	7,218

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 1979 on in single years, are given in the following table.

LIVESTOCK: AUSTRALIA, 1861 TO 1984

('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	1979	27,112	134,222	2,301
1901	8,640	70,603	950	1980	26,203	135,985	2,518
1911	11,745	98,066	1,026	1981	25,168	134,407	2,430
1921	13,500	81,796	674	1982	24,553	137,976	2,373
1931	11,721	110,568	1,072	1983	22,478	133,237	2,490
1941	13,256	122,694	1,797	1984	21,846	138,625	2,478

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.

Australia has suffered ten major widespread droughts since the keeping of rainfall records began:

1864–66 All States were affected except Tasmania.

1880–86 Southern and eastern mainland States were affected.

188? All States were hit except Western Australia.

1895–1903 This drought, one of the worst on record, halved Australia's sheep population (originally 100 million) and cut cattle numbers (12 million) by 40 per cent.

1911–1916 Wheat crops were affected in most States, sheep numbers declined by 19 million and cattle by 2 million.

1918–1920 During this period parts of Western Australia were the only areas completely free from drought.

1939–1945 This prolonged drought affected crops and/or pastoral areas in all States. Sheep numbers fell from 125 million in 1942 to 96 million in 1945.

1965–1967 This drought, in its impact on Queensland, New South Wales and Victoria, ranked with the 1902 drought as one of the most severe on record. It resulted in a 40 per cent drop in the wheat harvest, a loss of 20 million sheep, and a decrease in farm income of $300-500 million. There was a chain reaction to other industries, with heavy losses being suffered by manufacturers of farm machinery, and the N.S.W. Railways. Effects of the drought were worsened by water rationing in irrigation areas.

1972 Widespread drought occurred throughout Australia.

Much of eastern Australia experienced one of the worst droughts on record in 1982 and early 1983. Widespread and soaking rains during the autumn months of 1983 greatly alleviated the situation and most areas received further good rains during 1983–84. By July 1984 only a few shires on the Central Queensland coast and in south east Tasmania remained under drought conditions and these were expected to be lifted soon.

For further details of droughts in Australia *see* Yearbook No. 54, pages 991-96 *'Droughts in Australia'*.

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 dairy herds. While dairy cattle are restricted mainly to southern and to coastal districts, beef cattle are more widely distributed. Cattle numbers in Australia increased slowly during the 1960s and 1970s, despite seasonal vicissitudes and heavy slaughterings, to a peak of 33.4 million in 1976. Since then, there has been a continuous decline, aggravated by drought conditions, to 22.5 million in 1983. The relatively high proportion of breeding

cattle slaughtered during the drought year of 1982 continued in 1983, despite improved seasonal conditions beginning in the autumn of 1983, thereby contributing to a further decline in the total herd to 21.8 million head by March 1984.

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

For further details on cattle *see Livestock and Livestock Products, Australia* (7221.0).

CATTLE NUMBERS

('000)

31 March	*N.S.W.*	*Vic.*	*Qld*	*S.A.*	*W.A.*	*Tas.*	*N.T.*	*Aust. (incl. A.C.T.)*
1979 . . .	6,484	4,134	10,859	1,086	2,092	657	1,785	27,112
1980 . . .	6,097	4,252	10,332	1,067	2,065	649	1,727	26,203
1981 . . .	5,459	4,313	9,925	1,091	2,034	659	1,675	25,168
1982 . . .	5,429	4,121	9,782	1,013	1,942	628	1,624	24,553
1983 . . .	5,018	3,408	9,349	828	1,754	562	1,548	22,478
1984p . . .	5,000	3,453	8,875	833	1,703	543	1,431	21,846

Classification of cattle

CATTLE NUMBERS, BY AGE, SEX, PURPOSE

('000)

	31 March					
Classification	*1979*	*1980*	*1981*	*1982*	*1983*	*1984p*
Milk cattle—						
Bulls used or intended for service	55	56	54	49	47	46
Cows, heifers and heifer calves	2,733	2,697	2,672	2,661	2,642	2,671
House cows and heifers	78	77	74	73	69	68
Total, dairy cattle	*2,867*	*2,830*	*2,799*	*2,783*	*2,757*	*2,787*
Meat cattle—						
Bulls used or intended for service	544	545	533	527	499	502
Cows and heifers (1 year and over)	11,774	11,727	11,269	11,032	9,929	9,784
Calves under 1 year	5,837	5,445	5,135	5,023	4,644	4,405
Other cattle (1 year and over)	6,090	5,656	5,431	5,188	4,649	4,368
Total, beef cattle	*24,245*	*23,373*	*22,368*	*21,770*	*19,721*	*19,059*
Total, all cattle	**27,112**	**26,203**	**25,168**	**24,553**	**22,478**	**21,846**

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 of 180 million in Australia in 1970. They then declined rapidly 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 again 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 and 1979 enabled producers to begin rebuilding their flocks. By March 1980, numbers had risen to 136.0 million. Subsequently, high levels of drought-induced slaughter led to a decline in numbers to 134.4 million by March 1981. Numbers rose to 138.0 million in March 1982 with improved seasonal conditions and the attractiveness of sheep enterprises relative to cattle contributing to the growth in numbers. Subsequently, drought conditions saw the flock reduce to 133.2 million in March 1983. The increase in flock numbers to 138.6 million in March 1984 reflects flock rebuilding by producers in response to favourable seasonal conditions beginning in the autumn of 1983, improved lambing rates, and a favourable outlook for wool and live sheep enterprises.

SHEEP NUMBERS
(Millions)

31 March	*N.S.W.*	*Vic.*	*Qld*	*S.A.*	*W.A.*	*Tas.*	*Aust. (incl. N.T., A.C.T.)*
1979	48.4	22.8	13.6	14.9	30.3	4.2	134.2
1980	48.6	24.4	12.2	16.0	30.4	4.2	136.0
1981	46.0	25.5	10.6	17.1	30.8	4.4	134.4
1982	48.7	25.3	12.3	16.7	30.3	4.5	138.0
1983	48.1	22.7	12.2	15.4	30.2	4.5	133.2
1984p	51.0	24.4	12.9	16.1	29.5	4.6	138.6

SHEEP, BY AGE AND SEX
(Millions)

	Sheep: 1 year and over					
31 March	*Rams*	*Breeding ewes*	*Other ewes*	*Wethers*	*Lambs and hoggets (under 1 year)*	*Total, sheep and lambs*
1979	1.7	65.9	4.7	31.6	30.4	134.2
1980	1.7	66.5	5.0	30.5	32.3	136.0
1981	1.8	66.9	4.8	30.1	30.8	134.4
1982	1.8	68.5	4.8	30.5	32.4	138.0
1983	1.7	65.6	5.5	28.8	31.6	133.2
1984p	1.7	69.8	5.0	30.4	31.7	138.6

The combined value of wool and sheep slaughtered during 1983-84 is estimated (by the Bureau of Agricultural Economics) at 18% of the gross value of agricultural commodities. This proportion varies with wool and meat prices and seasonal conditions. Australia has about 20 per cent of the world's woolled sheep but produces around 25 per cent of the world's greasy wool output. In addition, in 1983–84 the sheep industry produced 436,500 tonnes of mutton and lamb. Exports of live sheep for slaughter during 1983-84 totalled 7.2 million head, with Kuwait and Saudi Arabia accounting for 72% of the total.

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*
1979	131.4	42.5	3.7	26.9	9.1	134.2
1980	134.2	45.8	5.3	30.2	8.5	136.0
1981	136.0	43.7	6.1	31.4	7.8	134.4
1982	134.4	44.8	6.3	28.3	6.6	138.0
1983	138.0	45.4	6.2	30.8	13.1	133.2
1984p	133.2	44.2	6.7	23.7	8.4	138.6

(*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
1979	63.6	58.5	57.1	98	42.5	74	67
1980	65.9	61.9	59.5	96	45.8	77	70
1981	66.5	60.3	58.1	96	43.7	75	66
1982	66.9	61.9	60.5	98	44.8	74	67
1983	68.5	64.6	60.9	94	45.4	74	66
1984p	65.6	58.9	58.1	99	44.2	76	67

Pigs

Until the early 1950s the majority of pigs were reared in dairy areas where the on-farm separation of cream, associated with butter production, provided an abundant supply of skim milk; a traditional cheap and nutritious pig feed. With the virtual disappearance of on-farm cream separation and the introduction of wheat delivery quotas and generally low grain prices in the late 1960s, pig raising became increasingly associated with grain growing areas. Today most pigs are raised under intensive or semi-intensive conditions in large scale piggeries and fed on grain based rations. Pig numbers have remained fairly stable over the past decade, although there has been a decrease in the number of holdings raising pigs as pig production becomes more specialised.

PIG NUMBERS
('000)

31 March	*N.S.W.*	*Vic.*	*Qld*	*S.A.*	*W.A.*	*Tas.*	*Aust. (incl. N.T., A.C.T.)*
1979	759	390	487	330	271	61	2,301
1980	829	422	510	398	293	63	2,518
1981	787	400	502	394	289	54	2,430
1982	766	406	513	374	263	47	2,373
1983	794	387	551	405	300	43	2,490
1984p	809	375	552	402	289	48	2,478

For further details on pigs *see* the publication *Livestock and Livestock Products, Australia* (7221.0).

Poultry

The commercial poultry industry comprising hatcherymen, egg producers and broiler growers is highly specialised although there is still a proportion of production coming from 'backyard' egg producers roughly estimated at from 20 to 25 per cent of the total. There are also separate research schemes funded jointly by industry and government for the egg and meat chicken industries but close liaison exists. 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)*	*Total chickens(b)*	*Ducks*	*Turkeys*	*Other poultry*	*Total all poultry*
1979	16,189	26,825	43,214	247	448	321	44,229
1980	14,846	29,967	46,749	272	1,016	218	48,255
1981	15,187	29,077	46,386	228	750	175	47,539
1982	14,930	27,478	44,761	317	713	213	46,004
1983	15,532	30,296	48,389	294	467	243	49,393
1984p	14,643	31,008	47,982	364	628	240	49,214

(*a*) Data are for numbers of poultry on agricultural establishments as reported in the annual Agricultural Census.
(*b*) Includes breeding stock and data not available for separate publication.

For further details on poultry *see* the publication *Livestock and Livestock Products, Australia* (7221.0).

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 do 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)*
1978–79	1,948	71	239	253	199	2,708	244	271
1979–80	1,510	54	275	272	218	2,330	282	313
1980–81	1,418	50	299	279	233	2,278	276	303
1981–82	1,526	50	234	277	228	2,315	253	279
1982–83	1,481	61	250	280	239	2,312	283	313
1983–84p	1,260	40	155	281	251	1,988	267	293

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

PRODUCTION OF MEAT : AUSTRALIA, 1939-40 TO 1983-84

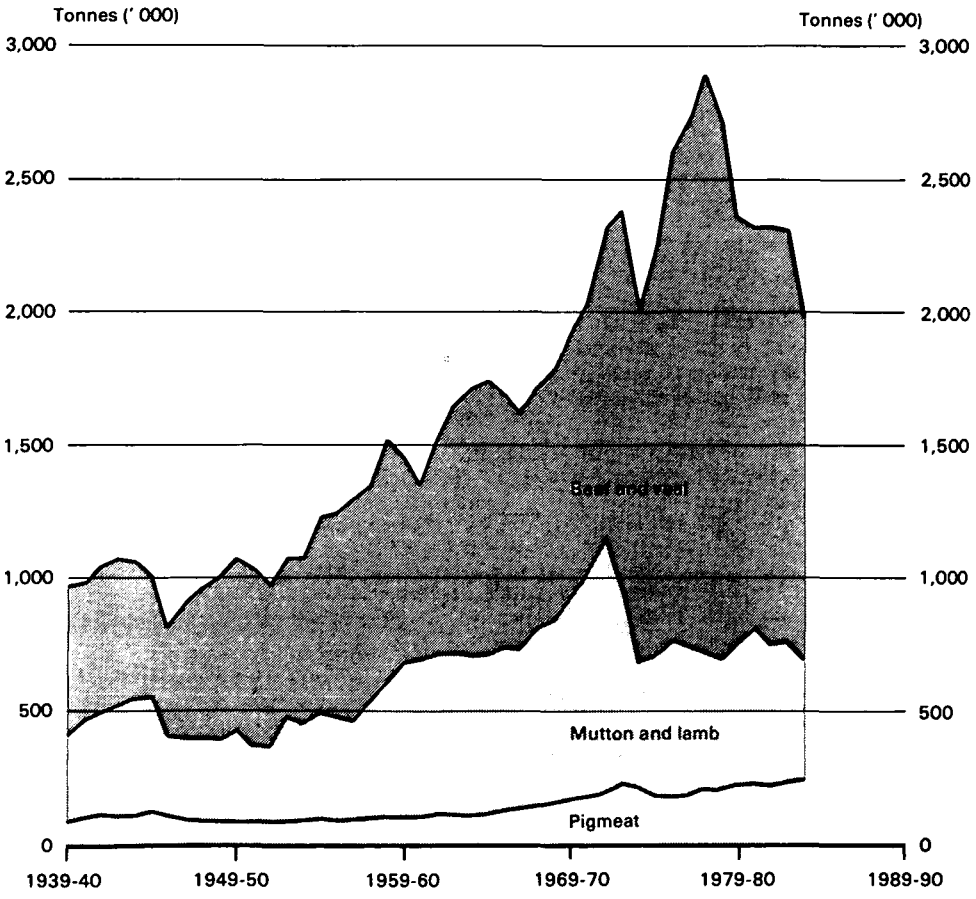

PLATE 39

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
1978 79	9.5	1.8	12.0	14.8	3.6	191.2	10.8	1.8
1979 80	7.4	1.5	14.1	16.4	3.9	222.5	11.3	2.2
1980 81	7.0	1.5	15.2	16.6	4.2	221.7	11.2	1.7
1981 82	7.2	1.5	11.9	16.3	4.1	204.0	9.9	2.0
1982 83	7.4	1.7	13.1	16.9	4.2	226.2	10.9	1.9
1983 84p	5.8	1.2	7.7	16.2	4.4	212.9	10.3	1.7

(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 1970s 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. After 1978, wool and sheepmeat prices improved and the trade in live sheep for slaughter overseas continued to expand. As a result the national flock size increased slightly to 136 million by March 1980. Since March 1980, flock numbers have fluctuated as a result of climatic and market conditions peaking at 138.0 million in March 1982, before dropping to 133.2 million in March 1983. Total Australian sheep flock in March 1984 is estimated at 138.6 million head.

Sheepmeat production declined rapidly from the high levels of the early 1970s, which were associated with flock reduction, to annual levels of between 400,000 and 600,000 tonnes from 1973–74. Lamb production has remained close to 280,000 tonnes per year, while mutton production has varied between 230,000-300,000 tonnes in recent years until 1983–84, when it declined to 155,000 tonnes, reflecting low turn-off of sheep and flock rebuilding by producers.

A high proportion of lamb is consumed in Australia with per capita consumption remaining steady at about 14-16 kilograms per year. A high proportion of mutton produced is exported. Australia is the world's largest exporter of mutton, with Japan and the Middle East being the main markets.

Live sheep exports for slaughter during 1983–84 totalled 7.2 million head, equivalent to approximately 162,000 tonnes of carcass mutton. During 1982–83 live sheep exported for slaughter totalled 6.9 million head, equivalent to approximately 155,000 tonnes of carcass mutton.

Beef and Veal

The cattle industry is very dependent on international trade in beef and is subject to great fluctuations. Over half of Australia's beef and veal production is exported, with the U.S.A., Japan and South Korea currently 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 1.5 million tonnes in 1982–83. 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 1970s, 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.

Improved seasonal conditions during 1983, accompanied by strengthening overseas demand, resulted in a move towards herd rebuilding. However, the high level of drought induced slaughterings during 1982 had reduced the breeding herd base implying very slow herd expansion until 1986. Beef and veal production declined to 1.3m tonnes in 1983–84. The decline in production reflects a move towards herd rebuilding by producers. Cattle numbers are currently projected by the AMLC to steadily increase throughout the 1980s. The lower levels of slaughter accompanying the rebuilding process suggest only modest increases in the levels of beef and veal production in coming years. Export demand

for beef during 1983–84 remained relatively weak. However, saleyard prices of cattle firmed due to strong competitive demand between graziers and cattle fatteners for a limited supply of cattle. During the second half of the year, downward pressure on saleyard prices from a further weakening of export demand was offset by a strengthening of the US dollar relative to the Australian dollar.

Pigmeat

Significant changes have taken place in the pig producing industry in recent years. Capital investment and corporate takeovers have seen the emergence of three large companies producing 30% of all pigs sold in Australia. These moves on top of the trend to more intensive and efficient production techniques has seen pigmeat production rise steadily since 1975 to reach 251,000 tonnes in 1983–84. In addition, there has been an increase in the slaughter weights of pigs reflecting an increased interest in heavier pigs in the fresh pork trade.

Approximately 65 per cent of production is processed into bacon, hams and smallgoods, the rest is sold as fresh pork. Slightly over 1 per cent of the industry's output is currently exported. The increasing production of pigmeat therefore reflects a steady increase in per capita domestic consumption over the past five years.

Prices paid for pigs at auction have varied quite markedly in recent years. During 1982 they reached quite satisfactory levels but fell dramatically during 1983. The first half of 1984 has seen prices firming and steadily increasing but they still have a long way to go to reach the 1982 levels.

Poultry meat

The poultry meat industry developed rapidly in the 1970s with both output and consumption rising steeply although in recent years production has exceeded demand and excess production capacity in the industry continues. 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)					
1978–79	1,193.7	23.0	169.2	46.5	1.9	6.7
1979–80	846.6	17.4	182.1	49.6	1.9	7.3
1980–81	753.7	13.6	241.5	39.4	2.4	7.7
1981–82	775.2	8.5	154.6	32.1	1.5	4.1
1982–83	817.2	10.1	201.1	36.9	1.8	2.2
1983–84	653.1	5.4	90.8	33.1	2.0	1.2
	VALUE f.o.b. ($ million)					
1978–79	1,339.2	26.6	135.2	52.0	3.1	8.0
1979–80	1,295.6	31.9	172.6	62.4	3.7	10.6
1980–81	1,086.4	22.9	248.2	62.3	5.7	12.1
1981–82	1,009.8	14.4	155.3	50.7	3.1	7.3
1982–83	1,164.8	17.9	167.1	61.1	5.4	4.4
1983–84p	1,101.7	11.9	84.0	53.3	6.2	2.5

(*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 762,000 in 1971–72 to 7.2 million in 1983–84. Kuwait and Saudi Arabia accounted for 72 per cent of the total. Iran, a one time major importer of Australian live sheep (ranging 1.2 million to 2.9 million between 1976–77 and 1980–81) has made no purchases from Australia since 1980–81, preferring to import carcass mutton instead.

Australian exports of live cattle for breeding or slaughtering purposes totalled 74,857 head during 1983–84, compared with 81,793 head the previous year. The substantial decline in the export level of slaughter cattle to 31,137 head (from 55,743 head), was offset by increased exports of breeding cattle to a level of 43,720 head (from 26,050 head) destined mainly for South Korea. The decline in the level of slaughter cattle exported is due to a reduction in exports to Malaysia (15,188 head to 8,282 head) and South Korea (15,645 head to 3,455 head), which together accounted for 60 per cent of total breeding and slaughter cattle exported. South Korea has switched from importing slaughter cattle to that of

breeding cattle in a bid to increase its level of self-sufficiency in meat production. During 1983–84 exports of breeding cattle to South Korea rose to 33,184 head (from 9,217 head in 1982–83), comprising 76 per cent of total breeding cattle exported.

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

EXPORTS OF LIVE ANIMALS

Year	*Livestock*			*Poultry*		
		Total(a)			*Total*	
	Sheep and lambs	*Number*	*Value f.o.b.*	*Day old chicks*	*Number*	*Value f.o.b.*
	—'000—		$'000	—'000—		$'000
1978–79	3,865	3,955	110,611	448	624	626
1979–80	6,162	6,225	192,668	409	710	747
1980–81	5,740	5,842	208,483	862	974	832
1981–82	6,009	6,112	214,886	809	935	720
1982–83	6,992	7,086	212,277	370	415	565
1983–84p	6,257	6,342	226,182	477	566	693

(*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.
1978–79	18,545	51,682	44,775	564	1,734	25,202	45,197
1979–80	18,147	52,811	39,178	861	2,734	21,581	51,552
1980–81	18,878	55,564	36,431	528	1,991	17,400	42,139
1981–82	18,112	57,818	34,590	523	1,959	19,651	50,461
1982–83	17,051	55,634	n.a.	412	1,769	21,587	58,704
1983–84p	17,973	59,023	n.a.	774	1,794	17,842	54,806

(*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*
1978–79	2,154.6	445.1	253.8	244.2	3,097.7
1979–80	2,386.0	654.3	311.3	307.2	3,658.8
1980–81	2,056.5	718.9	337.5	361.4	3,474.3
1981–82	1,890.1	646.7	396.1	362.7	3,295.6
1982–83	2,079.4	574.3	415.5	420.4	3,489.6
1983–84p	2,039.5	561.9	385.7	404.2	3,391.3

(*a*) Includes adjustment for net exports 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)	Offal	Total meat	Poultry meat
			TOTAL ('000 tonnes)				
1978–79	840	62	203	193	73	1,371	271
1979–80	691	69	226	205	59	1,250	295
1980–81	695	73	234	231	64	1,299	301
1981–82	763	55	245	224	68	1,355	294
1982–83	711	70	247	230	69	1,326	311
1983–84p	629	66	247	251	66	1,257	296
			PER CAPITA PER YEAR (kg)				
1978–79	58.2	4.3	14.1	13.4	5.1	95.0	18.8
1979–80	47.3	4.7	15.5	14.0	4.0	85.6	20.2
1980–81	46.9	4.9	15.8	15.6	4.3	87.7	20.3
1981–82	50.7	3.7	16.3	14.9	4.5	90.0	19.6
1982–83	46.5	4.6	16.2	15.1	4.5	86.8	20.4
1983–84p	40.9	4.3	16.1	16.3	4.3	81.8	19.3

(a) Includes pigmeat products such as bacon and ham.
NOTE: Beef, veal, mutton, lamb, pigmeat and offal are expressed in terms of carcass weight, and poultry meat in dressed weight.

For further details on meat production and slaughtering *see* the following publications: *Livestock and Livestock Products, Australia* (7221.0), *Value of Agricultural Commodities Produced, Australia* (7503.0) and *Apparent Consumption of Foodstuffs and Nutrients, Australia* (4306.0).

Australian Meat and Livestock Corporation

Legislation was enacted to establish the Australian Meat and Live-stock Corporation from 1 December 1977. The Corporation, which regulates and promotes the export of both meat and live-stock and the promotion of domestic consumption, replaced the Australian Meat Board.

The Corporation has the power to trade in meat and livestock in a manner which accords with adopted policy and with normal commercial practice. Its power is also extended to engaging in sole trading or to permitting restricted trading by a specfied holder or holders of meat or livestock licences. The exercise of this sole or restricted trading power is limited to circumstances where: a monopoly buying power is, in the Corporation's opinion, distorting normal market forces; such action is necessary or desirable to ensure that producers receive a fair return for the meat or livestock exported to that market; the exercise of sole trading powers would be beneficial for the development or further development of that market; the exercise of sole trading powers would be in the best commercial interests of the industry.

In order to foster consultation, the Corporation may, for the purposes of considering any matter relating to the performance of its functions, make arrangements for consulting persons and bodies representative of different sectors of the industry.

The Corporation's main functions are: to improve the production of meat and livestock in Australia; to encourage and promote the consumption and sale of Australian meat, and the sale of Australian livestock, both in Australia and overseas; and to encourage, assist, promote and control the export of meat and livestock from Australia.

Exporters of meat and livestock are licenced by the Corporation and have to comply with its requirements in relation to export trading. The Corporation assists exporters in overseas market development and conducts meat promotion activities in Australia and abroad. It has authority also, to perform a wide range of other functions aimed at improving the production of meat and livestock for the general benefit of the meat and livestock industry.

Australian Meat and Live-stock Industry Policy Council, Australian Meat and Live-stock Industry Selection Committee

The Government is in the process of implementing a number of reforms to the meat industry structure in Australia. The essential elements of the package are the re-structuring of the Australian Meat and Live-stock Corporation and the creation of two new bodies. The Australian Meat and Live-stock Industry Policy Council will be established to advise the Government on important policy questions, and the Australian Meat and Live-stock Industry Selection Committee has been established to select and nominate suitable persons for appointment by the Minister to the Board of the Corporation.

Wool

The Australian Sheep Flock contains nearly 20 per cent of the world's sheep, and produces over 26 per cent of the total annual production of wool. Approximately 75 per cent of the Australian Flock are of a single breed, the Merino, raised primarily for its heavy fleeces of fine quality wool.

Wool production

Wool as shorn from the sheep ('greasy wool') contains an appreciable amount of grease, dirt, vegetable matter and other extraneous material other than the clean wool fibre. The exact quantity of these impurities in the fleece varies between countries, differing climatic and pastoral conditions, with seasonal fluctuations and with the breed and condition of the sheep. It is, however, the clean wool fibre that is ultimately consumed by the textile industry and the term 'clean yield' is used to express the net wool fibre content present in greasy wool.

Since the 1946–47 season, the average clean yield of Australian wool has been assessed annually. In the early years, the average clean yield was assessed on the basis of a small number of tests and subjective appraisal but in recent years the Australian Wool Corporation has calculated the clip average yield on the basis of laboratory tests of yield applied to nearly all wool offered for sale at auction in Australia. 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 63.22 per cent in 1983–84.

Wool scoured and carbonised in Australia before export, however, has a somewhat lower clean yield than the whole clip, because much of the greasy wool treated locally for export in this form is dirty low-grade wool. The quantity of scoured and carbonised wool exported during 1983–84 was about 11 per cent of total raw wool exports in greasy terms. 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 page 291.

SHEARING, WOOL PRODUCTION AND VALUE

			Wool production			
					Total wool	
Year	*Sheep and lambs shorn*	*Average fleece weight*	*Shorn wool*	*Other wool(a)*	*Quantity*	*Gross value (b)*
	million	kg	'000 tonnes	'000 tonnes	'000 tonnes	$m
1978–79	146.9	4.38	643.6	60.6	704.3	1,374
1979–80	148.5	4.33	642.4	66.1	708.5	1,651
1980–81	150.0	4.25	637.9	63.3	701.2	1,670
1981–82	155.2	4.26	660.9	56.2	717.2	1,789
1982–83	149.1	4.30	641.5	60.2	701.7	1,761
1983–84p	151.9	4.43	673.0	55.2	728.1	2,003

(*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 principal method used by wool growers in selling their wool is through public auction. Individual wool growers consign their clips to one of a number of wool selling brokers who arrange for it to be stored, and sampled for laboratory specification, and who make arrangements for the wool to be valued and offered at a rostered sale.

The proportion of the clip sold at auction varies from year to year but is in the order of 80 per cent of all wool grown. It is at such sales that the Australian Wool Corporation provides reserve price support. For the remaining 20 per cent, a transaction price is agreed between buyer and seller and the sale concluded without the presence of other parties and without the protection of the Reserve Price Scheme. This selling option has greatest following in Western Australia while New South Wales, Victoria and South Australia are also strong supporters of this selling system.

SHEEP NUMBERS AND WOOL PRODUCTION : AUSTRALIA, 1880 TO 1984

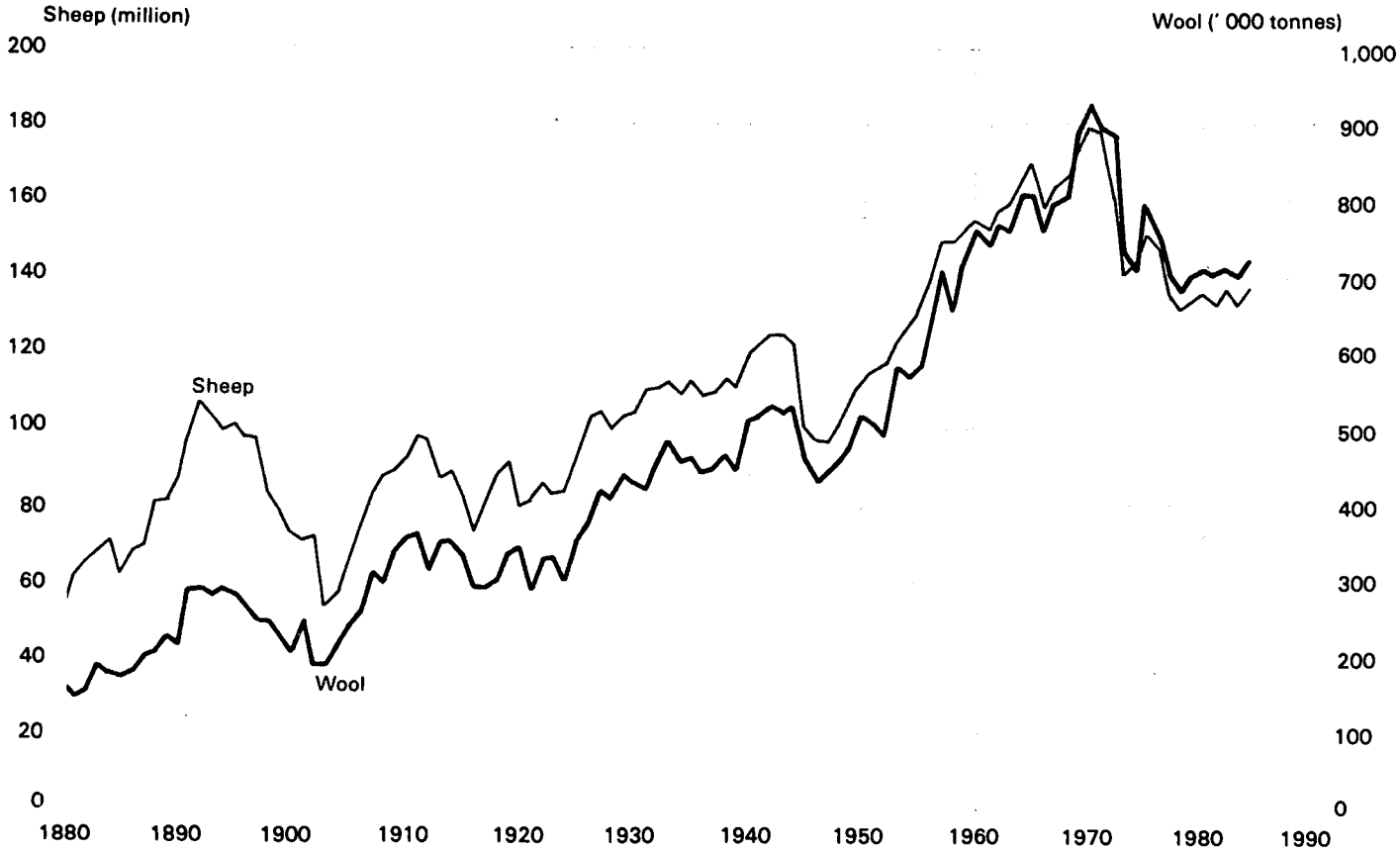

PLATE 40

Wool receivals

Under the terms of the Wool Tax Acts, 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			Dealers as per cent of total receivals	Shorn wool production(b)
	Brokers (NCWSB)	Dealers(a)	Brokers and dealers		
	—'000 tonnes—			per cent	'000 tonnes
1978–79	481.4	164.8	646.2	25.5	643.6
1979–80	483.1	175.2	658.2	26.6	642.4
1980–81	523.8	134.2	658.0	20.4	637.9
1981–82	539.0	141.4	680.4	20.8	660.9
1982–83	516.0	141.2	657.2	21.5	641.5
1983–84p	545.9	151.7	697.6	21.7	673.0

(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), a Commonwealth statutory authority, 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. This scheme was introduced with the formation of the Australian Wool Commission in November 1970. Its purpose is to provide a measure of stability in wool prices to the benefit of the industry.

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, expressed in terms of the Australian Wool Corporation's Market Indicator, or clip average clean price. The Corporation sets minimum prices for each wool type based on the Government's indicator floor price and purchases wool at auction which does not attract bids above the level of the appropriate floor price for that type. The Corporation has, from time to time in the past, operated a flexible reserve price scheme above the level of the floor price 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 have, since September 1974, been paying 5 per cent of gross proceeds from the sale of wool into a special Corporation administered fund called the Market Support Fund.

When the Fund was established, wool demand was extremely depressed. However, the market improved in subsequent years and the level of the Fund rose to about $493 million at the end of 1980-81. This balance was well in excess of requirements for market support purposes and the Government agreed to woolgrowers' strong requests for legislation to allow for a progressive return of contributions paid into the Fund. Since June 1981, three separate annual refunds totalling $137 million have been made to woolgrowers from the Fund, in respect of market support contributions paid in the years 1974-75 to 1976-77. Depressed market conditions prevailing during the latter part of the 1983-84 season, make it unlikely that a further refund will be made from the Fund in 1984-85.

The Australian Wool Corporation has other responsibilities which include participation in negotiations in respect of shipping freight rates, administration of wool stores and the encouragement of greater efficiency within the existing wool marketing system.

Wool testing

The Australian Wool Testing Authority came into existence in 1957 but its role became more prominent with the introduction, in 1971, of wool valuation techniques relying on objective specification of wool's main physical characteristics. From the first sales of wool in this manner in the

early 1970's this technique has achieved universal acceptance and now more than 90 per cent of all wool sold at auction is accompanied by certified measurements for yield, (i.e. the amount of clean wool fibre), average fibre diameter and the percentage and type of vegetable fault.

At the direction of the Commonwealth Government the Authority which had operated as a division of the Corporation, was transferred to the private sector, effective from the beginning of July 1982. The new company is known as AWTA Ltd.

Wool promotion

The Australian Wool Corporation is responsible for the promotion of the greater use of wool in Australia while the International Wool Secretariat (IWS) is responsible for wool promotion 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). The Commonwealth's contribution to wool promotion for five years commencing 1983-84 has been set at 1.2 per cent of gross wool sales revenue. This is expected to result in a Government contribution of around $26 million in 1984-85. Most of the promotion funds are remitted to the 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 growers' 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 from 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*
1978–79	13.4	11.2
1979–80	14.0	9.2
1980–81	14.4	10.1
1981–82	14.1	9.8
1982–83	15.8	7.8
1983–84p	13.4	8.7

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		*Semi-processed wool*		*Total wool*	
At 30 June	*Greasy*	*Clean*	*Greasy*	*Clean*	*Greasy*	*Clean*
1978	222.0	132.2	8.7	5.2	230.7	137.4
1979	162.0	96.4	9.1	5.5	171.0	101.9
1980	168.7	101.1	11.3	6.9	180.1	108.0
1981	153.2	91.6	10.8	6.5	163.9	98.1
1982	206.4	124.5	8.3	5.0	214.6	129.5
1983			—n.a.—		256.8	153.7

Wool processing

Approximately 85 per cent of all wool passing through the Australian auction system comprises combing fleece and oddment types which are ultimately processed on the worsted system. The remaining 15 per cent, being the shorter or carding wools such as locks, crutchings, and lambs wool, is directed to the woollen system. This latter group is boosted some 5-10 per cent by noils combed out during worsted processing.

At present about two thirds of total carding types produced are processed in Australia.

During the 1970's there was a trend to increased early stage processing of Australian wool before export. Recently, however, early stage processing has stabilised at around 18 per cent of wool production. Over 95 per cent of total Australian wool production ultimately enters international trade.

The main scope for expanded domestic processing remains with worsted types for export in scoured or combed top form. Japanese processors initiated the export of scoured worsted types from Australia and Japan became Australia's major export market for scoured wool in 1973-74.

Within Australia, in 1980-81 there were 28 operating establishments involved in early stage processing. Before 1975 the wool processing industry was largely centralised in cities close to major ports. Since then, however, a general trend towards decentralised inland locations has occurred.

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*
1977–78	47.5	28.0	11.9	6.9	14.2	8.7	27.3	16.2
1978–79	51.0	30.0	11.9	6.8	14.7	9.0	27.7	16.4
1979–80	56.1	30.9	12.4	6.7	15.8	9.0	29.3	16.3
1980–81	51.6	30.7	8.8	5.2	14.7	9.1	24.7	14.8
1981–82	47.7	30.0	8.0	4.9	14.8	9.7	23.9	15.1
1982–83	51.2	32.2	8.2	5.1	12.4	8.1	21.8	13.7

(*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 increasing quantities are being exported in part processed forms (i.e. scoured, carbonised, top and noil) and as wool on skins.

EXPORTS OF WOOL

Year	Selected exports ('000 tonnes: greasy basis)			Total exports	
	Greasy and slipe	Scoured and carbonised	Exported on skins	Greasy basis (a)	Value f.o.b.
				'000 tonnes	$m
1978–79	568.4	89.0	54.6	731.9	1,592
1979–80	505.3	93.2	59.5	681.4	1,744
1980–81	531.7	105.5	57.0	718.5	1,932
1981–82	497.6	96.4	59.8	679.1	1,920
1982–83	487.3	85.0	54.8	653.0	1,878
1983–84p	497.8	99.6	49.7	672.7	2,069

(a) Includes processed wool.

For further details on sheep shorn, wool production and overseas trade *see* the following publications: *Livestock and Livestock Products, Australia* (7221.0), *Sheep Numbers, Shearing and Wool Production Forecast, Australia* (7211.0), *Shearing and Wool Production Forecast, Australia (Preliminary)* (7210.0), *Livestock Products Australia* (monthly) (7215.0), *Foreign Trade, Australia* (5409.0, 5410.0), *Production Bulletin No. 4: Australia* (8360.0) and *Value of Agricultural Commodities Produced, Australia* (7503.0).

Dairying

Dairying occurs in all States in Australia but is mainly concentrated 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 supplementary feed; 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 the most suitable methods of production and inspect animals, buildings and production, so that the latest advances in technology are passed on to the farmer and that hygiene standards are maintained at a high level.

MILK CATTLE NUMBERS
('000)

31 March	Bulls used or intended for service	Cows and heifers used or intended for production of milk or cream for sale			House cows and heifers(a)
		Cows (in milk and dry)	Heifers		
			1 year and over	Under 1 year	
1979	55	1,921	442	369	78
1980	56	1,869	431	396	77
1981	54	1,819	460	393	74
1982	49	1,810	465	387	73
1983	47	1,792	460	390	69
1984p	46	1,794	478	399	68

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

The economic position of the industry

Faced with a reduced demand on the domestic market and low prices on the export market, the industry contracted significantly during the seventies. Milk production fell from 7,249 m.l. in 1970–71 to 5,243 m.l in 1980–81. The downturn in the world dairy trading environment was attributable to production policies adopted by the major producing and consuming countries, such as the EEC and USA, coupled with protection of their domestic markets, which resulted in world production of most dairy products in excess of their market opportunities.

After large numbers of producers left the industry during the seventies the remainder produced milk more efficiently and during the first two years of the eighties, the industry prospered when domestic and export prices reached high levels. By 1983, however, the international dairy market again showed strong downward pressures, large stock levels and uncertainty. World market prices of many dairy products reached GATT minimum levels in 1984. In view of these circumstances, domestic prices of dairy products remained virtually static during those years and net farmgate returns to producers fell significantly.

Adjustment

The Rural Adjustment Scheme replaced the Rural Reconstruction Scheme on 1 January 1977 and incorporates most of the measures previously available under the Dairy Adjustment Program.

Herd improvement

The objective of the Australian Dairy Herd Improvement Scheme is to increase productivity per cow by better evaluation and selection of bulls and cows for breeding purposes through the provision of more accurate genetic information.

Government assistance

The downturn in the Australian dairy industry during the 1970s resulting largely from the low international prices for dairy products, led in 1976–77 to the introduction of new domestic marketing arrangements and a Government scheme to underwrite minimum prices for the major dairy products.

The voluntary equalisation arrangements which had operated in the dairy industry since 1923 were considered to be in danger of collapse because of the phasing out of a production bounty which had applied to 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 its domestic and export sales of such products. Prescribed dairy products include butter/butteroil, skim milk powder, wholemilk powder, casein and certain types of cheese.

From 1976–77 to 1980–81 the Government underwrote minimum prices for prescribed products. These prices were set annually on the basis of a minimum return per kilogram butter-fat in manufacturing milk.

In June 1981, following agreement with the dairy industry, the Government announced the introduction of new underwriting scheme for prescribed dairy products to apply for two years from 1 July 1981. Upon the recommendation of the Industries Assistance Commission (IAC), this scheme was extended for a year and subsequently, the Government agreed to continue this arrangement for the 1984–85 production year. The underwriting scheme is designed to protect the industry against unexpected and sharp falls in market returns without masking the underlying long term trends. Estimates of the Commonwealth commitment for underwriting of dairy products in 1983–84 are in the order of $12.25 million. Underwritten levels for dairy products produced in 1984–85, in $s per tonne, are: butter $1,885, cheese $1,721, skimmilk powder $846, casein $2,126, and wholemilk powder $1,228.

The Government also assists by matching, on a dollar for dollar basis, expenditure of levy raised for the purpose of a program of research recommended by the Australian Dairy Research Committee.

During 1983, the IAC conducted a comprehensive review of Government assistance to the dairy industry. Future government policy on assistance will be decided following a study of the IAC's Report published in November 1983. It is envisaged that any new marketing arrangements resulting from this review will not be implemented before 1 July 1985.

PRODUCTION, UTILISATION AND GROSS VALUE OF WHOLE MILK

Year	Whole milk intake by factories			
	Market milk sales by factories	*Milk used in the manufacture of dairy products*	*Total intake*	*Gross value*
		—million litres—		($ million)
1978–79	1,504	4,144	5,648	627.7
1979–80	1,511	3,887	5,398	676.0
1980–81	1,541	3,702	5,243	885.1
1981–82	1,552	3,716	5,268	1,033.9
1982–83	1,572	3,952	5,524	1,186.5
1983–84p	1,572	4,351	5,923	1,185.3

These milk intake figures have been collected (from milk factories) by the Australian Dairy Corporation and replace statistics of whole milk production and utilisation previously compiled by ABS.

Domestic market

Over the decade to 1982–83 there had been a marked swing away from the production of butter and its by-products, skim milk powder and casein, to cheese and whole milk powder. This was accompanied by an increased percentage of total milk production going to the fluid milk (including flavoured milk) market and being used in the manufacture of products such as yoghurt and table cream. However, the upsurge in milk production in 1983–84 was almost totally utilised in the production of butter and its by products.

Increased emphasis is being placed by manufacturers on meeting the requirements of the domestic market and efforts 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 butter-vegetable oil blends. Recognition of the importance of the domestic market has also been reflected in the introduction of improved new packaging and an increasing level of promotion of dairy products.

Except for cheese, the domestic market is virtually supplied from Australian produced dairy products. Cheese imports account for approximately 19 per cent of domestic cheese consumption.

Exports

Australia's export trade in dairy products has undergone a considerable change in the last decade in terms of both the volume and type of product exported and the direction of trade.

Between 1969–70 and 1980–81, there was a significant overall reduction in the volume of milk produced in Australia. Since 1980–81, however, milk output has shown a steady but upward trend. Nevertheless the overall availability of dairy products for export has declined from the levels of a decade ago. In wholemilk equivalent terms, total Australian exports of dairy products in 1983–84 amounted to approximately three quarters of the volume of exports in 1973–74.

Britain was Australia's major outlet for dairy products, particularly butter and cheese, until it joined the EEC in 1973. Australia's export markets are now more diversified and this has involved changes in the mix of products exported. Exports of butter, casein and, to a lesser extent, skim milk powder have declined significantly from the level recorded in the early 1970s.

However since 1981–82, exports of these products have expanded with increasing quantity of milk available for manufacturing purposes and in line with international market demand. Exports of cheese and wholemilk powder, on the other hand, increased markedly in the decade to 1979–80, but subsequently, exports of cheese have remained relatively stable each year while the volume of wholemilk powder exported has declined.

Japan and South-East Asia are the principal markets for skim milk powder; USA and Japan for casein; USSR, South-East Asia and the Middle East for butter; South-East Asia for wholemilk powder and the Middle East and Japan for cheese.

The International market is currently characterised by considerable uncertainty and depressed prices owing mainly to the substantial surplus of dairy products which have been accumulated in the EEC and US. As a result, Australian exporters are currently encountering severe difficulty in exporting product onto the world market.

PRODUCTION AND TRADE OF BUTTER AND CHEESE

Year	Butter			Cheese			
		Exports (a)			Exports (b)		
	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
1978–79	104.8	28.2	37.8	141.8	51.4	69.0	12.1
1979–80	84.3	17.9	28.7	154.2	61.1	94.4	10.9
1980–81	79.4	12.0	23.1	136.7	54.1	103.7	13.3
1981–82	76.4	5.0	14.0	153.3	57.5	122.9	16.1
1982–83	88.3	15.5	41.1	159.6	54.5	134.6	19.7
1983–84p	111.3	29.7	57.9	161.2	54.6	139.6	22.3

(a) Excludes ghee and butter concentrates. (b) Includes processed cheese exports. (c) Factory production is shown only for non-processed cheese.

Apparent consumption

CONSUMPTION OF MILK, BUTTER, CHEESE AND MARGARINE

Year	Apparent consumption Total			Apparent consumption Per capita per year				
							Margarine	
	Market milk	Butter	Cheese	Market milk	Butter	Cheese	Table	Other
	mil. litres	'000 tonnes	'000 tonnes	litres	kg	kg	kg	kg
1978–79	1,452	65	87	100.6	4.5	6.0	5.9	2.9
1979–80	1,510	66	96	103.4	4.6	6.6	6.4	2.4
1980–81	1,540	64	98	104.0	4.3	6.6	6.7	2.5
1981–82	1,552	65	105	103.1	4.3	7.0	6.8	2.7
1982–83	1,572	61	113	102.9	4.0	7.4	6.8	2.8
1983–84p	1,572	61	119	102.3	4.0	7.7	6.9	2.7

For further details on the dairying industry *see* the publications, *Livestock and Livestock Products, Australia* (7221.0), and *Production Bulletin No. 3: Food, Drink and Tobacco, Australia* (8359.0).

Beekeeping

The beekeeping industry consists of approximately 300-400 full-time apiarists, who produce approximately 70 per cent of all Australian honey, and a large number of part-time apiarists who produce the rest. Some of these apiarists move as far afield as from Victoria to Queensland in an endeavour to obtain a continuous supply of nectar for honey from suitable flora. While honey production remains the predominant sector of the industry, production of breeding stock and provision of pollination services is significant.

In early 1984 the Industries Assistance Commission released its draft report on the honey industry and recommended that no further assistance, for example, by way of stabilization, be given. The IAC had inquired into the industry as a result of a request for a "stabilization scheme" to protect against the effect of variations in export prices.

NOTE: Statistics in the following table relate to apiarists with forty or more hives.

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
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
1979–80	2,141	402	511	25.0	62.0	19,050	464	1,719
1980–81	2,224	379	530	19.5	51.6	15,815	366	1,530
1981–82	2,263	405	552	24.8	61.3	18,211	482	1,978
1982–83	2,182	387	537	22.4	57.9	16,605	423	1,613

EXPORTS OF HONEY AND BEESWAX

Year	Honey		Beeswax	
	Quantity	Value f.o.b.	Quantity	Value f.o.b.
	'000 tonnes	$'000	tonnes	$'000
1978–79	5.7	6,124	194	743
1979–80	11.4	11,572	218	917
1980–81	8.2	8,985	177	733
1981–82	12.8	10,596	303	1,216
1982–83	14.7	13,075	368	1,387
1983–84p	10.0	11,135	256	955

Honey levy

The *Honey Levy Acts (Nos. 1 & 2) 1962* impose a levy on domestic sales of honey. The rate of levy is set by regulation up to a maximum of 2.70c per kg provided in the legislation. From 1 October 1983 the levy was increased from 2.05c per kilo to 2.45c per kg.

The *Honey Export Charge Act (1973)*, imposes a charge on exports of honey. The current rate of charge, set by regulation, is 0.75c per kg. The legislation provides for a maximum charge of 1.5c per kg.

0.25c per kg of both the levy and charge is the industry contribution to research while the remainder is used to finance the operations of the Australian Honey Board.

Honey Exports

Honey exports in 1983–84 were well down on the record levels of 1982–83. This was due to a number of factors not the least of which was reduced production in the wet summer of 1983–84 following the breaking of the drought. In addition the levels of stocks in packers' hands at the beginning of 1983–84 was well down on previous years following an extended period of high interest rates and a greater awareness generally of the costs involved.

For further information, *see* the publication *Livestock and Livestock Products, Australia* (7221.0).

Eggs and egg products

Recorded commercial egg production in mainland Australian States (not including N.T. and A.C.T.) in 1983–84 was 192.8 million dozen. This compares with 193.5 million dozen in 1982–83 giving a fall in production of 0.33%. It is expected, however, that the fall in production in 1984–85 will be of greater magnitude as all Australian States endeavour to reach their goal of maintaining quota hen numbers at such levels as will result in production being very close to domestic needs with very little left over for export. N.S.W. is expected to show the greatest fall in production in the forthcoming year. Such action has been taken as the net returns on exports of shell eggs and egg products has been well below the cost of production in past years. The industry has adopted a five year plan to reduce the national surplus to a 3 per cent margin which should meet seasonal shortfalls and the relatively minor profitable sector of the export market by July 1987.

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 capita per year
	'000 tonnes	$ million	'000 tonnes	'000 tonnes	'000 tonnes	kg
1977–78	200.7	196.3	20.8	26.7	176.0	12.4
1978–79	195.7	196.9	16.3	20.5	180.2	12.6
1979–80	194.6	216.1	11.2	18.0	182.4	12.5
1980–81	202.4	227.4	18.9	23.2	183.3	12.4
1981–82	199.3	253.4	11.5	17.9	188.3	12.5
1982–83	204.4	275.3	9.8	18.6	191.2	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.

Egg Consumption

Egg production and consumption data are not available on an Australia wide basis but are restricted to the areas of production and sales as controlled by the mainland State Egg Boards. On the basis of State Egg Board data, 'controlled' production decreased by 0.33% in 1983–84 compared with 1982–83 while the total sales (controlled) of both shell eggs and egg products decreased from 175.3 million dozen (equivalent) in 1982–83 to 174.9 million dozen (equivalent) in 1983–84 or a fall of 0.19 per cent.

Exports

Exports from Australia are predominantly in egg pulp form—white, yolk and whole egg—with Japan retaining its place as the principal market. In 1983–84, however, nearly 6 million dozen shell eggs were shipped to Hong Kong out of a total of 17.9 million dozen exported by the Boards in all forms. Export levels are expected to fall markedly in 1984–85 as all States (N.S.W. in particular) cut back production to eliminate wherever possible the substantial losses being incurred by the industry with this trade.

EXPORTS OF EGGS AND EGG PRODUCTS

			Eggs not in shell			
	Eggs 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
1978–79	962	514	8,200	9,790	99	374
1979–80	1,364	779	5,833	5,816	74	322
1980–81	1,423	1,113	8,508	8,891	50	337
1981–82	1,143	1,095	5,013	6,400	62	219
1982–83	2,672	1,763	3,455	4,108	85	682
1983–84p	6,734	3,541	6,892	6.112	95	312

Agricultural improvements

Fertilisers

Most Australian soils are deficient in phosphorus. Because of this and the significant but less widespread deficiency of sulphur in many soils, phosphatic fertilisers, particularly single superphosphate, account for the bulk of fertiliser usage. Nitrogen deficiency is also general in Australian soils and the use of nitrogenous fertilisers is increasing. Potassium deficiency however is confined mainly to soils in the higher rainfall areas which are intensively cropped or used for irrigated pastures.

The pattern of fertiliser usage in Australia has changed dramatically in recent years. Prior to 1973-74 the usual consumption ratio of elemental N:P:K has been 2:6:1, but since then the ratio has changed to almost 3:3:1 in 1983. This variation has resulted from a combination of reduced consumption of phosphatic fertilisers with an increased consumption of nitrogenous fertilisers.

The domestic industry has sufficient manufacturing capacity to meet normal local demand for phosphatic fertilisers but not nitrogenous fertilisers. Australia is dependent on imports of potassic fertilisers, rock phosphate and sulphurs. Imports of compounded high analysis fertilisers and specialised fertilisers were insignificant until 1982-83. Since then, however, imports have been rising strongly, largely as a result of oversupply and lower prices on the world market.

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
1977–78	24,324	2,538	490	383
1978–79	25,403	2,651	485	398
1979–80	n.a.	2,969	365	620
1980–81	n.a.	2,947	392	609
1981–82	26,777	2,874	395	599
1982–83	n.a.	2,562	429	633

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)					
1977–78	11,325	469	7,827	3,960	289	24,324
1978–79	12,079	379	8,004	4,220	266	25,403
1979–80	14,703	n.a.	8,607	n.a.	262	n.a.
1980–81	13,964	n.a.	8,723	n.a.	291	n.a.
1981–82	12,240	106	9,361	4,034	301	26,043
1982–83	10,712	n.a.	9,299	n.a.	300	n.a.
	SUPERPHOSPHATE USED ('000 tonnes)					
1977–78	1,335	67	635	392	25	2,538
1978–79	1,451	55	634	410	22	2,651
1979–80	1,820	n.a.	716	n.a.	26	2,969
1980–81	1,733	n.a.	756	n.a.	32	2,947
1981–82	1,518	21	801	416	31	2,874
1982–83	1,289	n.a.	777	n.a.	27	n.a.

PRODUCTION AND IMPORTS OF FERTILISERS

Item		*1978–79*	*1979–80*	*1980–81*	*1981–82*	*1982–83*	*1983–84p*
	PRODUCTION						
Superphosphate (*a*)	'000 tonnes	3,680	4,202	3,770	3,568	2,968	2,663
Mixed chemical fertilisers (including complete manures)	'000 tonnes	993	1,050	1,277	1,092	964	n.y.a.
Leaf and foliage type fertilisers (including dry and liquid form)	tonnes	n.p.	3,758	n.p.	7,765	n.y.a.	n.y.a.
Manures (without added chemical fertilisers) (*b*)	tonnes	12,678	12,558	29,906	n.p.	n.y.a.	n.y.a.
	IMPORTS						
Crude fertilisers (mainly natural phosphate)	'000 tonnes	2,381	2,181	2,294	2,772	2,148	1,706
	Value $m	83.4	80.4	102.1	128.6	109.1	86.0
Manufactured, mineral or chemical fertilisers—							
Nitrogenous (*c*)	'000 tonnes	29	75	86	108	101	91
	Value $m	4.2	9.4	12.7	16.2	15.6	14.8
Potassic (*d*)	'000 tonnes	174	215	213	255	203	228
	Value $m	9.9	15.5	21.5	26.7	20.7	23.1
Other (*e*)	'000 tonnes	72	81	66	92	273	388
	Value $m	10.3	7.2	14.8	19.1	53.1	87.8

(*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, which was commenced in 1956, is now the responsibility of the Department of Aviation.

AERIAL AGRICULTURE

Year ended 31 March	Area treated ('000 hectares)			Materials applied ('000 tonnes)		Productive hours flown ('000 hours)
	Top dressed and seeded	Sprayed	Total(a)	Super-phosphate	Seed	
1979	3,212	2,956	6,224	374.5	5.9	101.2
1980	4,416	2,412	6,907	514.2	6.4	127.3
1981	2,727	2,054	4,850	489.5	4.6	98.7
1982	2,461	2,760	5,395	276.7	2.9	86.3
1983	1,643	1,638	3,448	193.7	3.2	62.2
1984	1,999	3,613	5.710	196.6	5.7	82.0

(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 1.6 million hectares in 1983–84) forms about 9 per cent of the total area under crops and only 0.3 per cent of the total area of agricultural establishments.

Chapter 15, *Water Resources*, contains additional details of water conservation and irrigation with international, national and interstate aspects.

CROPS AND PASTURES IRRIGATED, BY METHOD OF IRRIGATION, AUSTRALIA 1983–84p ('000 hectares)

Crops and Pastures	Method				Total
	Sprays	Furrows and/or Flood	Trickle	Other and multiple methods	
Pure Lucerne	53.6	25.9	n.a.	2.6	82.2
Other pastures (sown or native)	119.2	643.3	n.a.	26.4	789.1
Cereals for all purposes	51.7	251.6	n.a.	12.2	315.5
Vegetables for human consumption	56.0	11.6	1.9	7.3	76.9
Total fruit	33.9	33.6	25.8	4.7	98.0
All other crops	77.0	171.2	1.4	13.7	263.3
Total	**391.5**	**1,137.3**	**29.1**	**67.0**	**1,624.9**

SOURCE AND USAGE OF WATER FOR IRRIGATION, AUSTRALIA

Irrigation— area irrigated, by source 1983–84p(b)			Estimated annual water use in 1977(a)			
			Irrigation	Rural (excl irrigation)	Urban industrial	Total
	('000 ha)	percentage of total area irrigated %	—million cubic metres—			
Surface water—						
State irrigation schemes	915.6	56				
Rivers, creeks, lakes	368.3	22		n.a.		
Farm dams	107.7	7				
Total surface water	1,391.6	86	11,554	742	2,493	14,789
Town or country reticulated(c)	9.9	1	..	..	..	..
Underground (ground water)	226.1	14	1,639	337	480	2,486
Total, all sources	**1,627.6**	**100**	**13,256**	**1,348**	**3,187**	**17,774**

(a) Estimated for an average climatic year; data source is the first *National Survey of Water Use in Australia*, Department of National Development and Energy and Australian Water Resources Council, Occasional Papers Series No. 1, AGPS, 1981. The data in the original are shown by drainage division and provide a sound basis for the efficient utilisation of existing resources and for the planning of future projects. (b) Data source is the annual Agricultural Census and represents area actually irrigated. Total area will therefore agree with that shown in the table on crops and pastures irrigated by method of irrigation. (c) This source represents irrigation water which has come from either surface or underground sources.

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 *Agricultural Land Use, Improvements and Labour, Australia*, 1980–81 (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.

EMPLOYED PERSONS IN AGRICULTURE AND SERVICES TO AGRICULTURE ('000)

Month of August	*Males*	*Married females*	*All females*	*Persons*
1979	293.8	69.8	81.7	375.5
1980	285.1	77.5	93.4	378.5
1981	281.9	87.1	104.6	386.5
1982	281.7	87.1	101.0	382.7
1983	290.2	80.2	94.1	384.2
1984	279.3	80.0	93.8	373.1

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.

Readers, however, are referred to the latest edition of *Rural Industry Information Papers* prepared annually by the Department of Primary Industry and published by the Australian Government Publishing Service. The *Papers* contain up-to-date information on production and market prospects for Australia's primary industries together with details of Government assistance measures.

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