

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 despatch of the 15th May, 1788, Captain Phillip states that it was proposed to sow 8 acres with wheat and barley, although, owing to the depredations 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. The area under permanent artificially-sown grasses is excluded in all the States, except for the years 1860 to 1879 in the case of New South Wales, where the acreage cannot be separated. During those years, however, the area laid down under permanent grasses could not have been very large.

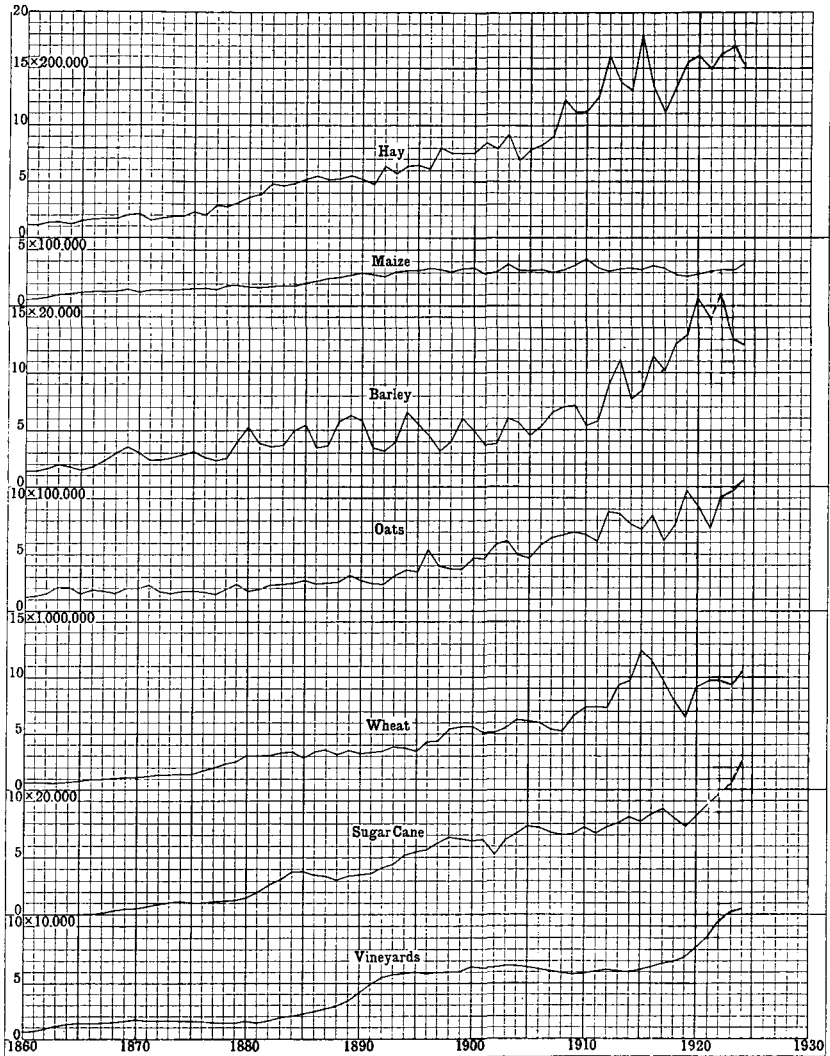
AREA UNDER CROP, 1860 TO 1924-25.

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	260,708	387,282	3,353	359,284	24,705	152,860	..	..	1,188,282
1870-1	426,976	692,840	52,210	891,571	54,527	157,410	..	..	2,185,534
1880-1	629,180	1,548,809	113,978	2,087,237	57,707	140,788	..	..	4,577,690
1890-1	852,704	2,081,955	224,993	2,093,515	69,678	157,376	..	..	5,430,221
1900-1	2,445,564	3,114,132	457,337	2,369,680	201,338	224,352	..	..	8,812,463
1910-11	3,386,017	3,952,070	667,113	2,746,334	355,024	286,920	360	..	11,893,838
1920-21	4,465,143	4,489,503	779,497	3,231,083	1,804,987	297,383	296	1,966	15,069,858
1921-22	4,445,828	4,530,312	804,507	3,378,764	1,901,680	293,708	283	1,942	15,357,024
1922-23	4,694,287	4,862,548	863,755	3,575,452	2,274,998	298,611	427	2,172	16,572,250
1923-24	4,809,591	4,682,144	871,968	3,562,551	2,323,070	279,122	440	2,300	16,531,186
1924-25	4,912,124	4,761,394	1,069,837	3,557,405	2,710,856	263,872	342	2,361	17,278,191

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. The obstacles to the disposal of the wheat crop having been removed, the area began to expand in 1920-21, and during the last five seasons the total acreage under cultivation increased by 4,000,000 acres. Wheat continues to be the most extensively-grown crop in Australia, the area thereunder for both grain and hay during 1924-25 amounting to nearly 69 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 result of a special war effort, and the results obtained far exceeded those for any previous year.

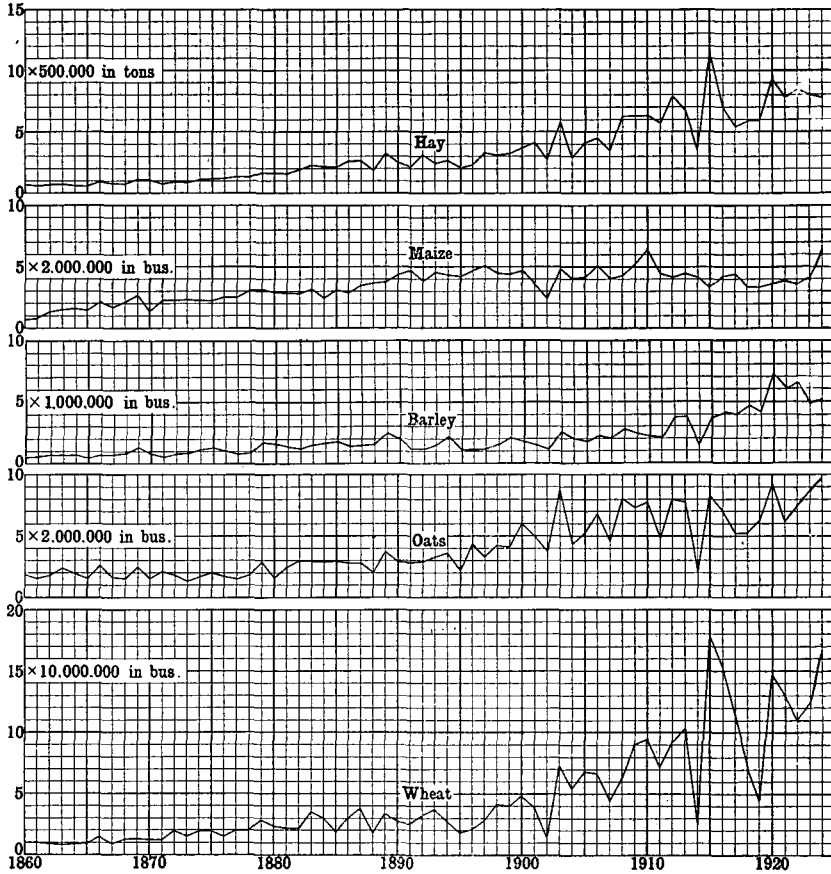
(ii) *Relation to Population.* The total area under cultivation per head of population reached its lowest point in recent years during 1919-20, but since that year the

AREA UNDER PRINCIPAL CROPS--AUSTRALIA, 1860 TO 1924-25.



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 1924-25.



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.

total has increased at a much faster rate than the population. Details for the past five seasons are as follows :—

AREA UNDER CROP PER 1,000 OF POPULATION, 1920-21 TO 1924-25.

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.
1920-21 ..	2,135	2,938	1,036	6,578	5,456	1,397	74	997	2,784
1921-22 ..	2,089	2,921	1,045	6,723	5,674	1,345	76	941	2,787
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

(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 1924-25 represented only about 1 acre in every 111. In Victoria the proportion was about 1 acre in every 12, in New South Wales 1 in 40, in Tasmania 1 in 64, in South Australia 1 in 68, in Western Australia 1 in 230, in Queensland 1 in 402, in the Federal Territory 1 in 255, and in the Northern Territory about 1 in 980,000.

PERCENTAGE OF AREA UNDER CROP ON TOTAL AREA, 1920-21 TO 1924-25.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Cap. Ter.	Australia.
	%	%	%	%	%	%	%	%	%
1920-21 ..	2.255	7.982	0.182	1.323	0.289	1.772	..	0.327	0.792
1921-22 ..	2.245	8.054	0.187	1.389	0.304	1.751	..	0.323	0.807
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

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, 1920-21 TO 1924-25.

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.
1920-21	1,816,104	1,051,290	450,780	14,805	17,265	660,000	500	71	4,010,815
1921-22	2,005,444	1,032,104	459,914	20,890	18,441	781,000	550	71	4,318,414
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

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 1924-25 :—

DISTRIBUTION OF CROPS, 1924-25.

Crop.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Cap. Ter.	Aus-tralia.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat ..	3,549,367	2,705,323	189,145	2,409,852	1,867,614	12,954	..	711	10,824,966
Oats ..	122,994	517,229	4,010	155,214	318,982	46,175	..	523	1,165,127
Maize ..	146,564	23,126	229,160	7	71	..	21	..	398,949
Barley—									
Malting ..	4,191	42,217	6,268	150,584	5,914	2,587	..	..	211,761
Other ..	2,447	21,547	2,530	15,848	5,692	423	..	..	48,487
Beans and Peas ..	..	12,787	143	9,493	2,224	23,243	..	..	47,895
Rye ..	2,373	1,029	65	180	441	249	..	..	4,337
Other Cereals ..	153	..	..	..	47	..	..	..	200
Hay ..	762,242	1,120,312	95,007	562,253	397,591	87,945	10	1,045	3,026,405
Green Forage ..	166,030	99,531	134,109	73,023	78,586	13,602	..	43	564,924
Grass and other									
Seeds ..	51	1,644	7,198	681	..	734	..	..	10,308
Orchards and									
other Fruit									
Gardens ..	73,972	85,358	31,738	33,319	18,520	33,092	..	5	276,904
Vines—									
Productive ..	10,954	31,723	1,137	43,361	4,139	..	..	..	91,314
Unproductive ..	3,783	10,744	442	6,919	1,192	..	..	..	23,080
Market Gardens ..	8,824	14,620	1,619	1,577	2,913	576	..	13	30,142
Sugar Cane—									
Productive ..	7,761	..	167,649	..	..	..	..	..	175,410
Unproductive ..	12,232	..	85,870	..	..	..	..	..	98,102
Potatoes ..	23,384	61,295	9,493	3,292	5,122	36,171	..	19	138,776
Onions ..	150	4,504	194	328	65	12	..	..	5,253
Other Root Crops ..	1,078	2,871	2,333	422	284	3,610	20	..	10,518
Tobacco ..	719	1,228	166	36	..	..	..	..	2,149
Broom Millet ..	1,301	531	554	..	..	..	..	..	2,336
Pumpkins and									
Melons ..	3,660	1,691	13,020	227	632	..	..	2	19,232
Hops ..	..	269	..	2	..	1,535	..	..	1,806
Cotton—									
Productive ..	86	..	50,186	..	60	..	80	..	50,421
Unproductive ..	..	..	31,988	..	..	..	..	..	31,988
All other Crops ..	7,808	1,815	5,813	782	758	164	211	..	17,351
Total Area ..	4,912,124	4,761,394	1,069,837	3,557,405	2,710,856	263,872	342	2,361	17,278,191

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 50,000 acres, the proportion of each in the various States and Territories to the total area under crop for the season 1924-25 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 sugar cane, maize, wheat and green forage, 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 1924-25 nearly 69 per cent. of the total area under cultivation.

RELATIVE AREAS UNDER CROP, 1924-25.

Crop.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Cap. Ter.	Australia.
	%	%	%	%	%	%	%	%	%
Wheat ..	72.26	56.82	17.68	70.27	68.89	4.91	..	30.12	62.65
Hay ..	15.52	23.53	8.88	15.81	14.67	33.33	2.92	44.26	17.52
Oats ..	2.50	10.86	0.37	4.36	11.77	17.50	..	22.15	6.74
Green Forage ..	3.38	2.09	12.53	2.05	2.90	5.15	..	1.82	3.27
Maize ..	2.98	0.49	21.42	0.00	0.00	..	6.14	..	2.31
Barley ..	0.13	1.34	0.82	4.68	0.43	1.14	..	..	1.51
Orchards and Fruit Gardens..	1.51	1.79	2.97	0.94	0.68	12.88	..	0.21	1.60
Sugar-cane ..	0.41	..	23.70	..	..	..	..	..	1.58
Potatoes ..	0.48	1.29	0.89	0.09	0.19	13.71	..	0.80	0.80
Vineyards ..	0.30	0.89	0.15	1.41	0.20	..	..	..	0.66
All other ..	0.53	0.90	10.59	0.39	0.27	11.38	90.94	0.64	1.36
Total ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

NOTE.—The area under cotton occupies more than 50,000 acres, but this crop is practically confined to Queensland.

3. Area of Chief Crops, Australia, 1920-21 to 1924-25.—The acreage under each of the principal crops in Australia during the last five seasons is shown below:—

AREA OF CHIEF CROPS.—AUSTRALIA, 1920-21 TO 1924-25.

Crop.	1920-21.	1921-22.	1922-23.	1923-24.	1924-25.
	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat ..	9,072,167	9,719,042	9,763,861	9,540,434	10,824,966
Hay ..	3,233,189	2,994,519	3,338,456	3,406,226	3,026,405
Oats ..	936,996	733,406	1,014,376	1,076,930	1,165,127
Green Forage ..	406,954	452,508	893,871	961,311	564,924
Maize ..	284,283	305,186	313,202	316,307	398,949
Orchards and Fruit Gardens ..	278,551	281,149	275,687	273,845	276,904
Barley ..	334,747	298,910	342,196	258,775	260,248
Sugar-cane ..	174,001	197,293	216,886	237,280	273,512
Potatoes ..	140,195	149,144	135,735	134,352	138,776
Vineyards ..	81,165	92,414	105,476	112,965	114,394
All other Crops ..	127,610	133,453	172,504	212,761	233,986
Total ..	15,069,858	15,357,024	16,572,250	16,531,186	17,278,191

During the period under review, the areas of most of the crops, while reflecting seasonal and economic influences, have increased considerably, the most notable advance taking place in wheat. Of the other crops, sugar-cane, vineyards, maize and oats have made the most consistent progress since 1920-21

§ 4. Wheat.

1. Progress of Wheat-Growing.—(i) *Area and Production.* Wheat is the principal crop raised in Australia, and the development of wheat-growing 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 240,000 acres has been added annually, until in 1924-25 more than 10½ million acres were cut for grain. The area and yield for wheat for grain are given below for each State for the five years ended 1924-25, and are shown from the year 1860 onwards in the graphs hereinafter. An estimate is also appended for the 1925-26 crop:—

WHEAT.—AREA AND PRODUCTION, 1920-21 TO 1925-26.

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.
1920-21 ..	3,126,775	2,295,865	177,320	2,167,646	1,275,675	28,284	602	9,072,167
1921-22 ..	3,194,408	2,611,198	164,670	2,384,012	1,336,228	27,985	541	9,719,442
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(a) ..	2,928,790	2,513,494	137,144	2,464,395	2,111,871	19,500	..	10,175,194
YIELD.								
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bush.	Bushels.
1920-21 ..	55,410,993	39,468,625	3,707,357	34,258,914	12,248,080	565,874	14,007	145,873,850
1921-22 ..	42,759,389	43,867,596	3,025,786	24,946,525	13,904,721	577,178	7,611	129,088,806
1922-23 ..	28,680,824	35,697,220	1,877,836	23,784,767	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 ..	59,752,435	47,364,495	2,779,829	30,528,625	23,887,397	231,358	14,565	164,558,734
1925-26(a) ..	33,815,000	29,255,534	1,159,237	28,354,728	20,468,805	390,000	..	113,443,304

(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 largely 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 four years, the total gain for Australia since 1919-20 amounting to nearly 4½ million acres.

Although final figures for 1925-26 for all the States are not yet available, the data to hand indicate the total area under wheat for grain in Australia at about 10,175,000 acres, a decrease of roughly 650,000 acres on the previous year's figure. The season opened favourably, but after the early success a prolonged dry spell reduced the yield to 113,443,304 bushels, or an average of 11.15 bushels to the acre, a satisfactory result in view of the conditions prevailing.

The harvest of 179,065,703 bushels reaped in 1915-16 represents the maximum production of wheat in Australia. Yields exceeding 100,000,000 bushels have been recorded on ten occasions, all of which have occurred since 1913-14. The annual production of wheat during the seasons 1915-16 to 1924-25 averaged 124,180,223 bushels, and the amount by which this average may be exceeded depends to a great extent on seasonal conditions. During each of the last six seasons the yield has exceeded 100 million bushels, the average for the period being 131,235,468 bushels. This is the first occasion on which such a succession of good harvests has occurred, and evidences clearly the value of bare-fallowing 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 failure of the wheat 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 1915-25 :—

WHEAT.—YIELD PER ACRE, 1920-21 TO 1924-25.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Fed. Cap. Ter.	Australia.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1920-21 ..	17.79	17.19	20.91	15.80	9.60	20.01	23.27	16.08
1921-22 ..	13.39	16.80	18.37	10.46	10.41	20.62	14.07	13.28
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
Average 10 seasons, 1915-25	12.39	14.87	12.82	12.53	10.16	18.40	16.23	12.79

As the above figures show, there were considerable variations in the average yields, chiefly due to the vagaries of the seasons. Over a series of years the yield in Australia has generally averaged about 11 bushels to the acre, but this figure was exceeded during the past decade by $1\frac{1}{2}$ bushels, mainly owing to the improvement in the cultural methods employed. 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 being exceeded once only in Australia 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 $19\frac{1}{2}$ bushels in 1922-23 and 28 bushels in 1924-25. The State in which wheat growing generally occupies the most important position relatively to population is South Australia, which in 1924-25 had a yield averaging 57 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, 1920-21 TO 1924-25.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Fed. Cap. Ter.	Australia.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1920-21 ..	26,594	25,828	4,928	69,749	37,024	2,659	7,103	26,952
1921-22 ..	20,101	28,284	3,930	49,635	41,485	2,643	3,688	23,427
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

The normal annual consumption of wheat in Australia, exclusive of the requirements for seed, poultry and other live stock, is 302 lb. (5.03 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 Denmark with a maximum of 44 bushels per acre to the Soviet Republics, with a minimum of $8\frac{1}{2}$ bushels per acre. Australia, with approximately $12\frac{1}{2}$, occupies a relatively subordinate position.

WHEAT.—YIELD PER ACRE, VARIOUS COUNTRIES, 1921-1924.

Country.	Average Yield in Bushels per acre.		Country.	Average Yield in Bushels per acre.	
	Average, 1921-1923.	1924.		Average, 1921-1923.	1924.
Denmark ..	44.14	39.44	Lithuania ..	15.80	15.82
Netherlands ..	40.34	39.13	Bulgaria ..	15.26	11.60
Belgium ..	38.90	38.27	Rumania ..	14.04	8.98
United Kingdom ..	33.26	33.06	Jugo-Slavia ..	13.77	13.61
Sweden ..	30.47	21.38	Spain ..	13.72	11.73
Switzerland ..	29.88	29.81	United States of America ..	13.41	16.10
New Zealand ..	28.49	29.41	Argentine Republic ..	13.15	10.74
Germany ..	26.97	24.62	Cyprus ..	13.06	9.76
Norway ..	24.23	23.09	Australia ..	12.53	15.20
Czecho-Slovakia ..	23.63	21.54	India ..	11.63	11.66
Egypt ..	23.11	24.14	Greece ..	11.56	(b) 12.48
Japan ..	22.40	29.50	Uruguay ..	11.43	11.48
France ..	21.04	20.65	Korea ..	(a) 11.23	11.63
Chile ..	18.52	17.77	Algeria ..	9.89	4.91
Hungary ..	18.32	14.25	Portugal ..	9.16	9.14
Poland ..	18.05	12.26	French Morocco ..	8.95	11.64
Austria ..	17.41	17.62	Soviet Republics ..	8.81	7.92
Canada ..	17.19	11.88			
Italy ..	16.64	15.08			

(a) Average for years 1919-1921. (b) Year 1923.

(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, 1921-1924.

Country.	Yield in Bushels ('000 omitted).		Country.	Yield in Bushels ('000 omitted).	
	Average, 1921-1923.	1924.		Average, 1921-1923.	1924.
United States of America ..	818,966	872,687	Japan ..	27,726	33,911
Canada ..	391,621	262,101	Chile ..	24,920	24,866
India ..	328,954	363,888	French Morocco ..	18,728	28,660
Soviet Republics ..	288,492	330,593	Belgium ..	12,829	13,004
France ..	280,787	281,182	Greece ..	11,360	9,660
Argentine Republic ..	209,034	191,140	Sweden ..	10,933	6,876
Italy ..	193,107	170,145	Portugal ..	10,722	8,630
Spain ..	142,578	121,779	Denmark ..	9,740	5,866
Australia ..	121,179	164,559	Mexico ..	8,977	10,357
Germany ..	95,394	89,200	Korea ..	8,789	10,289
Rumania ..	90,529	70,421	Uruguay ..	8,704	11,346
United Kingdom ..	66,138	52,872	Tunis ..	8,071	5,181
Hungary ..	55,165	51,569	New Zealand ..	7,778	5,000
Jugo-Slavia ..	51,709	57,770	Austria ..	7,614	8,490
Poland ..	43,199	32,498	Union of Sth. Africa ..	(a) 7,144	(b) 6,027
Czecho-Slovakia ..	36,144	32,238	Netherlands ..	6,591	4,631
Egypt ..	34,771	34,186	Brazil ..	4,133	(c) 4,333
Bulgaria ..	34,389	28,318	Switzerland ..	3,177	3,112
Algeria ..	29,845	17,156	Lithuania ..	3,026	3,319

(a) Average for years 1919-1921. (b) Year 1921. (c) Year 1923.

NOTE.—The harvests reported above for 1924 relate to the year 1924 for the Northern, and 1924-25 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 1924.

Years.	Area.	Yield.	Yield per acre.
	Acres.	Bushels.	Bushels.
Average, 1909-1913 ..	266,421,000	3,703,765,000	13.90
1920	256,448,000	3,214,129,000	12.53
1921	254,686,000	3,312,930,000	13.01
1922	241,990,000	3,403,157,000	14.06
1923	256,900,000	3,828,694,000	14.90
1924	260,883,000	3,424,513,000	13.13
Average, 1920-1924 ..	254,182,000	3,436,685,000	13.52

(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.

In 1924 the total area under wheat increased by 4 million acres. The marked reduction in the cultivation of cereal crops in the United States was more than offset by the increase of sowings in Europe, more particularly in the Union of the Soviet Republics, in Australia, and also, in a lesser degree, in Argentine and Asia. The total area under wheat is gradually overtaking the pre-war average.

In spite of the gain in area, the production in 1924 was less than in the previous year owing to seasonal conditions, which were unfavourable in the majority of the centres of production, and particularly in the European countries and in Canada. In these countries the adverse weather conditions greatly reduced the yield per acre, and the average was not only less than in 1923 when the harvest was particularly abundant, but was also lower than the last quinquennial pre-war average. The Australian contribution to the world's production during the past five years amounted to nearly 4 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 1925.

Year.	Average for Year.	Highest Weekly Average.	Lowest Weekly Average.	Year.	Average for Year.	Highest Weekly Average.	Lowest Weekly Average.
	s. d.	s. d.	s. d.		s. d.	s. d.	s. d.
1861 ..	55 4	61 6	50 0	1919 ..	72 11	73 4	72 5
1871 ..	56 8	60 0	52 6	1920 ..	80 10	90 11	72 6
1881 ..	45 4	55 2	40 9	1921 ..	71 6	89 10	44 0
1891 ..	37 0	41 8	32 3	1922 ..	47 10	56 3	37 5
1901 ..	26 9	27 8	25 8	1923 ..	42 2	49 3	37 6
1911 ..	31 8	33 4	30 0	1924 ..	49 3	56 1	41 5
1917 ..	75 9	83 10	70 3	1925 ..	52 2	59 3	43 11
1918 ..	72 10	74 5	71 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 six years :—

AUSTRALIAN WHEAT.—EXPORT VALUES, 1920-21 TO 1925-26.

Heading.	1920-21.	1921-22.	1922-23.	1923-24.	1924-25.	1925-26.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Price per bushel ..	9 0	5 9	5 5	4 8	6 8	6 4

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 1920–21 to 1924–25. 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 92,988,452 bushels.

WHEAT AND FLOUR.—IMPORTS AND EXPORTS, AUSTRALIA, 1920–21 TO 1924–25.

Year.	Imports.			Exports.			Net Exports.
	Wheat.	Flour.	Total.	Wheat.	Flour.	Total.	
	Bushels.	Eq. Bushels. ^a	Bushels.	Bushels.	Eq. Bushels. ^a	Bushels.	Bushels.
1920–21	1,170	3,696	4,866	76,791,883	11,026,800	87,818,683	87,813,817
1921–22	247	1,728	1,975	99,947,223	17,267,232	117,214,455	117,212,480
1922–23	15,288	2,112	17,400	31,510,272	18,936,048	50,446,320	50,428,920
1923–24	203	1,920	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

(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 1920–21 to 1924–25. 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, 1920–21 TO 1924–25.

Country to which Exported.	1920–21.	1921–22.	1922–23.	1923–24.	1924–25.	Total for Five Years.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
United Kingdom	38,709,680	40,914,035	10,762,600	23,017,707	39,356,580	152,760,602
Italy ..	2,219,143	18,447,762	11,647,165	6,483,732	15,560,605	54,358,407
France ..	8,921,645	3,341,835	1,284,924	3,562,313	14,580,859	31,691,576
Japan ..	7,332	7,497,943	3,711,211	13,067,907	7,018,627	31,303,020
Egypt ..	10,477,463	3,286,433	38,783	1,339,707	1,887,777	17,030,163
India ..	25,623	15,035,429	..	..	..	15,061,052
Union of South Africa ..	1,157,778	1,331,417	2,545,162	3,721,697	3,674,773	12,430,827
Belgium ..	5,754,723	1,312,480	178,930	622,283	4,440,158	12,308,574
Germany ..	2,504,690	2,996,292	397	110,770	3,061,950	8,674,099
Netherlands ..	2,202,653	1,192,977	..	142,753	3,297,382	6,835,765
New Zealand ..	602,843	73,539	..	1,247,362	2,682,908	4,606,652
Canary Islands(^a)	3,532,793	236,807	..	..	470,527	4,240,127
Sweden ..	..	..	412,547	1,304,445	1,040,585	2,757,577
Norway ..	342,510	960,855	117,012	106,415	326,037	1,852,829
Peru ..	..	697,205	167,110	..	528,367	1,392,682
Ceylon ..	303	257,098	993	950	1,632	260,976
Other Countries	332,704	2,365,116	643,500	5,182,439	5,609,321	14,133,080
Total ..	76,791,883	99,947,223	31,510,334	59,910,480	103,538,088	371,698,008

(a) For orders.

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

FLOUR.—EXPORTS, AUSTRALIA, 1920-21 TO 1924-25.

Country to which Exported.	1920-21.	1921-22.	1922-23.	1923-24.	1924-25.	Total for Five Years.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Egypt	61,502	108,550	127,072	182,938	172,416	652,478
United Kingdom	81,952	103,634	83,804	92,425	103,817	465,632
Netherlands East Indies	15,388	41,826	50,899	49,262	44,875	202,250
Union of South Africa	41,458	24,947	39,250	37,685	25,475	168,815
Malaya (British)	8,264	20,471	32,619	33,683	29,408	124,445
Philippine Islands	3,040	10,749	10,292	13,012	10,016	47,109
Hong Kong	368	10,003	6,318	11,739	13,247	41,675
Ceylon	755	6,282	7,681	10,142	10,416	35,276
Mauritius	3,320	5,639	8,757	8,569	6,496	32,781
Japan	480	6,555	1,664	15,430	156	24,285
China	77	4,391	260	12,905	219	17,852
New Caledonia	3,202	3,532	3,517	3,765	3,522	17,538
Portuguese East Africa	2,477	3,542	3,475	2,963	2,621	15,078
Fiji	1,362	2,484	2,602	3,024	2,989	12,461
New Zealand	137	95	84	294	4,258	4,868
Papua	636	322	378	780	912	3,028
India	4	657	1,063	130	470	2,324
Italy .. ..	..	..	112	2,025	156	2,293
Other Countries	5,303	6,055	14,654	30,420	16,578	73,010
Total	229,725	359,734	394,501	511,191	448,047	1,943,198

For the five years under review the export of wheat to the United Kingdom amounted to 152,760,602 bushels, or 41.09 per cent. of the total export for the period, while the export of flour to the same destination aggregated 465,632 tons, or 23.96 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, Union of South Africa, and Malaya (British).

(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 20 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 599,980,249 bushels of wheat, 3,755,243 tons of flour, and 6,936,025 bushels of bran, pollard, and sharps. On the basis of the figures quoted above this export would contain no less than 314,120,000 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, 1915-16 TO 1924-25.

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.
1915-16 ..	577,038	146,618	2,650	427,770	20,532,960	.0861	4.131
1916-17 ..	869,975	290,572	2,885	576,518	27,672,860	.1171	5.623
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	447,989	1,814	618,895	29,706,960	.1054	5.058
Aggregate 10 years	9,389,266	3,755,243	37,403	5,596,620	268,637,760	.1047	5.028

WHEAT USED FOR SEED.—AUSTRALIA, 1915 TO 1924.

Year.	Area for Grain and Hay.	Wheat for Seed Purposes.		
		Quantity.	Per Acre.	Per Head of Population.
	Acres.	Bushels.	Bushels.	Bushels.
1915	14,414,024	13,041,000	.905	2.624
1916	12,894,917	11,523,000	.894	2.343
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
Aggregate for 10 years ..	111,176,824	102,404,000	.921	1.933

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 0.1047 tons per head of population, which, expressed in equivalent terms in wheat, represents 5.028 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 1.933 bushels per head of population, and 0.921 bushels or 55 lbs. per acre sown. For all purposes the consumption of wheat in Australia during the past four years averaged 43,545,000 bushels, or 7.65 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 1924-25 is shown below :—

WHEAT.—VALUE OF CROP (a), 1924-25.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Cap. Ter.	Australia.
	£	£	£	£	£	£	£	£
Aggregate value..	20,913,350	15,196,109	810,783	9,285,892	7,265,750	70,201	5,100	53,547,185
Value per acre ..	£5/17/10	£5/12/4	£4/5/9	£3/14/4	£3/17/10	£5/8/5	£7/3/5	£4/18/11

(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 1925-26 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 62.65 per cent., oats represented only 6.74 per cent, of the area under crop in Australia. The progress 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, 1920-21 TO 1924-25.

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

	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1920-21	77,537	443,636	4,690	167,001	193,486	50,474	172	936,996
1921-22	69,619	318,681	2,274	125,148	162,866	54,642	176	733,406
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

YIELD.

	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1920-21	1,640,552	10,907,191	103,933	2,331,067	2,022,031	1,514,155	2,148	18,521,077
1921-22	1,168,406	6,082,258	34,409	1,297,646	2,019,603	1,543,617	1,494	12,147,433
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

The oat crop exhibited little variation during the past decennium, ranging on the average around 14,500,000 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 is marketed through live stock and more remunerative prices thereby realized than those now offering on the local market.

The principal oat-growing State is Victoria, which produces 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 the past season, 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 1915–25 are given in the succeeding table :—

OATS.—AVERAGE YIELD PER ACRE, 1920–21 TO 1924–25.

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.
1920–21	21.16	24.59	22.16	13.96	10.45	30.00	12.49	19.77
1921–22	16.78	19.09	15.13	10.37	12.40	28.25	8.49	16.56
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
Average for 10 seasons 1915–25	17.30	18.60	16.82	11.60	12.04	25.36	18.19	16.35

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 1915–16, amounting to 22.92 bushels per acre.

(iii) *Relation to Population.* The State in which oat production occupies the most important position in relation to population is Tasmania, the yield for that State representing about 6½ bushels per head during the last five years, as compared with 2.92 bushels per head for Australia as a whole. Particulars for the seasons 1920–21 to 1924–25 are furnished in the succeeding table :—

OATS.—YIELD PER 1,000 OF POPULATION, 1920–21 TO 1924–25.

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.
1920–21	785	7,138	138	4,746	6,112	7,114	1,089	3,422
1921–22	549	3,922	45	2,582	6,026	7,067	724	2,205
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

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, 1921-1924.

Country.	Yield in Bushels (000 omitted).		Country.	Yield in Bushels (000 omitted).	
	Average, 1921-1923.	1924.		Average, 1921-1923.	1924.
United States of America ..	958,313	1,233,524	Lithuania ..	18,633	14,867
Canada ..	419,779	345,077	Austria ..	16,844	18,274
Soviet Republics ..	374,436	391,629	Netherlands ..	16,061	16,705
Germany ..	277,919	311,624	Jugo-Slavia ..	15,449	16,637
France ..	231,913	244,430	Australia ..	14,811	19,394
Poland ..	150,823	132,937	Latvia ..	13,714	14,936
United Kingdom ..	130,235	138,206	Japan ..	9,730	7,946
Czecho-Slovakia ..	63,620	66,369	Algeria ..	9,341	7,310
Rumania ..	60,993	33,611	Norway ..	9,158	8,513
Sweden ..	60,852	59,514	Estonia ..	7,157	7,741
Argentine Republic ..	47,877	42,765	Portugal ..	7,036	4,368
Denmark ..	46,311	50,566	Bulgaria ..	6,997	5,925
Belgium ..	31,484	35,365	Union of South Africa ..	(a)5,760	(b)6,482
Irish Free State ..	30,109	29,567	New Zealand ..	5,185	4,875
Italy ..	28,818	26,637	Greece ..	4,283	3,250
Spain ..	28,604	24,136	Chile ..	2,434	2,707
Finland ..	20,671	27,130	Switzerland ..	2,283	2,155
Hungary ..	19,118	12,570	Uruguay ..	1,562	2,560

(a) Average years 1919-1921.

(b) Year 1921.

(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, 1921-1924.

Country.	Yield in Bushels per acre.		Country.	Yield in Bushels per acre.	
	Average, 1921-1923.	1924.		Average, 1921-1923.	1924.
Belgium ..	47.83	54.07	Austria ..	23.30	23.96
Switzerland ..	44.47	39.98	Hungary ..	22.89	17.12
Netherlands ..	41.70	44.37	United States of America ..	22.63	29.06
Denmark ..	41.45	44.32	Finland ..	20.10	25.86
United Kingdom ..	37.39	41.56	Latvia ..	20.05	18.08
Irish Free State ..	36.85	39.09	Bulgaria ..	19.94	15.87
New Zealand ..	34.97	(c)29.04	Argentine Republic ..	19.23	16.16
Germany ..	34.75	35.78	Estonia ..	19.00	18.86
Sweden ..	34.16	31.10	Rumania ..	18.90	11.00
Japan ..	(a)32.36	28.96	Spain ..	18.32	14.76
Czecho-Slovakia ..	31.50	31.76	Soviet Republics ..	16.67	13.86
Chile ..	31.32	33.24	Algeria ..	16.20	11.75
Norway ..	30.57	37.01	Jugo-Slavia ..	15.91	19.09
Canada ..	27.45	23.81	Australia ..	15.73	16.65
France ..	27.42	28.30	Portugal ..	15.45	7.74
Poland ..	26.86	20.81	Uruguay ..	13.41	20.14
Greece ..	(b)26.57	(c)26.57	Tunis ..	10.60	11.29
Lithuania ..	23.78	18.51			
Italy ..	23.77	24.08			

(a) Average years 1922-1924.

(b) Average years 1922-1923.

(c) Year 1923.

3. *World's Production.*—The production of oats in the world for the year 1924, as reported by the International Institute of Agriculture, amounted to 3,373 millions of bushels. The yield was less than that of the previous year, viz., 3,505 millions of bushels, owing to the lightness of the crop in the majority of European countries. In the pre-war years 1909 to 1913 the production averaged 3,588 millions of bushels from an average area of 141,700,000 acres. Subsequently the area declined in Europe, but a considerable increase was recorded in North America, with the result that in 1924 nearly 138,000,000 acres were sown to oats.

4. **Price of Oats.**—The average wholesale prices of oats in the markets of the several capitals for the year 1924-25 are given in the following table :—

OATS.—AVERAGE WHOLESALE PRICES, 1924-1925.

Particulars.	Sydney.	Melbourne.	Brisbane.	Adelaide.	Perth.	Hobart.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Average price per bushel ..	4 7	3 0	..	2 4½	3 4	3 4½

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, and in 1922-23. The quantities and values of oats imported into and exported from Australia during the years 1920-21 to 1924-25 are given hereunder :—

OATS.—IMPORTS AND EXPORTS, AUSTRALIA, 1920-21 TO 1924-25.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1920-21 ..	139,728	30,057	865,588	143,874	725,860	113,817
1921-22 ..	14,880	2,569	325,792	49,980	310,912	47,411
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

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, Java, and the United Kingdom.

6. **Oatmeal, etc.**—The production of oatmeal in Australia during 1924-25 amounted to 310,280 cwt., 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 1924-25 amounting to 107,026 lbs., while the exports totalled 925,734 lbs.

7. **Value of Oat Crop.**—The estimated value of the oat crop of the several States of Australia for the season 1924-25 is as follows :—

OATS.—VALUE OF CROP, (a) 1924-25.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Cap. Ter.	Australia.
	£	£	£	£	£	£	£	£
Aggregate value..	416,830	1,316,150	25,565	210,097	596,401	167,591	1,740	2,734,374
Value per acre ..	£3/7/9	£2/10/11	£6/7/6	£1/7/1	£1/17/5	£3/12/7	£3/6/6	£2/6/11

(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 1924-25 being 375,724 acres, or nearly 94 per cent. of the total for Australia. Of the balance, Victoria contributed 23,126 acres, South Australia 7 acres, Western Australia 71 acres, and the Northern Territory 21 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 about 20,000 acres during the past decennium. Increases in area were recorded in both Queensland and Victoria, but the decline of more than 30,000 acres in New South Wales was responsible for the reduction in the total for Australia. 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 which amounted to 318,597 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, 1920-21 TO 1924-25.

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.
1920-21	144,105	24,149	115,805	199	19	6	..	284,283
1921-22	146,687	23,227	135,034	186	43	9	..	305,186
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
YIELD.								
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1920-21	4,176,000	1,065,380	2,012,864	3,738	240	60	..	7,258,782
1921-22	3,976,300	951,960	2,907,754	3,792	540	92	..	7,840,438
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

The maximum production of maize in Australia was recorded in 1910-11, when the harvest exceeded 13,000,000 bushels. No approach to this figure was made in recent years, until a superabundant crop in Queensland during 1924 brought the total to nearly 12,500,000 bushels, but the average for the past decade was only 8,000,000 bushels. Moreover the falling-off in the demand coupled with the low market price for the grain adversely affected the industry, particularly in Queensland, and the harvest during 1925-26 is estimated to yield only 7,500,000 bushels.

A maize reaper-thresher, invented and manufactured in Australia, was used in the maize fields of Queensland during the past season, and proved most suitable for the work for which it was designed. The invention promises to have a far-reaching effect in reducing the cost of maize production.

(ii) *Average Yield.* The following table gives particulars of the average yield per acre of the maize crops of the States for the seasons 1920-21 to 1924-25, and also for the decennium 1915-25 :—

MAIZE.—AVERAGE YIELD PER ACRE, 1920-21 TO 1924-25.

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.
1920-21	28·98	44·14	17·38	18·78	12·63	10·00	..	25·53
1921-22	27·11	40·99	21·53	20·39	12·56	10·22	..	25·69
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
Average for 10 seasons 1915-25	26·24	42·77	21·81	18·65	11·56	12·06	22·10	25·38

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 $1\frac{1}{2}$ bushels per head of population, while the average for Queensland, the State in which the production per head is highest, amounted to $4\frac{1}{2}$ bushels. Details for the several States during the past five seasons are as follow :—

MAIZE.—YIELD PER 1,000 OF POPULATION, 1920-21 TO 1924-25.

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.
1920-21 ..	1,997	697	2,676	8	1	15	..	1,341
1921-22 ..	1,869	614	3,776	8	2	25	..	1,423
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	5	9	117	..	2,117

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 100,000,000 acres are annually planted in that country, and 3,000,000,000 bushels reaped, representing nearly 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., $1\frac{1}{2}$ per cent., is exported. The yields of the various countries are as follow :—

MAIZE.—PRODUCTION IN VARIOUS COUNTRIES, 1921-1924.

Country.	Yield in Bushels (000 omitted).		Country.	Yield in Bushels (000 omitted).	
	Average, 1921-1923.	1924.		Average, 1921-1923.	1924.
United States of America ..	3,004,534	2,436,493	Czecho-Slovakia ..	9,979	10,239
Argentine Republic ..	199,797	186,300	Salvador ..	(a) 7,836	10,629
Brazil ..	179,943	(c) 157,037	Greece ..	(b) 7,820	7,106
Rumania ..	127,318	155,460	Australia ..	7,731	12,432
India ..	86,480	(c) 87,120	Belgian Congo ..	7,152	(c) 7,480
Italy ..	85,775	105,680	Uruguay ..	6,691	(c) 6,519
Jugo-Slavia ..	82,569	149,400	Guatemala ..	5,880	(c) 7,874
Mexico ..	80,196	106,346	Japan ..	5,476	(c) 3,369
Soviet Republics ..	70,799	68,305	French Morocco ..	5,093	4,724
Egypt ..	65,072	(c) 67,103	Madagascar ..	4,512	3,937
Dutch East Indies ..	52,273	66,761	Rhodesia ..	4,348	4,286
Union of South Africa ..	48,355	73,214	Togoland ..	3,517	5,315
Hungary ..	37,815	74,123	Austria ..	3,153	3,719
Spain ..	25,218	25,804	Korea ..	2,799	2,375
Bulgaria ..	19,575	27,264	Poland ..	2,624	4,161
Philippine Islands ..	16,221	17,879	Kenya ..	2,463	(c) 2,977
Canada ..	14,103	11,978	Basutoland ..	1,996	(c) 1,677
France ..	11,914	18,027	Paraguay ..	1,821	1,417
Portugal ..	11,086	11,212	French West Africa ..	1,475	3,157

(a) Average, years 1920-1922. (b) Average, years 1919-1920. (c) Year 1923.

(ii) *Yield per Acre.* The average yield per acre of maize in Australia during 1924-25 was 31.2 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, 1921-1924.

Country.	Average Yield per acre in Bushels.		Country.	Average Yield per acre in Bushels.	
	Average, 1921-1923.	1924.		Average, 1921-1923.	1924.
Canada ..	45.35	40.67	Salvador ..	(c) 17.12	16.67
Belgian Congo ..	35.38	(f) 34.40	Soviet Republics ..	16.73	17.69
Egypt ..	32.61	(f) 35.98	Greece ..	(g) 16.58	(d) 15.26
Kenya ..	30.73	(f) 27.43	French West Africa ..	16.44	33.10
Japan ..	29.63	(f) 24.78	Poland ..	15.65	21.89
United States of America ..	29.05	23.20	Rumania ..	15.08	17.37
Argentine Republic ..	25.34	20.33	Portugal ..	14.94	(f) 13.60
Australia ..	24.97	31.16	France ..	14.59	21.31
Czecho-Slovakia ..	24.50	26.32	Guatemala ..	14.44	(f) 17.22
Italy ..	22.74	27.76	Bulgaria ..	14.34	18.61
Brazil ..	(b) 22.43	(f) 18.56	Dutch East Indies ..	13.51	15.33
Togoland ..	22.24	23.90	Philippine Islands ..	11.92	13.58
Madagascar ..	(a) 21.79	19.92	India ..	(e) 11.89	(h) 9.32
Spain ..	21.60	22.20	Mexico ..	10.80	13.18
Austria ..	20.05	25.25	Korea ..	10.71	10.37
Paraguay ..	19.05	13.19	Uruguay ..	9.92	(f) 11.32
Hungary ..	18.05	29.90	Union of South Africa ..	(g) 9.61	(d) 7.64
Jugo-Slavia ..	17.66	30.76	French Morocco ..	8.42	6.91
Rhodesia ..	17.61	15.62	Basutoland ..	8.41	(f) 7.06

(a) Average, years 1923-1924. (b) Years 1922-1923. (c) Year 1920. (d) Year 1921.
(e) Average, years 1921-1922. (f) Year 1923. (g) Years 1919-1921. (h) Year 1922.

4. *World's Production.*—Owing to unfavourable weather conditions, the maize harvest in the United States for 1924 was considerably below the average, while the yield in the Argentine was also moderate. On the other hand, the season in Europe was, generally speaking, very favourable, and heavy crops were obtained. According to the International Institute of Agriculture the area sown to maize in 1924 was not only greater than the pre-war average, but exceeded the very large acreage planted in 1923. Despite the increased area, however, the yield failed to reach the figures recorded in the two periods mentioned above, consequent on the falling off in the United States, which usually contributes about 75 per cent. of the world's production. The total yields from 1909 to 1923 were as follows :—

Average 1909 to 1913, 4,083,000,000 bushels.
1921, 4,290,000,000 ..
1922, 4,228,000,000 ..
1923, 4,508,000,000 ..

Particulars for 1924 are not yet available.

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, 1920-21 TO 1924-25.

Particulars.	1920-21.	1921-22.	1922-23.	1923-24.	1924-25.
	s. d.	s. d.	s. d.	s. d.	s. d.
Average price per bushel ..	6 6	5 2	6 1	5 1	3 11

6. **Oversea Imports and Exports.**—The decline in the production of maize in Australia of late years has necessitated an average annual import of about 800,000 bushels during the past decade, the bulk of the supplies being furnished by South Africa. Details of imports and exports for the years 1920–21 to 1924–25 are as follow :—

MAIZE.—IMPORTS AND EXPORTS, AUSTRALIA, 1920–21 TO 1924–25.

Year.	Imports.		Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1920–21 ..	96,536	40,097	77,489	27,162	19,047	12,935
1921–22 ..	45,066	9,791	36,320	9,023	8,746	768
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

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 1924–25 the imports amounted to 299,198 lb., and represented a value of £5,273. The exports from Australia are small, and amounted to only 19,177 lb., valued at £490 in 1924–25.

8. **Value of Maize Crop.**—The value of the Australian maize crop for the season 1924–25 has been estimated at £2,467,086, made up as follows :—

MAIZE.—VALUE OF CROP, 1924–25.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	N.T.	Australia.
	£	£	£	£	£	£	£
Aggregate value	841,640	189,547	1,435,619	87	113	80	2,467,086
Value per acre	£5/14/10	£8/3/1	£6/5/4	£12/8/6	£1/11/10	£3/16/2	£6/3/8

§ 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 show a marked rise. The average annual area sown for the decennium 1915 to 1925 amounted to 262,169 acres, which was nearly double the average of the previous ten-yearly period, i.e., 139,413 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 1924–25, the area under barley in South Australia accounted for more than 64 per cent. of the Australian acreage. Victoria was

next in importance with 25 per cent., leaving a small margin of about 11 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 sub-section. 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, 1920-21 TO 1924-25.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Australia.
AREA.							
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1920-21 ..	5,969	93,954	15,908	202,079	10,686	6,151	334,747
1921-22 ..	5,031	100,127	7,730	170,887	7,894	7,241	298,910
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
YIELD.							
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1920-21 ..	123,290	2,495,762	317,511	3,945,062	111,405	161,346	7,155,376
1921-22 ..	83,950	2,336,246	132,835	3,278,787	85,857	166,960	6,085,685
1922-23 ..	55,520	2,442,041	93,693	3,697,949	107,804	152,028	6,548,935
1923-24 ..	71,700	1,455,435	3,808	3,251,895	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

(a) Including Federal Capital Territory, 7 acres, 210 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 2,722,771 and 1,923,654 bushels, the higher return in the latter State tending to diminish the advantage held by South Australia in regard to acreage.

(ii) *Malting and other Barley.* (a) *Year 1924-25.* In recent years the statistics of all the States have distinguished between "malting" and "other" barley. Particulars for the season 1924-25 are as follows :—

BARLEY, MALTING AND OTHER.—AREA AND YIELD, 1924-25.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Australia.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Malting barley ..	4,191	42,217	6,268	150,584	5,914	2,587	211,761
Other barley ..	2,447	21,547	2,530	15,848	5,692	423	48,487
Total ..	6,638	63,764	8,798	166,432	11,606	3,010	260,248
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
Malting barley ..	76,530	971,532	127,645	2,853,255	93,192	41,742	4,163,896
Other barley ..	41,770	473,291	43,479	250,463	84,345	8,987	902,335
Total ..	118,300	1,444,823	171,124	3,103,718	177,537	50,729	5,066,231

The cultivation of malting barley is a special industry to meet the demands of the brewing trade. Its expansion, however, appears to be restricted, although of late years the exports have considerably increased. Taking Australia as a whole, more than 82 per cent. of the area under barley in 1924-25 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, 1920-21 TO 1924-5.

Season.	Acres.			Bushels.			Average Yields per Acre.		
	Malting.	Other.	Total.	Malting.	Other.	Total.	Malting.	Other.	Total.
1920-21 ..	249,908	84,839	334,747	5,248,861	1,906,515	7,155,376	21.00	22.47	21.38
1921-22 ..	218,662	80,248	298,910	4,430,599	1,655,086	6,085,685	20.26	20.62	20.36
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	48,487	260,248	4,163,896	902,335	5,066,231	19.66	18.61	19.47
Average 10 seasons 1915-25	194,589	67,580	262,169	3,756,709	1,319,514	5,076,223	19.31	19.53	19.36

During the past ten seasons the area and production of malting barley have represented nearly 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 1915-25, are given in the following table :—

BARLEY.—YIELD PER ACRE, 1920-21 TO 1924-25.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Australia.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1920-21 ..	20.66	26.56	19.96	19.53	10.43	26.23	21.38
1921-22 ..	16.69	23.33	17.32	19.19	10.88	23.06	20.36
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
Average for 10 seasons 1915-25	15.12	22.84	18.01	18.01	11.79	21.67	19.36

(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 1924-25 the production ranged from 5.76 bushels per head in South Australia to 0.2 lbs. per head in New South Wales. Details for the years 1920-21 to 1924-25 are as follows :—

BARLEY.—PRODUCTION PER 1,000 OF POPULATION, 1920-21 TO 1924-25.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Australia.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1920-21 ..	59	1,633	422	8,034	337	758	1,322
1921-22 ..	39	1,506	174	6,524	256	764	1,104
1922-23 ..	26	1,536	119	7,206	314	694	1,163
1923-24 ..	32	895	5	6,197	276	432	865
1924-25 ..	52	872	205	5,764	488	233	863

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, 1921–24.

Country.	Yield in Bushels (000 omitted).		Country.	Yield in Bushels (000 omitted).	
	Average, 1921–1923.	1924.		Average, 1921–1923.	1924.
United States of America ..	172,554	180,356	Sweden ..	12,034	12,771
Soviet Republics ..	170,113	147,870	Egypt ..	11,275	10,324
India ..	130,726	131,578	Bulgaria ..	10,078	7,627
Spain ..	89,189	80,352	Italy ..	9,317	8,338
Germany ..	86,829	105,818	Argentine Republic	8,222	6,695
Japan ..	79,537	71,983	Lithuania ..	8,114	8,945
Canada ..	68,742	85,253	Tunis ..	7,937	2,425
Rumania ..	64,368	29,529	Syria ..	(a) 7,045	4,921
Poland ..	61,376	53,269	Greece ..	6,602	5,922
United Kingdom ..	48,117	51,296	Latvia ..	6,172	7,139
Czecho-Slovakia ..	47,618	42,800	Austria ..	6,059	6,920
France ..	39,761	46,129	Irish Free State ..	5,911	5,809
Algeria ..	35,461	17,958	Australia ..	5,870	5,066
Korea ..	32,695	35,591	Chile ..	5,012	4,196
French Morocco ..	31,957	51,147	Estonia ..	4,946	5,317
Denmark ..	28,940	32,814	Finland ..	4,624	5,730
Hungary ..	22,258	14,123	Belgium ..	4,076	3,585
Jugo-Slavia ..	12,149	12,939	Norway ..	3,854	4,504

(a) Year 1922.

(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 48.20 bushels in Netherlands to 7.84 bushels in Tunis :—

BARLEY.—AVERAGE YIELD PER ACRE IN VARIOUS COUNTRIES, 1921–1924.

Country.	Yield in Bushels per acre.		Country.	Yield in Bushels per acre.	
	Average, 1921–1923.	1924.		Average, 1921–1923.	1924.
Netherlands ..	48.20	54.52	Hungary ..	19.42	13.48
Belgium ..	46.88	46.02	Lithuania ..	19.26	18.47
Denmark ..	43.75	44.05	Bulgaria ..	18.88	14.50
Irish Free State ..	36.12	33.66	India ..	18.65	18.32
Chile ..	34.83	33.73	Australia ..	18.46	19.47
New Zealand ..	34.49	(c) 34.14	Finland ..	16.81	21.09
United Kingdom ..	31.07	17.69	Italy ..	16.60	14.57
Sweden ..	29.66	29.81	Estonia ..	16.17	17.31
Germany ..	29.36	29.61	Latvia ..	15.66	16.13
Egypt ..	28.93	27.74	Korea ..	15.62	16.76
Czecho-Slovakia ..	28.70	25.54	Rumania ..	15.10	6.46
Japan ..	28.14	28.99	Greece ..	(a) 14.50	(c) 17.05
Norway ..	28.10	33.06	Jugo-Slavia ..	13.29	14.40
Canada ..	24.48	25.02	Argentine Republic	13.28	9.85
France ..	23.50	26.13	Algeria ..	12.93	5.69
United States of America ..	22.80	25.45	Soviet Republics	12.76	9.54
Poland ..	22.35	17.69	French Morocco ..	12.26	16.39
Spain ..	20.65	18.50	Syria ..	(b) 12.14	8.89
Austria ..	19.91	20.28	Tunis ..	7.84	3.50

(a) Average, years 1919–1921.

(b) Year 1922.

(c) Year 1923.

3. **World's Production.**—The world area under barley in 1924 differs but slightly from that of the previous year. Compared with the pre-war period a decline of 8 per cent. has taken place, mainly as the result of a marked decrease in the Soviet Republics. Reduced yields were recorded in 1924 owing to unfavourable weather conditions in Europe where the most important barley-producing countries are situated. The production of barley in millions of bushels from 1909 onwards was as follows :—

Year.				Production.	
Average, 1909–1913	..	..	..	1,639	millions of bushels.
1921	..	..	..	1,275	„
1922	..	..	..	1,351	„
1923	..	..	..	1,489	„
1924	..	..	..	1,316	„

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, 1920 TO 1924.

Particulars.	1920.	1921.	1922.	1923.	1924
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
Malting barley	7 3	4 5	4 1½	4 0½	5 8
Cape barley	6 3	3 5	3 0	3 1½	4 7½

5. **Imports and Exports.**—The Australian export trade in barley has grown considerably in recent years, the average annual shipments during the last five years amounting to 2,135,590 bushels, as compared with an average of 395,220 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 1920–21 to 1924–25 are contained in the following table :—

BARLEY.—IMPORTS AND EXPORTS, AUSTRALIA, 1920–21 TO 1924–25.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1920–21	20	45	3,209,734	778,615	3,209,714	778,570
1921–22	7,052	1,891	1,935,830	396,883	1,928,778	394,992
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

In some years there is an export of Australian pearl and Scotch barley, the total for 1924–25 reaching 220,417 lb., valued at £1,740. The trade for the year was mainly with New Zealand and South Africa.

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 1920-21 to 1924-25 are given hereunder :—

MALT.—IMPORTS AND EXPORTS, AUSTRALIA, 1920-21 TO 1924-25.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1920-21	5	8	139,908	80,575	139,903	80,567
1921-22	40	43	7,553	3,238	7,513	3,195
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

7. **Value of Barley Crop.**—The estimated values of the barley crop of Australia for the seasons 1920-21 to 1924-25 were £1,522,915, £1,139,736, £1,220,703, £879,811 and £1,363,656. The extent to which the several States have contributed to the total in 1924-25 is shown in the following table :—

BARLEY.—VALUE OF CROP (a), 1924-25.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Australia.
Total value ..	£32,270	£433,967	£25,511	£823,884	£36,163	£11,861	£1,363,656
Value per acre	£4/17/3	£6/16/1	£2/18/0	£4/19/0	£3/2/4	£3/18/10	£5/4/10

(a) Exclusive of the value of straw.

§ 8. 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 1924-25 was 47,895 acres, giving a yield of 771,464 bushels, or an average of 16.11 bushels per acre, being less than the average yield for the decennium ended 1924-25, which was 16.82 bushels per acre. The States in which the greatest area is devoted to beans and peas are Tasmania, Victoria and South Australia. The total area under rye in Australia during the season 1924-25 was 4,337 acres, yielding 52,893 bushels, and giving an average of 12.20 bushels per acre. This was higher than the average for the past ten seasons, which was 11.40 bushels per acre. Over 57 per cent. of the rye grown during the season was produced in New South Wales, and 25 per cent. in Victoria. In addition to these grain crops a small area of rice has for some years been cultivated in Queensland and the Northern Territory, but the results obtained have not up to the present been very satisfactory. The growing of rice on the Murrumbidgee Irrigation area in New South Wales, however, promises to develop into an important industry. In 1924-25 an area of 153 acres was sown in this locality. The acreage increased to 2,200 acres in 1925-26, and further expansion is looked for in the future.

§ 9. 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, 1920-21 TO 1924-25.

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

	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1920-21 ..	27,667	62,687	8,770	4,811	4,254	32,000	6	140,195
1921-22 ..	29,491	63,895	9,553	5,795	3,612	36,795	3	149,144
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

YIELD.

	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1920-21 ..	63,234	171,628	19,068	17,057	13,368	88,679	22	373,056
1921-22 ..	57,825	173,660	16,794	18,573	13,605	107,624	10	388,091
1922-23 ..	35,694	148,354	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

The cultivation of potatoes in Australia has declined by 7,051 acres during the past decennium, due mainly to a decrease in New South Wales of 11,742 acres. In Victoria and Tasmania—the other chief potato-growing areas—increases of 4,924 and 2,789 acres respectively were recorded. The average yield during the last ten years was 346,091 tons, compared with 383,253 tons during the previous decade. The record production of 507,153 tons was obtained in 1907.

(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 2.60 tons per acre. The lowest average yield is that obtained in Queensland with an average of 1.84 tons for the same period.

Particulars for each State for the seasons 1920-21 to 1924-25, and also for the past decennium, are given hereunder :—

POTATOES.—YIELD PER ACRE, 1920-21 TO 1924-25.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Cap. Ter.	Australia.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1920-21	2.29	2.74	2.17	3.55	3.14	2.77	3.67	2.66
1921-22	1.96	2.72	1.76	3.21	3.77	2.92	3.33	2.60
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
Averages for 10 seasons 1915-25	2.15	2.78	1.84	3.47	3.34	2.56	3.58	2.60

Concurrent 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 nearly 3 cwt. per acre. In Tasmania, where the decrease was greatest, the average yield diminished by 14 cwt. during the past decade. The comparatively low yield per acre is due to the neglect of rotation, and parsimony in the application 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 149 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 10 cwts. Details for the seasons 1920-21 to 1924-25 are as follows :—

POTATOES.—PRODUCTION PER 1,000 OF POPULATION, 1920-21 TO 1924-25.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Cap. Ter.	Australia.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1920-21	30	112	25	35	40	417	11	69
1921-22	27	112	22	37	41	493	5	70
1922-23	16	93	13	34	44	462	13	58
1923-24	28	147	11	41	50	456	50	78
1924-25	25	84	24	23	55	383	32	57

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

a shortage in some of the 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, 1920-21 TO 1924-25.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Tons.	£	Tons.	£
1920-21	56	746	1,130	13,222	1,074	12,476
1921-22	59	499	2,540	21,611	2,481	21,112
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

3. **Value of Potato Crop.**—The estimated value of the potato crop of each State for the season 1924-25 is given in the following table, together with value per acre :—

POTATOES.—VALUE OF CROP, 1924-25.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Cap. Ter.	Australia.
Total value ..	£419,310	£910,733	£179,440	£117,075	£199,179	£608,652	£700	£2,435,089
Value per acre ..	£17/18/8	£14/17/2	£18/18/1	£35/11/3	£38/17/9	£16/16/7	£36/16/10	£17/10/11

§ 10. 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 1924-25 being only 15,771 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 1924-25 was 5,253 acres, giving a yield of 31,553 tons, and averaging 6.01 tons per acre. The area devoted in 1924-25 to root crops other than potatoes and onions, viz., 10,518 acres, yielded 78,493 tons, and gave an average of 7.46 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 900 tons, valued at £23,192, were imported, principally from the United States of America, New Zealand, and Canada, while during the same period, the exports totalled 29,965 tons, valued at £277,611, and were shipped mainly to New Zealand, the Pacific Islands, the Philippine Islands, and the United States of America.

§ 11. 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 1924-25 averaged 17½ 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 made also, 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, 1920-21 TO 1924-25.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	Fed. Cap. Ter.	Aus- tralia.
AREA.									
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1920-21	853,109	1,333,397	94,212	570,865	266,824	113,618	10	1,154	3,233,189
1921-22	749,738	1,159,135	98,155	559,285	335,561	91,443	12	1,190	2,994,519
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
YIELD.									
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1920-21	1,372,801	1,984,854	116,709	769,050	264,244	176,798	20	1,855	4,686,331
1921-22	1,027,833	1,548,453	138,675	680,201	368,720	136,991	25	1,291	3,902,189
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

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 3,029,990 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 31½ cwt. in 1915-16, followed closely by 29 cwt.

obtained in 1920-21. The average for the decennium was 25½ cwt. Particulars for the several States for the seasons 1920-21 to 1924-25, and the average for the last ten years, are given hereunder :—

HAY.—YIELD PER ACRE, 1920-21 TO 1924-25.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	Fed. Cap. Ter.	Aus- tralia.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1920-21	1.61	1.49	1.24	1.35	0.99	1.56	2.00	1.61	1.45
1921-22	1.37	1.34	1.41	1.22	1.10	1.50	2.08	1.08	1.30
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
Average for 10 seasons 1915-1925 ..	1.24	1.35	1.31	1.25	1.10	1.45	2.80	1.54	1.27

(iii) *Relation to Population.* During the past five seasons the Australian hay production per head of population has varied between 14 cwt. in 1923-24 and 17½ cwt. in 1920-21; averaging over 14½ cwt. per head for the period. Hay production per head of population is highest in South Australia. Details for the seasons 1920-21 to 1924-25 are given hereunder :—

HAY.—YIELD PER 1,000 OF POPULATION, 1920-21 TO 1924-25.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	Fed. Cap. Ter.	Aus- tralia.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1920-21	657	873	155	1,566	799	831	5	941	866
1921-22	483	998	180	1,353	1,100	627	7	625	708
1922-23	488	1,047	128	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

(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, 1920-21 TO 1924-25.

Varieties.	1920-21.	1921-22.	1922-23.	1923-24.	1924-25.
NEW SOUTH WALES—	Acres.	Acres.	Acres.	Acres.	Acres.
Wheaten	520,417	467,068	597,959	695,369	388,422
Oaten	259,022	203,074	216,136	241,161	274,408
Barley	1,832	899	1,265	1,584	1,150
Lucerne	70,995	77,527	72,337	83,256	97,994
Other	843	1,170	553	748	268
Total	853,109	749,738	888,250	1,022,118	762,242

HAY.—VARIETIES GROWN, 1920-21 TO 1924-25—*continued*.

Varieties.	1920-21.	1921-22.	1922-23.	1923-24.	1924-25.
	Acres.	Acres.	Acres.	Acres.	Acres.
VICTORIA—					
Wheaten	165,502	130,181	213,219	163,826	87,312
Oaten	1,140,578	1,001,256	1,021,216	1,084,136	1,000,382
Lucerne, etc.	27,317	27,698	26,973	29,644	32,618
Total	1,333,397	1,159,135	1,261,408	1,277,606	1,120,312
QUEENSLAND—					
Wheaten	14,024	13,837	8,834	8,714	9,457
Oaten	19,229	12,480	4,542	1,344	8,304
Lucerne	53,059	67,183	60,042	33,505	61,089
Other.. ..	7,900	4,655	4,632	3,346	16,157
Total	94,212	98,155	78,050	46,909	95,007
SOUTH AUSTRALIA—					
Wheaten	329,543	325,769	359,834	381,962	304,183
Oaten	231,446	225,878	208,769	234,899	246,825
Lucerne	3,938	4,145	4,973	7,270	8,344
Other.. ..	5,938	3,493	4,234	7,136	2,901
Total	570,865	559,285	577,810	631,267	562,253
WESTERN AUSTRALIA—					
Wheaten	169,264	222,209	307,142	223,770	242,216
Oaten	96,228	111,386	123,232	103,723	153,315
Lucerne	146	125	142	175	339
Other.. ..	1,186	1,841	1,117	1,866	1,721
Total	266,824	335,561	431,633	329,534	397,591

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 1925 amounted to 3,209,000 tons from 2,125,000 acres, while from permanent grasses a yield of 4,783,000 tons of hay was obtained from 4,468,000 acres, giving a total of 7,992,000 tons from 6,593,000 acres, or about 24 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 1924-25, 157 tons were imported, while the exports amounted to 13,934 tons, valued at £79,242, the principal purchases being made by New Zealand, India, the Philippine Islands, and Malaya (British).

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 1924-25 :—

HAY.—VALUE OF CROP, 1924-25.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Cap. Ter.	Australia.
	£	£	£	£	£	£	£	£	£
Total Value ..	8,467,030	4,477,764	854,327	2,168,165	1,969,902	544,995	120	10,460	18,492,763
Value per acre	£11/2/2	£3/19/11	£8/19/10	£3/17/1	£4/19/1	£6/3/11	£12/0/0	£10/0/3	£6/2/2

§ 12. 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, 1920-21 TO 1924-25.

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.
1920-21	112,003	79,524	142,554	40,678	26,620	5,575	..	..	406,954
1921-22	128,965	89,410	147,135	50,121	27,396	9,481	..	..	452,508
1922-23	499,679	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

(ii) *Relation to Population.* Particulars of the area under green forage per 1,000 of the population for the seasons 1920-21 to 1924-25 are given hereunder :—

GREEN FORAGE.—AREA PER 1,000 OF POPULATION, 1920-21 TO 1924-25.

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.
1920-21 ..	54	52	190	83	80	26	..	..	75
1921-22 ..	61	58	191	100	82	43	..	..	82
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

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 1924-25 may be taken approximately as £2,309,322 or about £4 1s. 9d. per acre.

§ 13. 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 273,512 acres under sugar-cane in Australia for the season 1924-25, there were 253,519 acres, or about 92½ 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 1862-3. 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 1895-6 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, some 9,500 acres being added to the cane-fields during the past five years. In Queensland, although fluctuations in area are manifest, the general trend has been upwards, the acreage under cane for the season 1924-25 being the highest on record. The area under sugar-cane in Australia from 1920-21 is given in the following table, and particulars for earlier years may be seen from the accompanying graphs:—

SUGAR-CANE.—AREA, 1920-21 TO 1924-25.

Season.	New South Wales.		Queensland.		Australia.		
	Productive.	Unproductive.	Productive.	Unproductive.	Productive.	Unproductive.	Total.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1920-21 ..	5,519	5,863	89,142	73,477	94,661	79,340	174,001
1921-22 ..	5,400	7,380	122,956	61,557	128,356	68,937	197,293
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

(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 1897-8. In that season the total for Australia was 1,073,883 tons, as against the maximum production of 3,400,319 tons in 1924-25. The second highest yield was in the season 1917-18, with a total of 2,879,092 tons. The average production of cane during the decennium ended 1924-25 was 2,084,442 tons. The three highest yields of sugar were in 1924-25, 1917-18 and 1922-23, the quantities being 435,818 tons, 327,589 tons, and 306,365 tons respectively. The decennial average

was 255,772 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, 1920-21 TO 1924-25.

Season.	New South Wales.		Queensland.		Australia.	
	Cane.	Sugar.	Cane.	Sugar.	Cane.	Sugar.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1920-21 ..	131,313	15,124	1,339,455	167,401	1,470,768	182,525
1921-22 ..	149,474	17,806	2,287,416	282,198	2,436,890	300,004
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	409,136	3,400,319	435,818

The cane cut in 1925 was approximately 4,030,000 tons. The season proved extremely favourable, and the sugar content of the cane was high, with the result that the production of sugar in 1924, which had been the highest recorded, was exceeded by 80,000 tons, the total for 1925 amounting to 519,327 tons. In accordance with the agreement made by the Commonwealth Government respecting the yields for the three years 1920, 1921, and 1922, the sugar industry progressed considerably. The guaranteed price induced mill-owners to make considerable additions to plant, thereby increasing the efficiency of the mills, while farmers in nearly every district put new areas under cane, using in many cases land that had lain unproductive for years.

A preliminary estimate of the production of sugar in 1926 places the amount at 400,000 tons.

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. It is proposed to erect at the Plane Creek Central Sugar Mill a distillery for dealing with molasses, and to grow cassava, for the purpose of making power alcohol. Another proposal is to utilize sugar-cane and molasses for power alcohol manufacture. Steps are at present 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.

(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 25.42 tons for the former and 17.08 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, and 1917-18. 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 12.20 tons per acre in 1915-16 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 3.01 tons in New South Wales, and 2.10 tons in Queensland.

(v) *Quality of Cane.* The quantity of cane required to produce a ton of sugar varies not only with the district in which the cane is grown, but also with the season, and for the decennium ended 1924-25 averaged 8.15 tons, the average production of sugar being 12.27 per cent. of the weight of cane crushed. The systematic study of beet culture in European countries has shown that by suitable methods the sugar contents of the root can be greatly increased, and it is believed that a similar improvement can be effected in the yield from sugar-cane.

SUGAR-CANE AND SUGAR.—YIELD PER ACRE, 1920-21 TO 1924-25.

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.
1920-21	Tons. 23.79	Tons. 2.74	Tons. 8.68	Tons. 15.03	Tons. 1.88	Tons. 8.00	Tons. 15.54	Tons. 1.93	Tons. 8.06
1921-22	27.68	3.30	8.40	18.60	2.30	8.11	18.99	2.34	8.12
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	29.60	3.44	8.58	18.92	2.39	7.92	19.38	2.44	7.96
Average 10 seasons 1915-25 .. .	25.42	3.01	8.44	17.08	2.10	8.13	17.48	2.15	8.15

The Bureau of Sugar Experiment Stations established in Queensland is rendering excellent 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.

A machine was used with considerable success during portion of the 1924 season for cane cutting in burnt cane in the Bundaberg district. 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 1920-21 to 1924-25 was just sufficient to supply local requirements, the average production during the period amounting to 119 lbs. per head of population, while the consumption was estimated to average 117 lbs. per head. Details for the period 1920-21 to 1924-25 are as follows :—

SUGAR.—PRODUCTION PER HEAD OF POPULATION, 1920-21 TO 1924-25.

State.	19 0-21.	1921-22.	1922-23.	1923-24.	1924-25.
	lbs.	bs.	lbs.	lbs.	lbs.
New South Wales	16	19	19	17	27
Queensland	498	821	818	743	1,098
Australia	76	122	122	111	166

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, 1920-21 TO 1924-25.

Particulars.	1920-21.	1921-22.	1922-23.	1923-24.	1924-25.
Area harvested .. acres	1,180	1,600	2,045	1,937	1,897
Production .. tons	7,147	16,577	20,444	29,512	24,468
Average per acre .. "	6.06	10.36	10.00	15.24	12.90
Sugar produced .. "	833	1,872	2,784	3,499	3,017

The 1924-25 season was a normal one. Growers were paid 40s. a ton for their beets, and a profit of £23,142 was realized by the sugar-beet factory as the result of the year's operations.

(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 part of the district for the present season and eventually to serve the whole area. A sum of £65,000 was provided for remodelling the plant at the Maffra factory and the work is being pushed forward rapidly. 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. It was estimated that 60 per cent. of the production in 1925 would be required for home consumption, leaving the remaining 40 per cent. to be exported. 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 £9 10s. per ton, subject to realization adjustments. 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.

In view of the decrease in production in 1926–27 it has been assumed that 70 per cent. of the sugar can be paid for on the basis of the fixed Australian price, and 30 per cent. on net return from exported sugar. Should this anticipation prove correct, the net average price over the whole crop will amount to about £21 per ton.

5. Imports and Exports of Sugar.—Owing to the increased production of sugar in Australia during the past four years 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, 1920–21 TO 1924–25.

Year.	Oversea Imports.		Oversea Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Tons.	£	Tons.	£
1920–21 ..	116,274	6,560,373	4,190	220,965	112,084	6,339,408
1921–22 ..	6,888	174,850	1,918	60,145	4,970	114,705
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	82,747	2,162,309	—79,701	—2,096,730

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

§ 14. 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, 1920-21 TO 1924-25.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Australia.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1920-21 ..	10,783	29,255	1,256	36,661	3,210	There are no vineyards in Tasmania.	81,165
1921-22 ..	12,583	33,175	1,281	41,424	3,951		92,414
1922-23 ..	13,734	38,892	1,242	46,750	4,858		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

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 satisfactory annual increases, the 1904-5 figure was soon exceeded, and the total for 1924-25 was the highest on record.

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 being taken in various ways to bring the Australian wines under notice, and it may be confidently expected that when their qualities are duly

recognized, the wine production of Australia will increase. Particulars of the quantity of wine produced in the several States during the past five seasons are given in the table hereunder :—

WINE.—PRODUCTION, 1920-21 TO 1924-25.

Season.	New South Wales.	Victoria.	Queens-land.	South Australia.	Western Australia.	Tasmania.	Australia.
	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	No produc- tion of wine in Tasmania.	Gallons.
1920-21 ..	674,188	2,222,305	71,403	7,893,345	152,979		11,014,220
1921-22 ..	627,105	1,335,066	57,793	6,370,310	152,299		8,542,573
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

(iii) *Relation to Population.* In relation to population the areas of the vineyards of the several States show an upward tendency during the last five years, the Australian total increasing from 15 to 19 acres per 1,000 of the population during the period. Details for the seasons 1920-21 to 1924-25 are given in the succeeding table :—

VINEYARDS.—AREA PER 1,000 OF POPULATION, 1920-21 TO 1924-25.

Season.	New South Wales.	Victoria.	Queens-land.	South Australia.	Western Australia.	Tasmania.	Australia.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1920-21 ..	5	19	2	75	10	..	15
1921-22 ..	6	21	2	82	12	..	17
1922-23 ..	6	24	2	91	14	..	19
1923-24 ..	7	26	2	94	15	..	20
1924-25 ..	7	26	2	93	15	..	19

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, 1920-21 TO 1924-25.

Year.	Quantity.			Value.		
	Sparkling.	Other.	Total.	Sparkling.	Other.	Total.
	Gallons.	Gallons.	Gallons.	£	£	£
1920-21 ..	39,665	63,824	103,489	135,169	58,248	193,417
1921-22 ..	7,398	37,814	45,212	20,781	35,830	56,611
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

(ii) *Exports.* The principal countries to which wine is exported from Australia are the United Kingdom and New Zealand, a small but fairly regular export trade being also carried on with India, Ceylon, and the Pacific Islands. Details concerning the exports of wine from Australia during the past five years are given in the following table :—

WINE.—EXPORTS, AUSTRALIA, 1920-21 TO 1924-25.

Year.	Quantity.			Value.		
	Sparkling.	Other.	Total.	Sparkling.	Other.	Total.
	Gallons.	Gallons.	Gallons.	£	£	£
1920-21 ..	9,669	1,098,678	1,108,347	19,105	291,856	310,961
1921-22 ..	2,177	602,853	605,030	5,451	155,487	160,938
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

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, while, particularly in Victoria and South Australia, the drying of raisins and currants is extensively carried on. The quantities of table grapes grown in the several States during the past five seasons are as follows :—

TABLE GRAPES.—PRODUCTION, 1920-21 TO 1924-25.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Australia.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1920-21 ..	2,660	2,471	649	955	2,088	..	8,823
1921-22 ..	2,914	3,075	602	1,027	1,894	..	9,512
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

(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, 1920-21 TO 1924-25.

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.
1920-21 ..	4,448	2,469	116,887	62,919	39,534	65,307	7,308	5,856	168,177	136,551
1921-22 ..	6,696	4,189	190,451	75,042	66,083	76,534	6,790	6,371	270,020	162,136
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	121,000	9,606	15,769	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
Average 10 seasons 1915-25	8,241	3,655	217,303	80,656	66,518	78,791	4,801	6,210	296,863	169,312

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,
1920-21 TO 1924-25.**

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
RAISINS.						
	lbs.	£	lbs.	£	lbs.	£
1920-21 ..	14,997	1,366	11,816,126	520,293	11,801,129	518,927
1921-22 ..	219,499	12,021	13,206,052	550,838	12,986,553	538,817
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
CURRANTS.						
1920-21 ..	3,573	300	5,994,580	208,743	5,991,007	208,443
1921-22 ..	3,577	102	10,941,175	344,238	10,937,598	344,136
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

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 £5,839,028, the average annual excess for the quinquennium being £1,167,806.

§ 15. Orchards and Fruit Gardens.

1. Progress of Cultivation.—(i) *Area.* Fruit-growing has made rapid progress in Australia during recent years, the area devoted thereto having increased in the past ten years by nearly 45,000 acres. The falling-off in acreage since 1921-22 was brought about by unsatisfactory marketing of the surplus production, a condition of affairs which is being remedied. The States in which the decennial increase is most marked are :—New South Wales, 20,067 acres ; Victoria, 11,056 acres ; and Queensland, 9,526 acres. During the same period the South Australian fruit-growing area increased by 7,508 acres, while in Western Australia and Tasmania decreases of 2,858 and 1,015 acres respectively were recorded since 1914-15. The total area under orchards and fruit gardens in the several States is given in the following table :—

ORCHARDS AND FRUIT GARDENS.—AREA, 1920-21 TO 1924-25.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.*	Tas.	Fed. Cap. Ter.	Australia.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1920-21 ..	75,904	87,768	26,927	31,364	19,570	37,013	5	278,551
1921-22 ..	75,746	89,491	28,035	32,295	19,012	36,565	5	281,149
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

(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, plum, orange, 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 apple, the orange, the pineapple, the peach, the plum, and the coconut are the varieties most largely cultivated. In South Australia, in addition to the apple, orange, apricot, peach, plum, and pear, the almond and the olive are extensively grown. In Western Australia, the apple, orange, pear, peach, plum, 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 AND YIELD, 1924-25.

Fruit.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Fed. Cap. Ter.	Australia.
Apples .. acres	9,043	27,837	2,331	9,414	7,628	25,658	5	81,916
bushels	841,429	2,233,230	98,644	597,375	656,881	2,210,000	900	6,638,459
£	362,600	651,359	65,763	219,364	322,966	756,800	395	2,379,247
Apricots .. acres	1,551	4,222	91	2,825	534	1,516	..	10,739
bushels	169,619	350,778	2,713	285,797	37,899	105,979	..	952,785
£	49,610	114,003	2,057	87,500	25,858	20,950	..	299,078
Bananas .. acres	1,002	..	13,491	..	5	..	..	14,498
bushels	91,144	..	1,847,837	..	395	..	..	1,939,376
£	60,760	..	769,932	..	593	..	..	831,285
Cherries .. acres	2,029	2,202	7	680	..	82	..	5,000
bushels	93,411	51,299	670	26,336	..	2,369	6	174,091
£	109,290	46,169	564	19,094	..	950	7	176,074
Lemons .. acres	2,368	1,192	268	413	441	..	..	4,672
bushels	276,485	95,443	20,733	46,647	58,421	..	..	497,729
£	65,010	38,177	10,712	12,828	24,768	..	..	151,495
Nectarines } acres	7,228	9,599	2,100	2,833	897	65	..	22,722
and } bshls	818,613	1,007,228	102,613	204,808	56,379	4,464	45	2,194,150
Peaches } £	262,410	289,785	58,423	59,859	37,965	890	18	709,350
Nuts .. acres	254	345	..	1,640	..	..	..	2,239
lbs.	104,968	108,500	..	985,376	..	..	..	1,198,844
£	4,218	4,057	..	38,352	..	..	..	46,627
Oranges .. acres	20,238	3,280	2,609	3,770	2,527	..	..	32,424
bushels	2,005,399	210,595	262,791	362,497	222,979	..	..	3,064,261
£	779,190	105,298	118,256	144,999	146,545	..	..	1,294,288
Pineapples acres	51	..	3,709	..	..	..	..	3,760
dozen	4,803	..	973,457	..	..	..	..	978,260
£	2,400	..	267,701	..	..	..	..	270,101
Pears .. acres	3,035	8,825	275	1,917	1,037	1,920	..	17,039
bushels	280,144	910,915	8,019	172,033	88,858	172,298	..	1,632,267
£	85,540	189,774	6,816	47,246	29,249	44,700	..	403,325
Plums .. acres	3,620	4,454	1,145	1,980	690	593	..	12,482
bushels	328,602	308,638	39,107	142,727	49,810	44,136	..	913,020
£	119,640	61,728	27,701	40,985	29,056	4,230	..	283,340
Small-fruits acres	17	987	177	304	79	2,284	..	3,848
cwts.	2,324	21,137	3,355	6,809	593	74,344	..	108,562
£	6,000	57,442	53,120	13,990	3,671	105,700	..	239,923
Other fruits acres	1,029	3,368	2,185	969	628	67	..	8,246
£	80,162	135,913	70,019	23,833	21,356	1,020	..	332,303
Total .. acres	51,465	66,301	28,388	26,775	14,466	32,185	5	219,585
£	1,986,830	1,693,705	1,451,064	708,050	642,027	935,240	420	7,417,336

(iii) *Relation to Population.* The acreage of the orchards and fruit gardens of Australia in relation to population has shown a tendency to decrease during the past five years. The Australian figure for 1924-25 amounted to .047 acres per head, whilst the range amongst the States varied from .033 in New South Wales to .156 acres in Tasmania. Details for orchards and fruit gardens for the years 1920-21 to 1924-25 are as follows :—

**ORCHARDS AND FRUIT GARDENS.—AREA PER 1,000 OF POPULATION,
1920-21 TO 1924-25.**

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.
1920-21 ..	36	57	36	64	59	174	..	3	51
1921-22 ..	36	58	36	64	57	167	..	2	51
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

2. Imports and Exports of Fruit.—(i) *General.* A considerable export trade in both fresh and dried fruits is carried on by Australia with overseas countries. The import trade in fresh fruits declined heavily during the past four 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, while the imports of dried fruits at present consist mainly of dates from Mesopotamia. The export trade in both fruits, however, has greatly expanded during the past quinquennium, the value of the shipments during 1924-25 amounting to £3,029,373. Apples constitute the bulk of the fresh fruit exported, although the export of citrus fruits is expanding, and experiments are being conducted in regard to the despatch 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 and peaches, are receiving attention from overseas, and in 1922-23 more than £100,000 was realized from these products.

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

FRESH FRUITS.—IMPORTS AND EXPORTS, AUSTRALIA, 1920-21 TO 1924-25.

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£	lbs.	£
1920-21 ..	11,555,200	130,471	51,686,200	535,525	40,131,000	405,054
1921-22 ..	2,385,800	29,907	97,343,800	973,726	94,958,000	943,819
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

The value of the exports of apples in 1924-25 amounted to £878,718, and of citrus fruits to £95,272.

(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, 1920-21 TO 1924-25.

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£	lbs.	£
1920-21..	7,362,341	168,076	19,598,672	806,134	12,236,331	638,058
1921-22..	6,036,379	132,392	25,955,733	969,457	19,919,354	837,065
1922-23..	10,957,699	189,397	36,047,962	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	1,939,829	69,522,973	1,803,644

(a) Including raisins and currants referred to under Vineyards, § 14, 4.

(iv) *Jams and Jellies.* The oversea trade in jams and jellies expanded considerably during the war years, and in 1918-19 the record shipment of 79,277,560 lbs., valued at £1,847,970, was dispatched from Australia. Since that year, however, there has been a heavy decline, and the value of the exports fell to £74,464 in 1924-25. Particulars relative to imports and exports during each of the last five years are as follows :—

JAMS AND JELLIES.—IMPORTS AND EXPORTS, AUSTRALIA, 1920-21 TO 1924-25.

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£	lbs.	£
1920-21..	379,401	14,543	16,535,335	550,403	16,155,934	535,860
1921-22..	184,993	8,437	5,640,579	164,046	5,455,586	155,609
1922-23..	151,572	8,253	2,605,554	79,396	2,453,982	71,143
1923-24..	138,219	7,597	2,680,047	85,062	2,541,828	77,465
1924-25..	226,253	10,810	2,470,431	74,464	2,444,178	63,654

(v) *Preserved Fruit.* Details concerning the quantities and values of preserved fruit imported into and exported from 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 1924-25 was £139,708, and the corresponding value of exports was £427,778.

§ 16. 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 1924-25, devoted to crops not dealt with in previous sections, was 161,792 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, 1920-21 TO 1924-25.

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.
1920-21 ..	9,888	12,201	2,018	1,471	2,269	386	..	27	28,260
1921-22 ..	8,217	14,304	1,965	1,486	2,274	681	..	27	28,954
1922-23 ..	7,743	14,108	1,838	1,438	2,698	540	..	18	28,383
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	2,912	576	..	13	30,142

3. **Grass Seed.**—The total area under this crop during 1924-25, exclusive of New South Wales, for which State complete figures as to area are not available, was 6,266 acres, of which 1,644 acres were in Victoria, 734 acres in Tasmania, 3,207 acres in Queensland, and 681 acres in South Australia. The total yield for 1924-25, including New South Wales, was 108,483 bushels, valued at £75,080. In addition to the areas planted above, 3,991 acres were sown to canary seed in Queensland during 1924-25, and furnished a yield of 29,624 bushels, valued at £39,993.

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. During the next three years the area increased to 2,783 acres, but an adverse season in 1924-25 reduced the acreage to 2,149 in that year, of which 719 acres were in New South Wales, 1,228 acres in Victoria, 166 acres in Queensland, and 36 acres in South 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 1924-25 amounted to £1,940,513, comprising unmanufactured tobacco £2,004,928, cigars £92,278, cigarettes £182,286, and snuff £1,076, while manufactured tobacco showed a balance in favour of exports amounting to £340,055.

5. **Pumpkins and Melons.**—The total area under this crop in Australia during 1924-25 was 19,232 acres, of which 3,660 acres were in New South Wales, 1,691 acres in Victoria, 13,020 acres in Queensland, 632 acres in Western Australia, 227 acres in South Australia, and 2 acres in the Federal Capital Territory. The production in all the States amounted to 72,717 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 1924-25 being 1,806 acres, of which 1,535 acres were in Tasmania, 269 acres in Victoria, and 2 acres 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. On the other hand the Victorian area, which in 1901-2 was 307 acres, had diminished to 269 acres in 1924-25, although increased acreages have been planted during each of the last five years. 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 1924-25 the imports of hops exceeded the exports by 157,424 lbs., the excess value being £12,967.

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 1924-25 to 130 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, a good prospect exists 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 1924-25 was 2,386 acres, of which 1,301 acres were in New South Wales, 531 in Victoria, and 554 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 1924-25 the areas in those States were 549, 742, 148, and 118 acres respectively.

10. **Cotton.**—Information regarding the development of cotton cultivation in Australia was given in previous issues of the Official Year Book (see No. 18 page 729).

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

COTTON.—AREA AND YIELD, QUEENSLAND, 1919 TO 1925.

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 (b)	..	..	..	..	35,000	18,322,103

(a) Area harvested.

(b) Estimated.

It is hoped that the industry will eventually assume large proportions in Australia.

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 1924-25 only 17 acres were recorded, with a yield of 6,160 lbs.

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

§ 17. 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 the following agricultural products:—Cotton, fibres, rice, coffee, tobacco, and dried fruits except currants and raisins. Though the bonuses were fairly liberal, they were not availed of to any great extent. The following table shows the amounts which have been paid in respect of all bounties in operation during the years 1921–22 to 1925–26³.—

BOUNTIES.—AMOUNTS PAID, 1921–22 TO 1925–26.

Articles on which Bounty was Paid.	Rate of Bounty Payable.	Date of Expiry of Bounty.	Amount Paid.				
			1921–22.	1922–23.	1923–24.	1924–25.	1925–26.
			£	£	£	£	
Iron and Steel Bounty Act— Black Steel Sheets not exceeding 1·16th of an inch in thickness, made from Australian Iron Ore and Steel manufactured in Australia, or from such imported Sheet Bar Steel as is authorized by this Act	When freight is £2 10s. per ton or under—£1 10s. per ton. When freight exceeds £2 10s. per ton—£1 10s. per ton, less the amount by which the freight exceeds £2 10s. per ton.	30th Sept., 1923 ..	..	541	..	..
Galvanized Sheets made from Australian Iron Ore and Steel manufactured in Australia, or from such imported Sheet Bar Steel as is authorized by this Act	When freight is £2 10s. per ton or under—£2 per ton. When freight exceeds £2 10s. per ton—£2 per ton, less the amount by which the freight exceeds £2 10s. per ton.	30th Sept., 1923 ..	5,150	5,133	..	..
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., 3,500,000 to 5,000,000 gals. 1½d. per gal., 5,000,000 to 8,000,000 gals. 1¼d. each additional gal.	31st Aug., 1926 ..	24,643	18,400	..	335	
Iron and Steel Products Bounty Act— Fencing Wire, Galvanized Sheets .. Wire Netting Traction Engines	Manufactured from Materials produced and manufactured in Australia { £2 12s. per ton .. £2 12s. „ .. £3 8s. „ .. According to capacity, £40—£90 per tractor ..	.. .. .. ..	.. .. .. ..	11,985 39,758 25,195	53,487 39,758 64,768	71,948 44,545 90,340	97,387 49,221 95,127
Sulphur Bounty Act— Sulphur from Australian Pyrites and other Sulphide Ores or Concentrates ..	£2 5s. per ton ..	..	..	..	1,420 9,382	500 41,130	270 38,549
Meat Export Bounties Act— Standard and Canned Beef slaughtered and exported within prescribed dates .. Export of Live Cattle for slaughter during prescribed period ..	Standard beef, ½d. per lb. .. Canned beef, ½d. per lb. .. Live cattle, 10s. per head ..	.. .. ..	.. .. ..	117,246 136,900 4,521	136,900 1,039 3,632	1,039 .. 3,991	.. .. 919

BOUNTIES.—AMOUNTS PAID, 1921-22 TO 1925-26—*continued.*

Articles on which Bounty was Paid.	Rate of Bounty Payable.	Date of Expiry of Bounty.	Amount Paid.				
			1921-22.	1922-23.	1923-24.	1924-25.	1925-26.
			£	£	£	£	£
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, 1927	4s. per gallon ..	..	..	..	..	28,417	217 109
Canned Fruit Bounty Act— Apricots, Peaches, Pears, and Pineapples canned within prescribed dates ..	9d. to 1s. per dozen tins each containing 30 ozs. net ..	..	..	..	63,477	64,752	10,963
Such canned fruit exported from the Commonwealth during prescribed period ..	1s. to 1s. 9d. per dozen tins, each containing 30 ozs. net ..	..	..	..
Total .. ..	.. ..	..	29,793	183,021	372,824	346,997	509,545

§ 18. 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 1924-25, the value of rock phosphates imported represented more than 72 per cent. of the total importation of fertilizers. Nauru, and Gilbert and Ellice Islands Colony in equal proportions supplied the whole of the shipments. Practically the whole of the soda nitrate came 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, 1920-21 TO 1924-25.

Fertilizer.		1920-21.	1921-22.	1922-23.	1923-24.	1924-25.
Bonedust	cwt.	1,260	910	..	542	..
"	£	652	556	..	164	..
Guano	cwt.	1,129,240	704,039	857,411	821,938	893,478
"	£	124,193	72,892	97,526	90,415	98,515
Superphosphates	cwt.	..	1,034	1,007	1,270	1,200
"	£	..	1,145	660	806	785
Rock Phosphates	cwt.	4,756,140	3,255,808	3,390,089	4,697,574	5,751,583
"	£	721,608	553,109	516,059	678,446	739,588
Soda Nitrate	cwt.	99,660	50,214	143,274	74,990	182,846
"	£	84,532	38,409	96,083	45,358	104,729
Other	cwt.	169	42,063	175,778	138,897	186,209
"	£	1,792	33,561	80,720	74,403	79,616
Total		5,986,469	4,054,068	4,567,559	5,735,211	7,015,316
		£ 932,777	699,672	791,048	889,592	1,023,233

4. Exports.—The subjoined table shows the exports of artificial manures for the years 1920-21 to 1924-25. 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, 1920-21 TO 1924-25.

Fertilizer.		1920-21.	1921-22.	1922-23.	1923-24.	1924-25.
Bonedust	cwt.	59,680	33,311	54,385	49,966	13,942
"	£	40,926	18,517	24,400	22,327	6,079
Superphosphates	cwt.	472,860	26,727	73	22	57
"	£	153,060	6,284	35	7	18
Rock phosphates	cwt.	186,260	12,900	..	20	..
"	£	25,763	1,960	..	10	..
Soda nitrate	cwt.	2,720	5,790	600	405	2,529
"	£	3,640	5,717	715	315	1,851
Ammonia sulphate	cwt.	123,720	155,414	68,799	93,157	111,594
"	£	160,017	105,472	58,571	69,491	73,665
Other	cwt.	41,320	24,525	34,323	31,431	45,098
"	£	25,190	11,956	15,816	11,824	13,916
Total		886,560	258,667	158,180	175,001	173,220
		£ 408,596	149,906	99,537	103,974	95,529

5. Statistics of Use of Fertilizers.—Statistics regarding the use of manures are collected in all the States, and the particulars for 1924-25 are as follows :—

FERTILIZERS USED IN EACH STATE; 1924-25.

State.	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 ..	4,912,124	2,634,586	53.63	181,007	76,966
Victoria ..	4,761,394	4,301,558	90.34	151,611	184,140
Queensland ..	1,069,837	60,302	5.63	40,601	15,877
South Australia ..	3,557,405	3,112,453	87.49	84,596	124,264
Western Australia ..	2,710,856	2,722,735	99.86	60,290	2110,626
Tasmania ..	263,872	198,929	75.39	16,597	17,133
Northern Territory ..	342	15	4.39	..	2
Fed. Cap. Territory ..	2,361	751	31.81	..	19
Total ..	17,278,191	13,031,329	75.14	534,702	529,027

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

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

FERTILIZERS USED IN AUSTRALIA, 1920-21 TO 1924-25.

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.
1920-21 ..	15,069,858	10,290,633	68.29	556,514	375,600
1921-22 ..	15,357,024	10,999,259	71.62	582,725	408,742
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

The percentage of the area manured on the total area cultivated has advanced from 68.29 to 75.14 during the past five years, while the use of artificial manures has increased by 150,000 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.

§ 19. 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 1920-21 to 1924-25, are given in the following table:—

ENSILAGE MADE, 1920-21 TO 1924-25.

State or Territory.	1920-21.		1921-22.		1922-23.		1923-24.		1924-25.	
	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 ..	118	15,633	166	24,174	116	12,191	152	19,292	269	35,145
Victoria ..	99	9,702	107	5,873	103	5,674	61	3,649	106	6,667
Queensland ..	164	7,600	96	6,575	65	5,300	71	4,833	104	8,195
South Australia ..	25	1,616	26	1,849	26	2,595	24	2,838	20	2,067
Western Australia ..	12	390	7	381	12	331	20	1,596	29	2,287
Tasmania ..	11	490	10	544	12	437	9	372	10	301
Northern Territory ..	..	..	..	..	..	..	..	..	1	5
Total ..	429	35,431	412	39,396	334	26,528	337	32,580	539	54,667

(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 1924-25, viz., 54,667 tons, the highest for the period.

§ 20. 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 as 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.