

CHAPTER XVII.

AGRICULTURAL PRODUCTION.

NOTE.—Except where otherwise stated, the "agricultural" years hereafter mentioned are taken as ending on 30th June.

§ 1. Introductory.

1. **Early Attempts at Agriculture.**—The instructions issued to Captain Phillip on the 25th April, 1787, directed him, amongst other things, to proceed as soon as possible to the cultivation of the soil "under such regulations as may appear to be necessary and best calculated for securing supplies of grain and provisions." When the settlers landed at Botany Bay, however, it was found that the glowing accounts published in England by members of Captain Cook's expedition of the fertility of the soil in that locality were considerably overdrawn. Even when Phillip and his company moved round to Port Jackson on the 26th January, 1788, matters were for a time in no better case. The ground in the immediate neighbourhood of the settlement was not suitable for the cultivation of cereal crops, and when the time came to cultivate the soil it was found that there were very few who possessed the slightest acquaintance with the art of husbandry.

2. **The First Sowing.**—In his dispatch of the 15th May, 1788, Captain Phillip states that it was proposed to sow 8 acres with wheat and barley, although, owing to the deprivations of field mice and ants, he was doubtful of the success of the crops.

3. **Discovery of Suitable Agricultural Land.**—A branch settlement was formed at Rosehill, on the Parramatta River, towards the close of 1788, and here grain crops were successfully raised. In his despatch of 12th February, 1790, Phillip refers to the harvest at Rosehill, at the end of December 1789, as consisting of 200 bushels of wheat and 60 of barley, in addition to small quantities of oats, Indian corn, and flax. By the year 1791 there were 213 acres under crop in this locality. In 1792 a new settlement was formed at Toongabbie, about 3 miles westward of Parramatta, where Phillip states "there are several thousand acres of exceeding good ground." The Hawkesbury Valley, which probably contains some of the richest land in the world, was first settled in 1794. For a long time agricultural operations in Australia were restricted to the narrow belt of country between the tableland and the east coast of New South Wales, as it was not until the year 1813 that a passage was discovered across the Blue Mountains to the fertile plains of the west.

§ 2. Progress of Agriculture.

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

At a muster taken in 1808 the following was the return of crops:—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 under crop 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 gold discoveries of 1851 and subsequent years had at first a very disturbing effect on agricultural progress, the area under crop declining from 491,000 acres in 1850 to 458,000 acres in 1854; the area under cultivation in New South Wales decreased by nearly 66,000 acres, while in Tasmania a falling off of over 41,000 acres was experienced. 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 totalled over a million acres. The largest increase took place in Victoria, which returned an area of 299,000 acres. For the same year South Australia had 264,000 acres in cultivation, Tasmania 229,000 acres, and New South Wales 223,000 acres.

2. Progress of Cultivation.—(i) *General.* The following table shows the area under crop in each of the States and Territories of Australia at decennial intervals since 1860 and during each of the last five seasons:—

AREA UNDER CROP, 1860 TO 1926-27.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	Fed. Cap. Ter.	Australia.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860-1	246,143	387,283	3,353	359,284	24,705	152,860	..	..	1,173,628
1870-1	385,151	692,840	52,210	891,571	54,527	157,410	..	..	2,143,709
1880-1	606,277	1,543,809	113,978	2,087,237	63,902	140,788	..	..	4,560,991
1890-1	852,704	2,031,955	224,993	2,993,515	69,678	157,376	..	..	5,430,221
1900-1	2,446,767	3,114,132	457,397	2,969,680	201,338	224,352	..	..	8,813,666
1910-11	3,386,017	3,952,070	667,113	2,746,334	555,024	286,920	360	..	11,893,836
1920-21	4,465,143	4,489,503	779,497	3,231,093	1,804,957	297,333	296	1,966	15,069,556
1922-23	4,694,287	4,862,548	893,755	3,575,452	2,274,993	298,611	427	2,172	16,572,250
1923-24	4,809,591	4,682,144	871,068	3,562,551	2,323,070	279,122	440	2,300	16,531,186
1924-25	4,942,124	4,701,394	1,069,837	3,557,465	2,710,856	263,872	342	2,361	17,278,191
1925-26	4,541,360	4,433,492	1,033,765	3,583,867	2,932,110	266,412	391	2,181	16,793,578
1926-27	4,593,847	4,735,173	941,783	3,883,920	3,324,523	289,364	440	3,449	17,772,499

The progress of agriculture was uninterrupted from 1860 onwards, reaching its maximum in 1915-16, when 18,528,234 acres were cultivated. Following that year, the decline in wheat-growing and the effects of the drought of 1918-19 reduced the acreage to 13,296,407 acres in 1919-20, a decrease of 5,231,827 acres in the space of four years. With the removal of the obstacles to the disposal of the wheat crop, the area began to expand in 1920-21, and despite occasional adverse seasons, the area planted in 1926-27 amounted to more than 17½ million acres. Wheat continues to be the most extensively-grown crop in Australia, the area thereunder for both grain and hay during 1926-27 amounting to nearly 71 per cent. of the total acreage under cultivation. The extension of the wheat area since 1919-20, despite intermittent adverse climatic and market conditions, is a happy augury for the continuance of agricultural development in Australia. The maximum area cultivated in 1915-16, viz., 18,528,234 acres, was the outcome of a special war effort, and the results obtained far exceeded those for any previous year.

(ii) *Relation to Population.* The total area under cultivation per head of population reached its lowest point in recent years during 1919-20, but since that year the position

has considerably improved. The rate of progress during the past decennium, however, has not kept pace with the gain in population. Details for the past five seasons are as follows :—

AREA UNDER CROP PER 1,000 OF POPULATION, 1922-23 TO 1926-27.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Cap. Ter.	Australia.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1922-23 ..	2,160	3,058	1,096	6,968	6,621	1,364	120	849	2,942
1923-24 ..	2,177	2,881	1,075	6,789	6,566	1,274	124	877	2,875
1924-25 ..	2,179	2,873	1,281	6,606	7,444	1,211	95	788	2,942
1925-26 ..	1,976	2,633	1,200	6,497	7,878	1,228	107	553	2,803
1926-27 ..	1,957	2,766	1,068	6,857	8,777	1,347	113	701	2,908

(iii) *Relation to Total Area.* The next table furnishes a comparison of the area under crop in the several States and Territories and Australia with the respective total areas. For Australia as a whole, the area under crop in 1926-27 represented only about 1 acre in every 107. In Victoria the proportion was about 1 acre in every 12, in New South Wales 1 in 43, in Tasmania 1 in 58, in South Australia 1 in 63, in Western Australia 1 in 188, in Queensland 1 in 456, and in the Federal Territory 1 in 174.

PERCENTAGE OF AREA UNDER CROP ON TOTAL AREA, 1922-23 TO 1926-27.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Cap. Ter.	Australia.
	%	%	%	%	%	%	%	%	%
1922-23 ..	2.370	8.645	0.201	1.470	0.364	1.780	..	0.361	0.871
1923-24 ..	2.429	8.324	0.203	1.465	0.372	1.664	..	0.382	0.868
1924-25 ..	2.480	8.465	0.249	1.462	0.434	1.573	..	0.392	0.908
1925-26 ..	2.293	7.882	0.241	1.473	0.469	1.587	..	0.362	0.882
1926-27 ..	2.319	8.419	0.219	1.597	0.533	1.725	..	0.573	0.934

In the Northern Territory the proportion which the area under crop bears to the total area is, at present, practically negligible.

3. *Artificially-sown Grasses.*—In all the States there are considerable areas under artificially-sown grasses mainly sown on uncultivated land after burning off the existing vegetation, and not included in "area under crops." Statistics regarding the areas under such grasses are as shown hereunder :—

AREA UNDER SOWN GRASSES, 1922-23 TO 1926-27.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Nor. Ter.	Fed. Cap. Ter.	Australia.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1922-23	1,925,432	957,454	475,226	22,278	25,377	857,581	510	18	4,263,876
1923-24	1,930,894	1,024,591	498,552	30,800	38,022	799,443	500	18	4,322,820
1924-25	1,993,694	944,339	538,165	64,212	60,257	866,331	500	24	4,467,522
1925-26	2,017,831	933,271	532,052	60,453	89,170	821,807	500	18	4,465,102
1926-27	2,036,873	952,239	543,528	74,484	128,751	791,210	500	18	4,527,603

The increase in the area of the grass lands of Australia during recent years is due in large measure to the development of the dairying industry referred to in the next chapter.

§ 3. Relative Importance of Crops.

1. Distribution of Crops.—The following table gives the areas in the several States under each of the principal crops for the season 1926-27 :—

DISTRIBUTION OF CROPS, 1926-27.

Crop.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Cap. Ter.	Australia.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat ..	3,352,298	2,915,315	57,084	2,768,403	2,571,187	23,194	..	438	11,687,919
Oats ..	104,450	303,424	210	152,178	234,826	48,361	..	665	844,114
Maize ..	128,512	20,046	137,542	2	32	..	40	4	286,178
Barley—									
Malting ..	4,071	59,935	250	242,527	9,076	4,987	..	..	320,846
Other ..	1,555	28,961	149	14,001	4,750	678	..	3	50,097
Beans and Peas ..	213	11,476	16	15,554	2,919	18,765	..	..	48,943
Rye ..	862	864	3	337	345	497	..	..	2,908
Other Cereals ..	3,958	..	9	..	60	..	..	..	4,027
Hay ..	623,424	1,080,993	40,141	496,105	358,487	98,289	..	2,192	2,699,631
Green Forage ..	217,385	87,241	342,580	105,170	109,314	19,213	..	54	880,957
Grass and other									
Seeds ..	..	879	971	855	46	672	..	..	3,423
Orchards and other Fruit Gardens ..	74,682	83,215	35,145	31,570	18,512	33,322	..	5	276,451
Vines—									
Productive ..	12,461	37,340	1,268	46,531	4,613	..	..	..	102,213
Unproductive ..	1,820	3,272	414	3,740	661	..	..	..	9,907
Market Gardens ..	8,184	17,751	1,096	1,320	2,872	599	..	40	31,868
Sugar Cane—									
Productive ..	10,128	..	189,312	..	..	..	..	..	199,440
Unproductive ..	8,184	..	77,207	..	..	..	..	..	85,388
Potatoes ..	21,906	66,185	8,042	3,549	5,144	33,984	..	35	139,445
Onions ..	226	8,471	797	454	81	18	..	..	10,057
Other Root Crops ..	1,385	3,000	2,476	602	277	5,064	50	..	12,854
Tobacco ..	881	1,154	125	27	5	..	..	..	2,192
Broom Millet ..	3,046	1,493	351	..	..	..	..	..	4,800
Pumpkins and Melons ..	4,097	1,500	5,963	304	643	..	..	6	12,603
Hops ..	..	196	..	1	..	1,374	..	..	1,571
Cotton—									
Productive ..	1	..	18,743	..	31	..	30	..	18,805
Unproductive ..	..	..	12,717	..	..	..	..	..	12,717
All other Crops ..	10,121	2,372	8,572	690	632	347	320	1	23,055
Total Area ..	4,593,847	4,735,173	941,783	3,883,920	3,324,523	289,364	440	3,449	17,772,499

2. Relative Areas of Crops in States and Territories.—Taking the principal crops, i.e., those in the case of which the cultivation in Australia amounts to more than 100,000 acres, the proportion of each in the various States and Territories on the total area under crop for the season 1926-27 is shown in the next table. In four of the States, viz., New South Wales, Victoria, South Australia, and Western Australia, wheat-growing for grain is by far the most extensive form of cultivation, while in the same States the hay crop is second in importance. In Victoria and Western Australia, the oat crop occupies third position, while green forage ranks third in New South Wales, and barley in South Australia. In Queensland, the principal crops in the order of importance are green forage, sugar cane, maize, and wheat, while in Tasmania, hay, oats, potatoes, and orchards and fruit gardens occupy the leading positions.

As pointed out previously, wheat is the main crop in Australia, the area thereunder for grain and hay representing in 1926-27 nearly 71 per cent. of the total area under cultivation.

RELATIVE AREAS UNDER CROP, 1926-27.

Crop.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Cap. Ter.	Australia.
	%	%	%	%	%	%	%	%	%
Wheat ..	72.97	61.57	6.06	71.28	77.34	8.02	..	12.70	65.76
Hay ..	13.57	22.83	4.26	12.77	10.78	33.97	..	63.55	15.19
Oats ..	2.27	6.41	0.02	3.92	7.06	16.71	..	19.28	4.75
Green Forage ..	4.73	1.84	36.38	2.71	3.29	6.64	..	1.57	4.96
Maize ..	2.80	0.42	14.61	0.00	0.00	..	9.09	0.12	1.61
Barley ..	1.63	1.76	3.73	0.81	0.56	11.51	..	0.14	2.09
Orchards and Fruit Gardens..	0.12	1.88	0.04	6.61	0.42	1.96	..	0.09	1.56
Sugar-cane ..	0.40	..	28.30	..	..	..	..	..	1.60
Potatoes ..	0.48	1.40	0.92	0.09	0.15	11.74	..	1.01	0.78
Vineyards ..	0.31	0.86	0.18	1.29	0.16	..	..	..	0.63
All other ..	0.72	1.03	5.50	0.52	0.24	9.45	90.91	1.54	1.07
Total ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

3. Area of Chief Crops, Australia, 1922-23 to 1926-27.—The acreage under each of the principal crops in Australia during the last five seasons is shown below:—

AREA OF CHIEF CROPS.—AUSTRALIA, 1922-23 TO 1926-27.

Crop.	1922-23.	1923-24.	1924-25.	1925-26.	1926-27.
	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat ..	9,763,861	9,540,434	10,824,966	10,201,276	11,687,919
Hay ..	3,338,456	3,406,226	3,026,405	2,832,003	2,699,631
Oats ..	1,014,376	1,076,930	1,165,127	1,013,233	844,114
Green Forage ..	893,871	961,311	564,924	1,055,210	880,957
Maize ..	313,202	316,307	398,949	297,140	286,178
Barley ..	342,196	253,775	260,248	374,876	370,943
Orchards and Fruit Gardens ..	275,687	273,845	276,904	275,245	276,451
Sugar-cane ..	216,886	237,280	273,512	288,872	284,828
Potatoes ..	135,735	134,352	138,776	136,925	139,445
Vineyards ..	105,476	112,965	114,394	111,697	112,120
All other Crops ..	172,504	212,761	233,986	207,101	189,913
Total ..	16,572,250	16,531,186	17,278,191	16,793,578	17,772,499

Seasonal and economic influences are reflected in the areas of the principal crops grown in Australia during the past five years. Since 1922-23 the most notable advance has taken place in wheat, followed by sugar cane and barley, while the largest decreases have occurred in hay, oats, and maize.

§ 4. Wheat.

1. Progress of Wheat-Growing.—(i) *Area and Production.* Wheat is the principal crop raised in Australia, and its development during the past 30 years constitutes the most interesting feature of Australian agriculture. Since 1895, when the area under wheat amounted to 3½ million acres, an average of 260,000 acres has been added annually, until in 1926–27 more than 11½ million acres were cut for grain. The area and yield of wheat for grain are given below for each State for the five years ended 1926–27, and are shown from the year 1860 onwards in the graphs hereinafter. An estimate is also appended for the 1927–28 crop:—

WHEAT.—AREA AND PRODUCTION, 1922–23 TO 1927–28.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Fed. Cap. Ter.	Australia.
AREA.								
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1922–23 ..	2,942,339	2,644,314	145,492	2,453,086	1,552,868	25,244	518	9,763,861
1923–24 ..	2,945,040	2,454,117	51,149	2,418,415	1,656,915	14,503	295	9,540,434
1924–25 ..	3,549,367	2,705,323	189,145	2,499,852	1,867,614	12,954	711	10,824,966
1925–26 ..	2,924,745	2,513,494	165,999	2,465,648	2,112,032	19,091	267	10,201,276
1926–27 ..	3,352,298	2,915,315	57,084	2,768,403	2,571,187	23,194	488	11,687,919
1927–28(a) ..	3,006,770	3,064,172	230,000	2,941,360	2,993,677	28,000	..	12,263,979

YIELD.

	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bush.	Bushels.
1922–23 ..	28,660,824	35,697,220	1,877,836	28,784,767	13,857,432	569,587	7,176	109,454,842
1923–24 ..	33,171,300	37,795,704	243,713	34,551,955	18,920,271	305,628	4,700	124,993,271
1924–25 ..	69,762,435	47,364,495	2,779,829	30,628,625	23,887,397	231,338	14,565	164,558,734
1925–26 ..	33,600,619	29,255,534	1,973,477	28,603,101	20,471,177	395,603	4,881	114,504,392
1926–27 ..	47,373,713	46,886,020	379,339	35,558,711	30,021,616	537,000	5,487	160,761,886
1927–28(a) ..	26,927,160	26,160,114	3,777,000	24,066,012	35,134,156	672,000	..	116,737,082

(a) Preliminary figures.

The area devoted to the production of wheat for grain reached its maximum in 1915–16, when 12,484,512 acres were sown, largely as the result of a special war effort. After that year, however, there was a serious decline, brought about by war conditions and unfavourable seasons, and the area in 1919–20 fell to 6,419,160 acres, or only half that of 1915–16. The promise of remunerative Government guarantees, coupled with the prospects of high prices, was responsible for a marked advance in 1920–21; and the area was further extended during the next six years, the total gain for Australia since 1919–20 amounting to more than 5 million acres.

Although final figures for 1927–28 for all the States are not yet available, the data to hand indicate the total area under wheat for grain in Australia at about 12,263,979 acres, an increase of 600,000 acres on the previous year's figure. The season opened favourably, but the absence of rain at the critical period reduced the yield to 116,737,082 bushels, the yield per acre declining to 9.52 bushels.

The harvest of 179,065,703 bushels reaped in 1915–16 represents the maximum production of wheat in Australia. The annual production during the seasons 1917–18 to 1926–27 averaged 118,558,262 bushels, and the extent to which this average may be exceeded during any year depends in a great measure on seasonal conditions. For the last eight seasons the yield has exceeded 100 million bushels, the average for the period being 133,000,000 bushels. This is the first occasion on which such a succession of good harvests has occurred, and emphasizes clearly the value of bare-fallowing, seed selection, and the application of manures. It is the considered opinion of agricultural experts that the improved cultural methods practised by modern wheat-growers preclude the possibility of absolute failure of this crop.

(ii) *Average Yields.* In the next table will be found the average yield of wheat per acre in each of the last five seasons, and for the decennium 1917-27 :—

WHEAT.—YIELD PER ACRE, 1922-23 TO 1926-27.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Fed. Cap. Ter.	Australia.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1922-23 ..	9.74	13.50	12.91	11.73	8.92	22.56	13.85	11.21
1923-24 ..	11.26	15.40	4.76	14.29	11.42	21.07	15.93	13.10
1924-25 ..	16.83	17.51	14.70	12.21	12.79	17.86	20.49	15.20
1925-26 ..	11.56	11.64	11.89	11.60	9.69	20.72	18.28	11.22
1926-27 ..	14.13	16.08	6.65	12.84	11.68	23.15	12.53	13.75
Average 10 seasons, 1917-27	12.36	14.35	13.46	12.01	10.29	19.52	16.49	12.48

As the above figures show, there were considerable variations in the average yields, chiefly due to the vagaries of the seasons. Considerable improvement has been shown in the average yields for the past three decades, the figures being 8.54, 11.13, and 12.48 bushels per acre respectively. The increased yields of the later years are principally due to the better cultural methods employed in wheat farming. The excellence of the 1920-21 and 1924-25 seasons is reflected in the splendid averages obtained in those years, the average of the former year, viz., 16.08 bushels having been exceeded only once by the 16.35 bushels reaped as far back as 1866, when less than 1,000,000 acres were sown in relatively fertile areas.

(iii) *Relation to Population.* During the seasons embraced in the following table, the Australian production of wheat per head of population has varied between 19 bushels in 1925-26 and 28 bushels in 1924-25. The State in which wheat growing occupies the most important position relatively to population is Western Australia, which in 1926-27 had a yield averaging 79 bushels per head. Queensland and Tasmania are the States in which the average production of wheat per head is least, the quantity raised being generally below that required for local consumption. Particulars for the past five seasons are as follows :—

WHEAT.—YIELD PER 1,000 OF POPULATION, 1922-23 TO 1926-27.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Fed. Cap. Ter.	Australia.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1922-23 ..	13,190	22,448	2,382	56,089	40,329	2,602	2,806	19,430
1923-24 ..	15,013	23,253	300	65,845	53,475	1,395	1,793	21,739
1924-25 ..	26,504	28,583	3,329	56,691	65,602	1,062	4,858	28,107
1925-26 ..	14,706	17,372	2,292	51,852	55,003	1,823	1,240	19,019
1926-27 ..	20,178	27,339	430	62,781	79,266	2,501	1,115	26,309

The normal annual consumption of wheat in Australia, exclusive of the requirements for seed, poultry and other live stock, is 306 lb. (5.11 bushels) per head of population.

2. *Australian and Foreign Wheat Yields.*—(i) *Average Yield.* The next table gives the average return per acre in the principal wheat-growing countries of the world, ranging from a maximum in Denmark of 40½ bushels per acre to a minimum in the Union of South Africa of 8½ bushels per acre. Australia, with approximately 13½, occupies a relatively subordinate position, but in comparison with the yields obtained in those countries where wheat is extensively grown the results obtained in Australia are very satisfactory. Germany, with 25.07 bushels; France, 19.82 bushels; Canada, 16.92 bushels; Italy, 16.22 bushels; and United States, 14.47 bushels, exceed the Australian average, but the latter is in excess of the yields obtained in the Soviet Republics, India, Argentine, Spain, and Rumania.

WHEAT.—YIELD PER ACRE, VARIOUS COUNTRIES, 1922 TO 1926.

Country.	Average Yield in Bushels per acre.		Country.	Average Yield in Bushels per acre.	
	Average, 1922-1924.	1926.		Average, 1922-1924.	1926.
Denmark ..	40.51	34.86	Lithuania ..	15.79	13.81
Netherlands ..	37.32	41.63	Korea ..	(a) 14.75	11.74
Belgium ..	34.01	36.12	Bulgaria ..	14.62	15.87
United Kingdom ..	32.40	30.87	United States of America ..	14.47	14.72
Switzerland ..	29.05	31.70	Jugo-Slavia ..	13.64	17.10
New Zealand ..	27.92	34.09	Australia ..	13.24	13.75
Sweden ..	26.29	32.46	Spain ..	12.97	13.61
Japan ..	25.10	24.82	Rumania ..	12.52	13.49
Germany ..	25.07	24.12	Argentine Republic ..	12.31	12.09
Egypt ..	24.94	24.30	Cyprus ..	12.24	8.49
Norway ..	24.03	26.58	India ..	12.18	10.66
Czecho-Slovakia ..	22.73	22.15	Greece ..	(c) 11.56	9.69
France ..	19.82	17.87	Uruguay ..	11.18	10.37
Chile ..	18.41	15.50	Peru ..	10.72	(b) 12.77
Austria ..	17.51	18.86	Portugal ..	9.84	11.38
Canada ..	16.92	18.10	French Morocco ..	9.09	8.05
Hungary ..	16.83	20.21	Soviet Republics ..	(b) 8.29	11.73
Brazil ..	16.71	(d) 17.38	Union of South Africa ..	8.28	(d) 7.87
Italy ..	16.22	18.17			
Poland ..	16.11	17.31			

(a) Average for years 1923-1924. (b) Year 1924. (c) Average for years 1921-1923. (d) Year 1925.

(ii) *Total Production.* The latest available official statistics of the production of wheat in various countries are given in the following table:—

WHEAT.—YIELD IN VARIOUS COUNTRIES, 1922 TO 1926.

Country.	Yield in Bushels (,000 omitted).		Country.	Yield in Bushels (,000 omitted).	
	Average, 1922-1924.	1926.		Average, 1922-1924.	1926.
United States of America ..	838,222	832,319	French Morocco ..	20,535	20,584
Soviet Republics ..	(b) 381,738	809,647	Belgium ..	12,332	12,801
Canada ..	378,667	416,138	Greece ..	(a) 10,857	11,171
India ..	366,464	324,949	Mexico ..	10,767	10,245
France ..	266,691	231,770	Portugal ..	10,459	12,200
Argentine Republic ..	209,075	220,830	Uruguay ..	9,171	10,234
Italy ..	185,542	220,646	Sweden ..	9,116	12,363
Spain ..	134,787	146,601	Korea ..	(c) 8,650	10,517
Australia ..	133,002	160,762	Austria ..	8,267	9,438
Germany ..	89,194	95,430	Denmark ..	7,980	8,767
Rumania ..	87,815	110,884	Syria ..	(b) 6,651	13,940
United Kingdom ..	59,163	51,000	Union of South Africa ..	6,619	8,502
Hungary ..	54,783	74,909	Tunis ..	6,259	13,044
Jugo-Slavia ..	53,696	71,430	New Zealand ..	5,919	7,500
Poland ..	41,562	47,080	Netherlands ..	5,327	5,487
Egypt ..	37,163	37,208	Brazil ..	3,727	4,145
Czecho-Slovakia ..	34,329	34,131	Lithuania ..	3,186	4,180
Bulgaria ..	34,082	41,065	Switzerland ..	3,023	4,027
Japan ..	29,970	28,431	Peru ..	2,886	(d) 2,876
Chile ..	25,401	23,287	Cyprus ..	2,342	1,624
Algeria ..	23,595	23,551			

(a) Average for years 1921-1923. (b) Year 1924. (c) Average for years 1923-1924. (d) Year 1925.

NOTE.—The harvests reported above for 1926 relate to the year 1926 for the Northern, and 1926-27 for the Southern Hemisphere.

The complete compilation of the world's production of wheat is not possible owing to the failure of certain countries to report their harvests. The Institute of Agriculture, Rome, has, however, compiled figures obtained from all the producing countries reporting, with the following results:—

WHEAT.—WORLD'S PRODUCTION (a), 1909-13 TO 1926.

Years.	Area.		Yield.	
	Acres.	Bushels.	Bushels.	Bushels.
Average, 1909-1913	270,266,000	3,779,479,000	13.98	
1923	261,965,000	3,904,988,000	14.91	
1924	261,798,000	3,467,944,000	13.25	
1925	279,599,000	4,066,267,000	14.54	
1926	295,744,000	4,183,403,000	14.15	
Average, 1923-1926	274,776,000	3,905,650,000	14.21	

(a) From countries reporting.

It is stated in the Report of the Institute that if all countries for which progress data are lacking were taken into account, the world's total production of wheat may be approximately estimated at 4,500 million bushels.

The total area harvested in 1926 again shows an increase on the figures for the previous year. Europe, mainly on account of the Soviet Union, was most largely responsible for this increase, followed by the United States of America and Canada. The area sown was the largest since the war, and exceeded the pre-war average by more than 25,000,000 acres. Nevertheless, in comparison with the pre-war period, areas sown to wheat are still 5 per cent. lower in European Countries and 7 per cent. lower in the Soviet Union, though considerably more in other continents, especially in North America, Argentina and Australia.

The increase in sowing was accompanied by favourable weather conditions in the Soviet Union, United States of America, Canada, Argentine Republic and Australia, and exceptionally heavy yields were obtained in these countries. In Europe, India and Africa the yields were not so satisfactory, but the total world output was the greatest since the war, and exceeded the 1909-13 average by 404,000,000 bushels.

The Australian contribution to the world's production shown above during the past four years amounted to slightly more than 3½ per cent.

3. Prices of Wheat.—(i) *British Wheat.* Since the United Kingdom is the largest importer of Australian wheat, the price of wheat in the British markets is a matter of prime importance to the local producer. The table below gives the average prices per Imperial quarter realized for British grown wheat:—

BRITISH WHEAT.—PRICES PER QUARTER, 1861 TO 1927.

Year.	Average for Year.	Highest Weekly Average.	Lowest Weekly Average.	Year.	Average for Year.	Highest Weekly Average.	Lowest Weekly Average.
1861	55 4	61 6	50 0	1920	80 10	90 11	72 6
1871	56 8	60 0	52 6	1921	71 6	89 10	44 0
1881	45 4	55 2	40 9	1922	47 10	56 3	37 5
1891	37 0	41 8	32 3	1923	42 2	49 3	37 6
1901	26 9	27 8	25 8	1924	49 3	56 1	41 5
1911	31 8	33 4	30 0	1925	52 2	59 3	43 11
1918	72 10	74 5	71 2	1926	53 3	62 2	47 6
1919	72 11	73 4	72 5	1927	49 3	54 8	42 2

(ii) *Australian Export Values.* In the next table will be found a statement of the export values of Australian wheat during each of the last five years:—

AUSTRALIAN WHEAT.—EXPORT VALUES, 1923-24 TO 1927-28.

Heading.	1923-24.	1924-25.	1925-26.	1926-27.	1927-28.
	s. d.	s. d.	s. d.	s. d.	s. d.
Price per bushel	4 8	6 8	6 4	5 7	5 6

The export values here shown are the values for the successive years in the principal markets of Australia.

4. Imports and Exports of Wheat and Flour.—(i) *Quantities.* The table hereunder shows the imports, exports, and net exports of wheat and flour from 1922-23 to 1926-27. For the sake of convenience, flour has been expressed at its equivalent in wheat, 1 ton of flour being taken as equal to 48 bushels of grain. In ordinary seasons the Australian imports of wheat and flour are negligible. During the past five years the exports ranged between 50,446,320 bushels in 1922-23 and 125,044,344 bushels in 1924-25, the net exports for the period averaging 87,159,926 bushels.

WHEAT AND FLOUR.—IMPORTS AND EXPORTS, AUSTRALIA, 1922-23 TO 1926-27.

Year.	Imports.			Exports.			Net Exports.
	Wheat.	Flour.	Total.	Wheat.	Flour.	Total.	
	Bushels.	Eq. Bushels. ^a	Bushels.	Bushels.	Eq. Bushels. ^a	Bushels.	Bushels.
1922-23	15,288	2,112	17,400	31,510,272	18,936,048	50,446,320	50,428,920
1923-24	203	1,020	2,123	59,910,480	24,537,168	84,447,648	84,445,525
1924-25	42	2,784	2,826	103,538,088	21,506,256	125,044,344	125,041,518
1925-26	13	3,456	3,469	54,227,728	24,049,536	78,277,264	78,273,795
1926-27	257	3,456	3,713	73,925,315	23,686,272	97,611,587	97,607,874

(a) Equivalent in bushels of wheat.

(ii) *Destination of Exported Breadstuffs.* In the next two tables will be found a list of the principal countries to which Australia exported wheat and flour during each year of the period 1922-23 to 1926-27. The countries are as shown in the Australian Customs returns, but wheat ships are frequently instructed to call for orders at various ports, and the countries to which these ports belong cannot, therefore, always be considered as the ultimate destination of the whole of the wheat said to be exported to them.

WHEAT.—EXPORTS, AUSTRALIA, 1922-23 TO 1926-27.

Country to which Exported.	1922-23.	1923-24.	1924-25.	1925-26.	1926-27.	Total for Five Years.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
United Kingdom	10,762,600	23,017,707	39,356,580	22,319,823	26,510,696	121,967,406
Italy ..	11,647,165	6,483,732	15,560,605	4,642,202	10,316,509	48,650,213
Japan ..	3,711,211	13,067,907	7,018,627	10,861,863	4,298,567	38,958,175
France ..	1,284,924	3,562,313	14,580,859	53,865	7,254,063	26,736,024
Union of South Africa ..	2,545,162	3,721,697	3,674,773	3,117,007	2,005,233	15,063,872
Belgium ..	178,930	622,283	4,440,158	1,349,347	4,782,332	11,373,050
Egypt ..	38,783	1,339,707	1,887,777	668,288	4,625,270	8,559,825
Germany ..	397	110,770	3,061,950	941,252	2,132,607	6,246,974
Netherlands ..	..	142,753	3,297,382	2,211,050	3,379,723	9,030,908
New Zealand ..	..	1,247,362	2,682,908	2,533,847	1,040,672	7,504,789
India ..	..	..	..	1,326,860	2,713,827	4,040,687
Peru ..	167,110	..	528,367	1,635,802	854,747	3,186,026
Sweden ..	412,547	1,304,445	1,040,585	129,397	168,000	3,054,974
Norway ..	117,012	106,415	326,037	225,877	..	775,341
China ..	..	..	..	985,865	..	985,865
Canary Islands(a)	..	..	470,527	..	..	470,527
Other Countries	644,493	5,183,389	5,610,953	1,225,383	3,843,070	16,507,288
Total ..	31,510,334	59,910,480	103,538,088	54,227,728	73,925,316	323,111,946

(a) For orders.

The exports of flour during the same period and the principal countries of destination were as follows:—

FLOUR.—EXPORTS, AUSTRALIA, 1922-23 TO 1926-27.

Country to which Exported.	1922-23.	1923-24.	1924-25.	1925-26.	1926-27.	Total for Five Years.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Egypt	127,072	182,938	172,416	194,909	185,392	862,727
United Kingdom	83,804	92,425	103,817	70,537	76,167	426,750
Netherlands East Indies	50,899	49,262	44,875	66,868	64,648	276,552
Malaya (British)	32,619	33,683	29,408	48,910	42,451	187,071
Union of South Africa	39,250	37,685	25,475	22,780	18,912	144,102
Philippine Islands	10,292	13,012	10,016	11,389	8,754	53,463
Ceylon	7,681	10,142	10,416	18,130	16,060	62,429
Hong Kong	6,318	11,739	13,247	9,703	3,966	44,973
Mauritius	8,757	8,569	6,496	3,990	7,781	35,593
Japan	1,664	15,430	156	732	711	18,693
Malta	6,133	5,631	1,967	4,817	5,407	23,955
New Caledonia	3,517	3,765	3,522	3,911	3,319	18,034
Portuguese East Africa	3,475	2,963	2,621	5,441	5,802	20,302
China	260	12,905	219	132	306	13,822
New Zealand	84	294	4,258	12,363	28,383	45,382
Fiji	2,602	3,024	2,989	4,039	3,567	16,221
French Indo-China	1,826	1,884	1,295	3,421	1,719	10,145
India	1,063	130	470	1,584	226	3,473
Papua	378	780	912	946	788	3,804
Italy	112	2,025	156	..	..	2,293
Other Countries	6,695	22,905	13,316	16,430	19,105	78,451
Total	394,501	511,191	448,047	501,032	493,464	2,348,235

For the five years under review the export of wheat to the United Kingdom amounted to 121,967,406 bushels, or 37.75 per cent. of the total export for the period, while the export of flour to the same destination aggregated 426,750 tons, or 18.17 per cent. of the total export. The country to which the largest consignments of flour were made during the last quinquennium was Egypt, followed by the United Kingdom, Netherlands, East Indies, Malaya (British), and the Union of South Africa.

(iii) *Exports of Wheat and Flour.* From the foregoing returns it will be seen that the quantity of wheat exported in the form of flour during the past five years represents, on the average, about 26 per cent. of the total equivalent in wheat exported as wheat or flour from Australia.

A point of some interest in connexion with the export of wheat, and one which bears also on the proportion of wheat and flour exports just referred to, is that concerning the quantity of phosphoric acid which this export has the effect of removing from Australia, and the necessity which exists for the return to the soil of this substance in some form.

According to an estimate furnished by the chemist to the New South Wales Department of Agriculture (F. B. Guthrie, Esq., F.C.S., &c.), the proportions of milled product from a bushel (60 lb.) of wheat are, approximately, 42 lbs. of flour, 9 lbs. of bran, and 9 lbs. of pollard, while the percentage of phosphoric acid contained in these products is as follows:—

Flour	0.32 per cent., or 0.13 lb. per bushel.
Bran	3.00 " 0.27 "
Pollard	0.90 " 0.08 "

The total amount of phosphoric acid contained in a bushel of wheat, is, therefore, 0.48 lb., of which 0.13 lb. is in the flour and 0.35 lb. in the offal.

During the last ten years the net exports from Australia of wheat and its milled products have amounted to 649,866,759 bushels of wheat, 4,312,405 tons of flour, and 9,866,975 bushels of bran, pollard, and sharps. On the basis of the figures quoted above this export would contain no less than 342,683,088 lbs. of phosphoric acid, the value of which as a fertilizer would amount to approximately four million pounds sterling.

5. Local Consumption of Wheat.—The estimated consumption of wheat for food and for seed purposes in Australia during the past ten years is given in the following tables:—

WHEAT.—HUMAN CONSUMPTION, AUSTRALIA, 1917-18 TO 1926-27.

Year.	Flour Milled.	Net Exports of Flour.		Net Quantity Available for Home Consumption.		Net Quantity Available per Head of Population.	
		Flour.	Flour in Biscuits Exported.	Flour.	Equivalent in Terms of Wheat.	Flour.	Equivalent in Terms of Wheat.
	Tons.	Tons.	Tons.	Tons.	Bushels.	Tons.	Bushels.
1917-18 ..	985,761	374,062	9,810	601,889	28,890,670	.1205	5.784
1918-19 ..	1,046,268	483,340	6,437	556,491	26,711,570	.1098	5.270
1919-20 ..	1,050,228	517,708	4,590	527,930	25,340,640	.1000	4.801
1920-21 ..	801,511	229,648	3,375	568,488	27,287,420	.1052	5.050
1921-22 ..	911,452	359,698	2,284	549,470	26,374,560	.0999	4.798
1922-23 ..	985,479	394,457	1,831	589,191	28,281,170	.1049	5.034
1923-24 ..	1,092,856	511,151	1,727	579,978	27,838,940	.1011	4.853
1924-25 ..	1,068,698	447,939	1,814	618,895	29,706,960	.1054	5.058
1925-26 ..	1,185,968	500,960	2,473	682,535	32,761,680	.1139	5.467
1926-27 ..	1,141,748	493,392	1,570	646,786	31,045,730	.1058	5.081
Aggregate 10 years	10,269,969	4,312,405	35,911	5,921,653	284,239,340	.1064	5.108

WHEAT USED FOR SEED.—AUSTRALIA, 1917 TO 1926.

Year.	Area for Grain and Hay.	Wheat for Seed Purposes.		
		Quantity.	Per Acre.	Per Head of Population.
	Acres.	Bushels.	Bushels.	Bushels.
1917	10,910,669	9,713,000	.890	1.949
1918	9,428,398	9,054,000	.960	1.782
1919	8,250,572	7,774,000	.942	1.466
1920	10,271,055	9,471,000	.922	1.750
1921	10,878,401	10,077,000	.926	1.847
1922	11,253,078	10,456,000	.929	1.878
1923	11,016,608	10,328,000	.937	1.816
1924	11,859,102	10,967,000	.925	1.890
1925	11,405,943	10,627,000	.932	1.774
1926	12,543,025	11,591,000	.924	1.897
Aggregate for 10 years ..	107,816,851	100,058,000	.928	1.798

In addition to the above, the quantity of grain fed to poultry and other live stock as well as that used as seed for green forage crops must be taken into consideration. These quantities vary from year to year according to the price of wheat and the nature of the season, and sufficient data are not available on which to base an annual estimate, but, taken over a period, the amount so consumed has been estimated to range from one half to one bushel per head of population per annum. The flour available for human consumption necessarily fluctuates from year to year coincident with stocks. In some years the flour available per head of population, after deducting net exports from the quantity milled, shows a substantial increase over the average for the previous year, this, however, being counterbalanced by a decline in the following year. The average quantity of

flour consumed per annum for the ten years under consideration was 0.1064 tons per head of population, which, expressed in equivalent terms in wheat, represents 5.108 bushels. The estimates of quantity of grain used for seed purposes are based on data supplied by the Agricultural departments of the several States giving average quantities of seed used per acre for wheat sown either for grain or hay. The average annual quantity thus used during the ten years was 1.798 bushels per head of population, and 0.928 bushels or 56 lbs. per acre sown. For all purposes the consumption of wheat in Australia during the past six years averaged 42,913,000 bushels, or 7.38 bushels per head of the population.

6. Value of the Wheat Crop.—The estimated value of the wheat crop in each State and in Australia during the season 1926-27 is shown below :—

WHEAT.—VALUE OF CROP (a), 1926-27.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Cap. Ter.	Australia.
	£	£	£	£	£	£	£	£
Aggregate value..	12,139,510	12,307,580	126,841	9,408,242	8,318,489	150,720	1,410	42,452,792
Value per acre ..	£3/12/5	£4/4/5	£2/4/5	£3/8/0	£3/4/8	£6/10/0	£3/4/5	£3/12/8

(a) Exclusive of the value of straw.

7. Voluntary Wheat Pools.—Reference to the operations of the Voluntary Wheat Pools in the various States during 1927-28 will be found in the Appendix at the end of this volume.

§ 5. Oats.

1. Progress of Cultivation.—(i) *Area and Yield.* Oats came next in importance to wheat amongst the grain crops cultivated last season, but while wheat grown for grain accounted for 65.76 per cent., oats represented only 4.75 per cent. of the area under crop in Australia. The decrease in cultivation of oats for the last five years is shown in the table hereunder, and more fully in the graphs herein :—

OATS.—AREA AND YIELD, 1922-23 TO 1926-27.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Fed. Cap. Ter.	Australia.
AREA.								
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1922-23	73,635	492,356	1,216	173,716	214,269	58,813	371	1,014,376
1923-24	86,402	520,654	216	176,299	241,608	51,460	291	1,076,930
1924-25	122,994	517,229	4,010	155,214	318,982	46,175	523	1,165,127
1925-26	100,652	437,696	1,293	153,062	278,344	36,741	445	1,013,233
1926-27	104,450	303,424	210	152,178	234,826	48,361	665	844,114
YIELD.								
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1922-23	1,243,198	8,093,459	19,499	1,681,783	2,261,863	1,674,751	7,602	14,982,155
1923-24	1,564,970	9,366,205	2,427	2,157,938	2,846,670	1,359,785	5,330	17,303,325
1924-25	2,500,951	9,572,003	63,912	1,939,415	4,241,074	1,065,933	10,449	19,393,737
1925-26	1,607,520	4,998,165	14,546	1,808,443	2,939,380	835,473	8,130	12,211,657
1926-27	1,890,746	4,884,006	1,674	1,713,337	2,716,436	1,357,000	8,004	12,571,203

The oat crop exhibited considerable variation during the past decennium, ranging from 10,387,431 bushels in 1917-18 to 19,393,737 bushels in 1924-25, with an average around 14,000,000 bushels. The demand for the grain for oatmeal is limited to about 2,000,000 bushels annually. It is mainly used as feed grain, and its value, particularly in good seasons, is not sufficient to warrant the increase in cultivation which may be expected when oats are more generally marketed through live stock and better prices thereby realized than those now offering on the local market.

The principal oat-growing State is Victoria, which produces on the average more than half the total quantity of oats grown in all States. For Australia as a whole the record yield of oats was obtained during 1924-25, when 19,393,737 bushels were harvested.

(ii) *Average Yield.* The average yield per acre of oats varies considerably in the different States, being highest in Tasmania and lowest in South Australia. Particulars as to average yield in each of the last five seasons, and for the decennium 1917 to 1927 are given in the succeeding table:—

OATS.—AVERAGE YIELD PER ACRE, 1922-23 TO 1926-27.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Cap. Ter.	Aus-tralia.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1922-23	16.88	16.44	16.04	9.68	10.56	28.48	20.49	14.77
1923-24	18.11	17.99	11.24	12.24	11.78	26.42	18.32	16.07
1924-25	20.33	18.51	15.94	12.50	13.30	23.08	19.98	16.65
1925-26	15.97	11.42	11.25	11.44	10.56	22.74	18.27	12.05
1926-27	18.10	16.10	7.97	11.26	11.57	28.06	12.04	14.89
Average for 10 seasons 1917-27	16.96	17.01	16.59	11.07	11.55	25.82	16.91	15.21

The smallest average yield per acre ever recorded for Australia was that experienced in the abnormally dry season 1914-15, viz., 5.60 bushels, while the largest in the past ten years was that of the season 1920-21, amounting to 19.77 bushels per acre.

(iii) *Relation to Population.* The State in which oat production occupies the most important position in relation to population is Western Australia, the yield for that State representing about 8 bushels per head during the last five years, as compared with 2.61 bushels per head for Australia as a whole. Particulars for the seasons 1922-23 to 1926-27 are furnished in the succeeding table:—

OATS.—YIELD PER 1,000 OF POPULATION, 1922-23 TO 1926-27.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Cap. Ter.	Aus-tralia.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1922-23	572	5,090	25	3,277	6,583	7,650	2,973	2,660
1923-24	708	5,762	3	4,112	8,046	6,207	2,033	3,009
1924-25	1,109	5,776	76	3,601	11,647	4,893	3,485	3,302
1925-26	699	2,968	17	3,278	7,898	3,850	2,066	2,038
1926-27	805	2,853	2	3,025	7,172	6,319	1,627	2,057

2. Comparison with Other Countries.—(i) *Total Production.* A comparison of the Australian production of oats with that of the leading oat-producing countries of the world is furnished in the following table:—

OATS.—PRODUCTION IN VARIOUS COUNTRIES, 1922 TO 1926.

Country.	Yield in Bushels (000 omitted).		Country.	Yield in Bushels (000 omitted).	
	Average. 1922-1924.	1926.		Average. 1922-1924.	1926.
United States of America ..	1,081,920	1,002,995	Hungary ..	17,451	19,842
Canada ..	414,007	325,903	Australia ..	17,226	12,571
Soviet Republics ..	(b)407,266	722,797	Jugo-Slavia ..	15,953	19,716
Germany ..	289,843	348,582	Netherlands ..	15,673	18,024
France ..	248,201	291,299	Latvia ..	14,201	15,207
Poland ..	165,058	168,090	Japan ..	9,156	8,611
United Kingdom ..	131,357	141,833	Algeria ..	9,055	6,954
Czecho-Slovakia ..	65,986	76,053	Norway ..	8,539	10,666
Sweden ..	60,672	68,847	Estonia ..	7,380	7,336
Rumania ..	54,602	63,881	Portugal ..	6,994	3,782
Argentine Republic ..	50,637	53,021	Bulgaria ..	6,863	5,930
Denmark ..	49,258	48,267	Union of South Africa ..	(a)5,447	7,760
Belgium ..	33,879	40,583	New Zealand ..	4,615	4,777
Irish Free State ..	29,931	35,769	Greece ..	(c)4,264	4,445
Italy ..	27,624	32,518	Korea ..	3,326	3,437
Spain ..	27,152	30,151	Chile ..	2,576	3,311
Finland ..	22,240	32,668	Switzerland ..	2,192	2,486
Lithuania ..	18,748	17,607	Uruguay ..	1,864	1,148
Austria ..	17,873	23,964	Tunis ..	1,369	1,709

(a) Average years 1921-1923.

(b) Year 1924.

(c) Average years 1922-1923.

(ii) *Yield per Acre.* The average yield per acre of oats is very low in Australia compared with other countries where its cultivation is more extensive. Arranging the countries contained in the foregoing table according to the magnitude of average yield for the years specified, the results are as follows:—

OATS.—YIELD PER ACRE, VARIOUS COUNTRIES, 1922 TO 1926.

Country.	Yield in Bushels per acre.		Country.	Yield in Bushels per acre.	
	Average. 1922-1924.	1926.		Average. 1922-1924.	1926.
Belgium ..	50.18	60.75	Austria ..	23.04	30.84
Denmark ..	43.71	46.07	Lithuania ..	23.55	18.68
Switzerland ..	43.27	49.07	Italy ..	23.38	26.43
Netherlands ..	40.91	47.36	Hungary ..	22.23	29.22
United Kingdom ..	38.59	45.41	Finland ..	21.55	29.97
Irish Free State ..	38.11	55.25	Argentine Republic ..	18.96	23.89
Germany ..	34.94	40.58	Latvia ..	18.88	19.18
New Zealand ..	33.64	43.04	Bulgaria ..	18.80	18.60
Sweden ..	33.01	37.74	Estonia ..	18.65	18.71
Chile ..	32.82	34.06	Jugo-Slavia ..	17.20	22.65
Norway ..	32.55	44.22	Spain ..	17.17	16.19
Japan ..	32.40	32.01	Rumania ..	16.90	23.97
Czecho-Slovakia ..	32.00	36.52	Australia ..	15.87	14.89
France ..	29.11	33.57	Uruguay ..	15.52	11.41
Canada ..	28.61	25.58	Algeria ..	15.05	11.19
Greece ..	(a)26.57	16.42	Soviet Republics ..	(b)14.07	20.33
United States of America ..	26.11	22.59	Portugal ..	13.73	7.57
Poland ..	25.17	26.11	Korea ..	12.19	12.42

(a) Average years 1922-1923.

(b) Year 1924.

3. *World's Production.*—The production of oats in the world for the year 1926, as reported by the International Institute of Agriculture, amounted to 3,686 millions of bushels. The season was not as favourable as the previous one, and the production was slightly less despite an increase in the acreage sown. In the pre-war years 1909 to 1913 the production averaged 3,613 millions of bushels from an average area of 142,870,000

acres. Subsequently the area declined in Europe, but a considerable increase was recorded in North America, with the result that the area in 1926 amounted to 144,500,000 acres.

4. Price of Oats.—The average wholesale prices of oats in the markets of the several capitals for the year 1926-27 are given in the following table :—

OATS.—AVERAGE WHOLESALE PRICES, 1926-1927.

Particulars.	Sydney.	Melbourne.	Brisbane.	Adelaide.	Perth.	Hobart.
	<i>s. d.</i>	s. d.	s. d.	s. d.	s. d.	s. d.
Average price per bushel ..	4 9	3 6	..	2 9	2 8	3 10

5. Imports and Exports.—The production of oats in Australia has not yet reached sufficient proportions to admit of a regular export trade; in fact in certain years the imports have exceeded the exports, notably in 1903, 1906, 1908, 1910, in each of the four years prior to 1916-17, in 1922-23 and again in 1925-26 and 1926-27. The quantities and values of oats imported into and exported from Australia during the years 1922-23 to 1926-27 are given hereunder :—

OATS.—IMPORTS AND EXPORTS, AUSTRALIA, 1922-23 TO 1926-27.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1922-23 ..	557,523	90,255	35,895	7,506	-521,628	-82,749
1923-24 ..	108,260	18,624	190,453	41,647	82,193	23,023
1924-25 ..	1,723	482	219,278	42,255	217,555	41,773
1925-26 ..	266,103	49,927	76,978	15,844	-189,125	-34,083
1926-27 ..	197,070	40,553	137,768	26,301	-59,302	-14,252

NOTE.—(-) signifies net import.

The principal country from which imports of oats have been obtained is New Zealand, while the principal countries to which oats were exported during the period under review were New Zealand, Malaya (British), Ceylon, and Mauritius.

6. Oatmeal, etc.—The production of oatmeal in Australia during 1926-27 amounted to 315,680 cwts., practically the whole of which is consumed locally. Oversea trade in this and similar products is small, the importations of oatmeal, wheatmeal and rolled oats during 1926-27 amounting to 240,398 lbs., while the exports totalled 591,221 lbs.

7. Value of Oat Crop.—The estimated value of the oat crop of the several States of Australia for the season 1926-27 is as follows :—

OATS.—VALUE OF CROP, (a) 1926-27.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Cap. Ter.	Australia.
	£	£	£	£	£	£	£	£
Aggregate value ..	409,670	854,701	488	239,159	415,954	243,510	1,730	2,165,212
Value per acre ..	£3/18/5	£2/16/4	£2/6/6	£1/11/5	£1/15/5	£5/0/8	£2/12/0	£2/11/4

(a) Exclusive of the value of straw.

§ 6. Maize.

1. States Growing Maize.—Maize is grown for grain chiefly in New South Wales and Queensland, the area so cropped in these States during the season 1926-27 being 266,054 acres, or nearly 93 per cent. of the total for Australia. Of the balance, Victoria contributed 20,046 acres, South Australia 2 acres, Western Australia 32 acres, Northern Territory 40 acres, and the Federal Capital Territory 4 acres. The climate of Tasmania is unsuitable for the growing of maize for grain. In all the States, the crop is grown to a greater or less extent for green forage, particularly in connexion with the dairying industry.

2. Progress of Maize-growing.—(i) *Area and Yield.* Notwithstanding its valuable properties and its pre-eminence as the world's most extensively grown cereal, the cultivation of maize has decreased in Australia by nearly 33,000 acres during the past decennium. The decline in the sowing of this cereal in New South Wales was mainly responsible for the Australian decrease, though in Queensland the area sown was over 4,000 acres less. An increase of 5,000 acres was recorded for Victoria. The maximum area sown to maize was 414,914 acres, as far back as 1910-11, this acreage being considerably in excess of the average planted during the last ten years, viz. 308,558 acres. The area and yield of maize for grain in each State are given in the following table for the last five years. The fluctuations from year to year are shown more fully on the graph herein.

MAIZE.—AREA AND YIELD, 1922-23 TO 1926-27.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Nor. Ter.	Fed. Cap. Ter.	Australia.
AREA.								
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1922-23	138,169	25,846	149,048	116	23	..	..	313,202
1923-24	166,933	29,104	120,092	94	43	..	41	316,307
1924-25	146,564	23,126	229,160	7	71	21	..	398,949
1925-26	120,955	21,913	154,252	2	8	10	..	297,140
1926-27	128,512	20,046	137,542	2	32	40	4	286,178
YIELD.								
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1922-23	3,287,500	879,915	3,217,848	2,716	335	..	..	7,388,314
1923-24	4,621,950	1,464,731	2,024,902	1,266	834	..	1,050	8,114,733
1924-25	4,208,200	891,987	7,330,821	276	333	420	..	12,432,037
1925-26	3,278,350	768,761	3,384,172	51	227	..	..	7,431,561
1926-27	3,625,410	685,407	2,658,895	99	342	..	120	6,970,273

The maximum production of maize in Australia was recorded in 1910-11, when the harvest amounted to 13,000,000 bushels. This figure was considerably in excess of the yields during recent years, save that of 1924, when a bountiful harvest in Queensland increased the Australian total to 12,500,000 bushels. Nevertheless, the average for the past decennium was only 8,000,000 bushels.

A maize reaper-thresher, invented and manufactured in Australia, and an imported maize picker and husker were used in the maize fields of Queensland during recent seasons, and proved most suitable for the work for which they were designed. The perfecting of a machine for harvesting and threshing maize is a matter of very great importance in the development of the industry.

(ii) *Average Yield.* The following table gives particulars of the average yield per acre of the maize crops of the States for the seasons 1922-23 to 1926-27, and for the decennium 1917-27:—

MAIZE.—AVERAGE YIELD PER ACRE, 1922-23 TO 1926-27.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	N. Ter.	Fed. Cap. Ter.	Australia.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1922-23 ..	23·79	34·04	21·59	23·41	14·57	..	..	23·59
1923-24 ..	27·69	50·33	16·86	13·47	19·40	..	25·61	25·65
1924-25 ..	28·71	38·57	31·99	39·43	4·70	20·00	..	31·16
1925-26 ..	27·10	35·08	21·94	25·50	28·38	..	..	25·01
1926-27 ..	28·21	34·19	19·33	49·50	10·69	..	30·00	24·36
Average for 10 seasons 1917-27	26·51	40·32	23·04	17·10	11·03	9·68	24·23	25·91

With the exception of Canada, the average yield of maize per acre in Victoria is the largest in the world. This is due, in large measure, to the fact that the area under maize in that State is comparatively small and is situated in districts peculiarly suited to its growth. The average yield in New South Wales exceeds that obtained in Queensland.

(iii) *Relation to population.* During the past five seasons the Australian production of maize has averaged just under 1½ bushels per head of population, while the average for Queensland, the State in which the production per head is highest, amounted to approximately 4½ bushels. Details for the several States during the past five seasons are as follow :—

MAIZE.—YIELD PER 1,000 OF POPULATION, 1922-23 TO 1926-27.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	N. Ter.	Fed. Cap. Ter.	Australia.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1922-23 ..	1,513	553	4,082	5	1	..	..	1,312
1923-24 ..	2,092	901	2,496	2	2	..	400	1,411
1924-25 ..	1,866	538	8,781	1	1	117	..	2,117
1925-26 ..	1,426	457	3,930	..	1	..	..	1,240
1926-27 ..	1,544	400	3,013	..	1	..	24	1,141

3. *Australian and Foreign Maize Production.*—(i) *Total Yield.* The United States of America is the most important maize-producing country of the world. On the average, approximately 100,000,000 acres are planted annually in that country, and nearly 3,000,000,000 bushels are reaped, representing about 75 per cent. of the world's production. Of the huge quantities raised, about 85 per cent. is fed to live stock on farms, 10 per cent. is used for human food, and only a very small fraction, viz., 1½ per cent., is exported. The yields of the various countries are as follows :—

MAIZE.—PRODUCTION IN VARIOUS COUNTRIES, 1922 TO 1926.

Country.	Yield in Bushels (000 omitted).		Country.	Yield in Bushels (000 omitted).	
	Average, 1922-1924.	1926.		Average 1922-1924.	1926.
United States of America ..	2,793,850	2,645,009	Portugal ..	(b)11,086	12,275
Argentine Republic ..	203,503	320,851	Czecho-Slovakia ..	10,248	10,452
Brazil ..	173,661	(c)162,413	Australia ..	9,312	6,970
Rumania ..	142,160	239,494	Salvador ..	(a)7,836	(d)10,629
Jugo-Slavia ..	107,773	134,250	French Equatorial and West Africa ..	7,750	(c)9,291
Soviet Republics ..	(c)94,299	145,871	Greece ..	(b)7,659	(c)7,893
Mexico ..	91,976	81,768	Belgian Congo ..	7,414	(c)8,464
Italy ..	90,560	118,089	Madagascar ..	(b)6,525	4,034
India ..	(b)86,480	(c)74,960	Japan ..	6,297	(c)6,627
Egypt ..	67,049	(c)77,180	Guatemala ..	5,933	(c)4,630
Dutch East Indies ..	58,930	(c)63,469	Uruguay ..	(f)5,550	4,942
Hungary ..	51,955	76,544	French Indo-China ..	(e)5,413	(c)5,598
Union of South Africa ..	(b)48,355	67,500	Rhodesia ..	4,869	5,179
Spain ..	25,520	17,186	French Morocco ..	4,031	5,512
Bulgaria ..	23,203	29,018	Poland ..	3,589	4,166
Philippine Islands ..	16,896	17,517	Austria ..	3,549	3,825
France ..	14,459	12,423	Korea ..	2,694	2,831
Canada ..	13,128	7,815	Kenya ..	2,672	(c)3,309
			Paraguay ..	1,675	(c)2,280

(a) Average, years 1920-1922. (b) Average, years 1921-1923. (c) Year 1925. (d) Year 1924.
 (e) Average, years 1923-1925. (f) Average, years 1922-1923.

(ii) *Yield per Acre.* The average yield per acre of maize in Australia during 1926-27 was 24.36 bushels, which may be regarded as satisfactory when compared with those of other maize-producing countries, the yields per acre for which are shown in the following table:—

MAIZE.—YIELD PER ACRE IN VARIOUS COUNTRIES, 1922 TO 1926.

Country.	Average Yield per acre in Bushels.		Country.	Average Yield per acre in Bushels.	
	Average, 1922-1924.	1926.		Average, 1922-1924.	1926.
Canada	42.30	37.26	Rhodesia	18.08	18.83
Belgian Congo ..	35.03	(c)36.06	Greece	(e)17.88	(g)21.86
Egypt	34.81	(c)37.17	France	17.48	14.90
United States of America ..	27.23	26.58	Paraguay	16.90	(c)19.97
Australia	27.16	24.36	French Indo-China	(d)16.85	(c)17.43
Kenya	25.61	(c)21.23	Bulgaria	16.81	19.73
Czecho-Slovakia ..	25.08	26.94	Salvador	(f)16.67	(d)16.67
Argentine Republic	23.96	35.41	Rumania	16.48	23.88
Italy	23.82	31.33	Portugal	(e)14.94	(g)13.60
Hungary	23.63	29.09	Guatemala	13.70	(c)12.05
Brazil	23.48	(c)25.78	Philippine Islands	12.50	(c)13.45
Jugo-Slavia	22.72	27.24	Mexico	11.97	10.93
Spain	21.95	17.09	Korea	11.75	11.52
Madagascar	(a)21.83	19.12	India	(e)11.61	(d)8.61
Japan	21.02	(d)18.90	Union of South Africa	(e)11.24	(d)13.73
Austria	21.01	25.17	Uruguay	(b)10.85	12.62
Poland	19.18	21.36	Dutch East Indies	7.94	(c)16.07
Soviet Republics ..	(d)18.68	20.73	Basutoland	7.72	(c)5.30
French Equatorial and West Africa	18.13	(c)19.09	French Morocco ..	7.47	9.80

(a) Average years 1923-1925. (b) Years 1922-1923. (c) Year 1925. (d) Year 1924.
(e) Average, years 1921-1923. (f) Years 1920-1922. (g) Year 1923.

4. *World's Production.*—The maize harvest in 1925 was one of the most abundant on record. In the United States of America, where the production normally provides about 75 per cent. of the world's output and in Argentina, the next largest producer, weather conditions were very favourable and large yields were reaped. The total world production in 1925 was greater than the exceptionally large harvest in 1923 and nearly 14 per cent. greater than the average for the pre-war period, 1909 to 1913. The total yields from 1909 to 1925 were as follows:—

Average 1909 to 1913, 4,119,000,000 bushels.
1923, 4,563,000,000 bushels.
1924, 3,855,000,000 „
1925, 4,685,000,000 „

Particulars for 1926 are not yet available for all countries.

5. *Price of Maize.*—The average wholesale price of maize in the Sydney market for each of the last five years is given in the following table:—

MAIZE.—AVERAGE PRICE, SYDNEY, 1922-23 TO 1926-27.

Particulars.	1922-23.	1923-24.	1924-25.	1925-26.	1926-27.
	s. d.	s. d.	s. d.	s. d.	s. d.
Average price per bushel ..	6 1	5 1	3 11	5 8	6 10

6. Oversea Imports and Exports.—The decline in the production of maize in Australia of late years has necessitated an average net annual import of more than 1,000,000 bushels during the past quinquennium, the bulk of the supplies being furnished by South Africa. Details of imports and exports for the years 1922-23 to 1926-27 are as follows:—

MAIZE.—IMPORTS AND EXPORTS, AUSTRALIA, 1922-23 TO 1926-27.

Year.	Imports.		Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels	£	Bushels.	£	Bushels.	£
1922-23 ..	1,198,673	264,758	8,427	2,736	1,190,246	262,022
1923-24 ..	2,572,809	515,468	37,918	9,524	2,534,891	505,944
1924-25 ..	480	242	2,554,052	511,921	- 2,553,572	- 511,679
1925-26 ..	1,562,454	323,486	54,720	14,734	1,507,734	308,752
1926-27 ..	1,173,514	277,821	2,477	890	1,171,037	276,931

NOTE.—(-) denotes net exports.

7. Prepared Maize.—A small quantity of corn-flour is imported annually into Australia, the principal countries of supply being the United Kingdom and the United States of America. During the year 1926-27 the imports amounted to 932,523 lb., and represented a value of £9,891. The exports from Australia are small, and amounted to only 13,937 lb., valued at £359 in 1926-27.

8. Value of Maize Crop.—The value of the Australian maize crop for the season 1926-27 has been estimated at £2,316,657, made up as follows:—

MAIZE.—VALUE OF CROP, 1926-27.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	F.O.T.	Australia.
	£	£	£	£	£	£	£
Aggregate value	1,238,690	194,199	883,529	37	162	40	2,316,657
Value per acre	£9/12/9	£9/13/9	£6/8/6	£18/10/0	£5/1/3	£10/0/0	£8/1/11

§ 7. Barley.

1. Progress of Cultivation.—(i) *Area and Yield.* The area under barley in Australia has fluctuated very considerably, but results for the last ten years reveal a marked advance. The average annual area sown for the decennium 1917 to 1927 amounted to 296,774 acres, which was nearly double the average of the previous ten-yearly period, i.e., 159,662 acres. Victoria was originally the principal barley growing State, but the rapid expansion of the cultivation of this crop in South Australia during recent years brought the latter State into the lead in 1913-14, and, during 1926-27, the area under barley in South Australia accounted for more than 69 per cent. of the Australian acreage. Victoria was next in importance with 24 per cent., leaving a small balance

of about 7 per cent. distributed among the other States. The figures here given relate to the areas harvested for grain; small areas only are cropped for hay, while more considerable quantities are cut for green forage. These, however, are not included in this subsection. The area and yield of barley for grain in the several States are shown in the following table for the last five years, while the progress since 1860 is illustrated in the graphs herein :—

BARLEY.—AREA AND YIELD, 1922-23 TO 1926-27.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Australia.
AREA.							
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1922-23 ..	3,899	102,773	5,292	215,283	9,243	5,706	342,196
1923-24 ..	4,350	56,564	665	184,286	8,673	4,230	258,775
1924-25 ..	6,638	63,764	8,798	166,432	11,606	3,010	260,248
1925-26 ..	6,614	103,395	7,001	239,337	13,306	5,223	374,876
1926-27 ..	5,626	88,896	399	256,528	13,826	5,665	637,943
YIELD.							
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1922-23 ..	55,520	2,442,041	93,693	3,697,849	107,804	152,028	6,548,935
1923-24 ..	71,700	1,455,435	3,808	3,251,885	97,779	94,634	4,975,451
1924-25 ..	118,300	1,444,823	171,124	3,103,718	177,537	50,729	5,066,231
1925-26 ..	105,150	1,774,963	92,441	4,134,824	158,300	90,619	6,356,297
1926-27 ..	100,221	1,920,722	1,991	4,630,044	128,136	149,800	6,930,953

(a) Including Federal Capital Territory, 7 acres, 210 bushels.

(b) Including Federal Capital Territory, 3 acres, 39 bushels.

The States in which the annual production of barley averaged over 1,000,000 bushels for the past decade were South Australia and Victoria, the yields being respectively 3,256,049 and 1,939,793 bushels, the higher return per acre in the latter State tending to diminish the advantage held by South Australia in regard to acreage.

(ii) *Malting and other Barley.* (a) *Year 1926-27.* In recent years the statistics of all the States have distinguished between "malting" and "other" barley. Particulars for the season 1926-27 are as follows :—

BARLEY, MALTING AND OTHER.—AREA AND YIELD, 1926-27.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Australia.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Malting barley ..	4,071	59,935	250	242,527	9,076	4,987	320,846
Other barley ..	1,555	28,961	149	14,001	4,750	678	450,097
Total ..	5,626	88,896	399	256,528	13,826	5,665	637,943
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
Malting barley ..	72,540	1,186,733	1,061	4,400,639	78,771	132,400	5,872,144
Other barley ..	27,681	733,989	930	229,405	49,365	17,400	1,058,809
Total ..	100,221	1,920,722	1,991	4,630,044	128,136	149,800	6,930,953

(a) Including Federal Capital Territory, 3 acres, 39 bushels.

The cultivation of malting barley is a special industry to cater for the demands of the brewing trade. Its expansion, however, appears to be restricted, although of late years the exports have increased. Taking Australia as a whole, more than 86 per cent. of the area under barley in 1926-27 was sown with the malting variety. The proportion varies largely in the several States.

(b) *Progress of Cultivation.* The following table sets out the acreage and yield of malting and other barley in Australia as a whole during the past five seasons :—

BARLEY, MALTING AND OTHER.—AREA AND YIELD, AUSTRALIA, 1922-23 TO 1926-27.

Season.	Acres.			Bushels.			Average Yields per Acre.		
	Malting.	Other.	Total.	Malting.	Other.	Total.	Malting.	Other.	Total.
1922-23 ..	279,159	63,037	342,196	5,283,144	1,265,791	6,548,935	18.93	20.08	19.14
1923-24 ..	217,613	41,162	258,775	4,196,008	779,443	4,975,451	19.28	18.94	19.23
1924-25 ..	211,761	48,437	260,248	4,163,396	902,335	5,066,231	19.66	18.61	19.47
1925-26 ..	319,441	55,435	374,876	5,401,489	954,808	6,356,297	16.91	17.22	16.96
1926-27 ..	320,846	50,097	370,943	5,872,144	1,058,809	6,930,953	18.30	21.13	18.68
Average 10 seasons 1917-27	233,811	62,963	296,774	4,397,048	1,219,695	5,616,743	18.80	19.37	18.93

During the past ten seasons the area and production of malting barley have represented more than three times the corresponding figures for other barley. The average yield per acre differs very little in respect of the two classes, the results for the past ten-yearly period being slightly in favour of the Cape variety.

(iii) *Average Yield.* The average yield of barley per acre varies considerably in the different States, being as a rule highest in Victoria and Tasmania, and lowest in Western Australia. Details for each State during the past five seasons, and for the decennium 1917-27, are given in the following table :—

BARLEY.—YIELD PER ACRE, 1922-23 TO 1926-27.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Australia.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1922-23 ..	14.24	23.76	17.70	17.18	11.66	26.64	19.14
1923-24 ..	16.48	25.73	5.73	17.65	11.27	22.37	19.23
1924-25 ..	17.82	22.66	19.45	18.65	15.30	16.85	19.47
1925-26 ..	15.90	17.17	13.20	17.28	11.89	17.35	16.96
1926-27 ..	17.81	21.61	4.99	18.05	9.27	26.44	18.68
Average for 10 seasons 1917-27	15.24	22.04	17.25	17.90	11.29	21.99	18.93

(iv) *Relation to Population.* During the last five seasons the quantity of barley produced in Australia has averaged 1 bushel per head of population. For the season 1926-27 the production ranged from 8 bushels per head in South Australia to less than 1 lb. per head in Queensland. Details for the years 1922-23 to 1926-27 are as follows :—

BARLEY.—PRODUCTION PER 1,000 OF POPULATION, 1922-23 TO 1926-27.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Australia.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1922-23 ..	26	1,536	119	7,206	314	694	1,163
1923-24 ..	32	895	5	6,197	276	432	866
1924-25 ..	52	872	205	5,764	488	233	863
1925-26 ..	46	1,054	107	7,496	425	418	1,061
1926-27 ..	43	1,122	2	8,175	338	698	1,134

2. Comparison with Other Countries.—(i) *Total Yield.* In comparison with the barley production of other countries, that of Australia appears extremely small. Particulars for some of the leading countries during recent years are as follows, the Australian figure being added for the purpose of comparison :—

BARLEY.—PRODUCTION IN VARIOUS COUNTRIES, 1922 TO 1926.

Country.	Yield in Bushels (000 omitted).		Country.	Yield in Bushels (000 omitted).	
	Average, 1922-1924.	1926.		Average, 1922-1924.	1926.
United States of America ..	183,091	183,531	Jugo-Slavia ..	12,182	16,583
Soviet Republics ..	167,785	249,757	Egypt ..	10,896	9,693
India ..	137,118	115,763	Bulgaria ..	9,904	11,490
Germany ..	93,604	108,579	Lithuania ..	8,960	10,973
Spain ..	87,391	92,434	Italy ..	8,780	10,582
Canada ..	76,053	95,695	Argentine Republic ..	8,539	17,637
Japan ..	75,390	84,553	Greece ..	(a)6,817	7,810
Poland ..	61,147	68,546	Austria ..	6,612	8,711
Rumania ..	59,730	74,293	Latvia ..	6,473	8,315
United Kingdom ..	49,049	45,989	Irish Free State ..	5,982	6,424
Czecho-Slovakia ..	46,694	50,400	Australia ..	5,530	6,931
France ..	42,875	44,021	Estonia ..	5,218	5,797
French Morocco ..	37,081	30,164	Tunis ..	5,071	8,466
Korea ..	32,219	36,775	Syria ..	4,920	10,164
Denmark ..	31,063	32,079	Finland ..	4,611	6,883
Algeria ..	27,337	22,080	Chile ..	4,331	4,994
Hungary ..	20,115	24,488	Norway ..	3,986	4,920
Sweden ..	12,453	14,274	Belgium ..	3,630	4,033
			Netherlands ..	3,010	3,416

(a) Average, years 1922-1923.

(ii) *Yield per Acre.* The following table shows the average yield of barley per acre in various countries of the world, the return ranging from 49.15 bushels in Netherlands to 8.89 bushels in Syria :—

BARLEY.—AVERAGE YIELD PER ACRE IN VARIOUS COUNTRIES, 1922 TO 1926.

Country.	Yield in Bushels per acre.		Country.	Yield in Bushels per acre.	
	Average, 1922-1924.	1926.		Average, 1922-1924.	1926.
Netherlands ..	49.15	50.72	Australia ..	19.26	18.68
Belgium ..	44.82	46.38	India ..	18.75	17.51
Denmark ..	44.35	41.64	Bulgaria ..	18.53	21.01
Irish Free State ..	37.18	45.56	Hungary ..	18.27	23.31
Chile ..	36.01	36.16	Austria ..	18.07	24.04
New Zealand ..	33.16	(c)36.47	Greece ..	(a)17.05	14.16
United Kingdom ..	32.67	36.17	Finland ..	16.76	25.30
Norway ..	30.43	34.37	Estonia ..	16.47	19.33
Sweden ..	29.93	32.26	Latvia ..	15.36	17.68
Germany ..	29.14	29.58	Korea ..	15.04	16.83
Egypt ..	28.49	29.12	Italy ..	14.48	18.04
Japan ..	28.17	34.79	Jugo-Slavia ..	13.38	19.12
Czecho-Slovakia ..	27.79	28.78	Argentine Republic ..	13.36	21.75
Canada ..	25.95	26.31	Rumania ..	13.29	19.38
France ..	24.92	25.80	French Morocco ..	13.13	9.56
United States of America ..	24.54	22.38	Union of South Africa ..	(a)10.90	(b)11.87
Spain ..	21.91	20.67	Soviet Republics ..	(b)9.89	13.82
Poland ..	20.85	22.49	Algeria ..	9.25	6.23
Lithuania ..	20.16	20.64	Syria ..	(b)8.89	16.92

(a) Average, years 1922-1923.

(b) Year 1924.

(c) Year 1925.

3. **World's Production.**—The area under barley in 1926 exceeded that of the previous year. There was an increase of 7 per cent. over the pre-war period for all countries for which figures are available, with the exception of the Soviet Republics, in which important barley-growing centre the area is still 30 per cent. below the average for the years 1909 to 1913. Weather conditions were not so favourable in certain of the producing areas, and the total yield was 87 million bushels less than that of the previous year, despite an increase in area sown of more than 1½ million acres. The production of barley in millions of bushels from 1909 onwards was as follows:—

	Year.			Production.	
Average, 1909-1913	1,676 millions of bushels.	
1923	1,490 "	
1924	1,342 "	
1925	1,639 "	
1926	1,552 "	

4. **Price of Barley.**—The average price of barley in the Melbourne market during each of the past five years is given in the following table:—

BARLEY.—AVERAGE MELBOURNE PRICE PER BUSHEL, 1922 TO 1926.

Particulars.	1922.		1923.		1924.		1925.		1926.	
	<i>s.</i>	<i>d.</i>	s.	d.	s.	d.	s.	d.	s.	d.
Malting barley	4	1½	4	0½	5	8	4	11	4	3
Cape barley	3	0	3	1½	4	7½	..	..	3	11

5. **Imports and Exports.**—The Australian export trade in barley has increased in recent years, the average annual shipments during the last five years amounting to 1,657,000 bushels, as compared with an average of 1,336,000 bushels for the previous quinquennium. The grain was consigned mainly to the United Kingdom and Belgium, South Australia being the principal exporting State. Particulars of the Australian overseas imports and exports for the years 1922-23 to 1926-27 are contained in the following table:—

BARLEY.—IMPORTS AND EXPORTS, AUSTRALIA, 1922-23 TO 1926-27.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1922-23	34	18	2,213,184	432,326	2,213,150	432,308
1923-24	4	3	1,828,788	318,912	1,828,784	318,909
1924-25	67,242	16,926	1,490,416	420,432	1,423,174	403,506
1925-26	32	14	729,528	142,948	729,496	142,934
1926-27	696	285	2,021,480	383,103	2,020,784	382,818

In some years there is an export of Australian pearl and Scotch barley, the total for 1926-27 reaching 39,358 lb., valued at £345. The trade for the year was mainly with New Zealand and Hong Kong.

6. **Imports and Exports of Malt.**—In pre-war times the imports of malt into Australia were fairly extensive, the supply being obtained principally from the United Kingdom. Since the outbreak of the war in 1914, however, imports have practically ceased.

and in 1917-18 and 1920-21 fairly large quantities were exported to South Africa and Japan. Details of imports and exports for the years 1922-23 to 1926-27 are given hereunder:—

MALT.—IMPORTS AND EXPORTS, AUSTRALIA, 1922-23 TO 1926-27.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1922-23	28	63	4,618	2,006	4,590	1,943
1923-24	28	13	3,573	1,550	3,545	1,537
1924-25	43	29	3,228	1,698	3,185	1,669
1925-26	325	182	1,830	971	1,505	789
1926-27	688	197	2,285	1,340	1,597	1,143

7. Value of Barley Crop.—The estimated values of the barley crop of Australia for the seasons 1922-23 to 1926-27 were £1,220,703, £879,811, £1,363,656, £1,305,328 and £1,291,470 respectively. The extent to which the several States have contributed to the total in 1926-27 is shown in the following table:—

BARLEY.—VALUE OF CROP (a), 1926-27.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Cap. Ter.	Australia.
Total value ..	£22,990	£378,742	£473	£830,115	£24,200	£34,940	£10	£1,291,470
Value per acre	£4/1/9	£4/5/2	£1/3/9	£3/4/8	£1/15/0	£6/3/4	£3/6/8	£3/9/8

(a) Exclusive of the value of straw.

§ 8. Rice.

The success attending the efforts of rice growers on the Murrumbidgee Irrigation Area has proved that rice can be grown profitably on the settlement. Experimental rice cultivation has been carried on at the Yanco Experimental Farm for some years, but it was not until 1924-25 that an attempt was made to grow the cereal on a commercial basis. In that year 153 acres were cropped for a yield of 16,240 bushels. Consignments of "paddy" rice were forwarded to Sydney and Melbourne for the necessary treatment before marketing, and the results showed that the quality was much superior to the imported article. In 1925-26 1,556 acres were reaped for 61,098 bushels, or an average yield of 39.27 bushels per acre. In 1926-27 the area was increased to 3,958 acres, from which 214,740 bushels were reaped for an average of 54.25 bushels per acre. Final figures for the 1927-28 crop are not yet available, but it is estimated that 12,000 acres were harvested for 960,000 bushels. This production represents about 18,000 tons and is sufficient to meet local requirements, which during the past five years, averaged approximately 17,000 tons per annum. According to the Irrigation Commission there are about 53,000 acres of land on the settlement suitable for rice-growing, and it is estimated that at least 40,000 acres could be so used, of which probably 20,000 acres would be under fallow each year and 20,000 under crops. Over-production should not prevent undue difficulties as there is a ready market in the East, as well as in England and Germany. United States of America first grew rice commercially in 1912, and having met her own requirements is now exporting to European Countries and to Japan. The Commonwealth Government has protected the new industry by the imposition of a Customs duty of 3s. 4d. per cental on uncleaned rice and 6s. per cental on other than uncleaned.

§ 9. Other Grain and Pulse Crops.

In addition to the grain crops already specified, the only other grain and pulse crops extensively grown in Australia are beans, peas, and rye. The total area under the two former crops for the season 1926-27 was 48,943 acres, giving a yield of 843,797 bushels, or an average of 17.24 bushels per acre, being above the average yield for the decennium ended 1926-27, which was 16.26 bushels per acre. The States in which the greatest area is devoted to beans and peas are Tasmania, South Australia and Victoria. The total area under rye in Australia during the season 1926-27 was 2,908 acres, yielding 38,399 bushels, giving an average of 13.21 bushels per acre. This was higher than the average for the past ten seasons, which was 11.66 bushels per acre. Over 39 per cent. of the rye grown during the season was produced in New South Wales, and 27 per cent. in Victoria.

§ 10. Potatoes.

1. Progress of Cultivation.—(i) *Area and Yield.* The principal potato-growing State is Victoria, which possesses peculiar advantages for the growth of this tuber. The rainfall is generally satisfactory, while the atmosphere is sufficiently dry to be unfavourable to the spread of Irish blight, consequently potatoes are grown in nearly every district except in the wheat belt. Tasmania comes next in order of importance, followed by New South Wales.

The area and production of potatoes in each State during the last five years are given hereunder :—

POTATOES.—AREA AND YIELD, 1922-23 TO 1926-27.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Cap. Ter.	Australia.
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AREA.

	Acres.							
1922-23 ..	22,556	61,741	7,649	5,749	3,621	34,407	12	135,735
1923-24 ..	21,850	59,306	6,127	5,239	4,761	37,040	29	134,352
1924-25 ..	23,384	61,295	9,493	3,292	5,122	36,171	19	138,776
1925-26 ..	22,723	63,369	10,478	2,895	4,262	33,190	8	136,925
1926-27 ..	21,906	66,185	8,642	3,549	5,144	33,984	35	139,445

YIELD.

	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1922-23 ..	35,694	143,354	10,517	17,356	15,198	101,201	32	328,352
1923-24 ..	60,949	238,520	8,878	21,327	17,830	99,936	130	447,570
1924-25 ..	57,179	139,043	20,314	12,226	19,891	83,377	95	332,125
1925-26 ..	43,081	160,729	15,386	10,764	16,052	67,341	56	313,409
1926-27 ..	53,223	162,909	9,749	15,375	17,755	114,100	65	373,176

The cultivation of potatoes in Australia has declined by 7,070 acres during the past decennium, due mainly to a decrease in New South Wales of 9,380 acres. In Victoria and Tasmania—the chief potato-growing areas—increases of 1,777 and 3,033 acres respectively were recorded. The average yield during the last ten years was 345,779 tons, compared with 374,680 tons during the previous decade. The record production of 507,153 tons was obtained in 1906-7.

(ii) *Average Yield.* The suitability of the soil, climate, and general conditions for potato growing is evidenced by the satisfactory yields per acre which are generally obtained in Australia despite the little attention paid to this crop, the average yield during the past ten seasons being 2.59 tons per acre. The lowest yield is that obtained in Queensland with an average of 1.72 tons for the same period.

Particulars for each State for the seasons 1922-23 to 1926-27, and for the past decennium, are given hereunder :—

POTATOES.—YIELD PER ACRE, 1922-23 TO 1926-27.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Cap. Ter.	Australia.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1922-23	1.58	2.40	1.37	3.02	4.20	2.94	2.67	2.42
1923-24	2.79	4.02	1.45	4.07	3.74	2.70	4.48	3.33
1924-25	2.45	2.27	2.14	3.71	3.88	2.31	5.00	2.39
1925-26	1.90	2.54	1.47	3.72	3.77	2.03	7.00	2.29
1926-27	2.43	2.46	1.13	4.33	3.45	3.36	1.86	2.68
Averages for 10 seasons 1917-27	2.15	2.72	1.72	3.51	3.51	2.64	3.40	2.59

Concurrently with the decrease in acreage a falling off has occurred in the average yield per acre during the past decennium. This decline was in evidence throughout the principal States, and for Australia as a whole, averaged $1\frac{1}{2}$ cwt. per acre. In Tasmania, where the decrease was greatest, the average yield diminished by 5 cwt. during the past decade. The comparatively low yield per acre is due to the neglect of rotation, and the insufficient use of manures. Rotation and manuring are carefully studied in many European countries, with the result that the production per acre is double that obtained in Australia.

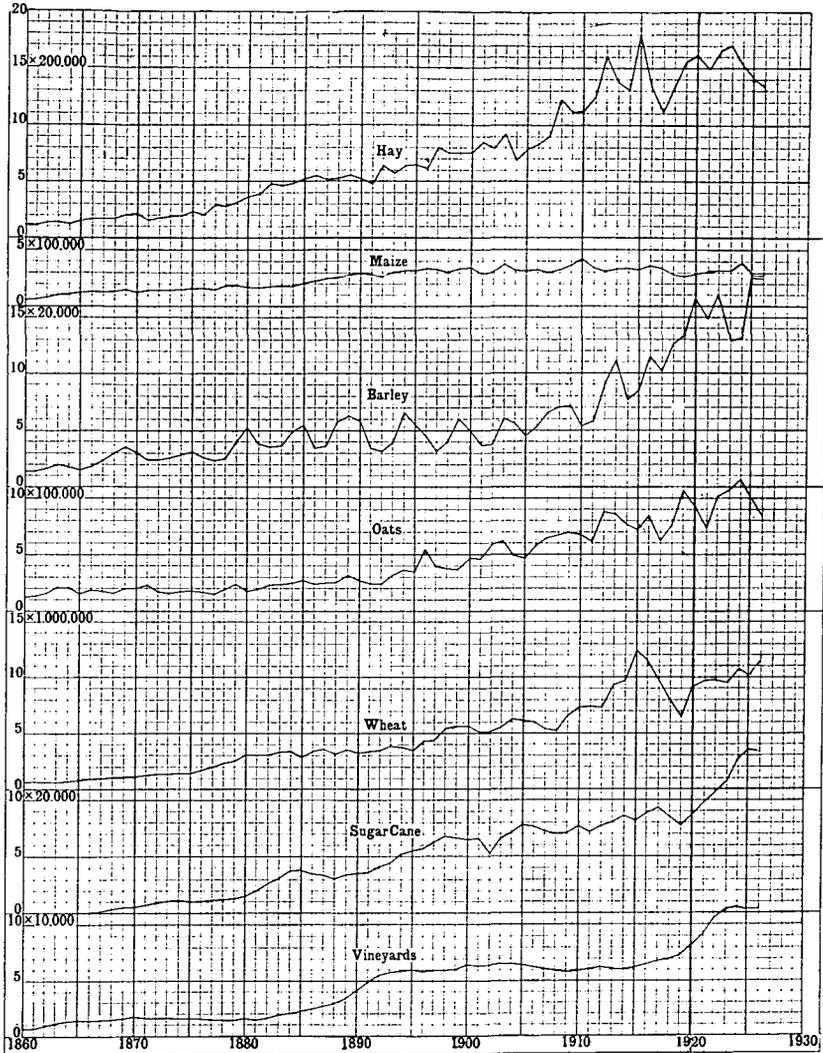
(iii) *Relation to Population.* The average annual production of potatoes per head of the population of Australia for the past five seasons was approximately 137 lb. In Tasmania, where this crop is of far greater importance in relation to population than is the case in any other State, the production per head in 1906-7 was nearly a ton, while for the past five seasons it has averaged about $8\frac{1}{2}$ cwts. Details for the seasons 1922-23 to 1926-27 are as follows :—

POTATOES.—PRODUCTION PER 1,000 OF POPULATION, 1922-23 TO 1926-27.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Cap. Ter.	Australia.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1922-23	16	93	13	34	44	462	13	58
1923-24	28	147	11	41	50	466	50	78
1924-25	25	84	24	23	55	383	32	57
1925-26	19	95	18	20	43	310	14	52
1926-27	23	95	11	27	47	531	13	61

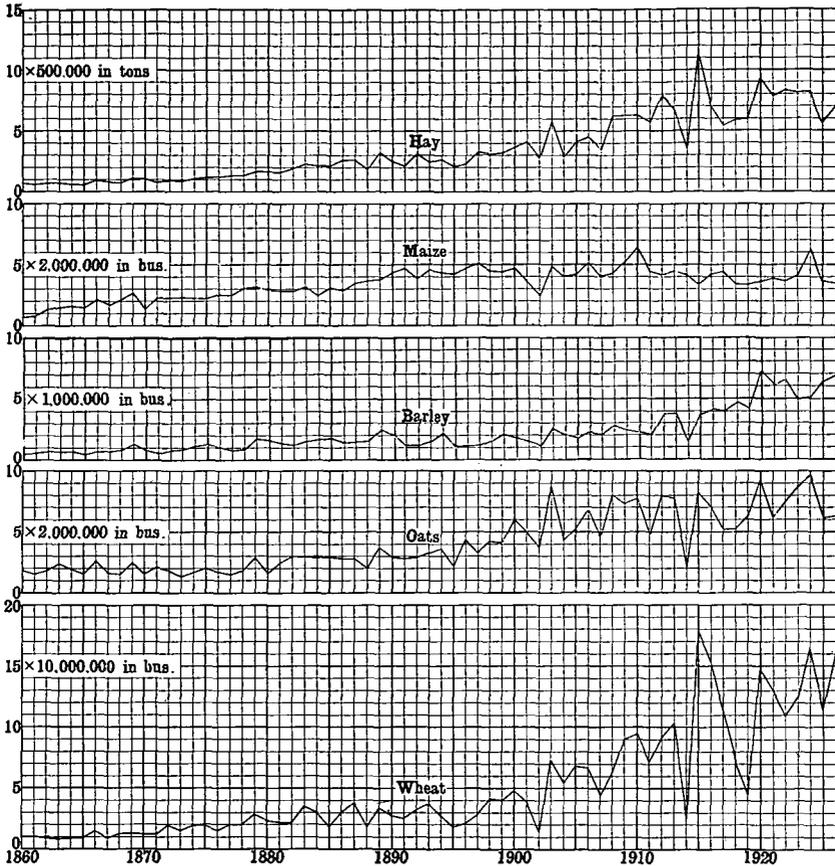
2. Imports and Exports.—Under normal conditions there is a moderate export trade in potatoes carried on by Australia principally with the Pacific Islands and Papua. On the other hand, when the recurrence of droughts causes a shortage in any of the

AREA UNDER PRINCIPAL CROPS—AUSTRALIA, 1860 TO 1926-27.

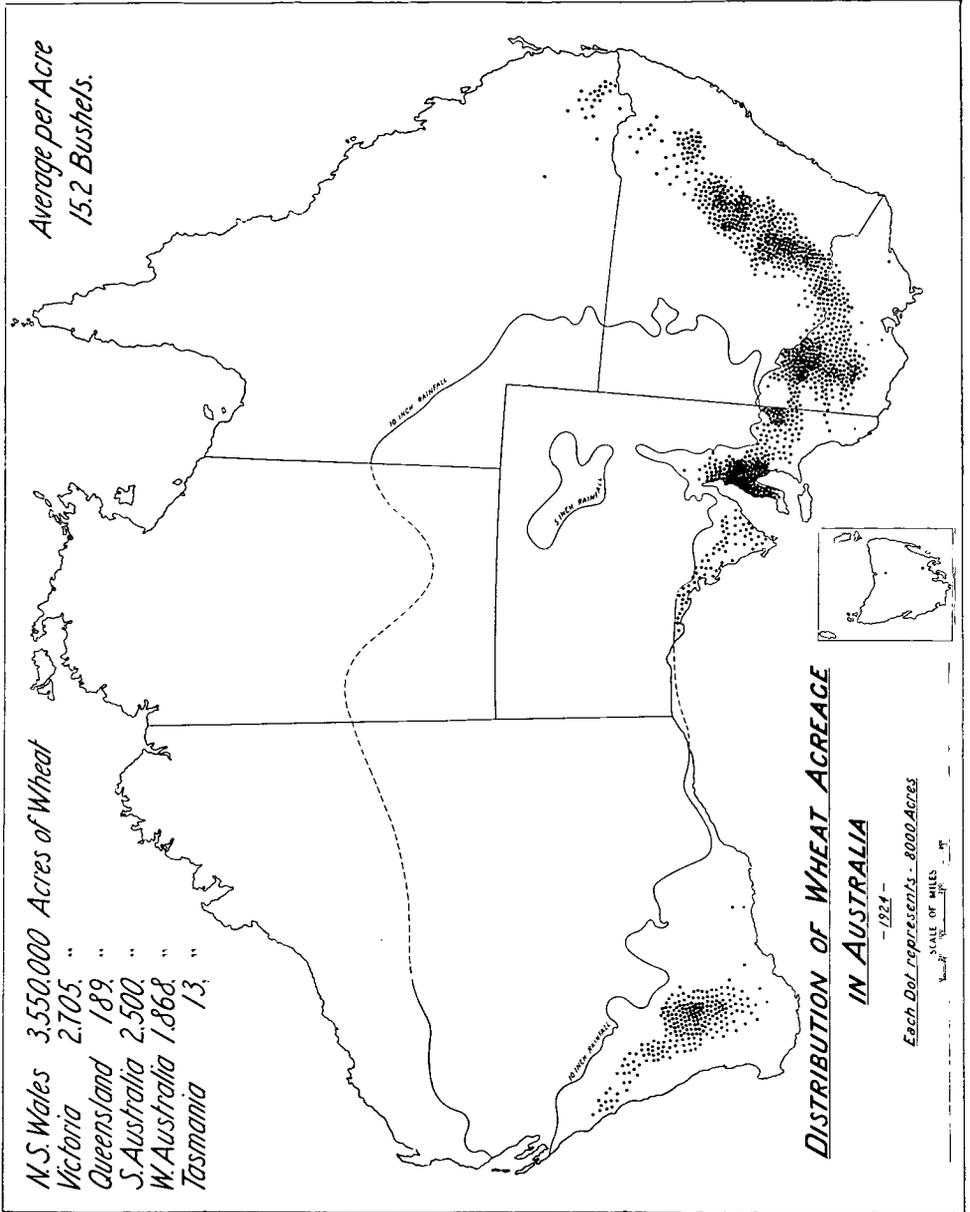


EXPLANATION.—The base of each small square represents an interval of one year, while the vertical height represents a number of acres, varying with the nature of the crop in accordance with the scale given on the left of the graph. The height of each curve above its base line denotes, for the crop to which it relates, the total area under cultivation in Australia during the successive seasons.

PRODUCTION OF PRINCIPAL CROPS—AUSTRALIA 1860 TO 1926-27



EXPLANATION.—A separate base line is provided for each of the crops dealt with. In each instance the base of a small square represents an interval of one year, the vertical height of such square representing in the case of wheat, 10,000,000 bushels; oats, 2,000,000 bushels; barley, 1,000,000 bushels; maize, 2,000,000 bushels; and hay, 500,000 tons. The height of each curve above its base line denotes the aggregate yield in Australia of the particular crop during the successive seasons.



States, importations are usually made from New Zealand. The quantities and values of the Australian oversea imports and exports of potatoes during the past five years are shown in the following table:—

POTATOES.—IMPORTS AND EXPORTS, AUSTRALIA, 1922-23 TO 1926-27.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Tons.	£	Tons.	£
1922-23	72	957	2,061	23,599	1,989	22,642
1923-24	38	639	3,951	29,974	3,913	29,335
1924-25	71	877	5,832	30,283	5,761	29,406
1925-26	8,168	77,056	1,017	16,674	— 7,151	— 60,392
1926-27	14,491	125,188	1,158	14,950	— 13,333	— 110,238

Note—The minus sign (—) signifies net imports.

3. Value of Potato Crop.—The estimated value of the potato crop of each State for the season 1926-27 is given in the following table, together with value per acre:—

POTATOES.—VALUE OF CROP, 1926-27.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Cap. Ter.	Australia.
Total value ..	£ 433,770	£ 1,221,817	£ 169,246	£ 144,313	£ 291,163	£ 855,160	£ 530	£ 3,115,999
Value per acre	£19/16/0	£18/9/3	£19/11/8	£40/13/3	£56/12/1	£25/3/3	£15/2/10	£22/6/11

§ 11. Other Root and Tuber Crops.

1. Nature and Extent.—Root crops, other than potatoes, are not extensively grown in Australia, the total area devoted to them for the season 1926-27 being only 22,911 acres. The principal of these crops are onions, mangolds, sugar beet, turnips, and "sweet potatoes." Of these, onions, sugar beet and mangolds are most largely grown in Victoria, turnips in Tasmania, and sweet potatoes in Queensland. The total area under onions in Australia during the season 1926-27 was 10,057 acres, giving a yield of 50,361 tons, and averaging 5.01 tons per acre. The area devoted in 1926-27 to root crops other than potatoes and onions, viz., 12,854 acres, yielded 72,204 tons, and gave an average of 5.62 tons per acre. The areas and yields here given are exclusive of the production of "market gardens," reference to which is made further on.

2. Imports and Exports.—The only root crop, other than potatoes, in which any considerable oversea trade is carried on by Australia is that of onions. During the past five years 7,332 tons, valued at £95,830, were imported, principally from Japan, the United States of America and New Zealand, while during the same period, the exports totalled 21,508 tons, valued at £199,432, and were shipped mainly to New Zealand, the Pacific Islands, the Philippine Islands, and Canada.

§ 12. Hay.

1. Nature and Extent.—(i) *Area and Yield.* As already stated, the chief crop in Australia is wheat grown for grain. Next in importance is hay, which for the season 1926-27 averaged over 15 per cent. of the total area cropped. In most European countries the hay consists almost entirely of meadow and other grasses, but in Australia a very large proportion is composed of wheat and oats. Large quantities of lucerne hay are also made, particularly in New South Wales and Queensland. The area under hay of all kinds in the several States during the last five years is given hereunder. The progress from 1860 onwards may be traced from the graph accompanying this chapter.

HAY.—AREA AND YIELD, 1922-23 TO 1926-27.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	Fed. Cap. Ter.	Australia.
AREA.									
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1922-23	888,250	1,261,408	78,050	577,810	431,633	100,088	10	1,207	3,338,456
1923-24	1,022,118	1,277,606	46,909	631,267	329,534	97,183	10	1,599	3,406,226
1924-25	762,242	1,120,312	95,007	562,253	397,591	87,945	10	1,045	3,026,405
1925-26	749,192	1,013,613	66,828	517,220	391,142	92,595	..	1,413	2,832,003
1926-27	623,424	1,080,993	40,141	496,105	358,487	98,289	..	2,192	2,699,631
YIELD.									
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1922-23	1,059,529	1,665,089	101,069	697,189	457,371	167,282	10	1,450	4,148,989
1923-24	1,170,737	1,541,287	43,407	781,768	368,122	144,298	5	2,310	4,051,934
1924-25	1,151,238	1,492,588	136,804	716,749	448,525	121,110	30	1,375	4,068,419
1925-26	564,006	929,068	99,742	612,671	355,269	114,920	..	2,269	2,677,945
1926-27	875,227	1,387,971	47,740	598,835	423,839	151,200	..	2,540	3,487,352

In all the States marked fluctuations occur yearly in the area under hay. These fluctuations are due to various causes, the principal being the variations in the relative prices of grain and hay, and the favourableness or otherwise of the season for a grain crop. Thus, crops originally sown for grain are frequently cut for hay owing to the improved price of that commodity, or owing to the fact that the outlook for grain is not satisfactory. On the other hand, improved grain prices or the prospect of a heavy yield will frequently cause crops originally intended for hay to be left for grain. The area under hay in Australia during the season 1915-16, *i.e.*, 3,597,771 acres, was the highest on record, whilst the average during the past decennium amounted to 2,956,190 acres.

(ii) *Average Yield.* The States in which the highest average yields per acre have been obtained during the last decennium are Tasmania, Queensland and Victoria, in the two former of which States also the smallest areas are devoted to this crop. For the same period the lowest yield for Australia as a whole was that of 19 cwt. per acre in 1919-20; while the highest was that of 29 cwt. in 1920-21, followed closely by 27 cwt.

obtained in 1924-25. The average for the decennium was 24½ cwt. Particulars for the several States for the seasons 1922-23 to 1926-27, and the average for the last ten years, are given hereunder:—

HAY.—YIELD PER ACRE, 1922-23 TO 1926-27.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W.Aust.	Tas.	N. Ter.	Fed. Cap. Ter.	Australia.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1922-23	1.19	1.32	1.29	1.21	1.06	1.67	1.00	1.20	1.24
1923-24	1.15	1.21	0.93	1.24	1.12	1.48	0.50	1.44	1.19
1924-25	1.51	1.33	1.44	1.27	1.13	1.38	3.00	1.32	1.34
1925-26	0.75	0.92	1.49	1.18	0.91	1.24	..	1.60	1.05
1926-27	1.40	1.28	1.19	1.21	1.18	1.54	..	1.16	1.29
Average for 10 seasons 1917-1927 ..	1.16	1.25	1.35	1.20	1.07	1.43	3.23	1.42	1.21

(iii) *Relation to Population.* During the past five seasons the Australian hay production per head of population has varied between 10 cwt. in 1925-26 and 14½ cwt. in 1922-23, averaging about 12½ cwt. per head for the period. Hay production per head of population is generally highest in South Australia. Details for the seasons 1922-23 to 1926-27 are given hereunder:—

HAY.—YIELD PER 1,000 OF POPULATION, 1922-23 TO 1926-27.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	Fed. Cap. Ter.	Australia.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1922-23 ..	483	1,047	123	1,359	1,331	764	3	567	737
1923-24 ..	530	948	54	1,490	1,040	659	1	881	705
1924-25 ..	511	901	163	1,331	1,231	556	8	459	693
1925-26 ..	245	552	116	1,111	955	530	..	576	497
1926-27 ..	373	811	54	1,057	1,119	714	..	516	571

(iv) *Varieties Grown.* Particulars concerning the kinds of crop cut for hay are furnished in the returns prepared by five of the States. In the case of Tasmania the bulk consists of oaten hay; full particulars, however, are not available for that State.

Details for the past five seasons are given in the following table:—

HAY.—VARIETIES GROWN, 1922-23 TO 1926-27.

Varieties.	1922-23.	1923-24.	1924-25.	1925-26.	1926-27.
NEW SOUTH WALES—					
	Acres.	Acres.	Acres.	Acres.	Acres.
Wheaten	597,959	695,369	388,422	449,653	311,073
Oaten	216,136	241,161	274,408	209,047	216,403
Barley	1,265	1,584	1,150	781	692
Lucerne	72,337	83,256	97,994	89,368	95,003
Other	553	748	268	343	253
Total	888,250	1,022,118	762,242	749,192	623,424

HAY.—VARIETIES GROWN, 1922-23 TO 1926-27—*continued.*

Varieties.	1922-23.	1923-24.	1924-25.	1925-26.	1926-27.
	Acres.	Acres.	Acres.	Acres.	Acres.
VICTORIA—					
Wheaten	213,219	163,826	87,312	230,364	101,243
Oaten	1,021,216	1,084,136	1,000,382	759,209	959,019
Lucerne, etc.	26,973	29,644	32,618	24,040	20,731
Total	1,261,408	1,277,606	1,120,312	1,013,613	1,080,993
QUEENSLAND—					
Wheaten	8,834	8,714	9,457	10,514	2,798
Oaten	4,542	1,344	8,304	2,214	790
Lucerne	60,042	33,505	61,089	50,526	33,263
Other.. ..	4,632	3,346	16,157	3,574	3,290
Total	78,050	46,909	95,007	66,828	40,141
SOUTH AUSTRALIA—					
Wheaten	359,834	381,962	304,183	273,300	230,120
Oaten	208,769	234,899	246,825	234,923	256,417
Lucerne	4,973	7,270	8,344	6,218	5,613
Other.. ..	4,234	7,136	2,901	2,779	3,955
Total	577,810	631,267	562,253	517,220	496,105
WESTERN AUSTRALIA—					
Wheaten	307,142	223,770	242,216	238,110	207,841
Oaten	123,232	103,723	153,315	150,534	148,160
Lucerne	142	175	339	368	340
Other.. ..	1,117	1,866	1,721	2,130	2,156
Total	431,633	329,534	397,591	391,142	358,487

Wheaten hay is the principal hay crop in New South Wales, South Australia, and Western Australia, oaten hay in Victoria and Tasmania, and lucerne in Queensland.

2. Comparison with Other Countries.—As already noted, the hay crops of most European countries consist of grasses of various kinds, amongst which clover, lucerne, sainfoin and rye grass occupy prominent places. The statistics of hay production in these countries are not prepared on a uniform basis, consequently any attempt to furnish extensive comparisons would be misleading. It may be noted, however, that in Great Britain the production of hay from clover, sainfoin, etc., for the year 1927 amounted to 2,755,000 tons from 1,986,000 acres, while from permanent grasses a yield of 4,424,000 tons of hay was obtained from 4,485,000 acres, giving a total of 7,179,000 tons from 6,471,000 acres, or about 22 cwt. per acre.

3. Imports and Exports.—Under normal conditions hay, whether whole or in the form of chaff, is somewhat bulky for oversea trade, and consequently does not in such circumstances figure largely amongst the imports and exports of Australia. During 1926-27, 280 tons were imported, while the exports amounted to 8,041 tons, valued at £53,331, the principal purchases being made by New Zealand, India, the Philippine Islands, Malaya (British), Ceylon, and Hong Kong.

4. Value of Hay Crop.—The following table shows the value and the value per acre of the hay crop of the several States for the season 1926-27 :—

HAY.—VALUE OF CROP, 1926-27.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Cap. Ter.	Australia.
Total Value ..	£ 6,528,550	£ 6,245,869	£ 422,689	£ 2,095,954	£ 1,259,477	£ 680,200	£ 19,620	£ 17,252,359
Value per acre ..	£10/9/5	£5/15/7	£10/10/7	£4/4/6	£3/10/3	£6/18/4	£8/19/0	£6/7/10

§ 13. Green Forage.

1. Nature and Extent.—(i) *Area.* In all the States a considerable area is devoted to the production of green forage, mainly in connexion with the dairying industry. The total area so cropped is considerably swollen in adverse seasons by the inclusion of wheat or other cereal crops deemed unsuitable for the production of either grain or hay. Under normal conditions the principal crops cut for green forage are maize, sorghum, oats, barley, rye, rape, and lucerne, while small quantities of sugar-cane also are so used. Particulars concerning the area under green forage in the several States during each of the last five years are given in the following table :—

GREEN FORAGE.—AREA, 1922-23 TO 1926-27.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Cap. Ter.	Australia.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1922-23	409,679	102,451	188,636	61,000	32,997	9,073	..	35	893,871
1923-24	429,765	107,371	306,693	55,282	51,754	10,389	50	7	961,311
1924-25	166,030	99,531	134,109	73,023	78,586	13,602	..	43	564,924
1925-26	479,434	107,873	247,482	102,732	100,558	17,101	..	30	1,055,210
1926-27	217,385	87,241	342,580	105,170	109,314	19,213	..	54	880,957

(ii) *Relation to Population.* Particulars of the area under green forage per 1,000 of the population for the seasons 1922-23 to 1926-27 are given hereunder :—

GREEN FORAGE.—AREA PER 1,000 OF POPULATION, 1922-23 TO 1926-27.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Cap. Ter.	Australia.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1922-23 ..	230	64	239	119	96	41	..	14	159
1923-24 ..	195	66	378	105	146	47	14	3	167
1924-25 ..	74	60	161	136	216	62	..	14	96
1925-26 ..	209	64	287	186	270	79	..	8	176
1926-27 ..	93	51	388	186	289	89	..	11	144

2. Value of Green Forage Crops.—The value of these crops is variously estimated in the several States, and the Australian total for the season 1926-27 may be taken approximately as £3,912,455 or about £4 8s. 10d. per acre.

§ 14. Sugar-cane and Sugar-beet.

1. Sugar-cane.—(i) *Area.* Sugar-cane for sugar-making purposes is grown only in Queensland and New South Wales, and much more extensively in the former than in the latter. Thus, of a total area of 284,828 acres under sugar-cane in Australia for the season 1926-27, there were 266,519 acres, or about 93½ per cent., in Queensland. Sugar-cane growing appears to have been started in Australia in or about 1862, as the earliest statistical record of sugar-cane as a crop is that which credits Queensland with an area of 20 acres for the season 1862-63. In the following season the New South Wales

returns show an area of 2 acres under this crop. The area under cane in New South Wales reached its maximum in 1895-96 with a total of 32,927 acres. Thenceforward with slight variations it gradually fell to 10,490 acres in 1918-19, but from that year onwards considerable improvement has taken place, and during the past five years more than 5,000 acres have been added to the cane-fields. In Queensland, although fluctuations in area are manifest, the general trend has been upwards, the acreage under cane for the season 1925-26 being the highest on record. The area under sugar-cane in Australia from 1922-23 is given in the following table, and particulars for earlier years may be seen from the accompanying graphs:—

SUGAR-CANE.—AREA, 1922-23 TO 1926-27.

Season.	New South Wales.		Queensland.		Australia.		
	Productive.	Unproductive.	Productive.	Unproductive.	Productive.	Unproductive.	Total.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1922-23 ..	5,879	8,704	140,850	61,453	146,729	70,157	216,886
1923-24 ..	6,733	10,582	138,742	81,223	145,475	91,805	237,280
1924-25 ..	7,761	12,232	167,649	85,870	175,410	98,102	273,512
1925-26 ..	8,688	10,675	189,675	79,834	198,363	90,509	288,872
1926-27 ..	10,128	8,181	189,312	77,207	199,440	85,388	284,828

(ii) *Productive and Unproductive Cane.* The areas given in the preceding table represent sugar-cane grown for purposes other than green forage. The whole area was not necessarily 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. The season in which the highest acreage is recorded may not show the greatest area of productive cane cut for crushing, as was evidenced in 1923-24, when, although the total acreage was greater, the area cut was less than in the previous year.

(iii) *Yield of Cane and Sugar.* Queensland statistics of the production of sugar-cane are not available for dates prior to the season 1897-98. In that season the total for Australia was 1,073,883 tons, as against the maximum production of 3,965,587 tons in 1925-26. The average production of cane during the decennium ended 1926-27 was 2,493,259 tons. The three highest yields of sugar were in 1925-26, 1924-25 and 1926-27, the quantities being 517,970 tons, 427,327 tons, and 415,876 tons respectively. The decennial average was 314,738 tons of sugar. Particulars relative to the total yields of cane and sugar for the past five years are as follows:—

SUGAR-CANE.—YIELD OF CANE AND SUGAR, 1922-23 TO 1926-27.

Season.	New South Wales.		Queensland.		Australia.	
	Cane.	Sugar.	Cane.	Sugar.	Cane.	Sugar.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1922-23 ..	147,992	18,580	2,167,990	287,785	2,315,982	306,365
1923-24 ..	132,084	16,829	2,045,808	269,175	2,177,892	286,004
1924-25 ..	228,978	26,682	3,171,341	400,645	3,400,319	427,327
1925-26 ..	297,335	32,385	3,668,252	485,585	3,965,587	517,970
1926-27 ..	230,254	26,604	2,925,662	389,272	3,155,916	415,876

The production of raw sugar in Australia in 1926-27 amounted to 415,876 tons manufactured from 3,155,916 tons of cane. These figures represent considerable reductions on the previous year, due entirely to the abnormally dry season experienced. The assistance given by the Commonwealth and State Governments during recent years has greatly benefited the sugar industry. In 1920-21 the area cultivated in Queensland was 162,619 acres and the number of cane farmers was 3,930, whereas in 1926-27, 266,519 acres were under cultivation and the number of growers of 5 acres and over had risen to 6,608, or an increase of 2,678, in the six years.

Final figures for the 1927-28 season are not yet available, but the season was very favourable for the growth of the cane and it is estimated that 3,810,000 tons were cut. Owing to the substantial rains in the early part of the year, followed by a dry winter and spring, the commercial sugar content of the cane was remarkably good, and approximately 516,000 tons of sugar were crushed during the season.

Earlier in the year indications pointed to a record crop in 1928-29, but later advices report various climatic drawbacks, and it is now believed that the yield will be in the vicinity of that of the previous year.

(iv) *Average Yield of Cane and Sugar.* The average yield per acre of productive cane is much higher in New South Wales than in Queensland, the average during the last decade being 25.95 tons for the former and 17.30 for the latter State. For some years prior to 1910-11, the yield in New South Wales remained practically constant at about 21 tons per acre. Since that year, the average yield per acre has shown an upward tendency, reaching 30 tons or over during 1913-14, 1914-15, 1917-18, and 1925-26. The climatic conditions affecting the long coastal area where this industry is situated in Queensland are largely responsible for the great variations in the yields of sugar for that State, the figures ranging during the past decennium from 14.75 tons per acre in 1923-24 to 24.88 tons in 1917-18.

The greatest production of sugar per acre crushed during the past decennium occurred in 1917-18, when 2.87 tons were obtained, the respective crushings for New South Wales and Queensland averaging 3.56 and 2.83 tons. The average yield per acre for the past ten years was 3.03 tons in New South Wales, and 2.20 tons in Queensland.

(v) *Quality of Cane.* The quantity of cane required to produce a ton of sugar varies with the variety sown, the district where grown, also with the season, and for the decennium ended 1926-27 averaged 7.92 tons, the average production of sugar being 12.63 per cent. of the weight of cane crushed. As the result of the systematic study of cane culture in Queensland, the sugar contents of the cane have been considerably increased in recent years. During the ten years ended 1916-17 it required on the average 8.75 tons of cane to produce 1 ton of sugar, whereas the average figure for the past decennium was reduced to 7.88 tons.

SUGAR-CANE AND SUGAR.—YIELD PER ACRE, 1922-23 TO 1926-27.

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.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1922-23	25.17	3.16	7.97	15.39	2.04	7.53	15.78	2.09	7.56
1923-24	19.62	2.50	7.85	14.75	1.94	7.60	14.97	1.97	7.60
1924-25	29.50	3.44	8.58	18.92	2.44	7.75	19.38	2.48	7.80
1925-26	34.22	3.73	9.18	19.34	2.56	7.55	19.99	2.61	7.66
1926-27	22.73	2.63	8.65	15.45	2.06	7.52	15.82	2.09	7.59
Average 10 seasons 1917-27	25.95	3.03	8.57	17.30	2.20	7.88	17.70	2.23	7.92

The Bureau of Sugar Experiment Stations established in Queensland is rendering splendid service to the sugar industry in that State, by advocating and demonstrating better methods of cultivation, the use of green manures, lime, and fertilizers, together with the introduction and distribution of improved varieties of sugar cane.

The Falkiner cane-harvester was again in the field during the year, and although the machine is promising, it requires further alterations and adjustments to enable it to operate successfully. A cane harvester of a lighter character, invented in the district, was tried at Mackay and revealed great possibilities. Further trials are awaited with interest. A third cane harvester manufactured in New South Wales was also tried at Bundaberg, but no details are available. Improvements in cultivating machinery, moreover, are continually being made, and the use of tractors is universal in the sugar districts of North Queensland.

(vi) *Relation to Population.* The yield of sugar in Australia during the five years 1922-23 to 1926-27 was more than sufficient to supply local requirements, the average production during the period amounting to 149 lbs. per head of population, while the consumption was estimated to average 118 lbs. per head. Details for the period 1922-23 to 1926-27 are as follows :—

SUGAR.—PRODUCTION PER HEAD OF POPULATION, 1922-23 TO 1926-27.

State.	1922-23.	1923-24.	1924-25.	1925-26.	1926-27.
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales ..	19	17	27	32	25
Queensland	818	743	1,098	1,263	988
Australia	122	111	166	194	152

2. *Sugar-beet.*—(i) *Area and Yield.* The following table shows the acreage under sugar-beet, and the production in Victoria during the past five seasons :—

SUGAR-BEET.—AREA AND PRODUCTION IN VICTORIA, 1922-23 TO 1926-27.

Particulars.	1922-23.	1923-24.	1924-25.	1925-26.	1926-27.
Area harvested .. acres	2,045	1,937	1,897	1,880	2,024
Production .. tons	20,444	29,512	24,468	21,194	9,851
Average per acre .. "	10.00	15.24	12.90	11.27	4.87
Sugar produced .. "	2,784	3,499	3,017	2,315	1,177

Owing to drought the 1926-27 season was the worst yet experienced, the crop being almost a failure. Growers received 40s. per ton for their beets. Conditions were much more favourable for the 1927-28 season and the area under beets was increased.

(ii) *Encouragement of Beet-growing.* During recent years an effort has been made to revive the sugar-beet industry in Victoria. The State Government has advanced its irrigation scheme on the Macalister River to provide water for the district for the 1927-28 season. A fine grade of white sugar is manufactured at Maffra, and considerable quantities of beet pulp and molasses are distributed for stock feed.

3. *Sugar Bounties.*—The provision of bounties or similar aids to the sugar growers of Australia early occupied the attention of the Commonwealth Parliament, the object in view being that of assisting the industry, and at the same time diminishing the employment of coloured labour in connexion therewith. An account of the various Acts in connexion with sugar bounties and sugar excise tariffs will be found on pages 394 to 396 of Year Book No. 6. In 1912 the Sugar Excise Repeal Act and the Sugar Bounty Abolition Act were passed by the Federal Parliament, conditionally on the Queensland Parliament approving of legislation prohibiting the employment of coloured labour in connexion with the industry. The State Sugar Cultivation Act, the Sugar Growers Act, and the Sugar Growers' Employees Act of 1913, having been approved of, the 1912 Federal Acts, which repeal all previous enactments in regard to excise on sugar and bounty on cane, came into force by proclamation in July, 1913.

4. *Sugar Purchase by Commonwealth Government.*—The steps taken by the Commonwealth Government in connexion with this matter were alluded to in previous issues of the Year Book. (See No. 18, p. 720.)

By agreement between the Commonwealth and Queensland Governments in 1925, it was arranged that the embargo on the importation of foreign sugar should be extended for three years from 1st September, 1925. The price payable for the raw sugar needed for home consumption was fixed at £27 per ton, less £1 per ton to defray administrative and general expenses of the Sugar Board, and to provide special concessions to certain consumers of sugar, while for that portion reserved for export, the price was fixed at a much lower figure, the latter of course being subject to realization adjustments. The embargo was later extended for a further period of three years until 1st August, 1931, on practically the same terms as heretofore. Final calculations by the Sugar Board showed that 56 per cent. of the total production in 1925-26 was consumed in Australia, while the net value per ton of exported sugar was £11 5s. 9d., making the average price for the whole crop £19 10s. 7d. per ton.

Owing to the reduced production in the 1926-27 season 81½ per cent. was delivered for home consumption, and the net value of the surplus exported was £14 18s. 10d. per ton, making an average return of £24 10s. 10d. per ton.

In 1927-28 the percentage of the sugar crop retained for consumption was 68.82, the net value of the exportable surplus was £1,913,280, or £12 11s. 1d. per ton, and the average net return for the whole crop was £22 14s. 9d. per ton.

5. Imports and Exports of Sugar.—Owing to the embargo and the increased production of sugar in Australia, the imports have dwindled to insignificant proportions. Supplies to make up for local deficiencies are usually drawn from Java and Fiji. Particulars concerning the imports and exports of cane sugar for the past five years are as follows :—

CANE SUGAR.—IMPORTS AND EXPORTS, AUSTRALIA, 1922-23 TO 1926-27.

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Tons.	£	Tons.	£
1922-23	4,551	87,317	5,127	159,897	576	72,580
1923-24	525	12,200	15,591	443,183	15,066	430,983
1924-25	3,046	65,579	32,747	2,162,309	79,701	2,096,730
1925-26	345	9,425	208,805	5,313,135	208,460	5,303,710
1926-27	3,611	47,844	66,523	1,730,095	62,912	1,682,251

6. Sugar By-products.—Large quantities of molasses are produced as a by-product in the sugar mills, but, at present, much of it is allowed to run to waste. Details for a series of years of the quantity produced and the proportions used for distilling, fuel, manure and other purposes will be found in Chapter XXII.—“Manufacturing.”

Keen interest has recently been aroused in the utilization of the by-products of sugar manufacture. A distillation plant erected at the Plane Creek Central Sugar Mill, Mackay, was opened during 1927 and alcohol of a very fine quality was produced, but operations were suspended pending the arrival from overseas and the installation of additional plant embodying new scientific developments and discoveries in the field of liquid fuel.

Steps are also being taken to launch an industry to undertake the manufacture of a building material known as “megass board” from megass or bagasse, i.e., the residuum of crushed fibre left over from the sugar cane after the removal of the sugar content. The Australian megass board is claimed to possess superior qualities to the “celotex” made from bagasse in America.

7. Sugar Prices.—The prices of sugar per ton of raw and refined sugar and the retail price in Australia from 1915 to date are given hereunder :—

AUSTRALIAN SUGAR PRICES, 1915 TO 1931.

Date.	Raw Sugar.		Refined Sugar.	
	Price to Grower and Miller per Ton.		Wholesale Price per Ton.	Retail Price per lb.
	£	s. d.	£	s. d.
19.7.15 to 15.1.16	18	0 0	25	10 0
16.1.16 to 30.6.17	18	0 0	29	5 0
1.7.17 to 24.3.20	21	0 0	29	5 0
25.3.20 to 30.6.20	21	0 0	49	0 0
1.7.20 to 31.10.22	30	6 8	49	0 0
1.11.22 to 30.6.23	30	6 8	42	0 0
1.7.23 to 21.10.23	27	0 0	42	0 0
22.10.23 to 31.8.25	26	0 0	37	11 4
1.9.25 to 31.8.31	(a)26	10 0	37	6 8

(a) The price of raw sugar for the years 1925 to 1931 is estimated at £26 10s. per ton, but, as the result of the values received for the surpluses exported, the actual price obtained in 1925-26 was £19 10s. 7d.; in 1926-27, £24 10s. 10d.; and in 1927-28, £22 14s. 9d.

§ 15. Vineyards.

1. *Progress of Cultivation.*—(i) *Area of Vineyards.* The date of introduction of the vine into Australia has been variously set down by different investigators, the years 1815 and 1828 being principally favoured. It would seem, however, that plants were brought out with the first fleet in 1788, consequently the Australian vine is as old as Australian settlement. As already mentioned, a report by Governor Hunter gives the area under vines in 1797 as 8 acres. From New South Wales the cultivation spread to Victoria and South Australia, and these States have now far outstripped the mother State in the area under this crop. In Queensland and Western Australia also, vine-growing has been carried on for many years, but little progress has been made. In Tasmania the climate is not favourable to the growth of grapes. The purposes for which grapes are grown in Australia are three in number, viz. :—(a) for wine-making, (b) for table use, and (c) for drying. The total area under vines in the several States during each of the last five years is given in the following table, while particulars from 1860 onwards may be gathered from the graph accompanying this chapter :—

VINEYARDS.—AREA, 1922-23 TO 1926-27.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Australia.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1922-23..	13,734	38,892	1,242	46,750	4,858	There are no vineyards in Tasmania.	105,476
1923-24..	14,559	42,599	1,269	49,303	5,235		112,965
1924-25..	14,737	42,467	1,579	50,280	5,331		114,394
1925-26..	14,465	40,712	1,656	50,594	5,270		112,697
1926-27..	14,281	40,612	1,682	50,271	5,274		112,120

The area under vines in Australia amounted to 65,673 acres in 1904-5. From that year onwards a gradual decline set in, and at the end of 1914-15 the acreage had decreased to 60,985. Since that date, however, as the result of extensive plantings, particularly of the dried grape varieties, the 1904-5 figure was soon exceeded, and the total for 1924-25 was the highest on record. Marketing difficulties have temporarily hindered progress during the past two years.

The wine-growing industry in Australia, especially in Victoria and New South Wales, received a severe check by various outbreaks of phylloxera. With a view to the eradication of this disease extensive uprooting of vineyards in the infested areas was undertaken, while further planting within such areas, except with phylloxera-resistant stocks, was prohibited.

(ii) *Wine Production.* The production of wine has not increased as rapidly as the suitability of soil and climate would appear to warrant. The cause is probably twofold, being due in the first place to the fact that Australians are not a wine-drinking people, and consequently do not provide a local market for the product, and in the second, to the fact that the new and comparatively unknown wines of Australia find it difficult to establish a footing in the markets of the old world, owing to the competition of well-known brands. Active steps are now being taken to bring the Australian wines under notice, while the Commonwealth bounty on the export of fortified wine of specified strength has greatly benefited the industry during the past three years. The rate of bounty was fixed at 4s. per gallon, but from 1st September, 1927, the rate has been reduced to 1s. 9d. The date of expiry of the bounty is set down as 31st August, 1930.

Particulars of the quantity of wine produced in the several States during the past five seasons are given in the table hereunder :—

WINE.—PRODUCTION, 1922-23 TO 1926-27.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Australia.
	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	No production of wine in Tasmania.	Gallons.
1922-23 ..	771,206	1,717,490	53,171	8,653,579	232,347		11,427,793
1923-24 ..	1,459,778	2,177,127	37,242	10,756,538	233,196		14,663,881
1924-25 ..	1,171,264	1,368,765	33,119	10,502,381	223,761		13,299,290
1925-26 ..	1,240,893	1,637,274	39,375	13,074,874	238,726		16,231,142
1926-27 ..	1,625,507	2,346,314	32,974	16,159,595	291,951		20,456,341

(iii) *Relation to Population.* In relation to population the areas of the vineyards of the several States have varied little during the last five years, the Australian total declining slightly during the period, as the result of marketing difficulties already referred to. Details for the seasons 1922-23 to 1926-27 are given in the succeeding table :—

VINEYARDS.—AREA PER 1,000 OF POPULATION, 1922-23 TO 1926-27.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Australia.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1922-23 ..	6	24	2	91	14	..	19
1923-24 ..	7	26	2	94	15	..	20
1924-25 ..	7	26	2	93	15	..	19
1925-26 ..	6	24	2	92	14	..	19
1926-27 ..	6	24	2	89	14	..	18

2. *Imports and Exports of Wine.*—(i) *Imports.* The principal countries of origin of wine imported into Australia are France, Spain, Portugal, and Italy, the bulk of the sparkling wines coming from France. Particulars relative to the importations of wine into Australia during the past five years are given hereunder :—

WINE.—IMPORTS, AUSTRALIA, 1922-23 TO 1926-27.

Year.	Quantity.			Value.		
	Sparkling.	Other.	Total.	Sparkling.	Other.	Total.
	Gallons.	Gallons.	Gallons.	£	£	£
1922-23 ..	15,368	43,199	58,567	41,305	32,692	73,997
1923-24 ..	21,770	54,988	76,758	56,069	38,434	94,503
1924-25 ..	28,324	52,999	81,323	72,042	33,743	105,785
1925-26 ..	25,896	61,511	87,407	65,763	37,432	103,195
1926-27 ..	27,720	61,878	89,598	64,134	37,325	101,459

(ii) *Exports.* The principal countries to which wine is exported from Australia are the United Kingdom and New Zealand, the bulk of the increased shipments during the past two years being consigned to the former country. Details concerning the exports of wine from Australia during the past five years are given in the following table:—

WINE.—EXPORTS, AUSTRALIA, 1922-23 TO 1926-27.

Year.	Quantity.			Value.		
	Sparkling.	Other.	Total.	Sparkling.	Other.	Total.
	Gallons.	Gallons.	Gallons.	£	£	£
1922-23 ..	2,607	703,710	706,317	5,626	159,368	164,994
1923-24 ..	3,601	987,703	991,304	7,180	210,132	217,312
1924-25 ..	4,003	877,466	881,469	8,304	180,387	188,691
1925-26 ..	3,564	1,719,045	1,722,609	7,156	364,766	371,922
1926-27 ..	2,956	3,078,841	3,081,797	6,075	827,722	833,797

3. *Other Viticultural Products.*—(i) *Table Grapes.* In addition to grapes for wine-making purposes, large quantities are grown in all the States for table use, but the greatest development in the industry has taken place in the drying of raisins and currants, particularly in Victoria and South Australia. The quantities of table grapes grown in the several States during the past five seasons are as follows:—

TABLE GRAPES.—PRODUCTION, 1922-23 TO 1926-27.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Australia.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1922-23 ..	3,513	3,304	570	1,314	2,344	..	11,045
1923-24 ..	3,983	2,726	1,038	1,056	2,662	..	11,465
1924-25 ..	3,590	2,672	961	1,156	2,069	..	10,448
1925-26 ..	3,837	3,616	998	1,063	2,284	..	11,796
1926-27 ..	4,689	4,634	1,410	791	2,195	..	13,719

(ii) *Raisins and Currants.* Statistics of the quantities of raisins and currants dried during each of the past five seasons are given in the following table:—

RAISINS AND CURRANTS.—QUANTITIES DRIED, 1922-23 TO 1926-27.

Season.	N.S. Wales.		Victoria.		South Aust.		Western Aust.		Australia.	
	Raisins.	Currants.	Raisins.	Currants.	Raisins.	Currants.	Raisins.	Currants.	Raisins.	Currants.
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
1922-23 ..	11,253	5,768	285,520	98,081	69,261	96,807	6,748	9,250	372,782	209,906
1923-24 ..	16,967	6,658	438,827	150,867	125,006	131,000	9,606	15,789	590,406	304,294
1924-25 ..	19,180	5,953	366,999	104,948	139,385	109,446	7,940	12,689	533,504	233,036
1925-26 ..	23,168	6,132	351,506	123,793	111,261	103,910	9,631	10,919	495,566	244,694
1926-27 ..	41,064	9,106	657,714	135,464	162,401	87,662	8,361	22,936	870,040	255,168
Average 10 seasons 1917-27	13,687	4,709	285,918	92,875	84,329	86,232	6,367	9,299	390,301	193,165

4. Imports and Exports of Raisins and Currants.—The following table gives the oversea imports and exports of raisins and currants during each of the past five years :—

RAISINS AND CURRANTS.—IMPORTS AND EXPORTS, AUSTRALIA, 1922-23 TO 1926-27.

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
RAISINS.						
1922-23 ..	81,018	5,292	19,240,729	721,641	19,159,711	716,349
1923-24 ..	433,907	8,137	26,399,830	803,365	25,965,923	795,228
1924-25 ..	193,372	8,682	56,046,855	1,392,566	55,853,483	1,383,884
1925-26 ..	103,094	5,224	35,556,767	1,026,339	35,453,673	1,021,115
1926-27 ..	98,317	5,385	44,078,938	1,265,994	43,980,621	1,260,609

CURRANTS.						
1922-23 ..	3,236	90	14,502,772	404,184	14,499,536	404,094
1923-24 ..	4,267	178	16,458,561	420,380	16,454,294	420,202
1924-25 ..	7,852	231	21,558,804	509,179	21,550,952	508,948
1925-26 ..	15,147	494	18,844,854	402,283	18,829,707	401,789
1926-27 ..	5,202	173	19,210,967	377,895	19,205,765	377,722

The quantities of raisins and currants imported into Australia were generally greater than the exports for all years prior to 1912, when the increased production in Australia left a surplus available for export. During the last five years the value of the exports exceeded that of the imports by £7,289,940, the average annual excess for the quinquennium being £1,457,988.

§ 16. Orchards and Fruit Gardens.

1. Progress of Cultivation.—(i) Area. The maximum area under orchards and fruit gardens was recorded in 1921-22, when 281,149 acres were planted. Since that year the industry has declined slightly owing to difficulties experienced in disposing of the surplus production. The total area under orchards and fruit gardens in the several States is given in the following table :—

ORCHARDS AND FRUIT GARDENS.—AREA, 1922-23 TO 1926-27.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Cap. Ter.	Australia.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1922-23 ..	73,134	86,014	29,431	33,003	19,405	34,689	11	275,687
1923-24 ..	72,372	85,570	29,568	33,472	18,776	34,076	11	273,845
1924-25 ..	73,972	85,358	31,738	33,319	18,520	33,992	5	276,904
1925-26 ..	74,532	82,665	33,520	32,276	18,355	33,891	6	275,245
1926-27 ..	74,682	83,215	35,145	31,570	18,512	33,322	5	276,451

(ii) *Varieties and Yield.* The varieties grown differ in various parts of the States, ranging from such fruits as the pineapple, paw-paw, mango, and guava of the tropics to the strawberry, the raspberry, and the currant of the colder parts of the temperate zone. The principal varieties grown in Victoria are the apple, peach, pear, orange, plum, and apricot. In New South Wales, citrus fruits (oranges, lemons, etc.) occupy the leading position, although apples, peaches, plums, pears, cherries and bananas are extensively grown. In Queensland, the banana, the pineapple, the apple, the orange, the peach, the plum, and the coconut are the varieties most largely cultivated. In South Australia, in addition to the apple, orange, apricot, plum, peach, and pear, the almond and the olive are extensively grown. In Western Australia, the apple, orange, pear, plum, peach, apricot and fig are the chief varieties. In Tasmania, the apple occupies nearly four-fifths of the fruit growing area, but small fruits, such as the currant, raspberry, and gooseberry are extensively grown, while the balance of the area is taken up with the pear, apricot, plum, and cherry. The following table gives the acreage under the principal kinds of fruit, and the quantity and value of fruit produced. The acreages are exclusive of young trees not yet bearing. Although statistics of area are not collected annually in Victoria, the acreage under each class of fruit is estimated from data based on the triennial collection of the number of trees, subject to annual variations in the total area under orchards and fruit gardens:—

ORCHARDS AND FRUIT GARDENS.—VARIETIES, YIELD, AND VALUE, 1926-27.

Fruit.		N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Fed. Cap. Ter.	Australia.
Apples	.. acres	14,082	33,814	4,203	10,487	9,893	26,838	5	98,322
	bushels	407,865	543,106	113,810	361,712	901,464	2,900,000	515	5,223,475
Apricots	.. acres	252,370	230,820	63,425	180,667	581,256	1,169,450	320	2,477,703
	.. bushels	2,101	5,200	98	3,563	729	1,570	..	13,261
Bananas	.. acres	188,016	440,423	2,188	253,035	45,437	43,200	4	972,303
	bushels	36,628	165,159	1,185	99,997	27,262	13,500	2	393,733
Cherries	.. acres	1,846	..	16,489	..	10	..	..	18,345
	bushels	69,920	..	2,066,096	..	435	..	..	2,163,345
Lemons	.. acres	3,344	1,566	12	762	..	68	..	5,752
	bushels	52,232	29,817	287	16,359	..	1,950	4	100,949
Nectarines and Peaches	.. acres	36,135	29,817	182	17,995	..	920	5	185,954
	bushels	2,905	2,115	209	482	562	..	..	6,273
Nuts	.. acres	289,734	131,154	19,158	42,584	55,283	..	..	537,913
	bushels	118,320	57,380	5,428	15,969	27,354	..	..	224,451
Oranges	.. acres	8,481	12,357	1,903	2,835	1,065	70	..	26,711
	bushels	604,616	934,597	37,628	172,445	65,029	3,630	16	1,867,961
Pineapples	.. acres	379,488	396,521	29,441	69,203	46,620	1,400	12	922,685
	dozen	607	565	..	1,640	..	..	..	2,812
Pears	.. acres	97,272	115,123	..	606,368	..	..	..	818,763
	bushels	3,960	4,820	..	31,031	..	..	..	39,811
Plums	.. acres	28,576	6,351	3,899	4,931	3,259	..	..	47,016
	bushels	1,967,916	286,216	283,775	378,378	213,697	..	..	3,129,982
Small fruits	.. acres	1,020,710	150,263	162,579	196,775	139,249	..	..	1,669,576
	dozen	68	..	4,235	..	..	..	..	4,303
Other fruits	.. acres	12,160	..	953,248	..	..	..	..	965,398
	dozen	3,240	..	314,770	..	..	..	..	318,010
Total acres	.. acres	4,604	11,566	261	2,359	1,129	2,095	..	22,014
	bushels	185,412	500,995	8,490	136,601	93,066	242,000	2	1,166,566
Total value	.. acres	91,829	175,348	5,625	49,266	41,298	83,100	..	447,127
	bushels	6,564	5,406	1,336	3,133	961	670	..	18,070
Total value	.. acres	199,540	209,784	41,963	107,691	62,414	54,200	3	675,595
	bushels	112,898	61,082	20,195	42,070	37,448	14,000	2	287,695
Total value	.. acres	28	1,170	92	271	56	2,455	..	4,072
	cwt.	1,594	6,192	1,482	4,593	528	110,540	..	124,929
Total value	.. acres	3,530	16,922	11,058	10,536	2,915	162,950	..	207,911
	£	1,476	3,605	2,408	1,107	848	56	..	9,600
Total value	.. acres	77,940	147,623	75,730	19,017	22,414	590	..	343,314
	£	74,882	83,215	35,146	31,570	18,512	33,322	5	276,451
Total value	.. acres	2,306,963	1,435,765	1,349,621	732,686	926,469	1,446,910	342	8,167,961
	£

(iii) *Relation to Population.* The acreage of the orchards and fruit gardens of Australia in relation to population declined during the past five years. The Australian

figure for 1926-27 amounted to 0.045 acres per head, whilst the range amongst the States varied from 0.032 in New South Wales to 0.155 acres in Tasmania. Details for orchards and fruit gardens for the years 1922-23 to 1926-27 are as follows :—

ORCHARDS AND FRUIT GARDENS.—AREA PER 1,000 OF POPULATION,
1922-23 TO 1926-27.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	Fed. Cap. Ter.	Aus- tralia.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1922-23 ..	34	54	37	64	56	158	..	4	49
1923-24 ..	33	53	37	64	53	156	..	4	48
1924-25 ..	33	52	38	62	51	156	..	2	47
1925-26 ..	32	49	39	59	49	156	..	2	46
1926-27 ..	32	49	40	56	49	155	..	1	45

2. Imports and Exports of Fruit.—(i) *General.* A considerable export trade in both fresh and dried fruits is carried on by Australia with oversea countries. The import trade in fresh fruits declined heavily during the past five years, owing to the imposition of a Customs duty of 1d. per lb. on imported bananas, which had hitherto been the chief item of fresh fruit imported into Australia. The imports of dried fruits at present consist mainly of dates from Iraq. The export trade in both fruits, however, has greatly expanded during the past quinquennium, the value of the shipments during 1926-27 amounting to £2,454,726. Apples constitute the bulk of the fresh fruit exported, although the exports of citrus fruits and pears are fairly considerable, and experiments are being conducted in regard to the dispatch of other fruits. Shipments of raisins and currants have developed into large proportions since 1914-15, and are mainly responsible for the increase in the dried fruits exports. Other fruits in the dried state, notably apricots, are also receiving attention from overseas.

(ii) *Fresh Fruits.* Information with regard to the Australian oversea trade in fresh fruits is given hereunder :—

FRESH FRUITS.—IMPORTS AND EXPORTS, AUSTRALIA, 1922-23 TO 1926-27.

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£	lbs.	£
1922-23..	2,390,600	28,103	108,391,900	1,040,310	106,001,300	1,012,207
1923-24..	3,473,300	47,343	78,927,000	870,260	75,453,700	822,917
1924-25..	3,228,200	32,009	101,348,900	1,089,544	98,120,700	1,057,535
1925-26..	3,228,900	35,154	149,673,100	1,553,651	146,444,200	1,518,497
1926-27..	5,086,900	56,932	75,776,600	805,573	70,639,700	748,641

The value of the exports of apples in 1926-27 amounted to £624,040, and of citrus fruits to £80,548.

(iii) *Dried Fruits.* Particulars of oversea imports and exports of dried fruits for the last five years are as follows :—

DRIED FRUITS (a).—IMPORTS AND EXPORTS, AUSTRALIA, 1922-23 TO 1926-27.

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£	lbs.	£
1922-23..	10,957,699	189,397	36,017,962	1,232,124	25,090,263	1,042,727
1923-24..	11,091,289	167,366	43,581,329	1,243,272	32,490,040	1,075,906
1924-25..	9,429,764	136,185	78,952,737	1,939,820	69,522,973	1,803,644
1925-26..	11,787,309	141,922	55,428,846	1,463,417	43,641,537	1,321,495
1926-27..	11,318,200	173,962	63,503,400	1,649,153	52,185,200	1,475,191

(a) Including raisins and currants referred to under Vineyards, § 15, 4.

(iv) *Jams and Jellies.* Jams and jellies were exported in large quantities during the war years, and in 1918-19 the record shipment of 79,277,560 lbs., valued at £1,847,970, was despatched from Australia. Since that year, however, the trade has been lost, the value of the exports in 1926-27 amounting to only £72,354. Particulars relative to imports and exports during each of the last five years are as follows :—

JAMS AND JELLIES.—IMPORTS AND EXPORTS, AUSTRALIA, 1922-23 TO 1926-27.

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£	lbs.	£
1922-23..	151,572	8,253	2,605,554	79,398	2,453,982	71,143
1923-24..	133,219	7,597	2,680,047	85,062	2,541,828	77,465
1924-25..	226,253	10,810	2,470,431	74,464	2,244,178	63,654
1925-26..	160,302	8,813	2,665,243	82,447	2,474,941	73,634
1926-27..	357,838	15,004	2,422,988	72,354	2,065,150	57,350

(v) *Preserved Fruit.* Details concerning the quantities and values of preserved fruit imported into Australia cannot readily be obtained, owing to the fact that in the Customs returns particulars concerning fruit and vegetables are in certain cases combined. The total value of fruit and vegetables preserved or partly preserved in liquid, or pulped, imported into Australia during 1926-27 was £248,830. Particulars in respect of exports are available, and the following shipments were sent overseas in 1926-27 :—Apricots, 1,884,985 lbs., £40,128 ; peaches, 6,990,295 lbs., £167,582 ; pears, 737,170 lbs., £16,782 ; pineapples, 7,573 lbs., £230 ; and other, 526,956 lbs., £15,189 or a total shipment of £239,911.

§ 17. Minor Crops.

1. *General.*—In addition to the crops previously dealt with, there are many others which, owing either to their nature, or to the fact that their cultivation has advanced but little beyond the experimental stage, do not occupy so prominent a position. Some of the more important of these are included under the headings—Market Gardens,

Pumpkins and Melons, Nurseries, Grass Seed, Tobacco, and Millet. Cotton-growing has recently received considerable attention in the tropical portions of Australia, and the prospects of establishing this industry on a large scale are very favourable. The total area in Australia during the season 1926-27, devoted to crops not dealt with in previous sections, was 111,124 acres, the major portion of which consisted of cotton and market gardens.

2. Market Gardens.—Under this head are included all areas on which mixed vegetables are grown. Where considerable areas are devoted to the production of one vegetable, such for instance as the potato, the onion, the melon, the tomato, etc., the figures are usually not included with market gardens, but are shown either under some specific head, or under some general head as "Other Root Crops," or "All Other Crops." The area under market gardens during each of the last five seasons is given hereunder :—

MARKET GARDENS.—AREA, 1922-23 TO 1926-27.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	Fed. Cap. Ter.	Australia.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1922-23 ..	7,743	14,108	1,338	1,438	2,698	540	..	18	28,333
1923-24 ..	8,526	16,212	1,719	1,448	2,259	478	..	17	30,659
1924-25 ..	8,824	14,620	1,619	1,577	2,913	576	..	13	30,142
1925-26 ..	8,973	16,609	1,017	1,517	2,725	587	..	12	31,440
1926-27 ..	8,184	17,751	1,096	1,320	2,872	699	..	46	31,868

3. Grass Seed.—The total area under this crop during 1926-27, exclusive of New South Wales, for which State complete figures as to area are not available, was 3,082 acres, of which 879 acres were in Victoria, 672 acres in Tasmania, 630 acres in Queensland, and 855 acres in South Australia. The total yield for 1926-27, including New South Wales, was 25,302 bushels, valued at £44,322. In addition to the areas planted above, 341 acres were sown to canary seed in Queensland during 1926-27, and furnished a yield of 337 bushels, valued at £379.

4. Tobacco.—Tobacco-growing has undergone marked fluctuations, although at one time it promised to occupy an important place amongst the agricultural industries of Australia. Thus, as early as the season 1888-89, the area under this crop amounted to as much as 6,641 acres, of which 4,833 were in New South Wales, 1,685 in Victoria, and 123 in Queensland. This promise of importance was, however, not fulfilled, and after numerous fluctuations, in the course of which the Victorian area rose in 1895 to over 2,000 acres, and that in Queensland to over 1,000 acres, the total area for the season 1920-21 had declined to 1,345 acres. Since that date the area has again fluctuated, but with an upward tendency, and in 1926-27 2,192 acres were planted, of which 881 were in New South Wales, 1,154 in Victoria, 125 in Queensland, 27 in South Australia, and 5 in Western Australia. Greater attention is now being paid to the proper treatment of the leaf, and flue-curing is becoming more general. In all the States in which its cultivation had been tried, the soil and climate appear to be very suitable for the growth of the plant, and the enormous importations of tobacco in its various forms into Australia furnish an indication of the extensive local market which exists for an article grown and prepared to meet the requirements of consumers. The value of the net importations of tobacco into Australia during the year 1926-27 amounted to £2,483,612, comprising unmanufactured tobacco £2,018,153, cigars £112,155, cigarettes £370,811, and snuff £1,667. While manufactured tobacco revealed a balance in favour of exports amounting to 194,012. Important proposals for the development of the tobacco-growing industry in Australia have recently been formulated. The British-Australasian Tobacco Co. and the Commonwealth Government have entered into an agreement whereby the sum of £90,000 is to be spent to carry out exhaustive

tests to determine the capabilities of Australia to produce enough tobacco for her own requirements. The terms of the agreement are that over a first period of three years the company shall contribute a sum of £20,000 for investigation and field-testing, and that the Commonwealth and State Governments shall provide £10,000. If at the expiration of this period the work has progressed satisfactorily enough to warrant further expenditure, the company will contribute an additional £30,000, and the Governments £30,000 for expenditure over a further period. A sum of £90,000 will thus be made available as necessary, and of this sum the company is finding £50,000. The company has also consented to buy for the three seasons, 1927, 1928 and 1929, tobacco crops, properly graded, of lemon-coloured tobacco at 2s. 6d. a pound, bright mahogany at 2s. a pound, and dark mahogany at 1s. 6d. a pound, and has offered a bonus of 6d. per lb. for the purpose of stimulating the production of the first two varieties. An executive committee has been formed, and the Federal Director is now engaged in carrying out the investigations.

5. Pumpkins and Melons.—The total area under this crop in Australia during 1926-27 was 12,603 acres, of which 4,097 acres were in New South Wales, 1,590 acres in Victoria, 5,963 acres in Queensland, 643 acres in Western Australia, and 304 acres in South Australia. The production in all the States amounted to 38,014 tons.

6. Hops.—Hop-growing in Australia is practically confined to Tasmania and some of the cooler districts of Victoria, the total area for the season 1926-27 being 1,571 acres, of which 1,374 acres were in Tasmania, 196 acres in Victoria, and 1 acre in South Australia. The Tasmanian area, though still small, has increased considerably during the past twenty years, the total for the season 1901-2 being only 599 acres. In Victoria the area, which in 1901-2 was 307 acres, dwindled to 71 acres in 1918-19, then rose to 312 acres in 1925-26 and dropped to 196 in 1926-27. The cultivation of hops was much more extensive in Victoria some 40 years ago than at present, the area in 1883-84 being no less than 1,758 acres. During the year 1926-27 the imports of hops exceeded the exports by 96,786 lbs., the excess value being £9,800.

7. Flax.—For over twenty years flax has been grown intermittently in the Gippsland district of Victoria, and attempts have been made to introduce its cultivation into Tasmania and New South Wales, but without success. About the end of the year 1917 the shortage of flax fibre in the world had become acute, and endeavours were made by the Commonwealth Government to encourage the cultivation of flax. The acreage in Victoria increased from 419 acres in 1917-18 to 1,611 acres in 1919-20, but the area had declined in 1926-27 to 388 acres. Flax products to the value of more than £1,500,000 are annually imported into Australia, and, as it has been demonstrated that flax can be grown to perfection here, good prospects exist for the ultimate establishment of a local industry.

8. Millet.—Millet figures in the statistical records of three of the States. The total area devoted thereto in 1926-27 was 4,890 acres, of which 3,046 acres were in New South Wales, 1,493 in Victoria, and 351 in Queensland. The particulars here given relate to millet grown for grain and fibre, the quantity for green forage being dealt with in the section relating thereto.

9. Nurseries.—In all the States fairly large areas are occupied as nurseries for raising plants, trees, etc. Statistics of the area under flowers, fruit trees, etc., are available for New South Wales, Victoria, South Australia, and Western Australia. During 1926-27 the areas in those States were 650, 815, 125, and 61 acres respectively.

10. Cotton.—The cultivation of cotton was begun in Queensland in 1860, and ten years later the area cropped had increased from fourteen to upwards of fourteen thousand acres. The re-appearance of American cotton in the European market on the conclusion of the Civil War gave a severe setback to the new industry, and the area declined continuously till 1888 when only 37 acres were planted. The industry was resuscitated soon after, and manufacturing was undertaken on two separate occasions at Ipswich, but operations were at no time very extensive, and low prices over a term of years checked development. Added interest was shown in the crop in 1903, and in 1913 the Queensland Government made an advance of 1½d. per lb. on seed cotton, and ginned it on owner's account, the final return being equal to about 1½d. per lb.

Rising prices for the staple enabled the Government to offer the substantial guarantee of 5½d. per lb. for seed cotton of good quality for the three years ended 31st July, 1923, and as the result considerable activity was displayed in the industry, the area picked rising from 166 acres in 1920 to 50,186 in 1924. Government guarantees were continued until 1926, when the Commonwealth Government granted a bounty of 1½d. per lb. on the better grades, and ¾d. on the lower grades of seed cotton grown in Australia. In addition to this direct assistance to the cotton-growing industry, the Government subsidized the cotton-manufacturing industry by granting a graduated bounty varying from ½d. to 1s. per lb. on all cotton yarn manufactured in Australia which contained 50 per cent. of home-grown cotton. The object of this policy is to foster and establish the primary and secondary industries concurrently, thus creating a home market for the raw cotton produced.

The area under cultivation and the yield in Queensland since the year 1919 are shown hereunder:—

COTTON.—AREA AND YIELD, QUEENSLAND, 1919 TO 1928.

Year.				Area.(a)	Yield of Unginned Cotton.
				Acres.	lbs.
1919	..	..	..	72	27,470
1920	..	..	..	166	57,065
1921	..	..	..	1,944	940,126
1922	..	..	..	8,716	3,956,635
1923	..	..	..	40,821	12,543,770
1924	..	..	..	50,186	16,416,170
1925	..	..	..	40,062	19,537,274
1926	..	..	..	18,743	9,059,907
1927	..	..	..	(c)	7,054,951
1928 (b)	..	..	..	(c)	12,175,000

(a) Area harvested.

(b) Estimated.

(c) Not available.

Consequent upon the lapse of the Government guarantees and the change over to the bounty system, a cotton pool was formed in Queensland under the Primary Products Pools Act and a cotton board was elected to control the handling, financing, and marketing of all cotton grown in the State. The whole of the output in 1927 was sold to Australian spinners on the basis of import parity prices, the net return to growers, including the bounty, being 5d. per lb. for top grade seed cotton. Owing to the curtailed demand by Australian manufacturers, the bulk of the 1928 output will have to be disposed of in the Liverpool market.

11. Coffee.—Queensland is the only State in which coffee-growing has been extensively tried, but the results have not been satisfactory. The area under crop reached its highest point in the season 1901-2 with 547 acres. In subsequent seasons the area fluctuated somewhat, but on the whole with a downward tendency, and in 1926-27 only 19 acres were recorded, with a yield of 8,798 lbs.

12. Other Crops.—Amongst miscellaneous small crops grown in the several States may be mentioned tomatoes, rhubarb, artichokes, arrowroot, chicory, and flowers.

§ 18. Bounties.

1. General.—The Bounties Acts and Amendments passed by the Federal Parliament with the object of encouraging the manufacture and production of certain articles in Australia, include among the items on which bonuses were payable since 1923-24 the following agricultural products :—Cotton, wine and canned fruits. In the table hereunder are shown the amounts which have been paid in respect of all bounties in operation during the years 1923-24 to 1927-28 :—

BOUNTIES.—AMOUNTS PAID, 1923-24 TO 1927-28.

Articles on which Bounty was Paid.	Rate of Bounty Payable.	Date of Expiry of Bounty.	Amount Paid.				
			1923-24.	1924-25.	1925-26.	1926-27.	1927-28.
			£.	£.	£.	£.	£.
Shale Oil Bounties Act— Crude Shale Oil, as prescribed, produced in Australia from Mined Kerosene Shale ..	3½d. per gal., up to 3,500,000 gals. 2d. per gal. to 8,500,000 to 5,000,000 gals. 1½d. per gal., 5,000,000 to 8,000,000 gals. 1½d. each additional gal.	31st Aug., 1929 ..	..	335	..	705	428
Iron and Steel Products Bounty Act—							
Fencing Wire } Manufactured	£2 12s. per ton	..	53,487	71,948	97,387	98,389	104,485
Galvanized } from Materials	£2 12s. „ (a)	..	39,768	44,545	49,221	67,915	65,128
Sheets .. } produced and							
Wire Netting } manufactured	£3 8s. „ ..	..	64,768	90,340	95,127	90,299	73,873
Traction Eng- } in Australia	According to capacity, £40 —£90 per tractor	..	1,420	500	270	250	140
Sulphur Bounty Act— Sulphur from Australian Pyrites and other Sulphide Ores or Concentrates ..	£2 5s. per ton ..	..	9,382	47,140	38,549	34,339	57,377
Meat Export Bounties Act— Standard and Canned Beef slaughtered and exported within prescribed dates ..	Standard beef, ½d. per lb. ..	..	136,900	1,039	..	..	..
Export of Live Cattle for slaughter during prescribed period ..	Canned beef, ½d. per lb. ..	..	3,632	3,991	919	..	..
Live cattle, 10s. per head ..	..	..	..	..	..	..	..
Wine Export Bounty Act— Fortified Wine, containing not less than 34 per centum of proof spirit, exported from the Commonwealth from 1st September, 1924, to 31st August, 1930 ..	4s. per gallon to 31st August, 1927 1s. 9d. per gallon from 1st Sep- tember, 1927, to 31st August, 1930	..	..	28,417	217 109	442,410	482,843

(a) Amount of bounty raised to £3 12s. per ton from 1st January, 1928.

BOUNTIES.—AMOUNTS PAID, 1923-24 TO 1927-28—*continued.*

Articles on which Bounty was Paid.	Rate of Bounty Payable.	Date of Expiry of Bounty.	Amount Paid.				
			1923-24.	1924-25.	1925-26.	1926-27.	1927-28.
Canned Fruit Bounty Act— Apricots, Peaches, Pears, and Pineapples canned within prescribed dates ..	9d. to 1s. per dozen tins each containing 30 ozs. net ..	..	£	£	£	£	£
Such canned fruit exported from the Commonwealth during prescribed period ..	1s. to 1s. 9d. per dozen tins, each containing 30 ozs. net ..	..	63,477	64,752	10,903	..	4,731
Cotton Bounty Act— Seed Cotton grown in Aus- tralia and delivered and graded as prescribed ..	1½d. per lb. higher grades ¾d. per lb. lower grades	15th Aug., 1931	..	..	..	7,038	81,454
Cotton Yarn manufactured in Australia ..	½d. to 12d. per lb. according to count	..	..	..	..	30,002	24,846
Papua and New Guinea Boun- ties Act— Cocoa and coffee beans (a) produced in these Terri- tories imported into the Commonwealth for home consumption ..	1½d. per lb. ..	31st Dec., 1936	..	..	..	..	194
Total .. ..	.. ..	..	372,824	353,007	509,545	771,347	895,499

(a) Other goods are scheduled in this Act, but no importations of them were made.

§ 19. Fertilizers.

1. General.—In the early days of settlement in Australia, scientific cultivation was practically neglected. Farmers were neither under the necessity nor were they aware of the value of supplying the proper constituents to the soil for each class of crop. The widely divergent character of the soils, their degeneration by repeated cropping, the limitations of climatic conditions, and the difficulties of following any desired order of rotation of crops, all rendered it essential to give attention to artificial manuring. 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 made productive. There is reason to believe that this feature will be even more strikingly characteristic in the future.

2. Fertilizers Acts.—In order to protect the interests of users of artificial manures, legislation has been passed in each of the States, regulating the sale and preventing the adulteration of fertilizers. A list of these Acts and their main features will be found in Year Book No. 12 (page 378).

3. Imports.—The local production of artificial manures has greatly increased in recent years, and the home requirements of prepared fertilizers can now be supplied by Australian manufacturers. Imports of fertilizers are also expanding, but the bulk of the inward shipments consists of rock phosphates, which form the raw material for the home manufactured superphosphate, a fertilizer which has proved eminently suitable for the growing of cereals in Australian soils. During 1926-27, the value of rock phosphates imported represented more than 88 per cent. of the total importation of fertilizers. Nauru and Gilbert and Ellice Islands Colony in equal proportions supplied practically the whole of the shipments. Sodium nitrate is wholly obtained from Chile.

The imports of artificial manures during the last five years are given in the following table. Although considerable quantities of manufactured superphosphates were annually imported up till 1914-15, the importations of this fertilizer have now practically ceased :—

FERTILIZERS.—IMPORTS, AUSTRALIA, 1922-23 TO 1926-27.

Fertilizer.		1922-23.	1923-24.	1924-25.	1925-26.	1926-27.
Bonedust	cwt.	..	542	..	..	100
"	£	..	164	..	..	58
Guano	cwt.	857,411	821,938	893,478	1,829	20,826
"	£	97,526	90,415	98,515	1,061	1,238
Superphosphates	cwt.	1,007	1,270	1,200	1,035	1,201
"	£	660	806	785	517	573
Rock Phosphates	cwt.	3,390,089	4,697,574	5,751,583	6,463,733	10,171,652
"	£	516,059	678,446	739,588	799,273	1,109,414
Soda Nitrate	cwt.	143,274	74,990	182,846	187,284	100,567
"	£	96,083	45,358	104,729	105,384	60,951
Other	cwt.	175,778	138,897	186,209	172,993	187,773
"	£	80,720	74,403	79,616	80,900	87,281
Total	cwt.	4,567,559	5,735,211	7,015,316	6,826,874	10,482,119
	£	791,048	889,592	1,023,233	997,135	1,259,515

4. Exports.—The subjoined table shows the exports of artificial manures for the years 1922-23 to 1926-27. Practically the whole of these fertilizers are manufactured locally, and are shipped mainly to New Zealand, Japan, Java, and the Pacific Islands :—

FERTILIZERS.—EXPORTS, AUSTRALIA, 1922-23 TO 1926-27.

Fertilizer.		1922-23.	1923-24.	1924-25.	1925-26.	1926-27.
Bonedust	cwt.	54,385	49,966	13,942	10,012	2,668
"	£	24,400	22,327	6,079	3,664	1,220
Superphosphates	cwt.	73	22	57	149	21
"	£	35	7	18	49	18
Rock phosphates	cwt.	..	20	..	62	200
"	£	..	10	..	24	58
Soda nitrate	cwt.	600	405	2,529	1,445	398
"	£	715	315	1,851	1,241	311
Ammonia sulphate	cwt.	68,799	93,157	111,594	141,866	99,928
"	£	58,571	69,491	73,665	88,745	61,478
Other	cwt.	34,323	31,431	45,098	124,263	39,718
"	£	15,816	11,824	13,916	47,011	16,237
Total	cwt.	158,180	175,001	173,220	277,797	142,933
	£	99,537	103,974	95,529	140,734	79,322

5. Statistics of Use of Fertilizers.—Statistics regarding the use of manures are collected in all the States, and the particulars for 1926-27 are as follows :—

FERTILIZERS USED IN EACH STATE, 1926-27.

State or Territory.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage on Total Area of Crops.	Natural (Stable Yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
New South Wales ..	4,593,847	2,892,074	62.96	197,898	94,003
Victoria ..	4,735,173	4,601,239	97.17	142,334	214,234
Queensland ..	941,783	67,844	7.20	63,195	19,019
South Australia ..	3,883,920	3,542,466	91.21	74,119	146,910
Western Australia ..	3,324,523	3,431,427	698.64	70,320	145,795
Tasmania ..	289,364	233,885	80.83	14,183	21,633
Northern Territory ..	440	50	11.36	..	10
Fed. Cap. Territory ..	3,449	1,513	43.87	6	907
Total ..	17,772,499	14,770,498	83.11	562,055	642,511

(a) Includes area under sown grasses and manure used.—(b) Previous year's figure.

Similar particulars in respect of Australia as a whole during the past five years are as shown below :—

FERTILIZERS USED IN AUSTRALIA, 1922-23 TO 1926-27.

Year.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage on Total Area of Crops.	Natural (Stable Yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1922-23 ..	16,543,555	12,131,831	73.33	616,804	463,673
1923-24 ..	16,531,186	12,084,583	73.10	590,900	488,601
1924-25 ..	17,278,191	13,031,329	75.14	534,702	529,027
1925-26 ..	16,793,578	13,387,111	78.98	625,099	576,786
1926-27 ..	17,772,499	14,770,498	83.11	562,055	642,511

The percentage of the area manured on the total area cultivated has advanced from 73.33 to 83.11 during the past five years, while the use of artificial manures has increased by more than 178,000 tons during the same period.

6. Local Production of Fertilizers.—Statistics relative to the local production of fertilizers are incomplete, and detailed returns for fertilizer factories other than bone mills are not available. The number of firms engaged in the manufacture of artificial manures in Australia at latest available date was 104, made up as follows :—New South Wales, 20; Victoria, 30; Queensland, 24; South Australia, 11; Western Australia, 11; and Tasmania, 8. The production of superphosphates in Australia during 1926-27 amounted to 731,454 tons, the largest producing States being Victoria and Western Australia.

§ 20. Ensilage.

1. Government Assistance in Production.—The Government of Victoria, recognizing that defective methods of making ensilage were often adopted, has for some years been making special efforts to educate the farming community by lectures, the issue of bulletins, etc. The Government also undertakes the erection of different types of silos on very liberal terms, repayment extending over a series of years. Experts erect the silos and give practical lessons in regard to cutting and packing the silage. The New South Wales Government also gives advice in the "Agricultural Gazette," and issues special bulletins dealing with the subject, while silos have been erected at the various experimental farms.

2. **Quantity Made.**—Particulars concerning the number of holdings on which ensilage was made, and the quantity made during the seasons 1922-23 to 1926-27, are given in the following table:—

ENSILAGE MADE, 1922-23 TO 1926-27.

State or Territory.	1922-23.		1923-24.		1924-25.		1925-26.		1926-27.	
	Holdings.	Ensilage Made.	Holdings.	Ensilage Made.	Holdings.	Ensilage Made.	Holdings.	Ensilage Made.	Holdings.	Ensilage Made.
	(a) No.	Tons.	(a) No.	Tons.	(a) No.	Tons.	(a) No.	Tons.	(a) No.	Tons.
New South Wales ..	116	12,191	152	19,292	269	35,145	241	30,457	407	48,718
Victoria ..	103	5,674	61	3,649	106	6,667	113	6,092	94	6,132
Queensland ..	65	5,300	71	4,833	104	8,195	67	4,654	50	4,728
South Australia ..	26	2,595	24	2,838	20	2,067	25	2,857	3	2,405
Western Australia ..	12	331	20	1,596	29	2,287	43	3,325	72	5,442
Tasmania ..	12	437	9	372	10	301	3	170	8	488
Northern Territory ..	..	..	..	..	1	5	1	5	..	..
Total ..	334	26,528	337	32,580	539	54,667	496	47,560	(54)	68,113

(a) No. of holdings on which ensilage was made.

Following the drought of 1902-3 greater attention was paid to the making of ensilage, and during the four seasons ended 1909-10 there was an increase both in the number of holdings on which ensilage was made and in the quantity produced. The following five seasons, however, showed a falling-off, but the reduction was due to the fact that stocks had not been drawn upon to any great extent during the previous seasons. The accumulated stocks proved of great value during the 1914 drought, though far below what would have been the case if more attention had been paid to production during the previous years when there was a surplus of green forage. The quantities made since that date have fluctuated considerably, with the output in 1926-27, viz., 68,113 tons, the highest for the period.

§ 21. Agricultural Colleges and Experimental Farms.

1. **General.**—In most of the States agricultural colleges and experimental farms have been established with a view to the promotion of more scientific methods in agriculture, stock-breeding and dairying. In the colleges, and on some of the farms, provision is made for the accommodation of pupils to whom both practical and theoretical instruction is given by experts in various branches of agriculture. Analyses of soils and fertilizers are made, manures are tested, and elementary veterinary science, etc., are taught, while general experimental work is carried on with cereal and other crops, not merely for the purpose of showing that it is practicable to produce certain crops in a given place, but also to show how it is possible to make farming pay in the locality. Opportunities are afforded for practice in general agricultural work, and instruction is given in the conservation of fodder; in cheese and butter making; in the management, breeding, and preparation for the market of live stock; in the eradication of pests and weeds; and in carpentering, blacksmithing, and other trades.

Travelling expert lecturers visit the various agricultural and dairying centres, and there is a wide distribution of periodical agricultural gazettes and bulletins.

2. **Particulars of Agricultural Colleges and Experimental Farms.**—In previous issues of this volume detailed information was given regarding agricultural colleges, experimental farms, and agricultural education generally. See Year Book No. 11, pp. 393-5.

3. **Particulars respecting Agricultural and Stock Departments.**—A synopsis of the activities and operations of the Agricultural and Stock Departments of the several States on 30th June, 1920, will be found in Year Book No. 14, pages 1180 to 1191. The main features of organization are set out under their respective headings as regards staff, expenditure, work undertaken in agricultural colleges, technical schools, experimental farms, and orchards and vineyards. The subject of lectures and other forms of agricultural instruction by experts is dealt with, as well as such matters as the distribution of plants, and the special steps taken to disseminate information amongst agriculturists, and to facilitate the marketing of products.