

CHAPTER 21

RURAL INDUSTRY

This chapter is divided into four major parts:

Introduction, dealing with the disposal of Crown lands, closer settlement and war service settlement and general rural activity in Australia;

Agricultural production;

Pastoral production; and

Other rural industries, which includes the dairying, poultry and bee industries.

For greater detail on the subjects dealt with in this chapter see the annual bulletins *Rural Industries, Value of Production*, and *Manufacturing Commodities* (regarding butter, cheese, etc., factories) issued by this Bureau. Current information on commodities produced is obtainable in the *Quarterly Summary of Australian Statistics*, *Monthly Review of Business Statistics*, *Monthly Bulletin of Production Statistics*, and *Digest of Current Economic Statistics* (monthly). The series of bulletins *Classification of Rural Holdings by Size and Type of Activity* (see page 819) shows particulars of rural holdings classified by size, nature and area of crops, and numbers of livestock, and also according to main type of activity. The mimeographed annual *Report on Food Production and the Apparent Consumption of Foodstuffs and Nutrients in Australia* contains details of the production and utilisation of foodstuffs. The following mimeographed publications also contain considerable detail on the particular subjects dealt with.

General. *Value of Production and Indexes of Price and Quantum of Farm Production* (annual), *Value of Primary Production (Preliminary Statement)* (annual), *Value of Primary Production (Preliminary Estimates)* (annual), *Farm Machinery on Rural Holdings* (annual), *Tractors on Rural Holdings, 31 March 1966* (detailed information, triennial), *Grain and Seed Harvesters on Rural Holdings, 31 March 1967* (detailed information, triennial), *New Tractors: Receipts, Sales and Stocks* (quarterly), and *New Agricultural Machinery* (quarterly).

Agricultural production. *Rural Land Use and Crop Production* (annual), *Agricultural Statistics (Preliminary Statement)* (annual), *The Wheat Industry* (two a year), *The Fruit Growing Industry* (annual), and *Fruit Statistics (Preliminary Statement)* (annual).

Pastoral production. *Livestock Statistics* (annual), *Livestock Numbers* (annual), *The Meat Industry* (monthly), *Wool Production* (annual), and *Wool Production and Utilisation* (annual).

Other rural production. *The Dairying Industry* (monthly and half-yearly), *Livestock Statistics* (annual), *Livestock Numbers* (annual), *Chicken Hatchings and Poultry Slaughterings* (monthly), *Manufacturing Industries No. 20—Bacon Curing and No. 21—Butter, Cheese and Condensed, Concentrated, etc., Milk* (annual), *Production Summaries No. 36—Preserved Milk Products and No. 55.—Butter and Cheese* (monthly), and *Bee-farming* (annual).

Detailed particulars of the early development of various aspects of Australian rural industry are given in previous issues of the Year Book up to No. 53 (see, for example No. 53, pages 885, 888, 891–2).

Throughout this chapter yearly periods for area and production of crops relate to years ended 31 March. Other periods in respect of e.g. factory and trade statistics relate to years ended 30 June.

INTRODUCTION

Disposal of Crown lands

Land legislation and tenures

The following sections contain figures showing the extent of the different land tenures in the several States and Territories, classified under broad headings indicating the nature of the tenure, together with some general descriptive matter. Information in greater detail, descriptions of the land tenure systems of the several States and the internal Territories, and conspectuses of land legislation in force and of the systems of land tenure were provided in Year Book No. 48 and previous issues (see also Year Book No. 50, page 85 and List of Special Articles, etc. preceding General Index to this Volume).

Free grants and reservations

Provision exists in all States except Tasmania for the disposal of Crown lands for public purposes by free grants, and in all States for the temporary and or permanent reservation of Crown lands for public purposes. In the Northern Territory any Crown lands not subject to any right of, or contract for, purchase may be resumed for public purposes, and the whole or any portion of the lands resumed may be reserved for that purpose. In the Australian Capital Territory, under the *Seat of Government (Administration) Act 1910*, Crown lands may not be sold or disposed of for any estate in freehold except in pursuance of some contract entered into before the commencement of the Act.

AREAS OF CROWN LANDS RESERVED: STATES AND TERRITORIES, 1964 TO 1968 (^{'000} acres)

Year	N.S.W. (a)	Vic. (b)	Qld (b)	S.A. (a)	W.A. (a)	Tas. (a)	N.T. (a)	Total (c)
1964 . . .	15,931	8,847	25,234	22,764	76,450	4,852	60,903	214,981
1965 . . .	15,943	8,861	25,451	22,802	78,088	4,861	60,903	216,909
1966 . . .	15,937	8,874	25,662	22,878	78,226	4,913	60,922	217,412
1967 . . .	15,875	8,921	27,240	22,878	80,491	4,938	60,974	221,317
1968 . . .	15,872	8,952	27,833	22,919	80,658	5,327	60,988	222,549

(a) At 30 June.

(b) At 31 December.

(c) Excludes the Australian Capital Territory.

The purposes for which areas were reserved are given hereunder for the latest years available as set out in the table above.

New South Wales. For travelling stock, 4,941,904 acres; forest reserves, 1,490,014 acres; water and camping reserves, 768,098 acres; mining reserves, 1,027,414 acres; recreation and parks, 730,318 acres; other reserves, 6,913,841 acres; total, 15,871,589 acres.

Victoria. For roads, 1,707,565 acres; water reserves, 315,494 acres; forest and timber reserves, 5,818,285 acres; mallee reserves, 410,000 acres; other reserves, 701,121 acres; total, 8,952,465 acres.

Queensland. For timber reserves, 1,775,192 acres; State forests and national parks 9,482,138 acres; Aboriginal reserves, 6,978,443 acres; streets, surveyed roads and stock routes, 4,195,343 acres; general reserves, 5,401,386 acres; total, 27,832,502 acres.

South Australia. Total area of surveyed roads, railways and other reserves, 22,919,170 acres, including 18,833,822 acres set apart as Aboriginal reserves.

Western Australia. For State forests, 4,451,351 acres; timber reserves, 1,864,637 acres; other reserves 74,341,945 acres; total, 80,657,933 acres.

Tasmania. For forest reserves, 4,304,000 acres; national parks, 1,023,000 acres; total, 5,327,000 acres.

Northern Territory. For Aboriginal, defence and public requirements, 60,988,000 acres.

Conditional and unconditional purchases of freehold

Crown lands in the States may be disposed of by unconditional purchase at public auction or by certain other forms of purchase (for details *see* Year Book No. 48, pages 91-2). Conditional purchases of various types may also be made. In the Northern Territory only 0.1 per cent of the total area is alienated, the remainder being held under lease or licence, or reserved for various purposes or unoccupied. In the Australian Capital Territory about 16 per cent of the area is alienated or in process of alienation in consequence of contracts existing prior to the establishment of the Territory.

Leases and licences

Well over half the area of the States of New South Wales and South Australia and of the Northern Territory and more than four-fifths of that of Queensland are occupied under some form of lease or licence. In Victoria, only about one-tenth of the area is leased or licensed, more than half being alienated; in Western Australia, more than one-third is leased or licensed, most of the remainder being unoccupied; in Tasmania about one-quarter is leased or licensed, while about one-third of the area of the State is occupied by the Crown or unoccupied, and the remainder alienated. Areas leased or licensed in the States are held under Crown lands Acts, closer settlement Acts, mining Acts, etc., and in the Territories under various Ordinances.

Land Acts and Ordinances. The types of lease and licence which obtain under land legislation cover a wide range, and vary with each State or Territory. The following are examples: grazing or pastoral, settlement and closer settlement, settlement purchase, conditional and unconditional purchase, perpetual and Crown; however, the variations of these forms and the special forms of lease and licence

which exist would extend this list considerably. Details of the various types in existence are given in Year Book No. 48, pages 93-4, and some detail is included in the tables on pages 878-81 of Year Book No. 53.

AREAS OCCUPIED UNDER LEASE OR LICENCE OTHER THAN MINING AND FORESTRY: STATES AND TERRITORIES, 1964 TO 1968
(*000 acres)

Year	N.S.W. (a)	Vic. (b)	Qld (b)	S.A. (a)	W.A. (a)	Tas. (a)	N.T. (a) (c)	A.C.T. (a) (c)	Total
1964	111,386	6,147	367,209	146,382	242,309	1,062	191,436	285	1,066,216
1965	111,567	6,263	365,318	147,661	241,911	984	191,840	282	1,065,826
1966	111,262	6,269	362,866	150,422	241,662	933	190,688	279	1,064,381
1967	111,300	5,993	359,152	149,192	244,715	915	194,543	262	1,066,072
1968	110,499	(d)5,856	353,163	149,530	244,804	766	191,595	254	1,056,467

(a) Year ended 30 June. (b) Year ended 31 December. (c) Leases and licences for all purposes. (d) Includes 75,000 acres of reserved Crown lands held under grazing licences.

Closer settlement and war service settlement

Closer settlement

Particulars of the methods of acquisition and disposal of land for the closer settlement of civilians and returned service personnel (1914-18 War) in the several States are given in issues of the Year Book up to No. 22 (see No. 22, pages 163-9), and the results of the operations of the several schemes have appeared in subsequent issues in considerable detail. However, the amalgamation in some States of closer settlement records with those of other authorities has since made it impossible to obtain up-to-date figures for those States and for Australia as a whole. Page 96 of Year Book No. 48 contains particulars as at 30 June 1960 of the areas and costs for those States for which separate information is available.

War Service Land Settlement Scheme

The War Service Land Settlement Scheme provides for the settlement on the land of eligible servicemen from the 1939-45 War and the Korea-Malaya operations. Finance for capital expenditure under the scheme in South Australia, Western Australia and Tasmania and for special loans to New South Wales and Victoria is provided through Loan (War Service Land Settlement) Acts. Finance for other aspects of the scheme in all States is provided by annual parliamentary appropriation. The *States Grants (War Service Land Settlement) Act 1952* provides that the responsible Commonwealth Minister may make grants of financial assistance to the States under such terms as he may from time to time determine.

New South Wales, Victoria and Queensland agreed, at the inception of the scheme, to find their own finance for the acquisition and development of properties. In 1954 Queensland abandoned the scheme and made available for general settlement all unallotted lands held under it. Detailed information about the agreements and the methods of operation and administration of the scheme are contained in earlier Year Books (see List of Special Articles, etc., preceding General Index to this volume).

WAR SERVICE LAND SETTLEMENT: SUMMARY, STATES, TO 30 JUNE 1968

State	Land acquired		Farms allotted		Farms in course of development		Other
	acres	No.	acres	No.	acres	acres	
New South Wales	9,094,021	3,047	9,094,021	..	..	..
Victoria	1,181,599	3,048	1,181,599	..	..	..
Queensland	398,524	470	218,640	..	..	(a)179,884
South Australia	755,873	1,021	690,225	..	..	(b)65,648
Western Australia	2,053,972	1,010	1,905,475	..	..	(b)148,497
Tasmania	449,629	552	439,745	..	..	(b)9,884
Total	13,933,618	9,148	13,529,705	..	..	403,913

(a) War Service Land Settlement was discontinued in 1954, and unallotted lands were made available for general settlement. (b) Includes land disposed of outside the scheme and discrepancies to be corrected upon survey.

Particulars of expenditure on war service land settlement are given in Chapter 19, Public Finance (see pages 716-7).

Alienation and occupation of Crown lands

Detailed particulars of the alienation and occupation of Crown lands in the several States and Territories are given in previous issues of the Year Book up to No. 53 (*see* No. 53, pages 878-81).

The following table provides a summary for each State and Territory, and for Australia as a whole, of the alienation and occupation of Crown lands in 1968.

ALIENATION AND OCCUPATION OF CROWN LANDS: STATES AND TERRITORIES, 1968

State or Territory	Private lands				Crown lands				Total area '000 acres
	Alienated		In process of alienation		Leased or licensed		Other (a)		
	'000 acres	Per cent	'000 acres	Per cent	'000 acres	Per cent	'000 acres	Per cent	
N.S.W.(b)	61,700	31.2	4,805	2.4	112,299	56.7	19,233	9.7	198,037
Vic.(c)	32,156	57.2	2,140	3.8	5,781	10.3	16,168	28.7	56,246
Qld(d)	26,793	6.3	19,620	4.6	355,780	83.3	24,687	5.8	426,880
S.A.(b)	15,942	6.6	310	0.1	149,530	61.5	77,463	31.8	243,245
W.A.(b)	32,608	5.2	15,435	2.5	249,133	39.9	327,413	52.4	624,589
Tas.(b)	6,651	39.4	229	1.4	4,292	25.4	5,713	33.8	16,885
N.T.(b)	319	0.1	..	..	191,595	57.5	141,065	42.4	332,979
A.C.T.(b)(e)	89	14.8	9	1.4	254	42.3	249	41.5	601
Australia	176,258	9.3	42,548	2.2	1,068,664	56.3	611,991	32.2	1,899,462

(a) Occupied by Crown; reserved; unoccupied; unreserved.
(d) At 31 December 1968.

(b) At 30 June

(c) At 31 December 1967.

(e) Includes Jervis Bay area.

Number and area of rural holdings

Number and area

A holding in Australia has been defined by statisticians on a more or less uniform basis, and discrepancies which exist are not of sufficient importance to prevent comparisons. For the purpose of these statistics a holding has been defined as land of one acre or more in extent used in the production of agricultural produce or for the raising of livestock and the production of livestock products.

There are considerable fluctuations from time to time in the numbers of very small holdings, and it is very difficult to determine in some cases whether or not they are rural holdings within the definition. In addition, in the very dry parts, such as the far west of New South Wales and Queensland and the remoter parts of South Australia and Western Australia, there are large areas of marginal lands sporadically occupied for extensive grazing under short-term lease or other arrangement, and the areas so occupied tend to fluctuate with the seasons. Similarly, there are rugged areas in the mountain country of some States which are also occasionally occupied.

RURAL HOLDINGS: NUMBER AND AREA, STATES AND TERRITORIES, 1963-64 TO 1967-68

Year	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
NUMBER OF RURAL HOLDINGS									
1963-64	77,339	69,775	43,183	28,711	22,770	10,949	299	214	253,240
1964-65	77,098	69,737	43,565	28,754	22,856	10,979	307	207	253,503
1965-66	76,152	69,199	43,914	28,759	22,853	10,777	305	203	252,162
1966-67	76,251	68,466	43,858	28,957	23,181	10,641	304	200	251,858
1967-68	76,225	(a)72,802	43,694	29,058	23,116	10,631	305	196(b)	256,027
TOTAL AREA OF RURAL HOLDINGS (⁰ 000 acres)									
1963-64	172,076	37,798	376,687	158,905	266,556	6,377	165,734	373	1,184,506
1964-65	172,148	37,844	377,010	156,955	268,553	6,420	171,482	358	1,190,770
1965-66	171,200	37,844	380,325	159,394	270,054	6,496	175,862	355	1,201,531
1966-67	171,652	38,653	379,977	161,510	274,765	6,507	170,018	350	1,203,431
1967-68	171,767	(a)39,564	380,993	160,765	275,334	6,579	174,385	350(b)	1,209,737

(a) New Series. The lists of land holdings used in the collection of agricultural and pastoral statistics in Victoria have been reconciled with lists of rateable land of one acre or more in extent as recorded by municipalities for rating purposes. This has resulted in an increase in number and area of holdings in the 1967-68 collection.

(b) See footnote (a).

Land utilisation of rural holdings

The following table shows the purposes for which the land on the rural holdings referred to in the preceding paragraph was used.

RURAL HOLDINGS: LAND UTILISATION, 1963-64 TO 1967-68
(’000 acres)

Year	Area used for crops (a)	Land lying fallow(b)	Area under sown grasses and clovers(c)	Balance of holdings (d)	Total area of holdings
1967-68—					
New South Wales	12,845	2,865	10,475	145,582	171,767
Victoria(e)	5,641	2,647	16,725	14,552	39,564
Queensland	4,777	843	4,655	370,718	380,993
South Australia	6,319	1,063	5,999	147,384	160,765
Western Australia	8,883	1,846	14,528	250,078	275,334
Tasmania	257	77	1,842	4,403	6,579
Northern Territory	6	..	68	174,311	174,385
Australian Capital Territory	7	1	82	259	350
Australia	38,735	9,340	54,374	1,107,287	1,209,737
1966-67	37,087	9,784	51,471	1,105,090	1,203,431
1965-66	32,798	10,471	48,519	1,109,742	1,201,531
1964-65	32,251	8,466	47,159	1,102,894	1,190,770
1963-64	29,948	8,510	44,211	1,101,837	1,184,506

(a) Excludes (i) duplication on account of area double cropped, except for New South Wales and South Australia, and (ii) clovers and grasses cut for hay and seed which have been included in Area under sown grasses and clovers, and differs therefore from crop area figures shown later in this chapter. (b) Excludes short or summer fallow. (c) Includes paspalum. (d) Used for grazing, lying idle, etc. (e) See footnote (a) to previous table.

Classification by size and type of activity

Some of the information obtained from the 1965-66 Agricultural and Pastoral Census has been classified by size of principal characteristics (area of holdings, area of sown grasses and clovers, area of selected crops, and numbers of livestock). In addition, all holdings have been classified according to type of activity. Tables showing this information, for statistical divisions and States, and an outline of the methods used have been published in a series of bulletins *Classification of Rural Holdings by Size and Type of Activity, 1965-66*. Similar information was published in a series of bulletins for the year 1959-60. A size classification for each State is available for the year 1955-56.

Employment on rural holdings**Persons engaged**

The following table shows, for each State and Territory, the recorded number of males working on rural holdings. Particulars for females are not available except for New South Wales and Victoria. Additional particulars relating to the number of males employed in agriculture up to 1941-42 are shown in Year Book No. 36, page 852, and previous issues. Similar details for later years are not available.

MALES(a) ENGAGED ON RURAL HOLDINGS: STATES AND TERRITORIES, 31 MARCH 1968

Males engaged	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Permanent—									
Owners, lessees or share-farmers	62,791	58,171	44,909	21,737	19,132	7,158	337	110	214,345
Relatives of owner, lessee or share-farmer, over 14 years of age, not receiving wages or salary	2,200	4,365	2,567	419	1,206	..	57	11	10,825
Employees, including managers and relatives working for wages or salary	27,802	14,518	17,266	7,568	9,332	4,051	1,183	162	81,882
Total permanent males	92,793	77,054	64,742	29,724	29,670	11,209	1,577	283	307,052
Temporary	22,296	16,393	13,943	9,862	(b)	4,621	486	22	(b)
Total males	115,089	93,447	78,685	39,586	(b)	15,830	2,063	305	(b)

(a) Details for females not available except for New South Wales and Victoria. (b) Not available for publication.

Information regarding the number of persons (males and females) working full-time on rural holdings in Australia at 31 March of years to 1958 appears in Year Book No. 50, page 987, and in earlier Year Books. Data for subsequent years are the subject of investigation and are not available at this stage.

Salaries and wages paid

Particulars of salaries and wages paid to employees (including amounts paid to contractors) working full-time on rural holdings are shown below for the year 1967-68. Data for New South Wales, and hence Australia, are not available.

EMPLOYEES ON RURAL HOLDINGS: SALARIES AND WAGES PAID(a)
STATES AND TERRITORIES, 1967-68
(\$'000)

Employees	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Males and females—									
Permanent	(b) {	29,699	37,725	15,410	20,036	8,530	2,510	348	n.a.
Temporary(c)		26,170	48,201	12,499	18,251	5,397	421	126	
Total		55,870	85,926	27,909	38,287	13,927	2,931	474	

(a) Includes value of keep. (b) Not available; subject to investigation. (c) Includes amounts paid to contractors.

Similar information for Australia for years up to 1957-58 is given in Year Book No. 50, page 988, and in earlier Year Books. Particulars for subsequent years are the subject of investigation and are not available at this stage.

Persons residing permanently on holdings

Particulars of persons (of all ages) residing permanently on rural holdings in each State and Territory at 31 March 1968, and throughout Australia for a series of years, are as follows.

PERSONS (OF ALL AGES) RESIDING PERMANENTLY ON RURAL HOLDINGS
STATES AND TERRITORIES, 31 MARCH 1968

	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.(a)	A.C.T.	Aust.
Males	153,514	137,749	100,591	56,992	49,956	23,466	2,977	509	525,754
Females	133,497	122,639	83,569	50,411	41,336	21,164	2,030	404	455,050
Total	287,011	260,388	184,160	107,403	91,292	44,630	5,007	913	980,804

(a) Includes Aborigines.

PERSONS (OF ALL AGES) RESIDING PERMANENTLY ON RURAL HOLDINGS
AUSTRALIA, 31 MARCH 1964 TO 1968

	31 March—				
	1964	1965	1966	1967	1968
Males	541,394	538,496	533,039	529,378	525,754
Females	465,990	464,416	461,683	457,507	455,050
Total	1,007,384	1,002,912	994,722	986,885	980,804

Farm machinery on rural holdings

The tables following show data for the principal types of farm machinery on rural holdings in the several States and Territories at 31 March 1968 and throughout Australia for a series of years. A more detailed analysis of tractors on rural holdings according to horse-power, type of fuel used, and age of tractor has been published in the Statistical Bulletin *Tractors on Rural Holdings—Australia*, 31 March 1966. Details of grain and seed harvesters on rural holdings at 31 March 1967, classified according to type of propulsion, width of cut, age and type of front have been published in the statistical bulletin: *Grain and Seed Harvesters on Rural Holdings, 31 March 1967*.

FARM MACHINERY ON RURAL HOLDINGS: STATES AND TERRITORIES, 31 MARCH 1968

Machinery	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Cultivating—									
Rotary hoes and rotary tillers—									
Self-contained power unit	9,157	8,016	3,153	3,718	1,793	1,284	53	n.a.	(a)27,174
Tractor-mounted or trailing type	6,946	5,096	3,940	1,879	1,517	927	28		(a)20,333
Seeding and planting—									
Grain drills—									
Combine type	28,621	20,380	13,937	15,665	13,942	1,426	59	64	94,094
Other types	5,911	9,187	2,423	5,240	4,315	2,518	10	30	29,634
Maize and cotton planters	7,307	750	5,676	..	73	..	16	4	13,826
Fertiliser distributors and broadcasters	23,836	30,560	15,454	9,710	10,086	6,060	42	105	95,853
Harvesting—									
Grain and seed headers and harvesters (b)									
Self-propelled	4,321	1,561	2,773	1,864	1,325	109	n.a.	{ (c)	(a)11,953
Tractor drawn	16,776	12,995	5,126	10,041	10,341	617			{ (d)33	(a)55,929
Agricultural mowers—									
Reciprocating types—									
Power-driven	20,286	29,559	8,036	9,726	7,327	5,134	47	87	80,202
Ground-drive	1,497	2,398	2,779	962	416	664	13	8	8,737
Rotary types	7,503	8,969	6,927	1,626	2,276	1,197	51	35	28,584
Hay rakes—									
Side delivery	13,510	17,088	4,984	6,382	4,945	2,543	37	51	49,540
Buck	2,308	4,155	2,896	1,107	314	983	7	10	11,780
Dump	3,158	3,433	5,835	1,103	684	848	5	11	15,077
Pick-up balers	11,245	13,173	2,978	4,992	3,845	1,903	24	51	38,211
Potato diggers	1,608	2,541	1,167	721	455	958	..	n.a.	(a)7,450
Forage harvesters	2,519	1,951	1,330	845	558	317	15	10	7,545
Peanut pickers	n.a.	..	428	..	..	..	13	..	(a)441
Corn pickers	315	78	832	..	..	..	..	..	1,225
Other—									
Shearing machines (number of stands)	73,434	43,596	18,791	29,786	24,799	4,824	15	297	195,542
Milking machines (number of units)	40,862	109,137	38,208	18,399	9,317	16,968	40	91	233,022
Tractors (wheel and crawler)(e)	86,999	81,766	70,249	36,590	35,158	12,664	345	211	323,982
Hammer mills	7,927	5,922	8,035	2,771	1,921	635	..	n.a.	(a)27,211

(a) Incomplete. (b) Excludes reapers, binders, specialised clover harvesters and forage harvesters. (c) Included with tractor drawn types. (d) All types. (e) See text above.

FARM MACHINERY ON RURAL HOLDINGS: AUSTRALIA
31 MARCH 1964 TO 1968

Machinery	31 March—				
	1964	1965	1966	1967	1968
Cultivating—					
Mouldboard ploughs(a)—					
Trailing type	60,506			46,450	
Tractor-mounted type	41,722			42,219	
Disc implements (including disc ploughs, disc cultivators, disc tillers and disc harrows)(a)—					
Trailing type	156,143			136,649	
Tractor-mounted type	73,675			71,601	
Tyne implements(a)—		n.a.	n.a.		n.a.
Chisel ploughs, scarifiers, cultivators and rippers—					
Trailing type	98,180			97,146	
Tractor-mounted type	77,748			93,862	
Tyne harrows (number of leaves)—					
Trailing type	448,626			464,084	
Tractor-mounted type	62,720			93,615	
Rotary hoes and rotary tillers—					
Self-contained power unit				27,788	27,174
Tractor-mounted or trailing type } (b)37,561	(b)40,195	45,267	17,881	20,333	
Seeding and planting—					
Grain drills—					
Combine type		90,008	90,866	92,530	94,094
Other types	117,271	30,537	30,401	29,605	29,634
Maize and cotton planters	(c)14,635	15,220	14,523	14,260	13,826
Fertiliser distributors and broadcasters	84,320	86,653	86,409	93,064	95,853
Harvesting—					
Grain and seed headers and harvesters—					
Self-propelled				10,273	11,953
Tractor drawn	64,697	65,568	64,744	54,644	55,929
Agricultural mowers(a)—					
Reciprocating types—					
Power-driven		81,410			80,202
Ground-drive	n.a.	17,153	n.a.	n.a.	8,737
Rotary types		n.a.			28,584
Hay rakes(a)—					
Side delivery		42,832			49,540
Buck	n.a.	11,917	n.a.	n.a.	11,780
Dump		16,564			15,077
Pick-up balers	30,411	32,278	34,229	36,688	38,211
Potato diggers(a)	n.a.	6,613	n.a.	n.a.	7,450
Forage harvesters	5,509	5,676	6,385	7,214	7,545
Peanut pickers	n.a.	315	371	396	441
Corn pickers(a)	n.a.	1,246	n.a.	n.a.	1,225
Other—					
Shearing machines (number of stands)	180,370	186,393	188,496	193,226	195,542
Milking machines (number of units)	229,042	231,389	233,625	235,325	233,022
Tractors—					
Wheel			278,118	314,670	323,982
Crawler	283,748	295,502	22,741		
Hammer mills(a)	n.a.	22,128	n.a.	n.a.	27,211

(a) Details for all States are collected at triennial intervals only. (b) Incomplete; excludes tractor-drawn rotary hoes and rotary tillers in Queensland. (c) Incomplete; particulars for Victoria not available.

The soils of Australia

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

Soil improvement and conservation

Fertilisers

The Australian output of prepared fertilisers is derived chiefly from imported rock phosphate. Complete information regarding local production of fertilisers is not available. The number of firms engaged in the manufacture of chemical fertilisers in Australia for the year 1967-68 was 48 made up as follows: New South Wales, 13; Victoria, 6; Queensland, 4; South Australia, 10; Western Australia, 9; and Tasmania, 6. The production of superphosphate in Australia during 1967-68 amounted to 3,935,000 tons.

Information regarding the area treated with artificial fertilisers and the quantity of artificial fertilisers (superphosphate, bonedust, nitrates, etc.) used in each State during the 1967-68 season is given in the following table.

AREA FERTILISED AND QUANTITY OF ARTIFICIAL FERTILISERS USED
STATES AND TERRITORIES, 1967-68

State or Territory	Crops			Pastures			Total		
	Area fertilised	Super-phosphate used	Other artificial fertilisers used	Area fertilised	Super-phosphate used	Other artificial fertilisers used	Area fertilised	Super-phosphate used	Other artificial fertilisers used
	'000 acres	tons	tons	'000 acres	tons	tons	'000 acres	tons	tons
New South Wales	7,555	275,976	77,066	9,697	514,444	25,983	17,252	790,420	103,049
Victoria	4,961	225,085	63,661	11,359	680,231	99,629	16,319	905,315	163,290
Queensland	1,242	34,635	198,766	260	24,324	5,734	1,502	58,960	204,500
South Australia	5,033	272,964	19,436	5,130	302,513	4,964	10,163	575,477	24,400
Western Australia	8,868	472,304	53,650	12,597	676,535	17,479	21,465	1,148,839	71,129
Tasmania	244	24,945	12,263	1,561	126,813	8,175	1,805	151,757	20,438
Northern Territory	14	1,097	568	47	2,883	81	60	3,980	649
Australian Capital Territory	6	326	94	44	2,256	19	50	2,582	113
Australia	27,922	1,307,332	425,504	40,693	2,329,999	162,064	68,615	3,637,330	587,568

Particulars of the quantity of artificial fertilisers used in each State and Territory during each of the seasons 1963-64 to 1967-68 are shown in the next table. These details include the quantity used for the top-dressing of pasture lands.

QUANTITY OF ARTIFICIAL FERTILISERS USED: STATES AND TERRITORIES
1963-64 TO 1967-68
(Tons)

Year	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
1963-64	683,968	880,941	183,326	465,583	720,943	141,507	305	5,213	3,081,786
1964-65	837,959	988,106	198,696	528,827	844,455	142,660	307	5,225	3,546,235
1965-66	839,955	1,054,393	214,487	561,962	972,432	163,925	672	3,777	3,811,603
1966-67	864,569	1,113,392	242,615	598,808	1,096,555	169,756	681	3,393	4,089,769
1967-68	893,469	1,068,605	263,460	599,877	1,219,968	172,195	4,629	2,695	4,224,898

The chief sources of Australia's supplies of natural phosphate are Nauru, Christmas Island (Indian Ocean) and the United States of America. Sodium nitrate is obtained chiefly from Chile.

ARTIFICIAL FERTILISERS: IMPORTS INTO AUSTRALIA, 1963-64 TO 1967-68

<i>Fertiliser</i>	1963-64	1964-65	1965-66	1966-67	1967-68
QUANTITY (⁰⁰⁰ cwt)					
Ammonium fertilisers	2,533	1,565	1,311	1,973	2,893
Potassium fertilisers	1,935	2,180	2,163	2,398	2,602
Natural phosphate	39,788	50,346	55,901	65,436	65,916
Sodium nitrate	193	221	153	99	161
Other	337	746	335	885	887
Total	44,786	55,058	59,862	70,791	72,458
VALUE (⁰⁰⁰ f.o.b.)					
Ammonium fertilisers	3,934	3,132	2,841	4,161	5,016
Potassium fertilisers	2,856	3,441	3,550	3,875	3,770
Natural phosphate	12,486	17,978	21,543	29,050	32,162
Sodium nitrate	478	443	393	249	390
Other	1,092	2,532	1,181	2,698	3,219
Total	20,846	27,526	29,508	40,033	44,557

Exports of fertilisers (manufactured locally) amounted to 32,000 cwt valued at \$166,000 in 1967-68 compared with 20,000 cwt valued at \$93,000 in 1966-67.

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.

For 1956-57 (the first year for which data are available) the total area treated was 1,466,000 acres; in 1967-68 the total was 14,348,000 acres. The following table shows details of area treated and materials used for each State for the five years ended 31 March 1968.

AERIAL AGRICULTURE, 1963-64 TO 1967-68

<i>Year ended 31 March</i>	<i>Area</i>		<i>Total area treated (a)</i>	<i>Materials used</i>		<i>Total flying time</i>
	<i>topdressed and seeded</i>	<i>Area sprayed</i>		<i>Super-phosphate</i>	<i>Seed</i>	
1968—	⁰⁰⁰ acres	⁰⁰⁰ acres	⁰⁰⁰ acres	tons	⁰⁰⁰ lb	hours
New South Wales(b)	6,418	990	7,716	308,786	(c)	53,241
Victoria	(c)	266	1,803	(c)	310	15,124
Queensland(d)	(c)	(c)	1,030	15,741	626	(c)
South Australia	(c)	237	(c)	(c)	217	5,609
Western Australia	(c)	(c)	(c)	46,826	201	15,072
Tasmania	(c)	(c)	(c)	(c)	(c)	(c)
Australia	10,495	(c)	14,348	524,374	3,249	102,112
1967	11,646	3,192	15,237	596,628	2,407	108,688
1966	11,314	3,469	15,010	588,045	1,581	108,850
1965	14,147	2,416	16,640	656,094	3,467	108,753
1964	10,666	2,041	12,788	505,811	1,997	84,827

(a) Includes other types of treatment (rabbit baiting, etc.). (b) Includes details for the Australian Capital Territory.
(c) Not available for publication. (d) Includes details for the Northern Territory.

Pasture improvement

An article on pasture improvement, which includes notes on indigenous and introduced species of grasses and which traces the development of pasture research in Australia, appears on pages 1001-2 of Year Book No. 49.

Soil conservation

Year Book No. 49 contains an article (pages 1003-4) on soil conservation which deals with the following matters: land use and soil erosion, agents of erosion, prevention and control, and the activities of various Commonwealth and State authorities which promote and co-ordinate research into the problems of soil erosion and the initiation of preventive measures.

AGRICULTURAL PRODUCTION

In general, statistics in this chapter relating to agricultural production are derived from 'census' returns supplied by approximately 256,000 farmers who utilise one acre or more of land for agricultural or pastoral purposes. The latest figures available are those for the year 1967-68. The returns are collected on a substantially uniform basis in all States at 31 March each year, and relate mainly to crops sown in the previous twelve months. Where harvests are not completed by March (e.g. potatoes), provision is made in some States for a special collection after the harvest is completed and in others for the inclusion of the total estimated yield expected from the complete harvest. In cases where additional data are available from marketing authorities or other sources these are used in conjunction with the 'census' returns. The statistics published in this section are therefore shown in 'agricultural' years. For most purposes there will be little error involved in considering them as applying to years ended 30 June.

For more detailed information on period covered and details of the weights and measures used in recording production of agricultural commodities see introductory notes to the bulletin *Rural Industries*. Details of weights and measures are also included after the Contents of this Year Book.

Progress, assistance and control

Progress of cultivation

The following table shows the area of crops in each of the States and Territories of Australia at ten-yearly intervals since 1860-61 and during each of the ten seasons 1958-59 to 1967-68. Plate 40 in this chapter shows the area of crops in Australia from 1900-01 onward (page 828).

AREA OF CROPS: STATES AND TERRITORIES, 1860-61 TO 1967-68
(^{'000 acres})

Year	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
1860-61	246	387	4	359	25	153	..	..	1,174
1870-71	385	693	52	802	55	157	..	..	2,144
1880-81	606	1,549	114	2,087	64	141	..	..	4,561
1890-91	853	2,032	225	2,093	70	157	..	..	5,430
1900-01	2,447	3,114	458	2,370	201	224	..	..	8,814
1910-11	3,386	3,952	667	2,747	855	287	..	..	11,894
1920-21	4,465	4,490	780	3,231	1,805	297	..	2	15,070
1930-31	6,811	6,716	1,144	5,426	4,792	268	2	5	25,164
1940-41	6,375	4,467	1,734	4,255	4,027	254	..	6	21,118
1950-51	4,761	4,537	2,077	3,812	4,650	290	n.a.	6	20,133
1958-59	6,820	5,040	2,852	4,436	6,135	339	1	8	25,631
1959-60	7,137	4,817	2,926	4,400	6,495	322	1	7	26,105
1960-61	8,044	5,838	3,057	5,399	6,871	357	2	8	29,576
1961-62	8,288	5,626	3,216	5,024	7,112	364	2	7	29,639
1962-63	8,903	6,318	3,490	5,495	7,482	395	2	7	32,092
1963-64	8,997	6,102	3,665	5,975	6,915	380	3	8	32,045
1964-65	10,334	6,477	3,967	5,965	7,505	404	4	9	34,665
1965-66	9,052	6,219	4,119	6,030	8,680	386	4	8	34,498
1966-67	12,421	6,765	4,605	6,488	8,817	444	4	10	39,553
1967-68	12,985	6,250	4,928	6,434	9,138	423	6	7	40,171

The Australian Agricultural Council

The influence of governmental and semi-governmental authorities on Australian rural industry is most apparent in the fields of guaranteed prices, subsidies and controlled marketing. Many of these aspects of intervention at the national level take place indirectly through the Australian Agricultural Council. This is a permanent organisation which was formed following a conference of Commonwealth and State Ministers on agricultural and marketing matters held at Canberra in December 1934. The Council consists of the Commonwealth Ministers for Primary Industry, Trade and Industry, Interior, and External Territories and the State Ministers of Agriculture, with power to co-opt the services of other Commonwealth and State Ministers as required. The principal functions of the Council are: the promotion of the welfare and development of agricultural industries generally; the exchange of information on agricultural production and marketing; the improvement of the quality of agricultural products and the maintenance of high grade standards; to ensure, as far as possible, balance between production and available markets; and organised marketing.

In addition, a permanent Standing Committee on Agriculture was formed to advise the Council, to secure co-operation and co-ordination in agricultural research, to advise State and Commonwealth Governments on the initiation and development of agricultural research, and to secure co-operation between all Governments in respect of quarantine measures against pests and diseases of plants and animals.

The Standing Committee on Agriculture comprises the permanent heads of the State Departments of Agriculture, the Secretary, Department of Primary Industry, and a representative each from the Commonwealth Departments of the Treasury, Health, Trade and Industry, Interior, External Territories, and from the Commonwealth Scientific and Industrial Research Organization.

Financial assistance to primary producers

Financial assistance to primary producers by the Commonwealth Government may be provided in a number of ways. Examples of these follow.

Bounties. A bounty to producers, not exceeding \$4,000,000 in any one year, is currently paid on raw cotton produced in Australia. Commencing with the 1969 cotton crop the bounty will be phased out. In 1969 the total available will be \$4,000,000; in 1970, \$3,000,000 and in 1971 \$2,000,000. Payments will cease after that time.

A bounty of \$27,000,000 paid annually on the production of butter, cheese and related butterfat products and an export bounty on processed milk products of a maximum of \$800,000 annually are both continued in the fifth Five Year Dairy Industry Stabilization Plan which commenced 1 July 1967.

Commitments to industry-financed stabilisation schemes. In schemes of this nature the Commonwealth generally accepts a defined contingent liability to contribute to Government-approved stabilisation funds if falling prices, or rising costs, or both, lead to a situation where growers' contributions prove inadequate. The Dried Vine Fruits Stabilization Fund and the Wheat Prices Stabilization Fund are examples of this.

Other financial assistance

The Commonwealth Government also pays for cattle tick control, flood, drought and bush fire relief, fisheries research, and farm mechanisation research.

Over recent years, legislative research schemes financed by matching contributions from the Commonwealth, and industry or States, or both, have been initiated in regard to tobacco, wool, wheat, dairy produce, meat, eggs, wine and honey. Non-legislative schemes, on a similar financial basis, have been operative in relation to other research projects, e.g. plague locusts, pest management in pome fruit orchards, grape crop forecasting, honey research, barley research, banana research, fruit fly research and poultry research.

Agricultural training and research

Agricultural colleges have been established in all States except Tasmania. The primary function of these colleges is the training of students in the various phases of agriculture and livestock husbandry. Students are required to undertake a considerable amount of practical work in addition to lectures and theory. A secondary function of the colleges is agricultural research and experimentation. To a lesser degree, they carry out extension work in the form of public field days. Upon graduation, students receive diplomas in agriculture, dairying, etc., according to the course undertaken. These courses have been progressively upgraded over recent years (*see also* the chapter Education, Cultural Activities and Research).

Experimental farms have been set up by State Departments of Agriculture in all States. They are concerned primarily with agricultural research and experimentation, each farm concentrating on problems specific to the region in which it is located. The results of the work undertaken are passed on to farmers at field days which are held at regular intervals, through publication in various agricultural or scientific journals, and through the agricultural extension services of the State Departments of Agriculture.

The Commonwealth Scientific and Industrial Research Organization has field stations in many parts of Australia, and sometimes undertakes research jointly with the appropriate State authorities. It also has regional laboratories in several States, conducting research into agronomic and livestock problems as they occur in each particular region (*see also* the chapter Education, Cultural Activities and Research). The State Departments of Agriculture study problems of particular significance within their own boundaries. In addition, the universities carry out valuable work in their laboratories and on their experimental farms.

Extension services

Extension services operate in each State and in the Northern Territory, Australian Capital Territory and the Territory of Papua-New Guinea. Commonwealth funds have been provided in the States to enable them to expand their extension activities, through the Commonwealth Extension

Services Grant since 1952-53 and the Commonwealth Dairy Industry Grant since 1948-49. The funds made available annually increased over the period and by 1963 had reached \$1.4 million. In 1966 the Commonwealth decided to amalgamate the two grants and to increase the funds available progressively over a period of five years to a maximum of \$5.4 million per annum. The amounts made available from the Commonwealth Extension Services Grant under this expanded programme have been \$2.9 million in 1966-67, \$3.65 million in 1967-68 and \$4.4 million in 1968-69. The scope of the Grant now includes agricultural extension and regional research, information and farm management services and training for extension and regional research. State Departments of Agriculture have been the main recipients of the Grant.

Distribution, production and value of crops

Distribution of crops

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 Commonwealth. Generally, cereal crops (excluding rice and sorghum) are grown in all States over wide areas, while industrial crops are confined to specific locations in a few States. A graph showing the area sown to principal crops for the years 1900-01 to 1967-68 appears on plate 40, over the page.

AREA OF CROPS: STATES AND TERRITORIES, 1967-68
(Acres)

Crops	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Cereals for grain—									
Barley—									
2-row	256,758	287,013	309,470	1,096,868	100,500	23,259	..	..	2,073,868
6-row	110,722	18,000	32,998	59,761	315,285	792	..	..	537,558
Maize—Hybrid	(a)47,636	825	(a)141,514	..	(b)	..	..	..	(c)189,975
Other	(a)3,933	92	(a)6,218	..	155	..	(d)	..	(c)10,398
Oats	907,252	722,928	30,772	524,868	1,158,114	35,371	..	584	3,379,889
Panicum, millet and setaria	284	2,534	(a)48,594	..	..	..	..	..	51,412
Rice	75,874	..	43	..	(d)	..	40	..	(c)75,957
Rye	6,856	9,578	45	57,868	10,944	92	..	..	85,383
Sorghum	(a)78,165	598	(a)382,192	..	879	..	(e)	..	(c)461,834
Wheat	8,214,905	3,223,880	1,476,589	2,864,155	6,647,095	12,018	..	2,337	22,440,979
Hay	585,500	1,165,211	119,055	429,026	317,923	178,838	1,919	2,475	2,799,947
Green fodder	2,326,420	544,901	1,336,859	1,217,033	414,343	75,053	193	1,339	5,916,141
Other stock fodder	16,597	24,338	2,626	24,243	4,806	36,355	7	..	108,972
Grass seed—									
Lucerne	29,950	(f)	679	27,188	..	..	..	..	(c)57,817
Clover	8,465	2,843	..	2,953	80,224	203	..	..	94,688
Other	8,464	8,389	46,352	8,195	17,948	(g)2,182	3,406	60	94,996
Industrial crops—									
Broom millet	1,534	465	209	..	31	..	..	..	2,239
Canary seed . . . . .	..	..	7,138	..	..	..	..	..	7,138
Cotton	53,474	..	(a)11,629	..	11,782	..	..	..	76,885
Flax for linseed	9,947	9,365	27,764	516	6,886	..	..	..	54,478
Hops . . . . .	..	(h)761	..	..	(d)	(i)1,606	..	..	(c)2,367
Peanuts	353	..	61,373	..	..	..	12	..	61,738
Safflower	8,550	489	95,351	(d)	225	..	..	..	(c)104,615
Sugar cane—									
For crushing	22,181	..	530,828	..	..	..	..	..	553,009
Stand-over and cut for plants	19,249	..	102,688	..	..	..	..	..	121,937
Sunflower	638	141	8,185	..	..	..	..	..	8,964
Tobacco	1,831	8,664	12,472	..	..	..	..	..	22,967
Other	17	1,103	172	(d)	..	302	..	..	(c)1,594
Vegetables for human con- sumption—									
Onions	1,116	3,617	2,951	1,682	340	146	(j)	(j)	(c)9,852
Potatoes	24,334	40,329	17,347	6,527	6,149	10,960	(j)	22	(c)105,668
Other	42,061	49,133	45,550	9,256	8,980	22,313	189	116	177,598
Vineyards—									
Bearing	19,511	44,802	3,071	53,392	7,064	..	..	..	127,840
Not bearing	2,644	3,923	329	4,737	601	..	..	..	12,234
Fruit—									
Bearing	76,691	55,940	36,503	31,310	19,213	17,758	58	29	237,502
Not bearing	19,107	15,218	14,888	13,803	6,385	4,004	40	8	73,453
Nurseries and cut flowers	1,294	2,686	588	295	246	123	..	8	5,240
All other crops	3,040	2,541	15,427	73	1,727	1,239	136	31	24,214
Total area	12,985,353	6,250,307	4,928,460	6,433,749	9,137,845	422,610	6,000	7,009	40,171,333

(a) Sown 1966-67. (b) Included in Other maize. (c) Incomplete: see individual States. (d) Not available for publication. Included in All other crops. (e) Not available for publication. Excluded from totals. (f) Not available separately. Included in All other crops. (g) Excludes area sown simultaneously to oats. (h) Includes 36 acres not bearing. (i) Includes 104 acres not bearing. (j) Not available for publication. Included in Other vegetables.

AREA OF CROPS: AUSTRALIA

1900-01 TO 1967-68

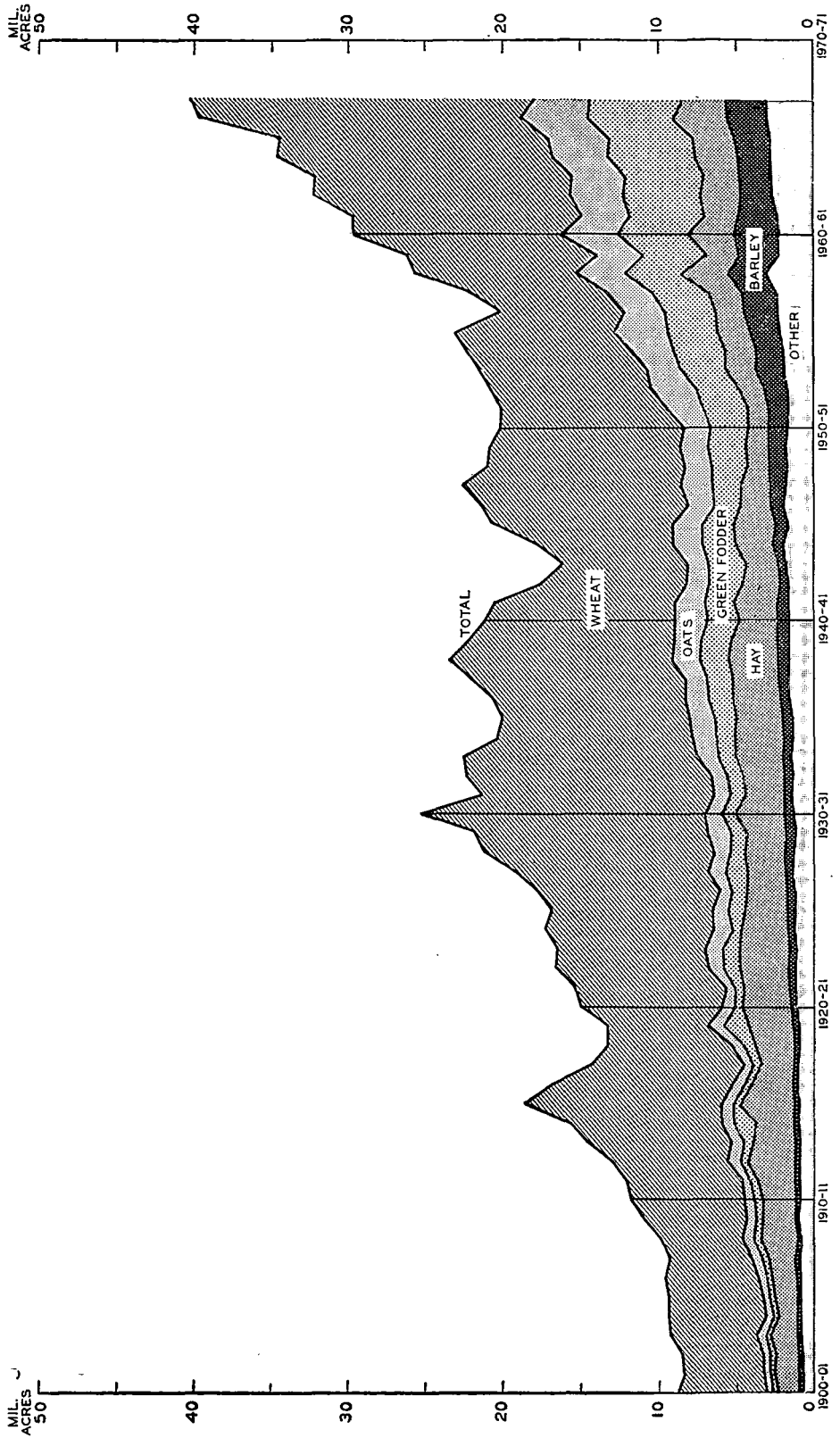


PLATE 40

RELATIVE AREAS OF CROPS: STATES AND TERRITORIES, 1967-68

(Per cent)

<i>Crop</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>N.T.</i>	<i>A.C.T.</i>	<i>Aust.</i>
Wheat (grain)	63.3	51.6	30.0	44.5	72.7	2.8	..	33.3	55.9
Green fodder	17.9	8.7	27.1	18.9	4.5	17.8	3.2	19.1	14.7
Oats (grain)	7.0	11.6	0.6	8.1	12.7	8.4	..	8.3	8.4
Hay	4.5	18.6	2.4	6.7	3.5	42.3	32.0	35.3	7.0
Barley (grain)	2.8	4.9	7.0	18.0	4.6	5.7	..	..	6.5
Sugar cane for crushing	0.2	..	10.8	..	..	..	..	..	1.4
Sorghum	0.6	..	7.8	..	..	..	(a)	..	1.2
Fruit	0.7	1.1	1.0	0.7	0.3	5.1	1.6	0.5	0.8
Maize (grain)	0.4	..	2.9	..	..	..	..	..	0.5
Vineyards	0.2	0.8	0.1	0.9	0.1	..	..	..	0.3
Potatoes	0.2	0.7	0.4	0.1	0.1	2.6	..	0.3	0.3
All other	2.2	2.0	9.9	2.1	1.5	15.3	63.2	3.2	3.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Not available for publication; area excluded from totals.

AREA OF CROPS: AUSTRALIA, 1963-64 TO 1967-68

('000 acres)

<i>Crop</i>	<i>1963-64</i>	<i>1964-65</i>	<i>1965-66</i>	<i>1966-67</i>	<i>1967-68</i>
Cereals for grain—					
Barley—					
2-row	1,621	1,655	1,766	1,951	2,074
6-row	392	409	531	546	538
Maize—					
Hybrid	172	176	164	187	190
Other	43	36	32	14	10
Oats	3,392	3,497	3,768	4,258	3,380
Rice	59	62	64	74	76
Sorghum	366	346	433	502	462
Wheat	16,474	17,919	17,515	20,823	22,441
Hay	2,602	2,793	2,780	3,496	2,800
Green fodder	4,877	5,614	5,324	5,399	5,916
Grass seed	219	258	227	304	248
Industrial crops—					
Cotton	41	38	55	53	77
Flax for linseed	118	134	25	35	54
Hops	2	2	2	2	2
Peanuts	45	46	58	70	62
Safflower	19	48	60	95	105
Sugar cane	539	628	647	669	675
Tobacco	29	26	23	22	23
Vegetables for human consumption—					
Onions	9	10	8	10	10
Potatoes	102	88	96	99	106
Other	166	168	185	184	178
Vineyards	136	139	140	139	140
Fruit	310	311	313	313	311
All other crops	312	262	282	308	294
Total	32,045	34,665	34,498	39,553	40,171

Production and yield per acre of crops

PRODUCTION OF CROPS: STATES AND TERRITORIES, 1967-68

<i>Crop</i>		<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>N.T.</i>	<i>A.C.T.</i>	<i>Aust.</i>
Cereals for grain—										
Barley—										
2-row . . .	'000 bus	3,474	2,550	8,208	11,887	1,753	859	..	..	28,731
6-row . . .	"	1,360	158	757	492	5,274	25	..	..	8,067
Maize—										
Hybrid . . .	"	(a)2,183	29	(a)4,617	..	(b)	..	..	..	(c)6,829
Other . . .	"	(a)138	3	(a)161	..	2	..	(d)	..	(c)303
Oats . . .	"	8,235	6,859	450	3,299	19,759	1,014	..	12	39,628
Panicum, millet and setaria . . .	"	3	47	(a)730	..	..	..	..	..	780
Rice . . .	"	11,592	..	4	..	(d)	..	2	..	11,597
Rye . . .	"	48	42	..	197	91	2	..	..	380
Sorghum . . .	"	(a)1,580	18	(a)8,939	..	45	..	(d)	..	(c)10,582
Wheat . . .	"	87,323	28,317	27,417	26,899	106,975	316	..	42	277,289
Hay . . .	'000 tons	806	1,556	296	418	421	309	3	3	3,812
Grass seed—										
Lucerne . . .	cwt	20,592	n.a.	514	23,288	..	..	..	..	(c)44,394
Clover . . .	"	13,587	5,898	..	3,174	154,710	403	..	..	177,772
Other . . .	"	21,005	6,356	23,148	9,050	27,722	4,970	2,866	21	95,138
Industrial crops—										
Broom millet—										
Fibre . . .	cwt	8,652	544	789	..	260	..	..	..	10,245
Grain . . .	bushels	9,717	421	n.a.	..	..	..	..	..	(c)10,138
Canary seed . . .	bus	..	..	60,274	..	..	..	..	..	60,274
Cotton, unginned . . .	'000 lb	170,064	..	(a)18,718	..	25,954	..	..	..	214,736
Flax for linseed . . .	tons	952	804	6,571	72	2,083	..	..	..	10,482
Hops (dry weight) . . .	cwt	3,920	9,922	..	..	(d)	26,830	..	..	(c)36,752
Peanuts . . .	'000 bus	59	1	602,207	(d)	2	..	..	..	606,159
Safflower . . .	"	..	..	815	..	..	..	..	..	(c)878
Sugar cane for crushing . . .	'000 tons	1,039	..	15,718	..	..	..	..	..	16,756
Sunflower . . .	cwt	3,140	255	33,669	..	..	..	..	..	37,064
Tobacco, dried leaf . . .	'000 lb	2,075	7,625	15,021	..	..	..	..	..	24,721
Vegetables for human consumption—										
Onions . . .	tons	9,535	11,339	14,882	16,635	4,633	1,462	(d)	(d)	(c)58,486
Potatoes . . .	"	122,795	215,941	106,429	63,331	70,469	79,058	(d)	89	(c)658,112
Vineyards—										
Grapes—										
For drying . . .	"	52,196	259,161	..	29,616	6,832	..	..	..	347,805
" table . . .	"	7,783	13,236	5,009	1,031	2,177	..	..	..	29,236
" wine . . .	"	49,536	26,359	196	170,581	4,810	..	..	..	251,482

(a) Harvested from crop sown in 1966-67. (b) Included in Other maize. (c) Incomplete; see individual States.
(d) Not available for publication.

PRODUCTION OF PRINCIPAL CROPS: AUSTRALIA, 1963-64 TO 1967-68

<i>Crop</i>	1963-64	1964-65	1965-66	1966-67	1967-68
Cereals for grain—					
Barley—					
2-row '000 bus	36,464	41,775	33,235	49,207	28,731
6-row "	6,931	7,540	8,600	12,381	8,067
Maize—					
Hybrid "	5,592	5,896	4,253	7,026	6,829
Other "	1,130	983	664	465	303
Oats "	68,234	70,043	60,739	107,106	39,628
Rice "	7,455	8,030	9,540	11,250	11,597
Sorghum "	7,889	7,164	7,149	11,711	10,582
Wheat "	327,912	368,789	259,666	466,610	277,289
Hay '000 tons	4,269	4,963	4,179	6,371	3,812
Grass seed cwt	333,286	411,919	356,815	488,477	317,303
Industrial crops—					
Cotton, unginned '000 lb	18,223	63,009	133,850	120,360	214,736
Flax for linseed tons	29,516	46,600	6,064	13,744	10,482
Hops (dry weight) cwt	19,858	27,892	36,463	28,907	36,752
Peanuts "	460,726	207,115	548,279	827,151	606,159
Safflower '000 bus	303	697	550	1,369	878
Sugar cane for crushing '000 tons	12,118	15,070	14,155	16,685	16,756
Tobacco (dried leaf) '000 lb	34,342	25,111	27,361	27,905	24,721
Vegetables for human consumption—					
Onions '000 tons	59	70	58	84	58
Potatoes "	562	508	639	643	658
Vineyards—					
Grapes "	646	680	582	684	629
Wine made(a) '000 gals	37,536	38,718	34,125	41,514	44,307
Dried vine fruits '000 tons	104	108	91	107	85

(a) Net factory and farm production of beverage and distillation wine. This excludes the liquid gallonage of spirits added in wine fortifying.

YIELD PER ACRE OF PRINCIPAL CROPS: AUSTRALIA, 1963-64 TO 1967-68

<i>Crop</i>	1963-64	1964-65	1965-66	1966-67	1967-68
Cereals for grain—					
Barley—					
2-row bushels	22.5	25.2	18.8	25.2	13.9
6-row "	17.7	18.4	16.2	22.7	15.0
Maize—					
Hybrid "	32.6	33.4	25.9	37.6	35.9
Other "	26.2	27.4	20.5	32.4	29.1
Oats "	20.1	20.0	16.1	25.2	11.7
Rice "	125.5	130.3	148.1	152.6	152.7
Sorghum "	21.6	20.7	16.5	23.3	22.9
Wheat "	19.9	20.6	14.8	22.4	12.4
Hay tons	1.64	1.78	1.50	1.82	1.36
Industrial crops—					
Cotton, unginned lb	445	1,662	2,436	2,264	2,793
Flax for linseed tons	0.25	0.35	0.25	0.40	0.19
Hops (dry weight)(a) cwt	9.68	13.23	17.24	13.51	16.50
Peanuts "	10.25	4.51	9.50	11.86	9.82
Safflower bushels	15.64	14.68	9.12	14.47	8.40
Sugar cane for crushing(a) tons	29.02	32.04	28.13	29.93	30.30
Tobacco (dried leaf) lb	1,183	954	1,165	1,247	1,076
Vegetables for human consumption—					
Onions tons	6.43	7.18	7.04	8.27	5.94
Potatoes "	5.51	5.78	6.63	6.47	6.23
Vineyards—					
Grapes(a) "	5.21	5.42	4.58	5.37	4.92

(a) Per acre of productive crops.

Value of agricultural production

Further reference to the value of production of agriculture and other industries in Australia as well as a brief explanation of the terms used may be found in the chapter Miscellaneous.

GROSS VALUE^(a) OF AGRICULTURAL PRODUCTION: AUSTRALIA, 1963-64 TO 1967-68
(**\$'000**)

<i>Crop</i>	<i>1963-64</i>	<i>1964-65</i>	<i>1965-66</i>	<i>1966-67</i>	<i>1967-68</i>
Cereals for grain—					
Barley	47,484	55,620	47,932	73,743	42,222
Maize	10,364	9,999	9,517	10,395	9,463
Oats	49,666	51,449	53,323	83,384	34,205
Rice	7,912	8,529	10,224	12,445	12,831
Wheat	467,432	517,702	384,853	689,880	435,443
Hay	87,462	99,209	107,755	151,470	107,434
Green fodder	20,990	25,011	28,380	24,805	29,397
Industrial crops—					
Cotton, unginned	2,212	7,685	14,323	12,468	19,675
Hops	1,534	2,372	3,020	2,531	3,211
Sugar cane	162,880	133,372	119,350	138,431	138,409
Tobacco (dried leaf)	33,408	24,608	30,399	29,782	27,919
Vegetables for human consumption—					
Onions	4,096	5,340	6,667	6,044	7,167
Potatoes	33,226	60,713	43,751	41,233	51,985
Other vegetables for human consumption	66,514	68,335	74,804	82,387	85,417
Grapes	46,416	50,385	43,516	50,173	48,478
Fruit and nuts	135,133	146,242	151,877	162,918	155,352
All other crops	51,758	53,413	51,603	67,183	60,661
Total	1,228,487	1,319,984	1,181,294	1,639,273	1,269,269

(a) Includes amounts paid as bounty, relief, etc.

Values of agricultural production in the various States and Territories are shown for 1967-68 in the following table. In computing the net value of production, no deduction has been made for the cost of maintenance of farm buildings and fences, nor for the depreciation of farm plant.

GROSS, LOCAL AND NET VALUES OF AGRICULTURAL PRODUCTION
STATES AND TERRITORIES, 1967-68
(**\$'000**)

<i>State or Territory</i>	<i>Gross production valued at principal markets</i>	<i>Marketing costs</i>	<i>Local value of production</i>	<i>Value of materials used in process of production</i>	<i>Net value of production (a)</i>
New South Wales	328,377	61,203	267,174	(b)39,795	227,380
Victoria	221,960	25,968	195,992	26,491	169,501
Queensland	308,922	37,489	271,433	52,002	219,431
South Australia	127,288	12,348	114,940	24,036	90,903
Western Australia	234,484	34,708	199,776	37,275	162,501
Tasmania	47,309	11,715	35,595	6,325	29,270
Northern Territory	653	n.a.	653	n.a.	653
Australian Capital Territory	276	26	250	12	238
Australia	1,269,269	183,457	1,085,813	185,936	899,877

(a) No deduction has been made for depreciation and maintenance.

(b) No allowance has been made for costs of power, power kerosene, petrol and other oils.

NET VALUE OF AGRICULTURAL PRODUCTION(a): STATES AND TERRITORIES, 1963-64 TO 1967-68

Year	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Net value (\$'000)—									
1963-64	245,906	218,136	222,370	125,180	79,622	25,729	169	276	917,388
1964-65	293,883	232,775	193,673	134,239	92,800	27,223	222	349	975,164
1965-66	172,875	202,674	198,665	105,657	154,494	23,070	225	253	857,913
1966-67	403,530	255,016	229,426	137,042	153,717	29,381	354	537	1,209,003
1967-68	227,380	169,501	219,431	90,903	162,501	29,270	653	238	899,877
Per head of population (\$)—									
1963-64	60.29	70.98	139.42	122.31	99.67	70.93	3.38	3.59	82.95
1964-65	70.94	74.22	119.04	127.59	113.56	74.31	4.21	4.14	86.46
1965-66	41.07	63.45	119.67	97.66	184.52	62.42	4.06	2.73	74.59
1966-67	94.44	78.47	135.91	124.14	178.30	78.58	6.09	5.37	103.26
1967-68	52.30	51.33	127.74	81.29	182.07	77.16	10.73	2.20	75.45

(a) No deduction has been made for depreciation and maintenance.

Indexes of quantum and price of agricultural production

Indexes of quantum and price of agricultural production are shown in the following table. The quantum indexes relate to gross output of farm products valued at constant prices. The quantities of each farm product produced each year have been revalued at the unit gross value for the period 1936-37 to 1938-39. The price indexes relate to average 'prices' of farm products realised at the principal markets of Australia. Average quantities of each product marketed in the period 1946-47 to 1950-51 have been used as fixed weights. Further details on weights used, etc. are to be found in the chapter Miscellaneous.

INDEXES OF QUANTUM(a) AND PRICE OF AGRICULTURAL PRODUCTION, 1963-64 TO 1967-68

(Base: Average three years ended June, 1939 = 100)

	1963-64	1964-65	1965-66	1966-67	1967-68
Quantum produced—					
Wheat	199	224	158	283	168
Other crops	194	214	200	254	202
<i>Total, all crops</i>	<i>196</i>	<i>218</i>	<i>184</i>	<i>265</i>	<i>189</i>
Per head of population	122	133	110	156	109
Price—					
Wheat	356	351	372	366	397
Other crops	348	351	340	337	351
<i>Total, all crops</i>	<i>351</i>	<i>351</i>	<i>354</i>	<i>350</i>	<i>371</i>

(a) Indexes of value at constant prices, i.e. quantities revalued at average unit values of the base years (1936-37 to 1938-39).

Wheat

Wheat is grown on a large scale in all States except Tasmania, and is the most important crop in Australia in terms of area, production and exports. The present limits of the wheat belt have been established after considerable fluctuation over the last four decades. In January 1934 a Royal Commission was appointed to inquire into and report upon the economic condition of the growing, handling and marketing of wheat, and the manufacturing, distributing and selling of flour and bread. The Report of this Royal Commission provides an authoritative description of all aspects of the industry up to that time.

Wheat marketing and research

Two of the aspects of governmental and semi-governmental assistance and control which have contributed to the development of the industry are the organisation of overseas marketing and of research.

As a large proportion of the Australian wheat crop is normally exported, the marketing of wheat plays an important part in the industry. The Australian Wheat Board was constituted in September 1939, under National Security (Wheat Acquisition) Regulations, to purchase, sell, or dispose of wheat or wheat products, and to manage and 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. Details of the operations of the Australian Wheat Board and the Wheat Stabilization Board in licensing wheat grown during the seasons 1941-42 to 1948-49 will be found in Year Book No. 38, pages 940-1, and a detailed survey of legislation relating to stabilisation of the wheat industry, including controls exercised during the 1914-18 and 1939-45 Wars and legislation establishing the Wheat Stabilization Plan in 1948, is given in the Appendix to Year Book No. 37, pages 1295-9.

The Wheat Stabilization Board ceased to function on 31 December 1948, and under the *Wheat Industry Stabilization Act* 1948 the Australian Wheat Board was reconstituted to administer the first stabilisation plan and was given powers similar to those held under the National Security Regulations. The new Board commenced to function on 18 December 1948. The Board has been continued in existence by the *Wheat Industry Stabilization Acts* 1954, 1958, 1963-66 and 1968 for the purpose of administering the second, third, fourth and fifth five-year stabilisation plans. Details of the more recent plans were published in Year Book No. 40, pages 841 and 842 (1947-48 to 1952-53 Plan), No. 44, page 861 (1953-54 to 1957-58), No. 48, pages 903 and 904 (1958-59 to 1962-63) and No. 54, pages 868 and 869 (1963-64 to 1967-68).

Fifth Post-war Wheat Industry Stabilisation Plan. Following negotiations during 1968, the fifth post-war Wheat Industry Stabilisation Plan was enacted by the Commonwealth and States towards the end of 1968. The new plan operates on very much the same lines as the previous ones. However, there are some important changes in detail in the main features of the plan which are set out below.

The plan operates for five years. It commenced with the 1968-69 wheat crop and will end with the marketing of the 1972-73 crop.

The *Wheat Export Charge Act* 1968 repealed the *Wheat Export Charge Act* 1953 and provided for an export charge on wheat and wheat products for the seasons 1968-69 to 1972-73 inclusive. The charge which may be levied is the excess of the average export return over the sum of the guaranteed price (*see below*) and five cents per bushel with a maximum charge of fifteen cents per bushel. The ceiling on the Wheat Prices Stabilisation Fund, into which this charge is paid, has been raised from \$60 million to \$80 million. Any excess beyond this figure is returned to growers on a 'first in, first out' basis.

Payments from the Wheat Prices Stabilisation Fund will be paid to the Australian Wheat Board when required, for the purpose of building up the average export price for any season to the guaranteed price. When the average export realisations fall below the guaranteed price the deficiency is made up first by drawing upon the Stabilisation Fund in respect of up to 200 million bushels of wheat from each crop. If the Fund is exhausted, the necessary deficiency payments will be made from the Commonwealth Government's Consolidated Revenue Fund. As the return from exports has been below the guaranteed price, there have been no collections of the wheat export charge since the 1956-57 No. 20 Pool when \$3,178,000 was collected. In fact, growers' money in the Fund was exhausted with the closure of the 1959-60 Pool, and since then the Commonwealth has been obliged to meet its commitment in respect of the export guarantee. Up to the closure of the 1966-67 Pool, this has involved an amount totalling \$112 million.

The Commonwealth has guaranteed a price to growers applying to 200 million bushels of wheat exported from each crop during the period of the plan. The guaranteed price is subject to adjustment in each year of the plan in accordance with changes in its cash cost elements. There will no longer be any adjustment for imputed costs such as interest on farmers' equity. The guaranteed price per bushel in the 1968-69 season is \$1.45 f.o.b. vessel, equivalent to approximately \$1.415 f.o.r. ports.

The Australian Wheat Board is retained as the sole constituted authority for the marketing of wheat within Australia and for the marketing of wheat and flour for export from Australia for the period of the plan.

The home consumption price for 1968-69, the first year of the new plan, was established at \$1.71 per bushel, bulk basis, f.o.r. ports. (This price includes a loading of one cent per bushel to cover the cost of transporting wheat from the mainland to Tasmania.) There is provision in the plan for annual adjustments to be made in the following years by the same amount as the guaranteed price is adjusted. The home consumption price was \$1.565 per bushel for the 1966-67 season and \$1.655 for the 1967-68 season. These prices included a loading of 1.5 cents per bushel to meet freight charges on wheat shipped to Tasmania.

A premium is paid from export realisations on wheat grown in Western Australia and exported from that State, in recognition of the natural freight advantage enjoyed by Western Australia owing to its proximity to the principal overseas markets for wheat. The premium is the amount of the actual freight advantage enjoyed by Western Australia up to a maximum of 2.5 cents a bushel.

Wheat standards

A description of the F.A.Q. (fair average quality) standard of wheat which was formerly in use is given in issues of the Year Book up to No. 53 (*see*, for example No. 53 page 902). Australian wheat is now marketed under eleven different and distinct classifications. Each reflects the climatic and growing characteristics of its region of origin and also the particular characteristics of the varieties of wheat cultivated.

For each classification, samples of wheat are obtained each year and are mixed to give a representative sample of that grade. From these samples, which are representative of all the wheat of a particular classification grown in that region, standards for each grade are established; the bushel weight is determined by the use of the Schopper 1-litre scale chondrometer. This standard is used as the basis for sales of each grade and varies from year to year and from State to State. The eleven different grades of wheat are:

- Queensland prime hard
- New South Wales prime hard
- South Australian hard
- Queensland F.A.Q.
- New South Wales northern F.A.Q.
- New South Wales southern-western F.A.Q.
- Victorian F.A.Q.
- South Australian F.A.Q.
- Western Australian F.A.Q.
- Western Australian soft
- Victorian soft

The six F.A.Q. grades, while possessing some characteristics in common, vary in protein content, milling characteristics, and dough qualities, and all are distinct grades. Similarly, the prime hard, hard, and soft grades are individual grades segregated for specific end uses.

Australia currently produces a full range of wheats for all purposes from high protein hard wheats to low protein soft wheats.

Bulk handling and storage of wheat

A detailed description of the bulk handling system, including its advantages and disadvantages compared with other methods of handling, appears on pages 954-8 of Year Book No. 39.

New South Wales, Victoria and Western Australia have operated bulk handling systems for a number of years, and in more recent years other States have also introduced bulk systems. The bodies concerned with the administration of bulk handling in the various States are: Grain Elevators Board of New South Wales, Victorian Grain Elevators Board, State Wheat Board (Queensland), South Australian Co-operative Bulk Handling Ltd., Co-operative Bulk Handling Ltd. (Western Australia), and the Tasmanian Grain Elevators Board.

WHEAT: TOTAL CAPACITY OF BULK HANDLING FACILITIES^(a) STATES, 30 NOVEMBER 1964 TO 1968

(Source: Bulk handling authorities in the various States. *See above*)

('000 bushels)

State	1964	1965	1966	1967	1968
New South Wales	(b)105,152	(b)101,992	(b)141,182	(b)132,792	184,972
Victoria ^(c)	95,974	102,609	105,038	105,514	108,090
Queensland	13,178	15,956	19,213	24,987	30,600
South Australia	35,483	39,685	43,328	58,362	73,050
Western Australia	115,438	128,175	134,898	144,487	159,677
Tasmania	960	1,060	1,060	1,060	1,060
Australia	366,185	389,477	444,719	467,202	557,449

(a) Includes terminals, sub-terminals, country installations, and temporary storage. (b) Storage at beginning of season. (c) Includes storage in southern New South Wales operated by the Victorian Grain Elevators Board.

Particulars of the operation of the bulk handling and storage systems in each State are set out on pages 916 and 917 of Year Book No. 48.

International Wheat Agreement

Details of the first and second International Wheat Agreements operative from 1 August 1949 to 31 July 1953, and from 1 August 1953 to 31 July 1956, respectively, were published in Year Book No. 42 (*see* pages 840-1) or previous issues. Details of the third and fourth International Wheat Agreements which covered the period from 1 August 1956 to 31 July 1959 and 1 August 1959 to 31 July 1962 were published in Year Books 43 (page 836) and 48 (page 906), respectively.

A fifth International Wheat Agreement, ratified by the required number of wheat exporting and importing countries, came into force on 1 August 1962. This was intended to cover the three-year period from 1 August 1962 to 31 July 1965, but at a special meeting held in February 1965 the International Wheat Council adopted the text of a protocol providing for the prolongation of the Agreement, without amendment, to 31 July 1966. The Council stated that it recognised the need for the maintenance of institutional arrangements to provide for continuing international co-operation in wheat matters, and that, following its decision to recommend a one-year extension of the existing agreement, it had given immediate consideration to preparatory work designed to ensure effective arrangements to follow the expiry of the term of the protocol. The Agreement was subsequently extended by protocol to 31 July 1967 and, with respect to its administrative provisions only, for a further year to 31 July 1968.

International Grains Arrangement

In August 1967 agreement was reached on a new International Grains Arrangement to operate for a period of three years from 1 July 1968. The new arrangement consists of two legal instruments, the Wheat Trade Convention and the Food Aid Convention.

The Wheat Trade Convention seeks to continue the orderly marketing arrangements which have been developed over a series of International Wheat Agreements, whilst introducing a number of important new elements and improvements. It preserves the institutional and administrative structures of previous wheat agreements and will be administered by the International Wheat Council and its Secretariat.

The convention goes further than earlier wheat agreements in regard to pricing provisions. In contrast with previous agreements, which specified minimum and maximum prices for only one type of wheat, the convention specifies minimum and maximum prices for fourteen types. The basic wheat is now United States Hard Red Winter No. 2 Ordinary Protein, the minimum price for which has been fixed at \$US1.73 per bushel f.o.b. from loading ports in the Gulf of Mexico. The minimum price per bushel for No. 1 Manitoba Northern Wheat is now \$US1.955 f.o.b. Gulf ports, and for Australian f.a.q. wheat \$US1.68 f.o.b. Gulf ports. It is estimated that, after allowing for quality differentials and for the change in geographical basing points, the general level of minimum prices is approximately 19 US cents per bushel above the minimum prices in the 1962 International Wheat Agreement. The maximum price for each type of wheat is 40 US cents above the minimum.

The convention provides for the establishment of a Prices Review Committee, on which Australia is represented. The committee will conduct a continuous review of world wheat prices and is empowered to initiate action to restore market stability when prices approach the agreed limits.

The convention continues the arrangement in the 1962 agreement whereby the member importing countries undertake to buy each year from the member exporting countries a specified percentage of their total commercial purchases of wheat. Exporting countries undertake that wheat will be made available at prices consistent with the price range and will not be sold below minimum prices to any purchaser whether a member of the arrangement or not. Member countries importing wheat from non-member countries undertake to do so at prices consistent with the price range. When prices are at the maximum of the range, exporters agree to supply to member importing countries, at prices not above the maximum, certain minimum quantities of wheat based on the importing country's historical purchases. A provision is also included under which member countries undertake to conduct any concessional transactions in grains in such a way as to avoid harmful interference with normal patterns of commercial trade.

The Food Aid Convention provides for a programme of food aid to developing countries amounting in total to 4.5 million metric tons of grains for human consumption in each of the three years of the arrangement. Australia's contribution has been fixed at 225,000 metric tons annually (8,267,000 bushels) which is approximately 5 per cent of the total contribution. Donor countries are free to specify the country or countries to which the grain may be supplied.

Research into the wheat industry

The extension and growth of the wheat industry in the past has been made possible to a large extent through research into new varieties of seed, crop rotation and fertiliser treatments by governmental, university and private research organisations. In recent years there has been a growing awareness of the value of this research, and funds are being raised by a direct levy on the growers' returns.

The *Wheat Tax Act* 1957 imposed a tax of 0.21 cents for each bushel of wheat:

- (a) which was delivered to the Wheat Board on or after the first day of October 1956 and before the date of commencement of the Act, or
- (b) which was delivered to the Wheat Board on or after that date.

The Act was amended in October 1965 to become the *Wheat Tax Act 1957-1965* to provide for an increase in the rate of taxation from 0.21 cents to 0.25 cents for each bushel of wheat delivered to the Board on or after 1 October 1965. The *Wheat Research Act 1957* provided for the establishment of a Wheat Research Trust Account to receive moneys payable under the *Wheat Tax Act 1957* and for the setting up of a Wheat Industry Research Council to direct the expenditure of moneys from that account for research, etc. to benefit the wheat industry. This money, contributed by the growers, is being spent by the Wheat Industry Research Committees set up in the wheat-growing States. These Committees, which consist of representatives of wheatgrowers, universities and State Departments of Agriculture, also received a total of \$568,000 under the provisions of the *Wheat Acquisition (Undistributed Moneys) Act 1958*.

The Commonwealth Government has undertaken to supply additional funds for research (with a maximum of \$1 for \$1 against the growers' contribution) and has set up the Wheat Industry Research Council to make recommendations on the appropriate expenditure of the Commonwealth contribution. The Council, at its inaugural meeting in February 1958, considered that possible avenues of research would include the breeding of better varieties, cereal chemistry, soil fertility, mechanisation, the industry's cost structure, and marketing problems. To the end of June 1968 the Council and the State Committees had spent \$11,394,000, including grants to the Commonwealth Scientific and Industrial Research Organization, State Departments of Agriculture, universities, and agricultural colleges.

Wheat farms: number and classification by activity

Particulars of the number of farms growing twenty acres and upwards of wheat for grain during each of the years 1963-64 to 1967-68 are shown in the following table. A farm worked on the share system or as a partnership is included as one holding only.

NUMBER OF FARMS GROWING TWENTY ACRES AND UPWARDS
OF WHEAT FOR GRAIN: STATES AND A.C.T., 1963-64 TO 1967-68

State or Territory	1963-64	1964-65	1965-66	1966-67	1967-68
New South Wales	17,753	18,537	16,150	19,575	20,619
Victoria	11,370	11,981	11,355	11,202	11,056
Queensland	4,927	5,236	4,941	5,674	5,867
South Australia	9,902	9,657	9,387	9,419	8,905
Western Australia	8,983	8,779	9,044	8,897	8,746
Tasmania	251	255	213	194	159
Australian Capital Territory	29	20	13	25	20
Australia	53,215	54,465	51,103	54,986	55,372

There is in Australia a widespread combination of wheat growing with other rural activities. This is illustrated, for all States and for Australia, in respect of the 1965-66 season, in a series of statistical bulletins: *Classification of Rural Holdings by Size and Type of Activity*, 1965-66, Nos 1 to 7. These publications also contain details of numbers of rural holdings classified according to area of wheat for grain.

Varieties of wheat sown

The breeding of wheat suitable to local conditions has long been established in Australia. Farrer (1845-1905) did invaluable work in pioneering this field, and the results of his labour and the continued efforts of those who have followed him have proved of immense benefit to the industry. Their efforts have resulted in the development of disease-resistant varieties, better average yields, and a greater uniformity of sample, with which have accrued certain marketing advantages, as well as an improvement in the quality of wheat grown. More than 1,000 different varieties of Australian wheats have been catalogued by the Commonwealth Scientific and Industrial Research Organization, but the number of principal varieties grown in any one season is restricted to about forty-five.

The principal varieties of wheat sown and the percentage of each to the total area sown in the five main wheat-producing States of Australia in 1967-68 were as follows: New South Wales, Heron (25.6), Falcon (12.8), Olympic (10.1); Victoria, Insignia (46.8), Olympic (24.7), Pinnacle (14.2); Queensland, Mendos (36.7), Gamut (25.9), Spica (15.1); South Australia, Insignia (31.3), Heron (29.8); and Western Australia, Gamenya (41.3), Insignia (13.8), Falcon (11.4). A detailed table of wheat varieties sown appears in the annual bulletin *The Wheat Industry* (see No. 114, published in March 1969).

Wheat area, production and yield per acre

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

**WHEAT FOR GRAIN: AREA, PRODUCTION AND YIELD PER ACRE
STATES AND AUSTRALIAN CAPITAL TERRITORY, 1936-37 TO 1967-68**

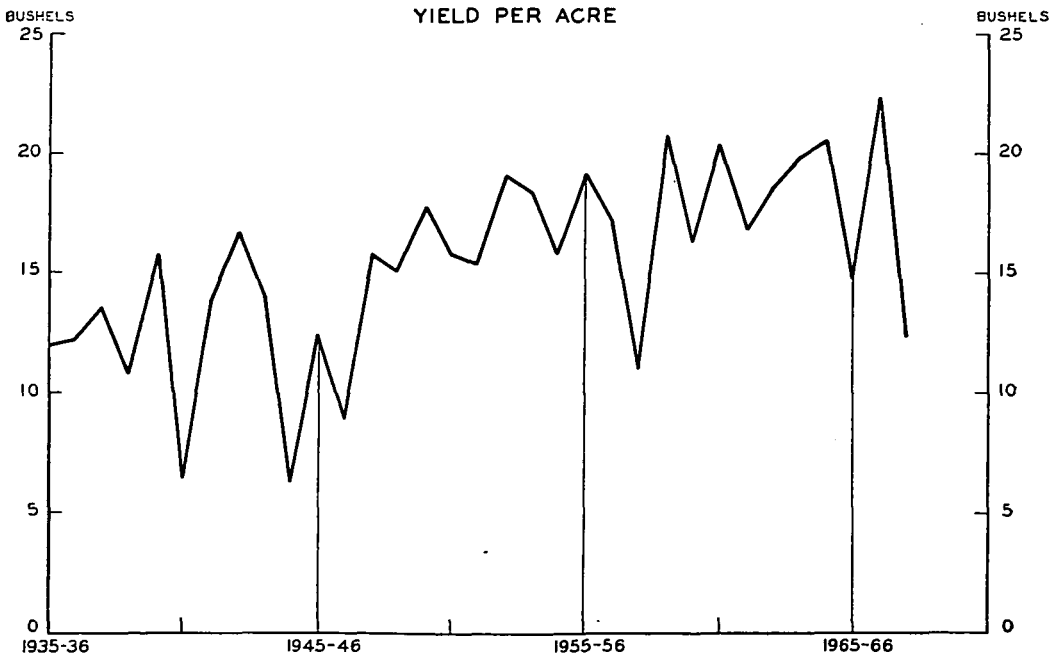
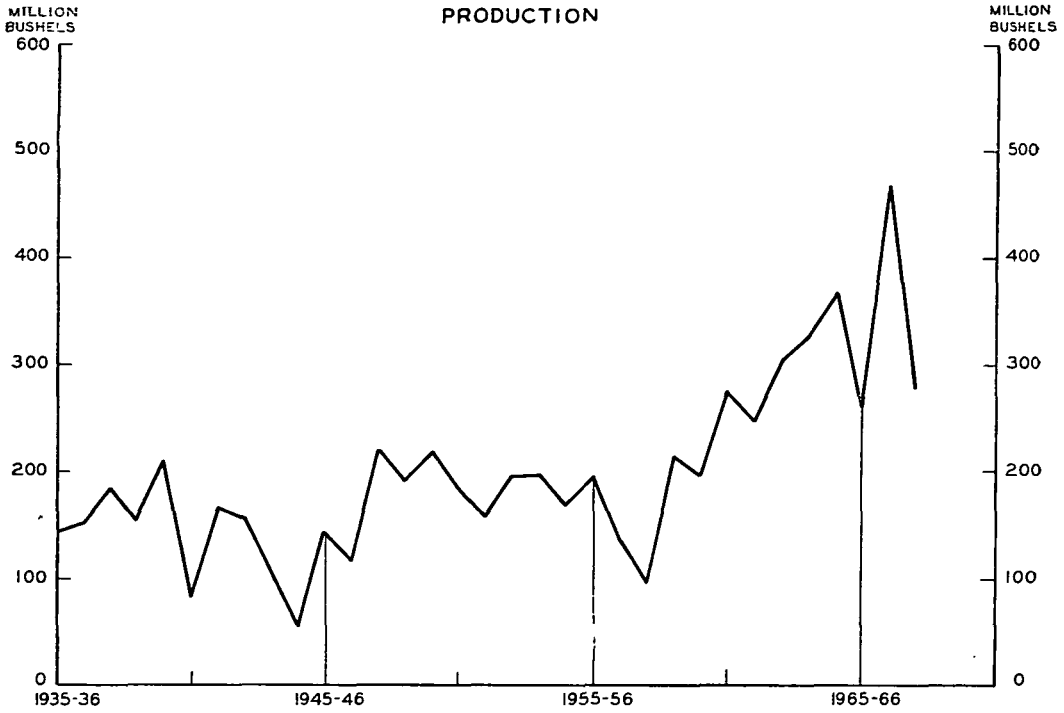
<i>Period</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>A.C.T.</i>	<i>Aust.</i>
AREA ('000 ACRES)								
Average for three years ended—								
1938-39 . . .	4,366	2,609	366	3,100	3,005	18	2	13,466
1948-49 . . .	4,519	3,241	439	2,319	2,685	7	4	13,214
1958-59 . . .	2,392	1,737	508	1,392	3,005	5	1	9,040
Year—								
1963-64 . . .	4,964	3,109	938	2,802	4,640	18	3	16,474
1964-65 . . .	5,760	3,236	1,026	2,727	5,151	17	2	17,919
1965-66 . . .	4,577	3,074	954	2,745	6,150	14	1	17,515
1966-67 . . .	7,135	3,138	1,227	2,960	6,347	13	3	20,823
1967-68 . . .	8,215	3,224	1,477	2,864	6,647	12	2	22,441
PRODUCTION ('000 BUSHEL)(a)								
Average for three years ended—								
1938-39 . . .	56,890	36,374	4,783	34,606	31,539	434	45	164,671
1948-49 . . .	58,537	48,332	8,569	28,856	31,517	138	78	176,027
1958-59 . . .	35,178	36,705	9,938	26,126	40,950	135	15	149,047
Year—								
1963-64 . . .	122,472	76,302	22,275	53,971	52,340	483	69	327,912
1964-65 . . .	151,483	78,166	22,830	52,817	63,071	364	58	368,789
1965-66 . . .	39,117	60,591	17,429	39,976	102,156	368	28	259,666
1966-67 . . .	202,501	70,896	35,730	53,816	103,195	385	87	466,610
1967-68 . . .	87,323	28,317	27,417	26,899	106,975	316	42	277,289
YIELD PER ACRE (BUSHEL)(a)								
Average for three years ended—								
1938-39 . . .	13.0	13.9	13.1	11.2	10.5	24.1	22.5	12.2
1948-49 . . .	13.0	14.9	19.5	12.4	11.7	19.7	19.5	13.3
1958-59 . . .	14.7	21.1	19.6	18.8	13.6	24.7	15.0	16.5
Year—								
1963-64 . . .	24.7	24.5	23.8	19.3	11.3	27.5	24.6	19.9
1964-65 . . .	26.3	24.2	22.3	19.4	12.2	21.7	27.6	20.6
1965-66 . . .	8.5	19.7	18.3	14.6	16.6	26.1	20.8	14.8
1966-67 . . .	28.4	22.6	29.1	18.2	16.3	30.2	32.5	22.4
1967-68 . . .	10.6	8.8	18.6	9.4	16.1	26.3	17.8	12.4

(a) 60 lb per bushel.

A graph showing the area sown to wheat for grain in Australia since 1900-1 appears on plate 40 of this Year Book, and a map showing the distribution of areas growing wheat for grain throughout Australia in 1962-63 appears on page 1013 of Year Book No. 50. Similar maps showing the distribution of wheat areas in 1924-25, 1938-39, 1947-48, and 1954-55 appeared respectively in Year Books No. 22, page 695, No. 34, page 451, No. 39, pages 977-8, and No. 43, page 833.

WHEAT FOR GRAIN: AUSTRALIA

1935-36 to 1967-68



Apart from the variations in the area sown, the size of the wheat harvest in Australia is determined largely by the nature of the season, resulting in considerable year-to-year fluctuations in production. The main wheat-producing States of Australia are New South Wales, Western Australia and Victoria. Tasmania imports wheat from the mainland to satisfy its needs, though it exports flour made from local wheat which is particularly suitable for biscuits.

The 1967-68 wheat crop was seriously affected by severe drought conditions in New South Wales, Victoria, South Australia and to some extent in Queensland. Overall, production in the 1967-68 season was 41 per cent below the record crop of 1966-67.

The following table shows the average area, production and yield per acre for decennial periods since 1861 together with similar details for the latest season, 1967-68. Repeated cropping and short rotations (mainly in the eastern States) are believed to have led to the decline in yield to 1900, while fallowing and the widespread use of artificial fertilisers contributed to the increased yields in the decade following. The increase in yield since 1950 has been generally ascribed to the impact of improved pastures and ley-farming (broadly, the alternation of crops and pastures) upon soil fertility in wheat-growing areas. The production and yield per acre of wheat for each year from 1935-36 to 1967-68 are shown on plate 41, page 839.

**WHEAT FOR GRAIN: AVERAGE AREA AND PRODUCTION
AUSTRALIA, 1861 TO 1967-68**

<i>Period</i>	<i>Area</i>	<i>Production</i>	<i>Yield per acre</i>
	'000 acres	'000 bushels	bushels
Yearly average—			
1861-70	831	10,622	12.8
1871-80	1,646	17,711	10.8
1881-90	3,258	26,992	8.3
1891-1900	4,087	29,934	7.3
1901-10	5,711	56,058	9.8
1911-20	8,928	95,480	10.7
1921-30	11,291	135,400	12.0
1931-40	14,176	177,758	12.5
1941-50	11,358	145,599	12.8
1951-60	10,164	173,622	17.1
Year—			
1967-68	22,441	277,289	12.4

Price of wheat

The prices charged by the Australian Wheat Board for wheat sold to millers for gristing into flour for consumption in Australia and for wheat sold as stock feed were as follows: year ended 30 November 1965, \$1.47; 1966, \$1.53; 1967, \$1.57; 1968, \$1.66; and 1969, \$1.71. These prices include a loading to meet freight charges incurred on wheat shipped to Tasmania (0.83 cents in 1965; 1.66 cents in 1966; 1.50 cents in 1967 and 1968; and 1.0 cents in 1969).

The Wheat Board's monthly basic export selling prices for f.a.q. bulk wheat f.o.b. basis, both for wheat sold under the International Wheat Agreement and for 'free' wheat sold on the open market, fell in the following ranges; season ended 30 June 1965, \$1.35 to \$1.53; 1966, \$1.38 to \$1.48; 1967, \$1.51 to \$1.60; 1968, \$1.41 to \$1.49.

The 1962 International Wheat Agreement, operative from 1 August 1962 to 31 July 1967, set the maximum price at \$US2.025 a bushel and the minimum at \$US1.625 for f.a.q. wheat sold under the Agreement. Under the new International Grains Arrangement, which is operative from 1 July 1968, provision has been made for minimum and maximum prices for fourteen types of wheat, the basic wheat being United States Hard Red Winter No. 2 Ordinary Protein, the minimum price for which has been fixed at \$US1.73 per bushel. The minimum price per bushel for No. 1 Manitoba Northern Wheat is now \$US1.955 and for Australian f.a.q. wheat \$US1.68 (see page 836 for a description of the International Grains Arrangement).

Details of export prices of wheat in earlier years, including those received for wheat sold under the terms of the 1949-1953 International Wheat Agreement, are given in Year Book No. 40, pages 849-50, and in the statistical bulletin *The Wheat Industry, Australia*, No. 99, March 1961, and in previous issues of these publications.

Value of the wheat crop

The estimated gross value of the wheat crop in each State and in Australia during the season 1967-68 and the value per acre are shown below.

WHEAT FOR GRAIN: VALUE OF CROP(a), STATES, 1967-68

		<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>Aust.(b)</i>
Aggregate value	\$'000	136,434	43,856	42,339	42,183	170,102	462	435,443
Value per acre	\$	16.61	13.60	28.67	14.73	25.59	38.44	19.40

(a) Gross value of total crop, including wheat used for seed and for stock feed on farms. Also includes payment of \$43,464,000 by the Commonwealth Government. (b) Includes the Australian Capital Territory.

Production and disposal of wheat in Australia

In the following tables details are given of Australian Wheat Board transactions and of total production and disposal of wheat during each of the years ended 30 November 1964 to 1968.

AUSTRALIAN WHEAT BOARD WHEAT RECEIVED, STATES, 1963-64 TO 1967-68 HARVESTS (^{'000} bushels)

<i>Pool</i>	<i>Harvest</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>Aust.</i>
27	1963-64	110,722	77,728	20,330	51,660	47,071	325	307,837
28	1964-65	137,494	80,685	20,712	49,991	57,440	188	346,511
29	1965-66	27,558	60,923	13,701	36,160	95,837	217	234,396
30	1966-67	184,643	74,619	32,884	50,007	96,823	247	439,224
..	1967-68	73,005	27,814	24,367	22,083	99,946	154	247,369

Stocks of wheat (including flour in terms of wheat) held by the Australian Wheat Board in each State at 30 November for the years 1964 to 1968 are shown in the following table. These data relate to stocks held at mills, sidings, ports, and depots as recorded by the Australian Wheat Board.

AUSTRALIAN WHEAT BOARD: STOCKS(a) OF WHEAT (INCLUDING FLOUR IN TERMS OF WHEAT), STATES, 30 NOVEMBER 1964 TO 1968 (^{'000} bushels)(b)

<i>Year</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>Aust.</i>
1964	7,340	7,490	806	3,048	1,257	472	20,413
1965	15,265	3,716	862	2,602	1,556	382	24,383
1966	3,406	6,020	343	2,623	3,626	529	16,547
1967	43,238	22,709	596	8,160	5,285	536	80,524
1968	10,668	13,076	612	6,801	19,954	351	51,462

(a) Held at mills, sidings, ports and depots. Excludes new season's wheat received from growers prior to 30 November of years shown. (b) One short ton (2,000 lb) of flour is taken as being equivalent to 46.3 bushels of wheat.

Particulars of the disposal of wheat during the years ended 30 November 1964 to 1968, as recorded by the Australian Wheat Board, are shown in the following table.

AUSTRALIAN WHEAT BOARD: DISPOSAL OF WHEAT, 1964 TO 1968
(^{'000} bushels)

	<i>Year ended 30 November—</i>				
	1964	1965	1966	1967	1968
Exported as wheat	221,530	243,725	158,104	293,958	187,996
Exported as flour(a)	31,797	23,318	16,615	19,329	19,314
Sold for local consumption as flour	42,954	44,160	44,164	43,845	45,025
Sold for other purposes	13,658	30,556	22,705	17,384	25,006

(a) Includes wheat equivalent of manufactured wheat products exported.

A summary of *all* transactions in wheat for Australia, as distinct from those recorded for the Wheat Board above, appears in the following table.

WHEAT: PRODUCTION AND DISPOSAL, AUSTRALIA, 1964 TO 1968
(million bushels)(a)

	<i>Year ended 30 November—</i>				
	1964	1965	1966	1967	1968
Opening stocks (including flour) (b)(c)(d)	23.3	20.4	24.4	16.5	80.5
Production	327.9	368.8	259.7	466.6	277.3
<i>Total available supplies</i>	351.2	389.2	284.1	483.1	357.8
Exports—					
Wheat	221.5	244.5	163.1	293.5	187.7
Flour(b)	34.3	23.8	16.2	19.7	19.2
Breakfast foods and other products(b)(d)	0.7	0.7	0.7	0.9	1.0
Local consumption—					
Flour(b)(d)	43.0	44.2	44.2	43.8	45.0
Breakfast foods and other products(b)(d)	1.7	1.9	2.4	1.8	2.4
Stock feed wheat sales(d)	12.0	28.7	20.3	15.6	22.6
Seed	16.6	16.3	19.1	20.9	24.4
Retained on farm (excluding seed)	3.4	6.0	6.2	6.5	5.6
Closing stocks (including flour)(b)(c)(d)	20.4	24.4	16.5	80.5	51.5
<i>Total disposals</i>	353.6	390.5	288.7	483.2	359.4
Excess (+) or deficiency (–) of disposals in relation to available supplies(e)	+2.4	+1.3	+4.6	+0.1	+1.6

(a) One short ton (2,000 lb) of flour is taken as being equivalent to 46.3 bushels of wheat. (b) In terms of wheat. (c) Held at ports, depots, mills, and sidings. (d) Source: Australian Wheat Board. (e) Includes allowance for unrecorded movements in stocks, gain or loss in out-turn, etc.

The *Wheat Industry Stabilization Act* 1948 empowered the Minister to arrange with the Commonwealth Bank for advances to the Board, the advances being guaranteed by the Commonwealth Government. These provisions have been continued in the subsequent legislation, with the exception that advances are now arranged through the Reserve Bank.

AUSTRALIAN WHEAT BOARD: FINANCIAL OPERATIONS, 1963-64 TO 1967-68
(*\$'000*)

	<i>No. 27 Pool</i>	<i>No. 28 Pool</i>	<i>No. 29 Pool(a)</i>	<i>No. 30 Pool(a)</i>	
	<i>(1963-64 Harvest)</i>	<i>(1964-65 Harvest)</i>	<i>(1965-66 Harvest)</i>	<i>(1966-67 Harvest)</i>	<i>(1967-68 Harvest)</i>
Paid to growers	373,254	409,337	288,983	491,747	229,247
Rail freight	49,270	57,765	34,605	76,536	41,865
Expenses	17,990	21,298	20,219	32,494	29,044
<i>Total payments</i>	<i>440,514</i>	<i>488,400</i>	<i>343,807</i>	<i>600,777</i>	<i>300,156</i>
Value of sales delivered	<i>(b)439,262</i>	<i>(c)471,052</i>	<i>(d)335,647</i>	<i>(e)636,346</i>	<i>(f)351,064</i>

(a) Incomplete. (b) Subject to additional \$1,892,000 provided by the Commonwealth Government and payment of \$640,000 to Wheat Industry Research Fund. (c) Subject to additional \$18,069,000 provided by the Commonwealth Government and payment of \$722,000 to Wheat Industry Research Fund. (d) Subject to additional \$16,154,000 provided by the Commonwealth Government and payment of \$586,000 to Wheat Industry Research Fund. (e) Subject to additional \$15,508,000 provided by the Commonwealth Government and payment of \$1,097,000 to Wheat Industry Research Fund. (f) Subject to an estimated additional \$43,464,000 to be provided by the Commonwealth Government and payment of \$616,000 to Wheat Industry Research Fund.

Details of earlier pools will be found in previous issues of the Year Book.

Imports of wheat

Wheat and flour have been imported in substantial quantities on three occasions since 1900; in 1902-3 the wheat harvest was only 12,378,000 bushels, and wheat and flour equivalent to 12,468,000 bushels of wheat were imported. An equivalent of 7,279,000 bushels was imported in 1914-15 to supplement the yield of 25 million bushels produced in that season. Owing to drought conditions in 1957-58 supplies of high protein wheat were insufficient for local requirements and, as a result, 1,485,000 bushels were imported from Canada in 1958. No wheat has since been imported.

Exports of wheat and flour

Statistics in the following three tables are for years ended 30 June and relate to the exports of *Australian produce* only.

WHEAT AND FLOUR: EXPORTS, AUSTRALIA, 1963-64 TO 1967-68

<i>Year</i>	<i>Quantity</i>			<i>Total (in terms of wheat)</i>	<i>Value</i>		
	<i>Wheat</i>	<i>Flour</i>			<i>Wheat</i>	<i>Flour(a)</i>	<i>Total</i>
		<i>As flour (a)</i>	<i>In terms of wheat(b)</i>				
	<i>'000</i>	<i>short</i>	<i>'000</i>	<i>'000</i>	<i>\$'000</i>	<i>\$'000</i>	<i>\$'000</i>
	<i>bushels</i>	<i>tons</i>	<i>bushels</i>	<i>bushels</i>	<i>f.o.b.</i>	<i>f.o.b.</i>	<i>f.o.b.</i>
1963-64	253,724	714,939	33,102	286,826	362,018	43,758	405,776
1964-65	209,980	598,037	27,689	237,669	297,199	39,122	336,321
1965-66	189,479	416,201	19,270	208,749	264,062	26,526	290,588
1966-67	239,051	379,352	17,564	256,615	361,227	24,600	385,827
1967-68	238,778	406,847	18,837	257,613	342,767	24,303	367,070

(a) White flour (plain and self-raising), sharps and wheatmeal for baking. (b) One short ton (2,000 lb) of flour is taken as being equivalent to 46.3 bushels of wheat.

WHEAT: EXPORTS TO VARIOUS COUNTRIES, AUSTRALIA, 1963-64 TO 1967-68
(*000 bushels)

<i>Country to which exported</i>	<i>1963-64</i>	<i>1964-65</i>	<i>1965-66</i>	<i>1966-67</i>	<i>1967-68</i>
China (mainland)	93,440	83,623	74,131	79,523	88,781
India	7,572	17,543	6,650	14,721	25,299
United Kingdom	28,146	19,132	23,293	14,233	23,622
Japan	18,800	16,276	13,357	15,851	22,484
Pakistan	2,044	2,173	1,569	25,863	11,476
Malaysia	149	(a)3,669	(a)3,758	9,244	9,374
Singapore	1,588	(b)	(b)4,479	7,403	9,297
Iraq	4,876	2,450	45	4,902	7,221
Chile . . . . .	..	..	..	1,725	6,271
Netherlands . . . . .	..	..	..	4,406	4,479
Hong Kong	2,051	2,169	2,859	3,627	4,015
Brazil . . . . .	..	..	..	3,819	3,688
Other(c)	95,058	62,945	59,338	53,734	22,771
Total	253,724	209,980	189,479	239,051	238,778

(a) Includes Singapore from 1 July 1964 to 30 September 1965. (b) Included in Malaysia from 1 July 1964 to 30 September 1965. (c) Includes particulars of shipments made 'for orders' which could not be classified to countries.

The following table shows the exports of flour to various countries for each of the years 1963-64 to 1967-68. The figures relate to exports of white flour (plain and self-raising), sharps and wheatmeal for baking.

FLOUR: EXPORTS TO VARIOUS COUNTRIES, AUSTRALIA, 1963-64 TO 1967-68
(Short tons)

<i>Country to which exported</i>	<i>1963-64</i>	<i>1964-65</i>	<i>1965-66</i>	<i>1966-67</i>	<i>1967-68</i>
Ceylon	115,273	191,144	170,083	144,982	160,620
Indonesia	5,080	9,124	3,086	24,766	65,564
Fiji	37,993	34,915	34,219	24,642	33,735
Papua and New Guinea	11,516	13,871	14,889	16,139	17,804
Mauritius	21,279	19,847	11,817	12,147	17,372
Saudi Arabia	12,564	15,822	16,692	12,111	17,183
Trucial States	(a)	10,965	8,114	8,489	12,207
United Kingdom	48,744	45,579	33,075	19,411	11,090
Malawi	(a)	8,360	6,192	7,413	10,483
South Arabia, Federation of	40,675	44,990	29,968	25,272	9,958
Guyana	643	2,381	2,463	2,171	7,378
Muscat and Oman	(a)	4,661	4,731	5,255	5,587
Other(b)	421,172	196,378	80,872	76,554	37,866
Total	714,939	598,037	416,201	379,352	406,847

(a) Not recorded separately. (b) Includes particulars which could not be classified to countries.

World area and production of wheat

The figures in the following table of the world area and production of wheat by principal countries and by continents have been compiled from statistics published by the International Wheat Council. Harvests in the northern hemisphere occur in the first of the two years mentioned in each column heading, and in the southern hemisphere at the end of that year and the beginning of the next. Harvests of the northern hemisphere countries are thus combined with those of the southern hemisphere which immediately follow; e.g. in 1967-68 the Canadian harvest occurred from August to September 1967 and the Australian harvest from October 1967 to February 1968.

WHEAT: AREA, PRODUCTION AND YIELD PER ACRE IN VARIOUS COUNTRIES 1965-66 TO 1967-68

(Source for countries other than Australia: International Wheat Council—World Wheat Statistics)

Continent and country	Area			Production			Yield per acre		
	1965-66	1966-67	1967-68	1965-66	1966-67	1967-68	1965-66	1966-67	1967-68
	'000 acres	'000 acres	'000 acres	mill. bus	mill. bus	mill. bus	bus	bus	bus
U.S.S.R. (Europe and Asia)	173,477	172,866	165,624	2,193	3,693	2,840	12.6	21.4	17.1
Europe—									
France	11,169	9,864	9,709	542	415	525	48.6	42.1	54.1
Italy	10,596	10,561	9,914	359	345	353	33.9	32.7	35.6
Romania	7,371	7,497	7,198	218	186	214	29.6	24.8	29.7
Germany, Federal Republic	3,489	3,432	3,494	160	167	214	45.8	48.5	61.2
Total, Europe(a)	70,929	68,826	68,741	2,471	2,301	2,658	34.8	33.4	38.7
Asia—									
China (mainland)(b)	61,801	60,500	60,500	827	764	845	13.4	12.6	14.0
India	33,260	31,273	31,723	452	383	419	13.6	12.2	13.2
Turkey	19,840	19,938	20,045	317	357	372	16.0	17.9	18.5
Iran	4,999	5,298	n.a.	110	161	170	22.0	30.4	n.a.
Total, Asia(a)	150,981	146,270	148,741	2,137	2,035	2,244	14.2	13.9	15.1
North and Central America—									
United States	49,599	49,867	58,771	1,316	1,312	1,522	26.5	26.3	25.9
Canada	28,301	29,692	30,121	649	827	593	22.9	27.9	19.7
Total, North and Central America(a)	79,592	81,345	91,107	2,025	2,199	2,201	25.5	27.0	24.2
South America—									
Argentina	11,369	12,884	14,470	223	230	269	19.6	17.8	18.6
Total, South America(a)	16,247	17,520	18,829	310	310	347	19.2	17.8	18.5
Oceania—									
Australia	17,515	20,823	22,441	260	467	277	14.8	22.4	12.4
Total, Oceania(a)	17,715	21,043	22,745	270	478	293	15.4	22.7	12.9
Africa	19,917	19,225	19,744	212	193	219	10.6	10.0	11.1
World total(a)	528,858	527,095	535,531	9,618	11,209	10,802	18.2	21.3	20.2

(a) Includes allowances for any missing data for countries shown and for other producing countries not shown.
(b) International Wheat Council estimate.

Principal wheat exporting and importing countries

The following table shows world exports of wheat and wheat flour (in terms of wheat) by the major wheat exporting countries, according to continents and countries of primary destination, based on statistics recently published by the International Wheat Council. While Australia's production of wheat has averaged about three per cent of the world's total during recent years, its exports account for a much higher proportion of the total quantities shipped. For the three years ended 1967-68 Australia's share of the world wheat exports has averaged 12 per cent.

**WORLD EXPORTS OF WHEAT AND WHEAT FLOUR IN TERMS OF WHEAT
1963-64 TO 1967-68**

(Source: International Wheat Council—World Wheat Statistics)

(Million bushels)

Year and country of primary destination	Exporting country							Total
	U.S.A.	Canada	Australia	U.S.S.R.	France	Argen- tina	Other	
1967-68p—								
Asia(a)—								
India	212.0	12.7	25.3	..	..	..	0.5	250.5
China (mainland) . . . . .	..	50.2	88.8	..	13.3	0.4	..	152.7
Japan	81.8	40.3	22.5	..	0.1	..	..	144.7
Pakistan	76.4	0.9	1.1	..	..	..	1.5	79.9
Korea, South	35.1	..	..	..	..	..	..	35.1
Other	85.8	8.1	60.0	3.1	10.4	0.2	18.6	186.2
<i>Total, Asia</i>	<i>491.1</i>	<i>112.2</i>	<i>197.7</i>	<i>3.1</i>	<i>23.8</i>	<i>0.6</i>	<i>20.6</i>	<i>849.1</i>
Europe(a)—								
United Kingdom	10.2	69.0	24.1	5.5	11.4	1.6	27.6	149.4
Germany, Federal Republic of	12.3	16.9	0.6	0.6	14.3	..	15.8	60.5
Czechoslovakia . . . . .	..	5.3	..	42.1	..	..	6.0	53.4
Germany, East . . . . .	..	..	..	47.0	..	..	2.8	49.8
Poland	1.5	3.9	..	34.5	9.0	..	..	48.9
Netherlands	20.6	5.3	4.5	5.2	8.7	0.9	3.3	48.5
Italy	6.8	8.7	..	3.5	7.3	14.4	0.1	40.8
Other	32.6	22.2	4.1	3.5	16.1	2.7	14.1	95.3
<i>Total, Europe</i>	<i>84.0</i>	<i>131.3</i>	<i>33.3</i>	<i>141.9</i>	<i>66.8</i>	<i>19.6</i>	<i>69.7</i>	<i>546.6</i>
Africa—								
United Arab Republic	0.9	..	..	28.3	20.0	..	36.3	85.5
Other	50.5	8.6	8.4	1.4	33.1	0.7	20.9	123.6
<i>Total, Africa</i>	<i>51.4</i>	<i>8.6</i>	<i>8.4</i>	<i>29.7</i>	<i>53.1</i>	<i>0.7</i>	<i>57.2</i>	<i>209.1</i>
South America—								
Brazil	48.1	..	3.7	1.9	5.6	14.3	13.5	87.1
Other	55.2	3.6	9.6	..	1.8	15.1	13.1	98.4
<i>Total, South America</i>	<i>103.3</i>	<i>3.6</i>	<i>13.3</i>	<i>1.9</i>	<i>7.4</i>	<i>29.4</i>	<i>26.6</i>	<i>185.5</i>
U.S.S.R. . . . .	..	50.4	..	..	..	..	6.0	56.4
North and central America	19.5	20.9	0.1	10.2	3.3	..	2.0	56.0
Oceania	0.1	..	4.7	..	0.9	..	..	5.8
All other	3.5	..	..	..	0.1	..	1.4	5.0
<i>World total, 1967-68</i>	<i>752.9</i>	<i>327.1</i>	<i>257.6</i>	<i>186.8</i>	<i>155.4</i>	<i>50.2</i>	<i>183.5</i>	<i>1,913.5</i>
1966-67	734.1	545.0	256.6	151.6	112.8	112.4	151.0	2,062.5
1965-66	859.7	545.0	208.7	80.9	175.7	292.0	134.0	2,296.0
1964-65	720.4	437.6	237.7	42.6	169.6	163.3	110.0	1,881.2
1963-64	848.7	554.4	287.1	47.1	98.5	102.0	134.3	2,072.1

(a) Excludes U.S.S.R., details for which are shown separately.

The above particulars are based on customs clearances of the exporting countries, and relate to years ended 30 June. There are small differences between Australian exports as shown and those on pages 843-4 due in part to the use by the International Wheat Council of a slightly different factor to convert flour to wheat equivalent.

Oats

This cereal is widely grown in all agricultural areas which have autumn, winter and spring rainfall; it is tolerant of wet conditions and heavy soils. It has excellent feed value and produces a higher yielding crop than other winter cereals. It needs less cultivation, but requires ample fertiliser. Oats has a variety of uses—as a pasture plant when rough sown into stubble or heavy clover pastures, as silage if cut before maturity, as a hay crop when mown and baled or cut for chaff, or as a grain when stripped (the stubble then being grazed off). The grain is sold on a 'fair average quality' basis through voluntary pools in Victoria, South Australia and Western Australia.

Oats area, production and yield per acre

Oats is usually next in importance to wheat among the grain crops cultivated in Australia. However, while wheat grown for grain in 1967-68 accounted for 56 per cent of the area of all crops, oats grown for grain represented only 8 per cent.

**OATS FOR GRAIN: AREA, PRODUCTION AND YIELD PER ACRE
STATES AND AUSTRALIAN CAPITAL TERRITORY, 1936-37 TO 1967-68**

<i>Period</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>A.C.T.</i>	<i>Aust.</i>
AREA ('000 ACRES)								
Average for three years ended—								
1938-39 . . .	297	478	8	338	425	26	..	1,572
1948-49 . . .	515	548	21	282	484	17	1	1,868
1958-59 . . .	756	735	29	445	1,178	20	..	3,163
Year—								
1963-64 . . .	794	910	31	501	1,125	30	1	3,392
1964-65 . . .	850	966	55	444	1,152	28	1	3,497
1965-66 . . .	1,033	966	45	455	1,240	28	1	3,768
1966-67 . . .	1,363	1,079	66	509	1,204	36	2	4,258
1967-68 . . .	907	723	31	525	1,158	35	1	3,380
PRODUCTION ('000 BUSHEL)(a)								
Average for three years ended—								
1938-39 . . .	4,065	4,781	65	2,575	4,159	810	6	16,461
1948-49 . . .	7,166	9,757	324	3,606	5,355	406	7	26,621
1958-59 . . .	12,619	14,140	547	7,911	15,606	409	10	51,242
Year—								
1963-64 . . .	19,812	19,885	673	9,149	17,850	844	22	68,234
1964-65 . . .	22,885	22,446	1,171	8,977	14,011	520	32	70,043
1965-66 . . .	12,607	17,784	735	5,622	23,279	677	37	60,739
1966-67 . . .	41,003	31,248	1,467	10,276	22,117	948	47	107,106
1967-68 . . .	8,235	6,859	450	3,299	19,759	1,014	12	39,628
YIELD PER ACRE (BUSHEL)(a)								
Average for three years ended—								
1938-39 . . .	13.7	10.0	8.1	7.6	9.8	3.1	24.3	10.5
1948-49 . . .	13.9	17.8	15.4	12.8	11.1	2.4	11.8	14.3
1958-59 . . .	16.7	19.2	18.9	17.8	13.3	20.5	22.5	16.2
Year—								
1963-64 . . .	24.9	21.8	21.7	18.3	15.9	27.8	19.8	20.1
1964-65 . . .	26.9	23.2	21.1	20.2	12.2	18.5	21.6	20.0
1965-66 . . .	12.2	18.4	16.3	12.4	18.8	23.9	25.6	16.1
1966-67 . . .	30.1	29.0	22.1	20.2	18.4	26.4	26.2	25.2
1967-68 . . .	9.1	9.5	14.6	6.3	17.1	28.7	20.3	11.7

(a) 40 lb per bushel.

Graphs showing the area sown to oats and production of oats in Australia appear on pages 993 and 995 of Year Book No. 49, and a map showing the distribution of areas growing oats for grain throughout Australia in 1962-63 appears on page 1015 of Year Book No. 50. The area sown to oats from 1900-01 is shown in plate 40, page 828.

In 1967-68 production and yield per acre of oats for Australia were seriously affected by drought conditions in the eastern States. Production of 39,628,000 bushels was the lowest recorded since 1957-58. It was 63 per cent below the record production in 1966-67.

Value of oat crop

The average wholesale price in the Melbourne market for oats of good milling quality was \$1.13 per bushel in 1967-68, compared with \$0.80 in 1966-67. The estimate gross value of the oat crop in each State for the 1967-68 season and the value per acre were as follows.

OATS FOR GRAIN: VALUE OF CROP, STATES, 1967-68

		<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>Aust.(a)</i>
Aggregate value	\$'000	8,729	6,723	428	3,197	14,106	1,009	34,205
Value per acre	\$	9.62	9.30	13.91	6.09	12.18	28.53	10.12

(a) Includes the Australian Capital Territory.

Exports of oats

OATS: EXPORTS, AUSTRALIA, 1963-64 TO 1967-68

		1963-64	1964-65	1965-66	1966-67	1967-68
Quantity	'000 bus	16,673	20,161	13,825	22,134	10,033
Value	.\$'000 f.o.b.	12,623	15,616	11,980	17,450	8,407

In 1967-68 the principal countries of destination were the Netherlands (3,213,000 bushels), the Federal Republic of Germany (2,387,000 bushels), Japan (809,000 bushels), the United States of America (623,000 bushels) and South Africa (542,000 bushels).

Oatmeal and other oat products

In 1967-68 the production of granulated or rolled oats or oatmeal (kilned and unkilned) for breakfast foods, porridge and other purposes was 21,518 tons.

World production of oats

The world production of oats for the year 1967, according to figures issued by the United States Department of Agriculture, amounted to 3,255 million bushels, harvested from 74.2 million acres, resulting in an average yield of 43.9 bushels an acre. This compared with an estimated production in the previous year of 3,109 million bushels from an area of 73.6 million acres and an average yield of 42.2 bushels an acre.

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 was formerly stubble-sown, but is now grown principally on pasture land worked up early in the year of sowing. In this way it forms an important phase in the rotation of crops. Like oats, it may also be sown for fodder production or for grain. When sown for fodder, sowing may take place either early or late in the season, as it has a short growing period. It may thus provide grazing or fodder supplies when other sources are not available. Barley grain may be crushed to meal for stock (especially pigs) or sold for malting.

Crops sown for malting purposes require well-worked, weed-free paddocks of even soil, and are thus restricted to specific districts. The main barley-growing areas in Australia are situated in South Australia (Murray-Mallee, Eyre and Yorke Peninsulas), but considerable quantities are grown also in New South Wales, Victoria, Queensland and Western Australia.

Barley boards

The bulk of the barley crop in the various States is acquired and marketed by grower-controlled boards. Pooled returns from sales are distributed to growers at standard rates for the individual grades and varieties delivered. The Victorian and South Australian crops are marketed by the

Australian Barley Board (a joint board established by the two State Governments), and the Queensland and Western Australian Barley Boards handle the crops of their respective States. Particulars of the proportion of barley production which was received by the Australian Barley Board (for Victoria and South Australia), together with details of quantity sold, advances and total payments to growers, are presented below.

**AUSTRALIAN BARLEY BOARD: BARLEY RECEIVED, SOLD, ETC.
1963-64 TO 1967-68**

<i>Pool</i>	<i>Quantity received</i>	<i>Quantity sold(a)</i>	<i>Total advances made per bushel on 2-row No. 1 grade less freight</i>	<i>Total net payments to growers</i>
	'000 bushels	'000 bushels	\$	\$'000
No. 25 (1963-64 Crop)	23,145	23,204	1.1862	22,446
„ 26 (1964-65 „)	25,465	25,404	1.2000	25,184
„ 27 (1965-66 „)	14,922	14,894	1.2873	14,824
„ 28 (1966-67 „)	22,043	22,026	1.2515	22,759
„ 29 (1967-68 „)	7,985	7,914	(b)1.1800	(b)7,005

(a) Includes surplus or shortage in out-turn, except for No. 29 Pool for which the surplus has not yet been ascertained. (b) As at 31 May 1969. At that date it was estimated that the amount still to be paid to growers was 6.347 cents per bushel.

Barley area, production and yield per acre

There was a substantial increase in the area of barley sown for grain (particularly in Western Australia and Queensland) in the years up to 1960-61, and in that year the area sown reached the record level of 2,830,000 acres. However, the area sown in 1967-68, 2,611,000 acres, was 8 per cent less than the area in 1960-61. The production of barley for grain in 1967-68, 36,798,000 bushels, was 46 per cent less than the record production of 67,970,000 bushels in 1960-61, and was the lowest recorded production since 1959-60. The area, production and yield per acre of barley for grain in the several States for the years 1963-64 to 1967-68, compared with the averages for the three-year periods ended 1938-39, 1948-49 and 1958-59 are shown in the following table. Separate details for 2-row and 6-row varieties are shown for all States for 1967-68. The area sown to barley from 1900-01 is shown in plate 40, page 828.

**BARLEY FOR GRAIN: AREA, PRODUCTION AND YIELD PER ACRE
STATES AND AUSTRALIAN CAPITAL TERRITORY, 1936-37 TO 1967-68**

<i>Period</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>A.C.T.</i>	<i>Aust.</i>
AREA ('000 ACRES)								
Average for three years ended—								
1938-39	13	138	10	391	53	8	..	613
1948-49	23	166	18	587	65	7	..	866
1958-59	73	354	184	1,255	324	8	..	2,198
Year—								
1963-64	212	190	176	1,123	299	14	..	2,013
1964-65	239	187	225	1,095	303	15	..	2,064
1965-66	236	192	338	1,098	413	20	..	2,298
1966-67	385	228	384	1,107	373	21	..	2,498
1967-68—								
2-row	257	287	309	1,097	101	23	..	2,074
6-row	111	18	33	60	315	1	..	538
<i>Total</i>	<i>367</i>	<i>305</i>	<i>342</i>	<i>1,157</i>	<i>416</i>	<i>24</i>	<i>..</i>	<i>2,611</i>

**BARLEY FOR GRAIN: AREA, PRODUCTION AND YIELD PER ACRE
STATES AND A.C.T., 1936-37 TO 1967-68—continued**

<i>Period</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>A.C.T.</i>	<i>Aust.</i>
PRODUCTION ('000 BUSHELLS)(a)								
Average for three years ended—								
1938-39 . . .	197	2,174	135	6,816	660	252	..	10,234
1948-49 . . .	316	3,149	375	11,964	748	194	..	16,746
1958-59 . . .	1,463	7,192	4,673	29,740	4,239	267	..	47,574
Year—								
1963-64 . . .	5,351	4,026	5,191	24,337	4,077	414	..	43,395
1964-65 . . .	6,707	4,335	7,111	26,932	3,701	529	..	49,315
1965-66 . . .	3,801	3,218	9,137	18,514	6,481	684	..	41,835
1966-67 . . .	11,796	5,421	13,194	23,698	6,707	772	..	61,588
1967-68—								
2-row . . .	3,474	2,550	8,208	11,887	1,753	859	..	28,731
6-row . . .	1,360	158	757	492	5,274	25	..	8,067
<i>Total</i> . . .	4,834	2,709	8,965	12,380	7,027	884	..	36,798
YIELD PER ACRE (BUSHELLS)(a)								
Average for three years ended—								
1938-39 . . .	15.2	15.7	13.5	17.4	12.5	31.5	52.3	16.7
1948-49 . . .	13.7	19.0	20.8	20.4	11.5	27.7	19.5	19.3
1958-59 . . .	20.0	20.3	25.4	23.7	13.1	33.4	..	20.7
Year—								
1963-64 . . .	25.3	21.2	29.5	21.7	13.6	30.0	..	21.6
1964-65 . . .	28.1	23.2	31.6	24.6	12.2	34.2	..	23.9
1965-66 . . .	16.1	16.7	27.0	16.9	15.7	34.4	..	18.2
1966-67 . . .	30.6	23.8	34.4	21.4	18.0	36.7	..	24.7
1967-68—								
2-row . . .	13.5	8.9	26.5	10.8	17.4	36.9	..	13.9
6-row . . .	12.3	8.8	22.9	8.2	16.7	31.7	..	15.0
<i>Total</i> . . .	13.2	8.9	26.2	10.7	16.9	36.8	..	14.1

(a) 50 lb per bushel.

For Australia, 79 per cent of the area of barley for grain in 1967-68 was sown with 2-row barley, while the remainder consisted of 6-row varieties. The proportion, however, varied considerably in the several States. The utilisation of barley during the season ended November 1968 was as follows: exports, 5,655,000 bushels; malting and distilling, 13,280,000 bushels; pearl barley, 141,000 bushels; seed, 3,400,000 bushels.

**BARLEY FOR GRAIN, 2- AND 6-ROW: AREA AND PRODUCTION
AUSTRALIA, 1936-37 TO 1967-68**

<i>Period</i>	<i>Area ('000 acres)</i>			<i>Production ('000 bushels)(a)</i>			<i>Yield per acre (bushels)(a)</i>		
	<i>2-row</i>	<i>6-row</i>	<i>Total</i>	<i>2-row</i>	<i>6-row</i>	<i>Total</i>	<i>2-row</i>	<i>6-row</i>	<i>Total</i>
Average for three years ended—									
1938-39 . . .	523	90	613	8,963	1,271	10,234	17.1	14.1	16.7
1948-49 . . .	769	97	866	15,142	1,604	16,746	19.7	16.5	19.3
1958-59 . . .	1,809	389	2,198	41,633	5,941	47,574	23.0	15.3	20.7
Year—									
1963-64 . . .	1,621	392	2,013	36,464	6,931	43,395	22.5	17.7	21.6
1964-65 . . .	1,655	409	2,064	41,775	7,540	49,315	25.2	18.4	23.9
1965-66 . . .	1,766	531	2,298	33,235	8,600	41,835	18.8	16.2	18.2
1966-67 . . .	1,951	546	2,498	49,207	12,381	61,588	25.2	22.7	24.7
1967-68 . . .	2,074	538	2,611	28,731	8,067	36,798	13.9	15.0	14.1

(a) 50 lb per bushel.

A graph showing the production of barley in Australia since 1935-36 appears on page 995 of Year Book No. 49, and a map showing the distribution of barley growing areas throughout Australia in 1962-63 appears on page 1014 of Year Book No. 50.

Value of barley crop

The average wholesale price for 2-row English malting barley in the Melbourne market was \$1.53 per bushel in 1967-68 compared with \$1.48 in 1966-67. The estimated gross value of the barley crop in each State for the 1967-68 season and the value per acre are shown in the following table.

BARLEY FOR GRAIN: VALUE OF CROP, STATES, 1967-68

		<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>Aust.</i>
Aggregate value	\$'000	6,456	3,261	10,683	12,818	7,690	1,314	42,222
Value per acre	\$	17.57	10.69	31.19	11.08	18.50	54.63	16.17

Exports of barley

Western Australia is the principal exporting State, and Japan, Saudi Arabia, China (Taiwan) and the United Kingdom were the principal countries to which barley was shipped in 1967-68. Particulars of exports of Australian-produced barley for the years 1963-64 to 1967-68 are shown in the following table.

BARLEY: EXPORTS, AUSTRALIA, 1963-64 TO 1967-68

		<i>1963-64</i>	<i>1964-65</i>	<i>1965-66</i>	<i>1966-67</i>	<i>1967-68</i>
Quantity	'000 bus	17,756	16,281	9,994	18,718	5,701
Value	\$'000 f.o.b.	18,299	18,002	11,508	21,569	6,569

In addition to exports of barley grain, there are also exports of Australian pearl and Scotch barley, the total for 1967-68 amounting to 89,000 lb, valued at \$7,000, the main countries of consignment being Malaysia and Mauritius. Imports of barley into Australia amounted to 6,563,000 lb, valued at \$164,000 during 1967-68.

Barley malt

Details of the recorded usage of barley and the production of barley malt in the years 1963-64 to 1967-68 are given in the following table.

BARLEY MALT: GRAIN USED AND MALT PRODUCED, AUSTRALIA
1963-64 TO 1967-68

		<i>1963-64</i>	<i>1964-65</i>	<i>1965-66</i>	<i>1966-67</i>	<i>1967-68</i>
Barley used	'000 bus(a)	11,886	11,667	12,883	13,601	13,003
Malt produced	'000 bus(b)	11,988	12,127	13,235	14,027	13,547

(a) 50 lb per bushel. (b) 40 lb per bushel.

Since 1952-53 the production of malt in Australia has been sufficient to meet local requirements and to provide a margin for export. Exports of Australian produce amounting to 5,235,000 bushels (value \$10,543,000) and 4,469,000 bushels (value \$9,362,000) were recorded in 1966-67 and 1967-68 respectively.

World production of barley

In comparison with the barley production of other countries that of Australia is extremely small. The main producers in 1967 were the Union of Soviet Socialist Republics, France and the United Kingdom. China is also normally a major producer, but details for 1967 are not available. Australian production in that year was approximately 1 per cent of the world total.

According to estimates made by the United States Department of Agriculture, world production of barley in the year 1967 amounted to 4,734 million bushels harvested from 158.5 million acres, equivalent to a yield per acre of 29.9 bushels. This compared with the production of 4,593 million bushels in the previous year from 153.8 million acres, giving a similar yield per acre.

Sorghum

Grain sorghum is a summer-growing annual palatable to stock and more drought and frost-resistant than maize. It requires a summer rainfall. The growing of this crop for grain on an extensive scale is a comparatively recent development in Australia, and, as with other cereals, operations are highly mechanised.

The climatic conditions of Queensland and northern New South Wales are particularly suited to the growing of sorghum, and development has so far been restricted mainly to these areas, more particularly to Queensland. The grain produced is fed to livestock and has become an important source for supplementing other coarse grains for this purpose. Other sorghums are grown in Australia mainly as green fodder, hay and silage (sweet sorghums and Sudan grass) and for the production of brush for broom manufacture (broom millet). In Queensland the growing of grain sorghum is concentrated in the Burnett, Dawson-Callide areas and in the central highlands. In New South Wales the north-western slopes and Murrumbidgee Irrigation Areas are the main areas. This crop is also suitable for the semi-tropical areas of the Northern Territory, where development is proceeding, and the Kimberleys.

GRAIN SORGHUM: AREA, PRODUCTION AND YIELD PER ACRE, STATES
1963-64 TO 1967-68

Year	Area			Production(a)			Yield per acre(a)		
	N.S.W.	Qld	Aust. (b)	N.S.W.	Qld	Aust. (b)	N.S.W.	Qld	Aust. (b)
	acres	acres	acres	'000 bushels	'000 bushels	'000 bushels	bushels	bushels	bushels
1963-64	61,203	303,857	365,708	1,269	6,612	7,889	20.7	21.8	21.6
1964-65	51,699	292,769	345,737	1,270	5,883	7,164	24.6	20.1	20.7
1965-66	99,576	332,768	433,437	605	6,533	7,149	6.1	19.6	16.5
1966-67	98,161	403,500	502,349	1,527	10,172	11,711	15.6	25.2	23.3
1967-68	78,165	382,192	461,834	1,580	8,939	10,582	20.2	23.4	22.9

(a) 60 lb per bushel. Production in New South Wales and Queensland harvested from crop sown in previous year.
(b) Includes small areas sown and quantities produced in other States and Territories. Excludes Northern Territory for 1967-68.

Maize

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

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

Maize area, production and yield per acre

MAIZE FOR GRAIN: AREA, PRODUCTION AND YIELD PER ACRE
STATES AND A.C.T., 1936-37 TO 1967-68

Period	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	A.C.T.	Aust.
AREA (ACRES)								
Average for three years ended—								
1938-39 . . .	121,178	19,826	179,641	20	16	..	6	320,687
1948-49 . . .	91,612	7,511	122,263	1	87	6	1	221,481
1958-59 . . .	57,662	3,629	120,417	(a)	13	1	2	(b)181,724
Year—								
1963-64 . . .	44,679	3,399	166,598	(a)	85	..	..	(b)214,761
1964-65 . . .	41,660	2,353	168,300	..	10	..	..	212,323
1965-66 . . .	42,000	1,683	153,081	..	1	..	..	196,765
1966-67 . . .	49,019	1,407	151,010	..	5	..	..	201,441
1967-68—								
Hybrid . . .	47,636	825	141,514	..	(c)	..	..	(b)189,975
Other . . .	3,933	92	6,218	..	155	..	..	10,398
Total . . .	51,569	917	147,732	..	155	..	..	200,373

PRODUCTION ('000 BUSHELS)(d)

Average for three years ended—								
1938-39 . . .	3,204	665	3,170	1	..	..	..	7,040
1948-49 . . .	2,446	314	2,960	..	1	..	..	5,721
1958-59 . . .	2,347	175	3,428	(a)	..	..	..	(b)5,950
Year—								
1963-64 . . .	2,089	203	4,427	(a)	2	..	..	(b)6,722
1964-65 . . .	1,878	114	4,887	..	..	..	..	6,879
1965-66 . . .	1,607	101	3,209	..	..	..	..	4,918
1966-67 . . .	2,471	72	4,948	..	..	..	..	7,491
1967-68—								
Hybrid . . .	2,183	29	4,617	..	(c)	..	..	(b)6,829
Other . . .	138	3	161	..	2	..	..	303
Total . . .	2,320	32	4,778	..	2	..	..	7,132

YIELD PER ACRE (BUSHELS)(d)

Average for three years ended—								
1938-39 . . .	26.4	33.5	17.6	43.7	12.3	..	10.2	22.0
1948-49 . . .	26.7	41.8	24.2	6.7	7.2	14.8	13.7	25.8
1958-59 . . .	40.7	48.2	28.5	(a)	16.8	30.0	..	(b)32.7
Year—								
1963-64 . . .	46.8	59.8	26.6	(a)	18.5	..	..	(b)31.3
1964-65 . . .	45.1	48.5	29.0	..	15.6	..	..	32.4
1965-66 . . .	38.3	60.3	21.0	..	60.0	..	..	25.0
1966-67 . . .	50.4	51.3	32.8	..	12.8	..	..	37.2
1967-68—								
Hybrid . . .	45.8	35.5	32.6	..	(c)	..	..	(b)35.9
Other . . .	35.0	29.6	25.8	..	11.4	..	..	29.1
Total . . .	45.0	34.9	32.2	..	11.4	..	..	35.6

(a) Not available for publication. (b) Incomplete. (c) Included in Other maize. (d) 56 lb per bushel. Production in New South Wales and Queensland harvested from crop sown in previous year.

The average yield for Australia for the five-year period ended 1967-68 was 32.3 bushels per acre. Among principal producing countries, the United States of America averaged 78.6 bushels per acre and Brazil 21.0 bushels for 1967.

Value of maize crop

The average wholesale price of maize in the Melbourne market in 1967-68 was \$2.14 per bushel compared with \$2.28 in 1966-67. The estimated gross value of the crop in each State for the 1967-68 season and the value per acre were as follows.

MAIZE FOR GRAIN: VALUE OF CROP, STATES, 1967-68

		<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>Aust.</i>
Aggregate value	\$'000	3,341	48	6,071	..	3	..	9,463
Value per acre	\$	64.79	52.34	41.09	..	19.35	..	47.23

Exports of maize**MAIZE: EXPORTS, AUSTRALIA, 1963-64 TO 1967-68**

		1963-64	1964-65	1965-66	1966-67	1967-68
Quantity	'000 bus	14	20	1	80	101
Value	\$'000 f.o.b.	27	42	4	114	169

Imports of maize into Australia in 1967-68 amounted to 17,000 bushels.

World production of maize

According to figures issued by the United States Department of Agriculture, world production of maize in the year 1967 amounted to 9,444 million bushels, harvested from 255 million acres, giving an average yield per acre of 37.1 bushels. This compared with production in the previous year of 8,944 million bushels from 246 million acres, and an average yield of 36.3 bushels per acre.

The United States of America is the most important maize-producing country in the world, and during the three years ended 1967 the area sown to maize in that country averaged 58 million acres or 23 per cent of the world total. During the same period production averaged 4,316 million bushels or 49 per cent of the world total.

Rice

The principal rice-growing areas of the world are confined almost entirely to Asia, although limited quantities are grown in other countries. In Australia rice was first cultivated at the Yanco Experimental Farm in New South Wales, but it was not grown commercially until 1924-25, when 16,240 bushels were produced from 153 acres. Favoured by high average yields and protected by tariff, rice culture made rapid progress in the Murrumbidgee Irrigation Areas until local requirements were met and a surplus became available for export. The acreage sown in this area is controlled, as the quantity of water available is limited.

Apart from small experimental areas in Western Australia and the Northern Territory, rice-growing in Australia is practically confined to the Murrumbidgee Irrigation Areas in New South Wales. The bulk of Australia's exports of rice in 1967-68 was shipped to Papua and New Guinea and Okinawa. Details relating to area, production, and Australian-produced exports for the years 1963-64 and 1967-68 are shown in the following table.

**RICE: AREA, PRODUCTION AND EXPORTS, AUSTRALIA(a)
1963-64 TO 1967-68**

Year	No. of holdings growing rice(b)	Area	Production (Paddy rice)		Average yield (paddy) per acre	Imports	Exports
			Quantity	Gross value(c)			
		acres	'000 bushels (d)	\$'000	bushels (d)	'000 lb	'000 lb
1963-64.	1,033	59,398	7,455	7,912	125.5	2,452	125,115
1964-65.	1,074	61,617	8,030	8,529	130.3	2,987	142,724
1965-66.	1,115	64,398	9,550	10,224	148.1	3,951	142,256
1966-67.	1,164	73,724	11,250	12,445	152.6	3,718	198,370
1967-68.	1,210	75,957	11,597	12,831	152.7	3,749	224,983

(a) For some years particulars of area and production for Western Australia and the Northern Territory are not available for publication, and are excluded. (b) Twenty acres or more in area. (c) Excludes the value of straw. (d) 42 lb per bushel.

Fodder crops

Hay

Because of the comparatively unreliable nature of rainfall in Australian agricultural and pastoral areas, hay as a fodder crop occupies a position of importance. In 1967-68 hay represented 7 per cent of the total area of crops. Up to 1946-47 hay, in terms of area, was second only to wheat for grain, but in more recent years it has been supplanted by green fodder (for feeding-off) and oats for grain. Hay is generally considered to include cereal hay, meadow hay and lucerne hay. Cereal crops cut early for hay contain a higher level of protein than those cut late.

In most European countries hay is made almost entirely from meadow pastures, but in Australia a very large proportion is made from cereals and lucerne, the hay being stored loose, in sheaves or baled. Because of its bulk, hay is usually produced for individual or local use, except in times of drought, when large inter-regional transfers may take place. Meadow hay requires greater care in preparation than cereal hay. Baling must be spaced carefully behind mowing to ensure that the bales are dry enough to prevent moulding, but not so dry as to result in excessive leaf loss. The leaves contain the bulk of the protein. Lucerne hay requires similar attention.

HAY: AREA, PRODUCTION AND YIELD PER ACRE, STATES AND TERRITORIES
1936-37 TO 1967-68

Season	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
AREA ('000 ACRES)									
Average for three years ended—									
1938-39	859	1,122	67	540	439	81	..	3	3,111
1948-49	516	642	66	287	245	93	..	3	1,852
1958-59	556	978	64	336	305	129	..	4	2,372
Year—									
1963-64	584	1,138	80	358	289	150	1	3	2,602
1964-65	600	1,306	82	314	305	180	1	3	2,793
1965-66	733	1,150	155	299	291	148	1	4	2,780
1966-67	823	1,558	129	482	295	203	1	4	3,496
1967-68	586	1,165	119	429	318	179	2	2	2,800
PRODUCTION ('000 TONS)									
Average for three years ended—									
1938-39	975	1,181	94	591	434	120	..	3	3,398
1948-49	618	987	119	396	275	153	..	4	2,552
1958-59	752	1,712	129	476	377	248	..	7	3,701
Year—									
1963-64	1,006	1,947	184	488	389	249	1	4	4,269
1964-65	1,040	2,506	167	487	390	364	1	7	4,963
1965-66	978	1,873	282	368	414	257	2	5	4,179
1966-67	1,481	2,982	314	729	417	437	2	9	6,371
1967-68	806	1,556	296	418	421	309	3	3	3,812
YIELD PER ACRE (TONS)									
Average for three years ended—									
1938-39	1.14	1.05	1.40	1.09	0.99	1.48	..	1.00	1.09
1948-49	1.20	1.54	1.80	1.38	1.12	1.65	..	1.33	1.38
1958-59	1.35	1.75	2.02	1.42	1.24	1.92	0.54	1.75	1.56
Year—									
1963-64	1.72	1.71	2.30	1.37	1.35	1.67	1.02	1.71	1.64
1964-65	1.73	1.92	2.19	1.55	1.28	2.02	1.11	1.99	1.78
1965-66	1.33	1.63	1.83	1.23	1.43	1.74	1.39	1.29	1.50
1966-67	1.80	1.91	2.44	1.51	1.41	2.15	1.63	2.14	1.82
1967-68	1.38	1.34	2.49	0.97	1.32	1.73	1.30	1.19	1.36

Plate 40 shows the area under hay since 1900-01 (page 828).

Information regarding areas cut for hay and varieties grown in 1967-68 is given in the following table.

**HAY: AREA OF VARIOUS KINDS GROWN, STATES AND TERRITORIES
1967-68
(Acres)**

<i>State or Territory</i>	<i>Oaten</i>	<i>Lucerne</i>	<i>Wheaten</i>	<i>Other</i>	<i>Total</i>
New South Wales	104,869	231,849	120,539	128,243	585,500
Victoria	393,087	78,436	110,990	582,698	1,165,211
Queensland	7,344	86,654	10,946	14,113	119,055
South Australia	157,820	48,667	81,324	141,215	429,026
Western Australia	118,478	2,431	34,717	162,297	317,923
Tasmania	22,598	2,481	735	153,024	178,838
Northern Territory . . . . .	..	(a)	..	1,919	1,919
Australian Capital Territory	950	1,216	140	169	2,475
Australia	805,146	(b)451,734	359,391	1,183,678	2,799,947

(a) Not available for publication; included in 'Other hay'. (b) Incomplete; excludes the Northern Territory.

For all States and the Territories combined, the proportions of the areas sown to the principal kinds of hay in 1967-68 were 28.8 per cent for oaten, 16.1 per cent for lucerne, 12.8 per cent for wheaten, and 42.3 per cent for other hay.

The following table shows the estimated gross value, and the value per acre, of the hay crop of the several States for the 1967-68 season.

HAY: VALUE OF CROP, STATES 1967-68

		<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>Aust. (a)</i>
Aggregate value \$'000	22,711	49,087	9,129	10,384	9,557	6,391	107,434	
Value per acre \$	38.79	42.13	76.68	24.20	30.06	35.74	38.37	

(a) Includes \$83,000 and \$92,000 for the Northern Territory and Australian Capital Territory respectively.

Farm stocks of hay

Particulars of stocks of hay held on farms at 31 March for the years 1964 to 1968 are given in the table below.

**STOCKS OF HAY HELD ON FARMS, STATES AND A.C.T., 1964 TO 1968
(Tons)**

<i>31 March—</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>A.C.T.</i>	<i>Aust. (a)</i>
1964	1,610,063	1,911,475	179,422	547,354	274,812	276,650	5,085	4,804,861
1965	1,586,969	2,402,299	145,737	614,451	275,948	414,415	7,606	5,447,425
1966	1,158,481	1,915,693	190,659	444,089	291,528	296,196	5,171	4,301,817
1967	1,888,668	2,175,731	270,470	544,676	249,531	399,891	8,151	5,537,118
1968	1,273,385	1,104,034	241,922	267,677	223,115	297,118	3,594	3,410,845

(a) Excludes the Northern Territory, for which particulars are not available.

Under normal conditions, hay, whether whole or in the form of chaff, is somewhat bulky for overseas trade, and consequently does not figure largely among Australian exports. During 1967-68 exports amounting to 4,777 tons, valued at \$235,000, were made, principally to Kuwait, Singapore and Malaysia. Imports of hay are not recorded separately, but are considered to be negligible.

Green fodder

Considerable areas are devoted to the growing of green fodder, usually as an adjunct to cereal operations or as a minor crop in irrigation areas. The areas recorded in respect of green fodder include areas of crops cut for feeding to livestock as green fodder or ensilage, together with areas fed off to stock as green forage. Statistics of green fodder exclude areas which may have been sown with the intention of harvesting for grain, but which, owing to adverse conditions, showed no promise of producing grain or even hay and were fed off to livestock. The principal crops cut for green fodder are lucerne and oats, while small quantities of barley, sorghum, wheat, maize, rye, and sugar cane are also used in this way. In 1967-68 the area under green fodder (5,916,141 acres) consisted of oats (2,466,456 acres), lucerne (2,346,498 acres), barley (233,245 acres), sorghum (228,217 acres), wheat (177,478 acres), rye (25,599 acres), maize (22,874 acres), sugar cane (1,070 acres), and other crops (414,704 acres). Particulars concerning the area of green fodder in the several States during each of the years 1963-64 to 1967-68 are given in the following table.

GREEN FODDER: AREA, STATES AND TERRITORIES, 1963-64 TO 1967-68
(^{'000 acres})

<i>Year</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>N.T.</i>	<i>A.C.T.</i>	<i>Aust.</i>
1963-64 . . .	1,974	431	1,011	972	418	71	..	1	4,877
1964-65 . . .	2,397	454	1,111	1,135	446	67	1	1	5,614
1965-66 . . .	1,952	526	1,143	1,210	414	78	1	1	5,324
1966-67 . . .	2,133	443	1,179	1,169	399	74	..	1	5,399
1967-68 . . .	2,326	545	1,337	1,217	414	75	..	1	5,916

In the 1967-68 season green fodder ranked second to wheat in area of crops throughout Australia. A graph showing the area sown to green fodder appears on plate 40. The value of these crops is variously estimated in the several States, but the Australian total, excluding Western Australia, may be taken as approximately \$25,000,000 for the 1966-67 season and \$29,000,000 for the 1967-68 season.

Ensilage

Ensilage is produced from herbage compacted tightly to exclude air and kept from contact with air and extraneous moisture to avoid moulding. Fermentation results in a dark mass of high protein and lactic acid content. Molasses may be added to hasten fermentation. Ensilage may be stored in pits or stacks or in constructed silos.

The several State Governments devote a considerable amount of attention to the education of the farming community with regard to the value of ensilage. Monetary aid is afforded in the erection of silos, and expert advice is supplied in connection with the design of the silos and the cutting and packing of the ensilage. Information regarding production and farm stocks of ensilage for the years 1963-64 to 1967-68 is given in the following table.

ENSILAGE: PRODUCTION AND FARM STOCKS, STATES AND A.C.T.
1963-64 TO 1967-68
(Tons)

<i>Period</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>A.C.T.</i>	<i>Aust.</i>
Production during—								
1963-64 season . . .	222,126	252,837	53,160	88,183	37,238	43,760	270	697,574
1964-65 " . . .	182,063	250,997	34,440	78,709	26,798	54,438	400	627,845
1965-66 " . . .	139,438	228,439	42,886	48,388	30,225	52,802	120	542,298
1966-67 " . . .	312,968	335,244	31,895	65,548	29,135	87,041	406	862,237
1967-68 " . . .	134,408	160,771	36,238	22,388	30,322	66,602	40	450,769
Farm stocks at—								
31 March 1964 . . .	565,457	185,115	139,691	78,997	29,709	43,554	1,108	1,043,631
" " 1965 . . .	534,730	206,304	112,596	86,093	24,160	49,668	892	1,014,443
" " 1966 . . .	365,995	157,134	73,122	58,038	28,293	43,461	291	726,334
" " 1967 . . .	519,371	233,979	77,180	62,262	20,476	68,464	740	982,472
" " 1968 . . .	365,488	82,139	79,461	24,749	21,460	54,118	4	627,419

Sugar cane

The growing of sugar cane is restricted to those coastal areas in Queensland and northern New South Wales which have suitable climatic and soil conditions.

The Bureau of Sugar Experiment Stations in Queensland and the Colonial Sugar Refining Company Limited render useful service to the sugar industry by advocating and demonstrating better methods of cultivation and the more scientific use of fertilisers, lime, etc. and by producing and distributing improved varieties of cane. In common with these two organisations, Sugar Research Ltd, of Mackay, undertakes technological research in raw sugar milling practices.

Sugar agreements and marketing arrangements in Australia

In Year Book No. 37, pages 940-1, a summary is given of the agreement operating between the Commonwealth and Queensland Governments in respect of the sugar industry in Australia. Briefly, the agreement places an embargo on sugar importations and fixes the price of sugar consumed in Australia. The current agreement was for the period from 1 September 1961 to 31 August 1967. It was extended until 30 June 1969 by supplementary agreements which prescribed prices for sugar equivalent to a retail price of 10.5 cents per lb.

Production of sugar is regulated under the terms of the agreement. At the mill level control is exerted by means of seasonal 'mill peaks' in respect of Queensland mills and a proportionate allowance for New South Wales mills. The combined total equals the estimated requirements of the domestic and export markets. Farm production is regulated according to the limit on the mill which the farm supplies. Exports are limited by the export quota provisions of the International Sugar Agreement (*see below*).

The Queensland Government acquires the whole of the sugar production of that State and of New South Wales by legislation and private agreement respectively. The net proceeds of all sugar sold are pooled and uniform prices paid to mills. Production for 1968-69 is estimated to be 2,724,000 tons 94 net titre, to which New South Wales is expected to contribute approximately 121,000 tons.

International Sugar Agreement

The International Sugar Agreement of 1937 was superseded by the International Sugar Agreements of 1953, 1958 and 1968. Details of the 1937, 1953 and 1958 Agreements were given in Year Books No. 40, pages 881-2, No. 48, page 936 and No. 54, page 892 respectively.

The 1968 International Sugar Agreement came into force on 1 January 1969. The Agreement is for a five year period, but the operation of the Agreement is to be reviewed before the end of the third year. It is possible that such a review will result in modifications to the Agreement to apply in its final two years.

Like its predecessors, the 1968 Agreement is built around a schedule of export quotas governing the net exports of exporting members to the world 'free' market. The Agreement is designed to maintain a balance between total world free market supply and demand by adjustments to the level of quotas in effect of exporting members. Quotas in effect cannot be adjusted downwards below 90 per cent of basic export tonnages except in exceptional circumstances where adjustments down to 85 per cent may be possible.

Quota adjustments under the Agreement must take account of the prices ruling in the world free market. The quota adjustment provisions pivot around a world free market price of four U.S. cents per pound f.o.b. and stowed Caribbean port, in bulk. When the price is below four cents, the system is designed to provide an upward pressure on prices by quota reductions. When the price is above four cents, the system is designed to apply a downward pressure on prices by increases in the level of quotas in effect above basic export tonnages.

Under the Agreement, exporters are required to establish and maintain certain levels of minimum stocks which are only to be released to the market when the price rises above 4.75 cents. If the price rises above 5.25 cents all quota restraints become inoperative and, if the price rises above 6.50 cents, exporters are required to supply importer members with certain quantities of sugar at prices not exceeding the commercial equivalent of 6.50 cents.

If the price is below 3.50 cents, minimum export quotas in effect are to apply, while at prices below 3.25 cents, members are obliged to prohibit imports from non-member countries.

Australia has a quota under this Agreement of 1,100,000 metric tons raw value (about 1,040,000 long tons of actual raw sugar) and is obliged to establish a minimum level of uncommitted stocks amounting to 15 per cent of this quantity.

Australian exports of negotiated price sugar to the United Kingdom under the British Commonwealth Sugar Agreement, and to the U.S.A. market, are not controlled by the International Sugar Agreement.

British Commonwealth Sugar Agreement

On 1 January 1953 the British Commonwealth Sugar Agreement became effective. The Agreement is now of indefinite duration but is subject to triennial review, with the next such review to be held in

1971. Under the Agreement Australia has a negotiated price quota of 335,000 tons per annum to the United Kingdom. The negotiated price for the years 1966, 1967 and 1968 of £stg43. 10s. per ton of bulk raw sugar, f.o.b. and stowed, has been extended for the three years to 1971.

The Agreement also allows an adjusted overall Agreement quota (which includes the negotiated price quota) of 630,000 tons per annum to Australia. The balance of this quota over the negotiated price quota may be sold to preferential markets on the basis of the world market price plus preference, as part of Australia's export quota under the International Sugar Agreement.

Exports to the United States of America

Australian exports to the U.S.A. are governed by legislation enacted by the U.S.A. in 1965 and covering the period to the end of 1971. These exports are sold on the U.S. domestic raw sugar market, the supplies to which are regulated with a view to ensuring stable and equitable prices, independently of prices ruling elsewhere in the world.

Australian export entitlements to this market vary from year to year but have recently been of the order of 175,000 tons of raw sugar per year.

Fruit Industry Sugar Concession Committee and sugar rebates

The Fruit Industry Sugar Concession Committee was established by agreement between the Commonwealth and Queensland Governments and administers a fund contributed by the Queensland Government on behalf of the sugar industry.

Until 15 May 1960 a rebate of \$4.40 a ton of refined sugar used in processing approved fruit products was paid to Australian manufacturers, provided they bought fresh fruit at prices not lower than those declared by the Committee as reasonable. This was increased to \$10 a ton from 16 May 1960.

An export sugar rebate is also paid by the Committee to exporters of approved fruit products to ensure that manufacturers do not pay higher prices for the Australian sugar content than the price for which the cheapest imported sugar could be landed duty free in Australia. The Queensland Government is responsible for payment of a similar rebate to exporters of other approved products. Payment of the export sugar rebate in respect of approved fruit products has been made conditional upon satisfactory arrangements having been made for payment for such fruit at not less than the prices (if any) which the Committee has declared to be reasonable.

Under the Sugar Agreement 1962 the Queensland Government contributes to the fund \$528,000 annually, reimburses the Committee for the actual expenditure on export sugar rebates, and, by a supplementary agreement operating from 1 September 1962, pays the Committee an additional sum equal to the amount payable by way of domestic sugar rebate in respect of the products exported. Any money remaining in the fund after the payment of rebates and administrative expenses may be used by the Committee for the promotion of the use and sale of fruit products, or for research for the purpose of increasing the yield per acre of Australian fruit, or of obtaining information regarding Australian fresh marketable fruits.

Financial assistance to the sugar industry

Under the provisions of the *Sugar Marketing Assistance Agreement Act 1967* the Commonwealth Government arranged a repayable grant of \$19 million, plus interest on a temporary advance of this amount from the Reserve Bank, to assist the returns from No. 1 Pool in the 1966 season, and \$3,559,193 for a similar purpose in respect of the 1967 season. The total amount of \$23,327,590 so advanced will be repayable over ten years commencing in mid-1970, and will not be subject to interest before then. Thereafter it will incur interest at the medium term bond rate prevailing when each grant was made.

Bulk handling of sugar

Bulk handling and mechanised loading and unloading of raw sugar is now in operation throughout the Australian sugar industry, except for the operation of a bagging station specially provided at Townsville to meet the needs of a few overseas customers. Terminals for the bulk loading of sugar were opened at Mackay in 1957, at Lucinda and Bundaberg in 1958, at Townsville in 1959, at Mourilyan in 1960, and at Cairns in 1964. A second storage shed at Bundaberg, a third shed at Mackay and second sheds at Lucinda and Townsville have been opened subsequently. The comparatively small New South Wales sugar industry was converted to bulk handling in 1954. Bulk receiving facilities are in operation at all Australian refineries.

Area of sugar cane

A brief outline of the development of the industry was included in earlier issues of the Year Book (see No. 38, page 985). The area of sugar cane in Australia for the seasons 1963-64 to 1967-68 and the averages for the three-year periods ended 1938-39, 1948-49 and 1958-59 are shown in the following table. The areas shown in the table do not include the small acreage cut for green fodder, which in 1967-68 amounted to 1,070 acres. The whole area planted is not cut for crushing during any one season, there being always a considerable amount of young and 'stand-over' cane as well as a small quantity required for plants.

SUGAR CANE: AREA(a), STATES, 1936-37 TO 1967-68
(Acres)

Period	New South Wales			Queensland			Australia			Total
	Area crushed	Area of standover and newly-planted cane	Area cut for plants	Area crushed	Area of standover and newly-planted cane	Area cut for plants	Area crushed	Area of standover and newly-planted cane	Area cut for plants	
Average for three years ended—										
1938-39 . . .	10,468	10,366	n.a.	247,632	89,690	n.a.	258,100	100,056	n.a.	n.a.
1948-49 . . .	7,687	8,666	338	230,905	90,448	12,891	238,592	99,114	13,229	350,935
1958-59 . . .	11,094	9,462	619	360,709	110,786	12,596	371,803	120,248	13,215	505,266
Year—										
1963-64 . . .	15,508	14,204	594	402,060	93,149	13,205	417,568	107,353	13,799	538,720
1964-65 . . .	19,429	17,043	728	450,956	126,906	12,896	470,385	143,949	13,624	627,958
1965-66 . . .	15,824	23,350	668	487,375	105,361	14,243	503,199	128,711	14,911	646,821
1966-67 . . .	22,475	18,548	613	534,998	78,609	13,265	557,473	97,157	13,878	668,508
1967-68 . . .	22,181	18,761	488	530,828	89,494	13,194	553,009	108,255	13,682	674,946

(a) Excludes areas cut for green fodder and small area sown in Western Australia.

Production of cane and sugar

The production of sugar cane in 1967-68 was at the record level of 16,756,000 tons, which was 71,000 tons above the previous record production in 1966-67.

SUGAR CANE: PRODUCTION OF CANE AND RAW SUGAR, STATES, 1936-37 TO 1967-68
(Tons)

Period	New South Wales		Queensland		Australia	
	Cane	Sugar(a)	Cane	Sugar(a)	Cane	Sugar(a)
Average for three years ended—						
1938-39 . . .	324,531	43,419	5,215,217	760,994	5,539,748	804,413
1948-49 . . .	283,613	35,444	4,767,291	700,053	5,050,904	735,497
1958-59 . . .	356,324	43,881	9,221,497	1,260,564	9,577,821	1,304,445
Year—						
1963-64 . . .	617,402	75,980	11,500,672	1,648,273	12,118,074	1,724,253
1964-65 . . .	784,126	95,195	14,286,350	1,854,883	15,070,476	1,950,078
1965-66 . . .	609,320	69,989	13,545,719	1,883,364	14,155,039	1,953,353
1966-67 . . .	1,171,441	139,967	15,513,449	2,202,809	16,684,890	2,342,776
1967-68 . . .	1,038,507	120,583	15,717,789	2,213,810	16,756,296	2,334,393

(a) Raw sugar at 94 net titre.

Climatic conditions in New South Wales are such that the crop matures in from twenty to twenty-four months, whereas in Queensland a period of from twelve to sixteen months is sufficient. The average yields of cane and sugar per acre for the years 1963-64 to 1967-68 and for the three-year periods ended 1938-39, 1948-49 and 1958-59 are shown below. Allowance should be made in interpreting these figures for the disparity in maturing periods noted above.

SUGAR CANE AND SUGAR: YIELD PER ACRE, STATES, 1936-37 TO 1967-68
(Tons)

Period	New South Wales			Queensland			Australia		
	Cane per acre crushed	Sugar per acre crushed	Cane to each ton of sugar	Cane per acre crushed	Sugar per acre crushed	Cane to each ton of sugar	Cane per acre crushed	Sugar per acre crushed	Cane to each ton of sugar
Average for three years ended—									
1938-39 . . .	31.00	4.15	7.47	21.06	3.07	6.85	21.46	3.12	6.89
1948-49 . . .	36.90	4.61	8.00	20.65	3.03	6.81	21.17	3.08	6.87
1958-59 . . .	32.12	3.96	8.12	25.57	3.49	7.32	25.76	3.52	7.34
Year—									
1963-64 . . .	39.81	4.90	8.13	28.60	4.10	6.98	29.02	4.13	7.03
1964-65 . . .	40.36	4.90	8.24	31.68	4.11	7.70	32.04	4.15	7.73
1965-66 . . .	38.51	4.42	8.71	27.79	3.86	7.19	28.13	3.88	7.25
1966-67 . . .	52.12	6.23	8.37	29.00	4.12	7.04	29.93	4.20	7.12
1967-68 . . .	46.82	5.44	8.61	29.61	4.17	7.10	30.30	4.22	7.18

Production and utilisation of sugar

Details of the production and utilisation of sugar for the years 1963-64 to 1967-68 are shown below. Consumption is shown in terms of refined sugar, including that consumed in manufactured products.

SUGAR: PRODUCTION AND UTILISATION, AUSTRALIA, 1963-64 TO 1967-68

Year	Changes in stocks(a)	Production (raw)	Exports(b)	Miscellaneous uses(c)	Consumption in Australia(d)	
					Total	Per head
	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	lb
1963-64	- 64.8	1,648.7	1,156.0	20.9	536.7	108.7
1964-65	- 4.1	1,880.0	1,308.2	20.5	555.4	110.3
1965-66	+ 82.6	1,961.8	1,289.0	22.1	568.2	110.7
1966-67	- 36.5	2,222.1	1,674.6	20.8	563.2	107.7
1967-68	+170.4	2,393.9	1,634.8	20.8	567.9	106.7

(a) Includes allowance for estimated sugar content of imported foodstuffs. (b) Raw and refined, including ships' stores and sugar in exported foodstuffs. (c) Includes refining losses and quantities used in golden syrup and treacle. (d) Includes sugar content of manufactured products consumed.

The quantity of sugar recorded as used in factories in 1967-68 amounted to 377,132 tons compared with 372,394 tons in 1966-67 and 371,713 tons in 1965-66. Particulars of sugar used in establishments not classified as factories are not available, and consequently these quantities are deficient to that extent. In 1967-68 the reported consumption by factories engaged in the production of jams, jellies and preserved and dried fruit and vegetables amounted to 77,288 tons, by those producing confectionery, ice cream, etc., to 74,196 tons, by breweries to 47,438 tons, and by factories producing aerated waters, cordials, etc., to 70,775 tons.

Sugar by-products

Industrial chemicals, together with large quantities of molasses, are produced as by-products in sugar mills. Further, during the period 1939 to 1960 building boards were made from the residue of crushed fibre after removal of the sugar content from sugar cane. These boards possessed high insulating and sound absorbing properties which made them particularly suitable for use in walls and ceilings. Early in the period referred to, the boards were manufactured almost entirely from crushed fibre residue, the remaining component being non-millable pine, but gradually the pine content was increased until by 1960 fibre residue was no longer being used. The main purpose for which crushed cane fibre residue is now used is furnace fuel in sugar mills.

Sugar prices and returns

The current prices of sugar in Australia (as determined under the Sugar Agreement in Australia, see page 858) and details of net returns for raw sugar from 1963-64 to 1966-67 are shown in the following tables.

SUGAR: PRICES IN AUSTRALIA

Year	Raw sugar, 94 net titre			Refined sugar		
	Average return per ton received by millers and growers for—			Date of determination	Wholesale price to retailer per ton	Retail price capital cities per lb
	Home consumption	Exports (a)	Whole crop (a)			
	\$	\$	\$		\$	cents
1963	122.00	131.22	127.97	16.5.60 to 18.6.67	180.52	9.2
1964	120.75	83.89	95.78	19.6.67	206.72	10.5
1965	121.95	67.27	85.14			
1966	121.25	57.47	75.01			
1967(b)	142.80	59.45	82.05			

(a) Includes 'excess' sugar. (b) Excludes repayable Commonwealth grant (see page 859).

RAW SUGAR(a): NET RETURNS, AUSTRALIA, 1963-64 TO 1967-68

(Source: The Queensland Sugar Board)

Year	Proportion exported	Net value of exports per ton	Average price per ton for whole crop	Estimated value of crop
	per cent	\$	\$	\$'000
1963-64	64.70	131.22	127.97	220,520
1964-65	67.76	83.89	95.78	186,728
1965-66	67.31	67.27	85.14	166,270
1966-67	72.50	57.47	75.01	175,694
1967-68	72.89	59.45	82.05	191,471

(a) 94 net titre.

The estimated value of the raw sugar produced has been based upon details taken from the audited accounts of the Queensland Sugar Board. The values stated comprise the gross receipts from sales in Australia and overseas, less refining costs, freight, administrative charges, etc., and export charges. They include concessions to the fruit industry and other rebates which in 1967-68 amounted to \$3,820,000, but exclude the repayable Commonwealth grants referred to earlier. The value thus obtained represents the net market value of all raw sugar sold, which, less the rebates, is divided between the growers and millers in the approximate proportions of 70 per cent and 30 per cent respectively.

Exports of sugar

RAW AND REFINED SUGAR: EXPORTS, AUSTRALIA, 1963-64 TO 1967-68

	1963-64	1964-65	1965-66	1966-67	1967-68
Quantity tons	1,116,190	1,269,139	1,252,546	1,638,263	1,597,240
Value \$'000 f.o.b.	156,513	112,683	93,925	99,535	97,582

Tobacco

Tobacco is a summer-growing annual which requires a temperate to tropical climate, adequate soil moisture and a frost-free period of approximately five months. In Australia almost all tobacco is grown under irrigation. Because of specialised requirements, commercial production is restricted mainly to river valleys where suitable light friable soil types are found. Grown in the three eastern States of Australia, the centres of production include Mareeba (northern Queensland), Bundaberg (central coastal Queensland), Beerwah (Glasshouse Mountains, Queensland), Texas (south-western Queensland), Ashford (north-western New South Wales), Myrtleford (north-eastern Victoria), and Gubower (northern Victoria). A small quantity of burley tobacco is produced, but most of the tobacco grown in Australia is of the flue-cured type. The main flue-cured variety is Hicks.

Marketing

Between 9 May 1941 and 24 September 1948 all leaf was under the direct control of the Australian Tobacco Board, and prices were paid on leaf appraisal. Subsequently the Board was disbanded, and sales have been by open auction through the Tobacco Leaf Marketing Board (Queensland and northern New South Wales) and the Victorian Tobacco Growers Association Ltd (southern New South Wales and Victoria). In 1964 the Victorian Tobacco Leaf Marketing Board was set up to market the portion of the crop that was formerly sold by the Victorian Tobacco Growers Association Ltd, and in 1965 a Board was established in New South Wales. However, the actual physical handling of New South Wales leaf at auction is carried out by the Queensland and Victorian authorities.

In 1965 the Commonwealth and State Governments agreed to a stabilisation plan for the tobacco growing industry with an annual marketing quota of 26 million pounds (green weight) of leaf to be sold under an agreed grade and price schedule providing for an average minimum price, based on

normal crop fall-out. The overall marketing quota is divided among tobacco-producing States according to a formula approved by the Australian Agricultural Council. The determination of quotas for underdeveloped growers from State allocations is the responsibility of State Quota Committees.

In 1968, the final year of the plan, the Governments concerned agreed that it should continue for a further period of five years with an increased marketing quota for the 1969 selling season of 28.5 million pounds. Provision was made for an annual review of the quota and in 1969 it was set at 31 million pounds for the 1970 selling season, to be divided among the producing States in the same proportions as the original quota.

The plan is administered by the Australian Tobacco Board, constituted under the *Tobacco Marketing Act* 1965-66 and representative of the Commonwealth, tobacco-producing States, growers, and manufacturers.

The guaranteed average minimum price for the 1969 season remained at 109.0 cents per lb, the amount set for the 1968 season.

Central Tobacco Advisory Committee

The Australian Agricultural Council formed the Standing Advisory Committee on Tobacco during 1950. This Committee consisted of representatives of tobacco growers, tobacco manufacturers and the Commonwealth and State Governments. Its main functions were to review the industry and make recommendations on its problems. The Committee was reconstituted by the Agricultural Council during 1952-53.

In 1955 the Committee formulated a programme for increased research and advisory activities. The capital costs of establishing this programme were estimated at \$336,000, of which the Commonwealth Government and tobacco manufacturers each agreed to contribute half. Annual contributions are made to a fund by the Commonwealth and State Governments and tobacco growers and manufacturers. A Tobacco Industry Trust Account has been established under the *Tobacco Industry Act* 1955-1965 to receive these contributions. The contributions from growers and manufacturers are obtained under the Tobacco Charges Assessment Act and the Tobacco Charge Acts, whose purpose is to provide funds to be used in research and otherwise with a view to fostering and expanding the Australian tobacco industry. This programme commenced in 1956, and since then \$5,281,457 has been paid to State and Commonwealth departments for expenditure on tobacco research and extension. The allocation for 1968-69 was \$794,100. As from 1 July 1964 the annual Commonwealth contribution has been increased to one-half of approved expenditure from the Tobacco Industry Trust Account. In 1961 a Research Sub-Committee was established to review annually scientific programmes and finance in relation to the Tobacco Industry Trust Account and make recommendations to the Central Tobacco Advisory Committee. However, following the establishment of the Australian Tobacco Board, the Australian Agricultural Council in 1966 abolished this sub-committee and reconstituted the Central Tobacco Advisory Committee with the following terms of reference:

'To make recommendations annually to the Australian Agricultural Council, through the Standing Committee on Agriculture, regarding research and extension programmes to be financed from the Tobacco Industry Trust Account.'

Tobacco research and extension

Details of the recommendations by the Tobacco Inquiry Committee and grants periodically approved by the Commonwealth Government up to 30 June 1953 are given in Year Book No. 40, pages 895-6, and in previous issues.

The Commonwealth Scientific and Industrial Research Organization and the State Departments of Agriculture in the tobacco growing States are carrying out investigations into a wide range of problems involving fundamental research, plant breeding, variety trials, irrigation, disease and pest control, fertilisers, crop rotation, and cultural practices. The State Departments also provide extension services for tobacco growers.

Tobacco factories

Manufacturers of Australian cigarettes and tobacco are granted a lower rate of duty on imported tobacco leaf, provided it is blended with a prescribed minimum percentage of Australian leaf. These percentages, which in November 1946 stood at 3 per cent for cigarettes and 5 per cent for tobacco, have been increased progressively in intervening years and since 1 January 1966 have been set at 50 per cent for both cigarettes and tobacco.

In 1967-68 the quantity of cured leaf recorded as used in tobacco factories in Australia amounted to 50 million lb, of which 23 million lb was of local origin. The balance was imported, chiefly from the United States of America and South Africa.

Tobacco area and production

The area of tobacco in 1967-68 was 21.8 per cent below the record area established in 1962-63. Production at 24,721,000 lb was 28.0 per cent below the record established in 1963-64.

TOBACCO: AREA AND PRODUCTION, STATES, 1936-37 TO 1967-68

Period	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Aust.
AREA (ACRES)							
Average for three years ended—							
1938-39 . . .	697	4,262	3,842	77	1,055	134	10,067
1948-49 . . .	415	1,046	1,948	..	609	..	4,018
1958-59 . . .	1,257	3,478	7,479	..	1,295	..	13,509
Year—							
1963-64 . . .	2,927	10,519	15,579	..	..	..	29,025
1964-65 . . .	2,546	9,720	14,042	..	..	..	26,308
1965-66 . . .	1,742	9,230	12,509	..	..	..	23,481
1966-67 . . .	1,794	8,455	12,134	..	..	..	22,383
1967-68 . . .	1,831	8,664	12,472	..	..	..	22,967

PRODUCTION OF DRIED LEAF ('000 lb)

Average for three years ended—							
1938-39 . . .	471	1,603	2,173	17	741	104	5,109
1948-49 . . .	380	670	1,725	..	523	..	3,298
1958-59 . . .	1,066	3,770	5,563	..	1,016	..	11,415
Year—							
1963-64 . . .	2,652	14,459	17,231	..	..	..	34,342
1964-65 . . .	2,356	12,080	10,675	..	..	..	25,111
1965-66 . . .	1,698	11,083	14,580	..	..	..	27,361
1966-67 . . .	2,133	10,953	14,819	..	..	..	27,905
1967-68 . . .	2,075	7,625	15,021	..	..	..	24,721

Imports and exports of tobacco

Imports of tobacco and tobacco manufactures into Australia during 1967-68 were valued at \$22.5 million. This included 20.8 million lb of unmanufactured tobacco valued at \$15.3 million. Exports of tobacco and tobacco manufactures during 1967-68 were valued at \$2,623,000, including Australian produce, \$1,994,000.

Cotton

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

Until 1964 cotton growing was mainly confined to Queensland, most of it being grown under conditions of natural rainfall. Since then there has been an increasing trend in the use of irrigation. A sound industry has been established in the Namoi Valley in New South Wales with water provided by the Keepit Dam. More than three quarters of Australia's raw cotton requirements are now produced in that area. Cotton is also grown under irrigation in Queensland and on the Ord River of Western Australia and to a lesser extent in the Murrumbidgee Irrigation Areas of New South Wales. Nearly all Australian cotton is now grown with the assistance of irrigation and acreage yields compare more than favourably with those obtained by traditional overseas cotton producing countries.

Cotton bounty

For particulars of the *Cotton Bounty Act* 1951-1958, see page 1044 of Year Book No. 49. This Act was replaced by the *Raw Cotton Bounty Act* 1963-1966 under which the Commonwealth agreed to pay a bounty on raw cotton produced and sold for use in Australia at the rate of 13.4375 cents per lb for Middling 1" White, with premiums and discounts on grades and staples above and below, up to a maximum of \$4 million in any one year, for a period of five years from 1 January 1964. In 1968 this Act was amended to extend bounty payments to all cotton produced in Australia of a grade higher than Strict Good Ordinary, whether used in Australia or not, provided it has a staple length of $\frac{3}{4}$ " or greater. The Commonwealth Government proposes to phase out the bounty assistance over the next three years, commencing with the 1969 crop. That year the maximum bounty will remain at the previous level of \$4 million, falling to \$3 million in 1970, and to \$2 million in 1971 after which it will cease.

Cotton area and production

**COTTON: AREA, PRODUCTION AND YIELD PER ACRE, STATES AND TERRITORIES
1963-64 TO 1967-68**

Year	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
AREA (ACRES)									
1963-64	10,947	..	28,465	..	1,526	..	..	..	40,938
1964-65	18,897	(a)	13,550	..	5,475	..	..	..	(b)37,922
1965-66	33,176	(a)	13,455	..	8,307	..	..	..	(b)54,938
1966-67	30,104	..	11,167	..	11,892	..	..	..	53,163
1967-68	53,474	..	11,629	..	11,782	..	..	..	76,885
PRODUCTION (UNGINNED) ('000 lb)									
1963-64	8,167	..	7,943	..	2,114	..	..	..	18,223
1964-65	45,951	(a)	6,268	..	10,790	..	..	..	(b)63,009
1965-66	103,280	(a)	10,138	..	20,431	..	..	..	(b)133,850
1966-67	79,159	..	11,800	..	29,400	..	..	..	120,360
1967-68	170,064	..	18,718	..	25,954	..	..	..	214,736
YIELD PER ACRE (lb)									
1963-64	746	..	279	..	1,385	..	..	..	445
1964-65	2,432	(a)	463	..	1,971	..	..	..	(b)1,662
1965-66	3,113	(a)	754	..	2,460	..	..	..	(b)2,436
1966-67	2,630	..	1,057	..	2,472	..	..	..	2,264
1967-68	3,180	..	1,610	..	2,203	..	..	..	2,793

(a) Not available for publication. (b) Incomplete; see individual States.

NOTE. Production in Queensland relates to the crop harvested in the first of the years mentioned, and in other States to the year following: e.g., for 1967-68, the Queensland crop was harvested during 1967, while the crop in other States was harvested during 1968.

Production of ginned cotton for 1963-64 was 6,570,000 lb; 1964-65, 17,286,000 lb; 1965-66, 40,885,000 lb; 1966-67, 35,510,000 lb; and 1967-68, 70,405,000 lb.

The gross value of unginmed cotton for the five years ended 1967-68 was \$2,212,000; \$7,685,000; \$14,323,000; \$12,468,000; and \$19,675,000 respectively.

Imports of raw cotton (excluding linters) during the past five years were: 1963-64, 56,663,000 lb; 1964-65, 55,474,000 lb; 1965-66, 32,096,000 lb; 1966-67, 19,963,000 lb; and 1967-68, 27,066,000 lb.

Small quantities of Australian raw cotton have been exported since 1966-67, when 3,280,000 lb was sent overseas. The quantity exported in 1967-68 was 1,746,000 lb. Japan is the main importing country.

Peanuts

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

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

PEANUTS: AREA AND PRODUCTION, STATES, 1963-64 TO 1967-68

Year	Area (acres)			Production (cwt)		
	N.S.W.	Qld	Aust.	N.S.W.	Qld	Aust.
1963-64	478	44,482	(a)44,960	4,744	455,982	(a)460,726
1964-65	400	45,554	(a)45,954	4,746	202,369	(a)207,115
1965-66	394	57,298	57,708	4,468	543,735	548,279
1966-67	397	69,330	(a)69,727	5,194	821,957	(a)827,151
1967-68	353	61,373	61,738	3,920	602,207	606,159

(a) Incomplete: excludes Northern Territory.

The gross value of the 1967-68 crop was \$6,136,000 which was approximately \$1,830,000 less than in 1966-67. Total supplies available for consumption in Australia in 1967-68 were 23,290 tons (in shell equivalent), after allowing for a decrease of 3,262 tons in stock held by the Peanut Marketing Board, exports of 574 tons of peanut and peanut product, and industrial usage of 11,760 tons. Supplies were made up of 30,247 tons from Australian production received into store by the Board and 2,115 tons imported.

Flax

Prior to 1948-49 flax for the production of linseed oil had not been grown extensively in Australia. Since then, however, action has been taken to develop this industry, the ultimate objective being the production of sufficient linseed to meet Australia's total oil requirements. The main producing areas are the Darling Downs in Queensland, the wheat belt of New South Wales, and the western and north-eastern districts of Victoria. In recent years there has been increased production, principally for export, in the Esperance district of Western Australia.

Particulars of area and production of flax for linseed, by States, are given in the following table for the years 1963-64 to 1967-68.

FLAX FOR LINSEED: AREA AND PRODUCTION, STATES, 1963-64 TO 1967-68

Year	N.S.W.	Vic.	Qld	S.A.	W.A.	Aust.
Area (acres)—						
1963-64	15,335	16,240	83,336	1,002	1,588	117,501
1964-65	23,769	9,953	97,092	898	2,135	133,847
1965-66	3,658	7,370	12,266	1,196	97	24,587
1966-67	9,580	5,012	17,854	389	1,751	34,586
1967-68	9,947	9,365	27,764	516	6,886	54,478
Production (tons of linseed)—						
1963-64	3,722	4,758	20,342	283	411	29,516
1964-65	8,761	2,671	34,175	426	567	46,600
1965-66	213	2,538	2,895	403	15	6,064
1966-67	3,265	2,319	7,338	188	634	13,744
1967-68	952	804	6,571	72	2,083	10,482

Hops

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

Hop growing in Australia is confined to the Derwent, Huon and Channel areas of Tasmania and the Ovens and King Valleys in Victoria. A small area is also under hops in Western Australia, near Manjimup, but the details are not available for publication.

Production and imports of hops

The production of hops in Australia is insufficient to meet local requirements, and additional supplies are imported to meet the needs of the brewing industry. In the following table details of the production and imports of hops and the quantity of hops used in breweries are shown for each of the years 1963-64 to 1967-68. Exports of hops are negligible and are not recorded separately.

**HOPS: PRODUCTION AND DISPOSAL, AUSTRALIA
1963-64 TO 1967-68**

Year	Production(a)			Net available supplies (b)	Quantity used in breweries
	Quantity	Gross value	Imports		
	cwt	\$'000	cwt	cwt	cwt
1963-64 . . .	19,858	1,534	536	20,394	37,033
1964-65 . . .	27,892	2,372	9,521	37,413	39,517
1965-66 . . .	36,463	3,020	12,696	49,159	35,223
1966-67 . . .	28,907	2,531	2,683	31,590	31,347
1967-68 . . .	36,752	3,211	1,370	38,122	30,634

(a) Excludes production in Western Australia, for which details are not available for publication.
(b) Disregards movements in stocks.

Safflower

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

Queensland is the main producer of safflower where suitable growing conditions exist particularly in the marginal wheat regions of Dawson-Callide Valleys, Fitzroy Basin, Central Highlands, and the Darling Downs. Suitable growing conditions also exist in New South Wales, Victoria and Western Australia, but, at present, production in the latter two States is relatively small.

**SAFFLOWER: AREA AND PRODUCTION, STATES AND TERRITORIES
1963-64 TO 1967-68**

Year	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust. (a)
AREA (ACRES)									
1963-64	113	(b)	18,141	..	1,125	..	..	..	19,379
1964-65	2,253	1,902	43,350	(b)	4	..	..	..	47,509
1965-66	2,539	935	56,727	(b)	75	..	..	..	60,276
1966-67	5,092	729	88,803	(b)	(b)	..	..	..	94,624
1967-68	8,550	489	95,351	(b)	225	..	..	..	104,615
PRODUCTION (BUSHEL)(c)									
1963-64	1,546	(b)	275,106	..	26,387	..	..	..	303,039
1964-65	33,373	20,218	643,524	(b)	280	..	..	..	697,395
1965-66	13,941	11,738	522,810	(b)	1,070	..	..	..	549,559
1966-67	71,823	7,336	1,290,087	(b)	(b)	..	..	..	1,369,246
1967-68	59,310	1,375	815,354	(b)	2,207	..	..	..	878,246

(a) Incomplete; see individual States. (b) Not available for publication. (c) 40 lb per bushel.

Imports of crude safflower seed oil in 1966-67 and 1967-68 totalled 1,267,000 gallons and 833,000 gallons respectively. These imports came mainly from the United States of America.

Vegetables for human consumption

Area, production and trade

Vegetables were initially grown on a large scale near the main cities, where there was ready access to reliable water supplies and to markets. Later, the expansion of irrigation areas and improvement in transport services resulted in their production being extended into many other areas. At present, because of the wide diversity of climatic conditions across Australia, supplies for main city markets are drawn from widely different areas, depending upon the times of maturity of the various crops. Apart from potatoes and onions, which are sold in some States through marketing boards, the bulk of vegetable trading takes place at the metropolitan markets of the cities concerned.

Details of the areas planted and production of individual kinds of vegetables are shown below for the seasons 1965-66 to 1967-68. Certain particulars shown are incomplete in that details for specific vegetables in some States are either not available or are not available for publication. For further information see the bulletin *Rural Industries*. Details of the estimated consumption of vegetables for a series of years ending 1967-68 are given in the chapter *Miscellaneous*.

FRESH VEGETABLES FOR HUMAN CONSUMPTION: AUSTRALIA 1965-66 TO 1967-68

Vegetable	1965-66		1966-67		1967-68	
	Area sown	Production	Area sown	Production	Area sown	Production
	acres	tons	acres	tons	acres	tons
Asparagus	3,976	5,957	4,227	5,776	4,315	7,427
Beans, French and runner	17,319	30,434	18,073	36,912	18,632	31,395
Beans, navy	3,400	242	5,153	933	6,045	1,445
Beetroot	2,081	17,248	2,558	22,426	2,428	22,138
Cabbages and brussel sprouts	5,916	69,134	6,193	76,151	5,948	69,001
Carrots	5,922	67,833	6,326	77,599	6,767	74,588
Cauliflowers	6,511	73,967	6,364	77,168	6,229	72,996
Celery	769	12,803	757	13,485	839	12,639
Cucumbers	1,913	8,710	1,987	8,870	2,197	10,280
Lettuce	4,976	23,303	5,046	24,324	5,399	24,639
Onions	8,250	58,124	10,210	84,465	9,852	58,486
Parsnips	1,336	13,966	1,278	15,163	1,302	13,806
Peas, blue	5,502	2,741	4,373	2,992	4,267	2,505
Peas, green	66,938	102,661	65,964	120,182	57,428	92,191
Potatoes	96,311	639,000	99,328	642,967	105,668	658,112
Tomatoes	16,705	159,707	17,791	172,965	17,266	153,309
Turnips, swede and white	1,893	8,373	1,655	8,834	1,727	8,493
All other	39,661	..	36,339	..	36,809	..
Total	289,378	..	293,621	..	293,118	..

Processed vegetables

Total production of canned vegetables in 1967-68 amounted to 182,051,000 lb. The principal types produced were green peas (excluding mint-pro peas), 24,489,000 lb; green beans, 9,807,000 lb; baked beans (including pork and beans), 41,810,000 lb; asparagus, 11,750,000 lb; beetroot, 39,810,000 lb; and mushrooms, 8,142,000 lb.

The production of dehydrated vegetables, including split peas, during 1967-68 amounted to 10,494,000 lb, while the production of potato crisps, chips and flakes was 25,378,000 lb.

There has been rapid development in the quick-frozen vegetable industry. Data were collected for the first time in 1957-58, when 13,846,000 lb of frozen vegetables were produced, made up principally of 10,131,000 lb of peas and 2,540,000 lb of beans. In 1967-68 production had risen to 100,862,000 lb, of which 63,891,000 lb were peas and 21,595,000 lb were beans.

Exports and imports of vegetables

Overseas exports of fresh and frozen vegetables during 1967-68 amounted to 43,439,000 lb valued at \$4,113,000; dried vegetables, 7,964,000 lb valued at \$548,000; preserved vegetables, 4,413,000 lb valued at \$816,000; and other prepared or preserved vegetables, 108,000 lb valued at \$65,000.

Imports of fresh and frozen vegetables during 1967-68 amounted to 13,487,000 lb valued at \$1,424,000.

Potatoes

This crop requires 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. Potatoes are killed by heavy frost, but require only moderate temperatures for growth. Mechanical planters and diggers are used to a variable extent depending upon a variety of factors including terrain, state of the soil and scale of operations. Seed certification schemes, which operate in all States except Queensland, provide a supply of seed which is free from viral, fungal and bacterial diseases. In Australia potatoes are used almost entirely for human consumption and not for the production of starch or alcohol. They are rarely used as stock feed.

Area, production, and yield per acre. Victoria possesses particular advantages for the growing of potatoes, as the rainfall is generally satisfactory and the climate is unfavourable to the spread of Irish blight; consequently, the crop is widely grown. The principal areas of that State are the central highlands and the south-western and Gippsland districts. New South Wales and Queensland come next in order of acreage sown. In New South Wales production is chiefly in the tablelands district.

POTATOES: AREA, PRODUCTION AND YIELD PER ACRE, STATES AND TERRITORIES, 1936-37 TO 1967-68

Period	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
AREA (ACRES)									
Average for three years ended—									
1938-39 . . .	21,049	40,376	11,551	4,445	4,627	32,044	..	59	114,151
1948-49 . . .	20,440	53,862	10,795	6,084	6,753	38,643	..	103	136,680
1958-59 . . .	16,589	45,225	12,980	6,035	7,977	19,002	4	94	107,906
Year—									
1963-64 . . .	24,352	39,626	15,886	5,459	5,835	10,806	(a)	23	(b)101,987
1964-65 . . .	20,530	32,931	14,005	5,247	5,797	9,393	(a)	16	(b)87,919
1965-66 . . .	21,913	34,333	16,080	5,748	6,229	11,993	1	14	96,311
1966-67 . . .	23,594	37,167	16,227	5,948	6,100	10,278	(a)	14	(b)99,328
1967-68 . . .	24,334	40,329	17,347	6,527	6,149	10,960	(a)	22	(b)105,668
PRODUCTION (TONS)									
Average for three years ended—									
1938-39 . . .	52,158	137,583	17,191	20,342	23,678	109,285	..	143	360,380
1948-49 . . .	62,701	191,590	26,470	32,149	38,722	148,389	..	598	500,619
1958-59 . . .	68,533	245,937	50,989	48,072	50,024	92,367	5	391	556,318
Year—									
1963-64 . . .	98,308	200,384	90,201	51,195	55,402	66,420	(a)	122	(b)562,032
1964-65 . . .	75,659	183,665	82,389	48,400	60,739	57,062	(a)	105	(b)508,019
1965-66 . . .	104,647	240,786	97,744	56,471	62,865	76,400	4	83	639,000
1966-67 . . .	126,183	225,186	93,738	60,271	64,169	73,300	(a)	120	(b)642,967
1967-68 . . .	122,795	215,941	106,429	63,331	70,469	79,058	(a)	89	(b)658,112
YIELD PER ACRE (TONS)									
Average for three years ended—									
1938-39 . . .	2.48	3.41	1.49	4.58	5.12	3.41	..	2.42	3.16
1948-49 . . .	3.07	3.56	2.45	5.28	5.73	3.84	..	5.81	3.66
1958-59 . . .	4.13	5.44	3.93	7.97	6.27	4.86	1.25	4.16	5.16
Year—									
1963-64 . . .	4.04	5.06	5.68	9.38	9.49	6.15	(a)	5.30	(b)5.51
1964-65 . . .	3.69	5.58	5.88	9.22	10.48	6.07	(a)	6.56	(b)5.78
1965-66 . . .	4.78	7.01	6.08	9.82	10.09	6.37	4.00	5.93	6.63
1966-67 . . .	5.35	6.06	5.78	10.13	10.52	7.13	(a)	8.57	(b)6.47
1967-68 . . .	5.05	5.35	6.14	9.70	11.46	7.21	(a)	4.05	(b)6.23

(a) Not available for publication.

(b) Incomplete; excludes Northern Territory.

Potato marketing boards were established in all States except Tasmania under separate State legislation after Commonwealth control of potato marketing under war-time legislation ceased at the end of 1948. The life of the Queensland Board was not extended when its term ended in 1954. The New South Wales Board was voted out by growers in 1956, and the Victorian Board also ceased functioning in that year. The Boards in South Australia and Western Australia are the only statutory boards still in operation.

Value of potato crop. The estimated gross value of the potato crop of each State for the 1967-68 season and the value per acre are shown in the following table.

POTATOES: VALUE OF CROP, STATES, 1967-68

		N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Aust.(a)
Aggregate value	\$'000	9,438	18,566	9,444	5,176	5,537	3,818	51,985
Value per acre	\$	388	460	544	793	900	348	492

(a) Includes Northern Territory and Australian Capital Territory.

Consumption and exports of potatoes. The annual consumption of potatoes in Australia during each of the three years 1965-66 to 1967-68 amounted to 573,700 tons, 574,700 tons and 591,600 tons respectively or 111.7 lb, 109.9 lb and 111.1 lb respectively per head of population. These figures exclude the quantities used for seed, which averaged about 52,000 tons annually over this period. Details showing exports and imports for the years 1963-64 to 1967-68 are given in the following table.

POTATOES: EXPORTS AND IMPORTS, AUSTRALIA
1963-64 TO 1967-68

Year	Exports		Imports	
	Quantity	Value	Quantity	Value
	tons	\$'000 f.o.b.	tons	\$'000 f.o.b.
1963-64	12,722	643	..	..
1964-65	4,715	427	5,404	343
1965-66	10,064	626	7,208	455
1966-67	13,593	839	..	..
1967-68	8,150	693	..	..

Western Australia has emerged in recent years as the principal exporting State, accounting for nearly two-thirds of the Australian total in 1967-68. Australia's principal markets are Singapore, Papua and New Guinea and New Caledonia.

Onions

Area, production and yield per acre. Australia's onion supply comes chiefly from Victoria, Queensland and South Australia. The Victorian crop consists almost entirely of brown onions, and the bulk of the crop is grown in a small section of the Western Division of the State, where the volcanic ash soils have been found to be particularly suitable for onion growing on a commercial scale. Most of Queensland's onion production is grown in the Lockyer Valley and also consists mainly of brown varieties.

**ONIONS: AREA, PRODUCTION AND YIELD PER ACRE, STATES
1935-37 TO 1967-68**

<i>Period</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>Aust.(a)</i>
AREA (ACRES)							
Average for three years ended—							
1938-39	126	5,634	1,187	521	122	8	7,604
1948-49	433	6,245	2,234	534	468	26	9,944
1958-59	491	4,614	3,655	635	413	29	9,846
Year—							
1963-64	682	3,756	3,317	930	446	91	9,222
1964-65	803	3,825	3,422	1,146	428	83	9,707
1965-66	999	2,955	2,748	1,148	331	69	8,250
1966-67	1,256	3,295	3,495	1,631	413	120	10,210
1967-68	1,116	3,617	2,951	1,682	340	146	9,852
PRODUCTION (TONS)							
Average for three years ended—							
1938-39	324	34,039	3,040	3,904	915	42	42,285
1948-49	1,703	41,156	10,489	5,032	3,831	153	62,388
1958-59	2,496	31,982	15,505	5,625	4,599	132	60,410
Year—							
1963-64	4,998	17,946	20,412	8,736	6,814	372	59,278
1964-65	6,378	22,963	22,853	11,061	5,981	465	69,701
1965-66	8,764	17,115	17,728	10,069	3,948	500	58,124
1966-67	10,809	22,375	27,033	17,933	5,417	898	84,465
1967-68	9,535	11,339	14,882	16,635	4,633	1,462	58,486
YIELD PER ACRE (TONS)							
Average for three years ended—							
1938-39	2.57	6.04	2.56	7.49	7.50	5.25	5.56
1948-49	3.93	6.59	4.70	9.42	8.19	5.88	6.27
1958-59	5.08	6.93	4.24	8.86	11.14	4.55	6.14
Year—							
1963-64	7.33	4.78	6.15	9.39	15.28	4.09	6.43
1964-65	7.94	6.00	6.68	9.65	13.97	5.60	7.18
1965-66	8.77	5.79	6.45	8.77	11.93	7.25	7.04
1966-67	8.61	6.79	7.73	11.00	13.12	7.48	8.27
1967-68	8.54	3.13	5.04	9.89	13.63	10.01	5.94

(a) Includes, for some of the years shown, the Northern Territory and the Australian Capital Territory.

Value of onion crop. The estimated gross value of the onion crop and the value per acre are shown in the following table for the 1967-68 season.

ONIONS: VALUE OF CROP, STATES, 1967-68

		<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>Aust.</i>
Aggregate value	\$'000	802	1,427	2,325	1,888	541	184	7,167
Value per acre	\$	719	395	788	1,122	1,591	1,260	727

Consumption and exports of onions. The consumption of onions in Australia during 1967-68 was 63,000 tons or 11.7 lb per head of population. Onions are the only root crop, other than potatoes, in which any considerable overseas trade is carried on by Australia. In 1967-68 exports amounted to

851 tons, valued at \$152,000, and were shipped mainly to Papua and New Guinea and New Caledonia. The quantity of exports in 1966-67 was 8,816 tons, valued at \$525,000. Imports of fresh onions amounted to 2,803 tons, valued at \$300,000, in 1967-68, and 849 tons, valued at \$95,000, in 1966-67. The principal country from which onions were imported was New Zealand.

Fruit

The varieties of fruit grown differ in various parts of the States, ranging from pineapples, papaws and mangoes in the tropics to strawberries, raspberries and currants in the colder parts of the temperate zone. In New South Wales citrus fruit (oranges, lemons, etc.) and bananas are the principal crops, although apples, peaches, plums, pears, and cherries are grown extensively. The principal varieties grown in Victoria are apples, pears, peaches, oranges, and apricots. In Queensland apples, pineapples, bananas, oranges, mandarins, peaches, and plums are the varieties most largely cultivated. In South Australia, in addition to oranges, apples, peaches, apricots, and pears, almonds and olives are grown extensively. In Western Australia apples, oranges, plums, and pears are the chief varieties. In Tasmania apples occupy over three-quarters of the fruit-growing area, but small fruit, such as currants, raspberries and gooseberries, is grown extensively, the balance of the area being mainly taken up with pears and apricots.

Overseas marketing of fruits

The *Apple and Pear Organization Act 1938-1966* provides for the establishment of an Australian Apple and Pear Board comprising representatives of growers, exporters, employees, and the Commonwealth Government. A representative in London has also been appointed by the Board. An export levy to meet the expenses of the Board is provided for in the *Apple and Pear Export Charges Act 1938-1968*. The function of the Board is the organisation and control of exports of fresh apples and pears, and it has the power to regulate shipments, determine export quotas, allocate consignments from each State, and recommend the licensing of exporters. The Board contributes to apple and pear publicity activities overseas.

Since January 1964 the *Canned Fruits Marketing Act 1963-1968* has replaced the *Canned Fruits Export Control Act 1926-1959* under which the overseas marketing of canned fruit was initially organised (see Year Book No. 49, page 1050). The Australian Canned Fruits Board, which is constituted under the Act, determines the terms and conditions for overseas sales. The Board exercises this control through a system of export licences. The Board, whose membership was increased from five to eleven members and which was granted greater powers under the new Act, comprises representatives of the Commonwealth Government (one), canners of deciduous fruit (six), growers of deciduous fruit (three), and pineapple interests (one). The Board maintains a London office. The *Canned Fruits Export Charges Act 1926-1966* provides for a levy on exports to meet the Board's expenses, which include contributions to overseas publicity connected with the canned fruit industry. In 1963 an excise duty was imposed by the *Canned Fruits Excise Act 1963* on canned deciduous fruit entered for domestic consumption, and the proceeds of the duty are made available to the Board to assist in the promotion of overseas sales of canned deciduous fruit.

In 1959 the Australian Canned Fruit Sales Promotion Committee was established to promote the sale of canned deciduous fruit on the home market and overseas. The operations of the Committee are financed by a levy on fruit accepted by the canneries for the production of canned fruit. The Committee comprises representatives of growers and processors of canning fruit and a representative of the Commonwealth Government.

Area and production of fruit

In general the area under fruit in Australia has been increasing steadily during recent years.

FRUIT: AREA(a), STATES AND TERRITORIES, 1963-64 TO 1967-68

(Acres)

Year	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
1963-64	98,670	76,796	44,681	41,686	25,670	22,134	149	54	309,840
1964-65	97,221	75,509	45,918	43,012	26,425	22,375	130	56	310,646
1965-66	97,212	75,001	47,715	43,986	26,715	22,426	110	42	313,207
1966-67	96,482	73,519	50,058	44,157	26,458	22,343	133	38	313,188
1967-68	95,798	71,158	51,391	45,113	25,598	21,762	98	37	310,955

(a) Bearing and not bearing.

FRUIT: AREA AND PRODUCTION, STATES AND TERRITORIES, 1967-68

<i>Fruit</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>N.T.</i>	<i>A.C.T.</i>	<i>Aust.</i>
AREA, BEARING AND NOT BEARING (ACRES)									
Apples	18,692	21,074	13,438	5,900	15,078	18,378	..	31	92,591
Apricots	1,889	3,005	524	4,824	291	392	..	..	10,925
Bananas	19,993	..	5,887	..	518	..	(a)	..	(b)26,398
Cherries	2,806	2,118	11	601	45	55	..	..	5,636
Citrus—									
Oranges	27,958	6,285	3,451	17,458	4,635	..	43	..	59,830
Mandarins	2,638	648	2,594	1,014	628	..	1	..	7,523
Lemons and limes	2,804	1,018	366	729	557	..	3	..	5,477
Other	757	319	111	524	112	..	3	..	1,826
Nuts	194	180	871	4,412	72	..	36	..	5,765
Peaches	8,091	13,783	1,741	5,182	894	44	..	..	29,735
Pears	3,036	17,060	1,171	1,942	1,018	1,400	..	..	25,627
Pineapples	196	..	15,354	..	..	..	(a)	..	(b)15,550
Plums	1,801	1,412	1,517	848	1,122	47	..	..	10,026
Prunes	3,110	169	..	..	..	..	..	..	..
Small fruit	68	987	215	192	12	1,422	..	..	2,896
Other fruit	1,765	3,100	4,140	1,487	616	24	12	6	11,150
Total	95,798	71,158	51,391	45,113	25,598	21,762	98	37	310,955

PRODUCTION ('000 BUSHELS)

Apples	3,287	3,875	1,071	1,378	2,060	7,943	..	1	19,615
Apricots	242	504	40	683	37	12	..	..	1,519
Bananas	4,135	..	883	..	127	..	(a)	..	(b)5,145
Cherries	115	178	..	53	2	3	..	..	351
Citrus—									
Oranges	5,165	1,121	833	2,243	482	..	2	..	9,846
Mandarins	262	80	402	79	42	..	..	..	865
Lemons and limes	573	170	130	51	143	..	1	..	1,066
Peaches	1,391	3,344	176	1,243	136	4	..	..	6,294
Pears	582	5,342	125	610	182	511	..	..	7,351
Pineapples	37	..	6,767	..	..	..	(a)	..	(b)6,804
Plums	123	145	105	80	143	13	..	..	778
Prunes	152	16	..	..	..	..	..	..	..

(a) Not available for publication. (b) Incomplete; see individual States.

Principal fruit crops

PRINCIPAL FRUIT CROPS: AREA, PRODUCTION, AND GROSS VALUE OF PRODUCTION, AUSTRALIA, 1963-64 TO 1967-68

<i>Year</i>	<i>Apples</i>	<i>Apricots</i>	<i>Bananas</i>	<i>Oranges</i>	<i>Peaches</i>	<i>Pears</i>	<i>Pineapples</i>	<i>Plums and prunes</i>
AREA, BEARING AND NOT BEARING (ACRES)								
1963-64	92,859	11,890	29,709	59,211	30,237	25,870	11,086	10,963
1964-65	94,870	11,274	26,762	60,497	30,387	26,079	11,582	10,515
1965-66	94,865	11,427	26,555	61,517	30,036	25,941	12,938	10,474
1966-67	94,973	11,313	26,213	60,982	30,068	25,558	15,073	10,157
1967-68	92,591	10,925	26,398	59,830	29,735	25,627	15,550	10,026

PRINCIPAL FRUIT CROPS: AREA, PRODUCTION AND GROSS VALUE OF PRODUCTION, AUSTRALIA, 1963-64 TO 1967-68—continued

<i>Year</i>	<i>Apples</i>	<i>Apricots</i>	<i>Bananas</i>	<i>Oranges</i>	<i>Peaches</i>	<i>Pears</i>	<i>Pineapples</i>	<i>Plums and prunes</i>
PRODUCTION ('000 BUSHEL)								
1963-64	19,285	1,610	5,324	8,735	4,366	6,916	4,445	1,039
1964-65	18,897	1,968	5,028	10,836	5,078	5,920	4,363	1,068
1965-66	19,783	1,778	4,694	9,137	5,508	7,485	4,924	952
1966-67	19,418	2,405	4,901	10,677	5,913	6,557	6,059	1,204
1967-68	19,615	1,519	5,145	9,846	6,294	7,351	6,804	778
GROSS VALUE OF PRODUCTION (\$'000)								
1963-64	44,862	4,802	16,442	20,834	10,084	14,900	5,150	4,036
1964-65	46,577	5,508	18,585	23,547	12,676	14,753	5,491	4,544
1965-66	47,631	5,119	20,409	22,037	13,795	17,674	6,165	3,419
1966-67	52,108	6,912	20,319	25,327	13,912	15,913	7,137	5,149
1967-68	49,741	4,637	19,636	24,496	14,123	16,469	6,470	3,362

Production and consumption of jams and jellies and preserved fruit

In Australia considerable quantities of fruit are used in the production of jams and jellies and for preserving. During 1967-68 output of jams, conserves, fruit spreads, etc., amounted to 83,917,000 lb, while output of preserved fruit amounted to 659,700,000 lb. Of the latter figure, peaches accounted for 253,592,000 lb, pears 152,780,000 lb, and pineapples 72,820,000 lb.

In 1967-68, 9,102,000 cwt of fruit was recorded as used in factories classified to the sub-classes Oils, vegetable; Jam, fruit and vegetable canning; Condiments, coffee, spices; Aerated waters and cordials; and Dehydrated fruit and vegetables. Details of the estimated consumption of fruit and fruit products per head of population for a series of years ending 1967-68 are shown in the chapter Miscellaneous.

Imports and exports of fruit and fruit products

The imports of fresh fruit into Australia are negligible, while those of dried fruit consist mainly of dates obtained almost entirely from Iraq and Iran. A considerable export trade in both fresh and dried fruit is carried on by Australia with overseas countries. The values of the shipments in 1967-68 amounted to \$27,538,000 and \$22,790,000 respectively. Apples constitute the bulk of the fresh fruit exported, although exports of pears and citrus fruit are considerable.

FRESH AND FROZEN FRUIT: EXPORTS, AUSTRALIA, 1963-64 TO 1967-68

<i>Year</i>	<i>Apples</i>		<i>Pears</i>		<i>Citrus</i>		<i>Total value(a)</i>
	<i>Quantity</i>	<i>Value</i>	<i>Quantity</i>	<i>Value</i>	<i>Quantity</i>	<i>Value</i>	
	'000lb	\$'000 f.o.b.	'000lb	\$'000 f.o.b.	'000lb	\$'000 f.o.b.	\$'000 f.o.b.
1963-64	344,904	24,036	74,970	5,294	46,272	2,986	33,156
1964-65	296,142	20,989	65,745	5,297	51,936	3,382	30,543
1965-66	351,246	25,863	94,005	7,464	58,080	3,685	37,819
1966-67	288,834	18,280	64,620	4,800	58,656	3,779	27,869
1967-68	277,814	17,368	68,922	5,442	54,875	3,656	27,538

(a) Includes exports of all other fresh and frozen fruit.

The quantity and value of overseas imports and exports of dried fruit, other than raisins and currants, for the years 1963-64 to 1967-68 are shown on the following page.

**DRIED TREE FRUIT(a): IMPORTS AND EXPORTS, AUSTRALIA
1963-64 TO 1967-68**

Year	Imports(b)		Exports	
	Quantity	Value	Quantity	Value
	'000 lb	\$'000 f.o.b.	'000 lb	\$'000 f.o.b.
1963-64	10,262	604	8,479	1,988
1964-65	8,454	601	9,415	1,808
1965-66	8,145	557	11,907	2,450
1966-67	8,936	671	8,038	2,037
1967-68	8,996	750	8,027	2,016

(a) Excludes sultanas, raisins and currants dealt with separately under Vineyards (see page 878). (b) Dates and figs only.

Exports of jams and jellies in 1967-68 were 10,361,000 lb, valued at \$1,463,000, compared with 8,731,000 lb, valued at \$1,227,000 in 1966-67. Imports of jams and jellies in 1967-68 were 1,637,000 lb, valued at \$324,000, compared with 1,045,000 lb, valued at \$247,000 in 1966-67.

Large quantities of canned or bottled fruit are normally exported from Australia, the quantity recorded in 1967-68 being 425,328,000 lb, valued at \$50,661,000. Exports in 1967-68 were made up principally of peaches (198,736,000 lb), pears (108,712,000 lb), fruit salad (37,673,000 lb), pineapples (33,898,000 lb), and apricots (17,729,000 lb). In addition, the exports of pulped fruits during 1967-68 amounted to 1,108,000 lb valued at \$188,000.

The total value of preserved fruit and fruit preparations (including fruit juices) imported into Australia during 1967-68 was \$2,491,000. The value of exports of fruit juices in 1967-68 was \$943,000.

Vineyards

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

Area of vineyards

The area under vineyards in the 1967-68 season in Victoria and South Australia constituted 76 per cent of the total area of vineyards.

**VINEYARDS: AREA(a), STATES, 1936-37 TO 1967-68
(Acres)**

Period	N.S.W.	Vic.	Qld	S.A.	W.A.	Aust.
Average for three years ended—						
1938-39	16,824	42,071	2,670	57,185	6,197	124,947
1948-49	16,482	44,114	3,099	58,971	9,965	132,631
1958-59	17,210	44,823	2,926	57,199	8,967	131,125
Year—						
1963-64	18,715	46,501	3,276	58,679	8,629	135,800
1964-65	20,464	47,996	3,299	58,857	8,310	138,926
1965-66	21,292	48,617	3,268	58,730	8,215	140,122
1966-67	21,257	49,164	3,304	57,080	7,945	138,750
1967-68(b)—						
Drying	8,248	38,830	..	7,341	2,901	57,320
Table	2,832	3,203	3,135	238	1,303	10,711
Wine	11,075	6,692	265	50,550	3,460	72,042
Total	22,155	48,725	3,400	58,129	7,665	140,074

(a) Bearing and not bearing. are put.

(b) Area of individual categories is shown according to ultimate use to which grapes

Wine industry

Australia produces wine of every type and also brandy. In recent years there has been a distinct trend towards greater consumption and production of unfortified or table wines. Until 1957-58 production of these wines (which include burgundy, claret, riesling, sauterne, and sparkling wines) was less than half that of the fortified varieties (sherries, ports, etc.). By 1967-68 production of table wines had reached a volume almost equal to that of fortified varieties.

The *Wine Overseas Marketing Act* 1929-1966 was introduced to place the overseas marketing of wine on an orderly basis. The Australian Wine Board, consisting of representatives from wineries and distilleries, grape-growers and the Commonwealth Government, supervises the sale and distribution of Australian wine exported and recommends conditions under which export licences should be issued. The Board also engages in wine publicity and trade promotion activities both in Australia and overseas. In London the Board maintains an Australian Wine Centre, which is a medium for promoting interest in Australian wines and brandy. It is also a retail shop for the sale of these products. The *Wine Grapes Charges Act* 1929-1966 provides for the imposition of a levy on all grapes used in Australia for the manufacture of wine, brandy and spirit used for fortifying wine. The proceeds of the levy are used to meet the Board's projects in Australia and overseas and to defray the administrative expenses of the Board, which has no other source of income.

Production and consumption of wine and brandy

In 1967-68 the total production of wine (beverage and distillation) in Australia was 44.3 million gallons, while total consumption of beverage wine was 19.8 million gallons (1.66 gallons per head of population). Similar particulars for 1966-67 are 41.5 million gallons and 17.5 million gallons (1.49 gallons per head of population) respectively.

WINE: PRODUCTION(a), STATES, 1936-37 TO 1967-68
(^{'000} gallons)

<i>Period</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Aust.</i>
Average for three years ended—						
1938-39 . . .	2,712	1,359	31	14,021	396	18,519
1948-49 . . .	4,178	3,040	31	25,906	689	33,844
1958-59 . . .	3,974	2,435	36	25,190	743	32,378
Year—						
1963-64 . . .	6,030	3,705	33	27,102	666	37,536
1964-65 . . .	6,404	3,656	24	28,022	613	38,718
1965-66 . . .	6,439	3,151	24	23,884	627	34,125
1966-67 . . .	7,893	3,555	37	29,324	705	41,514
1967-68 . . .	8,350	5,180	31	30,130	616	44,307

(a) Net factory and farm production of beverage and distillation wine excluding the liquid gallonage of spirits added in wine fortifying.

**BRANDY: PRODUCTION, SOUTH AUSTRALIA
AND AUSTRALIA, 1936-37 TO 1967-68**
(^{'000} proof gallons)

<i>Period</i>	<i>S.A.</i>	<i>Aust.(a)</i>
Average for three years ended—		
1938-39 . . .	446,251	505,474
1948-49 . . .	648,641	714,688
1958-59 . . .	1,009,040	1,149,032
Year—		
1963-64 . . .	1,052,850	1,219,968
1964-65 . . .	1,183,351	1,400,100
1965-66 . . .	1,167,309	1,371,217
1966-67 . . .	650,618	791,163
1967-68 . . .	715,147	872,428

(a) Includes New South Wales and Victoria, for which separate details are not available for publication.

Exports and imports of wine and brandy

Principal markets for exports of Australian wine are the United Kingdom, Canada and New Zealand. During 1967-68 these countries received 1,040,000 gallons, 409,000 gallons and 116,000 gallons respectively. Exports of Australian-produced wine for the five years ended 1967-68 are shown in the following table.

WINE: EXPORTS, AUSTRALIA, 1963-64 TO 1967-68

Year	Quantity ('000 gals)			Value (\$'000 f.o.b.)		
	Sparkling	Other	Total	Sparkling	Other	Total
1963-64	10	1,526	1,537	62	2,679	2,741
1964-65	16	1,976	1,992	96	3,425	3,521
1965-66	35	1,922	1,957	171	3,364	3,535
1966-67	65	1,709	1,774	251	2,917	3,169
1967-68	88	1,751	1,839	359	2,794	3,153

Imports of wine for 1967-68 amounted to 305,000 gallons valued at \$1,364,000, compared with 189,000 gallons valued at \$828,000 in the previous year. During 1967-68 Italy supplied 120,000 gallons valued at \$417,000, France 71,000 gallons valued at \$532,000 and the Federal Republic of Germany 29,000 gallons valued at \$144,000.

Exports of Australian-produced brandy in 1967-68 amounted to 92,000 proof gallons, valued at \$422,000. Imports of brandy, mainly from France, amounted to 133,000 proof gallons, valued at \$736,000.

Dried vine fruit industries

The dry period from November to March in the lower Murray valley makes this an ideal area for dried vine fruit. Harvesting for drying takes place at the end of summer. The sun-drying process is often accelerated by using a dip of cold potash.

The *Dried Fruits Export Control Act 1924-1966* was passed to organise overseas marketing of Australian dried vine fruit. The Australian Dried Fruits Control Board, consisting of growers' representatives, members with commercial experience in marketing dried fruits and a Government representative, controls the sale and distribution of dried fruit exports, recommends the licensing of exporters and contributes to dried vine fruit publicity activity overseas. In conjunction with its London office, the Board has improved dried fruit marketing overseas by its system of appraisal, regulation of shipments and advertising. The *Dried Fruits Export Charges Act 1924-1965* provides for a levy on exports of dried fruit to defray costs and expenses incurred by the Board.

For details of the bulk purchase agreements between the Governments of the United Kingdom and Australia which operated during the period 1946-53 see Year Book No. 40, page 888. From 1 December 1953 exports to the United Kingdom have been on a trader to trader basis.

In June 1963 Australian, Greek and Turkish dried vine fruit interests concluded an agreement to maintain minimum prices for sultanas on world markets. The agreement, which aims at international price stability, is periodically reviewed. A permanent committee of the contracting parties was established in London for the purpose of supervising the working of the agreement, and a sub-committee of the permanent committee was established in Hamburg in 1964.

The Dried Vine Fruits Stabilization Scheme was introduced under the *Dried Vine Fruits Stabilization Act 1964-1966* to stabilise seasonal returns to growers of currants, sultanas and raisins. Its main features are as follows.

Growers are guaranteed an average return from seasonal sales of currants, sultanas and raisins equal to the average cost of production of each variety less \$10.00 a ton.

The maximum quantities for which returns are guaranteed each season are 13,500 tons of currants, 75,000 tons of sultanas and 11,000 tons of raisins.

Growers are required to contribute to separate varietal stabilisation funds when the average return to the industry from seasonal sales of a variety exceeds cost of production by more than \$10.00 a ton, with a limit on such contributions of \$20.00 a ton.

When the quantity received for packing in any season does not reach 8,000 tons of currants, 50,000 tons of sultanas or 6,000 tons of raisins, growers are not required to contribute to the stabilisation fund for the variety concerned.

Contributions are to be made by the Commonwealth to raise average returns to the guaranteed price when there is insufficient industry money in a stabilisation fund for this purpose.

Limits are set to the accumulation of money in the stabilisation funds. These are \$1,000,000 in the case of both the currant and raisin stabilisation funds, and \$4,000,000 in the case of the sultana stabilisation fund.

Where these limits are exceeded during the operation of the scheme, the excess will be used first to reimburse the Government for any contribution it may have made to a fund; any balance will be repaid to growers on a first-in first-out basis.

The scheme is to operate for five years. At the end of the fifth year any credit balance in the stabilisation funds will be used, in the first instance, to reimburse the Government for unrepaid contributions (if any). If the scheme is not renewed any remaining money will be returned to growers.

Growers' contributions for the scheme are collected under the *Dried Vine Fruits Contributory Charges Act 1964-1966* and the *Dried Vine Fruits Contributory Charges (Collection) Act 1964-1966*.

DRIED VINE FRUIT: PRODUCTION, STATES, 1936-37 TO 1967-68

(Tons)

Period	N.S.W.		Vic.		S.A.		W.A.		Aust.	
	Raisins (a)	Cur- rants	Raisins (a)	Cur- rants	Raisins (a)	Cur- rants	Raisins (a)	Cur- rants	Raisins (a)	Cur- rants
Average for three years ended—										
1938-39	5,464	1,163	39,810	8,953	13,215	9,009	723	2,179	59,212	21,304
1948-49	5,429	994	40,027	7,380	8,811	5,243	580	3,179	54,847	16,796
1958-59	10,300	705	53,178	4,294	11,115	4,432	118	1,746	74,711	11,177
Year—										
1963-64	13,563	709	66,138	3,934	13,159	4,533	121	2,166	92,981	11,342
1964-65	12,841	632	66,153	4,477	16,325	5,044	75	2,364	95,394	12,517
1965-66	11,480	449	59,418	3,127	11,915	3,153	116	1,306	82,929	8,035
1966-67	14,108	643	69,628	3,588	13,544	3,773	67	1,353	97,347	9,357
1967-68	12,463	585	59,222	3,166	5,200	3,112	40	1,668	76,925	8,531

(a) Includes sultanas and lexias.

DRIED VINE FRUIT(a): EXPORTS, AUSTRALIA, 1963-64 TO 1967-68

Year	Raisins, sultanas and lexias		Currants		Total	
	Quantity	Value	Quantity	Value	Quantity	Value
		\$'000		\$'000		\$'000
	tons	f.o.b.	tons	f.o.b.	tons	f.o.b.
1963-64	57,451	17,442	5,512	1,601	62,963	19,043
1964-65	63,197	20,324	6,532	1,968	69,729	22,292
1965-66	74,704	24,070	6,102	1,918	80,805	25,988
1966-67	63,561	19,720	4,301	1,428	67,862	21,148
1967-68	63,562	19,459	3,907	1,316	67,469	20,775

(a) Excludes quantities exported as mincemeat.

The chief countries importing Australian dried vine fruit are the United Kingdom, Canada, the Federal Republic of Germany, New Zealand, and Ireland. The quantities exported to these countries in 1967-68 were 27,925 tons, 16,910 tons, 7,356 tons, 5,954 tons, and 2,030 tons respectively.

Table grapes

Grapes for table use are grown in all States except Tasmania, but the area of this type was only about 8 per cent of the productive area of vines in 1967-68. The quantities of table grapes produced during the season 1967-68 in each State are shown on page 830.

PASTORAL PRODUCTION**Livestock numbers**

A detailed account of the various enumerations of livestock in Australia made prior to 1860 was given on page 748 of Year Book No. 35. Since 1860 annual enumerations have been made, based, with few exceptions, on actual collections made through the agency of the State police or by post. Particulars concerning the numbers of each of the principal kinds of livestock in Australia, at decennial intervals from 1860 to 1960, and from 1964 onwards in single years, are given in the following table, and are shown continuously since 1870 on the graph on plate 42 following.

LIVESTOCK: AUSTRALIA, 1860 TO 1968
(*000)

Year	Horses	Cattle	Sheep	Pigs	Year	Horses	Cattle	Sheep	Pigs
1860	432	3,958	20,135	351	1940	1,699	13,080	119,305	1,455
1870	717	4,276	41,594	543	1950	1,057	14,640	112,891	1,123
1880	1,069	7,527	62,184	816	1960	640	16,503	155,174	1,424
1890	1,522	10,300	97,881	891	1964	536	19,055	164,981	1,468
1900	1,610	8,640	70,603	950	1965	520	18,816	170,622	1,660
1910	2,166	11,745	98,066	1,026	1966	n.a.	17,936	157,563	1,747
1920	2,416	13,500	81,796	764	1967	479	18,270	164,237	1,804
1930	1,793	11,721	110,568	1,072	1968	n.a.	19,218	166,912	2,056

While livestock numbers (particularly sheep) have increased substantially since 1860, marked fluctuations have taken place during the period, mainly on account of widespread droughts which have from time to time left their impressions on the pastoral history of Australia. These occurred in 1868, 1877, 1883-84, 1892, 1893, 1895, 1901-02, 1912, 1914, 1918, 1919, 1922-23, 1925-26, 1927-28, 1929-30, 1940-41, 1944-45 to 1946-47, and 1965-67. The years in which the numbers of livestock attained their peaks are as follows: horses, 1919 (2,527,000); cattle, 1968 (19,218,000); sheep, 1965 (170,622,000); and pigs, 1968 (2,056,000).

The distribution throughout Australia of sheep, beef cattle, dairy cattle, and pigs at 31 March 1963 is shown in the maps on pages 1049 and 1050 and facing pages 1082 and 1083 of Year Book No. 50.

The numbers of horses, cattle, sheep, and pigs in each State and Territory are shown later in this chapter.

Value of pastoral production

Values of pastoral production are shown for 1967-68 and earlier years in the following tables. Further details of the source of the information and an explanation of the terms used in this compilation will be found in the chapter Miscellaneous. Maintenance costs and depreciation have not been deducted; consequently the net values are inflated to the extent of these amounts.

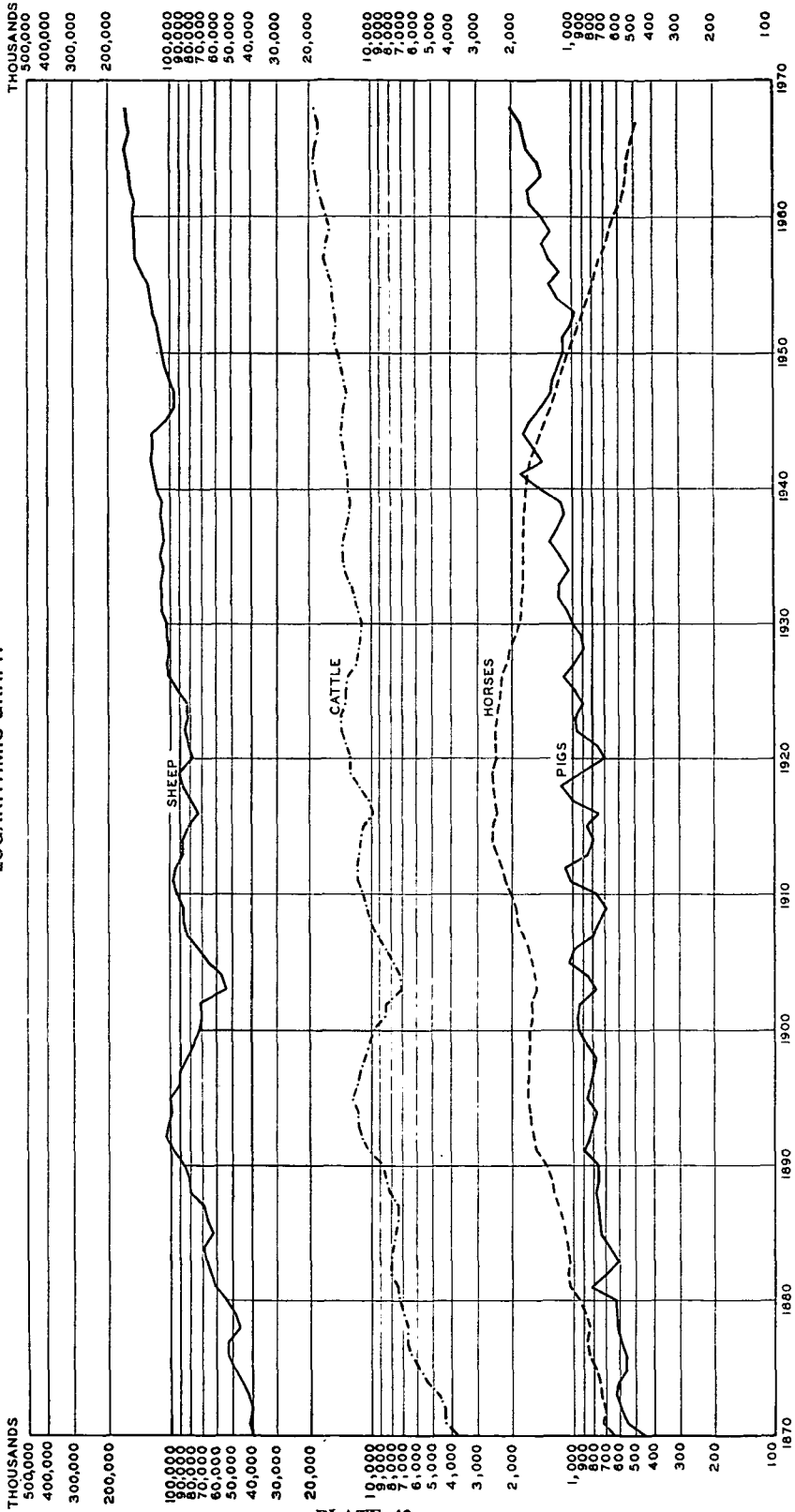
GROSS, LOCAL AND NET VALUES OF PASTORAL PRODUCTION: STATES AND TERRITORIES, 1967-68
(\$'000)

State or Territory	Gross production valued at principal markets	Marketing costs	Local value of production	Value of materials used in process of production	Net value of production(a)
New South Wales	431,411	40,281	391,130	(b)60,792	330,338
Victoria	355,318	30,547	324,772	70,584	254,187
Queensland	273,438	21,215	252,223	36,389	215,834
South Australia	129,504	8,310	121,194	22,472	98,722
Western Australia	158,754	13,229	145,525	26,295	119,231
Tasmania	30,821	2,136	28,685	16,215	12,469
Northern Territory	14,235	2,060	12,175	n.a.	12,175
Australian Capital Territory	1,750	139	1,611	131	1,480
Australia	1,395,231	117,917	1,277,315	232,878	1,044,436

(a) No deduction has been made for depreciation and maintenance. (b) No allowance has been made for costs of power, power kerosene, petrol and other oils.

LIVESTOCK: AUSTRALIA, 1870 TO 1968

LOGARITHMIC GRAPH



NOTE. VERTICAL SCALE IS LOGARITHMIC, AND THE CURVES RISE AND FALL ACCORDING TO RATE OF INCREASE OR DECREASE; ACTUAL NUMBERS ARE INDICATED BY SCALE.

**NET VALUE OF PASTORAL PRODUCTION(a): STATES AND TERRITORIES
1963-64 TO 1967-68**

<i>Year</i>	<i>N.S.W.(b)</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>N.T.</i>	<i>A.C.T.</i>	<i>Aust.</i>
NET VALUE									
(\$'000)									
1963-64	503,090	323,696	235,774	125,978	123,544	19,566	6,890	2,040	1,340,578
1964-65	451,368	309,668	220,988	110,054	101,069	21,040	5,372	1,741	1,221,300
1965-66	356,470	346,230	198,898	123,757	129,773	22,319	9,742	1,347	1,188,536
1966-67	351,488	315,142	222,178	134,608	126,049	21,566	9,256	1,561	1,181,848
1967-68	330,338	254,187	215,834	98,722	119,231	12,469	12,175	1,480	1,044,436

NET VALUE PER HEAD OF POPULATION

(\$)

1963-64	123.34	105.32	147.82	123.09	154.66	53.94	137.77	26.51	121.22
1964-65	108.96	98.74	135.83	104.60	123.68	57.43	101.76	20.63	108.28
1965-66	84.68	108.40	119.81	114.39	154.99	60.39	175.79	14.54	103.35
1966-67	82.26	96.97	131.62	121.93	146.21	57.68	159.36	15.62	100.94
1967-68	75.99	76.97	125.64	88.29	133.59	32.87	200.00	13.68	87.57

(a) No deduction has been made for depreciation and maintenance. (b) No allowance has been made for costs of power, power kerosene, petrol and other oils.

Indexes of quantum and price of pastoral production, 1963-64 to 1967-68

The quantum indexes shown in the following table relate to gross output of farm products valued at constant prices. The quantities of each farm product produced each year have been revalued at the unit gross value for the period 1936-37 to 1938-39. The price indexes relate to average 'prices' of farm products realised in the principal markets of Australia. Average quantities of each product marketed in the period 1946-47 to 1950-51 have been used as fixed weights. For further details of the methods of calculating these indexes and of the weights used see the chapter Miscellaneous.

**INDEXES OF QUANTUM(a) AND PRICE OF PASTORAL PRODUCTION
AUSTRALIA, 1963-64 TO 1967-68**

(Base: Average 3 years ended June 1939 = 100)

	1963-64	1964-65	1965-66	1966-67	1967-68
Quantum(a) produced—					
Wool	183	183	169	180	180
Other products	158	158	157	151	165
<i>Total, pastoral</i>	<i>172</i>	<i>172</i>	<i>163</i>	<i>167</i>	<i>174</i>
Per head of population	107	105	97	98	100
Price—					
Wool	531	437	458	433	382
Other products	480	496	567	593	573
<i>Total, pastoral</i>	<i>511</i>	<i>460</i>	<i>501</i>	<i>496</i>	<i>457</i>

(a) Index of value at constant prices, i.e. quantities revalued at average unit values of base years 1936-37 to 1938-39.

Sheep

Distribution throughout Australia

With the exception of a short period in the early eighteen-sixties, when the flocks of Victoria outnumbered those of New South Wales, the latter State has occupied the premier position in sheep-raising, although its relative importance has declined somewhat in recent years, due, among other factors, to heavy losses caused by drought conditions in 1965-66. Concurrently, there has been a marked increase in the sheep population of Western Australia, where figures have doubled in little more than a decade to give that State second position of importance in terms of sheep numbers.

A map showing the distribution of sheep in Australia at 31 March 1963 appears on page 1049 of Year Book No. 50. Graphs showing the number of sheep in Australia from 1870 onwards appear on plates 42 and 43 of this Year Book (pages 880 and 890).

SHEEP: NUMBERS IN STATES AND TERRITORIES, 1937 TO 1968 (*000)

<i>Period</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>N.T.</i>	<i>A.C.T.</i>	<i>Aust.</i>
Average for three years ended—									
1939	51,202	17,845	21,889	8,916	8,972	2,460	23	251	111,558
1949	46,525	17,900	16,442	8,793	10,368	2,060	24	227	102,339
1959	67,006	26,615	22,537	15,285	15,609	3,259	25	265	150,601
At 31 March—									
1964	71,764	28,413	24,337	16,403	20,165	3,600	10	289	164,981
1965	72,396	30,437	24,016	17,289	22,392	3,793	9	290	170,622
1966	61,396	30,968	18,384	17,993	24,427	4,127	9	258	157,563
1967	63,848	31,239	19,305	17,864	27,370	4,321	8	281	164,237
1968	67,786	27,909	19,948	16,405	30,161	4,428	9	267	166,912

The percentage distribution of sheep and lambs in the several States in 1968 was: New South Wales, 41; Victoria, 17; Queensland, 12; South Australia, 10; Western Australia, 18; and Tasmania, 2.

Movement in sheep numbers

SHEEP AND LAMBS: ANALYSIS OF MOVEMENT IN NUMBERS, AUSTRALIA 1963-64 TO 1967-68 (*000)

<i>Year ended 31 March</i>	<i>Numbers at beginning of season</i>	<i>Lambs marked</i>	<i>Net exports</i>	<i>Sheep and lambs slaughtered (a)</i>	<i>Estimated deaths on farms (b)</i>	<i>Numbers at close of season</i>
1964	158,626	47,818	312	33,240	7,911	164,981
1965	164,981	47,608	307	33,549	8,111	170,622
1966	170,622	40,330	273	33,671	19,445	157,563
1967	157,563	47,830	337	33,350	7,469	164,237
1968	164,237	50,648	362	38,145	9,466	166,912

(a) Includes an estimate for numbers boiled down. (b) Balance figure; excludes lambs which died before marking.

Comparisons of Australian flock numbers with those of certain other principal sheep-producing countries are given on page 896.

Classification of sheep according to age, sex, and breed

SHEEP, BY AGE AND SEX: AUSTRALIA, 31 MARCH 1964 TO 1968
(^{'000})

Description	1964	1965	1966	1967	1968
Rams, 1 year and over	1,986	2,047	2,002	2,013	2,079
Breeding ewes (including ewes intended for mating)	72,862	75,580	73,626	76,618	76,698
Other ewes, 1 year and over	8,631	8,952	7,397	7,117	7,873
Wethers, 1 year and over	46,203	49,284	45,649	44,186	42,512
Lambs and hoggets, under 1 year	35,299	34,759	28,890	34,302	37,750
Total, sheep and lambs	164,981	170,622	157,563	164,237	166,912

Particulars of the principal breeds of sheep at 31 March 1968 (details are collected on a triennial basis) are shown in the following table.

SHEEP, BY PRINCIPAL BREED: STATES AND TERRITORIES, 31 MARCH 1968
(^{'000})

Breed	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Merino	48,977	12,810	19,414	13,418	27,286	315	9	209	122,438
Other recognised breeds	6,333	6,909	203	1,383	1,304	2,809	..	14	18,954
Merino comeback(a)	1,846	1,584	52	214	339	476	..	5	4,516
Crossbreds(b)	10,630	6,605	279	1,391	1,232	829	..	39	21,005
Total	67,786	27,909	19,948	16,405	30,161	4,428	9	267	166,912

(a) Merino comeback is the progeny of a crossbred Merino ewe and a Merino ram, i.e. finer than half-bred. (b) Half-bred and coarser.

Exports and imports of sheep

The overseas exports of live sheep from Australia are of comparatively minor importance. On 27 November 1929 the export of stud Merino sheep was prohibited, except with the approval of the Minister for Primary Industry. Exports of sheep are now principally for slaughter overseas. Consignments for this purpose in recent years were made chiefly from Western Australia to Kuwait and Singapore. In 1967-68 the number of sheep exported was 358,143, valued at \$3,301,000 (1966-67, 340,382, valued at \$3,254,000). Since June 1958 an embargo has been imposed on the import of sheep in order to prevent the introduction of the disease 'blue-tongue'.

Cattle

Objects of cattle-raising in Australia

Cattle-raising is carried out in all States, the main object in certain districts being the production of stock suitable for slaughtering purposes and in others the raising of profitable dairy herds. While dairy cattle are restricted mainly to coastal districts, beef cattle are more widely distributed, particularly in the eastern States, and are raised in areas unsuitable for dairy cattle, such as the tropical area of northern Queensland, the Northern Territory and the Kimberley district in the north of Western Australia.

Distribution throughout Australia

Although cattle numbers declined after 1957 because of drought conditions and heavy slaughtering, they began to rise again in 1960 and in 1964 reached 19,055,000. Again because of drought in the eastern States, this figure declined to 17,936,000 in 1966, but recovered to reach a record level of 19,218,000 in 1967-68.

A graph showing the number of cattle in Australia from 1870 onwards appears on plate 42, page 880.

CATTLE: NUMBERS IN STATES AND TERRITORIES, 1937 TO 1968
(*000)

<i>Period</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>N.T.</i>	<i>A.C.T.</i>	<i>Aust.</i>
Average for three years ended—									
1939	3,040	1,861	6,002	324	767	260	882	8	13,144
1949	3,122	2,153	5,971	443	830	244	1,006	9	13,778
1959	3,770	2,722	7,177	598	985	367	1,173	10	16,802
At 31 March—									
1964	4,789	3,301	7,402	694	1,299	450	1,105	15	19,055
1965	4,619	3,316	7,393	697	1,258	451	1,068	14	18,816
1966	4,153	3,397	6,888	690	1,271	492	1,032	13	17,936
1967	4,146	3,528	6,919	687	1,357	522	1,097	14	18,270
1968	4,555	3,474	7,361	695	1,427	564	1,130	13	19,218

The percentage of cattle in each State and Territory during 1968 was: New South Wales, 24; Victoria, 18; Queensland, 38; South Australia, 4; Western Australia, 7; Tasmania, 3; and Northern Territory, 6.

Maps showing the distribution of beef and dairy cattle in Australia appear on page 1050 and facing page 1082 of Year Book No. 50, and maps showing the distribution in earlier years were published in previous issues of the Year Book.

Classification of cattle

CATTLE, BY PURPOSE, AGE AND SEX: STATES AND TERRITORIES, 31 MARCH 1968
(*000)

<i>Classification</i>	<i>N.S.W.</i>	<i>Vic.</i>	<i>Qld</i>	<i>S.A.</i>	<i>W.A.</i>	<i>Tas.</i>	<i>N.T.(a)</i>	<i>A.C.T.</i>	<i>Aust.</i>
Bulls (1 year and over) used or intended for service—									
Dairy breeds	17	39	14	5	3	4	..	..	82
Beef breeds	68	37	120	11	23	6	34	..	299
<i>Total bulls</i>	85	76	134	16	26	10	34	..	381
Cattle used or intended for production of—									
Milk or cream for sale—									
Cows (in milk and dry)	645	1,200	556	139	100	152	..	1	2,794
Heifers—Springing (within 3 months of calving)				18	21				
Other (1 year and over)	154	338	128	24	28	43	..	..	755
Calves (under 1 year)	134	345	99	36	30	45	..	..	689
Milk or cream for use on rural holdings—									
House cows and heifers	86	26	35	7	9	6	..	..	169
<i>Total cattle, production of milk, etc.</i>	1,019	1,910	818	224	188	246	1	2	4,407
Cattle for other purposes(b)—									
Cows and heifers (1 year and over)	1,815	741	3,220	257	633	130	648	6	7,450
Calves (under 1 year)(c)	1,122	478	1,493	141	305	118	208	3	3,868
Other (1 year and over), i.e. steers, bullocks, speyed cows, etc.	513	270	1,696	57	275	60	240	1	3,113
<i>Total cattle, other purposes</i>	3,450	1,489	6,409	455	1,213	308	1,095	10	14,431
Total cattle and calves for all purposes	4,555	3,474	7,361	695	1,427	564	1,130	13	19,218

(a) As at 30 June 1968. (b) Mainly for meat production. (c) Includes vealers, and bull calves intended for service.

CATTLE, BY PURPOSE, AGE AND SEX: AUSTRALIA, 31 MARCH 1965 TO 1968
(*'000*)

<i>Classification</i>	<i>1964</i>	<i>1965</i>	<i>1966</i>	<i>1967</i>	<i>1968</i>
Bulls (1 year and over) used or intended for service—					
Dairy breeds	99	95	90	87	82
Beef breeds	278	274	261	279	299
<i>Total bulls</i>	<i>377</i>	<i>369</i>	<i>359</i>	<i>367</i>	<i>381</i>
Cattle used or intended for production of—					
Milk or cream for sale—					
Cows (in milk and dry)	3,078	3,012	2,098	2,881	2,794
Heifers—Springing (within 3 months of calving) and other (1 year and over)	821	843	823	796	755
Calves (under 1 year)	718	690	681	672	689
Milk or cream for use on rural holdings—					
House cows and heifers	218	202	186	180	169
<i>Total cattle, production of milk, etc.</i>	<i>4,835</i>	<i>4,747</i>	<i>4,598</i>	<i>4,528</i>	<i>4,407</i>
Cattle for other purposes(a)—					
Cows and heifers (1 year and over)	7,021	7,073	6,692	6,886	7,450
Calves (under 1 year)(b)	3,536	3,378	3,063	3,392	3,868
Other (1 year and over), i.e. steers, bullocks, speyed cows, etc.	3,286	3,248	3,232	3,097	3,113
<i>Total cattle, other purposes</i>	<i>13,842</i>	<i>13,699</i>	<i>12,987</i>	<i>13,375</i>	<i>14,431</i>
<i>Total cattle and calves for all purposes</i>	<i>19,055</i>	<i>18,816</i>	<i>17,936</i>	<i>18,270</i>	<i>19,218</i>

(a) Mainly for meat production. (b) Includes vealers, and bull calves intended for service.

For beef cattle and dairy cattle numbers prior to 1964 see pages 1056 and 1078 respectively of Year Book No. 50.

Exports and imports of cattle

In 1967–68 the number of cattle exported was 3,989, valued at \$563,000 (1966–67, 5,480 valued at \$1,108,000). Prior to June 1958 small numbers of cattle were imported, consisting mainly of valuable animals for stud purposes. Since that date an embargo has been imposed on the import of cattle in order to prevent the introduction of the disease 'blue-tongue'.

Comparison with other countries

The following table shows the number of cattle in Australia and in some of the principal cattle-raising countries of the world at the latest available date.

CATTLE: NUMBERS IN VARIOUS COUNTRIES

Source (for countries other than Australia): World Agricultural Production and Trade, United States Department of Agriculture

(*'000*)

<i>Country</i>	<i>Year and month</i>	<i>Number p</i>
India(a)	1962 (May)	236,000
United States of America	1969 (January)	109,661
U.S.S.R.	1969 (January)	95,700
Brazil	1968 (December)	89,992
China (mainland)(a)	1960 (December)	65,400
Argentina	1968 (June)	51,465
Pakistan(a)	1961 (Estimate)	30,300
Mexico	1969 (December)	24,000
Ethiopia	1963 (Estimate)	22,000
France	1969 (October)	21,918
Colombia	1969 (October)	19,583
Australia	1968 (March)	19,218
Turkey(a)	1969 (December)	15,750
Germany, Federal Republic of	1969 (December)	14,045
South Africa	1968 (June)	12,145
United Kingdom	1969 (December)	12,123

(a) Includes buffaloes.

Horses

The number of horses in Australia reached a peak of 2,527,000 in 1919. Since then it has declined, because of mechanisation of transport and farming, and the number recorded at 31 March 1967 was 479,000. In future, particulars of horses will be collected only at triennial intervals.

A graph showing the number of horses in Australia since 1870 appears on plate 42, page 880.

HORSES: NUMBERS IN STATES AND TERRITORIES, 1964 TO 1968
(^{'000})

31 March—	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
1964 . . .	163	56	206	(a)25	39	8	38	1	(b)536
1965 . . .	158	56	201	(a)24	37	7	36	1	(b)520
1966 . . .	151	n.a.	190	n.a.	35	n.a.	37	1	n.a.
1967 . . .	146	55	182	16	35	7	38	1	479
1968 . . .	n.a.	n.a.	181	n.a.	n.a.	n.a.	38	1	n.a.

(a) Estimated. (b) See South Australia.

Overseas trade in horses

Exports of Australian-bred horses in 1967–68 numbered 845, valued at \$1,733,000, made up of horses for breeding (137 valued at \$304,000), horses for racing (494 valued at \$1,310,000, shipped principally to Singapore, Republic of Korea and the United States of America), and horses for other purposes (214 valued at \$119,000). Horses imported into Australia in 1967–68 (820 valued at \$2,741,000) were mainly from New Zealand and the United Kingdom.

Pastoral products: wool

With about one-sixth of the world's woolled sheep, Australia produces almost one-third of the world's wool and more than half the world's fine-quality Merino wool. The bulk of the production is exported, mainly as greasy wool, although substantial amounts of scoured and carbonised wool, wool on sheep skins and small quantities of semi-manufactured wool are also shipped. The important position held by Australia among the principal sheep and wool producing countries of the world is shown in the table on page 896.

Wool marketing

Details of past wool marketing schemes and agreements, including the 1914–18 War Imperial Purchase Scheme, the British Australian Wool Realization Association Ltd, the 1939–45 War Acquisition Scheme, Joint Organization, and Minimum Reserve Price Plan, are given in previous issues of the Year Book.

More than ninety per cent of the Australian wool clip is disposed of at auction. (During both world wars, however, auction selling was suspended and replaced by bulk purchase schemes.) There are fourteen recognised wool-selling centres, namely Sydney, Goulburn, Newcastle, Albury, Melbourne, Geelong, Ballarat, Portland, Brisbane, Adelaide, Perth, Albany, Hobart, and Launceston. At these centres wool-selling brokers operate large stores where wool received from growers is held awaiting sale.

Each year a wool-selling programme is drawn up jointly by the selling brokers and wool-buyers on the basis of the expected clip. Selling dates and the quantities to be offered are then determined for each centre. Before each sale the selling brokers, who act as agents for the wool-growers, display a representative portion of the wool to be sold on show floors for buyers' inspection and valuation. Auction sales are attended by buyers purchasing on behalf of wool users in more than fifty countries.

Wool Marketing Committee of Enquiry

In 1961 the Commonwealth Government appointed an independent committee to inquire into the marketing and promotion of Australian wool and related matters (see Year Book No. 48, page 977, for further details). The Committee presented its report to the Government in 1962. Its most important recommendation was that wool promotion, research and testing should be brought under the control of a single body, which should also act as an advisory authority on wool marketing. This recommendation was implemented under the *Wool Industry Act 1962–1967* which set up the Australian Wool Board.

Australian Wool Board

This Board consists of a chairman, six woolgrower representatives, three members with special qualifications, and a representative of the Commonwealth Government. The first chairman of the

Board was appointed by the Minister for Primary Industry after consultation with the Australian Wool Industry Conference (*see below*), but subsequent chairmen are to be appointed on the nomination of the Board. The six woolgrower representatives are appointed by the Minister on the nomination of the Wool Industry Conference, and the three members with special qualifications are appointed from a panel of names submitted by the Conference. The Act provides that the latter members must be experienced in one of the following fields: wool marketing and manufacturing, research, finance, and commerce.

When the Board came into being on 1 May 1963 it took over the functions of the Australian Wool Bureau. On 1 July 1963 the Australian Wool Testing Authority became part of the Board, and on 1 January 1964 the Board took over the functions of the Wool Research Committee. Information on these three former instrumentalities appears in Year Book No. 48, pages 977–81.

Following the organisational changes carried out under the Wool Industry Act, the functions of the Board embrace the following activities.

Wool promotion in Australia and overseas by publicity and other means. Promotion overseas is carried out through the International Wool Secretariat, which is maintained jointly by the Wool Boards of Australia, New Zealand and South Africa.

Provision of a testing service for wool and wool products. This service is administered by a subsidiary board retaining the name Australian Wool Testing Authority.

Administration of wool research. The Board is responsible for preparing annual programmes of research expenditure which are subject to the approval of the Minister for Primary Industry. Two committees established by the Board, the Wool Production Research Advisory Committee and the Wool Textile Research Advisory Committee, assist in this task.

Investigation into all aspects of wool marketing on a continuing basis. The Wool Marketing Committee, an ancillary body appointed by the Board, assists in carrying out this function. The Board is required to report to the Australian Wool Industry Conference on its findings and advise it on measures which should be adopted to meet changing marketing conditions. However, the Board has no executive powers over marketing.

In July 1964 the Board, after an investigation by the Wool Marketing Committee, made recommendations to the Australian Wool Industry Conference for the introduction of a Reserve Price Plan for wool, which were put to woolgrowers in a referendum in December 1965. However, the plan was rejected by 53.4 per cent of the enfranchised woolgrowers who voted. For details *see* Year Book No. 52, page 945.

Following the rejection of the Reserve Price Plan at this referendum, the Board continued with its investigations and on 31 October 1967 presented its second report on wool marketing to the Australian Wool Industry Conference. The report included proposals for the establishment of an Australian Wool Marketing Authority to enforce standards of clip preparation, administer the elimination of one, two, and three bale lots, conduct a price averaging plan for these wools and others voluntarily submitted, and conduct, in conjunction with wool selling brokers, a system of supply management involving chiefly wools in the price averaging plan. The report also recommended a system of financial advances for woolgrowers and the establishment of an organisation of woolgrowers, brokers, and buyers to conduct and control the sale of wool at auction.

A further recommendation that these proposals, with some amendments, be implemented by a non-statutory Australian Wool Marketing Corporation was accepted by the Australian Wool Industry Conference in November 1968. The Conference asked the Board to take all further steps necessary to set up such a Corporation.

Maintenance and administration of the wool stores which were entrusted to the Board by the Commonwealth Government. Further details concerning these stores appear in Year Book No. 48, page 978.

Other activities approved by the Minister for the benefit of the wool industry, including the operation of the Wool Statistical Service and the registration of wool classers. The Wool Statistical Service (described in more detail in Year Book No. 48, pages 977–8) provides comprehensive statistics on the Australian wool clip, while the registration of wool classers is designed to improve the standards of wool classing in Australia.

At present the main sources of finance for the various activities of the Board are a levy paid by woolgrowers and contributions by the Commonwealth Government.

The Australian Wool Industry Conference

This body was formed by woolgrowers in October 1962 to meet the need for an organisation with sufficient authority to speak on behalf of the woolgrowing industry as a whole. It is not a statutory body and consists of twenty-five members each from the Australian Woolgrowers' and Graziers'

Council and the Australian Wool and Meat Producers' Federation, and, from October 1965, five members from the Australian Primary Producers' Union. The fifty-five member conference is presided over by an independent chairman.

The Conference makes recommendations to the Commonwealth Government on policy matters concerning the wool industry. Under the Wool Industry Act it is the responsibility of the Conference to nominate woolgrower representatives for appointment to the Australian Wool Board and to prepare panels of names from which the three Board members with special qualifications are selected. Under the Wool Tax Acts (*see below*) the Conference is also responsible for recommending to the Commonwealth Government what rates of levy should be paid by woolgrowers to finance the activities of the Wool Board and the wool research programme.

Wool levy

Since 1936 a statutory levy has been collected from woolgrowers to finance wool promotion activities. The initial rate of 5c a bale was increased at the request of woolgrowers to 20c a bale in 1945 and 40c a bale in 1952, the latter rate continuing until 1960. Further details regarding the operation of this levy prior to 1957 appear in Year Book No. 48, page 978.

Under legislation passed in 1957 provision was also made for the payment by woolgrowers of a contribution for wool research which was fixed at 20c a bale. In 1960 the wool promotion levy was raised to 50c a bale, and the following year it was increased further to \$1 a bale. The operation of this rate was subsequently extended for 1962-63 and 1963-64.

On 1 July 1964 the basis for collecting the woolgrowers' combined levy for wool promotion and research was changed from a flat rate per bale to a percentage deduction from the gross value of shorn wool sold. A maximum rate of 2 per cent was fixed, but provision was made for a lower rate to be prescribed, if appropriate. For 1964-65 the rate was set at 1.875 per cent, which involved a substantial increase in payments by woolgrowers for promotion (from \$1 per bale to the equivalent of about \$2.70 per bale), while the research component of the levy was left unaltered at 20c per bale. In 1965-66 the levy was set at 2 per cent and it remained at the maximum rate for 1966-67, 1967-68 and 1968-69.

The imposition and collection of the combined levy from woolgrowers is governed by six complementary Acts, the Wool Tax Acts (Nos 1 to 5) 1964 and the *Wool Tax Administration Act* 1964-1966.

Commonwealth Government's contributions to wool research and promotion

In 1945 the Commonwealth Government commenced contributing on a statutory basis to wool research. Initially the contribution was at the rate of 20c a bale, but this was doubled in 1957 to 40c a bale. At this rate the Commonwealth Government contributed about \$2,000,000 to wool research in 1965-66, and a similar sum was provided in 1966-67.

Prior to 1964-65 the Commonwealth Government had not contributed to wool promotion. However, following representations made by the Australian Wool Industry Conference, the Commonwealth Government undertook to provide assistance to the Australian Wool Board in financing its commitment to the greatly expanded wool promotion programme of the International Wool Secretariat. The expanded wool promotion programme, announced by the Secretariat, envisaged an increase in the Wool Board's annual contribution to overseas wool promotion campaigns from the then level of \$5,000,000 to about \$20,000,000.

From 1 July 1964 the Commonwealth Government agreed to match on a \$1 for \$1 basis any increase in contributions by woolgrowers for wool promotion in excess of the levy of \$1 a bale then in force, and the Wool Industry Conference agreed to increase the growers' levy to the equivalent of about \$2.70 a bale, which resulted in a Commonwealth commitment of about \$1.70 a bale. In aggregate this commitment entailed a Commonwealth contribution for promotion of about \$8,500,000 a year. This arrangement operated until 30 June 1967.

During 1967 the Wool Industry Act was amended following negotiations between the Executive of the Australian Wool Industry Conference and the Government. The amendment provided for a Government contribution for wool research and promotion during the three years 1967-68 to 1969-70 on a \$1 for \$1 basis matching woolgrowers' contribution by levy, to a maximum of \$14,000,000 in any one year. It provided for the grower levy and the Government grant to be apportioned annually between wool research and promotion by the Minister for Primary Industry after considering the recommendations of the Australian Wool Industry Conference. No change occurred in the legislation providing for the payment by woolgrowers of a levy at a rate not exceeding two per cent per annum.

Wool production

Wool as shorn from the sheep contains an appreciable amount of grease, dirt and other extraneous matter, and is termed 'greasy wool'. The quantity of grease and other matter in a fleece differs not only between countries, but between districts in the same country. It fluctuates with the vagaries of the season, and with the breed and the condition of the sheep. To allow for this factor, the weight of

greasy wool is sometimes given on a 'clean' basis, i.e. minus the estimated amount of impurities. The net wool fibre content of greasy wool, expressed as a percentage, is termed 'clean yield'.

From 1946-47 to 1952-53 the Australian Wool Realisation Commission, and from 1953-54, the Wool Statistical Service, have assessed annually the clean yield of the Australian wool clip. During the period of assessment the clean yield showed a continuous rise up to 1951-52, when it reached 57.5 per cent. It has since fluctuated between 55.7 per cent and 57.7 per cent. It was 56.1 per cent in 1967-68.

Wool scoured, washed and carbonised in Australia before export, however, has a clean yield somewhat lower than for the whole clip, because the grade of greasy wool treated locally for export as scoured, washed or carbonised contains quantities of dirty and low-grade wool. The quantity of scoured wool exports during 1967-68 was about 9 per cent of the total raw wool exports (excluding wool exported on skins) in terms of greasy. For the clean yield of Australian scoured wools exported a standard factor of 93 per cent is taken.

The production of wool in the States and Territories varies broadly in accordance with the number of sheep depastured and with seasonal conditions which affect clip per head (*see* page 891). In general, however, South Australia obtains from its large-framed Merinos a much heavier fleece per sheep than the Australian average. In addition, as a result of better management (improved pastures, fodder conservation, better breeding, control of diseases, etc.), the long-term trend has been towards higher fleece weights.

The following table shows details of total wool (i.e. shorn, dead and fellmongered, and exported on skins) produced by each of the States and Territories during the years 1963-64 to 1967-68 compared with averages for the three-year periods ended 1938-39, 1948-49 and 1958-59. A graph showing the production of wool in relation to sheep numbers from 1870 onwards appears on plate 43 following.

PRODUCTION OF WOOL (GREASY BASIS): STATES AND TERRITORIES, 1936-37 TO 1967-68
(⁰000 lb)

Period	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Average for three years ended—									
1938-39 . . .	478,595	169,256	169,325	88,699	73,141	15,728	35	1,822	996,601
1948-49 . . .	439,363	200,229	151,679	108,126	95,031	16,272	305	1,927	1,012,932
1958-59 . . .	633,938	298,302	217,062	187,225	160,402	30,141	277	2,371	1,529,718
Year—									
1963-64 . . .	731,316	334,288	255,386	210,500	216,574	34,007	91	2,552	1,784,714
1964-65 . . .	706,061	361,530	251,426	215,736	207,035	39,671	89	2,475	1,784,023
1965-66 . . .	579,475	366,943	192,773	232,296	247,530	41,858	88	1,873	1,662,836
1966-67 . . .	622,745	378,457	203,664	239,202	272,575	43,153	88	2,454	1,762,338
1967-68 . . .	650,420	332,427	226,822	218,951	300,410	38,308	112	2,238	1,769,688

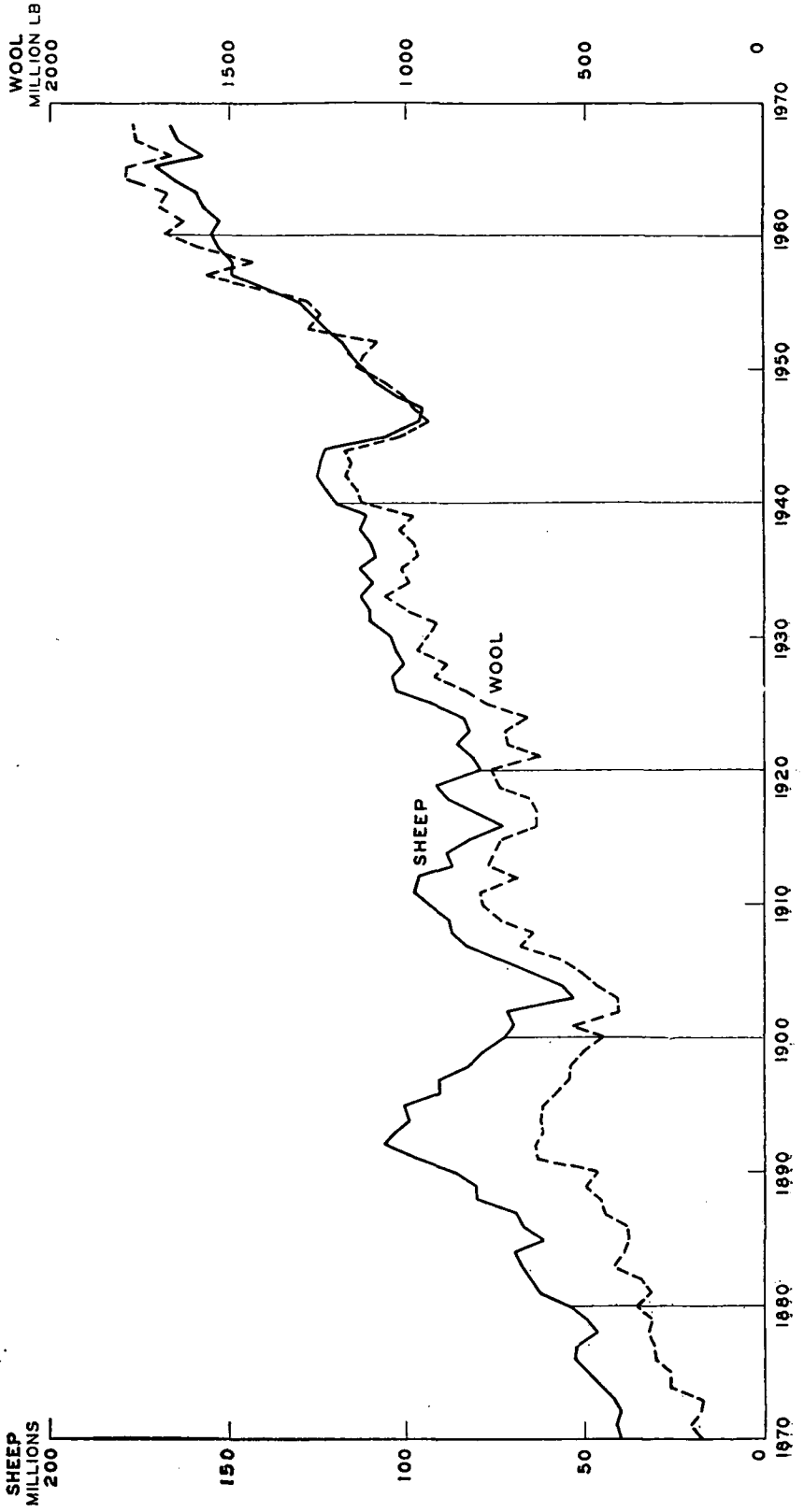
The bulk of the Australian wool production (about 91 per cent in recent years) is shorn from live sheep. The remainder is obtained by fellmongering (less than 1.5 per cent) or is exported on skins (about 8 per cent). The following table shows details of total wool production according to method of obtaining wool, and also the gross value of wool produced. 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.

QUANTITY (GREASY BASIS) AND VALUE OF WOOL PRODUCED
AUSTRALIA, 1936-37 TO 1967-68

Period	Shorn (including crutchings)	Dead and fell- mongered	Exported on skins	Total production	
				Quantity	Value
	'000 lb	'000 lb	'000 lb	'000 lb	\$'000
Average for three years ended—					
1938-39 . . .	889,338	49,280	57,983	996,601	106,850
1948-49 . . .	902,007	50,660	60,265	1,012,932	305,072
1958-59 . . .	1,411,424	36,804	81,490	1,529,718	788,290
Year—					
1963-64 . . .	1,631,962	28,688	124,064	1,784,714	1,023,442
1964-65 . . .	1,629,412	26,865	127,746	1,784,023	840,552
1965-66 . . .	1,503,457	24,411	134,968	1,662,836	808,437
1966-67 . . .	1,602,229	24,841	135,269	1,762,338	812,230
1967-68 . . .	1,605,056	24,125	140,507	1,769,688	709,524

SHEEP NUMBERS AND WOOL PRODUCTION

AUSTRALIA, 1870 TO 1968



Average fleece weight

**AVERAGE WEIGHT OF FLEECES SHORN (SHEEP AND LAMBS)
STATES AND TERRITORIES, 1963-64 TO 1967-68**
(lb)

<i>State or Territory</i>	1963-64	1964-65	1965-66	1966-67	1967-68
SHEEP					
New South Wales	10.19	9.81	8.65	10.01	9.87
Victoria	10.09	10.08	9.63	9.90	9.08
Queensland	10.41	9.65	8.79	9.94	10.62
South Australia	12.89	12.49	12.72	12.75	12.25
Western Australia	11.46	10.06	10.74	10.67	10.57
Tasmania	9.14	10.64	10.34	10.22	8.62
Northern Territory	10.36	9.26	8.13	8.13	10.89
Australian Capital Territory	9.59	9.07	7.33	9.81	8.67
Australia	10.60	10.15	9.63	10.39	10.14
LAMBS					
New South Wales	3.39	3.34	2.99	3.21	3.16
Victoria	2.76	2.97	2.72	2.90	2.56
Queensland	3.99	3.78	3.56	3.55	4.10
South Australia	3.71	3.79	3.73	3.90	3.38
Western Australia	2.91	2.69	2.90	2.98	2.97
Tasmania	2.12	2.31	2.48	2.54	2.28
Northern Territory	4.34	3.88	3.00	3.00	..
Australian Capital Territory	1.61	1.93	1.82	1.64	1.65
Australia	3.26	3.24	3.03	3.19	3.09

Classification of wool according to quality

The following table provides a detailed analysis of wool sold at auction, according to quality, for the years 1963-64 to 1967-68. These data are compiled by the Wool Statistical Service on the basis of catalogues of auction sales. 'Quality' ('64's, 60's, 58's,' etc.) is a measure of the fineness and texture of wool for spinning purposes. Broadly, it means the maximum number of hanks of yarn, each of 560 yards length, which can be spun from 1 lb of combed wool. For instance, wool of 64's quality is of a fineness and texture which will produce 64 hanks, each of 560 yards, from 1 lb of tops (combed wool) of that particular wool.

CLASSIFICATION OF GREASY WOOL SOLD AT AUCTION(a): AUSTRALIA
1963-64 TO 1967-68
(Bales of approximately 300 lb)

<i>Predominating quality</i>	1963-64		1964-65		1965-66		1966-67		1967-68	
	<i>Quantity</i>	<i>Per cent</i>	<i>Quantity</i>	<i>Per cent</i>	<i>Quantity</i>	<i>Per cent</i>	<i>Quantity</i>	<i>Per cent</i>	<i>Quantity</i>	<i>Per cent</i>
70's and finer	132,620	2.7	145,267	2.9	149,305	3.3	114,406	2.4	131,939	2.7
64/70's	373,658	7.6	409,279	8.2	402,134	8.8	292,158	6.2	270,039	5.6
64's	567,559	11.6	620,453	12.5	576,499	12.7	470,153	9.9	468,436	9.7
64/60's	482,770	9.9	486,575	9.7	373,796	8.2	403,917	8.5	427,884	8.8
60/64's	1,149,957	23.4	1,108,668	22.2	896,070	19.7	1,002,088	21.1	1,089,866	22.4
60's and 60/58's	964,274	19.7	930,821	18.7	900,760	19.8	1,016,979	21.5	1,073,517	22.1
<i>Total, 60's and finer</i>	3,670,838	74.9	3,701,063	74.2	3,298,564	72.5	3,299,701	69.6	3,461,681	71.3
58's	566,904	11.6	586,708	11.8	591,790	13.0	660,570	13.9	623,043	12.8
56's	382,384	7.8	406,878	8.2	386,169	8.5	461,182	9.7	433,505	8.9
50's	141,638	2.9	153,079	3.1	133,574	2.9	178,587	3.8	173,313	3.6
Below 50's	45,675	0.9	51,534	1.0	44,887	1.0	61,289	1.3	59,401	1.2
Oddments	92,622	1.9	82,742	1.7	94,268	2.1	81,725	1.7	104,738	2.2
Grand total	4,900,061	100.0	4,982,004	100.0	4,549,252	100.0	4,743,054	100.0	4,855,681	100.0

(a) All greasy wool sold at auction except 'wool re-offered account buyer'.