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CHAPTER XXIII

RURAL INDUSTRY

NOTE.—This chapter is divided into four major parts:—

Introduction, dealing with 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, Non-Rural Primary Industries and Value of Production*, and *Secondary Industries* (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*, 1959–60, 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 utilization 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), *Farm Machinery on Rural Holdings* (annual), *Tractors on Rural Holdings, 31st March*, 1963 (detailed information), *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 Utilization* (annual).

Other Rural Production.—*The Dairying Industry* (monthly and half-yearly), *Livestock Statistics* (annual), *Livestock Numbers* (annual), *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).

Values of Australian oversea trade shown throughout this chapter are expressed as £A. f.o.b. port of shipment.

INTRODUCTION: RURAL ACTIVITY.

§ 1. Number and Area of Rural Holdings.

1. **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.

The following table shows the recorded number and area of the holdings in each State for the seasons 1959–60 to 1963–64.

RURAL HOLDINGS: NUMBER AND AREA

Season	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	A.C.T.	Aust.
NUMBER OF RURAL HOLDINGS									
1959–60 ..	77,499	69,778	42,912	28,527	21,832	11,202	269	224	252,243
1960–61 ..	76,871	69,623	43,155	28,711	21,922	11,201	275	224	251,982
1961–62 ..	76,949	69,866	43,287	28,886	22,082	11,117	284	217	252,688
1962–63 ..	76,294	69,700	43,284	28,922	22,554	10,974	281	217	252,226
1963–64 ..	77,339	69,775	43,183	28,711	22,770	10,949	299	214	253,240
TOTAL AREA OF RURAL HOLDINGS ('000 acres)									
1959–60 ..	172,721	37,737	371,794	155,437	244,619	6,511	158,806	382	1,148,007
1960–61 ..	172,697	37,934	373,995	156,456	247,737	6,510	161,099	374	1,156,802
1961–62 ..	172,327	37,754	374,501	156,898	252,783	6,551	171,244	377	1,172,435
1962–63 ..	172,038	37,709	376,788	156,697	262,660	6,422	164,955	376	1,177,645
1963–64 ..	172,076	37,798	376,687	158,905	266,556	6,377	165,734	373	1,184,506

2. **Land Utilization 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 UTILIZATION

('000 acres)

Season	Area used for crops(*a*)	Land lying fallow(*b*)	Area under sown grasses and clovers(*c*)	Balance of holdings(*d*)	Total area of holdings
1959–60	25,025	7,025	33,289	1,082,668	1,148,007
1960–61	27,101	7,438	35,589	1,086,674	1,156,802
1961–62	27,907	8,049	39,063	1,097,416	1,172,435
1962–63	30,056	8,719	40,991	1,097,879	1,177,645
1963–64—					
New South Wales ..	8,670	2,440	10,625	150,342	172,076
Victoria	4,900	2,525	14,064	16,310	37,798
Queensland	3,582	638	3,292	369,175	376,687
South Australia	5,838	1,114	5,116	146,837	158,905
Western Australia ..	6,706	1,712	9,510	248,629	266,556
Tasmania	244	78	1,511	4,545	6,377
Northern Territory ..	2	..	11	165,721	165,734
Australian Capital Territory	7	2	83	280	373
Australia	**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.

3. **Classification by Size and Type of Activity.**—Some of the information obtained from the 1959–60 Agricultural and Pastoral Census was 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 were 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*, 1959–60. Similar information on size classification for each State was published in a series of bulletins for the year 1955–56.

§ 2. Employment on Rural Holdings

1. **Persons Engaged.**—The following table shows, for each State except Victoria, the recorded number of males working on rural holdings. Particulars for females are not available except for New South Wales. 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 AT 31st MARCH, 1964

Particulars	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.(*b*)	A.C.T.	Aust.
Permanent—									
Owners, lessees or share-farmers	63,045	(*c*)	44,353	23,553	20,548	7,685	226	169	n.a.
Relatives of owner, lessee or share-farmer over 14 years of age, not receiving wages or salary	3,359		2,987	1,396	1,317	40	33	10	
Employees, including managers and relatives working for wages or salary	28,851		18,870	8,268	8,607	4,038	620	135	
Total, Permanent Males	*95,255*		*66,210*	*33,217*	*30,472*	*11,763*	*879*	*314*	
Temporary	24,184		10,207	12,496	3,568	5,733	1,564	45	
Total, Males ..	119,439		76,417	45,713	34,040	17,496	2,443	359	

(*a*) Details for females not available except for New South Wales. (*b*) Includes 1,374 male full-blood Aboriginals employed as temporary employees. (*c*) Not available; subject to investigation.

Information regarding the number of persons working full-time on rural holdings in Australia at 31st 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.

2. **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 1963–64. Data for New South Wales and Victoria, and hence Australia, are not available.

EMPLOYEES ON RURAL HOLDINGS: SALARIES AND WAGES(*a*) PAID, 1963-64

(£'000)

Particulars	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Permanent—Males ..	(*b*)	(*b*)	15,769	6,418	7,326	3,381	564	186	n.a.
Females ..			1,052	251		72	53	18	
Temporary(*c*)—Males ..			21,623	4,533	5,081	1,771	322	71	
Females ..				476		369		3	
Total			38,444	11,678	12,407	5,593	939	278	

(*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.

3. **Persons Residing Permanently on Holdings.**—Particulars of persons (of all ages) residing permanently on rural holdings at 31st March, 1964, are shown below.

PERSONS (OF ALL AGES) RESIDING PERMANENTLY ON RURAL HOLDINGS, 31st MARCH, 1964

Particulars	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Males ..	158,216	141,868	104,790	58,510	50,093	26,148	1,292	477	541,394
Females ..	136,922	125,335	86,005	51,854	41,295	23,478	691	410	465,990
Total ..	295,138	267,203	190,795	110,364	91,388	49,626	1,983	887	1,007,384

Similar particulars for Australia as a whole for the years 1960 to 1964 are shown below.

PERSONS (OF ALL AGES) RESIDING PERMANENTLY ON RURAL HOLDINGS, AUSTRALIA

Particulars	31st March—				
	1960	1961	1962	1963	1964
Males	551,800	547,594	544,709	540,893	541,394
Females	469,601	467,539	465,238	464,048	465,990
Total	**1,021,401**	**1,015,133**	**1,009,947**	**1,004,941**	**1,007,384**

§ 3. Technical Aspects of Rural Industry

1. **Farm Machinery on Rural Holdings.**—The history of the development of large-scale field crops and sown pastures in Australia is essentially also the history of the mechanization of the rural industries. This may be divided into four phases.

The first phase extended from initial settlement to the mid-nineteenth century, when agriculture was primarily local and non-commercial, and confined by hand methods to small areas and low production per farm worker.

The invention of an effective wheat stripper in South Australia in 1843, and the extension of its use into Victoria and New South Wales, however, greatly increased the area which could be harvested in a season. This initiated the second phase, which continued with the development of stump-jump implements in the 1870's, and the scrub roller and mullenizer in the 1890's. These later developments made possible an extension of the wheat belt into the drier mallee lands of Victoria and South Australia. By the turn of the century, machinery had thus been developed to conduct all cropping operations on an extensive basis.

The third major change in farm machinery followed the 1914–18 War, when tractor power became increasingly available in a variety of models and sizes. The increase in numbers of tractors on rural holdings and higher operating speeds led in turn to new and improved types of farm machinery drawn by tractors. These trends were interrupted by the economic depression of the 1930's.

After the 1939–45 War there was a widespread expansion of labour-saving machinery and devices in all sectors of rural industry. Clearing methods were extended with the bulldozer, log, chain and hi-ball units, and cultivation was improved by means of large disc ploughs and disc harrows, and seeding and harvesting machinery. These methods

were extended to crops for which methods involving greater use of manpower (manual labour) had previously been employed. Milking machines almost entirely replaced hand milking on dairy farms, and labour-saving machinery was introduced into farm and station development and maintenance operations. These operations included fencing, bulk transport of grain and fodder, pasture treatment, fodder conservation, and pasture improvement.

The table below shows data for the principal types of farm machinery on rural holdings in the several States and Territories at 31st March, 1964. A more detailed analysis of tractors on rural holdings according to horse-power, type of fuel used, and age of tractor was published in the Statistical Bulletin *Tractors on Rural Holdings—Australia, 31st March*, 1963, issued on 11th May, 1965.

FARM MACHINERY ON RURAL HOLDINGS, 31st MARCH, 1964

Particulars	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Cultivating—									
Mouldboard ploughs	30,500	29,015	16,727	12,557	5,551	7,764		114	*b* 102,228
Disc implements (including disc ploughs, disc cultivators, disc tillers and disc harrows)	59,246	58,138	58,701	20,641	23,261	9,686	(*a*)	145	*b* 229,818
Tyne implements—									
Chisel ploughs, scarifiers, cultivators and rippers	50,441	39,509	45,822	18,558	14,386	7,102		11(	*b* 175,928
Tyne harrows (number of leaves)	140,156	122,061	94,371	89,277	40,889	24,317	n.a.	27:	*b* 511,346
Rotary hoes and rotary tillers—									
Self-contained power unit	13,688	6,422	3,630	4,121	1,515	1,218	68	36	*c*37,561
Tractor-drawn		3,783	n.a.	1,139	1,249	681		11	
Seeding and planting—									
Grain drills—									
Combine type	27,071	19,905	11,640	15,284	13,198	1,343	..	67	88,508
Other types	5,626	8,880	2,009	5,074	4,473	2,659	..	42	28,763
Maize and cotton planters	7,737	n.a.	6,861	..	..	..	32	5	(*c*) 14,635
Fertilizer distributors and broadcasters	21,066	28,757	11,670	8,413	8,873	5,425	n.a.	116	(*b*) 84,320
Harvesting—									
Grain and seed headers, strippers and harvesters	19,252	14,131	6,968	12,652	11,069	637	..	28	64,737
Mowers—									
Power-driven	n.a.	n.a.	8,884	n.a.	6,908	4,703	n.a.	n.a.	n.a.
Ground-drive			5,073		n.a.	1,294			
Hay rakes—									
Side delivery	n.a.	n.a.	3,365	n.a.	n.a.	2,198	n.a.	n.a.	n.a.
Buck			3,101			1,034			
Dump			5,813			1,147			
Hay presses and balers—									
Stationary hay presses	n.a.	n.a.	344	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Pick-up balers	8,748	10,789	1,975	4,149	3,216	1,494		40	(*b*) 30,411
Potato diggers	n.a.	n.a.	1,125	n.a.	n.a.	1,002	..	n.a.	n.a.
Forage harvesters	1,912	1,454	874	660	534	231	n.a.	14	(*b*) 5,679
Peanut pickers	n.a.	..	266	..	..	..	n.a.	..	n.a.
Corn pickers	n.a.	n.a.	890	..	..	..	..	..	n.a.
Other—									
Shearing machines (number of stands)	68,859	39,433	18,950	28,149	20,293	4,371	18	297	180,370
Milking machines (number of units)	42,970	98,151	45,072	19,057	10,157	13,382	n.a.	83	*b* 228,872
Tractors—									
Wheel	76,166	68,954	60,749	29,841	30,879	9,831	151	201	283,748
Crawler		2,451		3,390		1,073	55	7	
Hammer mills	n.a.	n.a.	6,477	n.a.	n.a.	415	..	n.a.	n.a.

(*a*) 206 ploughs of all types (including cultivator ploughs) were reported. (*b*) Excludes Northern Territory. (*c*) Incomplete.

The next table shows particulars of farm machinery on rural holdings in Australia at 31st March, 1960 to 1964.

FARM MACHINERY ON RURAL HOLDINGS: AUSTRALIA

Particulars	31st March—				
	1960	1961	1962	1963	1964
Cultivating(*a*)—					
Mouldboard ploughs	n.a.	(*b*)	n.a.	n.a.	102,228
Disc implements (including disc ploughs, disc cultivators, disc tillers and disc harrows)		(*b*)			229,818
Tyne implements—					
Chisel ploughs, scarifiers, cultivators and rippers		(*b*)			175,928
Tyne harrows (number of leaves)		n.a.			511,346
Rotary hoes and rotary tillers	(*c*)34,159	(*c*)36,896	(*c*)38,868	(*c*)38,896	(*d*) 37,561
Seeding and planting—					
Grain drills—					
Combine type	81,795	82,277	84,743	86,437	88,508
Other types	29,394	28,776	29,191	19,877	28,763
Maize and cotton planters	17,081	(*e*)15,567	(*e*)16,050	(*e*)15,509	(*e*) 14,635
Fertilizer distributors and broadcasters	78,181	80,654	82,821	83,499	84,320
Harvesting—					
Grain and seed headers, strippers and harvesters	64,070	63,158	64,891	65,628	64,737
Mowers(*a*)—					
Power-driven	n.a.	n.a.	71,585	n.a.	n.a.
Ground drive			23,076		
Hay rakes(*a*)—					
Side delivery	n.a.	n.a.	35,777	n.a.	n.a.
Buck			12,347		
Dump			20,267		
Hay presses and balers—					
Stationary hay presses	7,769	7,411	6,611	n.a.	n.a.
Pick-up balers	22,496	25,264	26,647	28,725	30,411
Potato diggers(*a*)	n.a.	n.a.	6,223	n.a.	n.a.
Forage harvesters			4,073	5,083	5,679
Peanut pickers(*a*)			255	n.a.	n.a.
Corn pickers(*a*)			1,264	n.a.	n.a.
Other—					
Shearing machines (number of stands)	170,847	172,697	177,579	178,805	180,370
Milking machines (number of units)	221,260	223,815	228,228	229,270	228,872
Tractors—					
Wheel	221,886	253,515	264,069	249,795	283,748
Crawler	20,462			21,277	
Hammer mills(*a*)	n.a.	n.a.	17,508	n.a.	n.a.

(*a*) Details for all States are collected at triennial intervals only. (*b*) Particulars of ploughs only were collected in 1961 and details (excluding Northern Territory, which reported 154 ploughs of all types) are as follows:—mouldboard ploughs, 103,403; disc ploughs (including disc cultivators), 173,205; ploughs of all other types (chisel, stubble, mulch, blade, etc.), 46,841. (*c*) Rotary hoes, all types. (*d*) Incomplete; excludes tractor-drawn rotary hoes and rotary rillers in Queensland. (*e*) Incomplete; particulars for Victoria are not available.

2. **Fertilizers.**—(i) *General.* In the early days of settlement in Australia the principles of scientific cultivation were little understood. It was common for the land to be cropped continuously until the natural fertility was almost exhausted. More scientific methods have been adopted in recent decades, much of the improvement in this regard being due to the assistance and guidance offered to farmers by various State and Commonwealth departments and authorities.

Fertilizer is generally applied to pastures at the time of sowing, and periodical (usually annual) top-dressings are carried out afterwards to keep the pastures in good condition. The introduction of the modern seed-drill, acting also as a fertilizer distributor, has greatly facilitated the use of artificial manures, and much land formerly regarded as useless for cultivation has now been brought into production. With the rapid increase in the area of sown pastures, particularly since the 1939–45 War, large quantities of artificial fertilizers have been used. In addition, increasing areas of native pastures have been top-dressed. The utilization of aircraft, in particular, has enabled the fertilizing of some areas which would otherwise be inaccessible. In 1963–64 pastures (sown and native) accounted for over 60 per cent. of both the total area fertilized and the total quantity of fertilizer used.

(ii) *Local Production.* The Australian output of prepared fertilizers is derived chiefly from imported rock phosphate. Complete information regarding local production of fertilizers is not available. The number of firms engaged in the manufacture of chemical fertilizers in Australia for the year 1963–64 was 48, made up as follows:—New South Wales, 12; Victoria, 6; Queensland, 5; South Australia, 9; Western Australia, 8; and Tasmania, 8. The production of superphosphate in Australia during 1963–64 amounted to 3,346,903 tons.

(iii) *Quantities Used Locally.* Information regarding the area treated with artificial fertilizers and the quantity of artificial fertilizers (superphosphate, bonedust, nitrates, etc.) used in each State during the 1963-64 season is given in the following table.

AREA FERTILIZED AND QUANTITY OF ARTIFICIAL FERTILIZERS USED, 1963-64

State or Territory	Crops			Pastures			Total		
	Area fertilized	Superphosphate used	Other artificial fertilizers used	Area fertilized	Superphosphate used	Other artificial fertilizers used	Area fertilized	Superphosphate used	Other artificial fertilizers used
	'000 acres	tons	tons	'000 acres	tons	tons	'000 acres	tons	tons
New South Wales	4,415	158,530	36,064	9,108	482,639	6,735	13,523	641,169	42,799
Victoria	4,478	182,177	43,004	10,525	620,322	35,438	15,003	802,499	78,442
Queensland	723	25,522	153,303	44	3,330	1,171	767	28,852	154,474
South Australia	4,788	227,124	11,781	3,993	224,911	1,767	8,781	452,035	13,548
Western Australia	6,680	325,460	25,594	7,447	362,831	7,058	14,127	688,291	32,652
Tasmania	235	23,307	9,975	1,291	102,930	5,295	1,526	126,237	15,270
Northern Territory	2	88	99	2	83	35	4	171	134
Australian Capital Territory	6	379	41	89	4,685	108	95	5,064	149
Australia	21,327	942,587	279,861	32,499	1,801,731	57,607	53,826	2,744,318	337,468

Particulars of the quantity of artificial fertilizers used in each State and Territory during each of the seasons 1959–60 to 1963–64 are shown in the next table. These details include the quantity used for the top-dressing of pasture lands.

QUANTITY OF ARTIFICIAL FERTILIZERS USED

(Tons)

Season	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	A.C.T.	Aust.
1959–60	400,701	740,035	101,642	391,628	581,230	105,966	205	2,533	2,323,940
1960–61	497,492	745,522	108,220	399,091	621,435	107,027	209	3,798	2,482,794
1961–62	512,201	777,429	126,301	404,233	649,323	112,785	216	4,492	2,586,980
1962–63	576,561	822,488	135,896	430,561	713,067	124,523	226	4,501	2,807,823
1963–64	683,968	880,941	183,326	465,583	720,943	141,507	305	5,213	3,081,786

(iv) *Imports and Exports.* The chief sources of Australia's supplies of rock phosphate are Nauru, Christmas Island (Indian Ocean) and the Gilbert and Ellice Islands. Sodium nitrate is obtained chiefly from Chile.

The imports of artificial fertilizers during the five years ended 1963–64 are shown in the following table.

ARTIFICIAL FERTILIZERS: IMPORTS INTO AUSTRALIA

Fertilizer	1959–60	1960–61	1961–62	1962–63	1963–64
	QUANTITY (Tons)				
Ammonium fertilizers ..	11	110	18,636	37,458	117,592
Potassium fertilizers ..	36,204	52,212	74,789	58,327	96,724
Rock phosphate	1,322,173	1,647,928	1,950,834	1,694,916	1,989,413
Sodium nitrate	6,837	5,670	7,709	7,193	9,673
Other	17,282	26,361	37,888	35,001	25,888
	VALUE (£A.'000 f.o.b.)				
Ammonium fertilizers ..	(*a*)	3	381	622	1,773
Potassium fertilizers ..	499	756	1,277	924	1,428
Rock phosphate	3,654	4,315	4,975	4,937	6,243
Sodium nitrate	139	134	155	168	239
Other	519	745	1,048	921	740
Total	**4,811**	**5,953**	**7,836**	**7,572**	**10,423**

(*a*) Less than £500.

Exports of fertilizers (practically all of which were manufactured locally) amounted to 4,794 tons valued at £134,595 in 1963–64 compared with 7,345 tons valued at £150,942 in 1962–63.

3. **Aerial Agriculture.**—During recent years, an increasing use has been 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 1963–64 the total area treated was 12,788,000 acres; almost nine times as great.

The following table shows details of area treated and materials used for each State for the year ended 31st March, 1964.

AERIAL AGRICULTURE: OPERATIONS DURING 1963-64

Particulars		N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	Aust.
Top-dressing and seeding—								
Area treated with—								
Superphosphate alone	acres	7,022,856	1,069,093	5,033	963,227	433,005	40,030	9,533,244
Seed alone	,,	371,217	7,000	335,561	19,524	4,915	..	738,217
Superphosphate and seed together	,,	99,625	87,840	..	..	39,354	28,996	255,815
Gypsum	,,	379,250	..	..	..	1,865	..	381,115
Other	,,	75,173	1,250	872	2,240	51,494	..	131,029
Total(*a*)	,,	*7,574,871*	*1,165,183*	*341,466*	*984,991*	*530,168*	*69,026*	*10,665,705*
Materials used—								
Superphosphate ..	tons	350,189	71,382	270	52,305	25,860	5,805	505,811
Seed on—								
Pasture	lb.	998,542	39,190	413,286	145,202	73,118	31,260	1,700,598
Other	,,	94,940	..	63,462	138,400	..	..	296,802
Spraying and dusting—								
Area treated—								
Pasture	acres	30,372	59,634	11,928	36,077	14,360	905	153,276
Crops	,,	450,648	221,622	141,441	160,281	858,457	17,855	1,850,304
Other	,,	33,497	75	3,748	..	30	..	37,350
Total Area Treated(*a*) ..	,,	8,083,748 (*b*)	1,512,819 (*c*)	497,518	1,181,349	1,424,479 (*d*)	87,786	12,787,699 (*e*)

(*a*) Where an area has been treated with a mixture of materials or more than one material, the area treated is included in the line relating to each of the various materials but is counted in the total once only. (*b*) Includes 1,750 acres baited for rabbit destruction, etc. (*c*) Includes 66,305 acres baited for rabbit destruction, etc. (*d*) Includes 21,464 acres baited for rabbit destruction, etc. (*e*) Includes 89,519 acres baited for rabbit destruction, etc. *See* footnotes (*b*), (*c*) and (*d*).

NOTE.—**The information contained in this table was collected by the Department of Civil Aviation.**

4. **Pasture Improvement.**—An article on pasture improvement, which includes notes on indigenous and introduced species of grasses, and which traced the development of pasture research in Australia, appears on pp. 1001–2 of Year Book No. 49.

5. **Soil Conservation.**—Year Book No. 49 contains an article (pp. 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

NOTE.—In general, statistics in this chapter relating to agricultural production are derived from "census" returns supplied by approximately 250,000 farmers who utilize one acre or more of land for agricultural or pastoral purposes. The latest figures available are those for the year 1963–64. The returns are collected on a substantially uniform basis in all States at 31st March each year, and relate, in the main, 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 chapter are therefore shown in "agricultural" years. For most purposes there will be little error involved in considering them as applying to years ending 30th 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*.

§ 1. Progress, Assistance and Control

1. **Early Development.**—The coastal districts of southern Australia are characterized to a large degree by leached soils of low fertility, with limited areas suitable for intensive crop cultivation. This, combined with an unfamiliar climate and problems associated with the clearance of scrub-land, severely checked early attempts to establish crops.

A brief reference to these attempts at cultivation by the first settlers in New South Wales and to the discovery of suitable agricultural land on the Parramatta and Hawkesbury Rivers prior to the year 1813 and west of the Blue Mountains thereafter is contained in early issues of the Year Book. (*See* No. 22, p. 670.)

In an *Account of Live Stock and Ground under Crop in New South Wales, 19th August*, 1797, Governor Hunter gives the acreage of crops as follows:—wheat, 3,361 acres; maize, 1,527 acres; barley, 26 acres; potatoes, 11 acres; and vines, 8 acres.

The following details of crops were collected in 1808:—wheat, 6,874 acres; maize, 3,389 acres; barley, 544 acres; oats, 92 acres; peas and beans, 100 acres; potatoes, 301 acres; turnips, 13 acres; orchards, 546 acres; and flax and hemp, 37 acres.

By the year 1850 the area of crops had increased to 491,000 acres, of which 198,000 acres were cultivated in what is now the State of New South Wales and 169,000 acres in Tasmania. At the end of 1850 the area under cultivation in Victoria, which was then the Port Phillip District of New South Wales, was 52,190 acres. The bulk of the arable land in this part of the colony was devoted to the extensive grazing of sheep.

The gold discoveries of 1851 (at Bathurst in New South Wales and later at Ballarat and Bendigo in Victoria) had at first a very disturbing effect on agricultural progress. The area of crops declined from 491,000 acres in 1850 to 458,000 acres in 1854, as landowners and rural labourers joined in the various gold rushes. The demand for agricultural products occasioned by the large influx of population was, however, soon reflected in the increased area cultivated, for at the end of 1858 the land under crop in Australia exceeded a million acres. There was still a shortage of rural labour, and the increased acreage was due largely to the increasing mechanization of crop operations.

2. **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 1954–55 to 1963–64. On page 1003 of this Year Book there is a graph showing the area of crops in Australia from 1900–01 onward.

AREA OF CROPS

('000 acres)

Season	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	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
1954–55 ..	5,394	4,704	2,593	4,229	5,112	301	1	5	22,339
1955–56 ..	5,660	4,812	2,604	4,220	5,342	327	1	7	22,973
1956–57 ..	3,789	3,904	2,469	4,273	5,233	288	1	5	19,962
1957–58 ..	5,000	4,431	2,600	4,233	5,615	292	1	5	22,177
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

The progress of agriculture was practically uninterrupted from 1860–61 to 1915–16, when, as the result of a special effort to increase wheat production during the 1914–18 War, 18.5 million acres were cultivated in Australia. There was a temporary setback in later war years, but after the end of the war the area continued to expand, and increased steadily to the record area of 25.2 million acres in 1930–31. In the following years the slump in wheat prices seriously depressed incomes in the agricultural industry, and the area of crops decreased to just under 20 million acres in 1935–36.

By 1938–39 the industry was recovering from the depression, and the total area under cultivation reached the high level of 23.5 million acres. Thereafter, as a result of war-time man-power shortages and shipping difficulties, the area declined to less than 16 million acres in 1943–44. After that year production gradually increased again until, in 1947–48, 22.5 million acres were sown to crops. This upward trend was reversed after 1948–49, largely because many primary producers transferred from wheat to wool production as a result of the high prices of wool. Since 1951–52, however, when the area sown was 20.0 million acres, the area under crops has increased steadily except for 1956–57 when excessively wet conditions caused reductions in the area sown to wheat. Subsequent to that year the area of all crops showed an upward trend until 1962–63, when a record level of 32.1 million acres was reached. There was a slight decrease from this figure in 1963–64. As the area under wheat in Australia constitutes a large proportion of the total area cropped (49 per cent. during the five years ended 1963–64), fluctuations in the former have been largely responsible for year to year variation in total crop area.

3. **Control and Assistance by Governmental Authorities.**—(i) *General.* 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.

(ii) *Australian Agricultural Council.* Arising out of a conference of Commonwealth and State Ministers on agricultural and marketing matters, held at Canberra in December, 1934, a permanent organization known as the Australian Agricultural Council was formed. The Council consists of the Commonwealth Ministers for Primary Industry and 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 organized 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, and Territories, and from the Commonwealth Scientific and Industrial Research Organization.

(iii) *Bounties paid to Producers.* Direct financial assistance to primary producers by the Commonwealth Government takes the form of bounties, subsidies and other financial assistance. Brief details of some of the more important payments are given below.

(*a*) *Cotton Bounty.* The *Cotton Bounty Act* 1951–1958 providing for payment of a bounty on seed cotton of a grade higher than "strict good ordinary" expired on 31st December, 1963. Under the *Raw Cotton Bounty Act* 1963 which came into effect from 1st January, 1964, to operate for a period of five years, the Commonwealth will pay a bounty on raw cotton produced and sold for use in Australia. The level of bounty is 16.125d. per lb. for Middling 1" White raw cotton with premiums and discounts for grades and staple lengths above and below Middling 1" White. There is a ceiling on bounty payments of £2,000,000 in any one year.

(*b*) *Flax Fibre Bounty.* The period covered by this bounty terminated on 31st October, 1960. (*See* Year Book No. 47, p. 939, and previous issues, for details of the bounty.)

(iv) *Other Financial Assistance.* Other forms of assistance to producers include payments for cattle tick control, the Commonwealth Dairy Industry Extension Grant, Commonwealth Extension Services Grant, flood, drought and bush fire relief, fisheries research and farm mechanization research.

Over recent years, legislative research schemes, financed by matching contributions from the Commonwealth and industry and/or States, have been initiated in regard to wheat, wool, tobacco, dairy produce, beef cattle and wine. Non-legislative schemes, on a similar financial basis, have been operative in relation to brown rot, Australian plague locusts, tractor testing, apple and pear spray residue research, aerial seeding research, barley research, banana research, and fruit fly research.

For further information on these matters, *see* Chapter XXII. Public Finance, pages 913–14 and 917–24 and 926.

(v) *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.

Experimental farms have been set up by State Departments of Agriculture in all States. They are primarily concerned 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* Chapter XIX. 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.

§ 2. Distribution, Production and Value of Crops

1. **Distribution.**—(i) *General.* 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.

(ii) *Area of Crops in States and Territories.* The following table shows the areas in the several States and Territories of each of the crops for the season 1963–64.

AREA OF CROPS, 1963-64

(Acres)

Crop	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	A.C.T.	Aust.
Cereals for grain—									
Barley—									
2-row	126,865	179,827	157,748	1,077,279	65,730	13,525	..	..	1,620,974
6-row	84,692	10,310	18,115	45,825	233,125	265	..	..	392,332
Maize—Hybrid	38,422	3,108	130,117		(*a*)	..	..	..	(*b*)171,647
Other	6,257	291	36,481	(*c*)	85	..	..	..	(*b*) 43,114
Oats	794,069	910,063	31,014	500,650	1,124,890	30,344	..	1,132	3,392,162
Panicum, millet and setaria	649	2,899	64,056	..	..	..	(*c*)	..	(*b*) 67,604
Rice	59,398	..	..	..	(*c*)	..	(*d*)	..	(*b*) 59,398
Rye	1,782	15,275	143	31,345	9,040	122	..	..	57,707
Sorghum	61,203	121	303,857	..	..	..	527	..	365,708
Wheat	4,963,811	3,109,044	937,606	2,802,258	4,640,434	17,562	..	2,824	16,473,539
Hay	583,637	1,138,484	80,084	357,592	288,657	149,640	993	2,582	2,601,669
Green fodder	1,973,637	430,781	1,010,570	971,594	417,519	71,004	422	1,261	4,876,788
Other stock fodder	6,495	32,347	6,329	32,017	3,911	37,745	4	..	118,848
Grass seed—									
Lucerne	7,993	(*e*)	328	23,308	8	..	173	..	(*b*) 31,810
Clover	24,268	6,414	30	4,728	50,735	881	..	..	87,056
Other	14,036	23,516	22,611	10,186	27,011	(*f*) 2,853	..	143	(*b*)100,356
Industrial crops—									
Broom millet	2,044	337	354	..	..	..	..	..	2,735
Canary seed	1,139	..	36,873	(*c*)	..	..	..	..	(*b*) 38,012
Cotton	10,947	..	28,465	..	1,526	..	..	..	40,938
Flax—									
For fibre	..	..	..	..	171	..	..	..	171
For linseed	15,335	16,240	83,336	1,002	1,588	..	..	..	117,501
Hops	..	(*g*) 625	..	..	(*c*)	(*g*) 1,549	..	..	(*b*) 2,174
Peanuts	478	..	44,482	..	(*c*)	..	(*c*)	..	(*b*) 44,960
Sugar cane—									
For crushing	15,508	..	402,060	..	..	..	..	..	417,568
Stand-over and cut for plants	14,798	..	106,354	..	..	..	..	..	121,152
Sunflower seed	(*c*)	54	9,212	(*c*)	..	..	..	..	(*b*) 9,266
Tobacco	2,927	10,519	15,579	..	..	..	..	..	29,025
Other	113	690	18,416	..	1,125	347	..	..	20,691
Vegetables for human consumption—									
Onions	682	3,756	3,317	930	446	91	(*h*)	(*h*)	(*b*) 9,222
Potatoes	24,352	39,626	15,886	5,459	5,835	10,806	(*h*)	23	(*b*)101,987
Other	41,552	41,368	44,825	10,124	7,965	19,554	133	110	165,631
Vineyards—									
Bearing	16,707	43,485	2,867	53,123	7,725	..	..	..	123,907
Not bearing	2,008	3,016	409	5,556	904	..	..	..	11,893
Fruit—									
Bearing	78,517	56,606	31,060	28,466	18,762	19,638	83	44	233,176
Not bearing	20,153	20,190	13,621	13,220	6,908	2,496	66	10	76,664
Nurseries and cut flowers	996	2,260	524	247	282	113	..	10	4,432
All other crops	1,575	865	8,503	187	796	1,263	88	8	13,285
Total Area	**8,997,045**	**6,102,117**	**3,665,232**	**5,975,096**	**6,915,178**	**379,798**	**2,489**	**8,147**	**32,045,102**

(*a*) Included in Other maize. (*b*) Incomplete; *see* footnotes to individual States. (*c*) Not available for publication. Included in All other crops. (*d*) Not available for publication. Excluded from totals. (*e*) Not available separately. Included in All other crops. (*f*) Excludes area sown simultaneously to oats. (*g*) Includes 36 acres not bearing in Victoria and 87 acres not bearing in Tasmania. (*h*) Not available for publication. Included with Other vegetables.

(iii) *Relative Areas of Crops in States and Territories.* The proportion of each of the major crops cultivated in the various States and Territories to the total area of crops for the season 1963-64 is shown in the next table

RELATIVE AREAS OF CROPS, 1963-64

(Per cent.)

Crop	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Wheat (grain) ..	55.2	51.0	25.6	46.9	67.1	4.6	..	34.7	51.4
Green fodder ..	21.9	7.1	27.6	16.3	6.0	18.7	17.0	15.5	15.2
Oats (grain)	8.8	14.9	0.8	8.4	16.3	8.0	..	13.9	10.6
Hay	6.5	18.7	2.2	6.0	4.2	39.4	39.9	31.7	8.1
Barley (grain).. ..	2.4	3.1	4.8	18.8	4.3	3.6	..	..	6.3
Sugar cane for crushing	0.2	..	11.0	..	..	..	..	..	1.3
Sorghum	0.7	(*a*)	8.3	..	..	..	21.2	..	1.1
Fruit	1.1	1.3	1.2	0.7	0.4	5.8	6.0	0.7	1.0
Maize (grain) ..	0.5	0.6	4.5	(*b*)	(*a*)	..	..	..	*c* 0.7
Vineyards	0.2	0.8	0.1	1.0	0.1	..	..	..	0.4
Potatoes	0.3	0.6	0.4	0.1	0.1	2.8	(*b*)	0.3	*c* 0.3
All other	2.2	1.9	13.5	1.8	1.5	17.1	15.9	3.2	3.6
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(*a*) Less than 0.05 per cent. (*b*) Not available for publication. Included in All other. (*c*) Incomplete; *see* footnotes to individual States.

(iv) *Area of Crops in Australia.* The area of crops during each of the five seasons ended 1963-64 is shown hereunder.

AREA OF CROPS: AUSTRALIA

('000 acres)

Crop	1959-60	1960-61	1961-62	1962-63	1963-64
Cereals for grain—					
Barley, 2- and 6- row	2,379	2,830	2,383	2,027	2,013
Maize—Hybrid	185	185	211	161	172
Other				48	43
Oats	3,030	3,637	3,097	3,292	3,392
Rice	49	46	50	55	59
Wheat	12,172	13,439	14,723	16,469	16,474
Hay	2,105	2,973	2,274	2,720	2,602
Green fodder	4,094	4,408	4,702	4,952	4,877
Industrial crops—					
Cotton	20	37	29	38	41
Hops	2	2	2	2	2
Sugar cane	487	475	499	506	539
Tobacco	20	29	27	29	29
Vegetables for human consumption—					
Onions	9	9	9	11	9
Potatoes	108	92	94	114	102
Other vegetables	147	155	163	163	166
Vineyards	130	131	133	134	136
Fruit	289	289	294	305	310
All other crops	879	839	949	1,066	1,079
Total	**26,105**	**29,576**	**29,639**	**32,092**	**32,045**

(v) *Size Classification of Principal Crops.* In Australia there is, in many cases, a close correlation between the type of crop and the size of holdings upon which it is usually grown. A special series of tabulations relating to rural holdings in Australia was compiled for 1959–60 and has been published in full detail in a series of bulletins *Classification of Rural Holdings by Size and Type of Activity*, 1959–60. Tables in these bulletins show a classification by area of holding and area of crop for wheat, oats and barley by States and statistical divisions. These tables thus provide a guide to the regional distribution of the holdings growing the major crops, sown grasses and clovers. Classifications of holdings according to major crops grown, livestock carried and type of activity are also shown.

2. **Production.**—(i) *Production of Crops in States and Territories.* The following table shows production of crops in the various States and Territories for the season 1963–64.

PRODUCTION OF CROPS, 1963-64

Crop		N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Cereals for grain—										
Barley—										
2-row	'000 bus.	3,195	3,833	4,675	23,420	935	406	..	..	36,464
6-row	"	2,156	192	516	917	3,142	8	..	..	6,931
Maize—										
Hybrid	"	1,868	195	3,529	..	(a)	..	..	..	(b) 5,592
Other	"	221	9	899	(c)	1	..	..	..	(b) 1,130
Oats	"	19,811	19,885	673	9,149	17,850	844	..	22	68,234
Panicum, millet and setaria	"	14	51	901	..	..	..	(c)	..	(b) 966
Rice	"	7,455	..	..	..	(c)	..	(c)	..	(b) 7,455
Rye	"	30	95	3	153	70	3	..	..	354
Sorghum	"	1,269	2	6,612	..	..	..	6	..	7,889
Wheat	"	122,472	76,302	22,275	53,971	52,340	483	..	69	327,912
Hay	'000 tons	1,006	1,947	184	488	389	249	1	5	4,269
Grass seed—										
Lucerne	cwt.	6,022	n.a.	319	30,010	7	..	440	..	(b) 36,798
Clover	"	53,877	8,975	2	6,501	110,625	484	..	..	180,464
Other	"	9,932	32,392	11,265	10,776	44,742	6,879	..	28	116,014
Industrial crops—										
Broom millet—										
Fibre	cwt.	11,298	1,845	981	..	..	..	..	..	14,124
Grain	bushels	18,048	728	n.a.	..	..	..	..	..	(b) 18,776
Canary seed	'000 bus.	17	..	363	(c)	..	..	..	..	(b) 380
Cotton, unginned	'000 lb.	8,167	..	7,943	..	2,113	..	..	..	18,223
Flax—										
Fibre	tons	..	..	..	..	318	..	..	..	318
Linseed	"	3,722	4,758	20,342	283	411	..	..	..	29,516
Hops (dry weight)	cwt.	..	5,751	..	..	(c)	14,107	..	..	(b) 19,858
Peanuts	"	4,744	..	455,982	..	(c)	..	(c)	..	(b)460,726
Sugar cane for crushing	'000 tons	617	..	11,501	..	..	..	..	..	12,118
Sunflower seed	cwt.	(c)	540	42,671	(c)	..	..	..	..	(b) 43,211
Tobacco, dried leaf	'000 lb.	2,652	14,459	17,231	..	..	..	..	..	34,342
Vegetables for human consumption—										
Onions	tons	4,998	17,946	20,412	8,736	6,814	372	(c)	(c)	(b) 59,278
Potatoes	"	98,308	200,384	90,201	51,195	55,402	66,420	(c)	122	(b)562,032
Vineyards—										
Grapes—										
For drying	"	52,736	284,411	..	70,768	9,148	..	..	..	417,063
" table	"	7,012	8,216	3,925	969	2,367	..	..	..	22,489
" wine	"	39,080	21,068	176	148,828	5,879	..	..	..	215,031

(*a*) Included in Other maize. (*b*) Incomplete; *see* footnotes to individual States. (*c*) Not available for publication.

(ii) *Production of Principal Crops in Australia.* The following table shows the production of the principal crops for the five years ended 1963–64.

PRODUCTION OF PRINCIPAL CROPS: AUSTRALIA

Crop		1959–60	1960–61	1961–62	1962–63	1963–64
Cereals for grain—						
Barley, 2- and 6-row	'000 bus.	34,179	67,970	41,504	39,579	43,395
Maize—Hybrid	"	6,725	6,245	7,307	6,064	5,592
Other	"				1,393	1,130
Oats	"	46,841	76,107	55,130	68,809	68,234
Rice	"	6,732	6,001	7,045	7,129	7,455
Wheat	"	198,501	273,716	247,178	306,912	327,912
Hay	'000 tons	3,177	5,079	3,693	4,717	4,269
Industrial crops—						
Cotton unginned	'000 lb.	9,463	15,544	10,948	15,762	18,223
Hops (dry weight)	cwt.	31,790	33,099	32,936	33,629	19,858
Sugar cane for crushing	'000 tons	9,002	9,166	9,577	12,736	12,118
Tobacco (dried leaf)	'000 lb.	19,357	29,862	22,578	27,148	34,342
Vegetables for human consumption—						
Onions	'000 tons	57	54	58	68	59
Potatoes	"	579	451	526	667	562
Vineyards—						
Grapes	"	445	527	628	471	655
Wine made(*a*)	'000 gals.	28,401	33,762	41,736	29,893	37,536
Dried vine fruits	'000 tons	70	82	96	71	104

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

(iii) *Yield per Acre of Principal Crops in Australia.* The following table shows the yield per acre of the principal crops for Australia during the five years ended 1963–64.

YIELD PER ACRE OF PRINCIPAL CROPS: AUSTRALIA

Crop		1959–60	1960–61	1961–62	1962–63	1963–64
Cereals for grain—						
Barley, 2- and 6-row	bushels	14.3	24.0	17.4	19.5	21.6
Maize—Hybrid	"	36.4	33.8	34.7	37.7	32.6
Other	"				28.7	26.2
Oats	"	15.5	20.9	17.8	20.9	20.1
Rice	"	138	130	140	130	126
Wheat	"	16.3	20.4	16.8	18.6	19.9
Hay	tons	1.51	1.71	1.62	1.73	1.64
Industrial crops—						
Cotton, unginned	lb.	468	420	380	418	445
Hops (dry weight) (*a*)	cwt.	16.7	17.8	17.1	16.8	9.7
Sugar cane for crushing(*a*)	tons	28.7	26.9	24.8	31.7	29.0
Tobacco (dried leaf)	lb.	985	1,022	848	924	1,183
Vegetables for human consumption—						
Onions	tons	6.10	5.87	6.20	6.34	6.43
Potatoes	"	5.34	4.91	5.57	5.86	5.51
Vineyards—						
Grapes(*a*)	"	3.62	4.32	5.14	3.86	5.28

(*a*) Per acre of productive crops.

3. **Value of Agricultural Production.**—(i) *Gross Value of Agricultural Production in Australia.* The following table shows the gross value of principal crops and of total agricultural production in Australia for the five years ended 1963–64.

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 Chapter XXX. Miscellaneous.

GROSS VALUE(*a*) OF AGRICULTURAL PRODUCTION: AUSTRALIA

(£'000)

Crop	1959–60	1960–61	1961–62	1962–63	1963–64
Cereals for grain—					
Barley	16,623	31,072	21,933	21,328	23,742
Maize	4,029	5,264	5,285	4,762	5,182
Oats	18,396	25,535	20,001	25,629	24,833
Rice	4,450	4,125	3,832	3,838	3,956
Wheat	137,762	195,678	186,172	224,532	233,716
Hay	34,433	50,181	37,746	46,479	43,731
Green fodder	7,572	9,647	8,743	9,612	10,495
Industrial crops—					
Cotton, unginned	556	917	647	938	1,106
Hops	1,159	1,179	1,242	1,285	767
Sugar cane	44,774	50,580	49,608	65,519	81,440
Tobacco (dried leaf)	11,215	13,051	12,122	15,011	16,704
Vegetables for human consumption—					
Onions	2,841	1,833	2,547	1,814	2,048
Potatoes	13,460	19,365	20,697	13,980	16,613
Other vegetables for human consumption	26,611	29,718	28,743	28,776	33,257
Grapes	14,698	17,868	19,815	16,024	23,208
Fruit and nuts	51,763	59,773	63,363	64,430	67,565
All other crops	20,012	19,895	21,676	24,356	25,879
Total	**410,354**	**535,681**	**504,172**	**568,313**	**614,242**

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

(ii) *Gross, Local and Net Values in States and Territories.* Values of agricultural production in the various States and Territories are shown for 1963–64 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, 1963-64

(£'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	165,417	32,663	132,754	(*b*) 9,801	122,953
Victoria	136,404	16,435	119,969	10,901	109,068
Queensland	147,217	15,646	131,571	20,386	111,185
South Australia	82,817	9,134	73,683	11,093	62,590
Western Australia	61,671	8,031	53,640	13,830	39,810
Tasmania	20,474	4,483	15,991	3,127	12,864
Northern Territory	84	n.a.	84	n.a.	84
Australian Capital Territory	158	13	145	7	138
Australia	**614,242**	**86,405**	**527,837**	**69,145**	**458,692**

(*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.

(iii) *Net Value of Agricultural Production, 1959–60 to 1963–64.* In the following table the net value of agricultural production and the net value per head of population are shown by States for the years 1959–60 to 1963–64.

NET VALUE OF AGRICULTURAL PRODUCTION(*a*)

Year	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	A.C.T.	Aust.
				NET VALUE (£'000)					
1959–60	78,518	68,912	65,357	24,246	44,044	10,645	79	150	291,951
1960–61	98,171	104,031	73,471	58,323	46,708	10,939	80	138	391,861
1961–62	93,858	88,245	75,076	45,467	51,325	12,345	75	112	366,503
1962–63	113,036	96,986	92,864	46,679	54,253	11,156	84	149	415,207
1963–64	122,953	109,068	111,185	62,590	39,810	12,864	84	138	458,692
				NET VALUE PER HEAD OF POPULATION (£)					
1959–60	20.7	24.4	44.2	26.0	61.4	30.9	3.2	3.0	28.7
1960–61	25.4	36.0	48 9	60.9	64.0	31 2	3.1	2.5	37.7
1961–62	23.8	29 8	49.1	46.4	68.8	34.6	2.8	1.8	34.6
1962–63	28.2	32.1	59.9	46.7	71.0	30.8	3.0	2.2	38.4
1963–64	30.1	35.3	70.6	61.4	50.9	35.1	2.8	1.8	41.6

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

4. 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 re-valued at the unit gross value for the period 1936–37 to 1938–39. The price indexes relate to average "prices" of farm products realized 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 Chapter XXX. Miscellaneous.

INDEXES OF QUANTUM(*a*) AND PRICE OF AGRICULTURAL PRODUCTION

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

Particulars	1959–60	1960–61	1961–62	1962–63	1963–64
Quantum Produced—					
Wheat	121	166	150	186	199
Other crops	152	184	171	194	194
Total, All Crops	*140*	*177*	*163*	*191*	*196*
Per head of population	*95*	*117*	*106*	*121*	*122*
Price—					
Wheat	350	355	380	366	356
Other crops	313	344	323	309	348
Total, All Crops	*329*	*349*	*348*	*334*	*351*

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

§ 3. Cereal Crops

1. Wheat.—(i) *General.* 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.

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

(ii) *The Australian Wheat Board.* 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 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. The Board ceased to function on 31st December, 1948.

Under the *Wheat Industry Stabilization Act* 1948, the Australian Wheat Board was reconstituted for five years to administer the first stabilization plan and was given powers similar to those held under the National Security Regulations. The new Board commenced to function on 18th December, 1948. The Board has been continued in existence by the *Wheat Industry Stabilization Acts* 1954, 1958 and 1963 for the purpose of administering the second, third and fourth five-year stabilization plans.

(iii) *Marketing of Wheat.* (*a*) *Stabilized Marketing.* As a large proportion of the Australian wheat crop is normally exported, the marketing of wheat occupies an important part in the industry. A detailed survey of legislation relating to stabilization 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.

Details of 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), and No. 48, pages 903 and 904 (1958–59 to 1962–63).

(*b*) *Fourth Post-war Wheat Industry Stabilization Plan.* Following negotiations during 1962 and 1963, the fourth post-war Wheat Industry Stabilization Plan was enacted by the Commonwealth and States towards the end of 1963. The new plan operates on very much the same lines as the previous ones. However, there are some important changes in detail to which reference is made in the main features of the plan set out below.

Period of the Plan. The plan operates for five years. It commenced with the 1963–64 wheat crop and will end with the marketing of the 1967–68 crop.

Commonwealth Guarantee. The Commonwealth has guaranteed a return of 14s. 5d. per bushel bulk basis f.o.r. ports to growers on up to 150 million bushels (previously 100 million bushels) of wheat exported from the crop in the first year of the plan. The guaranteed return of 14s. 5d. was based on the findings of a survey of the economic structure of the wheat industry conducted by the Bureau of Agricultural Economics. It is subject to adjustment in each of the following years of the plan in accordance with the movements in costs based on a cost index established from the survey. The guaranteed return for the second year of the plan (1964–65 season) is 14s. 7d. per bushel.

Australian Wheat Board. 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.

Stabilization Fund.

Export Tax. Wheat exported is subject to a tax equivalent to the excess of the returns from export sales over the guaranteed return. However, the maximum rate of export tax is 1s. 6d. per bushel.

Size of Fund. The ceiling of the Stabilization Fund is established at £30 million; any excess beyond this figure is returned to growers on the " first-in-first-out " principle.

Use of the Stabilization Fund. When the average export realizations fall below the guaranteed return, the deficiency is made up first by drawing upon the stabilization fund in respect of up to 150 million bushels of wheat from each crop. When the fund is exhausted, the Commonwealth meets its obligations under the guarantee.

Home Consumption Price. The home consumption base price for 1963–64, the first year of the new plan, was established at 14s. 5d. per bushel, bulk basis, f.o.r. ports plus 2d. per bushel loading to cover the cost of transporting wheat to Tasmania as outlined below. There is provision in the plan for annual adjustments in the following years in accordance with the guaranteed price as outlined on p. 996. The home consumption price for the 1964–65 season is 14s. 7d. per bushel plus 1d. per bushel to cover freight on wheat to Tasmania.

Freight on Wheat to Tasmania. Provision is made for a loading on the price of all wheat sold for consumption in Australia to the extent necessary to cover the cost of transporting wheat from the mainland to Tasmania in each season of the plan.

Premium on Western Australian Wheat. A premium is paid from export realizations 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 oversea markets for wheat. The premium is the amount of the actual freight advantage enjoyed by Western Australia up to a maximum of 3d. per bushel.

(*c*) *Cost of Production.* The cost of production of wheat for the first season of the current Wheat Stabilization Plan, 1963–64, was fixed at 14s. 5d. a bushel by the legislation. The guaranteed price for the season 1963–64 was therefore 14s. 5d. a bushel, while the home consumption price was 14s. 7d. a bushel (*see* above). The guaranteed price for 1963–64 was a reduction of 1s. 5d. a bushel compared with the guaranteed price of 15s. 10d. for the 1962–63 season, the last year of the previous wheat stabilization plan. The cost of production and guaranteed price for the 1964–65 season have been established at 14s. 7d. a bushel.

(*d*) *F.A.Q. Standard of Wheat.* Sales and shipments of grain in bulk overseas are generally made on a " fair average quality " (f.a.q.) basis. Samples of wheat are obtained each year from the different wheat districts and mixed to give a representative sample of the whole crop in each State. From this representative sample the f.a.q. weight for each State is determined by the use of the Schopper 1-litre scale chondrometer. This standard is used as a basis for sales of each crop and it varies from year to year and from State to State. F.a.q. is an Australian term, and the method of selling differs from that of other countries, which sell according to sample, or (as in Canada) according to grades which are fixed and do not vary from year to year. The f.a.q. method does not, however, take protein quantity and quality into account, and it gives no indication therefore of the baking strength of the resulting flour.

There are two classifications of Australian wheat in addition to the f.a.q. standard, namely, " semi-hard " and " premium ". The former applies to wheat segregated as such in New South Wales and South Australia, and the latter to higher-protein wheat of northern New South Wales and Queensland of a guaranteed minimum protein content. Both wheats sell at a premium above f.a.q.

The f.a.q. weight of a bushel of wheat in each of the four main wheat-producing States for the 1963–64 season's crop was as follows:—New South Wales, north (predominantly semi-hard), 63¼ lb., south and west (predominantly soft), 64¼ lb.; Victoria, 65¼ lb.; South Australia, semi-hard, 64¼ lb., soft, 64½ lb; and Western Australia, 62¾ lb.

(*e*) *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.

The table below sets out the bulk handling capacities of the several States for the years 1960–61 to 1964–65.

WHEAT: TOTAL CAPACITY OF BULK HANDLING FACILITIES(*a*)

('000 bushels)

State	1960–61	1961–62	1962–63	1963–64	1964–65
New South Wales	73,440	75,270	79,486	87,046	93,727
Victoria(*b*)	72,206	72,808	76,969	86,253	90,247
Queensland	6,216	7,486	9,525	11,081	13,178
South Australia	14,290	17,380	23,220	28,370	35,483
Western Australia	94,257	97,356	98,734	99,535	115,438
Tasmania	960	960	960	960	960
Australia	261,369	271,260	288,894	313,245	349,033

(*a*) At 30th November of first year shown in heading. Includes terminals, sub-terminals, country installations, and temporary storage. (*b*) 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.

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

A fifth International Wheat Agreement, ratified by the required number of wheat exporting and importing countries, came into force on 1st August, 1962. This was intended to cover the three-year period from 1st August, 1962, to 31st 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 31st July, 1966. The council stated that it recognized 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 current Agreement, negotiated at an international conference convened by the United Nations, continues the basic arrangements covered by previous Agreements. The Agreement seeks to obtain an element of stability in world wheat marketing by providing that a significant proportion of wheat entering international trade will be bought and sold at prices within a prescribed price range. The maximum and minimum prices fixed under the Agreement are expressed in terms of " Canadian currency per bushel, at the parity of the Canadian dollar determined for the purposes of the International Monetary Fund as at 1st March, 1949 ". Member exporting countries compete to supply at prices within the prescribed range, which is from 202.5 cents or about 18s. 3½d. Australian currency to 162.5 cents, or about 14s. 6d. per bushel. The maximum of the range is based on the price of Canada's No. 1 Northern Manitoba wheat in bulk in store at Fort William/Port Arthur. The minimum f.o.b. price for each exporter is the equivalent of the c. and f. price in the United Kingdom of the minimum price of Canada's No. 1 Northern Manitoba wheat in bulk in store at Fort William/Port Arthur, using currently prevailing transportation costs and exchange rates and making such allowance for differences in quality as may be agreed between the exporting and importing countries concerned.

Member importing countries have undertaken to buy each year from member exporting countries a stated percentage of their total commercial requirements at prices within the agreed range. For their part, exporting countries are obliged to make wheat available for purchase by importing countries in any crop year at prices within the price range in quantities sufficient to satisfy the commercial requirements of those countres; if the price goes to the maximum, exporters have undertaken to make available, at that maximum price, specified (datum) quantities based on their past trading record with member importers.

The current Agreement empowers the International Wheat Council to make an annual review of the world wheat situation, including the international implications of national policies in respect of wheat production, stocks and marketing, and the disposal of wheat surpluses on non-commercial terms.

Provision has also been made for the right of appeal against excessive discounts from the minimum price on the basis of differences in quality between the basic wheat—Canada's No. 1 Northern Manitoba wheat—and the wheat supplied by other member importing countries.

Member countries of the fifth International Wheat Agreement are as follows.

Exporters. Argentina, Australia, Canada, France, Italy, Mexico, Spain, Sweden, Union of Soviet Socialist Republics and United States of America.

Importers. Austria, Belgium and Luxembourg, Brazil, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Federal Republic of Germany, Finland, Greece, Guatemala, Iceland, India, Indonesia, Ireland, Israel, Japan, Liberia, Libya, the Netherlands, New Zealand, Nigeria, Norway, Peru, Philippines, Portugal, Republic of Korea, Saudi Arabia, Sierra Leone, South Africa, Switzerland, Tunisia, United Arab Republic, United Kingdom, Vatican City, Venezuela, and Western Samoa.

(iv) *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 fertilizer treatments by governmental, university and private research organizations. 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.

In 1957, the Commonwealth Parliament passed legislation providing for a levy of a farthing a bushel on wheat handled by the Australian Wheat Board. 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 £284,000 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, mechanization, the industry's cost structure and marketing problems.

Up to the end of June, 1964, the Council and the State Committees have spent £2,408,354, including grants to the Commonwealth Scientific and Industrial Research Organization, State Departments of Agriculture, universities and agricultural colleges.

(v) *Wheat Farms: Number and Classification by Activity.* (*a*) *Number.* Particulars of the number of farms growing 20 acres and upwards of wheat for grain during each of the years 1959-60 to 1963-64 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 20 ACRES AND UPWARDS OF WHEAT FOR GRAIN

State or Territory	1959–60	1960–61	1961–62	1962–63	1963–64
New South Wales	16,798	16,959	17,489	18,286	17,753
Victoria	10,555	10,625	11,648	12,166	11,370
Queensland	4,526	4,257	4,483	5,095	4,927
South Australia	7,895	8,913	9,434	9,881	9,902
Western Australia	8,444	8,614	8,722	8,966	8,983
Tasmania	154	121	222	243	251
Australian Capital Territory	23	14	25	27	29
Australia	**48,395**	**49,503**	**52,023**	**54,664**	**53,215**

(*b*) *Size Classification of Wheat Holdings.* There is in Australia a widespread combination of wheat growing with other rural activities. This is illustrated, for the 1959-60 season, by a table on pages 1016 and 1017 of Year Book No. 49. The table, which provides a classification of rural holdings by the area of wheat grown and by type of activity, was derived from information published in the bulletin *Classification of Rural Holdings by Size and Type of Activity*, 1959–60, No. 7.

(vi) *Varieties of Wheat Sown.* (*a*) *General.* 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 45.

(*b*) *States*, 1963–64. 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 1963–64 were as follows:—New South Wales, Heron (14.3), Mengavi (10.9), Olympic (8.8); Victoria, Insignia (51.9), Pinnacle (18.7), Olympic (17.9); Queensland, Spica (34.3), Festival (15.0), Mengavi (15.0); South Australia, Insignia (38.4), Gabo (18.8), Sabre (11.9); and Western Australia, Gabo (38.5), Insignia (16.1), Insignia 49 (12.4). A detailed table of wheat varieties sown appears in the annual bulletin *The Wheat Industry*, No. 106, February, 1965.

(vii) *Area, Production and Yield per Acre.* (*a*) *Summary.* Prominent factors in the early development 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.

The area, production and yield per acre of wheat for grain in each State are shown below for the years 1959–60 to 1963–64 in comparison with the averages for the three-year periods ended 1938–39, 1948–49 and 1958–59.

WHEAT FOR GRAIN: AREA, PRODUCTION AND YIELD PER ACRE

Period	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	A.C.T.	Aust.
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—								
1959–60	3,950	2,261	683	1,549	3,719	8	2	12,172
1960–61	4,076	2,672	693	1,969	4,021	7	1	13,439
1961–62	4,498	2,849	750	2,229	4,380	16	1	14,723
1962–63	5,008	3,125	919	2,595	4,804	15	3	16,469
1963–64	4,964	3,109	938	2,802	4,640	18	3	16,474
PRODUCTION ('000 BUSHELS)(*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—								
1959–60	75,358	38,793	13,522	11,929	58,670	182	47	198,501
1960–61	84,657	67,587	10,999	46,395	63,900	148	30	273,716
1961–62	78,350	56,879	12,018	33,854	65,700	345	32	247,178
1962–63	109,002	67,899	18,683	38,339	72,500	419	70	306,912
1963–64	122,472	76,302	22,275	53,971	52,340	483	69	327,912
YIELD PER ACRE (BUSHELS) (*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—								
1959–60	19.1	17.2	19.8	7.7	15.8	22.0	26.8	16.3
1960–61	20.8	25.3	15.9	23.6	15.9	21.4	28.5	20.4
1961–62	17.4	20.0	16.0	15.2	15.0	22.2	22.7	16.8
1962–63	21.8	21.7	20.3	14.8	15.1	27.3	29.3	18.6
1963–64	24.7	24.5	23.8	19.3	11.3	27.5	24.6	19.9

(*a*) 60 lb. per bushel.

A graph showing the area sown to wheat for grain in Australia since 1900–1 appears on p. 1003 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 883.

(*b*) *Production.* 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, Victoria, South Australia and Western Australia. Queensland production normally approaches local demands, but Tasmania imports wheat from the mainland to satisfy its needs, though it exports flour made from local wheat which is particularly suitable for biscuits.

Production of wheat in 1963–64, 327,912,000 bushels, was a record, exceeding the previous record harvest of 1962–63 by 21,000,000 bushels (7 per cent.). Compared with the previous season, the highest absolute increases were recorded in South Australia, 15,632,000 bushels (41 per cent.) and New South Wales, 13,470,000 bushels (12 per cent.). All States except Western Australia and Tasmania had record harvests.

(*c*) *Yield per Acre.* Short-term variations in yield per acre are due chiefly to seasonal influences. High yields per acre for Australia in recent years were obtained in 1958–59, 20.7 bushels (a record), and in 1960–61, 20.4 bushels. The yield per acre in 1963–64 was 19.9 bushels.

(*d*) *Decennial Averages, 1861–70 to 1951–60.* 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, 1963–64. 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 fertilizers 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.

WHEAT FOR GRAIN: AVERAGE AREA AND PRODUCTION, AUSTRALIA

Period	Area	Production	Yield per acre
Yearly average—	'000 acres	'000 bushels	bushels
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—			
1963–64	16,474	327,912	19.9

(viii) *Price of Wheat.* (*a*) *Home Consumption.* 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 30th November, 1961, 15s. 4d,; 1962, 15s. 10d.; 1963, 15s. 11½d.; 1964, 14s. 7d.; and 1965, 14s 8d. These prices include a loading to meet freight charges incurred on wheat shipped to Tasmania (2d. in 1961; 1d. in 1962; 1½d. in 1963; 2d. in 1964; and 1d. in 1965).

(*b*) *Export Wheat Prices.* 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 31st July, 1961, 13s. 5d. to 13s. 9d.; 1962, 13s. 10d. to 14s. 10½d.; 1963, 14s. 2d. to 14s. 10½d.; and 1964, 14s. 4d. to 15s. 10d. Actual selling prices have been lower than the basic prices in some cases, particularly where other exporting countries enjoy a geographical freight advantage.

The 1959 International Wheat Agreement set the maximum price at 200 cents a bushel and the minimum at 150 cents for f.a.q. wheat sold under the Agreement. Under the current 1962 Agreement operative from 1st August, 1962 (*see* paragraph 1 (iii) (*f*), p. 998), the agreed price range is between 202.5 cents and 162.5 cents. Directly converted into Australian currency these limits are approximately 18s. 3½d. and 14s. 6d. a bushel respectively.

Details of export wheat prices in previous 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.

(ix) *Value of the Wheat Crop.* The estimated gross value of the wheat crop in each State and in Australia during the season 1963–64 and the value per acre are shown below.

WHEAT FOR GRAIN: VALUE OF CROPS(*a*), 1963-64

Particulars		N.S.W.	Victoria	Q'land	S. Aust.	W. Aust.	Tas.	A.C.T.	Aust.
Aggregate value	£'000	87,076	54,249	15,974	38,830	37,194	346	47	233,716
Value per acre	£	17.5	17.4	17.0	13.9	8.0	19.7	16.6	14.2

(*a*) Gross value of total crop, including wheat used for seed and for stock feed on farms. Also includes payment of £941,000 by the Commonwealth Government.

(x) *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 30th November, 1960 to 1964. (For particulars of production and yield from 1935–36 *see* graphs, p. 1004 of this Year Book.)

(*a*) *Wheat Acquired.* Particulars of wheat acquired by the Australian Wheat Board from the 1959–60 to 1963–64 harvests are shown in the following table.

AUSTRALIAN WHEAT BOARD: WHEAT ACQUIRED

('000 bushels)

Pool	Harvest	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Australia
23	1959–60	67,073	37,099	11,832	9,112	54,132	91	179,339
24	1960–61	72,984	66,881	8,821	43,706	59,012	63	251,467
25	1961–62	67,784	55,121	9,981	30,737	60,459	208	224,290
26	1962–63	98,677	67,215	17,537	35,120	66,898	275	285,722
27	1963–64	110,721	77,724	20,330	51,660	47,071	325	307,831

(*b*) *Stocks of Wheat and Flour.* Stocks of wheat (including flour in terms of wheat) held by the Australian Wheat Board in each State at 30th November for the years 1960 to 1964 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), 30th NOVEMBER

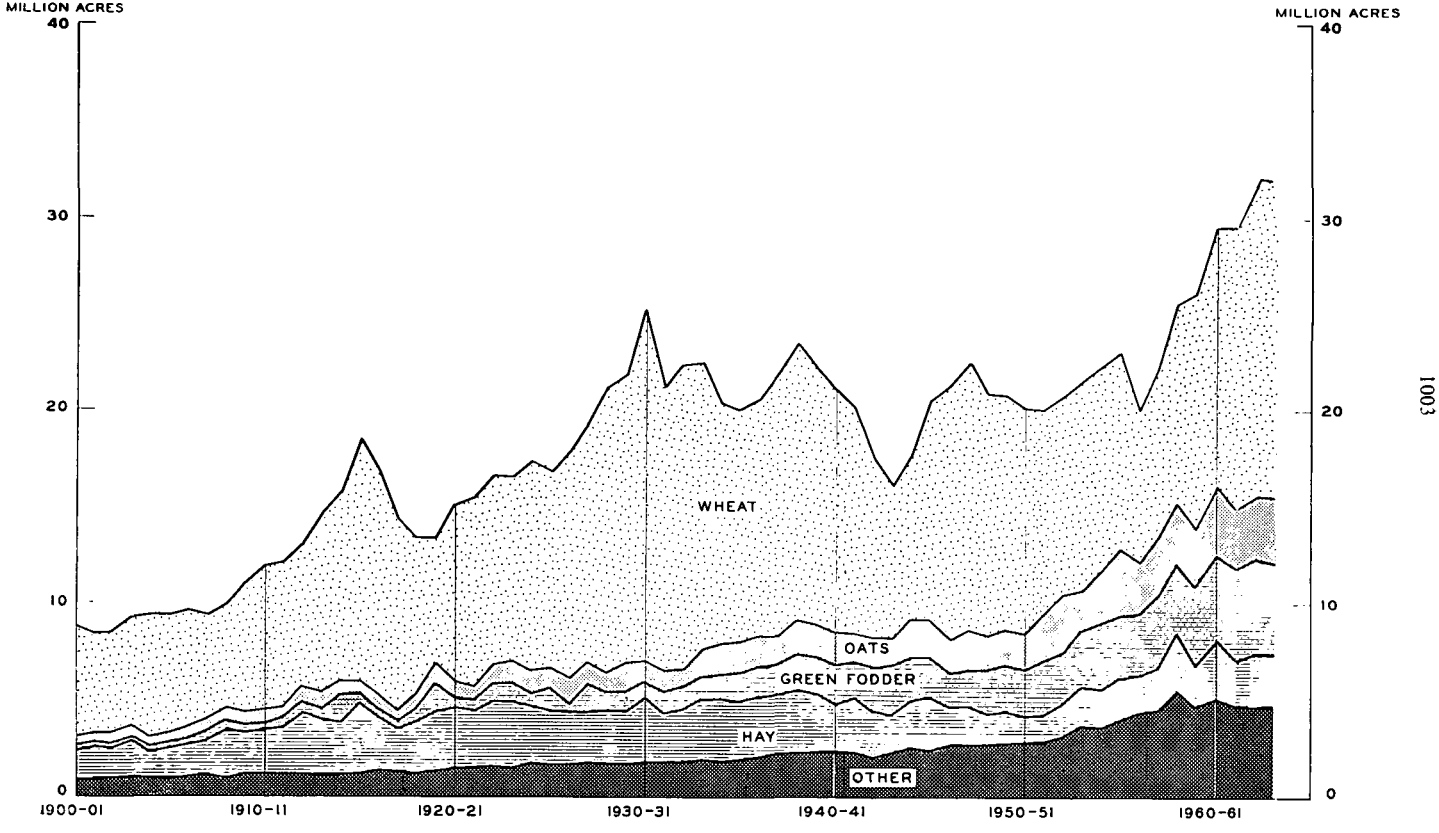
('000 bushels)

Year	N.S.W.	Victoria	Q'land	S. Aust.	W. Aust.	Tas.	Australia
1960	19,878	16,639	451	2,203	20,995	535	60,701
1961	7,701	8,780	965	3,122	3,338	452	24,358
1962	5,574	6,021	1,333	1,831	2,449	491	17,699
1963	10,879	7,000	775	1,775	2,221	625	23,275
1964	7,340	7,490	806	3,048	1,257	472	20,413

(*a*) Held at mills, sidings, ports and depots. Excludes new season's wheat received from growers prior to 30th November of years shown.

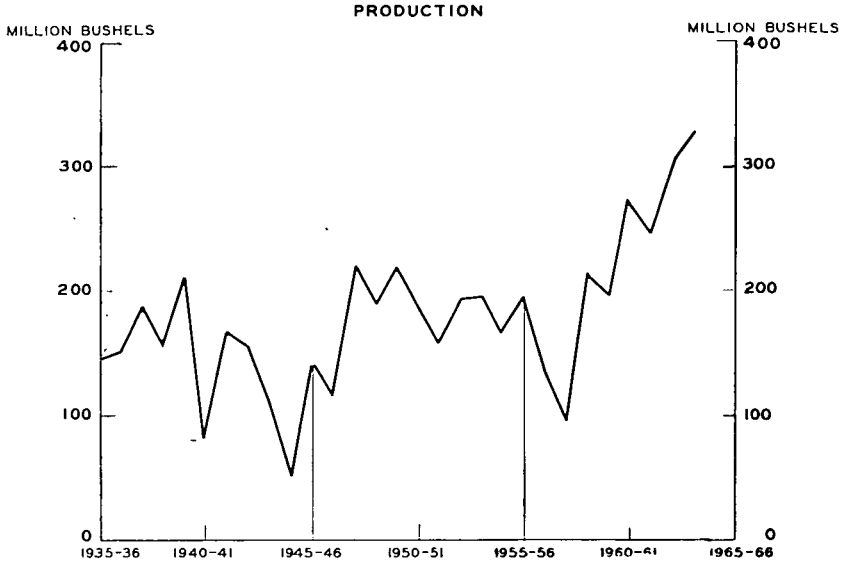
NOTE.—One short ton (2,000 lb.) of flour is taken to be equivalent to 46.3 bushels of wheat.

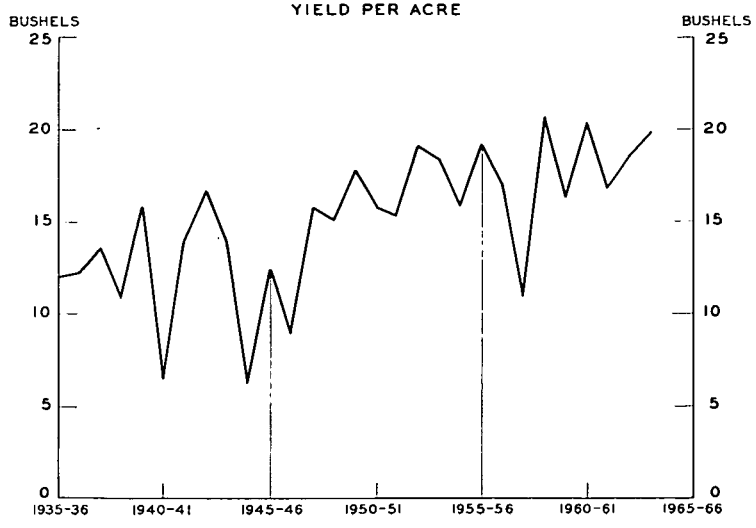
AREA OF CROPS: AUSTRALIA, 1900-01 TO 1963-64



WHEAT FOR GRAIN

AUSTRALIA, 1935-36 TO 1962-63





(*c*) ***Wheat Disposal.*** Particulars of the disposal of wheat during the years ended 30th November, 1960 to 1964, as recorded by the Australian Wheat Board, are shown in the following table.

AUSTRALIAN WHEAT BOARD: DISPOSAL OF WHEAT

('000 bushels)

Particulars	Year ended 30th November—				
	1960	1961	1962	1963	1964
Exported as wheat	97,645	202,027	152,818	203,703	221,530
Exported as flour(*a*)	26,147	29,438	25,123	24,903	31,797
Sold for local consumption as flour	42,713	39,814	40,736	40,389	42,954
Sold for other purposes	16,635	15,107	11,635	10,791	13,658

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

(*d*) ***Production and Disposal.*** 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

(million bushels)

Particulars	Year ended 30th November—				
	1960	1961	1962	1963	1964
Opening stocks (including flour)(*a*)(*b*)	65.4	60.7	24.4	17.7	23.3
Production	198.5	273.7	247.2	306.9	327.9
Total Available Supplies	*263.9*	*334.4*	*271.6*	*324.6*	*351.2*
Exports—					
Wheat	98.1	205.1	154.7	200.4	221.6
Flour(*a*)	26.7	31.6	26.6	25.1	34.4
Breakfast foods and other products(*a*)(*c*)	0.6	0.5	0.6	0.7	0.7
Local consumption—					
Flour(*a*)(*c*)	41.3	41.2	40.7	40.4	43.0
Breakfast foods and other products(*a*)(*c*)	1.9	1.9	1.6	1.7	1.7
Stock feed wheat sales(*c*)	14.7	13.2	10.0	9.1	12.0
Seed	12.6	13.8	15.4	15.4	16.3
Retained on farm (excluding seed)	6.6	8.4	7.4	5.8	3.8
Closing stocks (including flour)(*a*)(*b*)	60.7	24.4	17.7	23.3	20.4
Total Disposals	*263.2*	*340.1*	*274.7*	*321.9*	*353.9*
Excess (+) or deficiency (−) of disposals in relation to available supplies(*d*)	−0.7	+5.7	+3.1	−2.7	+2.7

(*a*) In terms of wheat. (*b*) Held at ports, depots, mills and sidings. (*c*) *Source:* Australian Wheat Board. (*d*) Includes allowance for unrecorded movements in stocks, gain or loss in outturn, etc.

NOTE.—One short ton (2,000 lb.) of flour is taken to be equivalent to 46.3 bushels of wheat.

(*e*) *Finance.* 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, POOLS Nos. 23 to 27

(£'000)

Particulars	No. 23 Pool (1959–60 Harvest)	No. 24 Pool (1960–61 Harvest)	No. 25 Pool (1961–62 Harvest)	No. 26 Pool (1962–63 Harvest)	No. 27 Pool(a) (1963–64 Harvest)
Paid to growers	108,641	152,685	144,207	175,986	159,022
Rail freight	12,999	18,715	16,943	22,679	24,670
Expenses	9,384	9,326	8,360	10,276	9,078
Total Payments	*131,024*	*180,726*	*169,510*	*208,941*	*192,770*
Value of sales delivered	(b) 123,187	(c) 172,103	(d) 162,455	(e) 197,921	(f) 218,584

(a) Incomplete. (b) Subject to additional £8,024,000 (of which the Commonwealth Government provided £3,022,000) withdrawn from Wheat Prices Stabilization Fund and payment of £187,000 to Wheat Industry Research Fund. (c) Subject to additional £8,884,000 provided by the Commonwealth Government and payment of £261,000 to Wheat Industry Research Fund. (d) Subject to additional £7,288,000 provided by the Commonwealth Government and payment of £233,000 to Wheat Industry Research Fund. (e) Subject to additional £11,317,000 provided by the Commonwealth Government and payment of £297,000 to Wheat Industry Research Fund. (f) Subject to additional £941,000 provided by the Commonwealth Government and payment of £320,000 to Wheat Industry Research Fund.

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

(xi) *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 wheat supplies 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.

(xii) *Exports of Wheat and Flour.* Statistics in this sub-paragraph relate to years ended 30th June. Export figures relate to the exports of Australian produce only.

(*a*) *Quantity and Value.* The following table shows particulars of the exports of wheat and flour and the total of both, in terms of wheat, for each of the years 1959–60 to 1963–64.

WHEAT AND FLOUR: EXPORTS FROM AUSTRALIA

Year	Quantity				Value		
	Wheat	Flour		Total (in terms of wheat)	Wheat	Flour(a)	Total
		As flour (a)	In terms of wheat				
	'000 bushels	short tons	'000 bushels	'000 bushels	£A.'000 f.o.b.	£A.'000 f.o.b.	£A.'000 f.o.b.
1959–60	91,252	558,127	25,841	117,093	61,680	15,811	77,491
1960–61	152,995	679,179	31,446	184,441	102,426	19,637	122,063
1961–62	203,155	602,665	27,903	231,058	142,446	18,164	160,610
1962–63	151,971	544,441	25,208	177,179	108,452	16,330	124,782
1963–64	253,724	714,939	33,102	286,826	181,009	21,879	202,888

(a) White flour (plain and self-raising), sharps and wheatmeal for baking.

NOTE.—One short ton (2,000 lb.) of flour is taken to be equivalent to 46.3 bushels of wheat.

(*b*) *Destination of Wheat.* The following table shows the exports of wheat to various countries for each of the years 1959–60 to 1963–64.

WHEAT: EXPORTS FROM AUSTRALIA

('000 bushels)

Country to which exported	1959–60	1960–61	1961–62	1962–63	1963–64
China (Mainland)	..	40,297	71,760	76,230	93,440
U.S.S.R. (Europe and Asia)	..	..	..	23	51,045
United Kingdom	20,985	27,410	23,282	16,317	28,146
Japan	13,909	13,110	15,698	12,673	18,800
Germany, Federal Republic of ..	4,230	4,426	11,154	2,012	8,304
India	11,706	4,910	21,166	7,144	7,572
New Zealand	7,903	6,108	6,252	6,088	6,687
Lebanon	957	1,463	4,052	3,131	5,274
Iraq	8,809	9,852	790	..	4,876
Other	22,753	45,419	49,001	28,353	29,580
Total	**91,252**	**152,995**	**203,155**	**151,971**	**253,724**

(*c*) *Destination of Flour.* The following table shows the exports of flour to various countries for each of the years 1959–60 to 1963–64. The figures relate to exports of white flour (plain and self-raising), sharps and wheatmeal for baking.

FLOUR: EXPORTS FROM AUSTRALIA

(Short tons)

Country to which exported	1959–60	1960–61	1961–62	1962–63	1963–64
U.S.S.R. (Europe and Asia)	..	..	..	168	133,920
Ceylon	142,354	117,590	178,538	103,503	115,273
Malaya	112,564	107,319	83,089	84,805	85,851
Philippines	3,802	1,831	2,639	10,335	51,738
United Kingdom	46,369	56,136	66,560	66,641	48,744
Singapore	36,664	41,810	52,872	51,780	47,242
Arabia, South	25,773	32,874	34,997	38,914	40,675
Fiji	28,051	28,102	30,240	29,554	37,993
Mauritius	17,686	23,738	13,468	14,011	21,279
Other	144,864	269,779	140,262	144,730	132,224
Total	**558,127**	**679,179**	**602,665**	**544,441**	**714,939**

(xiii) *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 the 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., the crop harvested in the northern hemisphere in 1963 is combined with the southern hemisphere harvests which began late in 1963 and ended early in 1964.

WHEAT: AREA, PRODUCTION AND YIELD PER ACRE IN VARIOUS COUNTRIES

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

Continent and country	Area			Production			Yield per acre		
	1961–62	1962–63	1963–64	1961–62	1962–63	1963–64	1961–62	1962–63	1963–64
	'000 acres	'000 acres	'000 acres	mill. bus.	mill. bus.	mill. bus.	bus.	bus.	bus.
U.S.S.R. (Europe and Asia)	155,701	166,549	159,630	2,443	2,600	1,826	15.7	15.6	11.4
Europe—									
France	9,877	11,293	9,504	352	516	377	35.6	45.7	39.9
Italy	10,737	11,258	10,858	305	349	299	28.4	31.0	27.5
Spain	9,587	10,534	10,495	126	177	179	13.2	16.8	17.0
Total, Europe(a) ..	*67,732*	*72,221*	*68,522*	*1,882*	*2,270*	*2,016*	*27.8*	*31.4*	*29.4*
North and Central America—									
United States ..	51,551	43,541	45,256	1,235	1,094	1,142	23.9	25.1	25.2
Canada	25,316	26,817	27,566	283	566	723	11.2	21.1	26.2
Total, North and Central America(a)	*79,024*	*72,253*	*74,922*	*1,571*	*1,716*	*1,932*	*19.9*	*23.7*	*25.8*
Asia—									
China (Mainland)(b) ..	n.a.	60,294	59,799	661	735	801	n.a.	12.2	13.4
India	32,047	33,409	33,747	404	442	398	12.6	13.2	11.8
Turkey	19,388	19,595	19,724	262	315	372	13.5	16.1	18.9
Pakistan	11,604	12,311	12,592	141	149	155	12.2	12.1	12.3
Total, Asia(a) ..	*c 86,289*	*150,166*	*150,659*	*1,805*	*1,999*	*2,015*	*(c) 13.3*	*13.3*	*13.4*
South America—									
Argentina	10,373	8,495	13,358	187	184	298	18.1	21.7	22.3
Total, South America(a)	*17,198*	*14,579*	*19,348*	*266*	*275*	*378*	*15.5*	*18.9*	*19.5*
Oceania—									
Australia	14,723	16,469	16,474	247	307	328	16.8	18.6	19.9
Total, Oceania(a) ..	*14,908*	*16,694*	*16,677*	*255*	*316*	*338*	*17.1*	*18.9*	*20.3*
Africa	16,679	16,877	18,780	159	221	234	9.6	13.1	12.5
World Total(a) ..	(c) 437,531	509,339	508,538	8,381	9,397	8,739	(c) 17.6	19.3	17.7

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

(xiv) *Principal 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 averages about 4 per cent. of the world's total, its exports account for a much higher proportion of the total quantities shipped. In 1963–64, for example, Australia's share of world wheat exports amounted to 14.0 per cent.

WORLD EXPORTS OF WHEAT AND WHEAT FLOUR IN TERMS OF WHEAT

(*Source: World Wheat Statistics*—International Wheat Council)

(Million bushels)

Year and country of primary destination	Exporting country—							
	United States of America	Canada	Australia	Argentina	France	Germany, Federal Republic of	Other	Total
1959–60	508.6	276.6	116.3	78.8	65.1	29.0	276.0	1,350.4
1960–61	660.9	342.0	183.7	71.5	57.3	30.3	223.6	1,569.3
1961–62	717.8	365.2	230.6	87.3	67.4	43.3	232.5	1,744.1
1962–63	636.8	331.2	175.9	66.4	109.4	23.1	256.1	1,598.9
1963–64(*a*)—								
Asia(*b*)—								
China (Mainland) ..	..	36.9	93.4	36.3	8.2	..	16.2	191.0
India	163.1	0.7	7.6	..	..	..	..	171.4
Japan	76.3	48.1	18.8	..	..	..	..	143.2
Pakistan	58.9	0.4	2.0	..	..	..	..	61.3
Korea, Republic of ..	25.9	0.5	1.5	..	..	..	..	27.9
Other	64.6	14.6	40.7	..	2.3	2.9	10.8	135.9
Total, Asia ..	*388.8*	*101.2*	*164.0*	*36.3*	*10.5*	*2.9*	*27.0*	*730.7*
Europe(*b*)—								
United Kingdom ..	19.2	88.3	30.1	3.2	20.2	4.6	10.1	175.7
Germany, Federal Republic of ..	14.7	36.2	8.3	9.3	5.9	..	3.6	78.0
Poland	40.5	11.9	..	0.4	13.0	1.1	4.5	71.4
Netherlands ..	29.9	3.6	(*c*)	3.5	2.6	(*c*)	2.2	41.8
Belgium-Luxembourg	8.2	15.8	..	1.1	6.8	(*c*)	0.8	32.7
Germany, East ..	4.4	..	..	0.7	1.8	..	19.8	26.7
Czechoslovakia ..	1.3	6.6	..	1.7	0.5	2.1	12.6	24.8
France	11.2	5.4	..	2.8	..	(*c*)	5.3	24.7
Switzerland ..	9.2	7.4	(*c*)	0.2	4.7	0.6	0.2	22.3
Other	47.4	28.3	9.5	7.1	13.7	12.0	14.8	132.8
Total, Europe ..	*186.0*	*203.5*	*47.9*	*30.0*	*69.2*	*20.4*	*73.9*	*630.9*
U.S.S.R.	63.2	208.9	56.5	0.3	5.5	14.8	19.9	369.1
Africa—								
United Arab Republic	68.5	..	0.4	..	..	0.8	..	69.7
Other	43.6	4.6	7.0	..	9.5	2.3	3.5	70.5
Total, Africa ..	*112.1*	*4.6*	*7.4*	..	*9.5*	*3.1*	*3.5*	*140.2*
South America—								
Brazil	46.0	..	..	25.3	..	..	5 0	76.3
Other	35.3	9.1	0.1	10.1	0.4	0.2	0.8	56.0
Total, South America	*81.3*	*9.1*	*0.1*	*35.4*	*0.4*	*0.2*	*5.8*	*132.3*
North and Central America	16.3	26.7	0.8	..	2.8	1.1	4.8	52.5
Oceania	0.1	0.4	9.6	..	0.6	..	..	10.7
All Other	0.9	..	0.8	..	..	..	3.9	5.6
Total, 1963-64 ..	848.7	554.4	287.1	102.0	98.5	42.5	138.8	2,072.0

(*a*) Subject to revision. (*b*) Excludes U.S.S.R., details for which are shown separately.
(*c*) Less than 50,000 bushels.

NOTE.—These particulars are based on customs clearances of the exporting countries, and relate to years ended 30th June. There is a small difference between Australian exports as shown above and those on pages 1006-7 since a slightly different factor was used by the International Wheat Council to convert flour to wheat equivalent.

2. Oats.—(i) *General.* 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 fertilizer. 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. Excessive bulk in the husk and a fluctuating export price limit the extent of oversea trade.

(ii) *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 1963–64 accounted for 51 per cent. of the area of all crops, oats grown for grain represented only 11 per cent. The area, production and yield per acre of oats in each State are shown below for the years 1959–60 to 1963–64 in comparison with the averages for the three-year periods ended 1938–39, 1948–49 and 1958–59.

OATS FOR GRAIN: AREA, PRODUCTION AND YIELD PER ACRE

Period	N.S.W.	Victoria	Q'land	S. Aust.	W. Aust.	Tas.	A.C.T.	Aust.
AREA ('000 ACRES)								
Average for three years ended—								
1938–39	297	478	8	338	425	26	(*a*)	1,572
1948–49	515	548	21	282	484	17	1	1,868
1958–59	756	735	29	445	1,178	20	(*a*)	3,163
Year—								
1959–60	567	673	22	506	1,240	22	(*a*)	3,030
1960–61	917	835	19	512	1,330	23	1	3,637
1961–62	713	774	27	324	1,231	27	1	3,097
1962–63	708	932	27	416	1,177	31	1	3,292
1963–64	794	910	31	501	1,125	30	1	3,392
PRODUCTION ('000 BUSHELS) (*b*)								
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—								
1959–60	11,125	12,701	394	2,504	19,599	512	6	46,841
1960–61	21,466	20,666	285	11,478	21,810	391	11	76,107
1961–62	13,225	16,312	412	4,391	20,187	587	16	55,130
1962–63	16,035	27,042	545	5,770	18,572	828	17	68,809
1963–64	19,811	19,885	673	9,149	17,850	844	22	68,234
YIELD PER ACRE (BUSHELS) (*b*)								
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—								
1959–60	19.6	18.9	18.4	5.0	15.8	23.2	24.8	15.5
1960–61	23.5	24.7	15.0	22.4	16.4	16.8	20.9	20.9
1961–62	18.5	21.1	15.4	13.6	16.4	21.8	18.7	17.8
1962–63	22.7	29.0	20.0	13.9	15.8	26.6	25.6	20.9
1963–64	24.9	21.8	21.7	18.3	15.9	27.8	19.8	20.1

(*a*) Less than 500 acres. (*b*) 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 the graph on page 1003.

In 1963–64 the production of oats was 68,234,000 bushels, 18,671,000 bushels (22 per cent.) below the record harvest of 86,905,000 bushels in 1958–59.

The yield per acre in 1963–64 was 20.1 bushels, compared with the record yield of 21.9 bushels per acre established in 1958–59. The lowest yield recorded was 4.4 bushels per acre in the abnormally dry season of 1944–45.

(iii) *Price of Oats.* The average wholesale price in the Melbourne market for oats of good milling quality was 7s. 6d. a bushel in 1963–64, compared with 7s. 7½d. in 1962–63.

(iv) *Value of Oat Crop.* The estimated gross value of the oat crop in each State for the 1963–64 season and the value per acre were as follows.

OATS: VALUE OF CROP, 1963-64

Particulars		N.S.W.	Victoria	Q'land	S. Aust.	W. Aust.	Tas.	A.C.T.	Aust.
Aggregate value	£'000	8,090	6,924	336	2,609	6,546	320	8	24,833
Value per acre ..	£	10.2	7.6	10.8	5.2	5.8	10.5	7.1	7.3

(v) *Exports.* The production of oats in Australia is sufficient to allow for an export trade which fluctuates with the incentive offered by oversea prices. The quantities and values of Australian-produced oats exported from Australia during the years 1959–60 to 1963–64 are shown below.

OATS: EXPORTS, AUSTRALIA

Particulars		1959–60	1960–61	1961–62	1962–63	1963–64
Quantity ..	.. '000 bus.	11,969	19,005	19,064	17,744	16,673
Value ..	£A.'000 f.o.b.	5,031	6,854	7,479	7,076	6,311

In 1963–64 the principal countries of destination were China (Mainland) (5,515,000 bushels), the Federal Republic of Germany (4,732,000 bushels), the Netherlands (3,351,000 bushels), and Italy (766,000 bushels). Imports of oats into Australia are not recorded separately.

(vi) *Oatmeal and Other Oat Products.* In 1963–64 the production of oatmeal was 14,948 tons for porridge and 26,074 tons for other purposes. This was equivalent to about 4,594,000 bushels of oats.

(vii) *World Production.* The world's production of oats for the year 1963, according to figures issued by the United States Department of Agriculture, amounted to 3,200 million bushels, harvested from 78.6 million acres, resulting in an average yield of 40.7 bushels an acre. This compared with an estimated production in the previous year of 3,375 million bushels from an area of 83.5 million acres and an average yield of 40.4 bushels an acre.

3. Barley.—(i) *General.* 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 the land. 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 Victoria (Mallee, North Wimmera, and Geelong) and South Australia (Murry-Mallee, Eyre and Yorke Peninsulas). In Western Australia it is grown in the higher rainfall areas on the western edge of the wheat belt.

(ii) *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.

(iii) *Australian Barley Board Operations.* 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.

Pool	Quantity received	Quantity sold(*a*)	Total advances made per bushel on 2-row No. 1 Grade less freight	Total net payments to growers
	'000 bushels	'000 bushels	*s.* *d.*	£'000
No. 21 (1959–60 Crop)	11,773	11,797	10 0.51	4,904
„ 22 (1960–61 „)	44,624	44,680	9 3.26	16,989
„ 23 (1961–62 „)	20,081	20,059	11 7.28	9,707
„ 24 (1962–63 „)	17,195	17,285	11 6.76	8,333
„ 25 (1963–64 „)	23,145	23,189	(*b*) 11 0.00	10,248

(*a*) Includes surplus or shortage in out-turn, except for No. 25 Pool for which the surplus has not yet been ascertained. (*b*) As at 31st January, 1965. At that date it was estimated that the amount still to be paid to growers was 8.026d. per bushel.

(iv) *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 1963–64, 2,013,000 acres, was 29 per cent. less than the area in 1960–61. The production of barley for grain in 1963–64, 43,395,000 bushels, although 10 per cent. more than production in 1962–63, was 36 per cent. less than the record production of 67,970,000 bushels in 1960–61. The area, production and yield per acre of barley for grain in the several States for the years 1959–60 to 1963–64, compared with the averages for the three-year periods ended 1938–39, 1948–49 and 1958–59 are shown in the following table.

BARLEY FOR GRAIN: AREA, PRODUCTION AND YIELD PER ACRE

Period	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	A.C.T.	Aust.
AREA ('000 ACRES)								
Average for three years ended—								
1938–39 ..	13	138	10	391	53	8	(a)	613
1948–49 ..	23	166	18	587	65	7	(a)	866
1958–59 ..	73	354	184	1,255	324	8	..	2,198
Year—								
1959–60 ..	118	278	260	1,290	421	12	..	2,379
1960–61 ..	190	309	219	1,556	541	15	..	2,830
1961–62 ..	201	225	177	1,271	490	19	..	2,383
1962–63 ..	221	194	150	1,053	390	19	..	2,027
1963–64—								
2-row ..	127	180	158	1,077	66	13	..	1,621
6-row ..	85	10	18	46	233	(a)	..	392
Total ..	*212*	*190*	*176*	*1,123*	*299*	*13*	..	*2,013*
PRODUCTION ('000 BUSHELS)(b)								
Average for three years ended—								
1938–39 ..	197	2,174	135	6,816	660	252	(c)	10,234
1948–49 ..	316	3,149	375	11,964	748	194	(c)	16,746
1958–59 ..	1,463	7,192	4,673	29,740	4,239	267	..	47,574
Year—								
1959–60 ..	2,581	5,593	6,650	11,857	7,080	418	..	34,179
1960–61 ..	4,786	7,718	4,393	42,233	8,496	344	..	67,970
1961–62 ..	4,137	4,654	3,532	21,292	7,282	607	..	41,504
1962–63 ..	5,331	5,469	4,088	18,004	6,056	631	..	39,579
1963–64—								
2-row ..	3,195	3,833	4,675	23,420	935	406	..	36,464
6-row ..	2,156	192	516	917	3,142	8	..	6,931
Total ..	*5,351*	*4,025*	*5,191*	*24,337*	*4,077*	*414*	..	*43,395*
YIELD PER ACRE (BUSHELS)(b)								
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—								
1959–60 ..	21.8	20.1	25.6	9.2	16.8	33.8	..	14.3
1960–61 ..	25.3	25.0	20.0	27.1	15.7	22.5	..	24.0
1961–62 ..	20.6	20.6	20.0	16.8	14.8	32.4	..	17.4
1962–63 ..	24.2	28.1	27.3	17.1	15.5	31.9	..	19.5
1963–64—								
2-row ..	25.2	21.3	29.6	21.7	14.2	30.0	..	22.5
6-row ..	25.5	18.7	28.5	20.0	13.5	30.7	..	17.7
Total ..	*25.3*	*21.2*	*29.5*	*21.7*	*13.6*	*30.0*	..	*21.6*

(a) Less than 500 acres. (b) 50 lb. per bushel. (c) Less than 500 bushels.

For Australia, 81 per cent. of the area of barley for grain in 1963–64 was sown with 2-row barley, while the remainder consisted of 6-row varieties. The proportion, however, varied considerably in the several States. The utilization of barley during the season ended November, 1964, was as follows:—exports, 17,263,000 bushels; malting and distilling, 10,500,000 bushels; pearl barley, 136,000 bushels; seed and stock feed, 12,080,000 bushels.

The following table sets out the acreage and production of 2- and 6-row barley in Australia during the seasons 1959–60 to 1963–64 and the averages for the three years ended 1938–39, 1948–49 and 1958–59.

BARLEY, 2- AND 6-ROW: AREA AND PRODUCTION, AUSTRALIA

Period	Area ('000 acres)			Production ('000 bushels)(a)			Yield per acre (bushels)(a)		
	2-row	6-row	Total	2-row	6-row	Total	2-row	6-row	Total
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—									
1959–60 ..	(b)1,868	(b) 499	2,379	b 25,676	(b)8,085	34,179	(b) 13.7	(b) 16.2	14.3
1960–61 ..	(b)2,157	(b) 658	2,830	b 55,691	b 11,935	67,970	(b) 25.8	(b) 18.1	24.0
1961–62 ..	(b)1,777	(b) 587	2,383	b 31,739	(b)9,158	41,504	(b) 17.9	(b) 15 6	17.4
1962–63 ..	1,553	474	2,027	31,370	8,209	39,579	20.2	17.3	19.5
1963–64 ..	1,621	392	2,013	36,464	6,931	43,395	22.5	17.7	21.6

(a) 50 lb. per bushel. (b) Excludes Tasmania.

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.

(v) *Prices.* The average wholesale price for 2-row English malting barley in the Melbourne market during 1962–63 and 1963–64 was 15s. 1d.

(vi) *Value of Barley Crop.* The estimated gross value of the barley crop in each State for the 1963–64 season and the value per acre are shown in the following table.

BARLEY FOR GRAIN: VALUE OF CROP, 1963-64

Particulars		N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	Aust.
Aggregate value ..	£'000	3,320	1,901	2,838	13,199	2,188	296	23,742
Value per acre ..	£	15.7	10.0	16.1	11.8	7.3	21.5	11.8

(vii) *Exports.* South Australia was the principal exporting State in 1963–64, and Japan, the United Kingdom, the Netherlands, Italy and the United States of America were the principal countries to which barley was shipped. Particulars of exports of Australian produced barley for the years 1959–60 to 1963–64 are shown in the following table.

BARLEY: EXPORTS, AUSTRALIA

Particulars		1959–60	1960–61	1961–62	1962–63	1963–64
Quantity ..	'000 bus.	25,013	33,900	31,435	10,322	17,756
Value ..	£A.'000 f.o.b.	11,541	14,329	14,954	5,229	9,149

Imports of barley into Australia are not recorded separately, but are considered to be negligible.

In addition to exports of barley grain, there are also exports of Australian pearl and Scotch barley, the total for 1963–64 amounting to 355,770 lb., valued at £9,294, the main country of consignment being Malaya.

(viii) *Malt.* (a) *Production.* Details of the quantity of grain used and the production of barley malt in the years 1959–60 to 1963–64 are given in the following table.

BARLEY MALT: GRAIN USED AND MALT PRODUCED, AUSTRALIA

Particulars		1959–60	1960–61	1961–62	1962–63	1963–64
Grain used ..	'000 bus.(a)	8,535	9,017	10,301	10,338	12,067
Malt produced ..	'000 bus.(b)	8,435	9,015	10,207	10,429	11,989

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

(*b*) *Exports.* 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 2,980,000 bushels (value £2,883,000) and 4,076,000 bushels (value £3,904,000) were recorded in 1962–63 and 1963–64 respectively.

(ix) *World Production.* In comparison with the barley production of other countries that of Australia is extremely small. The main producers in 1963 were the United States of America, France, and the United Kingdom. China is also normally a major producer, but details for 1963 are not available. Australian production in that year was approximately one per cent. of the world total.

According to estimates made by the United States Department of Agriculture, world production of barley in the year 1963 amounted to 4,070 million bushels harvested from 163.0 million acres, equivalent to a yield per acre of 25.0 bushels. This compared with the production of 3,910 million bushels in the previous year from 148.2 million acres, and a yield per acre of 26.4 bushels.

4. **Sorghum for Grain.**—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 mechanized.

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 Area are the main areas. This crop is also suitable for the semi-tropical areas of the Northern Territory and the Kimberleys.

Particulars of the area and production of sorghum grown for grain in recent years are given in the following table.

GRAIN SORGHUM: AREA, PRODUCTION AND YIELD PER ACRE

Season	Area			Production(*a*)			Yield per acre(*a*)		
	N.S.W.	Q'land	Aust. (*b*)	N.S.W.	Q'land	Aust. (*b*)	N.S.W.	Q'land	Aust. (*b*)
	acres	acres	acres	'000 bushels	'000 bushels	'000 bushels	bushels	bushels	bushels
1959–60 ..	51,195	220,094	271,553	1,452	6,630	8,086	28.4	30.1	29.8
1960–61 ..	41,145	213,761	255,109	577	5,418	5,996	14.0	25.3	23.5
1961–62 ..	70,134	292,397	362,666	1,308	8,054	9,361	18.6	27.5	25.8
1962–63 ..	80,255	311,068	391,334	1,891	8,361	10,252	23.6	26.9	26.2
1963–64 ..	61,203	303,857	365,708	1,269	6,612	7,889	20.7	21.8	21.6

(*a*) 60 lb. per bushel. (*b*) Includes small areas sown and quantities produced in other States.

5. **Maize for Grain.**—(i) *General.* Like sorghum, maize is a summer cereal demanding specific soil and climatic conditions. It is grown for grain, chiefly in the south-east and Atherton Tablelands of Queensland and the north coast and northern tablelands of New South Wales. The area so cropped in these States during the 1963–64 season was 98 per cent. of the total for Australia. 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 also used 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 connexion with the dairying industry. There is practically no difference between grain and fodder varieties.

There has been a considerable 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 specialized industry of growing hybrid strains for seed.

(ii) *Area, Production and Yield per Acre.* The area, production and yield per acre of maize for grain in each State for the years 1959–60 to 1963–64 compared with the averages for the three-year periods ended 1938–39, 1948–49 and 1958–59 are given in the following table. Separate details for hybrid and other varieties are shown for all States except Western Australia for 1963–64.

MAIZE FOR GRAIN: AREA, PRODUCTION AND YIELD PER ACRE

Period	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	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—								
1959–60 ..	51,738	3,383	129,803	(a)	4	..	..	(b)184,928
1960–61 ..	49,269	2,985	132,382	(a)	6	..	..	(b)184,642
1961–62 ..	51,434	3,309	155,780	..	17	..	..	210,540
1962–63 ..	46,537	3,634	159,285	(a)	34	..	..	(b)209,490
1963–64—								
Hybrid ..	38,422	3,108	130,117	..	(c)	..	..	(b)171,647
Other ..	6,257	291	36,481	(a)	85	..	..	(b) 43,114
Total ..	*44,679*	*3,399*	*166,598*	(a)	*85*	..	..	(b)*214,761*
PRODUCTION ('000 BUSHELS)(d)								
Average for three years ended—								
1938–39 ..	3,204	665	3,170	1	(e)	..	(e)	7,040
1948–49 ..	2,446	314	2,960	(e)	1	(e)	(e)	5,721
1958–59 ..	2,347	175	3,428	(a)	(e)	(e)	(e)	(b) 5,950
Year—								
1959–60 ..	2,485	180	4,060	(a)	(e)	..	..	(b) 6,725
1960–61 ..	2,227	171	3,847	(a)	(e)	..	..	(b) 6,245
1961–62 ..	2,349	192	4,766	..	(e)	..	..	7,307
1962–63 ..	2,145	216	5,096	(a)	(e)	..	..	(b) 7,457
1963–64—								
Hybrid ..	1,868	195	3,529	..	(c)	..	..	(b) 5,592
Other ..	221	9	899	(a)	1	..	..	(b) 1,130
Total ..	*2,089*	*204*	*4,428*	(a)	1	..	..	(b) *6,722*
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—								
1959–60 ..	48.0	53.3	31.3	(a)	25.5	..	..	(b) 36.4
1960–61 ..	45.2	57.3	29.1	(a)	1.0	..	..	(b) 33.8
1961–62 ..	45.7	58.0	30.6	..	21.9	..	..	34.7
1962–63 ..	46.1	59.5	32.0	(a)	12.2	..	..	(b) 35.6
1963–64—								
Hybrid ..	48.6	62.6	27.1	..	(c)	..	..	(b) 32.6
Other ..	35.3	30.3	24.6	(a)	18.5	..	..	(b) 26.2
Total ..	*46.8*	*59.8*	*26.6*	(a)	*18.5*	..	..	(b) *31.3*

(a) Not available for publication. (b) Incomplete; *see* footnote (a). (c) Included in Other maize. (d) 56 lb. per bushel. (e) Less than 500 bushels.

The average yield for Australia for the five-year period ended 1963–64 was 34.3 bushels per acre. Among principal producing countries, the United States of America averaged 67.3 bushels per acre and Italy 49.3 bushels for 1963.

(iii) *Price of Maize.* The average wholesale price of maize in the Melbourne market in 1963–64 was 18s. 9d. a bushel compared with 16s. 10½d. in 1962–63.

(iv) *Value of Crop.* The estimated gross value of the crop in each State for the 1963–64 season and the value per acre were as follows.

MAIZE FOR GRAIN: VALUE OF CROP, 1963-64

Particulars		N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	Aust.
Aggregate value ..	£'000	1,793	136	3,252	(a)	1	..	5,182
Value per acre ..	£	40.1	40.0	19.5	(a)	11.8	..	24.1

(a) Not available for publication.

(v) *Exports of Maize and Maize Products.* Details of exports of Australian-produced maize for the five years ended 1963–64 are shown on the next page.

MAIZE: EXPORTS, AUSTRALIA

Particulars		1959–60	1960–61	1961–62	1962–63	1963–64
Quantity	'000 bus.	22	3	2	552	14
Value	£A.'000 f.o.b.	15	4	3	240	14

The increase in exports of maize in 1962–63 was due principally to the shipment of 474,000 bushels to Japan, a country to which there had been no previous exports.

Imports of maize into Australia are not recorded separately, but are considered to be negligible.

(vi) *World Production.* According to figures issued by the United States Department of Agriculture, world production of maize in the year 1963 amounted to 8,055 million bushels, harvested from 247 million acres, giving an average yield per acre of 32.6 bushels. This compared with production in the previous year of 7,510 million bushels from 241 million acres, and an average yield of 31.2 bushels per acre.

The United States of America is the most important maize-producing country in the world, and during the three years ended 1963 the area sown to maize in that country averaged 59 million acres or 24 per cent. of the world total. During the same period production averaged 3,781 million bushels or about 50 per cent. of the world total.

6. Rice.—(i) *General.* 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 Area 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.

Until recent years rice-growing in Australia was practically confined to the Murrumbidgee Irrigation Area in New South Wales. However, there is now some experimental rice-growing in Western Australia and the Northern Territory, but particulars are not available for publication. Small quantities have also been produced in Queensland in some years.

(ii) *Area, Production and Exports.* Details relating to area, production, and Australian-produced exports for the years 1959–60 to 1963–64 are shown in the following table.

RICE: AREA, PRODUCTION AND EXPORTS, AUSTRALIA(*a*)

Season	No. of holdings growing rice(*b*)	Area	Production (paddy rice)		Average yield (paddy) per acre	Exports(*c*)	
			Quantity	Gross value(*d*)		Uncleaned	Cleaned
		acres	'000 bushels (*e*)	£'000	bushels (*e*)	cwt.	cwt.
1959–60	852	48,950	6,732	4,450	137.5	265,449	1,055,821
1960–61	787	46,117	6,001	4,125	130.1	359,440	876,175
1961–62	878	50,185	7,045	3,832	140.4	280,540	748,920
1962–63	956	54,929	7,129	3,838	129.8	239,820	905,580
1963–64	1,033	59,398	7,455	3,956	125.5	198,820	918,340

(*a*) Particulars of area and production for Western Australia and Northern Territory are not available for publication, and are excluded. (*b*) Twenty acres or more in area. (*c*) Imports into Australia are not recorded separately, but are considered to be negligible. (*d*) Excludes the value of straw. (*e*) 42 lb. per bushel.

The bulk of Australia's exports of rice in 1963–64 was shipped to Papua and New Guinea, the Pacific Islands and the United Kingdom.

§ 4. Fodder Crops

1. Hay.—(i) *General.* 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 1963–64 hay represented 8 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.

(ii) *Area, Production and Yield per Acre.* For a number of reasons, particularly the variations in the relative prices of grain and hay and whether the season is favourable or not for a grain crop, the area of hay is apt to fluctuate considerably. The area, production and yield per acre of hay of all kinds in several States during the years 1959–60 to 1963–64 and the averages for the three-year periods ended 1938–39, 1948–49 and 1958–59 are shown below.

HAY: AREA, PRODUCTION AND YIELD PER ACRE

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	(*a*)	4	2,372
Year—									
1959–60 ..	482	848	81	245	319	127	(*a*)	3	2,105
1960–61 ..	750	1,286	84	393	284	171	1	4	2,973
1961–62 ..	594	922	95	209	294	157	1	2	2,274
1962–63 ..	587	1,251	87	287	340	165	1	2	2,720
1963–64 ..	584	1,138	80	358	289	150	1	2	2,602
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	(*b*)	7	3,701
Year—									
1959–60 ..	779	1,351	179	207	433	221	(*b*)	7	3,177
1960–61 ..	1,243	2,338	167	616	380	326	1	8	5,079
1961–62 ..	923	1,585	212	286	396	286	(*b*)	5	3,693
1962–63 ..	965	2,376	197	406	453	313	1	6	4,717
1963–64 ..	1,006	1,947	184	488	389	249	1	5	4,269
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—									
1959–60 ..	1.62	1.59	2.21	0.84	1.36	1.75	0.91	2.15	1.51
1960–61 ..	1.66	1.82	1.98	1.57	1.34	1.91	0.78	2.12	1.71
1961–62 ..	1.55	1.72	2.22	1.37	1.35	1.82	0.76	2.17	1.62
1962–63 ..	1.64	1.90	2.27	1.41	1.33	1.89	1.21	2.38	1.73
1963–64 ..	1.72	1.71	2.30	1.37	1.35	1.67	1.02	1.71	1.64

(*a*) Less than 500 acres. (*b*) Less than 500 tons.

A graph showing the area under hay since 1900–01 appears on page 1003 of this Year Book.

(iii) *Varieties Grown.* Information regarding areas cut for hay in 1963–64 is given in the following table.

HAY: AREA OF VARIOUS KINDS GROWN, 1963-64

(Acres)

State or Territory	Oaten	Lucerne	Wheaten	Other	Total
New South Wales	63,744	172,771	57,039	290,083	583,637
Victoria	168,528	81,394	28,273	860,289	1,138,484
Queensland	2,965	63,939	6,384	6,796	80,084
South Australia	140,666	38,407	40,772	137,747	357,592
Western Australia	121,316	1,462	31,951	133,928	288,657
Tasmania	19,233	1,064	447	128,896	149,640
Northern Territory ..	..	..	..	993	993
Australian Capital Territory..	590	1,283	91	618	2,582
Australia	**517,042**	**360,320**	**164,957**	**1,559,350**	**2,601,669**

For all States and the Territories combined, the proportions of the areas sown to the principal kinds of hay in 1963–64 were 19.9 per cent. for oaten, 13.8 per cent. for lucerne, 6.3 per cent. for wheaten, and 60.0 per cent. for other hay.

(iv) *Value of Hay Crop.* The following table shows the estimated gross value, and the value per acre, of the hay crop of the several States for the 1963–64 season.

HAY: VALUE OF CROP, 1963-64

Particulars		N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	A.C.T.	Aust.
Aggregate value ..	£'000	10,614	19,186	3,315	4,208	4,354	1,993	43	*a* 43,731
Value per acre ..	£	18.2	16.9	41.4	11.8	15.1	13.3	16.7	16.8

(*a*) Includes £18,000 in the Northern Territory.

(v) *Farm Stocks of Hay.* Particulars of stocks of hay held on farms at 31st March in each year 1960 to 1964 are given in the table below.

STOCKS OF HAY HELD ON FARMS

(Tons)

31st March—	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	A.C.T.	Aust. (*a*)
1960 ..	1,535,252	1,766,857	203,675	304,227	292,086	255,471	10,778	4,368,346
1961 ..	1,704,486	2,640,249	155,209	648,267	258,859	327,696	12,338	5,747,104
1962 ..	1,775,977	1,847,725	231,335	496,564	254,377	305,108	12,241	4,923,327
1963 ..	1,609,639	2,197,725	194,948	470,202	273,500	333,650	6,896	5,086,560
1964 ..	1,610,063	1,911,475	179,422	547,354	274,812	276,650	5,085	4,804,861

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

(vi) *Exports.* Under normal conditions, hay, whether whole or in the form of chaff, is somewhat bulky for oversea trade, and consequently does not figure largely among Australian exports. During 1963–64 exports amounting to 2,743 tons, valued at £56,368, were made, principally to Singapore, Malaya, and Hong Kong. There were no imports of hay in 1963–64.

2. **Green Fodder.**—(i) *General.* 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 live stock 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 live stock. The principal crops cut for green fodder are oats, wheat and lucerne, while small quantities of barley, sorghum, maize, rye and sugar cane are also used in this way. In 1963–64 the area under green fodder (4,876,788 acres) consisted of oats (2,035,327 acres), lucerne (1,933,660 acres), wheat (201,294 acres), barley (144,010 acres), sorghum (113,534 acres), maize (32,919 acres), rye (15,788 acres), sugar cane (2,551 acres), and other crops (397,705 acres). Particulars concerning the area of green fodder in the several States during each of the years 1959–60 to 1963–64 are given in the following table.

GREEN FODDER: AREA

(Acres)

Season	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	A.C.T.	Aust.
1959–60 ..	1,578,759	422,237	725,155	595,713	708,793	62,229	220	968	4,094,074
1960–61 ..	1,691,408	430,920	874,702	743,538	606,039	59,563	138	1,247	4,407,555
1961–62 ..	1,829,867	539,020	864,461	787,388	622,067	57,000	558	1,197	4,701,558
1962–63 ..	1,900,130	477,432	912,018	927,807	667,890	64,940 (a)	314	1,106	4,951,637
1963–64 ..	1,973,637	430,781	1,010,570	971,594	417,519	71,004 (a)	422	1,261	4,876,788

(a) Not comparable with statistics prior to 1962–63.

In the 1963–64 season green fodder ranked second to wheat in area of crops throughout Australia. A graph showing the area sown to green fodder appears on page 1003 of this Year Book.

(ii) *Value of Green Fodder Crops.* The value of these crops is variously estimated in the several States, but the Australian total, excluding Western Australia, may be taken as approximately £9,600,000 for the 1962–63 season and £10,500,000 for the 1963–64 season.

3. Ensilage.—(i) *General.* 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 connexion with the design of the silos and the cutting and packing of the ensilage.

(ii) *Production and Stocks.* Information regarding production and farm stocks of ensilage for the years ended 31st March, 1960 to 1964, is given in the following table.

ENSILAGE: PRODUCTION AND FARM STOCKS

(Tons)

Period	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	A.C.T.	Aust.
Production during—								
1959–60 season ..	202,821	281,566	60,129	19,744	73,265	46,933	90	684,548
1960–61 ,, ..	256,459	303,198	51,198	100,727	50,911	72,344	80	834,917
1961–62 ,, ..	196,625	261,884	73,838	52,451	51,364	77,781	700	714,643
1962–63 ,, ..	210,653	295,914	63,489	64,206	48,806	68,117	290	751,475
1963–64 ,, ..	222,126	252,837	53,160	88,183	37,238	43,760	270	697,574
Farm stocks at—								
31st March, 1960 ..	404,777	201,584	136,317	21,773	51,807	50,671	330	867,259
,, ,, 1961 ..	499,244	231,315	117,749	79,269	43,518	46,570	80	1,017,745
,, ,, 1962 ..	567,801	181,383	139,788	68,614	37,224	60,157	1,305	1,056,272
,, ,, 1963 ..	602,585	263,440	146,286	63,315	37,415	61,110	1,768	1,175,919
,, ,, 1964 ..	565,457	185,115	139,691	78,997	29,709	43,554	1,108	1,043,631

§ 5. Industrial Crops

1. Sugar Cane.—(i) *General.* 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. Considerable areas in more southern coastal districts of New South Wales previously devoted to this crop are now used for dairying owing to the uncertainty of rainfall.

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 fertilizers, lime, etc., and by producing and distributing improved varieties of cane.

(ii) *Sugar Agreements and Marketing Arrangements.* (*a*) *In Australia.* In Year Book No. 37, pages 940–1, a summary was 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 is for the period from 1st September, 1961 to 31st August, 1967. The Commonwealth Government appointed a Committee of Enquiry in 1960 to investigate all facets of the sugar and canned fruits industries. The Committee presented its report, publication of which was restricted to a summary of conclusions and recommendations, in 1961. There was no variation of the consequent agreement.

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.

Up to the end of 1961 exports were limited by the export quota provisions of the International Sugar Agreement, but these provisions have not been operative since then (*see* (*b*) 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 a uniform price paid to mills.

In 1963 a Queensland Government Committee of Enquiry recommended that the industry should expand production to 2.26 million tons (of 94 net titre sugar) by 1965–66, of which New South Wales might produce 132,000 tons. This recommendation has been implemented.

(*b*) *International Sugar Agreement.* The International Sugar Agreement of 1937 was superseded by the International Sugar Agreements of 1953 and 1958. Details of the 1937 and 1953 Agreements were given in Year Books No. 40, pages 881–2, and No. 48, page 936, respectively.

The 1958 Agreement, which came into operation on 1st January, 1959, established basic export quotas for exporting countries. The British Commonwealth was allocated a total quota, the distribution of which remained a matter for internal arrangement by the countries and territories concerned (*see* (*c*), p. 1022). The Australian quota for 1960 and 1961 was approximately 651,000 tons per annum.

The quota and price provisions of the International Sugar Agreement were subject to review before 31st December, 1961. A conference in Geneva in 1961 failed to reach agreement on quota provisions for 1962 and 1963. The conference adjourned with a resolution that it be reconvened if circumstances became favourable for an agreement on quotas.

The principal practical effect of the adjournment of the 1961 conference was that former export limitations on participating exporting countries, including Australia, did not apply until such time as agreement on this question was again reached at a resumed session of that conference, or at a newly convened conference.

The question of convening a United Nations conference to consider re-introduction of an agreement with quota provisions was deferred at a meeting of the International Sugar Council in April, 1963. The 1958 Agreement, in its restricted form, was extended by protocol until 31st December, 1965. The report of a preparatory committee appointed to study the basis and possible framework of a new agreement was considered at a Council meeting in November, 1964, when the question of convening a United Nations conference was again deferred.

(c) *British Commonwealth Sugar Agreement.* On 1st January, 1953, the British Commonwealth Sugar Agreement became effective. This agreement, which has been extended to 1972, provides for Australia to export to preferential markets a maximum of 600,000 tons per annum. Of the 600,000 tons, 335,000 tons are purchased by the United Kingdom Government at an annually negotiated price and the balance is sold at world market prices plus tariff preferences where applicable. The negotiated price for 1963 and 1964 was £Stg.46 0s. 10d. per ton bagged c.i.f. U.K. Following a variation in the basis of determination, the price for 1965 has been fixed at £Stg.42 bulk f.o.b. and stowed.

(iii) *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 15th May, 1960, a rebate of £2 4s. per ton of refined sugar used in processing approved fruit products was paid to Australian manufacturers, provided they bought the fresh fruit at prices not lower than those declared by the Committee as reasonable. This was increased to £5 per ton from 16th 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 Australian sugar 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 made from Australian fresh fruit purchased on or after 14th March, 1963, has been made conditional upon such fruit having been purchased at not less than the prices (if any) which the Committee had declared to be reasonable at the time of purchase.

Under the Sugar Agreement for 1961–67, the Queensland Government contributes to the fund £264,000 annually, reimburses the Committee for the actual expenditure on export sugar rebates, and by a supplementary agreement operating from 1st 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.

Because the price of sugar on the world free market in late 1963 was so high that the rates of export sugar rebate determined monthly under the Sugar Agreement were nil, the sugar industry has made such payments, *ex gratia*, as have been necessary to maintain export sugar rebates at a minimum of £25 per ton and £30 per ton respectively on the cane sugar content of approved fruit products and other approved products exported on or after 1st November, 1963.

(iv) *Bulk Handling of Sugar.* The total conversion of the Australian sugar industry to bulk handling and mechanized loading and unloading of raw sugar has now been accomplished, except for the operation of a bagging station specially provided at Townsville to meet the needs of a few oversea 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 and an addition have been completed at Bundaberg. A third shed at Mackay and second sheds at Lucinda and Townsville are in course of construction.

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.

(v) *Area.* A brief outline of the development of the industry was included in earlier issues of the Year Book (*see* No. 38, p. 985). The area of sugar cane in Australia for the seasons 1959–60 to 1963–64 and the averages for the three-year periods ended 1938–39, 1948–49 and 1958–59 are shown in the following table.

SUGAR CANE: AREA(a)
(Acres)

Season	New South Wales			Queensland			Australia			
	Area crushed	Area of stand-over and newly-planted cane	Area cut for plants	Area crushed	Area of stand-over and newly-planted cane	Area cut for plants	Area crushed	Area of stand-over and newly-planted cane	Area cut for plants	Total
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—										
1959–60	14,248	10,510	392	299,732	151,114	11,039	313,980	161,624	11,431	487,035
1960–61	13,657	11,385	568	327,246	110,704	11,574	340,903	122,089	12,142	475,134
1961–62	14,655	11,299	482	372,223	87,831	12,339	386,878	99,130	12,821	498,829
1962–63	14,109	12,656	495	387,477	80,438	11,313	401,586	93,094	11,808	506,488
1963–64	15,508	14,204	594	402,060	93,149	13,205	417,568	107,353	13,799	538,720

(a) Excludes areas cut for green fodder.

The areas shown in the preceding table do not include the small acreage cut for green fodder, which in 1963–64 amounted to 2,551 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.

(vi) *Production of Cane and Sugar.* The production of sugar cane in 1963–64 was 12.1 million tons, which was 4.9 per cent. below the record production in 1962–63. A graph showing the production of sugar appears on page 995 of Year Book No. 49.

In the following table production data relating to cane and raw sugar are shown for the seasons 1959–60 to 1963–64 together with averages for the three-year periods ended 1938–39, 1948–49 and 1958–59.

SUGAR CANE: PRODUCTION OF CANE AND RAW SUGAR
(Tons)

Season	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—						
1959–60	574,527	70,677	8,427,731	1,217,803	9,002,258	1,288,480
1960–61	480,147	62,978	8,685,426	1,319,633	9,165,573	1,382,611
1961–62	555,858	67,448	9,020,734	1,315,393	9,576,592	1,382,841
1962–63	637,310	79,733	12,098,582	1,770,084	12,735,892	1,849,817
1963–64	617,402	75,980	11,500,672	1,648,273	12,118,074	1,724,253

(a) Raw sugar at 94 net titre.

(vii) *Average Production of Cane Sugar.* Owing to climatic variations, the crop in New South Wales matures in from 20 to 24 months, whereas in Queensland a period of from 12 to 16 months is sufficient. The average yields of cane and sugar per acre for the years 1959–60 to 1963–64 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

(Tons)

Season	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—									
1959–60	40.32	4.96	8.13	28.12	4.06	6.92	28.67	4.10	6.99
1960–61	35.16	4.61	7.62	26.54	4.03	6.58	26.89	4.06	6.63
1961–62	37.93	4.60	8.24	24.23	3.53	6.86	24.75	3.57	6.93
1962–63	45.17	5.65	7.99	31.22	4.57	6.84	31.71	4.61	6.88
1963–64	39.81	4.90	8.13	28.60	4.10	6.98	29.02	4.13	7.03

(viii) *Production and Utilization.* Details of the production and utilization of sugar for the years 1959–60 to 1963–64 are shown below. Consumption is shown in terms of refined sugar, including that consumed in manufactured products.

SUGAR: PRODUCTION AND UTILIZATION, AUSTRALIA

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.
1959–60	+25.6	1,270.6	725.2	18.6	501.2	110.4
1960–61	−10.3	1,324.8	815.6	21.0	498.5	107.4
1961–62	− 4.8	1,404.2	862.5	18.0	528.5	111.6
1962–63	+112.0	1,831.6	1,175.8	17.8	526.0	109.0
1963–64	−131.9	1,578.7	1,156.0	18.2	536.4	109.0

(*a*) Includes allowance for estimated sugar content of imported foodstuffs. (*b*) Includes sugar content of manufactured products exported. (*c*) Includes refining losses and quantities used in golden syrup and treacle. (*d*) Includes sugar content of manufactured products consumed.

(ix) *Consumption in Factories.* The quantity of refined sugar used in factories in 1963–64 amounted to 369,882 tons compared with 325,436 tons in 1962–63 and 309,577 tons in 1961–62. Particulars of sugar used in establishments not classified as factories are not available, and consequently these quantities are deficient to that extent. In 1963–64 consumption by factories engaged in the production of jams, jellies and preserved fruit amounted to 97,750 tons, by those producing confectionery, ice cream, etc., to 127,272 tons, by breweries to 46,529 tons, and by factories producing aerated waters, cordials, etc., to 532,266 tons.

(x) *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.

(xi) *Sugar Prices and Returns.* The prices of sugar in Australia, from 1959 to 1963 in the case of raw sugar, and from 1960 to 1963 in the case of refined sugar (as determined under the Sugar Agreement in Australia—*see* para. ii (*a*), p. 1021), are shown in the following table.

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*)			
	£ s. d.	£ s. d.	£ s. d.		£ s. d.	d.
1959 ..	56 8 6	40 6 2	47 9 11	14.5.56 to 15.5.60	81 10 0	10
1960 ..	62 10 6	39 19 6	49 2 1	16.5.60	90 5 2	11
1961 ..	62 9 6	37 15 0	48 4 4			
1962 ..	62 11 0	41 1 10	47 19 10			
1963 ..	61 0 0	65 12 2	63 19 8			

(*a*) Includes " excess " sugar.

Details of the disposal of the crop, net value of exports and the average price realized during each of the years 1959–60 to 1963–64 are shown in the following table.

RAW SUGAR(*a*): NET RETURNS, AUSTRALIA

(*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.	£ s. d.	£ s. d.	£'000
1959–60	55.42	40 6 2	47 9 11	61,131
1960–61	59.53	39 19 6	49 2 1	67,869
1961–62	57.66	37 15 0	48 4 4	66,653
1962–63	67.85	41 1 10	47 19 10	88,748
1963–64	64.70	65 12 2	63 19 8	110,290

(*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, but including concessions to the fruit industry and other rebates which in 1963–64 amounted to £1,123,000. 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.

(xii) *Exports of Sugar.* Particulars of the exports of Australian-produced cane sugar (raw and refined) for each year from 1959–60 to 1963–64 are as follows.

RAW AND REFINED SUGAR: EXPORTS, AUSTRALIA

Particulars	1959–60	1960–61	1961–62	1962–63	1963–64
Quantity .. .. tons	701,319	796,499	843,537	1,145,966	1,116,190
Value .. £A.'000 f.o.b.	26,671	35,072	33,895	45,521	78,256

2. **Peanuts.**—(i) *General.* 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, Western Australia and the Northern Territory.

(ii) *Area and Production.* Details of the area and production of peanuts are given in the table below for the years 1959–60 to 1963–64.

PEANUTS: AREA AND PRODUCTION

Season	Area (acres)				Production (cwt.)			
	N.S.W.	Q'land	N.T.	Aust.(*a*)	N.S.W.	Q'land	N.T.	Aust.(*a*)
1959–60	837	41,547	388	42,772	10,639	360,314	4,306	375,259
1960–61	788	41,659	335	42,782	9,578	446,215	1,215	457,008
1961–62	573	33,131	307	34,011	6,003	292,267	1,343	299,613
1962–63	395	35,552	(*b*)	*c* 35,947	4,258	315,144	(*b*)	*c* 319,402
1963–64	478	44,482	(*b*)	*c* 44,960	4,744	455,982	(*b*)	*c* 460,726

(*a*) Excludes Western Australia, for which details are not available for publication. (*b*) Not available for publication. (*c*) Incomplete; excludes Northern Territory.

(iii) *Value, Consumption and Trade.* The gross value of the 1963–64 crop was £2,259,000 which was approximately £702,000 more than in 1962–63. All production is consumed in Australia.

In recent years, considerable quantities of peanut kernels have been imported. Total supplies available for consumption in Australia in 1963–64 were 21,600 tons (in shell equivalent), after allowing for an increase of 1,200 tons in stock held by the Peanut Marketing Board and exports of 100 tons of peanut products. Supplies were made up of 19,500 tons from Australian production received into store by the Board and 3,400 tons imported.

3. **Hops.**—(i) *General.* 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.

(ii) *Production and Imports.* 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 1959–60 to 1963–64. Exports of hops are not recorded separately, but are negligible.

HOPS: PRODUCTION AND DISPOSAL, AUSTRALIA

Year	Production(*a*)		Imports	Net available supplies (*b*)	Quantity used in breweries
	Quantity	Gross value			
	cwt.	£'000	cwt.	cwt.	cwt.
1959–60	31,790	1,159	..	31,790	40,357
1960–61	33,099	1,179	991	34,090	40,018
1961–62	32,936	1,242	5,569	38,505	39,000
1962–63	33,629	1,285	1,337	34,966	38,202
1963–64	19,858	767	536	20,395	37,033

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

4. Flax.—(i) *Flax for Fibre.* This crop has a winter-growing season in Australia. The whole plant, after harvesting, is retted and scutched at local mills to recover the linen fibre and tow. The seeds may be sold to oil mills and the refuse used for stock feed.

Details of the area under flax and the production of fibre are given in the following table.

FLAX FOR FIBRE: AREA AND PRODUCTION

Season	Victoria	W. Aust.	Australia
AREA (ACRES)			
1959–60	..	1,307	1,307
1960–61	430	736	1,166
1961–62	323	91	414
1962–63	419	871	1,290
1963–64	..	171	171
PRODUCTION (TONS OF FIBRE)			
1959–60	..	2,723	2,723
1960–61	592	1,176	1,768
1961–62	514	183	697
1962–63	648	2,152	2,800
1963–64	..	318	318

(ii) *Flax for Linseed.* Fibre varieties are uneconomic for seed production, and prior to 1948–49, the growing of flax for linseed oil had not been developed 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 question of assistance to the industry was investigated by the Commonwealth Tariff Board in 1953, and its conclusions are contained in its Report on *Linseed and Linseed Products* dated 23rd October, 1953.

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.

Details of the area and production of flax for linseed are shown in the following table for the seasons 1959–60 to 1963–64.

FLAX FOR LINSEED: AREA AND PRODUCTION

Season	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Aust.
AREA (ACRES)						
1959–60.. ..	11,933	24,850	60,837	1,687	186	99,493
1960–61.. ..	11,823	6,179	75,088	2,115	483	95,688
1961–62.. ..	7,266	17,711	34,390	1,513	1,253	62,133
1962–63.. ..	11,493	25,232	58,493	1,220	626	97,064
1963–64.. ..	15,335	16,240	83,336	1,002	1,588	117,501
PRODUCTION (TONS OF LINSEED)						
1959–60.. ..	2,922	7,391	16,247	191	48	26,799
1960–61.. ..	1,870	1,013	10,394	218	70	13,565
1961–62.. ..	856	6,093	5,187	275	178	12,589
1962–63.. ..	2,634	8,180	14,477	290	136	25,717
1963–64.. ..	3,722	4,758	20,342	283	411	29,516

5. **Cotton.**—(i) *General.* 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. From linters and kernels are produced such items as short-fibred cotton, cotton-seed oil for human consumption and industrial purposes, and meal cakes for stock feed. The hulls may be used as fuel.

The production of cotton in Australia was formerly restricted mainly to the coastal river valleys of Queensland. In recent years, however, it has been grown increasingly in other States, namely in the Namoi River area and Murrumbidgee Irrigation Areas of New South Wales and at the Ord River in the north-west of Western Australia.

Cotton spinning and weaving industries are referred to in Chapter VI. Manufacturing Industry.

(ii) *Cotton Bounty.* For particulars of the *Cotton Bounty Act* 1951 and amendments of 1952, 1955 and 1957, *see* page 1044 of Year Book No. 49.

Under the *Raw Cotton Bounty Act* 1963 the Commonwealth pays a bounty on raw cotton produced and sold for use in Australia at the rate of 16.125d. per lb. for Middling 1" White, with premiums and discounts on grades and staples above and below. The bounty is for a period of five years from 1st January, 1964.

(iii) *Area and Production.* In the five seasons 1959–60 to 1963–64 the area sown and quantity of unginned cotton produced have doubled. The yield per acre in the same period has fallen by 5 per cent.

The area under cultivation and the production in Australia for the years 1959–60 to 1963–64 are shown hereunder.

COTTON: AREA AND PRODUCTION, AUSTRALIA(*a*)

Season	Area sown	Production of cotton			Average yield per acre sown	
		Unginned		Ginned	Unginned	Ginned
		Quantity	Gross value			
	acres	'000 lb.	£'000	'000 lb.	lb.	lb.
1959–60.. ..	20,229	9,463	556	3,592	468	178
1960–61.. ..	37,048	15,544	917	5,540	420	150
1961–62.. ..	28,844	10,948	647	3,830	380	133
1962–63.. ..	37,689	15,762	938	5,403	418	143
1963–64.. ..	40,938	18,223	1,106	6,570	445	160

(*a*) Incomplete; excludes Victoria, Western Australia and Northern Territory, for which particulars are not available for publication.

(iv) *Consumption of Raw Cotton.* The following table shows details of the availability and actual consumption of raw cotton in Australian factories during each of the five years ended 1963–64.

RAW COTTON: PRODUCTION, IMPORTS AND CONSUMPTION, AUSTRALIA ('000 lb.)

Year	Production	Imports	Total	Consumption of raw cotton
1959–60	3,592	41,519	45,111	51,689
1960–61	5,540	41,842	47,382	45,432
1961–62	3,830	37,735	41,565	44,543
1962–63	5,403	42,543	47,946	47,930
1963–64	6,570	56,663	63,233	64,808

6. Tobacco.—(i) *General.* This summer-growing annual requires a temperate to tropical climate, adequate soil moisture and a frost-free period of approximately five months. These requirements necessarily restrict its growth to particular areas. These include the Mareeba area (northern Queensland), the neighbourhood of Texas (Queensland and New South Wales border), and near Myrtleford (Victoria). The best quality Australian tobaccos are grown in Queensland.

In Australia flue-curing is the main method of drying used.

(ii) *Marketing.* Between 9th May, 1941, and 24th September, 1948, all leaf was under the direct control of the Australian Tobacco Board, and prices were paid on leaf appraisal. Subsequently, 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 currently in 1965 a Board is being established in New South Wales. It is expected that the actual physical handling of New South Wales leaf at auction will continue to be carried out by the Queensland and Victorian authorities. A stabilization plan for the tobacco growing industry has been agreed between Commonwealth and State Governments.

The plan, which will operate initially for four years, commencing with the 1965 selling season, provides broadly for the establishment of 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 a normal crop fall-out, of 125 pence per pound.

The overall marketing quota will be divided among tobacco producing States, and the State quotas will in turn be divided among individual growers.

The plan will be administered by a Commonwealth Board representative of the Commonwealth, producing States, growers, and manufacturers.

Until the necessary legislation to establish the Board is introduced by the Commonwealth and the States concerned an Interim Committee will administer the scheme.

(iii) *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. The terms of reference of this committee are given in Year Book No. 47, page 935.

In 1955 the Committee formulated a programme for increased research and advisory activities. The capital costs of establishing this programme were estimated at £168,000, of which the Commonwealth Government and tobacco manufacturers each agreed to contribute half. Annual contributions are made to the fund by the Commonwealth and State Governments, tobacco growers, and manufacturers. A Tobacco Industry Trust Account was established to receive these contributions. This programme commenced in 1956 and since then £1,448,286 has been paid to State and Commonwealth departments for expenditure on tobacco research and extension. The allocation for 1964–65 was £288,738. As from 1st July, 1964, the annual Commonwealth contribution has been increased to one half of approved expenditure from the Tobacco Industry Trust Account; it now incorporates the Tobacco Extension Grant of £24,000 per annum.

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.

(iv) *Other Assistance and Research.* Details of the recommendations by the Tobacco Inquiry Committee and grants periodically approved by the Commonwealth Government up to 30th 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, fertilizers, crop rotation and cultural practices.

(v) *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 were increased from 3 per cent.

for cigarettes and 5 per cent. for tobacco in November, 1946, to 43 per cent. and 40 per cent. respectively from 1st July, 1962. The percentage applicable to both cigarettes and tobacco from 1st July, 1963, was 40 per cent. and from 1st July, 1964 to 31st March, 1965, 41.5 per cent. The rate from 1st April, 1965, to 30th June, 1965, is 43 per cent.; from 1st July, 1965, to 30th September, 1965, 45 per cent.; from 1st October, 1965, to 31st December, 1965, 47 per cent.; and from 1st January, 1966 onwards, 50 per cent.

In 1963–64 the quantity of cured leaf used in tobacco factories in Australia amounted to 51 million lb., of which 20 million lb. was of local origin. The balance was imported, chiefly from the United States of America and Rhodesia.

(vi) *Area and Production.* The area of tobacco in 1963–64 was 1.2 per cent. below the record area established in 1962–63. Production at 34,342,000 lb. was a record, exceeding by 15.0 per cent. the previous record established in 1960–61.

In the following table particulars of the area and production of tobacco are given by States for each of the seasons 1959–60 to 1963–64, together with averages for the three-year periods ended 1938–39, 1948–49 and 1958–59.

TOBACCO: AREA AND PRODUCTION

Season	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	Aust.
AREA (ACRES)								
Average for three years ended—								
1938–39 ..	697	4,262	3,842	77	1,055	134	(*a*)	10,067
1948–49 ..	415	1,046	1,948	..	609	..	..	4,018
1958–59 ..	1,257	3,478	7,479	..	1,295	..	(*a*)	13,509
Year—								
1959–60 ..	2,142	6,424	9,527	..	1,561	..	..	19,654
1960–61 ..	3,408	9,932	14,395	..	1,478	..	..	29,213
1961–62 ..	3,078	9,286	14,069	..	194	..	..	26,627
1962–63 ..	3,163	9,844	16,346	..	28	..	..	29,381
1963–64 ..	2,927	10,519	15,579	..	..	..	..	29,025
PRODUCTION OF DRIED LEAF ('000 lb.)								
Average for three years ended—								
1938–39 ..	471	1,603	2,173	17	741	104	(*b*)	5,109
1948–49 ..	380	670	1,725	..	523	..	..	3,298
1958–59 ..	1,066	3,770	5,563	..	1,016	..	(*b*)	11,415
Year—								
1959–60 ..	1,437	7,401	9,149	..	1,370	..	..	19,357
1960–61 ..	3,538	9,728	15,308	..	1,288	..	..	29,862
1961–62 ..	3,116	6,515	12,751	..	196	..	..	22,578
1962–63 ..	2,885	9,447	14,787	..	29	..	..	27,148
1963–64 ..	2,652	14,459	17,231	..	..	..	..	34,342

(*a*) Less than half an acre. (*b*) Less than 500 lb.

(vii) *Oversea Trade.* Imports of tobacco and tobacco manufactures into Australia during 1963–64 were valued at £13.4 million. This included 29.6 million lb. of unmanufactured tobacco valued at £10.6 million. Exports of tobacco and tobacco manufactures during 1963–64 were valued at £889,893, including Australian produce, £760,692.

§ 6. Vegetables for Human Consumption

1. **Area, Production and Trade.**—(i) *General.* 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.

(ii) *Area and Production of Fresh Vegetables.* Details of the areas planted and production of individual kinds of vegetables are shown on p. 1031 for the seasons 1961–62 to 1963–64. 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.*

FRESH VEGETABLES FOR HUMAN CONSUMPTION: AUSTRALIA

Vegetable	1961–62		1962–63		1963–64	
	Area sown	Production	Area sown	Production	Area sown	Production
	acres	tons	acres	tons	acres	tons
Asparagus	3,263	5,179	3,523	5,503	3,994	6,197
Beans, French and runner	18,239	30,641	18,429	32,373	17,969	33,065
Beans, navy	1,930	440	2,488	876	5,423	1,026
Beetroot	2,102	14,811	1,992	15,882	1,859	14,432
Cabbages and brussels sprouts	5,585	58,472	5,867	62,748	6,190	66,147
Carrots	5,212	51,796	5,204	55,380	5,446	58,478
Cauliflowers	6,404	72,786	6,659	76,811	6,631	72,677
Celery	679	9,987	735	10,849	740	10,272
Cucumbers	1,501	6,507	1,725	7,428	1,679	7,790
Lettuces	4,636	20,904	4,799	21,390	4,823	21,991
Onions	9,412	58,323	10,765	68,219	9,222	59,278
Parsnips	1,491	13,374	1,354	12,682	1,316	12,698
Peas, blue	3,956	2,830	5,710	3,407	5,165	2,656
Peas, green	58,399	88,025	52,926	79,046	50,971	74,229
Potatoes	94,443	525,981	113,742	666,596	101,987	562,032
Tomatoes	17,305	140,339	16,506	129,044	16,356	135,815
Turnips, swede and white	1,859	12,269	1,268	9,116	1,418	9,380
All other	30,734	..	34,804	..	35,651	..
Total	**267,150**	..	**288,496**	..	**276,840**	..

(iii) *Processed Vegetables.* Total production of canned vegetables in 1963–64 amounted to 144,070,000 lb., the principal types produced being green peas (excluding mint-pro peas), 21,007,000 lb.; green beans, 8,891,000 lb.; baked beans (including pork and beans), 34,599,000 lb.; asparagus, 12,514,000 lb.; beetroot, 20,997,000 lb.; and mushrooms, 5,676,000 lb.

The production of dehydrated vegetables during 1963–64 amounted to 609,450 lb., while the production of potato crisps, chips and flakes was 13,882,000 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 primarily of 10,131,000 lb. of peas and 2,540,000 lb. of beans. In 1963–64 production had risen to 56,476,000 lb., of which 37,839,000 lb. were peas and 9,781,000 lb. were beans.

(iv) *Consumption of Vegetables.* Details of the estimated consumption of vegetables for a series of years ending 1963–64 are shown in Chapter XXX. Miscellaneous.

(v) *Exports and Imports of Vegetables (values in £A. f.o.b.).* The quantity and value of oversea exports of pulse and fresh vegetables during 1963–64 were respectively:—pulse, 9,560 tons, £431,463; fresh onions, 3,547 tons, £125,013; potatoes, 12,722 tons, £321,430; other vegetables, 4,420 tons, £489,277. Imports of pulse amounted to 7,136 tons, valued at £598,385, while imports of fresh vegetables in total were 5,911 tons, valued at £787,616.

In 1963–64 exports of vegetables preserved in liquid consisted of:—asparagus, 2,543,792, lb., £172,834; beans (including baked), 430,702 lb., £31,831; peas, 242,421 lb., £17,984; tomatoes, 227,888 lb., £16,152; other vegetables, 534,038 lb., £50,959.

2. **Potatoes.**—(i) *General.* This crop requires deep friable soils, which in Australia are usually basaltic, alluvial, or swampy in origin. Fertilizer 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.

(ii) *Marketing.* 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.

(iii) *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. Until 1958–59 Tasmania (where production is mainly in the north-west) came next in order of acreage sown, although production exceeded that of Victoria in some of the war years. Since then, however, acreage in New South Wales and Queensland has increased considerably and there is now a greater area of potatoes in both of these States than in Tasmania. In New South Wales, production is chiefly in the tablelands districts.

The area sown, production, and yield per acre of potatoes in each State during the years 1959–60 to 1963–64 and the averages for the three-year periods ended 1938–39, 1948–49 and 1958–59 are shown hereunder. A graph showing production since 1935–36 appears on page 996 of Year Book No. 49.

POTATOES: AREA, PRODUCTION AND YIELD PER ACRE

Season	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	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—									
1959–60 ..	19,159	48,506	12,311	5,872	6,964	15,525	(a)	67	b 108,404
1960–61 ..	18,365	38,672	11,992	5,209	6,656	10,875	(a)	36	b 91,805
1961–62 ..	20,209	36,469	14,466	5,316	6,824	11,129	(a)	30	b 94,443
1962–63 ..	27,420	43,024	16,994	5,918	6,499	13,839	6	42	113,742
1963–64 ..	24,352	39,626	15,886	5,459	5,835	10,806	(a)	23	b 101,987
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—									
1959–60 ..	81,908	242,548	51,468	48,923	56,000	98,000	(a)	360	b 579,207
1960–61 ..	85,182	180,819	59,311	40,797	45,500	39,050	(a)	134	b 450,793
1961–62 ..	83,301	196,032	70,675	48,479	55,700	71,560	(a)	234	b 525,981
1962–63 ..	132,969	254,473	86,239	53,253	56,900	82,545	5	212	666,596
1963–64 ..	98,308	200,384	90,201	51,195	55,402	66,420	(a)	122	b 562,032
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—									
1959–60 ..	4.28	5.00	4.18	8.33	8.04	6.31	(a)	5.37	(b) 5.34
1960–61 ..	4.64	4.68	4.95	7.83	6.84	3.59	(a)	3.72	(b) 4.91
1961–62 ..	4.12	5.38	4 89	9 12	8.16	6 43	(a)	7 80	(b) 5.57
1962–63 ..	4.85	5.91	5.07	9.00	8.76	5.96	0.83	5.05	5.86
1963–64 ..	4.04	5 06	5 68	9 38	9.49	6 15	(a)	5 30	(b) 5.51

(a) Not available for publication. (b) Incomplete; excludes Northern Territory.

(iv) *Gross Value.* The estimated gross value of the potato crop of each State for the 1963–64 season and the value per acre are shown in the following table.

POTATOES: VALUE OF CROP, 1963-64

Particulars		N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	A.C.T.	Aust.
Aggregate value ..	£'000	2,019	7,792	1,633	1,170	1,840	2,154	5	16,613
Value per acre ..	£	83	197	103	214	315	199	217	163

(v) *Consumption.* The annual consumption of potatoes in Australia during each of the three years 1961–62 to 1963–64 amounted to 459,600 tons, 594,300 tons, and 500,600 tons respectively, or 97.1 lb., 123.1 lb., and 101.7 lb. respectively per head of population. These figures exclude the quantities used for seed, which averaged about 53,000 tons annually over this period.

(vi) *Exports.* Details showing exports for the years 1959–60 to 1963–64 are given in the following table.

POTATOES: EXPORTS, AUSTRALIA

Particulars	1959–60	1960–61	1961–62	1962–63	1963–64
Quantity .. .. tons	4,742	5,219	4,121	15,819	12,722
Value .. £A.'000 f.o.b.	134	195	160	425	321

The increased exports in 1962–63 and 1963–64 were due principally to increased shipments to Singapore, Ceylon, French Possessions, Pacific Islands and Hong Kong. Imports of potatoes into Australia are usually negligible.

3. **Onions.**—(i) *Area, Production, and Yield per Acre.* Until recently Australia's onion supply came chiefly from Victoria. However, during the last five years Victorian production has not been as great as formerly, and in 1960–61, and again in 1963–64, it was exceeded by Queensland. 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 consists mainly of brown varieties. Details of the area, production and yield per acre are given in the following table for the years 1959–60 to 1963–64 together with averages for the three-year periods ended 1938–39, 1948–49 and 1958–59. A graph showing production since 1935–36 appears on page 996 of Year Book No. 49.

ONIONS: AREA, PRODUCTION AND YIELD PER ACRE

Season	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	A.C.T.	Aust.
AREA (ACRES)								
Average for three years ended—								
1938–39 ..	126	5,634	1,187	521	122	8	6	7,604
1948–49 ..	433	6,245	2,234	534	468	26	4	9,944
1958–59 ..	491	4,614	3,655	635	413	29	9	9,846
Year—								
1959–60 ..	697	3,994	3,550	641	392	29	12	9,315
1960–61 ..	624	3,532	3,763	657	465	59	10	9,110
1961–62 ..	490	4,456	3,173	753	479	60	(*a*)	(*b*) 9,412
1962–63 ..	800	4,634	3,796	944	509	79	(*a*)	(*b*)10,765
1963–64 ..	682	3,756	3,317	930	446	91	(*a*)	(*b*) 9,222
PRODUCTION (TONS)								
Average for three years ended—								
1938–39 ..	324	34,039	3,040	3,904	915	42	21	42,285
1948–49 ..	1,703	41,156	10,489	5,032	3,831	153	24	62,388
1958–59 ..	2,496	31,982	15,505	5,625	4,599	132	71	60,410
Year—								
1959–60 ..	3,658	27,808	14,708	5,644	4,830	135	39	56,822
1960–61 ..	3,935	16,286	21,156	5,947	5,826	285	80	53,515
1961–62 ..	3,082	23,784	17,921	6,915	6,290	327	(*a*)	(*b*)58,323
1962–63 ..	5,185	26,175	21,184	8,531	6,622	515	(*a*)	(*b*)68,219
1963–64 ..	4,998	17,946	20,412	8,736	6,814	372	(*a*)	(*b*)59,278
YIELD PER ACRE (TONS)								
Average for three years ended—								
1938–39 ..	2.57	6.04	2.56	7.49	7.50	5.25	3.50	5.56
1948–49 ..	3.93	6.59	4.70	9.42	8.19	5.88	6.00	6.27
1958–59 ..	5.08	6.93	4.24	8.86	11.14	4.55	7.89	6.14
Year—								
1959–60 ..	5.25	6.96	4.14	8.80	12.32	4.66	3.25	6.10
1960–61 ..	6.31	4.61	5.62	9.05	12.52	4.83	8.00	5.87
1961–62 ..	6.29	5.34	5.65	9.18	13.13	5.45	(*a*)	(*b*) 6.20
1962–63 ..	6.48	5.65	5.58	9.04	13.01	6.52	(*a*)	(*b*) 6.34
1963–64 ..	7.33	4.78	6.15	9.39	15.28	4.09	(*a*)	(*b*) 6.43

(*a*) Not available for publication. (*b*) Includes a small area and production in Northern Territory but excludes Australian Capital Territory.

(ii) *Gross Value.* The estimated gross value of the onion crop and the value per acre are shown in the following table for the 1963–64 season.

ONIONS: VALUE OF CROP, 1963-64

Particulars	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	A.C.T.	Aust.
Aggregate value £'000	165	569	677	398	222	17	(a)	(a)	(b) 2,048
Value per acre £	242	151	204	428	498	187	(a)	(a)	(b) 222

(a) Not available for publication. (b) Incomplete; excludes Northern Territory and Australian Capital Territory.

(iii) *Consumption.* The consumption of onions in Australia during 1963–64 was 58,800 tons or 12.0 lb. per head of population.

(iv) *Exports.* Onions are the only root crop, other than potatoes, in which any considerable oversea trade is carried on by Australia. In 1963–64 exports amounted to 3,547 tons, valued at £125,013, and were shipped mainly to Singapore, Japan, and New Caledonia. The quantity of exports in 1962–63 was 7,097 tons, valued at £208,328. Imports of onions amounted to 3,035 tons, valued at £122,010 in 1963–64, and 59 tons, valued at £2,276 in 1962–63. The principal country from which onions were imported was New Zealand.

§ 7. Fruit and Vineyards

1. **Fruit.**—(i) *General.* 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, are grown extensively, the balance of the area being mainly taken up with pears and apricots.

(ii) *Oversea Marketing of Fruit.* (*a*) *Apples and Pears.* The *Apple and Pear Organization Act* 1938–1964 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* 1938–1960.

The function of the Board is the organization 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.

(*b*) *Canned Fruit.* The *Canned Fruits Marketing Act* 1963, which was introduced in January, 1964, replaced the *Canned Fruits Export Control Act* 1926–1959 under which the oversea marketing of canned fruit was initially organized (*see* Year Book No. 49, p. 1050). The Australian Canned Fruits Board, which is constituted under the Act, determines the terms and conditions for oversea 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 1963 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* 1926–1963 provides for a levy on exports to meet the Board's expenses, which include contributions to oversea 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 oversea sales of canned deciduous fruit.

In 1959 the Australian Canned Fruits 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 processers of canning fruit and a representative of the Commonwealth Government.

(iii) *Area and Production of Fruit.* The area under fruit in Australia has been increasing steadily in recent years, and new record levels have been reached each year since 1961–62. Increases were recorded in all States in 1963–64. The following table sets out the area under fruit in the several States for the seasons 1959–60 to 1963–64.

FRUIT: AREA

(Acres)

Season	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	A.C.T.	Aust.
1959–60 ..	93,870	68,567	42,587	37,355	23,757	22,713	98	57	289,004
1960–61 ..	92,962	71,415	41,067	37,711	23,913	22,194	120	55	289,437
1961–62 ..	94,246	72,712	41,872	38,548	24,487	21,859	136	65	293,925
1962–63 ..	98,032	75,855	43,242	40,444	25,204	21,943	136	55	304,911
1963–64 ..	98,670	76,796	44,681	41,686	25,670	22,134	149	54	309,840

The next table shows the acreage (bearing and not-bearing) of the principal kinds of fruit and the quantities produced in the 1963–64 season.

FRUIT, 1963-64

Fruit	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	A.C.T.	Aust.
AREA, BEARING AND NOT-BEARING (ACRES)									
Apples ..	18,743	22,887	12,570	5,862	15,126	17,621	..	50	92,859
Apricots ..	2,074	4,015	470	4,520	316	495	..	..	11,890
Bananas ..	23,387	..	5,882	..	397	..	43	..	29,709
Cherries ..	2,714	1,891	13	550	37	51	..	..	5,256
Citrus—									
Oranges ..	28,195	6,695	3,616	15,933	4,719	..	53	..	59,211
Mandarins ..	2,408	410	2,018	557	462	..	5	..	5,860
Lemons and limes ..	2,422	1,297	490	492	675	..	7	..	5,383
Other ..	635	314	70	508	131	..	6	..	1,664
Nuts	176	426	257	3,409	134	..	..	..	4,402
Peaches ..	7,907	14,802	1,882	4,690	904	52	..	(*a*)	(*b*)30,237
Pears ..	3,200	16,773	1,154	2,027	1,080	1,636	..	(*a*)	(*b*)25,870
Pineapples ..	160	..	10,903	..	..	..	23	..	11,086
Plums ..	1,903	1,889	1,462	400	1,036	86	..	..	6,776
Prunes ..	3,075	347	..	753	9	3	..	..	4,187
Small fruit ..	34	1,074	266	125	16	2,159	..	..	3,674
Other fruit ..	1,637	3,976	3,628	1,860	628	31	12	4	11,776
Total ..	98,670	76,796	44,681	41,686	25,670	22,134	149	54	309,840
PRODUCTION									
Apples '000 bus.	3,329	3,299	1,481	1,341	1,287	8,545	..	3	19,285
Apricots ,, ,,	220	353	36	929	36	36	..	..	1,610
Bananas ,, ,,	4,497	..	684	..	141	..	2	..	5,324
Cherries ,, ,,	200	110	(*c*)	54	1	5	..	..	370
Citrus —									
Oranges ,,	4,508	1,134	616	2,084	391	..	2	..	8,735
Mandarins ,,	203	37	214	41	27	..	(*c*)	..	522
Lemons and limes ,,	435	106	104	36	124	..	1	..	806
Peaches ,, ,,	1,313	1,828	159	979	84	3	..	(*d*)	(*b*) 4,366
Pears ,, ,,	727	4,771	113	524	156	625	..	(*d*)	(*b*) 6,916
Pineapples ,, ,,	25	..	4,419	..	..	..	1	..	4,445
Plums ,, ,,	164	137	124	33	95	16	..	..	569
Prunes ,, ,,	392	19	..	58	1	(*c*)	..	..	470

(*a*) Not available for publication; included with Other fruit. (*b*) Incomplete; excludes the Australian Capital Territory. (*c*) Less than 500 bushels. (*d*) Not available for publication.

(iv) *Principal Fruit Crops.* The area and production of the principal fruit crops and the gross value of production during the seasons 1959–60 to 1963–64 are shown hereunder.

PRINCIPAL FRUIT CROPS: AREA, PRODUCTION AND GROSS VALUE OF PRODUCTION

Season	Apples	Apricots	Bananas	Oranges	Peaches	Pears	Plums and prunes
AREA, BEARING AND NOT-BEARING (ACRES)							
1959–60	85,269	12,059	31,708	49,328	26,376	23,684	10,569
1960–61	86,882	11,945	29,870	50,626	26,883	23,935	10,665
1961–62	87,571	11,461	29,180	53,623	29,627	25,338	10,839
1962–63	91,380	11,847	30,392	57,301	30,226	25,945	10,828
1963–64	92,859	11,890	29,709	59,211	30,237	25,870	10,963
PRODUCTION ('000 BUSHELS)							
1959–60	14,069	1,546	4,915	7,450	2,916	5,268	904
1960–62	15,487	1,323	4,830	6,244	2,471	5,360	930
1961–61	17,127	1,869	4,876	8,168	3,962	6,567	961
1962–63	18,349	1,913	4,832	9,307	4,003	5,667	1,043
1963–64	19,285	1,610	5,324	8,735	4,366	6,916	1,039
GROSS VALUE OF PRODUCTION (£'000)							
1959–60	17,174	2,013	7,613	7,407	3,293	5,361	1,579
1960–61	20,643	1,935	7,715	9,470	3,470	6,592	1,828
1961–62	20,003	2,877	8,631	9,597	4,767	7,204	1,661
1962–63	21,003	2,648	9,177	9,876	4,774	6,380	1,613
1963–64	22,431	2,401	8,221	10,417	5,042	7,450	2,018

(v) *Production 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 1963–64 output of jams, conserves, fruit spreads, etc., amounted to 90,462,000 lb., while output of preserved fruit amounted to 471,290,000 lb. Of the latter figure, pears accounted for 154,360,000 lb., peaches 155,959,000 lb., and pineapples 50,056,000 lb.

The recorded consumption of fruit in factories for all purposes, including that used for juice and cordial manufacture and for drying, was 326,000 tons in 1963–64.

(vi) *Consumption of Fruit and Fruit Products.* Details of the estimated consumption of fruit and fruit products per head of population for a series of years ending 1963–64 are shown in Chapter XXX. Miscellaneous.

(vii) *Imports and Exports of Fruit.* (*a*) *General.* The imports of fresh fruit into Australia are negligible, while those of dried fruit consist mainly of dates.

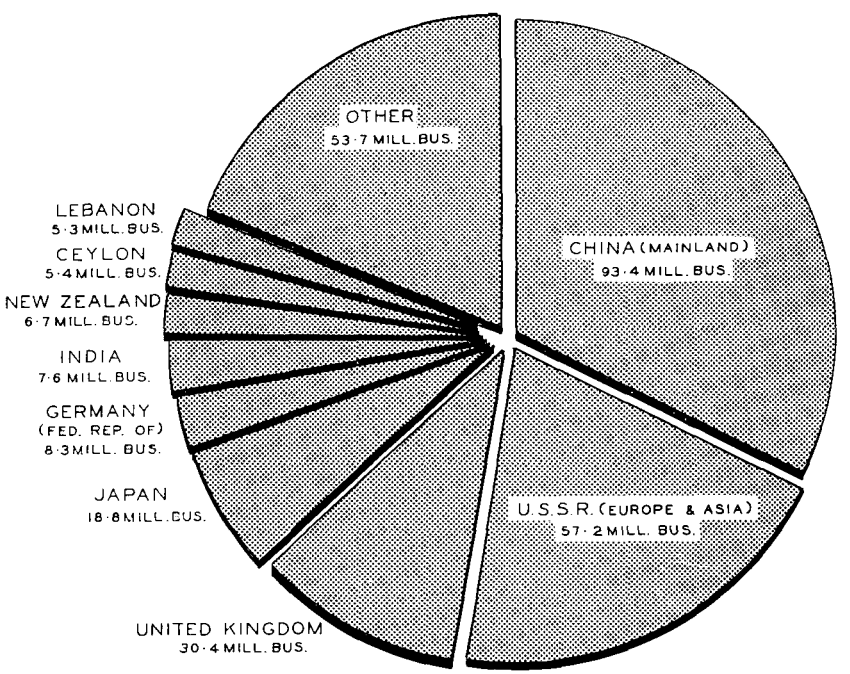
A considerable export trade in both fresh and dried fruit is carried on by Australia with oversea countries. The values (£A. f.o.b.) of the shipments in 1963–64 amounted to £16,579,000 and £10,523,000 respectively. Apples constitute the bulk of the fresh fruit exported, although exports of pears and citrus fruit are considerable.

(*b*) *Fresh Fruit.* Particulars of the Australian export trade in fresh and frozen fruit for each of the years 1959–60 to 1963–64 are shown in the following table.

WHEAT: EXPORTS FROM AUSTRALIA

INCLUDING FLOUR IN TERMS OF WHEAT

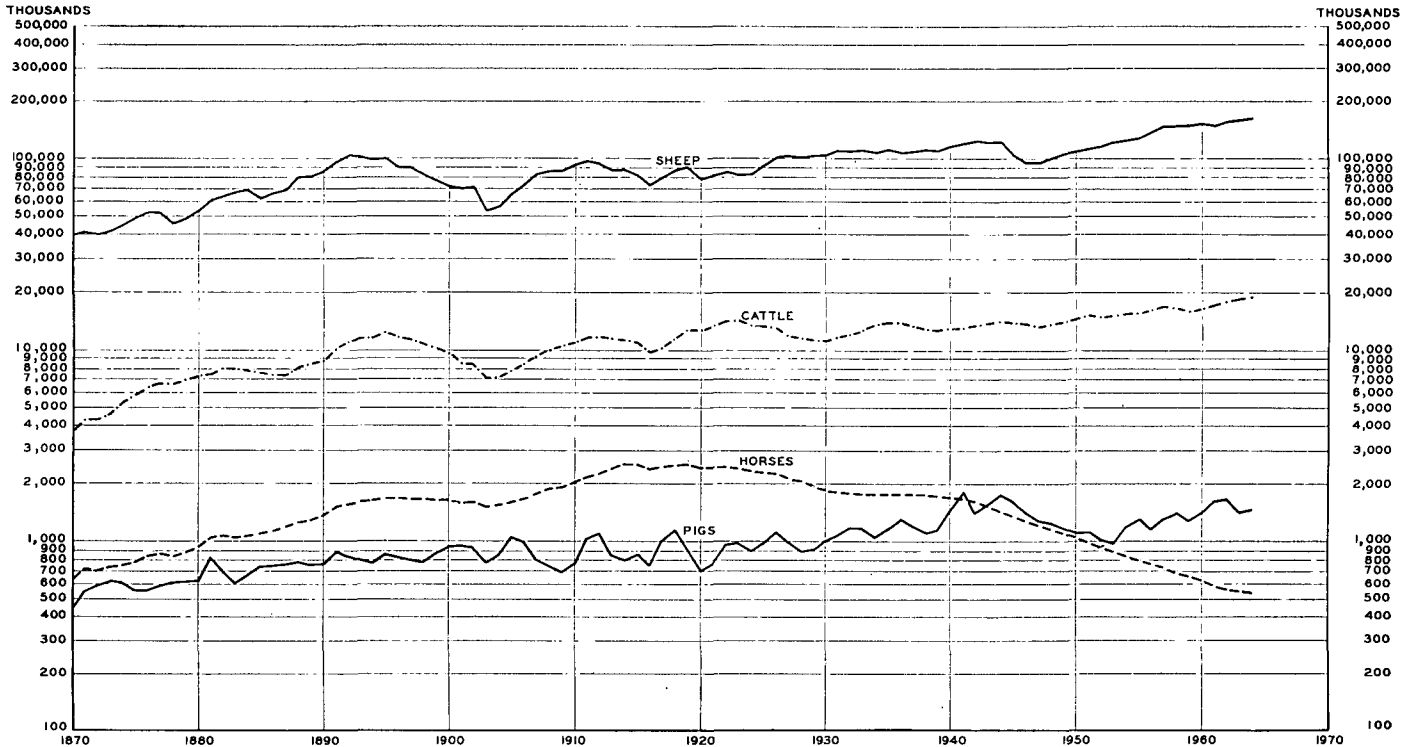
1963 - 64



TOTAL: 286·8 MILLION BUSHELS

LIVESTOCK: AUSTRALIA, 1870 TO 1964

RATIO 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.

FRESH AND FROZEN FRUIT: EXPORTS, AUSTRALIA

Year	Apples		Pears		Citrus		Total value(a)
	Quantity	Value	Quantity	Value	Quantity	Value	
	'000 bus.	£A.'000 f.o.b.	'000 bus.	£A.'000 f.o.b.	'000 bus.	£A.'000 f.o.b.	£A.'000 f.o.b.
1959–60	4,889	6,123	1,328	1,970	589	918	9,294
1960–61	5,729	7,321	1,235	2,080	419	664	10,369
1961–62	7,083	9,396	1,639	2,575	673	1,086	13,363
1962–63	7,207	11,645	1,071	1,750	861	1,283	14,985
1963–64	8,212	12,018	1,666	2,647	961	1,493	16,579

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

(c) *Dried Tree Fruit.* The quantity and value of oversea imports and exports of dried fruit, other than raisins and currants, for the years 1959–60 to 1963–64 are shown below. Normally, the bulk of the imports consists of dates obtained almost entirely from Iraq and Iran. The export figures include particulars of some re-exported dried fruit.

DRIED TREE FRUIT(a): IMPORTS AND EXPORTS, AUSTRALIA

Year	Imports(b)		Exports	
	Quantity	Value	Quantity	Value
	'000 lb.	£A.'000 f.o.b.	'000 lb.	£A.'000 f.o.b.
1959–60	10,791	310	6,221	703
1960–61	9,178	303	8,199	932
1961–62	8,266	314	5,961	782
1962–63	8,939	296	6,611	952
1963–64	10,262	302	8,555	1,001

(a) Excludes raisins and currants dealt with separately under Vineyards (*see* below). (b) Dates and figs only.

(d) *Jams and Jellies.* Exports of jams and jellies in 1963–64 were 11,774,000 lb., valued at £A.811,000 f.o.b., compared with 10,160,000 lb., valued at £A.705,000 f.o.b. in 1962–63. Imports of jams and jellies in 1963–64 were 1,432,000 lb., valued at £A.135,000, compared with 1,581,000 lb., valued at £A.138,000 in 1962–63.

(e) *Preserved Fruit (values in £A. f.o.b.).* The total value of fruit preserved in tins or other airtight containers, or pulped, imported into Australia during 1963–64 was £201,112. Large quantities of fruit preserved in tins or other airtight containers are normally exported from Australia, the quantity recorded in 1963–64 being 126,786 tons valued at £17,117,653. Exports in 1963–64 were made up principally of pears (54,858 tons), peaches (48,339 tons), pineapples (6,099 tons), and apricots (5,055 tons). In addition, the exports of pulped fruits during 1963–64 amounted to 1,713 tons valued at £291,782.

2. **Vineyards.**—(i) *General.* Grapes require a warm to hot climate and a predominantly winter rainfall. Freedom from late spring frosts is essential.

Grapes 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 localized areas in the other States.

(ii) *Area of Vineyards.* The area under vineyards in the 1963–64 season in Victoria and South Australia constituted 77 per cent. of the total area of vineyards. The total area of vines in the several States during each of the years 1959–60 to 1963–64 and the averages for the three-year periods ended 1938–39, 1948–49 and 1958–59 are shown in the following table.

VINEYARDS: AREA

(Acres)

Season	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Aust.(a)
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—						
1959–60	17,236	44,129	3,083	56,853	8,951	130,252
1960–61	16,988	44,649	3,110	56,897	8,864	130,508
1961–62	17,607	45,105	3,203	57,836	9,017	132,768
1962–63	17,704	45,662	3,237	58,266	8,685	133,554
1963–64—						
Wine	8,051	5,486	274	45,890	4,004	63,705
Table	2,830	2,842	3,002	288	1,244	10,206
Drying	7,834	38,173	..	12,501	3,381	61,889
Total	**18,715**	**46,501**	**3,276**	**58,679**	**8,629**	**135,800**

(a) Excludes particulars for Northern Territory and Australian Capital Territory, which are not available for publication.

NOTE.—There are no vineyards in Tasmania.

(iii) *Wine Industry.* (a) *General.* Australia produces wine of every type and also brandy. Five years ago the production of fortified wines such as sherries and ports was double that of table wines. During the past five to ten years consumption of all types of table wines, such as burgundy, claret, riesling, sauterne and sparkling wines, has increased rapidly, and in 1963–64 production of table wines was estimated at 7.6 million gallons compared with 10.4 million gallons of sherry and sweet wines.

Details of the Wine Research Trust Fund are given in Year Book No. 47, page 927.

(b) *Oversea Marketing of Wine. The Wine Overseas Marketing Act* 1929–1963 was introduced to place the oversea 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* 1929–1957 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 Board has no other source of income. 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.

(c) *Production and Consumption.* In 1963–64 the total production of wine (beverage and distillation) in Australia was 37.5 million gallons, while total consumption of beverage wine was 13.2 million gallons (1.20 gallons per head of population). Similar particulars for 1962–63 are 29.9 million gallons and 12.6 million gallons (1.16 gallons per head of population) respectively.

The quantity of wine produced in the several States during the 1959–60 to 1963–64 seasons, together with the averages for the three-year periods ended 1938–39, 1948–49 and 1958–59, are shown in the following table.

WINE: PRODUCTION(*a*)
('000 gallons)

Season	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Aust.
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—						
1959–60	3,840	2,147	37	21,576	801	28,401
1960–61	4,904	3,021	32	25,061	744	33,762
1961–62	6,442	3,605	36	30,831	822	41,736
1962–63	5,858	2,433	28	20,785	789	29,893
1963–64	6,030	3,705	33	27,102	666	37,536

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

The following table shows corresponding figures for the production of brandy.

BRANDY: PRODUCTION
(Proof gallons)

Season	South Australia	Australia(*a*)
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—		
1959–60	941,282	1,036,754
1960–61	1,044,285	1,166,978
1961–62	1,042,580	1,177,943
1962–63	994,420	1,128,997
1963–64	1,052,850	1,219,968

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

(*d*) *Exports and Imports of Wine and Brandy (values in £A. f.o.b.).* Exports in 1963–64 totalled 1,538,037 gallons, of which the United Kingdom received 1,054,366 gallons, Canada 221,568 gallons, New Zealand 59,824 gallons, Hong Kong 23,354 gallons, and other countries 178,925 gallons. Exports of Australian-produced wine for the five years ended 1963–64 are shown in the following table.

WINE: EXPORTS FROM AUSTRALIA

Year	Quantity (gallons)			Value (£A. f.o.b.)		
	Sparkling	Other	Total	Sparkling	Other	Total
1959–60.. ..	6,436	1,738,616	1,745,052	19,625	1,245,241	1,264,866
1960–61.. ..	11,441	1,884,978	1,896,419	29,786	1,273,079	1,302,865
1961–62.. ..	5,145	1,664,984	1,670,129	17,100	1,368,930	1,386,030
1962–63.. ..	17,245	1,596,887	1,614,132	46,222	1,328,526	1,374,748
1963–64.. ..	10,373	1,527,666	1,538,037	31,059	1,341,064	1,372,123

Imports for 1963–64 amounted to 117,537 gallons valued at £233,228, compared with 90,598 gallons valued at £189,968 in the previous year. During 1963–64 Italy supplied 49,171 gallons valued at £67,774, France 25,575 gallons valued at £85,203, and the Federal Republic of Germany 10,518 gallons valued at £29,083.

Exports of Australian-produced brandy in 1963–64 amounted to 105,743 proof gallons, valued at £214,433. Imports of brandy, mainly from France, amounted to 54,879 proof gallons, valued at £174,944.

(iv) *Dried Vine Fruit Industries.* (*a*) *General.* 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.

(*b*) *Oversea Marketing of Dried Vine Fruit. The Dried Fruits Export Control Act* 1924–1964 was passed to organize oversea 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 appraisement, regulation of shipments and advertising.

The Dried Fruits Export Charges Act 1924–1964 provides for a levy on exports of dried fruit to defray costs and expenses incurred by the Board.

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

(*c*) *International Sultana Agreement.* In June, 1963, Australian, Greek and Turkish dried vine fruits industries signed a one-year agreement which aimed at stability in sultana marketing by means of a minimum price structure. The agreement was renewed in June, 1964, for a further period of two years. In terms of the agreement 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.

(*d*) *Dried Vine Fruits Stabilization Plan. The Dried Vine Fruits Stabilization Act* 1964, *Dried Vine Fruits Contribution Charges Act* 1964, and *Dried Vine Fruits Contributory Charges (Collection) Act* 1964, provide for guaranteed average prices for currants, sultanas and raisins and related matters as follows.

(i) A guaranteed average return from seasonal sales of currants, sultanas and raisins at levels equal to £5 per ton below the average cost of production of each variety.

(ii) Maximum quantities received for packing in respect of which the guaranteed average return will apply have been fixed at 13,500 tons of currants, 75,000 tons of sultanas and 11,000 tons of raisins.

(iii) Growers to contribute to separate varietal stabilization funds when the average return to the industry from seasonal sales of a variety exceed cost of production by more than £5 per ton, with a limit on such contributions of £10 per ton.

(iv) Growers not to be required to make a contribution to a stabilization fund in any season when the quantity received for packing does not reach 8,000 tons of currants, 50,000 tons of sultanas or 6,000 tons of raisins.

(v) Contributions to be made by the Commonwealth to raise average returns to the guaranteed price, when there is insufficent industry money in a stabilization fund for this purpose.

(vi) The setting of limits on the amounts to accumulate in each stabilization fund, namely £500,000 in the case of both the currant and raisin stabilization funds, and £2,000,000 in the case of the sultana stabilization fund.

(vii) Where these limits are exceeded during the operation of the plan, the excess will be distributed, firstly, to reimburse the Government for any contribution it has previously made to a fund; any balance will be repaid to growers on a first-in first-out basis.

(viii) The Government to be reimbursed at the end of the fifth year of the plan from any credit balance in a fund for any outstanding contribution previously made to that fund; in the event of the stabilization scheme not being renewed, any balance will be returned to growers on a first-in first-out basis.

(e) *Production and Disposal of Dried Vine Fruit.* As the production of dried vine fruit is far in excess of Australia's requirements, considerable quantities are available for export. Total production during the 1963-64 season amounted to 104,323 tons, while exports for the year ended December, 1964, were 76,641 tons, leaving an estimated 27,682 tons available for Australian consumption from that season's production. Australian consumption includes amounts delivered to biscuit manufacturers, bakeries, etc., as well as retail sales for household consumption.

The production of dried vine fruit during each of the seasons 1959–60 to 1963–64 and the averages for the three-year periods ended 1938–39, 1948–49 and 1958–59 are shown in the following table.

DRIED VINE FRUIT: PRODUCTION

(Tons)

Season	N.S. Wales		Victoria		South Aust.		Western Aust.		Australia	
	Raisins (a)	Currants	Raisins (a)	Currants	Raisins (a)	Currants	Raisins (a)	Currants	Raisins (a)	Currants
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—										
1959–60 ..	7,722	462	44,764	3,331	9,192	2,844	73	1,402	61,751	8,039
1960–61 ..	10,777	981	51,002	5,383	6,751	4,543	51	1,984	68,581	13,091
1961–62 ..	13,089	410	64,862	2,714	10,674	2,742	66	1,941	88,691	7,807
1962–63 ..	8,560	463	44,059	2,536	11,007	2,607	51	1,225	63,677	6,831
1963–64 ..	13,563	709	66,138	3,934	13,159	4,533	121	2,166	92,981	11,342

(a) Includes sultanas and lexias.

(f) *Exports.* The following table shows the exports of dried vine fruit during each of the years 1959–60 to 1963–64.

DRIED VINE FRUIT(a): EXPORTS, AUSTRALIA

Year	Raisins, sultanas and lexias		Currants		Total	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	£A.'000 f.o.b.	tons	£A.'000 f.o.b.	tons	£A.'000 f.o.b.
1959–60.. ..	45,634	7,726	4,540	637	50,174	8,363
1960–61.. ..	48,805	7,133	7,838	1,032	56,643	8,165
1961–62.. ..	60,169	8,955	4,564	620	64,733	9,575
1962–63.. ..	56,696	8,029	4,208	571	60,904	8,600
1963–64.. ..	57,451	8,728	5,512	801	62,963	9,529

(a) Excludes quantities exported as mincemeat.

The chief countries importing Australian dried vine fruit are the United Kingdom, Canada, New Zealand, the Federal Republic of Germany and Japan. The quantities exported to these countries in 1963–64 were 28,387 tons, 17,978 tons, 6,369 tons, 3,939 tons, and 1,352 tons respectively.

(v) *Table Grapes.* Grapes for table use are grown in all States except Tasmania, but the area of this type was only about 7 per cent. of the productive area of vines in 1963–64. The quantities of table grapes produced during the season 1963–64 in each State are shown in § 2, paragraph 2 (*see* p. 992).

PASTORAL PRODUCTION

§ 1. Introduction

1. **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 1950, and from 1960 onwards in single years, are given in the following table, and are shown continuously since 1870 on the graph on page 1038 of this Year Book.

LIVESTOCK: AUSTRALIA

('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					
1890 ..	1,522	10,300	97,881	891	1960 ..	640	16,503	155,174	1,424
1900 ..	1,610	8,640	70,603	950	1961 ..	598	17,332	152,679	1,615
1910 ..	2,166	11,745	98,066	1,026	1962 ..	562	18,033	157,712	1,652
1920 ..	2,416	13,500	81,796	764	1963 ..	547	18,549	158,626	1,440
1930 ..	1,793	11,721	110,568	1,072	1964 ..	536	19,055	164,981	1,468

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 and 1944–45 to 1946–47.

The years in which the numbers of livestock attained their peaks are as follows:—horses, 1919 (2,527,000); cattle, 1964 (19,055,000); sheep, 1964 (164,981,000); and pigs, 1941 (1,797,000).

The distribution throughout Australia of sheep, beef cattle, dairy cattle and pigs at 31st 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. As explained in paragraph 3 (page 1049), farmers are no longer asked to classify their herds as either " beef cattle " or " dairy cattle "; consequently detailed statistics of cattle for 1964 are not comparable with those for earlier years.

2. **Carrying Capacity of Pastoral Holdings.**—The carrying capacity of pastoral holdings has been increased in recent years, owing in some measure to the succession of good seasons experienced since 1946 (with the exception of the 1957–58 season, when prevailing dry conditions caused a slight decline in cattle and sheep numbers). Other important factors contributing to the progressive increase over this period have been the increased attention given to pasture improvement and the reduction of rabbit infestation, due principally to the introduction, in 1950, of the disease myxomatosis. Some information on pasture improvement in Australia was given on pages 1001–2 of Year Book No. 49.

3. **Size Classification of Cattle Herds and Sheep Flocks.**—A special series of tabulations relating to rural holdings in Australia was compiled for 1959–60 and has been published in full detail in a series of bulletins *Classification of Rural Holdings by Size and Type of Activity*, 1959–60. Tables in these bulletins relating to beef cattle, dairy cattle, and sheep, show classifications according to size of herd or flock, area of holding, area of wheat for grain, area of sown pastures, and type of activity. These data are presented by statistical division. An earlier series, prepared for the year 1955–56, presents similar data, but only by State.

4. **Value of Pastoral Production.**—(i) *Gross, Local and Net Values*, 1963–64. Values of pastoral production for each State are shown for 1963–64 in the following table. Further details of the source of the information and an explanation of the terms used in this compilation will be found in Chapter XXX. 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, 1963-64
(£'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	291,634	21,178	270,456	(b) 18,911	251,545
Victoria	191,106	18,230	172,876	11,028	161,848
Queensland	140,340	11,043	129,297	11,410	117,887
South Australia	75,233	4,082	71,151	8,162	62,989
Western Australia	74,351	4,805	69,546	7,774	61,772
Tasmania	16,422	1,015	15,407	5,624	9,783
Northern Territory ..	4,006	561	3,445	n.a.	3,445
Australian Capital Territory	1,186	77	1,109	89	1,020
Australia	**794,278**	**60,991**	**733,287**	**62,998**	**670,289**

(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.

(ii) *Net Values, 1959-60 to 1963-64.* The net value of pastoral production by State and the net value per head of population are shown below.

NET VALUE OF PASTORAL PRODUCTION(a)

Year	N.S.W.(b)	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	Aust.(c)
			NET VALUE (£'000)				
1959-60 ..	198,380	135,630	99,884	50,067	39,659	7,846	536,215
1960-61 ..	159,960	116,181	94,346	36,119	39,978	6,403	458,169
1961-62 ..	183,002	115,528	86,449	45,628	41,328	5,854	481,338
1962-63 ..	201,830	132,563	100,261	51,995	41,290	7,542	539,349
1963-64 ..	251,545	161,848	117,887	62,989	61,772	9,783	670,289
			NET VALUE PER HEAD OF POPULATION (£)				
1959-60 ..	52.3	48.1	67.6	53.6	55.3	22.8	52.8
1960-61 ..	41.3	40.2	62.7	37.7	54.8	18.3	44.1
1961-62 ..	46.4	39.1	56.6	46.6	55.4	16.4	45.4
1962-63 ..	50.3	43.9	64.7	52.1	54.0	20.9	49.9
1963-64 ..	61.6	52.4	74.9	61.7	79.0	26.7	60.8

(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. (c) Includes Northern Territory and Australian Capital Territory.

5. **Indexes of Quantum and Price of Pastoral Production, 1959-60 to 1963-64.**—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 re-valued at the unit gross value for the period 1936-37 to 1938-39. The price indexes

relate to average " prices " of farm products realized 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* Chapter XXX. Miscellaneous.

INDEXES OF QUANTUM(*a*) AND PRICE OF PASTORAL PRODUCTION: AUSTRALIA

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

Particulars	1959–60	1960–61	1961–62	1962–63	1963–64
QUANTUM(*a*) PRODUCED					
Wool	172	165	174	170	183
Other products	153	136	144	154	158
Total, Pastoral ..	*163*	*152*	*160*	*163*	*172*
Per head of population	110	100	104	104	107
PRICE					
Wool	440	397	412	449	531
Other products	500	513	433	451	480
Total, Pastoral ..	*464*	*443*	*421*	*450*	*511*

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

§ 2. Sheep

1. **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, depasturing nearly one-half of the sheep of Australia.

A map showing the distribution of sheep in Australia at 31st March, 1963, appears on page 1049 of Year Book No. 50. Graphs showing the number of sheep in Australia from 1870 onwards appear on pages 1038 and 1071 of this Year Book.

The numbers of sheep in the several States and Territories at 31st March of each year 1960 to 1964 compared with average numbers for the three-year periods ended 1939, 1949 and 1959 are shown in the following table.

SHEEP: NUMBER

('000)

Period	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	A.C.T.	Aust.
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
Year—									
1960 ..	71,000	26,597	23,332	14,025	16,412	3,494	15	299	155,174
1961 ..	68,087	26,620	22,135	14,952	17,152	3,439	16	278	152,679
1962 ..	69,498	27,533	22,125	16,415	18,314	3,531	10	286	157,712
1963 ..	70,021	27,472	22,811	15,737	18,727	3,570	9	279	158,626
1964 ..	71,764	28,413	24,337	16,403	20,165	3,600	10	289	164,981

Except when affected by drought, the relative numbers of sheep in the different States have remained fairly constant in recent years. The percentage distribution in 1964 was:—New South Wales, 44; Victoria, 17; Queensland, 15; South Australia, 10; Western Australia, 12; and Tasmania, 2.

2. **Numbers of Sheep on Rural Holdings.**—(i) *Size of Sheep Flocks.* Details of the size of sheep flocks on rural holdings in Australia for 1959–60 have been published in a series of publications entitled *Classification of Rural Holdings by Size and Type of Activity*, 1959–60.

(ii) *Sheep Numbers.* The following table shows the approximate movement in sheep numbers in Australia in each year from 1959–60 to 1963–64.

SHEEP AND LAMBS: ANALYSIS OF MOVEMENT IN NUMBERS, AUSTRALIA

('000)

Season	Lambs marked	Excess of exports (*a*)	Sheep and lambs slaughtered	Estimated number of deaths from disease, drought, etc.(*b*)	Number at 31st March (end of season)	Annual net increase (+) or decrease(−)
1959–60	44,150	226	32,088	9,547	155,174	+2,489
1960–61.. ..	39,792	148	32,582	9,557	152,679	−2,495
1961–62.. ..	45,596	201	33,317	7,045	157,712	+5,033
1962–63.. ..	45,146	263	33,847	10,122	158,626	+ 914
1963–64.. ..	47,818	328	33,147	7,988	164,981	+6,355

(*a*) There were no imports in any of the years shown. (*b*) Balance figure.

3. **Classification of Sheep According to Age, Sex and Breed.**—In the following table numbers of sheep in Australia are classified according to age and sex at 31st March.

SHEEP: AGE AND SEX, AUSTRALIA

('000)

Description	1960	1961	1962	1963	1964
Rams, 1 year and over ..	1,898	1,934	1,956	1,979	1,986
Breeding ewes (including ewes intended for mating) ..	68,455	69,662	70,693	70,936	72,862
Other ewes, 1 year and over ..	9,276	8,951	8,729	8,878	8,631
Wethers, 1 year and over ..	43,046	42,912	43,021	44,267	46,203
Lambs and hoggets, under 1 year	32,499	29,220	33,313	32,566	35,299
Total, Sheep and Lambs	**155,174**	**152,679**	**157,712**	**158,626**	**164,981**

Particulars of the principal breeds of sheep at 31st March, 1962, the latest date for which these data are available (details are collected on a triennial basis), are shown in the following table.

SHEEP: PRINCIPAL BREEDS, 31st MARCH, 1962

('000)

Breed	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	A.C.T.	Aust.
Merino ..	54,096	12,116	21,754	13,772	16,902	337	10	247	119,234
Other recognized breeds ..	7,203	6,990	48	1,149	587	1,959	..	10	17,946
Merino comebacks(a) ..	1,865	2,570	74	307	215	429	..	7	5,467
Crossbreds(b) ..	6,334	5,857	249	1,187	610	806	..	22	15,065
Total ..	69,498	27,533	22,125	16,415	18,314	3,531	10	286	157,712

(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.

4. **Imports and Exports of Sheep.**—The oversea exports of live sheep from Australia are of comparatively minor importance. On 27th 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 Singapore. In 1963–64 the number of sheep exported was 327,607, valued at £1,418,000 (1962–63, 263,145, valued at £892,000). Since June, 1958, an embargo has been imposed on the import of sheep in order to prevent the introduction of the disease blue-tongue.

5. **Comparison with other Countries.**—In 1963–64 Australian flocks numbered 165 million sheep, compared with an estimate of 238 million for the U.S.S.R., China, and eastern Europe combined, about 51 million in New Zealand, and about 48 million in Argentina. World sheep numbers were estimated at about 924 million in 1963–64. These figures relate only to woolled sheep, non-woolled sheep accounting for about 5 per cent. of the world total of all types of sheep. Further details of sheep numbers in the principal wool producing countries of the world are given in the table on page 1061.

§ 3. Cattle

1. **Objects of Cattle-raising.**—Cattle-raising is carried out in all the 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.

2. **Distribution throughout Australia.**—Although cattle numbers declined after 1957 because of drought conditions and heavy slaughterings, they began to rise again in 1960, and in 1964 reached a record level of 19,055,000.

A graph showing the number of cattle in Australia from 1870 onwards appears on page 1038 of this Year Book.

The numbers of cattle in the several States and Territories in each year 1960 to 1964, compared with averages for the three-year periods ended 1939, 1949 and 1959, are shown below.

CATTLE: NUMBER

('000)

Period	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	A.C.T.	Aust.
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
Year—									
1960 ..	3,840	2,624	7,012	500	1,030	375	1,111	11	16,503
1961 ..	4,242	2,864	7,004	561	1,100	394	1,154	13	17,332
1962 ..	4,399	3,156	7,098	659	1,218	425	1,064	14	18,033
1963 ..	4,569	3,225	7,233	679	1,298	444	1,087	14	18,549
1964 ..	4,789	3,301	7,402	694	1,299	450	1,105	15	19,055

Although the proportion was not as high as it has been in some previous years, Queensland was carrying 39 per cent. of the cattle in Australia in 1964. The percentage in each State and Territory during that year was:—New South Wales, 25; Victoria, 17; Queensland, 39; South Australia, 4; Western Australia, 7; Tasmania, 2; and Northern Territory, 6.

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

3. **Classification of Cattle.**—Following an investigation into the adequacy of the wording and arrangement of the cattle sections of the statistical forms used for recent Agricultural, Dairying and Pastoral Censuses, certain changes were made to the forms used for the Census conducted at 31st March, 1964.

Prior to 1964 farmers were asked to classify their herds as either " beef cattle " or " dairy cattle ". These two terms tended to cause confusion between breed and purpose, and in those instances where vealer production was carried on in association with dairying farmers were in doubt how to classify part or all of their herds.

On 31st March, 1964, farmers were asked to classify their cattle according to the two main purposes of (i) milk production, and (ii) meat production, irrespective of breed, and to report separately the number of cows and heifers kept for their own domestic milk supply. Consequently detailed statistics of cattle for 1964 are not comparable with those for earlier years. However, four broad groupings of cattle are generally comparable with earlier years, and particulars for each year from 1960 to 1964 are shown below.

CATTLE: NUMBER

('000)

31st March—	Bulls one year and over	Cows and heifers one year and over	Calves under one year	Other	Total
1960	312	9,667	3,329	3,195	16,503
1961	347	10,124	3,561	3,300	17,332
1962	366	10,543	3,872	3,252	18,033
1963	379	10,936	4,079	3,155	18,549
1964	377	11,138	4,254	3,286	19,055

CATTLE: PURPOSE(a), AGE AND SEX, 31st MARCH, 1964

('000)

Classification.	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T. (b)	A.C.T.	Aust.
Bulls (1 year and over) used or intended for service—									
Dairy	22	40	21	7	5	4	(c)	(c)	99
Beef breeds	67	32	105	10	22	4	37	1	278
Total	*89*	*72*	*126*	*17*	*27*	*8*	*37*	*1*	*377*
Cattle used or intended for production of—									
Milk or cream for sale—									
Cows—In milk	574	879	544	97	46	141	1	1	3,078
Dry	169	306	185	63	72			(c)	
Heifers—Springing (within 3 months of calving)	190	300	183	24	26	40	(c)	(c)	821
Other (1 year and over)				27	31				
Calves (under 1 year)	153	307	137	41	37	43	(c)	(c)	718
Milk or cream for use on rural holdings—									
House cows and heifers	116	34	43	8	10	6	(d)	1	(e) 218
Total	*1,202*	*1,826*	*1,092*	*260*	*222*	*230*	*1*	*2*	*4,835*
Cattle for other purposes(f)—									
Cows and heifers (1 year and over)	1,837	672	3,034	221	525	89	636	7	7,021
Calves (under 1 year)(g)	1,103	466	1,335	130	242	79	177	4	3,536
Other (1 year and over) i.e. steers, bullocks, speyed cows, etc.	558	265	1,815	66	283	44	254	1	3,286
Total	*3,498*	*1,403*	*6,184*	*417*	*1,050*	*212*	*1,067*	*12*	*13,843*
Total Cattle and Calves for All Purposes	**4,789**	**3,301**	**7,402**	**694**	**1,299**	**450**	**1,105**	**15**	**19,055**

(a) Collected according to this classification for the first time in 1964. *See* text on p. 1049. (b) As at 30th June, 1964. (c) Less than 500. (d) Not available separately. (e) Incomplete: excludes Northern Territory. (f) Mainly for meat production. (g) Includes vealers, and bull calves intended for service.

For beef cattle and dairy cattle numbers up to 1963 *see* pp. 1056 and 1078 respectively of Year Book No. 50.

Details of size of cattle herds on rural holdings in Australia for 1959–60 have been published in a series of publications entitled *Classification of Rural Holdings by Size and Type of Activity*.

4. **Cattle and Beef Research Schemes.**—In May, 1960, legislation was enacted to provide for a Commonwealth scheme for an expanded programme of research into the scientific, technical and economic problems connected with the Australian beef industry.

Funds are raised by a levy on all cattle weighing over 200 lb. dressed which are slaughtered for human consumption, and the Commonwealth provides a matching contribution on a £1 for £1 basis to meet expenditure on new research. The scheme is administered by the Australian Cattle and Beef Research Committee, whose main function is to formulate plans for projects on which the funds may be expended. The research is undertaken by existing bodies such as the universities, C.S.I.R.O. and State Departments of Agriculture.

The Minister for Primary Industry has approved a research programme of just over £1,000,000 for 1965–66. This is approximately the same amount as in the previous year.

At its first meeting in June, 1960, the Committee agreed to recommend to the Minister for Primary Industry that the levy be fixed at the maximum provided in the Act, namely 2s. a head. The levy was operative from 1st July, 1960. It was suspended in October, 1960, as a result of a High Court writ being issued by certain meat operators challenging the validity of the Act. Amending legislation was enacted in October, 1961, and the levy again became operative from the 14th October, 1961. The Acts covering the research arrangements and collection of the levy are the *Cattle and Beef Research Act* 1964, and the *Livestock Slaughter Levy Collection Act* 1964. The *Cattle Slaughter Levy (Suspension) Act* 1961 covers the suspension of levy from 14th October, 1960, to 13th October, 1961.

5. **Imports and Exports of Cattle.**—In 1963–64 the number of cattle exported was 7,634, valued at £307,000 (1962–63, 8,969 valued at £283,000). The bulk of the animals at present being exported are sent to Hong Kong for slaughtering, the number exported thereto in 1963–64 being 5,333 head valued at £144,418.

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.

6. **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: NUMBER IN VARIOUS COUNTRIES

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

('000)

Country	Year and month	Number(*a*)
India(*b*)	1962 (May)	236,000
United States of America	1964 (January)	106,488
U.S.S.R.	1964 (January)	85,000
Brazil	1963 (December)	81,115
China (Mainland)(*b*)	1960 (December)	65,400
Argentina	1964 (June)	41,500
Pakistan(*b*)	1961 (Estimate)	30,300
Mexico	1964 (Spring)	24,500
Ethiopia	1963 (Estimate)	22,000
France	1963 (October)	20,249
Australia	**1964 (March)**	**19,055**
Colombia	1963 (October)	15,800
Turkey(*b*)	1963 (December)	13,150
Germany, Federal Republic of	1963 (December)	13,014
South Africa	1959 (August)	11,300

(*a*) Subject to revision. (*b*) Includes buffaloes.

§ 4. Horses

1. **Distribution throughout Australia.**—About 80 per cent. of the horses in Australia are in the States of New South Wales, Victoria and Queensland. In the following table figures are shown for each State and Territory for the years 1960 to 1964.

HORSES: NUMBER

('000)

Year	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	A.C.T.	Aust.
1960 ..	204	81	234	30	41	11	38	1	640
1961 ..	192	65	224	27	40	9	40	1	598
1962 ..	168	61	217	25	40	9	41	1	562
1963 ..	166	58	212	25	39	8	38	1	547
1964 ..	163	56	206	(*a*) 25	39	8	38	1	(*b*) 536

(*a*) Estimated. (*b*) *See* footnote (*a*) to South Australia.

The number of horses in Australia reached a peak of 2,527,000 in 1919. Since then it has declined, because of mechanization of transport and farming, at an average rate of 44,000 a year. A graph showing the number of horses in Australia since 1870 appears on page 1038 of this Year Book.

The percentage distribution of the number of horses in each State and Territory for 1964 was:—New South Wales, 30; Victoria, 10; Queensland, 39; South Australia, 5; Western Australia, 7; Tasmania, 2; and Northern Territory, 7.

2. **Oversea Trade in Horses.**—Exports of horses in 1963–64 numbered 482, valued at £476,569 (Australian produce 421 for £368,994, re-exports 61 for £107,575), made up of horses for breeding (100 valued at £134,307), horses for racing (205 valued at £295,324, shipped principally to the United States of America and Singapore), and horses for other purposes (177 valued at £46,938).

Horses imported into Australia for breeding purposes in 1963–64 (184 valued at £416,045) were mainly from the United Kingdom and New Zealand, while horses for racing purposes (495 valued at £483,773 in 1963–64) were mainly from New Zealand. The total number imported in 1963–64 was 698 valued at £905,225.

§ 5. Pastoral Products: Wool

1. **General.**—With about one-sixth of the world's woolled sheep, Australia produces almost one-third of the world's wool and more than half of the world's fine-quality Merino wool. The bulk of the production is exported, mainly as greasy wool, although substantial amounts of scoured and carbonized 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 1061.

2. **Earlier Wool Marketing Schemes.**—Details of past 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.

3. **Auction System.**—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 recognized 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 woolgrowers, 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 over fifty countries.

4. **Wool Marketing Committee of Inquiry.**—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, which set up the Australian Wool Board.

5. **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* p. 1054) 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 1st May, 1963, it took over the functions of the Australian Wool Bureau. On 1st July, 1963, the Australian Wool Testing Authority became part of the Board, and on 1st 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 organizational changes carried out under the Wool Industry Act, the functions of the Board embrace the following activities.

(i) *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.

(ii) *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.

(iii) *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.

(iv) *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.

(v) *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.

(vi) *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, pp. 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.

6. **The Australian Wool Industry Conference.**—This body was formed by woolgrowers in October, 1962, to meet the need for an organization with sufficient authority to speak on behalf of the woolgrowing industry as a whole. It is not a statutory body and consists at present of 50 members and an independent chairman, 25 of the members being appointed by the Australian Woolgrowers' and Graziers' Council and 25 by the Australian Wool and Meat Producers' Federation.

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* para. 7) 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.

7. **Wool Levy.**—Since 1936 a statutory levy has been collected from woolgrowers to finance wool promotion activities. The initial rate of 6d. a bale was increased at the request of woolgrowers to 2s. a bale in 1945 and 4s. 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 2s. a bale.

In 1960 the wool promotion levy was raised to 5s. a bale, and the following year it was increased further to 10s. a bale. The operation of this rate was subsequently extended for 1962–63 and 1963–64.

On 1st July, 1964, the basis of collecting the woolgrowers' combined levy for wool promotion and research was changed from the existing unit charge per bale to a percentage of the gross sale value of the wool. The maximum rate was set at 2 per cent. and provision was made for annual adjustments to the operative rate, not greater than that maximum, to yield the required amounts. At the same time the levy for wool promotion was increased from 10s. a bale to the equivalent of 27s. a bale, but the levy for research remained unchanged at the equivalent of 2s. a bale. For 1964–65 the rate for the combined levy for wool promotion and research was set at 1⅞ per cent.

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 (*see* pp. 907–8.).

8. **Commonwealth Government's Contributions to Wool Research and Promotion.**—Since 1945 the Commonwealth Government has contributed to wool research on a statutory basis. Originally the contribution was equivalent to 2s. a bale. This was increased to 4s. a bale in 1957 and has remained unchanged since then.

Until 1964–65 the Commonwealth Government had not contributed to wool promotion, but in that year began contributing at the rate of about £4,250,000 a year. This was the result of a request from the Australian Wool Industry Conference to the Government in July,1963, for assistance to the Australian Wool Board to finance its vastly increased commitments to the International Wool Secretariat (*see* p. 1053) for wool promotion overseas. The Secretariat had announced a 5-year plan of expanded wool promotion activities that envisaged an increase in the Australian Wool Board's share of contributions to the Secretariat from its then £2,500,000 to about £10,000,000 a year.

The Government agreed in October, 1963, to match £1 for £1 any increase in the growers' levy for promotion in excess of their current levy of 10s. a bale for that purpose. In January, 1964, the Conference agreed to increase the growers' levy to the equivalent of 27s. a bale, which resulted in a Government commitment of 17s. a bale. In terms of aggregate quantities this commitment required a Commonwealth Government contribution of about £4,250,000 a year, to commence in 1964–65. This will be reviewed after 3 years.

9. **Wool Production.**—(i) *General.* 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 Realization 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 55.8 per cent. and 57.7 per cent.

Wool scoured, washed and carbonized 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 carbonized includes a large proportion of dirty and low-grade wool. In recent years it has approximated 50 per cent. The quantity of this wool exported during 1963–64 was about 11 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.

(ii) *Production.* 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* para. 8 (iii), p. 1056). In general, however, South Australia obtains from its large-framed Merinos a much heavier fleece per sheep than the Australian average, while Tasmania generally obtains from its predominantly non-Merino flocks a lighter fleece per sheep. 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 1959–60 to 1963–64 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 page 1071 of this Year Book.

PRODUCTION OF WOOL (GREASY BASIS)

('000 lb.)

Period	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	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—									
1959–60 ..	715,445	322,999	236,196	198,289	170,442	33,600	165	2,899	1,680,035
1960–61 ..	664,276	322,011	235,590	177,413	191,353	31,870	157	2,471	1,625,141
1961–62 ..	701,168	330,716	230,333	206,985	192,161	34,469	98	2,645	1,698,575
1962–63 ..	693,734	316,705	233,638	207,344	184,123	34,561	100	2,343	1,672,548
1963–64 ..	731,316	334,288	255,386	210,500	216,574	34,007	91	2,552	1,784,714

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 (about 2 per cent.), or is exported on skins (about 7 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 realized 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

Period	Shorn (incl. 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	53,425
1948–49	902,007	50,660	60,265	1,012,932	152,536
1958–59	1,411,424	36,804	81,490	1,529,718	394,145
Year—					
1959–60	1,529,362	38,929	111,744	1,680,035	389,761
1960–61	1,472,092	37,509	115,540	1,625,141	340,430
1961–62	1,546,318	36,192	116,065	1,698,575	372,554
1962–63	1,515,932	32,854	123,762	1,672,548	400,262
1963–64	1,631,962	28,688	124,064	1,784,714	511,721

(iii) *Average Fleece Weight.* The average weights of sheep and lamb fleeces shorn in each of the States and Territories of Australia are shown in the following table for each season from 1959–60 to 1963–64.

AVERAGE WEIGHT OF FLEECES SHORN (SHEEP AND LAMBS)

(lb.)

State or Territory	1959–60	1960–61	1961–62	1962–63	1963–64
SHEEP					
New South Wales	10.10	9.48	10.06	9.94	10.19
Victoria	10.06	10.24	10.17	9.59	10.09
Queensland	10.09	9.93	9.89	9.83	10.41
South Australia	12.31	12.12	12.86	12.29	12.89
Western Australia	10.32	11.37	10.90	10.09	11.46
Tasmania	9.10	8.89	9.39	9.44	9.14
Northern Territory	9.39	9.00	8.50	10.94	10.36
Australian Capital Territory	10.53	9.18	9.87	8.88	9.59
Australia	**10.31**	**10.12**	**10.41**	**10.11**	**10.60**
LAMBS					
New South Wales	3.22	3.31	3.30	3.34	3.39
Victoria	2.73	2.96	2.92	2.82	2.76
Queensland	3.95	4.16	3.89	3.85	3.99
South Australia	3.39	3.55	3.81	3.63	3.71
Western Australia	2.56	2.84	2.84	2.55	2.91
Tasmania	2.13	2.30	2.23	2.35	2.12
Northern Territory	..	..	2.33	5.00	4.34
Australian Capital Territory	1.56	1.56	1.66	1 80	1.61
Australia	**3.10**	**3 27**	**3.25**	**3.20**	**3.26**

(iv) *Classification of Wool According to Quality.* The following table provides a detailed analysis of wool sold at auction, according to quality, for the years 1959–60 to 1963–64. 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

(Bales of approximately 300 lb.)

Predominating quality	1959–60		1960–61		1961–62		1962–63		1963–64	
	Quantity	Per cent.	Quantity	Per cent.	Quantity	Per cent.	Quantity	Per cent.	Quantity	Per cent.
70's and finer	113,234	2.4	122,534	2.7	115,434	2.4	138,238	3.0	132,620	2.7
64/70's ..	453,823	9.5	462,764	10.0	381,683	8.0	413,195	8.9	373,658	7.6
64's ..	659,126	13.8	633,919	13 8	572,549	12.1	582,315	12.5	567,559	11.6
64/60's ..	506,001	10.6	451,905	9.8	475,487	10.0	469,010	10.1	482,770	9.9
60/64's ..	1,071,961	22.4	947,627	20.5	1,048,912	22.1	1,043,674	22.4	1,149,957	23.4
60's and 60/58's ..	839,919	17.5	829,601	18.0	915,501	19.3	854,771	18.4	964,274	19.7
Total, 60's and finer	*3,644,064*	*76.2*	*3,448,350*	*74.8*	*3,509,566*	*73.9*	*3,501,203*	*75.3*	*3,670,838*	*74.9*
58's ..	491,277	10.3	555,237	12.0	578,588	12.2	527,493	11.3	566,904	11.6
56's ..	375,391	7.9	354,287	7.7	383,238	8.1	353,344	7.6	382,384	7.8
50's ..	152,056	3.2	140,457	3.0	146,657	3.1	135,256	2.9	141,638	2.9
Below 50's ..	46,429	1.0	43,552	0.9	49,875	1.1	45,631	1.0	45,675	0.9
Oddments ..	68,202	1.4	73,246	1.6	75,708	1.6	86,058	1.9	92,622	1.9
Grand Total	4,777,419	100.0	4,615,129	100.0	4,743,632	100.0	4,648,985	100.0	4,900,061	100.0

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

10. **Price and Value.**—(i) *Price.* During 1963–64 the price of greasy wool sold in the selling centres of Australia averaged 69.7d. per lb. compared with the average price of 59.0d. per lb. in 1962–63 and 54.1d. per lb. in 1961–62.

The prices quoted above are as compiled by the National Council of Wool Selling Brokers and represent the average price realized for all greasy wool, of whatever type or quality, marketed during the years indicated.

(ii) *Value.* Fluctuation in Australian wool prices has a marked effect on the nation's rural and national income. In 1945–46 the gross value of wool production was £58,597,000, representing 17.4 per cent. of the gross value of production of all rural industries, while in 1950–51, when prices reached a peak, wool was valued at £651,902,000 or 55.6 per cent. of the total value of production for all rural industries. The value of wool production fluctuated considerably in subsequent years. In 1963–64 it was £511,721,000, 29.9 per cent. of the gross value of production of rural industries.

Details of the value of wool production for the years 1959–60 to 1963–64 are shown in the following table.

ESTIMATED GROSS VALUE OF TOTAL WOOL PRODUCTION(a)

(£'000)

Season	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.(b)	A.C.T.	Aust.
1959–60 ..	168,112	75,952	54,573	42,691	39,334	8,254	35	810	389,761
1960–61 ..	138,881	69,265	50,859	35,242	38,312	7,229	28	614	340,430
1961–62 ..	154,920	74,219	50,637	42,900	41,260	7,876	18	724	372,554
1962–63 ..	166,170	79,006	57,731	46,257	41,494	8,886	20	698	400,262
1963–64 ..	208,417	104,350	70,729	56,705	59,931	10,676	25	888	511,721

(a) Includes shorn, dead and fellmongered wool and wool exported on skins. (b) Estimated.

11. **Stocks of Wool.**—Stocks of raw wool held in Australia at 30th June, 1964, amounted to 257.1 million lb. (greasy basis), of which 61.2 million lb. (37.6 million lb. as greasy and 23.6 million lb. as scoured and carbonized) were held by woollen mills, wool scourers and fellmongers, and 195.9 million lb., assumed to be all greasy, were held by brokers. Of the wool held by brokers, 66.1 million lb. were unsold wool and 129.8 million lb. were sold wool held awaiting shipment. These stocks exclude wool on skins, since this wool is not recorded as production until fellmongered in Australia or exported on skins.

12. **Consumption of Wool.**—(i) *Consumption of Raw Wool.* Statistics of raw wool consumption published in recent years for the purposes of broad international comparisons are based on the quantities of scoured or carbonized wool used on the woollen and worsted systems (mill consumption), plus quantities used in such processes as felting. Consumption estimates compiled on this basis have obvious defects, as they disregard oversea trade in semi-processed wool (e.g. tops and yarns) as well as woollen goods. Estimates of raw wool used on the woollen and worsted systems and by felt manufacturers in Australia are shown in the following table for the years 1959–60 to 1963–64.

ESTIMATED CONSUMPTION OF RAW WOOL IN AUSTRALIA

('000 lb.)

Year	Greasy basis			Clean equivalent		
	Used on woollen and worsted systems	Used for felt manufacture (including hats)	Total	Used on woollen and worsted systems	Used for felt manufacture (including hats)	Total
1959–60	123,529	5,092	128,621	75,226	2,419	77,645
1960–61	104,801	3,896	108,697	63,414	1,851	65,265
1961–62	117,555	4,328	121,883	70,682	2,056	72,738
1962–63	125,796	2,274	128,070	74,227	1,080	75,307
1963–64	133,252	3,370	136,622	78,627	1,601	80,228

(ii) *Consumption of Locally Processed Wool.* As considerable quantities of tops, noils and yarn are exported from Australia, the series on raw wool consumption shown above is over-stated to this extent. The series entitled "Estimated Consumption of Locally Processed Wool in Australia" provides a more reliable indication of wool consumption in Australia, as allowance has been made for exports of wool in semi-processed form. This series is shown in the following table for the years 1959–60 to 1963–64. Briefly, the series measures consumption of wool in terms of yarn used in Australian mills and other factories to produce woollen cloth and other woollen goods, yarn used for hand knitting purposes, and scoured wool used for felt manufacture. No allowance has been made for oversea trade in woollen piece goods, clothing, etc., because of the obvious difficulties of estimating accurately the wool content of these products.

ESTIMATED CONSUMPTION OF LOCALLY PROCESSED WOOL IN AUSTRALIA

('000 lb.)

Year	Greasy basis				Clean equivalent			
	Worsted yarn used (*a*)(*b*)	Woollen yarn used (*b*)	Scoured wool used for felt manufacture (including hats)	Total	Worsted yarn used (*a*)(*b*)	Woollen yarn used (*b*)	Scoured wool used for felt manufacture (including hats)	Total
1959–60 ..	44,314	36,327	5,092	85,733	26,390	22,723	2,419	51,532
1960–61 ..	40,315	32,268	3,896	76,479	24,516	20,034	1,851	46,401
1961–62 ..	45,173	28,885	4,328	78,386	26,543	17,876	2,056	46,475
1962–63 ..	47,312	32,568	2,274	82,154	27,341	19,869	1,080	48,290
1963–64 ..	47,254	36,827	3,370	87,451	27,306	22,471	1,601	51,378

(*a*) Includes hand knitting yarns used. (*b*) Includes wool content of yarns containing a mixture of wool and other fibres.

13. **Exports of Wool.**—(i) *Quantities.* (*a*) *Greasy.* Of the total shipments in 1963–64 31 per cent. went to Japan, 17 per cent. to the United Kingdom, 10 per cent. to France, 9 per cent. to Italy, and 7 per cent. to Belgium-Luxembourg. The following table shows the quantities of greasy and slipe wool exported, and the principal countries of consignment.

EXPORTS OF GREASY AND SLIPE WOOL: AUSTRALIA

('000 lb. actual weight)

Country of consignment	1959–60	1960–61	1961–62	1962–63	1963–64
Japan	335,296	411,782	416,970	386,956	433,944
United Kingdom	266,297	217,318	207,660	204,412	229,308
France	161,844	155,378	138,483	131,769	138,798
Italy	130,516	105,790	146,369	119,409	127,556
Belgium-Luxembourg	105,974	105,023	108,699	98,572	101,699
Germany, Fed. Rep. of	70,223	60,931	66,773	74,474	86,350
U.S.S.R.	39,254	1,212	40,753	49,445	45,595
China (Mainland)	15,760	12,784	20,052	26,893	32,306
United States of America	24,323	17,234	35,024	46,314	27,590
Other	144,863	171,688	149,352	140,724	159,655
Total	**1,294,350**	**1,259,140**	**1,330,135**	**1,278,968**	**1,382,801**

(*b*) *Scoured and Washed and Carbonized.* The exports of " scoured and washed " wool, whether carbonized or not, are shown in the following table according to principal countries of consignment.

EXPORTS OF WOOL—SCOURED AND WASHED AND CARBONIZED: AUSTRALIA

('000 lb. actual weight)

Country of consignment	1959–60	1960–61	1961–62	1962–63	1963–64
United States of America	14,482	19,345	20,564	25,469	23,063
United Kingdom	24,661	20,234	15,344	17,497	17,566
Italy	8,668	7,691	9,636	8,582	8,340
Germany, Fed. Rep. of	9,406	8,470	8,267	7,314	7,517
Japan	4,345	6,105	7,055	5,796	4,891
Canada	5,375	5,339	5,470	2,981	3,398
France	3,842	4,659	5,089	4,251	3,205
China (Mainland)	10,268	4,588	7,814	4,524	3,171
Iran	811	1,853	2,322	3,173	2,428
China, Republic of (Formosa)	464	538	753	1,010	2,011
Other	18,204	18,450	16,990	21,316	12,627
Total	**100,526**	**97,272**	**99,304**	**101,913**	**88,217**

(*c*) *Tops, Noils and Waste.* Particulars of the exports of carded or combed wool, noils and waste are shown in the following table.

EXPORTS OF CARDED OR COMBED WOOL, NOILS AND WOOLWASTE: AUSTRALIA

('000 lb. actual weight)

Particulars	1959–60	1960–61	1961–62	1962–63	1963–64
Carded or combed—Tops	22,743	16,694	21,438	21,631	25,932
Other				10	177
Noils	4,017	4,372	3,957	4,794	5,006
Waste—Soft wool	5,607	2,322	2,580	3,121	2,661
Hard wool	3,193	3,088	2,154	3,181	3,448

(*d*) *Total Quantity of Exports.* The following table shows the estimated greasy and clean weights of exports of raw and semi-processed wool for the years 1959–60 to 1963–64. As the figures in the following table are in terms of " greasy " or " clean " basis, they differ from those in the preceding tables which represent actual weight shipped.

EXPORTS OF WOOL—GREASY AND CLEAN BASES: AUSTRALIA(*a*)

('000 lb.)

Particulars	1959–60	1960–61	1961–62	1962–63	1963–64
GREASY BASIS					
Raw wool—					
Greasy and slipe	1,294,598	1,259,448	1,330,343	1,279,334	1,383,271
Scoured and washed and carbonized	186,217	182,668	184,249	190,850	165,313
Exported on skins	111,744	115,539	116,065	123,762	124,064
Total	*1,592,559*	*1,557,655*	*1,630,657*	*1,593,946*	*1,672,648*
Semi-processed wool—					
Tops	41,620	30,049	40,089	41,315	49,559
Yarn	89	340	425	436	707
Grand Total	**1,634,268**	**1,588,044**	**1,671,171**	**1,635,697**	**1,722,914**
CLEAN EQUIVALENT					
Raw wool	911,389	892,824	937,919	912,148	969,008
Semi-processed wool	24,841	17,890	24,039	24,259	29,205
Total	**936,230**	**910,714**	**961,958**	**936,407**	**998,213**

(*a*) Includes re-exports.

(ii) *Total Value of Exports.* The value of wool (other than wool on sheepskins) exported from Australia during 1963–64 was 36 per cent. of the total value of exports of merchandise of Australian origin, while the proportion for the five years ended 1963–64 averaged 37 per cent. The value for the five years ended 1963–64, together with the principal countries to which wool was exported, is shown in the following table.

VALUE OF WOOL EXPORTS: AUSTRALIA(*a*)

(£'000)

Country of consignment	1959–60	1960–61	1961–62	1962–63	1963–64
Japan	95,626	105,918	114,566	111,117	141,086
United Kingdom	75,947	55,559	53,291	57,002	76,764
Italy	38,556	27,097	38,527	32,630	42,007
France	40,040	35,125	32,451	33,269	41,567
Germany, Fed. Rep. of	20,733	15,916	17,458	20,470	27,915
Belgium-Luxembourg	19,774	18,343	20,300	18,953	24,134
United States of America	12,436	10,708	16,866	22,952	20,620
U.S.S.R.	12,018	7,743	11,449	14,571	16,995
Other	71,012	58,033	67,619	68,392	89,352
Total	**386,142**	**334,442**	**372,527**	**379,356**	**480,440**

(*a*) Excludes re-exports and wool exported on sheepskins.

14. **World Sheep Numbers, Wool Production and Trade.**—(i) *Numbers and Production.* The following table shows particulars of the woolled sheep numbers and total production of wool, in terms of greasy, in the principal wool-producing countries of the world, together with estimates of world production of Merino, crossbred, and carpet type wool for the latest available years.

In 1963-64 Australia produced 31 per cent. of the world total of all types of wool, the share of all British Commonwealth countries combined representing approximately 46 per cent. The principal wool producers, other than Australia, were New Zealand with 11 per cent. of the world total, Argentina, 7 per cent., South Africa 5 per cent., and United States of America, 5 per cent. Production in the U.S.S.R., China and eastern European countries together amounted to 20 per cent. World production of wool (all types) in 1963-64 exceeded the average for the years 1934 to 1938 by approximately 1,931 million lb. or 50 per cent.

Australia's wool clip is predominantly Merino. New Zealand and Argentina produce mainly crossbred wool, while the clip of the U.S.S.R. is largely of the carpet type. World production of Merino wool in 1963-64 was 45 per cent. above the average for the years 1934 to 1938, and the production of crossbred types has risen by about 74 per cent. Carpet wool production has risen by about 28 per cent.

ESTIMATED WORLD WOOLLED SHEEP NUMBERS AND PRODUCTION OF WOOL

(*Source:* Reports published by Commonwealth Economic Committee, London)

Country	Sheep numbers (million)			Wool production (million lb.—greasy basis)		
	1961–62	1962–63	1963–64 (*a*)	1961–62	1962–63	1963–64 (*a*)
British Commonwealth—						
Australia	158	159	165	1,699	1,673	1,785
New Zealand	49	50	51	587	620	616
Other Commonwealth countries	83	84	84	278	278	273
Total	*290*	*293*	*300*	*2,564*	*2,571*	*2,674*
Foreign—						
U.S.S.R., China, eastern Europe(*b*)	241	243	238	1,144	1,147	1,151
Argentina	45	48	48	413	408	395
South Africa	36	34	34	319	300	303
United States of America ..	31	30	28	320	300	287
Uruguay	21	22	22	185	190	192
Other foreign countries ..	257	253	254	751	758	758
Total	*631*	*630*	*624*	*3,132*	*3,103*	*3,086*
Grand Total	**921**	**923**	**924**	**5,696**	**5,674**	**5,760**
Type of Wool—						
Apparel type—						
Merino				2,302	2,277	2,353
Crossbred				2,159	2,177	2,195
Carpet type				1,235	1,220	1,212

(*a*) Provisional. (*b*) Comprises Albania, Bulgaria, China and Dependencies, Czechoslovakia, East Germany, Hungary, Other Mongolia, Poland, Romania, Tibet and U.S.S.R.

(ii) *Principal Importing Countries and Sources of Supply.* The following table, prepared from information published by the Commonwealth Economic Committee, furnishes, in respect of the principal importing countries, details of their production and imports of wool for 1963 together with the chief sources of supply. The quantities imported refer to the actual weight of wool, without distinguishing between greasy and scoured, except in the case of the United States of America, where estimated clean content of raw wool is quoted.

WOOL: PRINCIPAL IMPORTING COUNTRIES AND SOURCES OF SUPPLY, 1963

(*Source:* Information published by Commonwealth Economic Committee, London)

(Million lb.)

Importing country	Production of importing country (*a*)	Quantity imported from— (*b*)					Total imports
		Australia	New Zealand	Argentina	South Africa	Other countries	
United Kingdom ..	131	241.5	156.8	46.4	34.2	151.0	629.9
Japan	(*c*)	424.7	41.0	23.9	25.2	11.5	526.3
France	56	152.7	103.9	35.6	48.9	20.1	361.2
Italy	32	124.4	42.2	28.8	36.2	72.2	303.8
Germany, Federal Republic of ..	(*c*)	75.2	38.3	25.8	34.2	61.1	234.6
Belgium	(*c*)	95.5	40.6	18.7	10.6	42.3	207.7
United States of America(*d*) ..	300	44.9	82.6	53.9	20.8	74.5	276.7

(*a*) Greasy basis, 1962–63. (*b*) Actual weight of greasy and scoured wool. (*c*) Not available. (*d*) Imports are in terms of estimated clean content of greasy and scoured wool. Actual weight of total United States of America imports was 367.9 million lb.

As a considerable transit trade exists between European countries, it must not be assumed that the whole of the imports recorded by these countries is retained for their own consumption. The countries chiefly concerned with the transit trade are the United Kingdom and Belgium.

§ 6. Pastoral Products: Meat

1. **General.**—(i) *Australian Meat Board.* The Australian Meat Board, which was re-constituted under the *Meat Industry Act* 1964, is the body responsible for controlling the external marketing of Australian beef, mutton and lamb. Powers and membership of the Board prior to its re-constitution in 1964 are set out on page 801 of Year Book No. 40. The Board's primary function is to ensure that Australian meat exports are marketed in a manner which will safeguard the long-term interests of the Australian meat industry. It consists of representatives of producers, exporters and the Commonwealth Government, and an independent Chairman.

The Board regulates oversea marketing of Australian meat by means of an export licensing system. It has power of control over the kinds of meat that may be exported by licensed exporters to particular places, or to particular agents and representatives. The Board also has power to undertake measures to promote the sale and consumption of meat both in Australia and overseas, and it may purchase and sell meat in its own right for the purpose of market development. However, the exercise of this power is limited to activities aimed at meeting special marketing problems or circumstances which preclude the effective participation of private traders. The Board may also purchase and sell meat, with the approval of the Minister for Primary Industry, for the purpose of administering any international arrangements to which Australia may be a party.

(ii) *United Kingdom Long-term Purchase Arrangements.* Details of the long-term meat contracts with the United Kingdom from 1939 to 1952 and of the Fifteen Year Meat Agreement (1952–67) are given on page 710 of Year Book No. 41 and in earlier issues.

(iii) *Reversion to Private Trading.* In September, 1953, the trade in meat between the United Kingdom and Australia reverted to private traders. The main features of the arrangements were given in Year Book No. 47, page 960.

(iv) *Minimum Prices and Deficiency Payments.* Details of minimum prices operating and deficiency payments received in recent years under private trading appear in Year Book No. 48 (page 973) and No. 50 (page 1068).

(v) *Lamb Guarantee Scheme.* Since the 1962–63 lamb export season the Australian Meat Board has guaranteed exporters a minimum price on all lambs 36 lb. and under shipped to the United Kingdom. For the 1962–63 and 1963–64 seasons these prices were set at 18d. per lb. f.o.b. for the period September to November and 16.5d. per lb. for the following three months, December to February. For the 1964–65 lamb export season the corresponding prices were 19d. per lb. and 17.5d. per lb. The higher guaranteed price for the initial period was aimed at stimulating early shipments of lamb, because normally the most opportune time for selling Australian lamb in the United Kingdom market is early in the export season. Any commitment by the Board is payable from moneys accrued in the Lamb Deficiency Payments Account under the Fifteen Year Meat Agreement.

(vi) *United States–Australia Meat Agreement.* In February, 1964, the Governments of Australia and the United States concluded an agreement for the regulation of beef, veal and mutton exports from Australia to the United States with the object of promoting the orderly development of the trade in these classes of meat between the two countries. The agreement sought to preserve approximately the current pattern of trade in beef and mutton and to permit Australia to obtain a reasonable share of the expected market growth. Under the agreement Australia undertook to limit its exports of beef, veal and mutton to the United States to 242,000 tons in 1964, 251,000 tons in 1965 and 260,000 tons in 1966.

There is provision for this figure to be increased in succeeding years in accordance with the estimated rate of increase in the total United States meat market. The agreement is subject to review every three years and, as appropriate, the established annual rate of increase will be adjusted to apply to the succeeding three years.

In August, 1964, the United States Congress passed a Bill providing for the imposition of quotas on imports of beef and veal, mutton and goatmeat, from all sources, in 1965 and subsequent years, if imports of these items are estimated by the United States Department of Agriculture to equal or exceed 110 per cent. of a basic quantity.

The basic quantity, 323,840 tons, is approximately the average of imports from 1959 to 1963. This quantity may be increased or decreased in any future calendar year by a percentage equal to that by which the United States average annual commercial production of beef and veal, mutton and goatmeat has changed since the base period 1959–1963. For this purpose the level of domestic production is the average of estimated commercial production for the year in which quotas may be applied and the two preceding years. An increase of 17 per cent. in the basic quantity was set for 1965, providing for allowable imports of approximately 378,900 tons and an import ceiling, at which quotas would be established, of about 416,800 tons. On the basis of the first official estimate of United States meat imports during 1965, the United States Secretary for Agriculture announced on 28th December, 1964, that it would not be necessary to invoke meat import quotas for 1965. However, if a later quarterly estimate in 1965 indicated that the import ceiling would be equalled or exceeded then quotas could be imposed.

2. **Beef and Veal.**—(i) *Cattle Slaughtered.* The numbers of cattle slaughtered during each of the years ended June, 1960 to 1964, compared with averages for the three-year periods ended June, 1939, 1949 and 1959, are shown in the following table.

CATTLE (INCLUDING CALVES) SLAUGHTERED
('000)

Period	Slaughterings passed for human consumption									Total slaughterings including boiled down
	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.	
Average for three years ended—										
1938–39 ..	1,169	881	1,178	163	131	49	5	3	3,579	3,628
1948–49 ..	1,094	759	1,119	168	146	42	14	4	3,346	3,378
1958–59 ..	1,745	1,313	1,689	274	216	116	24	11	5,388	5,463
Year—										
1959–60 ..	1,499	1,277	1,527	238	243	145	24	9	4,962	5,024
1960–61 ..	1,267	1,010	1,469	174	209	115	28	6	4,278	4,327
1961–62 ..	1,609	1,311	1,584	201	241	136	25	8	5,115	5,167
1962–63 ..	1,809	1,562	1,804	254	308	158	24	12	5,931	5,995
1963–64 ..	1,930	1,760	1,857	279	373	176	50	13	6,438	6,484

(ii) *Production of Beef and Veal.* Details of the production of beef and veal during each of the years ended June, 1960 to 1964, compared with averages for the three-year periods ended June, 1939, 1949 and 1959, are shown in the following table.

PRODUCTION OF BEEF AND VEAL (CARCASS WEIGHT)

('000 tons)

Period	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Average for three years ended—									
1938–39..	181	123	199	26	28	10	1	1	569
1948–49..	160	106	206	27	30	9	3	1	542
1958–59..	248	176	305	41	41	19	5	2	837
Year—									
1959–60..	217	159	267	33	46	23	5	2	752
1960–61..	168	125	247	27	42	17	6	1	633
1961–62..	234	176	278	30	47	20	4	2	791
1962–63..	263	214	314	36	56	24	5	2	914
1963–64..	286	228	328	40	66	26	10	2	986

(iii) *Consumption of Beef and Veal.* The highest post-war consumption of beef and veal (including canned beef and veal) was 132.7 lb. per head in 1956–57. With the buoyant oversea market for beef and the high prices ruling in Australia during the following four years, consumption per head fell substantially, and in 1960–61 amounted to only 88.3 lb. In 1963–64 consumption per head was 108.8 lb., consisting of 104.9 lb. carcass weight and 3.9 lb. (carcass equivalent) of canned meat.

In the following table details of the production and disposal of beef and veal are shown for the years 1959–60 to 1963–64 compared with the averages for the three years ended 1938–39, 1948–49 and 1958–59.

PRODUCTION AND DISPOSAL OF BEEF AND VEAL (CARCASS WEIGHT): AUSTRALIA

Period	Net change in stocks	Production	Exports (*a*)	For canning	Apparent consumption in Australia	
					Total	Per head per year
	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	lb.
Average for three years ended—						
1938–39	n.a.	569	121	18	430	140.3
1948–49	+ 1	542	101	67	373	109.1
1958–59	+ 5	837	209	85	538	123.8
Year—						
1959–60	−11	752	262	55	446	98.4
1960–61	+ 4	633	190	43	396	85.4
1961–62	+ 6	791	299	44	442	93.3
1962–63	(*b*)	914	385	45	484	100.4
1963–64	+ 4	986	423	42	517	104.9

(*a*) Includes carcass equivalent of boneless beef exported and all fresh and frozen meat shipped as ships' stores. (*b*) Less than 500 tons.

(iv) *Exports of Beef and Veal.* In 1963–64 chilled beef exports were 21,000 lb. valued at £2,000, while frozen beef exports amounted to 620,593,000 lb. valued at £86,863,000.

While beef and veal were previously shipped largely in carcass form, there has been in recent years a substantial increase in the amount of boneless beef exported. From 1958–59 to 1963–64 the quantity of boneless beef shipped exceeded that exported in carcass form. The trade in boneless beef has been developed principally with the United States of America.

Since 1958–59 the United States has surpassed the United Kingdom as the principal market for Australian beef exports, the United Kingdom now occupying second place. The total value of beef and veal shipped to these two countries during 1963–64 was £69,685,000 and £10,108,000 respectively.

The quantity and value of Australian frozen beef and veal exported from Australia in each year from 1959–60 to 1963–64 are shown in the following table. Figures in this table represent actual weight shipped, not carcass equivalent.

EXPORTS OF FROZEN AND CHILLED BEEF AND VEAL: AUSTRALIA

Year	Exports of frozen and chilled beef		Exports of frozen veal	
	Quantity	Value	Quantity	Value
	'000 lb.	£A.'000 f.o.b.	'000 lb.	£A.'000 f.o.b.
1959–60	414,749	54,568	6,827	897
1960–61	295,686	39,447	4,506	663
1961–62	444,762	58,086	5,834	754
1962–63	576,504	78,228	7,624	1,037
1963–64	620,614	86,866	9,489	1,399

3. **Mutton and Lamb.**—(i) *Sheep Slaughtered.* The following table shows the numbers of sheep slaughtered during each of the years ended June, 1960 to 1964, compared with averages for the three-year periods ended June, 1939, 1949 and 1959.

SHEEP (INCLUDING LAMBS) SLAUGHTERED

('000)

Period	Slaughterings passed for human consumption									Total slaughterings including boiled down
	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.	
Average for three years ended—										
1938–39 ..	6,520	7,891	1,088	1,762	1,216	364	..	25	18,866	18,925
1948–49 ..	6,367	6,413	1,066	1,863	1,458	396	3	47	17,613	17,650
1958–59 ..	7,857	9,058	1,429	2,917	2,059	775	3	71	24,169	24,278
Year—										
1959–60 ..	10,753	12,511	2,113	3,899	2,650	1,166	5	76	33,173	33,373
1960–61 ..	11,718	11,363	2,924	2,784	2,658	1,076	4	77	32,604	32,697
1961–62 ..	11,526	12,467	2,417	3,140	2,489	1,160	3	86	33,288	33,373
1962–63 ..	11,719	12,830	2,125	3,466	2,467	1,095	3	108	33,813	33,910
1963–64 ..	11,934	12,627	2,407	2,996	2,137	1,127	3	115	33,346	33,438

(ii) *Production of Mutton and Lamb.* Details of the production of mutton and lamb in each State and Territory in the years 1959–60 to 1963–64, compared with averages for the three-year periods ended June, 1939, 1949 and 1959, are shown in the following table.

PRODUCTION OF MUTTON AND LAMB (CARCASS WEIGHT)

(Tons)

Period	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	A.C.T.	Aust.
Average for three years ended—									
1938–39 ..	103,884	136,927	20,121	30,574	20,928	6,129	2	413	318,978
1948–49 ..	109,084	111,677	18,587	34,772	23,846	7,214	64	839	306,083
1958–59 ..	135,256	164,580	25,845	50,415	35,373	14,077	77	1,240	426,863
Year—									
1959–60 ..	184,600	223,519	35,886	62,760	44,385	20,780	111	1,292	573,333
1960–61 ..	196,417	210,245	48,529	52,242	46,560	18,925	98	1,292	574,308
1961–62 ..	196,844	229,722	40,339	55,390	42,697	20,229	65	1,427	586,713
1962–63 ..	198,873	237,645	35,483	58,919	41,236	19,386	68	1,849	593,459
1963–64 ..	202,057	231,769	40,209	52,864	36,690	20,079	72	1,944	585,684

(iii) *Consumption of Mutton and Lamb.* In 1959–60 consumption of mutton and lamb, at 103 lb. per head of population, showed a rise of approximately 15 lb. per head over the previous year and exceeded that of beef and veal for the first time on record. Since then consumption of mutton and lamb combined has declined each year; in 1962–63, and again in 1963–64, it was below the consumption of beef and veal.

The following table gives details of the production and disposal of mutton and lamb for the years 1959–60 to 1963–64, compared with the averages for the three years ended 1938–39, 1948–49 and 1958–59.

PRODUCTION AND DISPOSAL OF MUTTON AND LAMB (CARCASS WEIGHT): AUSTRALIA

Period	Net change in stocks ('000 tons)	Production ('000 tons)	Exports (*a*) ('000 tons)	For canning ('000 tons)	Apparent consumption in Australia	
					Total ('000 tons)	Per head per year (lb.)
MUTTON						
Average for three years ended—						
1938–39	..	201	17	..	184	60.0
1948–49	..	177	15	8	154	45.1
1958–59	..	268	27	19	222	51.0
Year—						
1959–60	..	370	47	33	290	63.8
1960–61	+1	368	60	14	293	63.2
1961–62	+1	368	83	23	261	55.3
1962–63	−2	363	107	8	250	51.6
1963–64	+1	361	112	10	238	48.3
LAMB						
Average for three years ended—						
1938–39	..	118	72	..	46	15.0
1948–49	−1	130	45	..	86	25.2
1958–59	..	159	31	..	128	29.3
Year—						
1959–60	..	203	26	..	177	39.0
1960–61	+1	207	29	..	177	38.2
1961–62	−1	219	18	..	202	42.8
1962–63	+1	231	27	..	203	42.1
1963–64	−1	225	21	..	205	41.7

(*a*) Includes carcass equivalent of boneless mutton exported.

(iv) *Exports of Frozen Mutton and Lamb.* The quantities and values of exports of Australian frozen mutton and lamb in each year from 1959-60 to 1963-64 are shown in the following table.

EXPORTS OF FROZEN MUTTON AND LAMB: AUSTRALIA

Year	Exports of frozen mutton		Exports of frozen lamb		Exports of frozen mutton and lamb	
	Quantity	Value	Quantity	Value	Quantity	Value
	'000 lb.	£A.'000 f.o.b.	'000 lb.	£A.'000 f.o.b.	'000 lb.	£A.'000 f.o.b.
1959–60.. ..	71,763	4,719	59,264	4,389	131,027	9,108
1960–61.. ..	83,075	7,437	64,430	5,790	147,505	13,227
1961–62.. ..	109,113	8,156	37,399	2,624	146,512	10,780
1962–63.. ..	136,741	11,652	56,615	5,181	193,356	16,833
1963–64.. ..	149,918	12,376	41,606	3,859	191,524	16,235

The principal customer for Australian frozen mutton and lamb was formerly the United Kingdom, although the United States of America has become a major buyer of mutton in recent years, and in 1963–64 exports to Japan increased sharply. In 1963–64 exports of mutton and lamb to the United Kingdom represented 7 per cent. and 65 per cent., respectively, of the total quantities exported. Thirty five per cent. of the mutton exported went to the United States of America, largely in the form of boneless meat, and the proportion of lamb exported to that country was 4 per cent. Exports of mutton to Japan represented 28 per cent. of the total quantity exported in 1963–64, but exports of lamb were negligible.

4. **Consumption of Meat and Meat Products.**—The apparent consumption of meat (including cured and canned meat) and edible offal per head of population in Australia is shown in the table below for the years 1959-60 to 1963-64 in comparison with the averages for the three-year periods ended 1938-39, 1948-49 and 1958-59.

MEAT (INCLUDING CURED AND CANNED) AND EDIBLE OFFAL AVAILABLE FOR CONSUMPTION: AUSTRALIA

(lb. per head per year)

Period	Beef and veal (*a*)	Mutton (*a*)	Lamb (*a*)	Pork (*a*)	Offal	Canned meat (*b*)	Bacon and ham (*c*)	Carcass equivalent of meat and meat products (*d*)
Average for three years ended—								
1938–39 ..	140.3	60.0	15.0	8.5	8.4	2.1	10.2	250.9
1948–49 ..	109.1	45.1	25.2	7.1	8.9	2.6	11.7	215.7
1958–59 ..	123.8	51.0	29.3	10.1	11.4	4.1	7.1	242.4
Year—								
1959–60 ..	98.4	63.8	39.0	10.3	11.6	4.1	7.1	238.6
1960–61 ..	85.4	63.2	38.2	11.4	10.9	4.2	6.8	224.2
1961–62 ..	93.3	55.3	42.8	13.6	11.7	3.8	7.0	232.3
1962–63 ..	100.4	51.6	42.1	12.0	12.4	4.3	7.4	235.1
1963–64 ..	104.9	48.3	41.7	11.4	12.9	4.1	7.5	235.3

(*a*) Carcass weight. (*b*) Canned weight. (*c*) Cured carcass weight. (*d*) Includes offal.

§ 7. Other Pastoral Products

1. **Tallow.**—(i) *Marketing.* Reference is made in Year Book, No. 47, page 976, to the now inoperative contracts relating to the sale of tallow to the United Kingdom.

(ii) *Consumption in Factories.* Details of consumption are collected from the principal factories using tallow. Consumption of inedible tallow in these factories (soap and candle, chemical and woolscouring works) for the five years 1959–60 to 1963–64 was as follows:—1959–60, 1,278,546 cwt.; 1960–61, 1,196,137 cwt.; 1961–62, 1,077,627 cwt.; 1962–63 1,100,849 cwt.; 1963–64, 1,092,843 cwt. These figures are, however, deficient to the extent, that no allowance has been made for small unrecorded amounts used in other types of establishments. Details of edible tallow consumed in factories are not available.

(iii) *Exports.* Particulars of exports of edible and inedible tallow of Australian produce are shown in the following table for the five years 1959–60 to 1963–64.

TALLOW: EXPORTS, AUSTRALIA
(cwt.)

Particulars	1959–60	1960–61	1961–62	1962–63	1963–64
Edible	118,848	50,436	130,015	120,944	135,425
Inedible	1,533,734	1,079,681	1,853,161	2,229,230	1,978,063
Total	**1,652,582**	**1,130,117**	**1,983,176**	**2,350,174**	**2,113,488**

2. **Oversea Trade in Hides and Skins.**—(i) *Values.* The value of cattle and horse hides, sheep and other skins, and skin pieces, sent overseas during 1963–64 amounted to £45,590,000, compared with a total of £36,710,000 in 1962–63 and £32,044,000 in 1961–62.

(ii) *Sheepskins with Wool.* Of the total exports of sheepskins with wool during 1963–64, amounting to 185,796,000 lb. valued at £36,848,000, 118,414,000 lb. valued at £23,430,000 (64 per cent. of total value) were shipped to France, 22,832,000 lb. valued at £5,003,000 (14 per cent.) to Italy, and 14,957,000 lb. valued at £2,635,000 (7 per cent.) to the United Kingdom. In the previous year France received about 61 per cent. (by value) of all sheepskins with wool exported Italy 16 per cent. and the United Kingdom 6 per cent. The exports of sheepskins with wool during each of the years 1959–60 to 1963–64 were as follows.

EXPORTS OF SHEEPSKINS WITH WOOL: AUSTRALIA

Particulars		1959–60	1960–61	1961–62	1962–63	1963–64
Number	'000	25,560	25,883	26,237	26,795	27,913
Value	£'000	23,238	21,429	24,222	27,742	36,848

(iii) *Sheepskins without Wool.* In 1963–64 skins to the value of £81,900 (29 per cent.) were shipped to the United States of America; £48,627 (17 per cent.) to the United Kingdom; £46,534 (17 per cent.) to France; £43,825 (16 per cent.) to Spain; and £15,654 (6 per cent.) to the Netherlands. In 1963–64 a total of 1,238,000 sheepskins without wool were exported, valued at £280,000. Since 1954–55 the number exported has exceeded two million once only (in 1958–59), and the value has averaged about £320,000.

(iv) *Hides.* The export trade in cattle hides and calfskins during 1963–64 was distributed amongst the main importing countries as follows:—Japan, £2,459,000; Italy, £688,000; Germany (Federal Republic), £394,000; South Africa, £283,000; the Netherlands, £279,000; and the United Kingdom, £264,000. The total quantity exported was 106,681,000 lb., valued at £5,301,000.

(v) *Furred Skins.* The exports of furred skins in 1963–64 were valued at £1,906,000, of which rabbit and hare skins constituted £934,000. The highest total value exported, £2,013,000, was recorded in 1955–56, when rabbit and hare skins accounted for £1,711,000. In 1962–63 they accounted for £819,000 out of a total of £1,349,000.

Skins were shipped principally to the United States of America, the United Kingdom, Italy, Belgium and Luxembourg, the values shipped to each in 1963–64 being:—United States of America, £1,478,300; United Kingdom, £201,700; Italy, £94,000; and Belgium-Luxembourg, £37,900.

Imports of cattle hides and calfskins are fairly substantial, the chief sources of supply being New Zealand and the Pacific Islands. The quantity of cattle hides, including calfskins, imported into Australia during the year 1963–64 amounted to 5,592,000 lb. valued at £360,000.

OTHER RURAL INDUSTRIES: DAIRYING, POULTRY AND BEE-FARMING

§ 1. The Dairying Industry

1. **Introduction.**—(i) *General.* The introduction of cattle into Australia and the early history of the dairying industry are treated in some detail in earlier issues of the Year Book.

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

The Australian dairying industry is conducted under conditions ranging from tropical to temperate and Mediterranean type climates, and nowhere is it necessary to house cattle in the winter months. Most Australian dairy cattle are fed only on pasture and pasture products, and this accounts for average yields being somewhat lower than in those countries where stock are fed heavily on concentrated feed.

In general, dairy farming is confined to the coastal and near coastal regions where rainfall and topography are favourable. These conditions are found in parts of the eastern, southern and south-western coasts. Inland districts include the lower north-east of Victoria, the south-western slopes of New South Wales, the fertile Darling Downs in Queensland, and the irrigated districts of the Riverina in New South Wales and northern Victoria.

The manufacturing and processing sections of the industry are highly organized and are well advanced technologically. Certain techniques and equipment, developed in Australia, are being adopted overseas.

(ii) *Official Supervision.* Dairy experts of the various State agricultural departments give instruction in approved methods of production, and inspect animals, buildings and marketable produce, with the result that a high standard of cleanliness and technology prevails in the industry.

The export trade is regulated by the terms of the Commonwealth *Customs Act* 1901–1954 and the Commonwealth *Commerce (Trade Descriptions) Act* 1905–1950, and regulations thereunder. This legislation requires that the true trade description, etc., be marked on all produce intended for export, while official inspection ensures the maintenance of purity and quality. Upon request of the exporter the goods are given a certificate by the inspector.

(iii) *Marketing of Dairy Products.* (*a*) *Dairy Produce Export Control Act* 1924–1963. Details of this Act, and of the Australian Dairy Produce Board constituted under it, were given in earlier issues of the Year Book (*see* No. 48, pp. 999–1000).

(*b*) *Dairy Produce Export Charges Act* 1964. This Act provides for the imposition of a levy on all butter, cheese and other specified dairy produce exported from Australia to cover the administrative expenses of the Australian Dairy Produce Board and for advertising and other purposes. The rate of the levy is fixed by the Act.

(iv) *Equalization Schemes.* (*a*) *Butter and Cheese.* Reference is made to these schemes in Year Book No. 48, pp. 998–9.

Para. 2 (ix) on page 1081 gives particulars of the returns realized on local and oversea sales and of the average equalization rate for the years ended June, 1960 to 1964. Details are also given in para. 2 (vii) of the wholesale prices of butter and cheese for home consumption as determined by the Commonwealth Dairy Produce Equalization Committee Ltd.

(*b*) *Casein.* An equalization scheme for casein similar to that for butter and cheese has been operated since 1952 by the Commonwealth Dairy Produce Equalization Committee Ltd. Average realizations per cwt. under the scheme were 175s. 7.5d. in 1959–60, 174s. 10.9d. in 1960–61, 163s. 3.4d. in 1961–62, 159s. 0.9d. in 1962–63 and 161s. 0.1d. in 1963–64. The interim equalization value for 1964–65 has been fixed at 162s. per cwt.

(v) *Commonwealth Subsidies and Stabilization Plans.* (*a*) *Butter, Cheese and Processed Milk Products.* Under the provisions of the various Dairy Industry Assistance Acts, the first of which was passed in 1942, the Commonwealth Government has provided subsidies on milk supplied for the manufacture of butter and cheese. Subsidies were paid on a seasonal basis prior to 1st April, 1946, but from that date have been on a flat rate basis. Subsidies are distributed by the Commonwealth Dairy Produce Equalization Committee Ltd. through factories to milk producers by payments on butter and cheese manufactured. Subsidy on milk supplied for the manufacture of processed milk products was also payable from 1942 until 30th June, 1948, and again from 1st July, 1949, to 30th June, 1952. The Commonwealth Government provided, under the *Processed Milk Products Bounty Act* 1962, for the payment of a maximum amount of £350,000 as a bounty on exports of processed milk products in 1962–63. The bounty was continued for the years ended 30th June, 1964 and 1965, the maximum amounts provided being £500,000 and £400,000 respectively.

Details of the three five-year stabilization plans which operated up to 30th June, 1962, will be found in Year Book No. 49, page 1084.

Under the five-year stabilization plan which came into operation on 1st July, 1962, a fixed bounty of £13,500,000 has been provided for each year of the plan. The bounty is payable on butter, cheese and butterfat products containing 40 per cent. or more of butterfat. Bounty is payable on the production of these commodities provided they are taken into equalization.

The Commonwealth Government extended for the full period of the plan the provision whereby it underwrites the final minimum equalized return to butter and cheese factories each year. The actual level at which returns are to be underwritten is to be decided prior to the commencement of each year of the plan. Returns to producers have been underwritten at 40d. per lb. on commercial butter each year since the inception of the underwriting arrangement in 1958. The principal value underlying this guarantee is that it enables the Commonwealth Dairy Produce Equalization Committee Ltd. to make a higher initial payment to factories than would otherwise be possible without risk of overpayment.

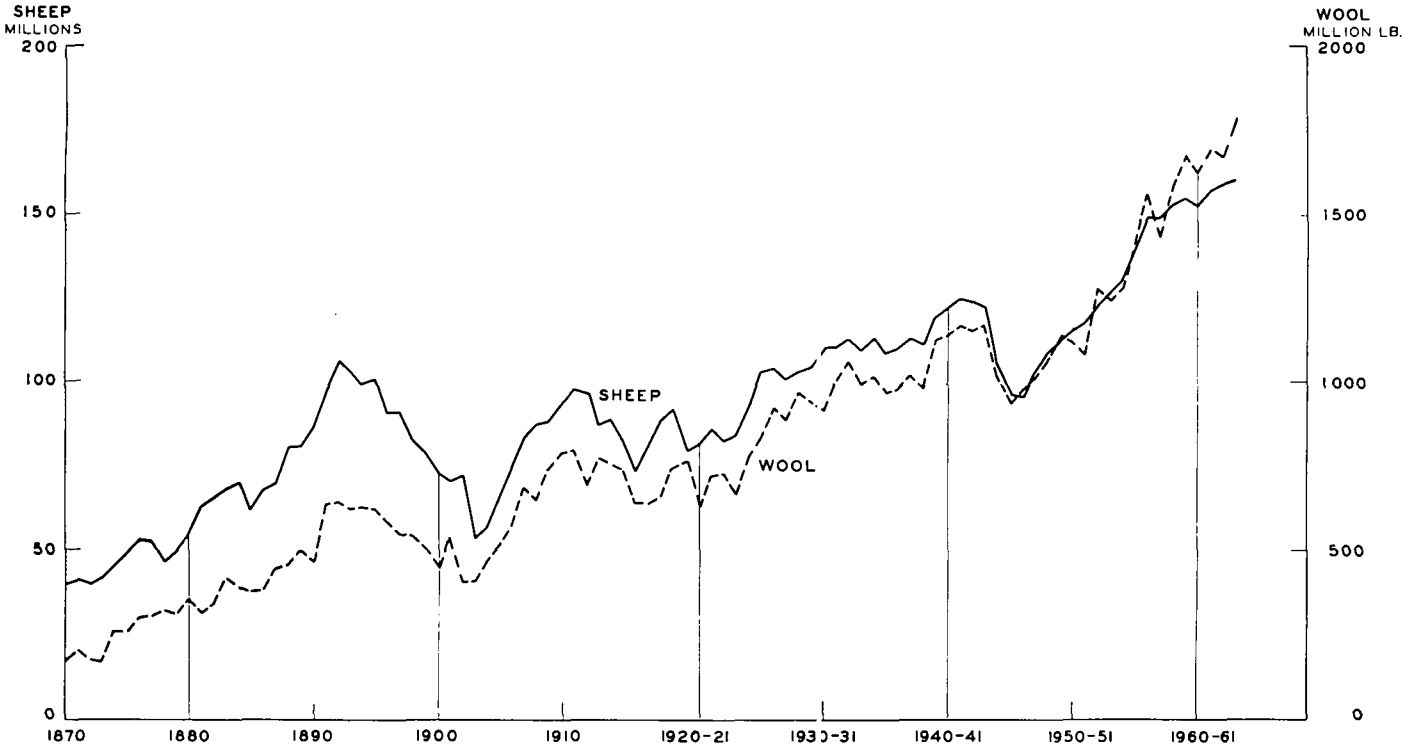
Under the current plan the Dairy Industry Investigation Committee has been disbanded. This Committee was reponsible, during the last five-year plan, for the determination of the cost of efficient production of butterfat. However, this determination is not required for the current plan.

The Australian Dairy Industry Council assumes responsibility for determining domestic wholesale prices of butter and cheese. Under the previous plan it was the responsibility of the Minister for Primary Industry to determine local prices, after consultation with the Council.

Amounts realized on exports of butter and cheese in excess of the f.o.b. equivalent of the guaranteed return have been credited to the Dairying Industry Stabilization Fund, which was established in July, 1948, for the purpose of stabilizing returns from exports. During 1951–52 the Stabilization Fund met the deficiency in respect of all exports which

SHEEP NUMBERS AND WOOL PRODUCTION: AUSTRALIA

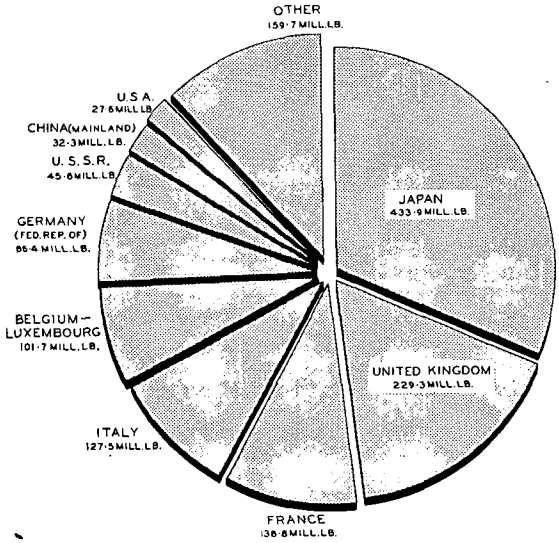
1870 TO 1963-64



WOOL: EXPORTS FROM AUSTRALIA

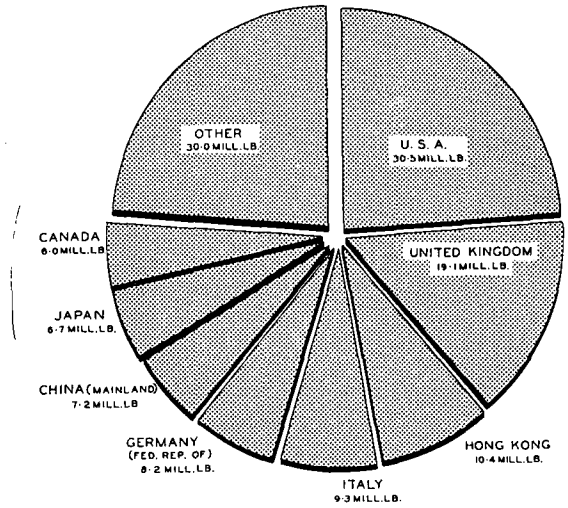
1963–64

GREASY AND SLIPE WOOL



TOTAL: 1,382·8 MILLION LB.

SCOURED AND WASHED, CARBONIZED, TOPS, NOILS AND WASTE



TOTAL: 127·4 MILLION LB.

did not return sufficient to meet the basic return to the factory. From 1st July, 1952, to 30th June, 1957, it was available to the industry to be used, in whatever manner it considered desirable, to make good any deficiency in respect of all exports other than the 20 per cent. provided for under the Commonwealth Government's Five-year Stabilization Plan. The Act was amended in 1957 to enable the Board to use the fund for such other purposes as are approved by the Minister for Primary Industry. The amount standing to the credit of the Dairying Industry Stabilization Fund at 30th June, 1964, totalled approximately £1,932,000.

(*b*) *Whole Milk.* In addition to the subsidies referred to above, the Commonwealth Government subsidized the production of whole milk consumed directly from 1943–44 to 1948–49. Details of the amounts distributed during each year will be found in Year Book No. 38, page 1031.

(vi) *Extension, Research and Promotion.* (*a*) *Dairy Industry Extension Grant.* An annual grant of £250,000, to be expended by State Governments for the purpose of promoting improved farming practices in the dairying industry, was first made by the Commonwealth Government for the five years from 1st July, 1948. This assistance was continued for further periods of five years from 1st July, 1953, and from 1st July, 1958, at the same rate. For the five years from 1st July, 1963, the amount of the annual grant has been increased to £350,000.

(*b*) *Dairy Industry Research and Sales Promotion.* At the request of the Australian Dairy Industry Council, legislation was enacted in 1958 to provide for a sales promotion campaign for butter and cheese in Australia and also for research into industry problems. The legislation provides for a statutory levy (the Dairy Produce Levy) which was initially set at rates of $\frac{1}{8}$d. per lb. for butter and $\frac{1}{16}$d. per lb. for cheese, the proceeds being divided equally between research and sales promotion. The rates of levy operative from November, 1959, are $\frac{3}{16}$d. per lb. for butter and $\frac{3}{32}$d. per lb. for cheese, of which two-thirds is allocated to sales promotion and one-third to research.

In August, 1964, the legislation was amended to include butter powder, at the same rates as for butter, and butter oil and ghee at $\frac{5}{64}$d. per lb. for research and $\frac{5}{32}$d. per lb. for sales promotion.

The Commonwealth Government agreed to contribute one half of the costs incurred on approved projects included in the programme of research, with a maximum contribution of £1 for £1 against funds raised by way of levy and allocated to research. The sales promotion programme is financed solely by the levy. The following table lists the amounts of levies collected for research and sales promotion, during the five years 1959–60 to 1963–64.

DAIRY PRODUCE LEVY: AMOUNTS COLLECTED

(£)

Particulars	1959–60	1960–61	1961–62	1962–63	1963–64
Research(*a*)	126,519	116,591	130,000	131,750	132,100
Sales promotion	206,918	233,181	260,000	263,500	264,200
Total Collected(*a*) ..	**333,437**	**349,772**	**390,000**	**395,250**	**396,300**

(*a*) Excludes amounts contributed by the Commonwealth Government.

The scheme is administered by the Australian Dairy Produce Board, which, in respect of research, is advised by a statutory committee, the Dairy Produce Research Committee.

2. **Dairy Cattle and Dairy Products.**—(i) *Dairy Herds.* For the reasons indicated earlier in this Chapter (*see* § 3, paragraph 3, page 1049), farmers are no longer asked to classify their herds according to breed. At the 1964 Census they were asked instead to classify their cattle according to the two main purposes of (i) milk production and (ii) meat production and to report separately the number of cows and heifers kept for their own domestic milk supply. Consequently the statistics shown in the following table are not comparable with those for earlier years.

For particulars of cattle classified as " dairy cattle " prior to 1964 *see* page 1078 of Year Book No. 50.

DAIRY BREED BULLS, AND COWS AND HEIFERS USED OR INTENDED FOR PRODUCTION OF MILK OR CREAM, 31st MARCH, 1964

State or Territory	Bulls, dairy breed (*a*)	Cows and heifers used or intended for production of milk or cream for sale					House cows and heifers (*b*)
		Cows		Heifers			
				1 year and over		Under one year	
		In milk	Dry	Springing(*c*)	Other		
New South Wales ..	21,606	574,428	168,747	189,958		152,929	116,205
Victoria	40,027	878,700	305,751	299,872		307,063	33,938
Queensland ..	20,971	544,774	184,984	183,075		136,599	42,844
South Australia ..	7,204	96,683	63,315	24,663	26,749	41,348	7,828
Western Australia ..	5,269	46,661	71,718	26,034	30,751	36,543	10,250
Tasmania	4,141	140,425		39,928		43,082	6,545
Northern Territory ..	17	376		93		81	(*d*)
Australian Capital Territory	35	1,204	309	163		250	488
Australia ..	99,270	3,078,075		821,286		717,895	*e* 218,098

(*a*) Used or intended for service; excludes bull calves (under 1 year). (*b*) Kept primarily for rural holdings' own milk supply. (*c*) Within 3 months of calving. (*d*) Not available separately. (*e*) Incomplete; excludes Northern Territory.

For particulars relating to dairy cattle numbers up to 1963 *see* page 1078 of Year Book No. 50.

A map showing the distribution of dairy cattle in Australia at 31st March, 1963, appears facing p. 1082 of Year Book No. 50.

(ii) *Milking Machines.* The following table shows particulars of the number of milking stands (units) on rural holdings in each State and Territory for the years 1960 to 1964.

MILKING MACHINES ON RURAL HOLDINGS: NUMBER OF STANDS(*a*)

31st March—	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust. (*b*)
1960	43,980	89,657	47,996	17,920	10,564	11,051	n.a.	92	221,260
1961	43,640	92,315	47,403	18,235	10,419	11,704		99	223,815
1962	43,369	95,661	47,486	18,831	10,562	12,220		99	228,228
1963	43,089	97,372	46,674	18,836	10,514	12,701		84	229,270
1964	42,970	98,151	45,072	19,057	10,157	13,382		83	228,872

(*a*) The number of stands indicates the number of cows that can be milked simultaneously, i.e. the cow capacity of installed milking machines. (*b*) Excludes Northern Territory.

(iii) *Size of Dairy Herds.* Information on the size of dairy herds is published in a series of bulletins *Classification of Rural Holdings by Size and Type of Activity*, 1959–60.

(iv) *Production of Milk.* (*a*) *Production per Cow.* The quantity of milk produced by a dairy cow can be as high as 1,000 gallons a year, and varies greatly with breed, locality and season. For all dairy cows and for all seasons for the whole of Australia prior to 1916 production averaged considerably less than 300 gallons per annum. Largely owing to an improvement in the quality of the cattle, and the increased application of scientific methods, the 300-gallon average was exceeded in each year since 1924. In the last five years an average of 442 gallons per cow per annum has been obtained. In 1963–64 the average yield was 455 gallons. The annual average yields per cow shown in the following table are obtained by dividing the total production of whole milk for the year ended June by the mean of the number of dairy cows (in milk and dry) at 31st March of that year and of the preceding year. They are, in effect, based on the approximate number of dairy cows which were in milk during any part of the year. The average shown is, therefore, less than that for cows which were yielding during the greater part of the year, but it may be accepted as sufficiently reliable to show the general trend.

AVERAGE MILK PRODUCTION PER DAIRY COW
(Gallons)

Period	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	A.C.T.	Aust.
Average for three years ended—									
1938–39 ..	315	439	298	442	353	349	n.a.	349	354
1948–49 ..	310	506	267	565	370	419		328	371
1958–59 ..	322	522	267	513	406	537		420	393
Year—									
1959–60 ..	382	544	301	505	452	554	n.a.	447	431
1960–61 ..	355	548	263	574	468	505		447	418
1961–62 ..	387	571	306	614	462	562		471	452
1962–63 ..	364	589	312	586	442	570		479	453
1963–64(*a*)	368	583	307	587	448	577	230	557	455

(*a*) May not be comparable with earlier years; *see* paragraph 2, page 1074.

(*b*) *Total Production of Whole Milk.* In the following table particulars of the production of whole milk in the various States are shown for the years 1959–60 to 1963–64 compared with the averages for the three years ended 1938–39, 1948–49 and 1958–59. Victoria is the principal milk-producing State, and in 1963–64 the output from that State, 689.9 million gallons, represented 46 per cent. of total production. Output from New South Wales in 1963–64 was 322.5 million gallons (22 per cent. of the total) and that of Queensland 239.8 million gallons (16 per cent.). Production in the remaining States accounted for 16 per cent.

TOTAL PRODUCTION OF WHOLE MILK

('000 gallons)

Period	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	A.C.T.	Aust.
Average for three years ended—									
1938–39 ..	319,003	403,152	275,898	68,429	42,358	32,803	n.a.	363	1,142,006
1948–49 ..	280,460	445,517	252,469	92,587	49,004	32,638	n.a.	573	1,153,248
1958–59 ..	307,514	578,529	240,446	84,185	54,218	65,032	n.a.	929	1,330,853
Year—									
1959–60 ..	348,389	598,323	252,562	78,483	57,549	70,226	n.a.	969	1,406,501
1960–61 ..	319,410	596,706	212,749	87,030	58,544	63,858	n.a.	1,005	1,339,302
1961–62 ..	344,724	630,948	239,823	95,504	58,240	73,206	n.a.	1,117	1,443,562
1962–63 ..	324,113	667,562	245,067	95,378	56,029	78,518	n.a.	1,090	1,467,757
1963–64 ..	322,547	689,881	239,827	97,523	57,162	83,124	76	1,146	1,491,286

(v) *Utilization of Whole Milk.* The utilization of whole milk and the production of butter and cheese in 1963-64 is given in the table below.

UTILIZATION OF WHOLE MILK, PRODUCTION OF BUTTER AND CHEESE, 1963-64

Particulars	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	A.C.T.	Aust.
MILK ('000 GALLONS)									
Used for—									
Butter ..	*a* 173,758	*b* 471,654	*c* 158,348	33,153	31,884	63,970	..	6	932,773
Cheese ..	10,541	57,739	21,849	33,989	3,454	2,994	..	..	130,566
Preserved milk products ..	14,739	64,689	(*j*) 59,630	..	30,381	(*j*) 21,824	16,160	..	94,795
Other purposes	123,509	95,799					76	1,140	94,795 333,152
Total ..	322,547	689,881	239,827	97,523	57,162	83,124	76	1,146	1,491,286
BUTTER (TONS)									
In factories(*d*) ..	(*e*) 36,107	*f* 103,026	*f* 35,366	7,406	6,960	13,694	..	..	202,559
On dairy and other farms..	291	399	135	91	26	96	..	1	1,039
Total(*d*)..	36,398	103,425	35,501	7,497	6,986	13,790	..	1	203,598
CHEESE (TONS)									
In factories(*d*) ..	5,147	25,096	9,492	15,170	1,492	1,337	..	..	57,734
On dairy and other farms ..	..	22	..	(*g*)	2	(*h*)	..	..	(*i*) 24
Total(*d*)..	5,147	25,118	9,492	15,170	1,494	1,337	..	..	57,758

(*a*) Includes 8,275,000 gallons of milk, the produce of New South Wales, sent as cream to factories in Victoria and Queensland. (*b*) Includes 3,870,000 gallons of milk, the produce of Victoria, sent as cream to New South Wales. (*c*) Includes 421,000 gallons of milk, the produce of Queensland, sent as cream to New South Wales. (*d*) Subject to revision. (*e*) Includes butter made from cream, the produce of Victoria and Queensland. (*f*) Includes butter made from cream, the produce of New South Wales. (*g*) Not available for publication. (*h*) Less than half the unit shown. (*i*) Incomplete; excludes South Australia. (*j*) Separate particulars are not available for publication.

In 1963–64 63 per cent. of the total milk supply was used for butter, 9 per cent. for cheese, 6 per cent. for preserved milk products and 22 per cent. for other purposes.

Details of the production of whole milk for various purposes are shown in the following table for each of the years 1959–60 to 1963–64 compared with the averages for the three-year periods ended 1938–39, 1948–49 and 1958–59.

PRODUCTION AND UTILIZATION OF WHOLE MILK: AUSTRALIA

('000 gallons)

Period	Total production	Quantity used for—			
		Butter (factory and farm)	Cheese (factory and farm)	Preserved milk products	Other purposes (a)
Average for three years ended—					
1938–39..	1,142,006	891,742	54,934	33,226	162,104
1948–49..	1,153,248	738,377	91,642	78,739	244,490
1958–59..	1,330,853	865,347	90,561	79,687	295,258
Year—					
1959–60..	1,406,501	912,271	100,856	82,636	310,738
1960–61..	1,339,302	839,596	104,470	76,619	318,617
1961–62..	1,445,562	919,301	122,340	78,028	323,893
1962–63..	1,467,757	932,041	130,503	83,167	322,046
1963–64..	1,491,286	932,773	130,566	94,795	333,152

(a) Principally fluid milk for domestic purposes.

(vi) *Production of Butter, Cheese and Preserved Milk Products.* (a) *General.* The establishment of large central butter factories, either on a co-operative or independent basis, has resulted in a considerable reduction in the cost of manufacture. The product is also of a more uniform quality, and whereas formerly the average quantity of milk used per pound of hand-made butter was about three gallons, factory butter requires only about two gallons. In addition, subsidy payments by the Commonwealth Government are made only on factory-produced butter. As a result the production of farm-made butter has declined substantially, and in 1963–64 represented only about 0.5 per cent. of all butter made. A similar position exists in the cheese-making industry where a negligible amount is now made on farms.

In 1963–64 factories in Australia engaged in the processing of milk into butter or cheese or the various preserved milk products numbered 347 and were distributed among the States as follows:—New South Wales, 72; Victoria, 123; Queensland, 69; South Australia, 42; Western Australia, 17; and Tasmania, 24. More details regarding numbers of factories, output, etc., are given in Chapter VI. Manufacturing Industry (*see* p. 197).

(b) *Production of Butter.* Production in 1963–64 at 203,598 tons was 1,216 tons (0.6 per cent.) more than the amount produced in 1962–63, but 5,313 tons (2.5 per cent.) less than the record post-war production of 1955–56. The foregoing figures include butter produced on farms, which has shown a steady decline from about 4,000 tons in the early 1950's to 1,039 tons in 1963–64.

The following table shows production of butter in factories and on farms in each State for the years 1959–60 to 1963–64 compared with the averages for the three-year periods ended 1938–39, 1948–49 and 1958–59.

BUTTER PRODUCTION IN FACTORIES AND ON FARMS

(Tons)

Period	Factory production							Factory and farm production, Aust.(a)
	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	Aust.	
Average for three years ended—								
1938–39	49,665	61,566	52,637	7,977	5,803	3,934	181,582	190,827
1948–49	31,394	58,715	42,243	9,028	6,632	4,484	152,496	157,064
1958–59	33,832	87,659	38,131	7,509	6,812	10,618	184,561	187,393
Year—								
1959–60	41,373	89,388	38,932	6,194	7,376	11,744	195,007	197,552
1960–61	33,996	89,356	31,081	6,858	7,661	10,257	179,209	181,654
1961–62	38,994	95,649	35,643	7,424	7,483	12,063	197,256	198,621
1962–63	35,968	101,432	36,455	7,319	6,963	13,097	201,234	202,382
1963–64(b)	36,107	103,026	35,366	7,406	6,960	13,694	202,559	203,598

(a) Includes small quantities produced in the A.C.T. There is no recorded production in the Northern Territory. (b) Subject to revision.

(c) *Production of Cheese.* In 1963–64 production was 57,758 tons which was 897 tons (1.5 per cent.) less than the record of 58,655 tons in 1962–63.

The following table shows production of cheese in factories and on farms in each State in the years 1959–60 to 1963–64 compared with the averages for the three years ended 1938–39, 1948–49 and 1958–59.

CHEESE PRODUCTION IN FACTORIES AND ON FARMS

(Tons)

Period	Factory production							Factory and farm production, Aust.(a)
	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	Aust.	
Average for three years ended—								
1938–39	3,280	7,206	5,277	6,866	427	1,424	24,480	24,848
1948–49	2,385	17,378	8,916	11,984	969	641	42,273	42,343
1958–59	4,368	17,607	6,844	11,218	1,127	335	41,499	41,567
Year—								
1959–60	4,470	19,217	8,492	10,930	1,443	328	44,880	44,976
1960–61	5,472	19,978	7,222	12,609	1,350	348	46,979	47,100
1961–62	5,856	23,919	8,974	14,659	1,364	605	55,377	55,431
1962–63	5,524	25,568	10,201	15,164	1,439	643	58,539	58,655
1963–64(b)	5,147	25,096	9,492	15,170	1,492	1,337	57,734	57,758

(a) Northern Territory and Australian Capital Territory: nil. (b) Subject to revision.

(d) *Production of Preserved Milk Products.* The production in 1963–64 of all full-cream milk products and milk by-products, with the exception of powdered skim milk, increased in comparison with 1962–63.

Preserved milk products are manufactured mainly in Victoria, which produced 68.2 per cent. of the total (in terms of whole milk equivalent) in 1963–64. New South Wales accounted for 15.5 per cent. and the remaining States for 16.3 per cent.

The following table shows details of the output of preserved milk products during the years 1959–60 to 1963–64, compared with the averages for the three years ended 1938–39, 1948–49 and 1958–59.

PRODUCTION OF PRESERVED MILK PRODUCTS: AUSTRALIA

Tons

Particulars	Average for three years ended—			1959–60	1960–61	1961–62	1962–63	1963–64 (a)
	1938–39	1948–49	1958–59					
Full cream milk products—								
Condensed, concentrated and evaporated full cream milk—								
Sweetened(b) ..	18,702	28,452	36,322	33,867	29,534	28,258	33,720	43,261
Unsweetened(c) ..			29,137	33,074	32,067	34,937	34,502	41,782
Powdered full cream milk	9,464	16,650	18,373	19,591	18,555	20,235	17,725	18,799
Infants' and invalids' foods(d)	1,131	10,182	13,846	15,985	16,257	17,025	17,281	20,216
Milk by-products—								
Condensed, concentrated and evaporated skim milk ..	(e)	(f)	5,649	4,865	5,005	5,879	8,573	11,512
Powdered skim milk ..	(f)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Powdered buttermilk, mixed skim and buttermilk and whey	(g) 701	3,078	5,748	6,535	7,457	8,064	9,286	9,559
Casein	n. a.	n. a.	9,907	10,029	11,240	13,552	16,177	16,748

(a) Subject to revision. (b) Includes coffee and milk. (c) Includes (i) whole (10% butterfat or more), (ii) less than 10% butterfat, and (iii) liquid ice-cream mix. (d) Includes malted milk and milk sugar (lactose). (e) Not available separately—included in condensed, concentrated, and evaporated full cream milk. (f) Not available separately—included in powdered full cream milk. (g) Excludes powdered whey.

(vii) *Wholesale Prices of Butter and Cheese in Australia.* Details of prices operating in each of the States since 1st July, 1952, are shown in the following table. The prices presented are those determined by the Commonwealth Dairy Produce Equalization Committee Ltd. for choicest grade bulk butter and cheese.

WHOLESALE PRICES OF BUTTER AND CHEESE: AUSTRALIA

(s. d. per cwt.)

Date from which prices became effective	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania
	BUTTER					
26th July, 1955	452 8	452 8	451 6	450 4	452 8	452 8
1st July, 1956	466 8	466 8	465 6	464 4	466 8	466 8
1st July, 1958	485 4	485 4	484 2	484 2	485 4	485 4
1st July, 1960	501 8	501 8	500 6	501 8	501 8	501 8
19th June, 1964 ..	518 0	518 0	518 0	518 0	518 0	518 0

WHOLESALE PRICES OF BUTTER AND CHEESE: AUSTRALIA—*continued*

(s. d. per cwt.)

Date from which prices became effective	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania
CHEESE						
26th July, 1955 ..	275 4	275 4	275 4	274 2	275 4	275 4
1st July, 1956	282 4	282 4	282 4	281 2	282 4	282 4
1st July, 1958	291 8	291 8	291 8	291 8	291 8	291 8
1st July, 1960	296 4	296 4	296 4	296 4	296 4	296 4
19th June, 1964 ..	305 8	305 8	305 8	305 8	305 8	305 8

(viii) *Local Consumption of Butter and Cheese.* Following the cessation of butter rationing after the 1939–45 War, consumption per head rose to 31.2 lb. in 1951–52. However, in later years it gradually declined, and in 1963–64 it reached its lowest level since the war. At 23.4 lb. per head it was 2 per cent. below the level of 1962–63.

Consumption of cheese per head has been rising in recent years, reaching 7.2 lb. in 1963–64.

The following table shows details of the production and disposal of butter and cheese for each of the years 1959–60 to 1963–64 compared with the averages for the three years ended 1938–39, 1948–49 and 1958–59.

PRODUCTION AND DISPOSAL OF BUTTER AND CHEESE: AUSTRALIA

Period	Change in stocks (*a*) ('000 tons)	Production ('000 tons)	Exports (*b*) ('000 tons)	Apparent consumption in Australia: Total ('000 tons)	Apparent consumption in Australia: Per head per year (lb.)
BUTTER					
Average for three years ended—					
1938–39..	n.a.	190.8	89.4	101.4	32.9
1948–49..	−3.6	157.1	76.0	84.7	24.8
1958–59..	−0.6	187.4	69.6	118.4	27.2
Year—					
1959–60..	+0.2	197.6	78.7	118.7	26.2
1960–61..	+2.0	181.7	63.4	116.3	25.1
1961–62..	+4.7	198.6	80.1	113.8	24.0
1962–63..	+7.1	202.4	80.6	114.7	23.8
1963–64..	−2.5	203.7	91.0	115.2	23.4
CHEESE					
Average for three years ended—					
1938–39..	n.a.	24.9	11.5	13.4	4.4
1948–49..	−0.8	42.3	24.3	18.8	5.5
1958–59..	+2.8	41.6	13.8	25.0	5.7
Year—					
1959–60..	−2.3	45.0	18.5	28.8	6.3
1960–61..	−0.8	47.1	18.1	29.8	6.4
1961–62..	+2.2	55.3	22.4	30.7	6.5
1962–63..	+0.2	58.4	26.0	32.2	6.7
1963–64..	−5.3	57.9	27.9	35.3	7.2

(*a*) Balance figure for 1946–47 and subsequent years; includes allowance for imports.
(*b*) Includes ships' stores; figures for butter include ghee and butter concentrate expressed as butter.

(ix) *Average Returns from Butter and Cheese Sold.* The table below shows rates realized on local, interstate and oversea sales and the average equalization and subsidy rates in operation for the years ended June, 1960 to 1964.

BUTTER AND CHEESE: RATES REALIZED ON SALES, AVERAGE EQUALIZATION RATES AND RATES OF COMMONWEALTH SUBSIDY UNDER DAIRY INDUSTRY ASSISTANCE ACTS

(*Source:* Commonwealth Dairy Produce Equalization Committee Ltd.)

(s. d. per cwt.)

Year	Rates realized on sales			Average equalization rate	Rate of subsidy	Rate of overall return to manufacturer
	Local	Interstate	Overseas			
BUTTER						
1959–60.. ..	468 8.8	453 3.8	343 6.9	417 5.5	63 6.0	480 11.5
1960–61.. ..	481 4.5	462 7.9	261 11.7	399 8.3	68 11.3	468 7.6
1961–62.. ..	479 4.9	466 8.0	290 11.8	398 5.2	62 6.7	460 11.9
1962–63.. ..	484 11.0	464 11.0	326 9.0	411 6.2	61 6.0	473 0.2
1963–64.. ..	(*a*)	(*a*)	(*a*)	*b*411 10.0	61 0.5	*b*472 10.5
CHEESE						
1959–60.. ..	279 7.9		204 11.1	247 10.7	29 1.4	277 0.1
1960–61.. ..	283 10.9		211 6.0	256 1.2	28 5.6	284 6.8
1961–62.. ..	283 10.7		189 6.0	241 2.7	24 4.6	265 7.3
1962–63.. ..	283 11.0		202 9.8	242 2.8	23 4.0	265 6.8
1963–64.. ..	(*a*)		(*a*)	*b*249 4.0	23 6.8	*b*272 10.8

(*a*) Not yet available. (*b*) Interim rates.

The distribution between factory and farm of the overall return to manufacturers for butter is shown in the following table.

COMMERCIAL BUTTER: AVERAGE OVERALL RETURNS

(*Source:* Commonwealth Dairy Produce Equalization Committee Ltd.)

(Pence per lb.)

Year	Average overall returns on commercial butter		
	Rate of overall return to manufacturer	Estimated manufacturing cost	Return to dairy farmer
1959–60	51.531	4.965	46.566
1960–61	50.210	5.339	44.871
1961–62	49.392	5.339	44.053
1962–63	50.680	5.339	45.341
1963–64	(*a*) 50.665	5.339	45.326

(*a*) Interim rates.

(x) *Oversea Trade in Dairy Products.* (*a*) *General.* The production of butter and cheese in Australia is considerably in excess of local requirements, and consequently a substantial surplus is available for export overseas. In normal circumstances the extent of this surplus is chiefly dependent upon seasonal conditions.

Exports of butter in 1963–64 amounted to 87,751 tons, compared with 77,410 tons in 1962–63. Exports of cheese in these years were 27,827 tons and 25,938 tons respectively. As in previous years, the principal importing country for Australian butter and cheese was the United Kingdom. In 1963–64 85 per cent. of butter and 47 per cent. of cheese exported was consigned to the United Kingdom.

Total quantities and values of exports of butter, cheese and preserved milk products of Australian origin are shown in the table at the foot of this page.

(*b*) *Butter and Cheese Exports graded according to Quality.* All butter and cheese exported comes under the provisions of the Exports (Dairy Produce) Regulations and is subject to supervision, inspection and examination by officers appointed for that purpose. These commodities are graded according to quality which has been fixed by regulation as follows:—flavour and aroma, 50 points; texture, 30 points; and condition, 20 points. Butter and cheese graded at 93 to 100 points is of choicest quality; at 90 to 92 points, first quality; at 86 to 89 points, second quality; and at 80 to 85 points, pastry or cooking quality or, in the case of cheese, third quality.

In the following table particulars are given of the relative proportions of butter and cheese graded for export according to quality. Further details, which include actual quantities by States, are to be found in *Rural Industries*, 1962–63, Bulletin No. 1.

BULK BUTTER AND CHEESE GRADED FOR EXPORT: AUSTRALIA

(Per cent.)

Grade	Butter			Cheese		
	1961–62	1962–63	1963–64	1961–62	1962–63	1963–64
Choicest	65.4	70.7	67.5	8.4	5.9	5.3
First quality	26.0	21.4	25.0	82.6	82.1	88.1
Second and third quality(*a*)	8.6	7.9	7.5	9.0	12.0	6.6
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(*a*) Includes rejected.

(*c*) *Exports of Dairy Products.* Exports of butter, cheese and other milk products of Australian origin are shown in the following table.

EXPORTS OF DAIRY PRODUCTS: AUSTRALIA

Particulars	Quantity ('000 lb.)			Value (£A.'000 f.o.b.)		
	1961–62	1962–63	1963–64	1961–62	1962–63	1963–64
Butter	174,731	173,399	196,563	23,537	23,593	27,357
Cheese	50,124	58,101	62,333	5,203	6,094	6,759
Milk—						
Condensed, preserved, etc.—						
Sweetened full cream	36,028	54,432	69,554	2,378	3,426	4,587
Unsweetened	4,327	5,077	8,337	258	304	470
Dried or powdered—						
Full cream	13,043	14,263	15,260	2,148	2,226	2,142
Skim	35,311	55,467	40,505	1,263	1,942	1,492
Malted	7,647	7,414	9,348	1,177	1,125	1,411
Infants' and invalids' foods—						
Essentially of milk	6,980	7,633	8,567	1,082	1,214	1,160
Other	9,573	9,059	11,611	1,774	1,763	2,041

3. **Pigs and Pig Products.**—(i) *Pig Numbers.* At 31st March, 1964, 1,468,000 pigs were recorded, representing an increase of 28,000 (1.9 per cent.) on numbers a year earlier. The number of pigs in each State and Territory at 31st March for each of the years 1960 to 1964 compared with the averages for the three-year periods ended 31st March, 1939, 1949 and 1959, are given in the following table.

NUMBER OF PIGS

At 31st March—	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	A.C.T.	Aust.
Average for three years ended—									
1939 ..	374,963	285,465	299,707	74,329	74,657	42,802	404	481	1,152,808
1949 ..	366,267	261,922	375,191	101,934	91,862	43,184	424	554	1,241,338
1959 ..	377,510	263,363	405,702	99,632	135,404	61,389	2,543	160	1,345,703
Year—									
1960 ..	398,959	284,505	429,034	108,696	130,933	67,118	4,400	151	1,423,796
1961 ..	455,345	318,523	448,279	143,645	175,675	70,882	2,845	109	1,615,303
1962 ..	471,579	325,120	432,609	170,133	174,182	75,754	2,762	184	1,652,323
1963 ..	391,999	297,791	402,498	144,976	130,791	70,002	1,842	92	1,439,991
1964 ..	391,300	322,051	388,144	153,415	128,140	82,534	1,806	121	1,467,511

A long-term comparison of pig numbers is given in the division Pastoral Production of this chapter (*see* p. 1044). A map showing the distribution of pigs in Australia at 31st March, 1963, faces page 1093 of Year Book No. 50 and graph showing the number of pigs in Australia from 1870 onwards appears on page 1038 of this Year Book.

(ii) *Size of Pig Herds.* Details of the size of pig herds have been published in a series of bulletins entitled *Classification of Rural Holdings by Size and Type of Activity*, 1959–60.

(iii) *Pigs Slaughtered.* The number of pigs slaughtered during each of the years 1959–60 to 1963–64, compared with the averages for the three-year periods ended 1938–39, 1948–49 and 1958–59, is shown in the following table.

PIGS SLAUGHTERED

('000)

Period	Slaughterings passed for human consumption									Total slaughterings (including boiled down)
	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.	
Average for three years ended—										
1938–39 ..	562	503	530	155	109	65	1		1,925	1,961
1948–59 ..	440	371	448	154	138	54	1		1,606	1,615
1958–59 ..	594	439	474	159	191	94	5		1,956	1,968
Year—										
1959–60 ..	584	458	530	171	168	115	7		2,033	2,043
1960–61 ..	655	513	554	183	194	111	9		2,219	2,229
1961–62 ..	755	587	597	232	264	120	2	7	2,564	2,573
1962–63 ..	688	528	604	234	237	116	2	7	2,416	2,424
1963–64 ..	636	531	606	214	185	123	2	7	2,304	2,312

(iv) *Production.* (*a*) *Pigmeat.* In the following table details of the production of pigmeat in each State are shown for the years 1959–60 to 1963–64, together with the averages for the three-year periods ended 1938–39, 1948–49 and 1958–59.

PRODUCTION OF PIGMEAT (CARCASS WEIGHT)

(Tons)

Period	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	N.T.	A.C.T.	Aust.
Average for three years ended—									
1938–39 ..	25,558	24,569	23,522	7,538	4,322	2,893	5	43	(a)88,450
1948–49 ..	27,182	22,308	22,856	8,993	8,500	2,916	24	36	92,815
1958–59 ..	28,272	23,097	23,180	8,778	9,624	4,156	84	209	97,400
Year—									
1959–60 ..	26,252	23,383	27,106	9,161	9,029	5,352	103	208	100,594
1960–61 ..	29,048	25,550	27,289	9,574	10,550	5,057	150	240	107,458
1961–62 ..	32,677	27,406	29,802	11,558	13,180	5,428	86	326	120,463
1962–63 ..	30,283	25,086	29,619	11,810	11,731	5,461	69	328	114,387
1963–64 ..	28,717	25,306	29,919	11,163	9,852	5,927	73	308	111,265

(a) Excludes trimmings from baconer carcasses.

(b) *Bacon and Ham.* Production of bacon and ham amounted to 41,539 tons in 1963–64. This amount is 0.3 per cent. below the amount of 41,661 tons produced in 1962–63. The record output of 56,246 tons was attained in 1944–45.

Details of production are shown by States in the following table for each year from 1959–60 to 1963–64, compared with the averages for the three-year periods ended 1938–39, 1948–49 and 1958–59.

PRODUCTION OF BACON AND HAM (CURED CARCASS WEIGHT) (a)

(Tons)

Period	N.S.W.	Victoria	Q'land	S. Aust.	W. Aust.	Tas.	Australia
Average for three years ended—							
1938–39	10,396	7,556	8,759	2,940	1,838	1,022	32,511
1948–49	14,436	10,787	9,846	4,580	4,209	1,196	45,054
1958–59	11,132	8,302	10,294	3,275	2,987	1,078	37,068
Year—							
1959–60	11,012	8,634	9,948	3,115	3,061	1,144	36,914
1960–61	11,328	9,211	9,442	3,141	3,169	1,120	37,411
1961–62	11,145	9,102	12,221	2,757	3,512	1,131	39,868
1962–63	12,827	9,004	11,449	3,355	3,844	1,182	41,661
1963–64	13,504	8,629	10,843	3,605	3,792	1,166	41,539

(a) Pressed and canned bacon and ham have been converted to cured carcass weight for periods subsequent to 1948–49.

(v) *Consumption.* (a) *Pork.* Apparent consumption of pork per head in 1963–64 was 11.4 lb., compared with 12.0 lb. per head in 1962–63 and 13.6 lb. per head in 1961–62. The 1961–62 level was the highest since the war. In recent years annual consumption of pork per head has not fallen below 10 lb.

In the following table details of the production and disposal of pigmeat are shown for the years 1959–60 to 1963–64 compared with the averages for the three-year periods ended 1938–39, 1948–49 and 1958–59.

PRODUCTION AND DISPOSAL OF PIGMEAT (CARCASS WEIGHT): AUSTRALIA

Period	Change in stocks (a)	Production	Exports	Curing and canning	Apparent consumption (as pork or smallgoods) in Australia	
					Total	Per head per year
	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	lb.
Average for three years ended—						
1938–39	..	88.5	13.7	48.6	26.2	8.5
1948–49 . ..	−1.2	92.8	6.3	63.4	24.3	7.1
1958–59 . ..	..	97.4	0.8	53.0	43.6	10.1
Year—						
1959–60	+0.8	100.6	0.4	52.6	46.8	10.3
1960–61	+0.8	107.5	0.4	53.3	53.0	11.4
1961–62	−0.7	120.5	0.9	55.9	64.4	13.6
1962–63	−1.8	114.4	0.2	58.0	58.0	12.0
1963–64	−3.1	111.3	0.2	57.9	56.3	11.4

(a) Includes allowance for imports.

(b) *Bacon and Ham.* Annual consumption of bacon and ham has been about 7 lb. per head in recent years. The 1963–64 consumption was 7.5 lb. per head.

Details of production and disposal of bacon and ham for the years 1959–60 to 1963–64, compared with the averages for the three-year periods ended 1938–39, 1948–49 and 1958–59 are shown in the following table.

PRODUCTION AND DISPOSAL OF BACON AND HAM (CURED CARCASS WEIGHT): AUSTRALIA

Period	Change in stocks	Production	Exports	Canning	Apparent consumption in Australia	
					Total	Per head per year
Average for three years ended—	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	lb.
1938–39	..	32.5	1.0	..	31.5	10.2
1948–49	..	45.1	3.1	2.1	39.9	11.7
1958–59	+0.1	37.1	0.5	6.0	30.5	7.1
Year—						
1959–60	−0.8	36.9	0.3	5.3	32.1	7.1
1960–61	+0.1	37.4	0.3	5.3	31.7	6.8
1961–62	(a)	39.9	0.1	6.8	33.0	7.0
1962–63	−0.1	41.7	0.1	5.7	36.0	7.4
1963–64	(a)	41.5	0.1	5.1	36.3	7.4

(a) Less than 50 tons.

(vi) *Exports of Pigs and Pig Products.* Total quantities and values of exports of pigs and pig products of Australian origin for the years 1961–62 to 1963–64 are given in the following table.

EXPORTS OF PIGS AND PIG PRODUCTS: AUSTRALIA

Particulars	Quantity			Value (£A.'000 f.o.b.)		
	1961–62	1962–63	1963–64	1961–62	1962–63	1963–64
Bacon and ham (including canned) .. .. '000 lb.	596	216	186	154	59	61
Lard .. .. '000 lb.	645	246	95	48	24	11
Frozen pork .. '000 lb.	2,092	482	370	306	84	66
Pigs, live .. .. number	139	113	547	5	5	40

§ 2. The Poultry Industry

1. **General.**—Originally the poultry industry was conducted in conjunction with other branches of rural activity, mainly dairying, but it is now a specialized and distinct industry. It is from this source that the bulk of the commercial production is obtained. Practically all farm households keep poultry for the purpose of supplying their own domestic requirements and some supplies from this source are also marketed. In addition, many private homes in both rural and suburban areas keep small numbers of fowls in back-yard runs to help satisfy domestic needs. Because of the incompleteness of data available on poultry throughout Australia, details of poultry numbers are not published.

2. **Marketing of Eggs.**—(i) *Markets.* Details of the annual contracts entered into between the United Kingdom and Australian Governments up to 1952–53 and of the results of trading under free market conditions in the four years following appear in previous issues of the Year Book.

Over the period 1953–54 to 1963–64 Australian exports of shell eggs fell by 72 per cent. In 1963–64 they amounted to 3,599,000 dozen compared with 3,943,000 dozen in 1962–63. The main outlets for Australian eggs in 1963–64 were Kuwait (1,596,000 dozen), Saudi Arabia (810,000 dozen), and Qatar (217,000 dozen).

The United Kingdom provides the major export market for egg pulp. Australian exports of pulp to that country were approximately 7,755 tons in 1962–63 and 3,554 tons in 1963–64. In 1963–64 the United Kingdom absorbed the bulk of the exports of dried eggs (421,000 lb.) also.

(ii) *Egg Export Control Act* 1947. Details of this Act were given in previous issues of the Year Book (*see* No. 47, p. 997).

3. **Recorded Production of Eggs and Egg Products.**—(i) *Shell Eggs.* Available statistics of the production and disposal of eggs in Australia are restricted to those recorded by the Australian Egg Board and the Egg Marketing Board of New South Wales. Details of production as recorded by these authorities are shown in the following table.

SHELL EGGS: PRODUCTION(*a*) RECORDED BY EGG BOARDS

('000 dozen)

State	1959–60	1960–61	1961–62	1962–63	1963–64
New South Wales	53,498	62,157	61,657	54,609	56,713
Victoria	26,521	28,215	29,939	26,793	24,992
Queensland	10,007	10,810	10,176	11,290	12,459
South Australia	10,041	10,492	11,388	9,816	8,731
Western Australia	7,476	7,333	7,558	7,796	8,331
Tasmania	n.a.	n.a.	n.a.	n.a.	n.a.
Total(*b*)	**107,543**	**119,007**	**120,718**	**110,304**	**111,226**

(*a*) Receipts from consignors and sales by producer agents. (*b*) Excludes Tasmania.

(ii) *Egg Pulp, etc. Production.* Particulars of the production of whole egg pulp as recorded by the Egg Marketing Board for the State of New South Wales and by the Australian Egg Board for the other States are shown in the following table.

LIQUID WHOLE EGG PULP: PRODUCTION RECORDED BY EGG BOARDS

('000 lb.)

State	1959–60	1960–61	1961–62	1962–63	1963–64
New South Wales	17,810	21,496	20,916	11,500	9,272
Victoria	6,460	7,948	12,000	7,684	3,183
Queensland	2,767	3,716	3,321	3,864	3,922
South Australia	3,210	3,394	3,374	2,836	3,001
Western Australia	1,122	916	620	533	835
Tasmania	n.a.	n.a.	n.a.	n.a.	n.a.
Total(*a*)	**31,369**	**37,470**	**40,231**	**26,417**	**20,213**

(*a*) Excludes Tasmania.

In addition to liquid whole egg, production was also recorded of liquid egg whites and liquid egg yolks. Output in 1963–64 amounted to 2,711,000 lb. and 1,964,000 lb., respectively, compared with 2,030,000 lb. and 1,412,000 lb., respectively, in the previous year. These figures exclude small quantities produced in Tasmania for which details are not available.

4. **Consumption of Eggs and Egg Products.**—Because of the operations of producers in areas outside the control of the Egg Boards and the extent of " back-yard " poultry-keeping, for which no statistics are collected, figures relating to total egg production must be accepted with some reserve. The production shown in the following table, together with details of exports and consumption, is based upon the records of Egg Boards of production from areas under their control, plus estimates of production from uncontrolled areas and from " back-yard " poultry-keepers.

ESTIMATED PRODUCTION AND DISPOSAL OF EGGS IN SHELL: AUSTRALIA

Period	Change in stocks	Estimated total production	Exports (*a*)	For drying and pulping(*b*)	Apparent consumption in Australia	
					Total	Per head per year
Average for three years ended—	mill. doz.	mill. doz.	mill. doz.	mill. doz.	mill. doz.	dozen
1938–39	−0.1	152.7	13.0	5.5	134.3	19.5
1948–49	+0.1	204.7	17.7	39.1	147.8	19.3
1958–59	..	189.9	9.6	23.0	157.3	16.1
Year—						
1959–60	+0.6	198.6	3.4	27.2	167.4	16.5
1960–61	−0.3	212.1	6.2	36.9	169.3	16.3
1961–62	−0.1	215.8	5.8	35.5	174.6	16.4
1962–63	−0.4	207.2	4.6	23.9	179.1	16.6
1963–64	+1.3	210.1	4.3	21.0	183.5	16.7

(*a*) Includes ships' stores. (*b*) Includes wastage.

Details of the annual consumption of shell eggs, liquid whole egg and total shell egg equivalent per head of population are shown in the following table.

SUPPLIES OF EGGS AND EGG PRODUCTS AVAILABLE FOR CONSUMPTION: AUSTRALIA

(Per head per year)

Period	Eggs in shell	Liquid whole egg and egg powder (*a*)	Total	
			Number	Weight(*b*)
	number	number		lb.
Average for three years ended—				
1938–39	235	8	243	26.6
1948–49	232	23	255	27.9
1958–59	194	12	206	22.5
Year—				
1959–60	198	14	212	23.2
1960–61	195	15	210	(*c*) 26.3
1961–62	197	14	211	(*c*) 26.4
1962–63	199	11	210	(*c*) 26.2
1963–64	200	13	213	(*c*) 26.6

(*a*) In terms of the number of eggs in shell (*b*) The average weight of an egg in Australia has been taken as 1.75 oz. for the years prior to 1960–61. From 1960–61, the average weight has been taken as 2 oz. (*c*) Not comparable with earlier years; *see* footnote (*b*).

5. **Oversea Trade in Poultry Products.**—Details of the exports of poultry products in each of the years 1961–62 to 1963–64 are shown below.

EXPORTS OF POULTRY PRODUCTS: AUSTRALIA

Particulars		Quantity			Value (£A.'000 f.o.b.)		
		1961–62	1962–63	1963–64	1961–62	1962–63	1963–64
Eggs in shell	'000 doz.	5,007	3,943	3,599	831	603	577
Eggs not in shell—							
In liquid form	'000 lb.	29,231	18,920	9,493	3,273	1,901	1,114
Dry	'000 lb.	190	3	421	87	2	84
Frozen poultry	'000 lb.	427	318	501	93	71	113
Poultry, live(*a*)	number	555,908	550,362	1,027,871	75	73	129

(*a*) Includes day-old chicks.

For a number of years prior to 1961–62 there were considerable imports of canned chicken from the United States of America. In 1960–61 the quantity imported was 2,016,000 lb. valued at £227,000, but the trade had declined to 184,000 lb., valued at £18,000, in 1963–64.

§ 3. The Bee-Farming Industry

1. **Production of Honey and Bees-wax.**—Although practised as a separate industry, bee-farming is also carried on in conjunction with other branches of farming. In recent years there has been considerable growth in the number of itinerant apiarists operating on a large scale with mobile equipment. Some of these apiarists move as far afield as from Victoria to Queensland in an endeavour to provide a continuous supply of nectar from flora suitable for their bees. The returns of honey from productive hives during 1963–64 show an average of 134 lb. per hive, and the average quantity of wax was 1.7 lb. per productive hive.

The number of hives and the production of honey and bees-wax during the year 1963–64 are shown in the following table.

BEEHIVES, HONEY AND BEES-WAX, 1963-64

State or Territory	Beehives (a)			Honey produced		Bees-wax produced	
	Productive	Unproductive	Total	Quantity	Gross value	Quantity	Gross value
	'000	'000	'000	'000 lb.	£'000	'000 lb.	£'000
New South Wales ..	132	56	188	15,135	1,023	194	46
Victoria	74	19	93	9,460	749	110	28
Queensland ..	23	16	39	2,053	129	32	7
South Australia ..	63	9	72	9,722	496	134	25
Western Australia ..	40	10	50	8,510	430	103	17
Tasmania	6	1	7	632	56	6	2
Aust. Cap. Territory ..	1	(b)	1	135	6	2	(b)
Australia ..	**339**	**111**	**450**	**45,647**	**2,889**	**581**	**125**

(a) At 30th June, 1964. (b) Less than 500.

The production of honey and bees-wax fluctuates considerably and is determined mainly by the flow of nectar from flora, particularly the eucalypts, which varies greatly from year to year.

The table below shows the production of honey and bees-wax for each of the years 1959–60 to 1963–64, compared with the averages for the three-year periods ended 1938–39, 1948–49, and 1958–59.

HONEY AND BEES-WAX PRODUCTION
('000 lb.)

Period	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	A.C.T.	Australia
HONEY								
Average for three years ended—								
1938–39 ..	3,005	3,107	700	2,874	1,299	200	3	11,188
1948–49 ..	14,934	8,232	2,185	8,292	2,831	206	34	36,714
1958–59 ..	12,853	7,239	2,071	5,924	6,548	398	44	35,077
Year—								
1959–60 ..	18,682	9,661	4,119	7,221	5,549	296	34	45,562
1960–61 ..	15,286	8,390	1,848	4,442	5,311	441	83	35,801
1961–62 ..	15,326	10,314	1,281	8,405	7,982	279	64	43,651
1962–63 ..	14,087	4,818	2,941	4,147	6,099	547	40	32,679
1963–64 ..	15,135	9,460	2,053	9,722	8,510	632	135	45,647
BEES-WAX								
Average for three years ended—								
1938–39 ..	49	39	11	38	23	2	(a)	162
1948–49 ..	174	86	36	110	34	3	(a)	443
1958–59 ..	163	81	31	94	81	5	(a)	455
Year—								
1959–60 ..	257	113	59	106	67	4	1	607
1960–61 ..	197	105	32	59	71	5	1	470
1961–62 ..	208	135	22	123	94	4	1	587
1962–63 ..	177	64	44	56	79	6	(a)	426
1963–64 ..	194	110	32	134	103	6	2	581

(a) Less than 500 lb.

2. **Oversea Trade in Bee Products.**—The quantity of honey exported in 1963–64, 18.9 million lb., was 30 per cent. less than in 1962–63. The principal importers were the United Kingdom (67 per cent. of total exports), the Federal Republic of Germany (20 per cent.), and Japan (5 per cent.).

The quantity of bees-wax exported in 1963–64 was 161,300 lb., mainly to the United Kingdom.

Total quantities and values of exports of honey and bees-wax for the years 1961-62 to 1963-64 are shown below.

EXPORTS OF HONEY AND BEES-WAX: AUSTRALIA

Particulars		Quantity			Value (£A.'000 f.o.b.)		
		1961–62	1962–63	1963–64	1961–62	1962–63	1963–64
Honey	'000 lb.	25,390	26,759	18,859	1,113	1,401	1,381
Bees-wax	lb.	211,420	322,922	161,347	43	71	36

§ 4. Value of Dairy, Poultry and Bee Production and Indexes of Price and Quantum of Production

1. **Gross Value of Dairy, Poultry and Bee Production, 1959-60 to 1963-64.**—The following table shows the gross value of recorded dairy, poultry and bee production at the principal markets in Australia.

GROSS VALUE OF DAIRY, POULTRY AND BEE PRODUCTION: AUSTRALIA
(£'000)

Particulars	1959–60	1960–61	1961–62	1962-63	1963–64
DAIRYING					
Whole milk used for—					
Butter(*a*)	72,615	64,601	67,912	73,538	72,870
Cheese(*a*)	10,124	10,658	11,341	12,558	13,728
Preserved milk products	10,340	9,376	9,641	9,544	10,743
Other purposes	61,768	64,098	65,973	66,005	69,261
Subsidy paid on whole milk for—					
Butter	12,295	12,275	12,247	12,250	12,250
Cheese	1,205	1,225	1,253	1,250	1,250
Total, Whole Milk (including Subsidy)	*168,347*	*162,233*	*168,367*	*175,145*	*180,102*
Pigs slaughtered	30,121	30,659	26,953	31,303	32,999
Dairy cattle slaughtered	14,228	11,864	10,916	13,241	15,332
Total, Dairying	**212,696**	**204,756**	**206,236**	**219,689**	**228,433**
POULTRY					
Total, Poultry	**59,837**	**65,094**	**60,861**	**61,815**	**69,091**
BEE-FARMING					
Honey	2,390	1,772	1,877	1,648	2,889
Bees-wax	155	111	130	92	125
Total, Bee-farming	**2,545**	**1,883**	**2,007**	**1,740**	**3,014**

(*a*) Excludes Commonwealth subsidy which is shown separately.

2. **Gross, Local and Net Values, 1963-64.**—The values of dairy, poultry and bee-farming production on gross, local and net bases are shown in the following table. Further information on values, including definitions of the terms used, is given in Chapter XXX. Miscellaneous.

GROSS, LOCAL AND NET VALUE OF DAIRY, POULTRY AND BEE PRODUCTION, 1963-64

(£'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	98,834	14,362	84,472	(*b*) 18,553	65,919
Victoria	109,424	6,081	103,343	30,517	72,826
Queensland	42,267	2,952	39,315	10,806	28,509
South Australia	21,351	924	20,427	8,625	11,802
Western Australia	14,361	902	13,459	7,102	6,357
Tasmania	13,676	702	12,974	3,916	9,058
Northern Territory ..	135	1	134	n.a.	134
Australian Capital Territory..	490	43	447	111	336
Australia	**300,538**	**25,967**	**274,571**	**79,630**	**194,941**

(*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.

3. **Net Value of Production, 1959-60 to 1963-64.**—In the following table the net values of dairy, poultry and bee production (total and per head of population) are shown by State.

NET VALUE OF DAIRY, POULTRY AND BEE PRODUCTION(*a*)

Year	N.S.W. (*b*)	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	Australia (*c*)
NET VALUE (£'000)							
1959–60	69,285	62,533	29,579	10,912	4,565	7,492	184,677
1960–61	63,933	65,612	22,443	9,986	5,075	7,214	174,587
1961–62	58,902	56,376	23,563	11,160	5,222	7,354	162,982
1962–63	62,456	67,713	26,466	10,749	5,666	8,167	181 592
1963–64	65,919	72,826	28,509	11,802	6,357	9,058	194,941
NET VALUE PER HEAD OF POPULATION (£)							
1959–60	18.2	22.2	20.0	11.7	6.4	21.8	18.2
1960–61	16.5	22.8	14.9	10.4	7.0	20.6	16.8
1961–62	14.9	19.1	15.4	11.4	7.0	20.6	15.4
1962–63	15.6	22.4	17.1	10.8	7.4	22.6	16.8
1963–64	16.1	23.6	18.1	11.6	8.1	24.7	17.7

(*a*) No deduction has been made for depreciation and maintenance. (*b*) No deduction has been made for costs of power, power kerosene, petrol and other oils. (*c*) Includes Northern Territory and Australian Capital Territory.

4. **Indexes of Quantum and Price of Dairy, Poultry and Bee Production.**—For details of the methods of calculating these indexes and of the weights used *see* Chapter XXX. Miscellaneous.

INDEXES OF QUANTUM(*a*) AND PRICE OF DAIRY, POULTRY AND BEE PRODUCTION: AUSTRALIA

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

Particulars	1959–60	1960–61	1961–62	1962–63	1963–64
Quantum(*a*) of production—					
Milk	123	116	125	129	131
Other products	122	127	135	130	133
Total, Dairy, Poultry and Bee	*123*	*120*	*128*	*129*	*131*
Per head of population ..	83	79	83	82	82
Price—					
Milk	383	384	373	380	382
Other products	450	446	371	410	452
Total, Dairy, Poultry and Bee ..	*402*	*402*	*373*	*388*	*402*

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