SECTION VIII.

AGRICULTURAL PRODUCTION.

NOTE.—Except where otherwise stated the "agricultural" years hereinafter mentioned are taken as ending on the 31st March.

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 eight 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 corn 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 three 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, 3361 acres; maize, 1527 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, 6877 acres; maize, 3389 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, 34 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 since 1860.**—The following table shews the area under crop in each of the Commonwealth States and Territories at quinquennial intervals since 1860 and during each year of the period 1906-12. The area under permanent artificially-sown grasses is excluded in all the States, except for the years 1860-79 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 IN AUSTRALIA, 1860-1 to 1911-12.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	W. Aust.	Tasmania.	N.T.	F. C. Terr.	Commonwealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860-1	260,798	387,282	3,353	359,284	24,705	152,860	...	...	1,188,282
1865-6	378,255	448,194	14,414	547,124	38,180	159,547	...	...	1,585,714
1870-1	426,976	692,840	52,210	801,571	54,527	157,410	...	...	2,185,534
1875-6	451,139	736,520	77,347	1,111,882	47,571	142,547	...	...	2,567,006
1880-1	629,180	1,548,809	113,978	2,087,237	57,707	140,788	...	...	4,577,699
1885-6	737,701	1,867,496	198,334	2,298,412	60,058	144,761	...	...	5,306,762
1890-1	852,704	2,031,955	224,993	2,093,515	69,678	157,376	...	...	5,430,221
1895-6	1,348,600	2,413,235	285,319	2,092,942	97,821	212,703	...	...	6,450,620
1900-1	2,445,564	3,114,132	457,397	2,369,680	201,338	224,352	...	...	8,812,463
1905-6	2,840,235	3,219,962	522,748	2,255,569	364,704	230,237	...	...	9,433,455
1906-7	2,826,657	3,303,586	559,753	2,157,235	460,825	244,744	...	...	9,552,800
1907-8	2,572,873	3,232,523	532,624	2,265,017	493,837	257,028	...	...	9,353,902
1908-9	2,717,085	3,461,761	535,900	2,321,812	585,339	269,346	...	...	9,891,243
1909-10	3,180,561	3,658,535	606,790	2,530,301	722,086	274,026	...	...	10,972,299
1910-11	3,386,017	3,952,070	667,113	2,746,334	855,024	286,920	360	...	11,893,838
1911-12	3,628,513	3,640,241	526,388	2,965,338	1,072,653	270,000	375	3,509	12,107,017

The increase in the area under crop during the past eleven years has been most marked in the case of New South Wales, the total advancing from 2,445,564 acres in the season 1900-1 to 3,628,513 in 1911-12, an increase of 1,182,949 acres. During the same period an increase of 526,109 acres was experienced in Victoria, 871,315 acres in Western Australia, 595,658 acres in South Australia, 68,991 in Queensland, and 45,648 acres in Tasmania. The total area under crop in the Commonwealth increased during the period by 3,294,554 acres, and the total for 1911-12 was the highest ever attained by the Commonwealth. During the past six seasons the percentage of increase was particularly high in Western Australia, viz., 194 per cent. South Australia and New South Wales had an increase of 31½ and 27¾ per cent. respectively, while Tasmania and Victoria added to their areas under crop to the extent of 17¼ and 13 per cent. During 1911-12 Queensland had over 100,000 acres more under fallow than during any season since 1905-6; this consequently reduced the crop area for that year, which shews less than one per cent. increase during the 6 years.

3. **Relation to Population.**—From the following table it will be seen that for the Commonwealth as a whole the area under crop has, during the seasons under review, with the exception of 1911-12, increased at a rate which is somewhat greater than that

at which the population of the Commonwealth has increased. This relatively greater increase is in evidence in all the States, being most marked in the case of Western Australia, which has now a larger area under crop per head of population than any State except South Australia. Details for 1901-2 and for the past five seasons are as follows:—

TOTAL AREA UNDER CROP PER 1000 OF POPULATION.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aus	Tas.	Northern Territory	Fed. Cap. Terr.	C'wlth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2 ...	1,656	2,451	954	6,224	1,123	1,327	...	...	2,200
1907-8 ...	1,691	2,622	976	6,062	1,940	1,356	...	...	2,248
1908-9 ...	1,740	2,769	962	6,018	2,254	1,405	...	...	2,337
1909-10 ...	1,971	2,865	1,050	6,440	2,718	1,419	...	...	2,538
1910-11 ...	2,060	3,037	1,114	6,750	3,089	1,480	109	...	2,688
1911-12 ...	2,169	2,671	846	7,091	3,646	1,396	115	1,827	2,650

4. **Relation to Total Area.**—The next table furnishes a comparison of the area under crop in the Commonwealth and the several States and Territories, with the respective total areas. For the Commonwealth as a whole the area under crop represented for 1911-12 only about one acre in every 157. In Victoria the area under crop was about one acre in every 15, in Tasmania one in 62, in New South Wales one in 55, in South Australia one in 82, in Queensland one in 815, in Western Australia one in 582, in the Northern Territory one in 894, and in the Federal Capital Territory one in 164.

PERCENTAGE OF AREA UNDER CROP TO TOTAL AREA OF EACH STATE AND OF COMMONWEALTH FOR SEASONS 1901-2 and 1907-8 to 1911-12.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aus.	Tas.	Northern Territory	Fed. Cap. Terr.	C'wlth.
	%	%	%	%	%	%	%	%	%
1901-2 ...	1.147	5.273	0.113	0.919	0.035	1.386	...	...	0.442
1907-8 ...	1.295	5.747	0.124	0.931	0.079	1.532	...	...	0.491
1908-9 ...	1.368	6.155	0.125	0.955	0.094	1.605	...	...	0.520
1909-10 ...	1.601	6.505	0.141	1.040	0.116	1.633	...	...	0.576
1910-11 ...	1.705	7.026	0.155	1.129	0.137	1.710	0.0002	...	0.625
1911-12 ...	1.832	6.472	0.123	1.219	0.172	1.609	0.0001	0.609	0.636

5. **Artificially-Sown Grasses.**—In all the States considerable areas are devoted to artificially-sown grasses, frequently sown on uncultivated land after burning off. Statistics regarding the area under such grasses are as shewn hereunder:—

AREA UNDER SOWN GRASSES, 1901-2 and 1907-8 to 1911-12.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia	Tasmania.	Fed. Cap. Terr.	Commonwealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2	467,839	162,954	34,679	23,510	3,711	314,422	...	1,007,115
1907-8	736,080	1,095,471	76,943	34,635	7,990	465,673	...	2,416,792
1908-9	807,924	1,029,711	82,784	23,297	10,265	491,422	...	2,445,403
1909-10	888,937	988,671	108,438	23,343	9,017	439,450	...	2,457,856
1910-11	1,055,303	991,195	140,196	26,416	8,348	493,233	...	2,714,691
1911-12	1,119,738	1,041,772	166,175	30,431	5,760	505,940	50	2,869,866

The considerable increase in the area of the grass lands of the Commonwealth is due in large measure to the great development of the dairying industry which has taken place during the last ten years, and which is referred to in the succeeding section. The areas contained in the above table relate in most cases to grasses sown for grazing purposes on uncultivated land, generally after burning off, and are consequently not included with "area under crop."

§ 3. Relative Importance of Crops.

1. **Various Crops.**—In the following table are furnished details concerning the areas in the several States under each of the principal crops for the season 1911-12 :—

DISTRIBUTION OF CROPS IN AUSTRALIA, 1911-12.

Crop.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	F. C. Terr.	Total for C'wealth
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres	Acres.
Wheat	2,379,968	2,164,066	42,962	2,190,782	612,104	37,208	2	742	7,427,834
Oats	70,943	302,238	557	107,881	77,488	57,583	...	167	616,857
Maize	167,712	18,223	153,916	97	29	...	19	69	340,065
Barley—									
Malting ...	8,037	36,748	1,216	28,419	1,227	5,212	...	...	80,859
Other	2,766	16,793	418	12,324	2,437	869	...	...	35,607
Beans and Peas	383	11,535	40	11,873	1,450	23,956	...	...	49,237
Rye	2,320	1,098	19	939	606	805	...	...	5,787
Other Cereals ...	...	...	15	...	44	...	2	...	61
Hay	651,866	860,205	61,299	521,182	344,032	77,466	18	2,220	2,518,288
Green Forage ...	211,693	75,177	93,049	33,673	5,021	5,627	19	181	424,440
Grass Seed ...	...	1,188	719	12	...	4,007	...	...	5,926
Orchards&other Fruit Gardens	48,385	59,985	16,817	23,214	18,194	27,868	13	48	194,524
Vines—									
Productive ...	7,227	18,866	1,292	20,705	2,301	...	...	...	50,391
Unproductive	1,004	5,327	79	3,281	520	...	...	...	10,211
Market Gardens	9,488	10,331	2,293	2,848	3,120	2,144	58	10	30,292
Sugar Cane—									
Productive ...	5,244	...	95,766	...	...	...	...	...	101,010
Unproductive	8,663	...	34,610	...	...	...	...	...	43,273
Potatoes... ...	43,079	47,692	7,688	7,412	2,705	21,818	...	69	130,463
Onions	172	3,652	43	238	41	36	...	...	4,182
Other root crops	712	2,207	3,950	332	269	4,345	4	...	11,819
Tobacco... ...	1,501	356	592	...	...	...	...	...	2,449
Broom Millet ...	2,647	286	680	...	...	...	...	...	3,613
Pumpkins and Melons ...	3,678	2,328	5,421	...	364	...	...	3	11,794
Hops	...	122	...	3	...	1,029	...	...	1,154
All other crops	1,025	1,818	2,947	123	701	27	240	...	6,881
Total Area...	3,628,513	3,640,241	526,388	2,965,338	1,072,653	270,000	375	3,509	12,107,017

2. **Relative Areas of Crops in States and Territories.**—Taking the principal crops, *i.e.*, those in the case of which the cultivation amounts to more than 50,000 acres in the Commonwealth, the proportion of each in the various States and Territories to the total area under crop for the season 1911-12 is shewn 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 each of these States the hay crop is second in importance. In New South Wales maize ranks third, but in Victoria, South Australia, and Western Australia, and also in the Commonwealth as a whole, the oat crop occupies third position. In Queensland, on the other hand, the three principal crops in the order of importance are maize, sugar cane, and green forage, while in Tasmania hay, oats, and wheat occupy the leading positions. For the Commonwealth as a whole, the wheat, hay, and oat crops represent over 87 per cent. of the total area under crop.

PROPORTION OF AREA UNDER CHIEF CROPS, 1911-12.

Crop.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. T.	Federal Capital Terr.	C'wealth
	%	%	%	%	%	%	%	%	%
Wheat ...	65.59	59.45	8.16	73.88	57.06	13.78	0.53	21.15	61.35
Hay ...	17.97	23.63	11.65	17.58	32.07	28.69	4.80	63.27	20.80
Oats ...	1.96	8.30	0.11	3.64	7.22	21.33	...	4.76	5.10
Maize ...	4.62	0.50	29.24	0.00	0.00	...	5.07	1.97	2.81
Green Forage	5.83	2.07	17.68	1.14	0.47	2.08	5.07	5.16	3.51
Orchards and Fruit G'dens	1.33	1.65	3.19	0.78	1.70	10.32	3.47	1.37	1.61
Sugar Cane...	0.38	...	24.77	...	...	...	...	...	1.19
Potatoes ...	1.19	1.31	1.46	0.25	0.25	8.08	...	1.97	1.08
Barley ...	0.30	1.47	0.31	1.37	0.34	2.25	...	...	0.96
Vineyards ...	0.23	0.66	0.26	0.81	0.26	...	...	...	0.50
All Other ...	0.60	0.96	3.17	0.55	0.63	13.47	81.06	0.35	1.09
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

3. **Relative Positions of States and Territories in regard to Principal Crops.**—The relative proportion of acreage of the several crops and position regarding them in each State and Territory is shewn in the following table. New South Wales exhibits the largest area under wheat, maize, and green forage; Victoria the leading position in regard to hay, oats, orchards and fruit gardens, potatoes, barley, and vineyards; and Queensland first in sugar cane and second in maize and green forage. South Australia had the second largest area under wheat, oats, barley, and vineyards; Western Australia third position in oats and fourth in wheat, hay, and vineyards; while Tasmania was third in regard to potatoes, orchards and fruit gardens.

RELATIVE POSITIONS OF THE SEVERAL STATES AND TERRITORIES IN REGARD TO AREA UNDER EACH OF THE PRINCIPAL CROPS DURING THE SEASON 1911-12.

Crop.		N.S.W.	Vict.	Q'land.	S. Aust.	W. A.	Tas.	N. T.	F. C. T.	C'wlth.
Wheat ...	... %	32.04	29.14	0.58	29.49	8.24	0.50	...	0.01	100.00
	position	1	3	5	2	4	6	8	7	
Hay ...	... %	25.88	34.16	2.43	20.70	13.66	3.08	...	0.09	100.00
	position	2	1	6	3	4	5	8	7	
Oats ...	... %	11.50	49.00	0.09	17.49	12.56	9.33	...	0.03	100.00
	position	4	1	6	2	3	5	...	7	
Maize ...	... %	49.32	5.36	45.26	0.03	0.01	...	...	0.02	100.00
	position	1	3	2	4	6	...	7	5	
Green Forage	... %	49.88	17.71	21.93	7.93	1.18	1.33	...	0.04	100.00
	position	1	3	2	4	6	5	8	7	
Orchards and Fruit Gardens...	... %	24.88	30.84	8.65	11.93	9.35	14.33	...	0.02	100.00
	position	2	1	6	4	5	3	8	7	
Sugar Cane	... %	9.64	...	90.36	...	...	...	...	...	100.00
	position	2	...	1	...	...	...	...	...	
Potatoes ...	... %	33.02	36.56	5.89	5.68	2.07	16.73	...	0.05	100.00
	position	2	1	4	5	6	3	8	7	
Barley ...	... %	9.28	45.97	1.40	34.98	3.15	5.22	...	...	100.00
	position	3	1	6	2	5	4	...	...	
Vineyards ...	.. %	13.58	39.92	2.26	39.58	4.66	...	...	...	100.00
	position	3	1	5	2	4	...	...	...	
All other Crops	... %	16.50	26.28	12.58	12.32	4.96	27.35	...	0.01	100.00
	position	3	2	4	5	6	1	8	7	
Total area undercrop	%	29.97	30.07	4.35	24.49	8.86	2.23	...	0.03	100.00
	position	2	1	5	3	4	6	8	7	

4. Acreage of Principal Crops, Commonwealth.—The acreage devoted to each of the principal crops in the whole Commonwealth during the last five seasons is shewn below:—

ACREAGE OF CHIEF COMMONWEALTH CROPS, 1907-8 to 1911-12.

Crop.	1907-8.	1908-9.	1909-10.	1910-11.	1911-12.
	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat	5,383,911	5,262,473	6,586,236	7,372,456	7,427,834
Hay	1,811,579	2,452,682	2,228,029	2,258,405	2,518,288
Oats	642,814	676,156	698,448	676,688	616,857
Maize	299,579	323,875	364,585	414,914	340,065
Green Forage	439,725	413,511	306,082	374,862	424,440
Orchards and Fruit Gardens ...	169,299	173,388	178,798	185,156	194,524
Sugar Cane	144,763	140,883	142,261	155,542	144,283
Potatoes	143,511	125,685	137,070	151,515	130,463
Barley	131,099	140,243	143,013	108,424	116,466
Vineyards	61,232	59,450	58,151	59,114	60,602
All other Crops	126,390	122,897	129,626	136,762	133,195
Total	9,353,902	9,891,243	10,972,299	11,893,838	12,107,017

During the period under review the area devoted to the several crops has varied considerably, that under wheat attaining a maximum in the season 1911-12, and a minimum in 1908-9, while hay also reached its maximum area in 1911-12 and its minimum in 1907-8. Of the other crops maize, sugar-cane, and potatoes attained their maximum areas in 1910-11, oats and barley in 1909-10, green forage and vineyards in 1907-8, and orchards and fruit gardens in 1911-12.

§ 4. Wheat.

1. Progress of Wheat-Growing.—(i.) *Acreage.* The area under wheat for grain is given below for each State at various periods since 1860, and is shewn diagrammatically in the graph hereinafter:—

AREA UNDER WHEAT, 1860-1 to 1911-12.

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas.	N. T.	F.C. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acs.	Acs.	Acres.
1860-1	128,829	161,252	196	273,672	13,584	66,450	...	...	643,983
1865-6	131,653	178,628	2,068	410,608	22,249	73,270	...	...	818,476
1870-1	147,997	284,167	2,892	604,761	26,640	57,382	...	...	1,123,839
1875-6	133,609	321,401	4,478	898,820	21,561	42,745	...	...	1,422,614
1880-1	253,138	977,285	12,632	1,733,542	27,686	50,022	...	...	3,054,305
1885-6	264,867	1,020,082	10,093	1,922,555	29,511	30,266	...	...	3,277,374
1890-1	333,233	1,145,163	10,390	1,673,573	33,820	32,452	...	...	3,228,631
1895-6	596,684	1,412,736	27,090	1,649,929	23,241	64,652	...	...	3,774,332
1900-1	1,530,609	2,017,321	79,304	1,913,247	74,308	51,825	...	...	5,666,614
1905-6	1,939,447	2,070,517	119,356	1,757,036	195,071	41,319	...	...	6,122,746
1906-7	1,866,253	2,031,893	114,575	1,686,374	250,283	32,808	...	...	5,982,186
1907-8	1,390,171	1,847,121	82,461	1,753,755	279,609	30,794	...	...	5,383,911
1908-9	1,394,056	1,779,905	80,898	1,693,501	285,011	29,102	...	...	5,262,473
1909-10	1,990,180	2,097,162	117,160	1,895,738	448,918	37,078	...	...	6,586,236
1910-11	2,128,826	2,398,089	106,718	2,104,717	581,862	52,242	2	...	7,372,456
1911-12	2,379,968	2,164,066	42,962	2,190,782	612,104	37,208	2	742	7,427,834

The area devoted in the Commonwealth to the production of wheat for grain was higher for the season 1911-12 than for any previous season. The maximum area under wheat for grain was attained by the several States in the following seasons:—New South Wales, South Australia, and Western Australia 1911-12; Victoria, 1910-11; Queensland,

1904-5; and Tasmania, 1897-8. The average area under wheat in the Commonwealth in the past ten seasons was 6,113,001 acres. The seasons 1904-5, 1905-6, 1909-10, 1910-11, and 1911-12 exceeded this average, while the remaining five seasons fell short of it. According to the preliminary reports available it appears that the area of wheat reaped for grain in 1912-13 will exceed that for 1911-12, and will probably be about 7,500,000 acres.

(ii.) *Yield.* The production during the same period for each State and for the Commonwealth as a whole is given below :—

PRODUCTION OF WHEAT, 1860-1 to 1911-12.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aus.	Tas.	N. T.	F. C. Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	B'shls.	Bushels.	Bushels	Bushels	Bushels.
1860-1 ...	1,581,598	3,459,914	3,136	3,576,593	208,332	1,415,896	...	...	10,245,469
1865-6 ...	1,013,863	3,514,227	33,088	3,587,800	231,594	1,273,766	...	...	9,654,338
1870-1 ...	999,595	2,870,409	39,787	6,961,164	316,769	896,881	...	...	12,084,605
1875-6 ...	1,958,640	4,978,914	97,400	10,739,834	237,171	700,092	...	...	18,712,051
1880-1 ...	3,717,355	9,727,369	223,243	8,606,510	332,232	750,040	...	...	23,356,749
1885-6 ...	2,733,133	9,170,538	51,598	14,612,876	339,376	524,348	...	...	27,431,869
1890-1 ...	3,649,216	12,751,295	207,990	9,399,389	467,389	642,980	...	...	27,118,259
1895-6 ...	5,195,312	5,669,174	123,630	5,929,300	188,077	1,164,855	...	...	18,270,348
1900-1 ...	16,173,771	17,847,321	1,194,088	11,253,148	774,653	1,110,421	...	...	48,353,402
1905-6 ...	20,737,200	23,417,670	1,137,321	20,143,798	2,308,305	776,478	...	...	68,520,772
1906-7 ...	21,817,938	22,618,043	1,108,902	17,466,501	2,758,567	651,408	...	...	66,421,359
1907-8 ...	9,155,884	12,100,780	693,527	19,135,557	2,925,690	644,235	...	...	44,655,673
1908-9 ...	15,483,276	23,345,649	1,202,799	19,397,672	2,460,823	700,777	...	...	62,590,996
1909-10 ...	28,532,029	28,780,100	1,571,589	25,133,851	5,602,368	793,660	...	...	90,413,597
1910-11 ...	27,913,547	34,813,019	1,022,373	24,344,740	5,897,540	1,120,744	20	...	95,111,983
1911-12 ...	25,080,111	20,891,877	285,109	20,352,720	4,358,904	659,615	20	7,991	71,636,347

Owing to unfavourable weather conditions at various times during the growing period, except in isolated districts, the wheat harvest of 1911-12 was a disappointing one. In spite of the fact that a greater area was under crop than during the previous season the production of grain shewed a considerable reduction, amounting to 23,475,636 bushels, an average falling off of 3.26 bushels per acre for the Commonwealth as a whole. The yield for 1911-12 has, however, only been exceeded on three previous occasions, viz., during 1903-4, 1909-10, and 1910-11.

The harvest of 1910-11 was the largest ever reaped in the Commonwealth, and exceeded by no less than 4,698,386 bushels that of 1909-10, the next largest harvest; the 1903-4 yield was 74,149,634 bushels, these being the only three occasions on which a yield exceeding 72,000,000 bushels has been obtained. The only other occasions on which a yield exceeding 60,000,000 bushels has been reaped were the seasons 1905-6, 1906-7 and 1908-9. The prospects for the forthcoming harvest of 1912-13, although not so good as could be desired, are still fair, and it appears probable that the aggregate yield for the season will exceed 79,000,000 bushels. For latest particulars to date of going to press, see Appendix.

(iii.) *Average Yields.* In the next table will be found the average yield of wheat per acre in each of the seasons 1901-2 and 1907-8 to 1911-12 and for the decennium :—

YIELD OF WHEAT PER ACRE, 1901-2 and 1907-8 to 1911-12.

Season.	N.S.W.	Vic.	Q'land.	S. Aus.	W Aus.	Tasmania.	N.T.	F. C. Terr.	C'wealth
	Bushels.	B'shls.	B'shls.	B'shls.	B'shls.	B'shls.	B'shls.	B'shls.	B'shls.
1901-2 ...	10.64	6.91	19.40	4.60	10.10	21.86	...	...	7.54
1907-8 ...	6.59	6.55	8.41	10.91	10.46	20.92	...	...	8.29
1908-9 ...	11.11	13.12	14.87	11.45	8.63	24.08	...	...	11.89
1909-10 ...	14.34	13.72	13.41	13.26	12.48	21.41	...	...	13.73
1910-11 ...	13.11	14.52	9.58	11.57	10.14	21.45	10.00	...	12.90
1911-12 ...	10.54	9.65	6.64	9.29	7.12	17.73	10.00	10.77	9.64
Average for 10 ... seasons	10.96	10.58	12.16	9.66	10.17	19.76	...	...	10.48

As the above figures shew, there were considerable variations in the average yields, chiefly due of course to the vagaries of the season.

For the Commonwealth as a whole the average yield of 9.64 bushels per acre for 1911-12 was below that for any season since 1907-8. This, however, was only 0.84 below the average yield of 10.48 per acre during the last ten seasons. The highest average yield for any State was in Tasmania with 17.73 bushels per acre. New South Wales, Victoria, and South Australia produced an average of 10.54, 9.65, and 9.29 respectively. Queensland and Western Australia experienced unusually adverse climatic conditions during the year, the average yield for the former State eventually shewing only a little over half, and that of the latter about two-thirds of their average yield per acre during the decennium.

(iv.) *Relation to Population.* During the seasons embraced in the following table, the Commonwealth's production of wheat per head of population has varied between 3¼ bushels in 1902-3 and 21½ bushels in 1910-11. The State in which wheat-growing occupies the most important position relatively to population is South Australia, which in 1909-10 had a yield which averaged close upon 64 bushels per head. Queensland is the State in which the average production of wheat per head is least. Particulars for 1901-2 and the past five seasons are as follows :—

AUSTRALIAN WHEAT PRODUCTION PER 1000 OF POPULATION.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. T.	Fed. Cap. Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels	Bush'ls	Bush'ls	Bushels.
1901-2	10,766	10,023	3,340	22,299	4,943	5,499	...	...	10,082
1907-8	6,017	9,816	1,271	51,211	11,494	3,398	...	...	10,730
1908-9	9,915	18,670	2,159	50,275	9,477	3,655	...	...	14,789
1909-10	17,679	22,537	2,720	63,971	21,087	4,110	...	...	20,910
1910-11	16,981	26,750	1,707	59,835	21,304	5,783	6	...	21,494
1911-12	14,993	15,330	485	48,671	14,817	3,409	6	4,056	15,955

2. **Australian and Foreign Wheat Yields.**—In the next table will be found a statement of the average return per acre in the principal wheat-growing countries of the world, ranging from Belgium with a maximum of 32¾ bushels per acre, to Siberia with a minimum of 9 bushels per acre. Australia with approximately 13 occupies an intermediate position :—

AVERAGE YIELD OF WHEAT IN VARIOUS COUNTRIES, 1910.

Country.	Average Yield in bushels per acre.	Country.	Average Yield in bushels per acre.
Belgium	32.72	France	15.42
Sweden	32.48	Spain	14.60
Netherlands	31.83	United States	13.70
United Kingdom	30.48	Caucasia	13.14
Germany	29.29	Italy	13.05
New Zealand	25.73	**Australia**	**12.90**
Rumania	22.31	India	12.80
Japan	20.37	Uruguay (1909)	12.57
Hungary	19.35	Russia in Europe	10.78
Austria	18.82	Algeria (1909)	10.43
Servia	16.24	Argentine Republic ...	9.75
Canada*	16.14	Siberia	9.01
Bulgaria	15.71		

* Exclusive of British Columbia.

3. **Wheat Crops of the World.**—The latest available official statistics of the production of wheat in various countries are given in the following table :—

WHEAT YIELD OF VARIOUS COUNTRIES, 1910.

Country.	Yield in Bushels.	Country.	Yield in Bushels.
United States	674,301,536	United Kingdom	56,593,432
Russia in Europe	573,028,800	Austria	56,433,968
India	359,654,400	Bulgaria	42,235,920
France	249,703,576	Algeria	35,712,697
Hungary	181,346,512	Japan	23,726,040
Italy	153,361,664	Servia	15,466,200
Canada*	149,989,600	Belgium...	12,445,256
Germany...	141,844,992	Mexico	11,972,680
Argentine Republic ...	140,505,000	Uruguay...	8,592,294
Spain	137,410,280	New Zealand‡	8,290,221
Caucasia (Russia)	124,332,000	Sweden	7,219,576
Rumania...	107,337,432	Denmark	4,376,848
Australia †	**95,111,983**	Netherlands	4,304,184
Siberia (Russia)	75,912,000		

* Exclusive of British Columbia. † 1911—71,636,347. ‡ 1911—7,261,138.

Various estimates of the total quantity of wheat produced in the world have been made. That furnished by the United States Department of Agriculture gives the following figures for the five years 1907 to 1911 :—

WORLD'S PRODUCTION OF WHEAT.

Year	1907.	1908.	1909.	1910.	1911.
	1,000,000 bushels.	1,000,000 bushels.	1,000,000 bushels.	1,000,000 bushels.	1,000,000 bushels.
Production	3,038	3,091	3,476	3,465	3,415

In this estimate the figures given for Australia and New Zealand relate to the agricultural year ending on 31st March in the year specified.

For the five years referred to, the Australian production of wheat aggregated 359,194,000 bushels, thus representing slightly over 2 per cent. of the world's production. The total quantity of wheat produced in the British Empire during the same period of five years was approximately 2,943,000,000 bushels, so that the Australian production of wheat represented over 12 per cent. of that of the British Empire, while the British Empire production represented nearly 18 per cent. of the world's total.

4. **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 considerable interest to the local producer. The table below gives the average prices per Imperial quarter realised for British-grown wheat :—

PRICES OF BRITISH WHEAT PER QUARTER, 1861 to 1911.

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	1905 ...	29 8	32 3	26 8
1871 ...	56 8	60 0	52 6	1906 ...	28 3	30 9	25 9
1881 ...	45 4	55 2	40 9	1907 ...	30 7	36 3	26 0
1891 ...	37 0	41 8	32 3	1908 ...	32 0	35 6	30 5
1901 ...	26 9	27 8	25 8	1909 ...	36 11	44 9	31 4
1902 ...	28 1	31 8	24 10	1910 ...	31 8	33 9	29 0
1903 ...	26 9	30 3	24 11	1911 ...	31 8	33 4	30 0
1904 ...	28 4	30 6	26 3				

(ii.) *Australian and other Wheat.* Generally speaking, Australian wheat shews a grain of bright clear texture, rich in gluten, and of fine milling quality. Its excellence is attested by the high price which it realises in the home markets. The statement below shews, for the last five years, the average value per Imperial quarter of the wheat imported into the United Kingdom from the chief producing countries:—

AVERAGE PRICE OF FOREIGN WHEAT IMPORTED INTO THE UNITED KINGDOM, 1907 to 1911.

Country.	Average Price per Imperial Quarter.					Country.	Average Price per Imperial Quarter.				
	1907.	1908.	1909.	1910.	1911.		1907.	1908.	1909.	1910.	1911.
	s. d.	s. d.	s. d.	s. d.	s. d.		s. d.	s. d.	s. d.	s. d.	s. d.
Bulgaria ...	25 9	35 10	...	32 11	35 1	British India	33 9	37 8	40 8	35 5	33 7
Australia ...	33 8	37 7	41 5	37 2	34 10	Germany ...	25 0	33 7	38 3	36 11	33 6
Canada ...	34 1	35 1	39 3	36 9	34 10	Russia ...	32 7	38 3	39 3	35 7	33 4
United States	33 5	36 2	38 6	37 3	34 9	Argentina ...	31 6	35 6	39 9	34 11	33 4
Rumania ...	30 2	38 5	40 9	34 2	34 7	Chile... ...	36 8	35 1	39 1	33 7	33 0

In the next table will be found a statement of the export values of Australian wheat during each of the last ten years:—

EXPORT VALUES OF AUSTRALIAN WHEAT, 1902 to 1911.

Particulars.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.
Price per bushel	3s. 1d.	3s. 1d.	3s. 2d.	3s. 5d.	3s. 3d.	3s. 4d.	4s. 1d.	4s. 2d.	4s. 2d.	3s. 6d.

The export values here shewn are the average declared values for the successive years at the several ports of shipment in the Commonwealth.

5. **Imports and Exports of Wheat and Flour.**—(i.) *Quantities.* The table hereunder shews the imports, exports, and net exports of wheat and flour during 1901 and 1907 to 1911. For the sake of convenience flour has been expressed at its equivalent in wheat, one ton of flour being taken as equal to 50 bushels of grain. During 1903 the Commonwealth imports of wheat and flour were equivalent to 12,607,940 bushels of wheat. This importation was necessitated by the failure of the crop in the preceding season. In ordinary seasons the import of wheat and flour is negligible. During the past five years the export has ranged between 20,900,000 bushels in 1908 and 63.942,390 bushels in 1911, the net exports for that period averaging 42,904,000 bushels.

IMPORTS AND EXPORTS OF WHEAT AND FLOUR, COMMONWEALTH, 1901 and 1907 to 1911.

Year.	Imports.			Exports.			Net Exports.
	Wheat.	Flour.	Total.	Wheat.	Flour.	Total.	
	Bushels.	Eq. Bshls.[1]	Bushels.	Bushels.	Eq. Bshls.[1]	Bushels.	Bushels.
1901	22,992	302,550	325,542	20,260,058	4,840,700	25,100,758	24,775,216
1907	2,010	18,700	20,710	28,784,130	8,171,900	36,956,030	36,935,320
1908	142	8,900	9,042	15,027,388	5,840,150	20,867,538	20,858,496
1909	128	4,000	4,128	31,549,498	6,498,450	38,047,943	38,043,820
1910	325	8,600	8,925	47,761,895	6,997,300	54,759,195	54,750,270
1911	113	12,150	12,263	55,147,840	8,794,550	63,942,390	63,930,127

1. Equivalent in bushels of wheat.

(ii.) *Destination of Exported Breadstuffs.* In the next two tables will be found the principal countries to which the Commonwealth exported wheat and flour during each

year of the period 1907-11. The countries are as shewn in the Australian Customs returns, but owing to the fact that wheat ships are frequently instructed to call for orders at various ports, the countries in which these ports are, cannot be properly considered as the ultimate destination of the whole of the wheat said to be exported to them.

EXPORTS OF WHEAT FROM THE COMMONWEALTH, 1907 to 1911.

Country to which Exported.	1907.	1908.	1909.	1910.	1911.	Total for Five Years.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
U. Kingdom	21,487,355	11,538,962	26,030,722	36,998,625	37,475,188	133,530,852
Sth. African Union ...	4,156,705	2,475,283	3,234,603	3,001,145	2,458,780	15,326,516
Canary Is.*	...	...	238,410	3,280,215	4,756,647	8,275,272
France ...	19,103	19,542	24,803	918,815	5,468,993	6,451,256
Peru ...	1,204,897	253,865	627,417	1,270,360	1,594,610	4,951,149
Belgium ...	57,448	40,810	120,237	1,174,210	1,639,140	3,031,845
Chile ...	568,675	75,617	...	102,025	477,573	1,223,890
Japan ...	313,419	57	61,448	231,320	99,560	705,804
Germany ...	33,278	...	40,403	290,905	255,740	620,326
India ...	31,573	485,078	101,135	...	...	617,786
China ...	599,222	...	42	...	...	599,264
Italy ...	7,773	...	483,783	54,140	...	545,696
Egypt ...	179,132	70,045	...	...	156,485	405,662
Philippine I.	...	...	178,153	...	152	178,305
New Zealand	36,340	31,622	72,130	8,410	12,247	160,749
New Caledonia ...	4,153	722	3,275	470	642	9,262
Ceylon ...	4,835	510	308	820	1,325	7,798
Other Countries ...	80,222	35,275	332,629	430,435	750,758	1,629,319
Total ...	28,784,130	15,027,388	31,549,498	47,761,895	55,147,840	178,270,751

* For orders.

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

EXPORTS OF FLOUR FROM THE COMMONWEALTH, 1907 to 1911.

Country to which Exported.	1907.	1908.	1909.	1910.	1911.	Total for Five Years.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Sth. African Union	28,208	23,662	24,460	29,535	35,136	141,001
United Kingdom	7,181	13,545	33,128	23,323	24,616	101,793
Java	17,320	13,492	13,346	18,808	30,964	93,930
Portuguese East Africa ...	22,678	17,689	16,496	22,517	8,421	87,801
Philippine Islands	16,947	9,790	11,803	9,359	16,634	64,533
StraitsSettlements	18,133	5,665	6,250	12,374	22,036	64,458
Hong Kong ...	25,332	481	1,511	1,742	5,687	34,753
New Zealand ...	6,427	14,464	5,439	3,148	2,818	32,296
New Caledonia ...	4,293	4,056	3,897	4,049	4,174	20,469
Mauritius ...	2,579	3,461	3,090	2,894	1,974	13,998
Ceylon	2,345	2,716	2,257	2,287	3,046	12,651
China	6,479	363	300	816	1,656	9,614
Fiji	1,362	...	1,810	1,760	2,230	7,162
Japan	491	1	337	815	269	1,913
Other Countries ...	3,663	7,418	5,845	6,519	16,230	39,675
Total ...	163,438	116,803	129,969	139,946	175,891	726,047

During the five years under review the export of wheat to the United Kingdom totalled 133,530,852 bushels or about 75 per cent. of the total export for the period. On the other hand, the export of flour to the United Kingdom aggregated only 101,793 tons or about 14 per cent. of the total export. During the five years the heaviest exports of flour have been to South Africa, the United Kingdom, Java, Portuguese East Africa, the Philippine Islands. the Straits Settlements, and Hong Kong.

(iii.) *Exports of Wheat and Flour.* From the foregoing returns it will be seen that the quantity of Australian wheat exported in the form of flour during the past five years represents, on the average, about 17 per cent. of the total equivalent in wheat exported as wheat or flour from the Commonwealth. One cause of this, and probably the chief one, is the fact that Australian wheats are in considerable demand with the English millers for mixing purposes, while the Australian flour has not, up to the present, received that consideration from the English bakers which its admitted qualities undoubtedly merit. Steps which have recently been taken for bringing these qualities before the British public may possibly have the effect of increasing the proportion of wheat exported in the form of flour.

A point of some interest in connection with the export of wheat, and one which bears also on the proportions 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 the Commonwealth, 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., etc.), the proportions of milled product from a bushel (60 lbs.) 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 lbs.	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 lbs., of which 0.13 lbs. is in the flour and 0.35 lbs. in the offal.

During the past ten years the net exports from the Commonwealth of wheat and its milled products have amounted to 267,761,805 bushels of wheat, 1,108,287 tons of flour, and 4,905,311 bushels of bran, pollard, and sharps. On the basis of the figures quoted above this export would contain no less than 137,500,000 lbs. of phosphoric acid, the value of which as a fertiliser would be about £860,000.

6. **Value of the Wheat Crop.**—The estimated value of the wheat crop in each State and in the Commonwealth during the season 1910-11 is shewn below :—

VALUE OF THE WHEAT CROP,* 1911-12.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. T.	F. C. T.	C'w'lth.
	£	£	£	£	£	£	£	£	£
Aggregate value	4,598,025	3,917,227	49,894	3,858,469	762,808	115,433	5	1,465	13,303,326
Value per acre	£1/18/8	£1/16/2	£1/3/3	£1/15/3	£1/4/11	£3/2/0	£2/10/0	£1/19/6	£1/15/10

* Exclusive of the value of straw.

§ 5. Oats.

1. **Progress of Cultivation.**—Oats comes next in importance to wheat amongst the grain crops cultivated last season, but while wheat grown for grain accounted for over 61 per cent., oats represented only 5 per cent. of the area under crop in the Commonwealth. The progress of cultivation of oats since 1860 is shewn in the table hereunder, and more fully in the graphs hereinafter:—

CULTIVATION OF OATS, 1860-1 to 1911-12.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	F. C. T.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860-1	6,535	86,337	7	2,273	507	30,303	...	125,962
1865-6	10,939	102,817	348	2,872	1,232	28,538	...	146,746
1870-1	10,683	149,309	122	6,188	2,095	30,946	...	199,343
1875-6	18,856	124,100	114	3,640	1,256	32,556	...	180,522
1880-1	17,923	134,089	116	4,355	1,319	19,853	...	177,655
1885-6	14,117	215,994	208	7,871	1,596	29,247	...	269,033
1890-1	14,102	221,048	411	12,475	1,934	20,740	...	270,710
1895-6	23,750	255,503	922	34,098	1,880	32,699	...	348,852
1900-1	29,383	362,689	385	27,988	4,790	45,073	...	470,308
1905-6	38,543	312,052	533	56,950	15,713	42,776	...	466,567
1906-7	56,431	380,493	1,236	57,000	28,363	58,320	...	581,843
1907-8	75,762	398,749	715	66,297	46,667	54,625	...	642,815
1908-9	59,881	419,869	1,797	78,494	59,461	56,654	...	676,156
1909-10	81,452	384,226	2,789	85,346	73,342	71,293	...	698,448
1910-11	77,991	392,681	2,537	77,674	61,918	63,887	...	676,688
1911-12	70,943	302,238	557	107,881	77,488	57,583	167	616,857

2. **Total Yield.**—The total oat crop of the several States for the same period is furnished in the following table :—

COMMONWEALTH OAT CROP, 1860-1 to 1911-12.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Fed. Cap. Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels	Bush'ls	Bushels.
1860-1	98,814	2,633,693	91	52,989	11,925	926,418	...	3,723,930
1865-6	116,005	2,279,468	4,524	42,642	19,005	688,740	...	3,150,384
1870-1	119,365	2,237,010	1,586	88,383	39,974	691,250	...	3 177,568
1875-6	352,966	2,719,795	1,482	60,749	18,840	827,043	...	3,980,875
1880-1	356,121	2,362,425	2,081	50,070	21,104	439,446	...	3,231,247
1885-6	279,107	4,692,303	1,006	97,201	23,142	784,325	...	5,877,084
1890-1	256,659	4,919,325	8,967	116,229	38,791	519,395	...	5,859,366
1895-6	374,196	2,880,045	10,887	184,012	19,326	906,934	...	4,375,400
1900-1	593,548	9,582,332	7,855	366,229	86,433	1,406,913	...	12,043,310
1905-6	883,081	7,232,425	5,858	869,146	283,987	1,200,024	...	10,474,521
1906-7	1,404,574	8,845,654	28,884	896,166	457,155	1,979,574	...	13,612,007
1907-8	851,776	5,201,408	9,900	874,388	721,753	1,526,002	...	9,185,227
1908-9	1,119,558	11,124,940	38,811	1,280,235	739,303	1,946,010	...	16,248,857
1909-10	1,966,586	7,913,423	50,018	1,209,131	1,248,162	2,347,548	...	14,734,868
1910-11	1,702,706	9,699,127	50,469	1,136,618	776,233	2,063,303	...	15,428,456
1911-12	1,152,827	4,585,326	5,783	1,349,480	961,385	1,504,633	2,337	9,561,771

The principal oat-growing State of the Commonwealth is Victoria. During the past five seasons it has produced about 59 per cent. of the total quantity of oats grown in the Commonwealth; Tasmania, New South Wales, South Australia, and Western Australia come next in order of importance. In New South Wales, Western Australia and Tasmania, the highest production of oats for any season was that of 1909-10, while Victoria and Queensland experienced a maximum yield in 1903-4, and South Australia in 1911-12. For the Commonwealth as a whole the record yield was that of 17,541,210 bushels in the season 1903-4, while the yields of 16,248,857 and 15,428,456 for 1908-9 and 1910-11 respectively, rank second and third.

3. **Average Yield.**—The average yield per acre of the oat crop of the Commonwealth varies considerably in the different States, being highest in Tasmania and lowest in South Australia. Particulars as to average yield for the past ten seasons are given in the succeeding table :—

AVERAGE YIELD OF OATS PER ACRE.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Cap. Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bush'ls	Bushels.
1901-2	21.31	20.43	27.50	13.54	16.78	31.48	...	21.22
1907-8	11.24	13.04	13.85	13.19	15.47	27.94	...	14.29
1908-9	18.70	26.50	21.60	16.31	12.43	34.35	...	24.03
1909-10	24.14	20.60	17.93	14.17	17.02	32.93	...	21.10
1910-11	21.83	24.70	19.89	14.63	12.54	32.30	...	22.80
1911-12	16.25	15.17	10.38	12.51	12.41	26.13	13.99	15.50
Average for 10 Seasons	19.02	20.69	20.16	14.09	14.54	30.33	...	20.26

The smallest average yield per acre for the Commonwealth for the period was that experienced in the season 1902-3, being 12.32, while the largest was that of the succeeding season amounting to 28.25 bushels per acre.

4. **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 for 1911-12 about 7¾ bushels per head, as compared with 2 bushels per head for the Commonwealth as a whole. Particulars for the seasons 1901-2 and 1907-8 to 1911-12 are furnished in the succeeding table :—

OAT PRODUCTION PER 1000 OF POPULATION.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Federal Capital Territory.	C'wealth
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1901-2	500	5,558	83	1,306	845	9,734	...	2,559
1907-8	560	4,219	18	2,340	2,836	8,049	...	2,207
1908-9	717	8,897	70	3,318	2,847	10,150	...	3,339
1909-10	1,219	6,197	87	3,077	4,698	12,156	...	3,408
1910-11	1,036	7,453	84	2,794	2,804	10,646	...	3,487
1911-12	689	3,365	9	3,227	3,268	7,777	1,217	2,093

5. **Value of Oat Crop.**—The estimated value of the oat crop of the several States of the Commonwealth for the season 1911-12 is as follows :—

VALUE OF OAT CROP,* 1911-12.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	F.C. Terr.	C'wealth.
Aggregate value	£201,741	£706,904	£1,012	£185,554	£136,196	£231,964	£409	£1,463,780
Value per acre	£2/16/11	£2/6/9	£1/16/4	£1/14/5	£1/15/2	£4/0/7	£2/9/0	£2/7/6

* Exclusive of the value of straw.

6. **Imports and Exports.**—The production of oats in the Commonwealth has not yet reached such a stage as to admit of a regular export trade in this cereal ; in fact in certain years the imports have exceeded the exports, notably in 1903, 1906, and 1908. The quantities and values of oats imported into and exported from the Commonwealth during the years 1901 and 1907 to 1911 are given hereunder :—

COMMONWEALTH IMPORT AND EXPORT OF OATS, 1901 and 1907 to 1911.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1901	1,526,599	153,674	2,874,334	285,347	1,347,735	131,673
1907	21,945	2,850	533,485	60,204	511,540	57,354
1908	1,401,870	206,283	67,058	10,594	—1,334,812	— 195,689
1909	320,543	32,607	339,258	35,375	18,715	2,768
1910	19,510	2,232	129,490	14,893	109,980	12,661
1911	4,522	639	391,465	46,493	386,943	45,854

Note. — signifies net imports.

The principal countries from which the Commonwealth imports of oats have been obtained are the Dominion of New Zealand and the South African colonies, while the principal countries to which oats were exported during the period under review were the South African colonies in the earlier, and the United Kingdom, the Philippine Islands, India, and New Zealand in the later years.

7. **Oatmeal, etc.**—Importations of oatmeal, etc., into the Commonwealth take place principally from the United Kingdom, the United States, and Canada. The total importations of oatmeal, wheatmeal, and rolled oats during 1911 amounted to 384,061 lbs., and represented a value of £7185.

8. **Comparison with other Countries.**—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:—

PRODUCTION OF OATS IN VARIOUS COUNTRIES, 1910.

Country.	Quantity of Oats produced.	Country.	Quantity of Oats produced.	Country.	Quantity of Oats produced.
	Bushels.		Bushels.		Bushels
United States ...	1,092,511,344	U'd. Kingdom	175,794,312	Argentina ...	33,399,080
Russian Empire	855,567,696	Austria ...	122,637,360	Rumania ...	28,730,960
Germany ...	446,472,528	Sweden ...	72,912,400	Netherlands	17,481,504
Canada* ...	323,449,000	Hungary ...	61,288,824	**Australia** ...	**15,428,456**
France ...	281,789,752	Denmark ...	39,074,848	New Zealand	10,118,917

* Exclusive of British Columbia.

9. **Comparison of Yields.**—The average yield per acre of oats in Australia is a somewhat low one compared with the results obtained in other countries, where the cultivation of this cereal is more extensively carried on. Arranging the countries contained in the foregoing table, with the exception of Denmark, for which particulars are not available, according to the magnitude of the average yield of oats for the year 1910, the results are as follows:—

YIELD OF OATS PER ACRE, 1910.

Country.	Average per Acre.	Country.	Average per Acre.	Country.	Average per Acre.
	Bushels.		Bushels.		Bushels.
Netherlands ...	50.19	Canada*	32.79	Rumania... ...	26.04
United Kingdom...	42.93	United States ...	30.96	Argentina ...	23.61
Germany	42.14	France	28.87	**Australia**... ...	**22.80**
New Zealand ...	33.41	Austria	27.09	Hungary... ...	21.28
				Russian Empire...	18.07

* Exclusive of British Columbia.

10. **Price of Oats.**—The average wholesale prices of oats in the markets of the several capitals for the year 1911 are given in the following table:—

AVERAGE WHOLESALE PRICE OF OATS PER BUSHEL, 1911.

Particulars.	Sydney.	Melbourne.	Brisbane.	Adelaide.	Perth.	Hobart.
Average price per bushel ...	s. d. 2 8	s. d. 2 3	s. d. 3 5	s. d. 2 3	s. d. 2 11	s. d. 2 4

§ 6. Maize.

1. **States Growing Maize.**—The only States in which maize is at all extensively grown for grain are those of New South Wales and Queensland, the area so cropped in these two States during the season 1911-12 being 321,628 acres, or nearly 95 per cent. of the total for the Commonwealth. Of the balance, Victoria contributed 18,223 acres, South Australia 97 acres, Western Australia 29 acres, and the Northern Territory 19 acres. The climate of Tasmania prevents the growing of maize for grain in that State. In South Australia prior to 1908 particulars concerning maize had not been specially asked for on the form used in the collection of agricultural statistics. In all the States maize is grown to a greater or less extent as green forage, particularly in connection with the dairying industry.

2. **Area under Maize.**—The area devoted to the growing of maize for grain in each State, from 1875 onwards, is given in the following table, and the actual fluctuations from year to year are shewn more fully on the graph hereinafter.

The total area under maize in the Commonwealth exceeded 300,000 acres for the first time in the season 1890-1, and although it fluctuated somewhat during the succeeding seventeen years, it may be considered to have remained at about that figure. The greatest divergence during the period occurred in 1903-4, when a record total of 371,906 acres was harvested. For 1908-9 and the two following seasons a continuous increase in the area devoted to maize was in evidence, and the total of 414,914 acres for 1910-11 is the highest ever attained. The unfavourable weather conditions during 1911-12 resulted in the acreage under maize for that season being reduced by 74,849 acres as compared with its predecessor. The area cropped with maize in New South Wales, which had declined rapidly from a maximum of 226,834 acres in 1903-4 to 160,980 acres in 1907-8, shewed a marked improvement in each of the three following seasons, the acreage under this crop for 1910-11 being the highest on record, viz., 213,217 acres; a decline of 45,505 acres was, however, in evidence in the following season, when an area of 167,712 acres was cropped. In Queensland the area appears to be on the increase, that for 1910-11 being the highest ever attained in that State, while with this exception 1911-12 exceeeded all previous records. The area under maize in New South Wales in 1911-12 represents only 4½ per cent. of that State's total area under crop, while in the case of Queensland the maize crop represents over 29 per cent. of the total.

AREA UNDER MAIZE, 1875-6 to 1911-12.

Season.	N.S.W.	Victoria.	Queensland.	South Aust	W. Aust.	N. T.	F. C. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1875-6	117,582	2,346	38,711	...	60	...	...	158,699
1880-1	127,196	1,769	44,109	...	32	...	..	173,106
1885-6	132,709	4,530	71,741	...	120	...	...	209,100
1890-1	191,152	10,357	99,400	...	81	...	...	300,990
1895-6	211,104	7,186	100,481	...	23	...	...	318,794
1900-1	206,051	9,389	127,974	...	91	...	...	343,505
1905-6	189,353	11,785	113,720	...	43	...	...	314,901
1906-7	174,115	11,559	139,806	...	101	...	...	325,581
1907-8	160,980	10,844	127,119	*549	87	...	...	299,579
1908-9	180,812	14,004	127,655	1,223	181	...	...	323,875
1909-10	212,797	19,112	132,313	210	153	...	...	364,585
1910-11	213,217	20,151	180,862	619	46	19	...	414,914
1911-12	167,712	18,223	153,916	97	29	19	69	340,065

* Particulars for previous years not available.

3. **Total Yield.**—The average yield per acre of this cereal, in common with the majority of crops, evinced a considerable falling off in the season 1911-12, the quantity harvested, 9,039,855 bushels, being some 70 per cent. of the production of the previous season. The 1910-11 crop was, however, a record one, and exceeded 13,000,000 bushels. The average annual production of maize during the last decade was 9,078,678 bushels. Particulars concerning the yield from 1875 onwards are as hereunder:—

MAIZE CROP, 1875-6 to 1911-12.

Season.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	N. T.	F. C. Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	B'shls.	B'shls.	Bushels.
1875-6	3,410,517	37,177	1,006,486	...	1,200	...	...	4,455,380
1880-1	4,518,897	49,299	1,409,607	...	896	...	...	5,978,699
1885-6	4,336,163	181,240	1,574,294	...	1,417	...	...	6,093,114
1890-1	5,713,205	574,083	2,373,803	...	1,526	...	...	8,662,617
1895-6	5,687,030	351,891	2,391,378	...	600	...	...	8,430,899
1900-1	6,292,745	604,180	2,456,647	...	1,399	...	...	9,354,971
1905-6	5,539,750	641,216	2,164,674	...	428	...	...	8,346,068
1906-7	5,763,000	704,961	3,703,374	...	919	...	...	10,172,254
1907-8	4,527,852	508,761	3,093,789	*6,263	1,080	...	...	8,137,745
1908-9	5,216,038	650,462	2,767,600	19,043	2,136	...	...	8,655,279
1909-10	7,098,255	1,158,031	2,508,761	3,361	2,240	...	...	10,770,648
1910-11	7,594,130	982,103	4,460,306	6,375	718	449	...	13,044,081
1911-12	4,606,547	792,660	3,637,562	1,490	401	400	795	9,039,855

* Particulars for previous years not available.

4. **Average Yield.**—In the following table particulars are given of the average yield per acre of the maize crops of the several States for the seasons, 1901-2 and 1907-8 to 1911-12:—

AVERAGE YIELD OF MAIZE PER ACRE, 1901-2 and 1907-8 to 1911-12.

Season.	N.S.W.	Victoria.	Q'sland.	S. Aust.	W. Aust.	N. T.	F. C. Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	B'shls.	Bushels.
1901-2 ...	22.98	61.42	21.96	...	10.16	...	...	23.86
1907-8 ...	28.13	46.92	24.34	*11.41	12.41	...	...	27.16
1908-9 ...	28.85	46.45	21.68	15.57	11.80	...	...	26.72
1909-10 ...	33.36	60.59	18.96	16.00	14.64	...	...	29.54
1910-11 ...	35.62	48.74	24.66	10.30	15.61	23.63	...	31.44
1911-12 ...	27.47	43.50	23.63	15.36	13.83	21.05	11.52	26.58
Average for 10 Seasons	28.71	55.20	21.13	†13.54	13.44	...	...	26.84

Particulars for previous years not available. † Average for 5 seasons.

The extraordinarily high average yield obtained in Victoria is due, in large measure, to the fact that the area under maize in that State is comparatively small and is situated in districts that are peculiarly suited to the production of this grain. The yield in New South Wales is appreciably higher than that obtained in Queensland.

5. **Value of Maize Crop.**—The value of the Commonwealth maize crop for the season 1911-12 has been estimated at £1,637,692, made up as follows:—

VALUE OF MAIZE CROP, 1911-12.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	N. T.	Federal Capital Terr.	C'wealth.
	£	£	£	£	£	£	£	£
Aggregate value	1,013,971	168,440	454,695	242	85	80	179	1,637,692
Value per acre	£6/0/11	£9/4/10	£2/19/1	£2/9/11	£2/18/7	£4/4/3	£2/11/11	£4/16/4

6. **Relation to Population.**— During the past ten seasons the Commonwealth production of maize has ranged between 1¼ bushels per head of population in 1902-3 and 3 bushels per head in 1910-11. The production in Queensland, the State in which the maize yield per head of population is highest, ranged during the same period between 2 bushels per head in 1902-3 and 7½ bushels per head in 1910-11. Details for the several States for the seasons 1901-2 and 1907-8 to 1911-12 are as follows:—

MAIZE PRODUCTION PER 1000 OF POPULATION, 1901-2 and 1907-8 to 1911-12.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	N. T.	Federal Capital Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1901-2	2,795	509	5,070	...	27	...	...	1,839
1907-8	2,976	413	5,668	†17	4	...	...	1,955
1908-9	3,340	520	4,968	49	8	...	...	2,045
1909-10	4,398	907	4,342	9	8	...	...	2,491
1910-11	4,620	755	7,446	16	3	132	...	2,948
1911-12	2,786	596	5,921	4	1	121	447•	2,013

† Particulars for previous years not available.

7. **Australian and Foreign Maize Production.**—The following table gives the production of maize in Australia and in the leading maize producing countries of the world. The figures shew that of the total production the United States of America was responsible for 75 per cent.

PRODUCTION OF MAIZE IN VARIOUS COUNTRIES, 1910.

Country.	Production of Maize.	Country.	Production of Maize.
	Bushels.		Bushels.
United States	3,030,691,320	Servia	30,799,064
Hungary	199,046,208	Bulgaria	26,462,432
Mexico	184,870,296	Spain	25,534,528
Argentine Republic ...	163,463,336	Canada*	18,726,000
Rumania	100,461,424	Austria	16,215,600
Italy	94,914,528	**Australia**	**13,044,081**
Russian Empire	72,207,000	Uruguay	6,377,400
Egypt	65,589,536		

* Exclusive of British Columbia.

8. **Comparison of Yields.**—The average yield per acre of maize in the Commonwealth of nearly 31½ bushels may be regarded as highly satisfactory when compared with that of other maize producing countries. Canada and Egypt are the only countries shewing a higher average. The majority of the remaining twelve countries shewn on the following table had average yields per acre ranging from 20 to 28½ bushels, while others were as low as 11½ and 14.

AVERAGE YIELD OF MAIZE IN VARIOUS COUNTRIES, 1910.

Country.	Average yield per acre.	Country.	Average yield per acre.
	Bushels.		Bushels.
Canada	57.00	Servia	21.31
Egypt	34.26	Austria	21.21
Australia	**31.44**	Rumania	20.48
Hungary	28.47	Russia	19.73
United States of America ...	26.58	Bulgaria	17.52
Italy	23.71	Mexico	13.83
Spain	22.77	Uruguay	11.42
Argentine Republic	22.02		

9. **Oversea Imports and Exports.**—Except in the years 1902 and 1903, when, owing to the severe drought experienced in Australia, many of the maize crops failed, the Commonwealth oversea trade in maize has been practically insignificant. In the former of the years mentioned nearly two million, and in the latter considerably more than a million bushels were imported. In 1908 and 1909 also, owing to the small harvests of seasons 1907-8 and 1908-9, the imports of maize were largely in excess of the exports. Details of imports and exports for the past ten years are as follows:—

COMMONWEALTH IMPORTS AND EXPORTS OF MAIZE, 1901 and 1907 to 1911.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value
	Bushels.	£	Bushels.	£	Bushels.	£
1901 ...	188,423	24,764	533	75	— 187,890	— 24,689
1907 ...	31,327	5,541	43,429	6,220	12,102	679
1908 ...	271,723	49,291	2,018	444	— 269,705	— 48,847
1909 ...	628,063	104,367	5,054	999	— 623,009	— 103,368
1910 ...	133,730	19,554	12,557	1,904	— 121,173	— 17,650
1911 ...	31,764	4,925	19,914	3,438	— 11,850	— 1,487

Note. — signifies net imports.

The principal countries to which maize has been exported from the Commonwealth are South Africa, New Zealand, and China, while the principal countries from which importations have taken place are the Argentine Republic, New Zealand, the United States, the Pacific Islands, South Africa, and Java.

10. **Prepared Maize.**—A fairly large quantity of corn-flour is imported annually into the Commonwealth, the principal countries of supply being the United Kingdom and the United States. During the year 1911 these importations amounted to 449,744 lbs., and represented a value of £7142.

11. **Price of Maize.**—The average wholesale price of maize in the Sydney market is given in the following table for each of the years 1902 to 1911:—

AVERAGE PRICE OF MAIZE PER BUSHEL, 1902 to 1911.

Particulars.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.
Average price per bushel...	s. d. 4 10	s. d. 4 1	s. d. 2 4	s. d. 3 3	s. d. 3 0	s. d. 3 2	s. d. 4 7	s. d. 4 2	s. d. 2 11	s. d. 3 0

§ 7. Barley.

1. **Area under Barley.**—The area devoted to barley in the Commonwealth is one which has fluctuated very considerably, but the net result of these fluctuations has left it in practically the same position as that which it occupied thirty years ago. The principal barley-growing State is Victoria, which, for the season 1911-12, accounted for 46 per cent. of the Commonwealth area devoted to this crop; South Australia was next in importance with a percentage of 35 per cent.; the remaining 19 per cent. being represented by New South Wales, Tasmania, Western Australia and Queensland in the order named. The figures here given relate to the areas harvested for grain; only small areas are cropped for hay, while more considerable quantities are cut for green forage. These, however, are not included in this sub-section. The area under barley for grain in the several States from 1875 onwards is shewn in the following table:—

COMMONWEALTH AREA UNDER BARLEY, 1875-6 to 1911-12.

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres
1875-6	4,817	31,568	613	13,969	5,014	5,939	61,920
1880-1	8,056	68,630	1,499	13,074	6,363	8,297	105,919
1885-6	5,298	74,112	406	16,493	6,178	6,833	109,320
1890-1	4,937	87,751	584	14,472	5,322	4,376	117,442
1895-6	7,590	78,438	721	14,184	1,932	6,178	109,043
1900-1	9,435	58,853	7,533	15,352	2,536	4,502	98,211
1905-6	9,519	40,938	5,201	26,250	3,665	5,372	90,945
1906-7	7,979	52,816	8,601	28,122	3,590	5,328	106,436
1907-8	11,890	63,074	6,943	37,321	6,019	5,852	131,099
1908-9	9,517	64,648	7,385	44,911	7,308	6,474	140,243
1909-10	15,091	58,603	13,109	41,895	8,022	6,293	143,013
1910-11	7,082	52,687	5,578	34,473	3,369	5,235	108,424
1911-12	10,803	53,541	1,634	40,743	3,664	6,081	116,466

2. **Malting and other Barley.**—In recent years the statistics of all the States have distinguished between "malting" and "other" barley. Particulars for the Commonwealth are as follows:—

AREA UNDER MALTING AND OTHER BARLEY, 1911-12.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Malting barley	8,037	36,748	1,216	28,419	1,227	5,212	80,859
Other barley ...	2,766	16,793	418	12,324	2,437	869	35,607
Total ...	10,803	53,541	1,634	40,743	3,664	6,081	116,466

It will be seen that, taking the Commonwealth as a whole, about 69 per cent. of the area devoted to this grain in 1911-12 was cropped with malting barley. The proportion varies considerably in the several States.

3. **Total Yield.**—The total production of barley in the Commonwealth for the season 1911-12 amounted to 2,056,836 bushels, falling short of the yield of the previous season by 169,532 bushels. Particulars concerning the yields of the several States from 1875 onwards are as follows:—

COMMONWEALTH BARLEY CROP, 1875-6 to 1911-12.

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tasmania.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1875-6	98,576	700,665	12,260	197,315	70,196	165,357	1,244,369
1880-1	163,395	1,068,830	31,433	151,886	89,082	169,156	1,673,782
1885-6	85,606	1,302,854	9,826	218,334	89,581	176,466	1,882,667
1890-1	81,383	1,571,599	12,673	175,583	85,451	99,842	2,026,531
1895-6	96,119	715,592	7,756	140,391	18,691	138,833	1,117,382
1900-1	114,228	1,215,478	127,144	211,102	29,189	116,911	1,814,052
1905-6	111,266	1,062,139	61,816	505,916	49,497	106,042	1,896,676
1906-7	152,739	1,255,442	158,283	491,246	48,827	141,895	2,248,432
1907-8	75,148	1,059,295	64,881	566,937	76,205	149,186	1,991,652
1908-9	166,538	1,511,181	137,667	825,740	74,433	158,645	2,874,204
1909-10	272,663	1,023,384	193,586	691,424	101,673	153,654	2,436,384
1910-11	82,005	1,340,387	83,621	544,471	33,566	142,318	2,226,368
1911-12	129,008	1,024,584	15,369	702,855	37,011	148,009	2,056,836

4. **Value of Barley Crop.**—The estimated value of the total barley crop of the Commonwealth for the season 1910-11 was £400,054, while that for 1911-12 was £483,151, the lesser yield for the latter season being more than compensated for by the higher prices ruling. The extent to which the several States have contributed to the total is shewn in the following table:—

VALUE OF BARLEY CROP,* 1911-12.

Particulars.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas.	C'wealth.
Total value ...	£31,390	£281,854	£1,665	£126,829	£6,126	£35,287	£483,151
Value per acre	£2/18/1	£5/5/3	£1/0/5	£3/2/3	£1/13/11	£5/16/1	£4/3/0

* Exclusive of the value of straw.

5. **Relation to Population.**—During the past ten seasons the quantity of barley produced in the Commonwealth has averaged about half a bushel per head of population. For the season 1911-12 the production ranged from about 1¾ bushels per head in South Australia to one-fortieth of a bushel in Queensland. Details for the period are as follows:—

BARLEY PRODUCTION PER 1000 OF POPULATION, 1901-2 and 1907-8 to 1911-12.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels
1901-2	75	573	547	677	179	956	397
1907-8	49	859	119	1,517	299	787	479
1908-9	107	1,209	247	2,140	287	827	679
1909-10	169	801	335	1,760	383	796	563
1910-11	50	1,002	140	1,338	121	734	503
1911-12	78	771	25	1,709	129	778	458

6. **Commonwealth Imports and Exports.**—The Commonwealth oversea trade in barley is not extensive, and in most years the imports exceed the exports. In 1902 and 1903 somewhat extensive importations of barley from the United States and New Zealand took place, owing to the shortage in local supply resulting from the severe drought of that period. In 1904, the excellent crop of the season 1903-4 furnished the material for a heavy exportation to Japan, the total exported thither during that year being 551,821 bushels. In 1909 also a fairly heavy export took place, mainly to the United Kingdom. Particulars of the Commonwealth oversea imports and exports of barley for the years 1901 and 1907 to 1911 are contained in the following table:—

COMMONWEALTH IMPORTS AND EXPORTS OF BARLEY, 1901 and 1907 to 1911.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1901 ...	55,508	7,208	17,474	1,942	— 38,034	— 5,266
1907 ...	232,154	53,802	38,350	5,533	—193,804	— 48,269
1908 ...	452,462	107,126	1,148	290	—451,314	—106,836
1909 ...	51,332	12,356	188,946	28,774	137,614	16,418
1910 ...	34,684	8,498	39,146	5,155	4,462	— 3,343
1911 ...	218,316	58,922	9,420	1,256	—208,896	— 57,666

Note. — signifies net imports.

Only in three years during the period embraced in the above table have the Commonwealth exports of barley exceeded the imports in value, viz., in 1904, 1905, and 1909. During the last ten years the total importations amounted to 2,989,264 bushels, valued at

£594,047, and the total exports to 1,115,809 bushels, valued at £143,164, giving a net importation of 1,873,455 bushels in quantity and £450,883 in value.

In addition to the above, which relates to the unprepared grain, there is a small importation into the Commonwealth of pearl and Scotch barley, mainly from the United Kingdom, Germany, China and Japan. The total imported during 1911 amounted to only 14,567 lbs. in weight, with a value of £123.

From time to time a considerable export trade in Australian pearl and Scotch barley has been carried on, mainly with the United Kingdom and New Zealand, the total exports for 1909 reaching 1,155,346 lbs. valued at £3573, and for 1910, 119,337 lbs. vauled at £510. During 1911, however, the exports were only 588 lbs., valued at £8.

7. **Commonwealth Imports and Exports of Malt.**—The importations of malt into the Commonwealth are fairly extensive, the bulk of the supply being obtained from the United Kingdom, Austria-Hungary, and Germany, but principally from the United Kingdom. Details of imports and exports for the years 1901 and 1907 to 1911 are given hereunder :—

COMMONWEALTH IMPORTS AND EXPORTS OF MALT, 1901 and 1907 to 1911.

Year.	Imports.		Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels	£
1901	516,135	140,615	...	...	516,135	140,615
1907	153,415	48,262	1,087	371	152,328	47,891
1908	210,860	67,219	528	199	210,332	67,020
1909	110,563	35,239	470	174	110,093	35,065
1910	108,168	34,696	258	66	107,910	34,630
1911	102,760	32,798	83	32	102,677	32,766

8. **Comparison with other Countries.**—In comparison with the barley production of other countries of the world, that of Australia appears very small indeed. Particulars for some of the leading countries for the year 1910 are as follows, the Australian figures being added for the sake of comparison :—

PRODUCTION OF BARLEY IN VARIOUS COUNTRIES, 1910.

Country.	Production of Barley.	Country.	Production of Barley.
	Bushels.		Bushels.
Russian Empire ...	439,255,440	Canada* ...	45,147,600
United States ...	157,295,296	France	42,133,576
Germany	127,961,504	Rumania ...	28,451,312
Spain	73,236,024	Sweden	14,306,328
United Kingdom ...	63,044,496	Netherlands ...	3,008,048
Austria	62,925,200	**Australia** ...	**2,226,368**
Hungary	53,895,088	New Zealand ...	927,112
Japan	46,085,256		

* Exclusive of British Columbia.

9. **Average Yield.**—The average yield per acre of barley varies considerably in the different States, being as a rule highest in Tasmania and Victoria, and lowest in Western

Australia and New South Wales. Details for each State for the seasons 1901-2 and 1907-8 to 1911-12 are given in the following table :—

AVERAGE YIELD PER ACRE OF BARLEY, 1901-2 and 1907-8 to 1911-12.

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	West Aust.	Tas.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1901-2 ...	17.16	21.40	23.53	15.68	13.01	27.44	20.40
1907-8 ...	6.32	16.79	9.34	15.19	12.66	25.49	15.19
1908-9 ...	7.50	23.38	18.64	18.39	10.19	24.50	20.49
1909-10 ...	18.07	17.46	14.77	16.50	12.67	24.42	17.04
1910-11 ...	11.58	25.44	14.99	15.79	9.96	27.19	20.53
1911-12 ...	11.94	19.14	9.41	17.25	10.10	24.34	17.66
Average for 10 Seasons ...	14.30	21.19	17.51	16.72	12.06	24.39	18.83

10. **Price of Barley.**—The average prices of barley in the Melbourne market during each of the years 1903 to 1911 are given in the following table :—

AVERAGE PRICE OF BARLEY PER BUSHEL, 1903 to 1911.

Particulars.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Malting barley	3 11	3 6	4 0	4 5	4 8	4 10	3 10	4 1	4 10½
Cape barley ...	3 1	1 9	2 7	2 4	2 8	3 8	2 7	2 5	2 8

§ 8. Other Grain and Pulse Crops.

In addition to the grain crops already specified, the only grain and pulse crops at all extensively grown in the Commonwealth are beans, peas and rye. The total area under the two former for the season 1911-12 was 49,237 acres, giving a total yield of 810,503 bushels, or an average of 16.46 bushels per acre, being 2.62 under the average yield for the decennium ended 1911-12, which was 19.08 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 the Commonwealth during the season 1911-12 was 5,787 acres, yielding 57,984 bushels, and giving an average of 10.02, this being below the average for the past ten seasons, which is 12.51 bushels per acre. Nearly 44 per cent. of the rye grown during the season was produced in New South Wales, 21 per cent. in Tasmania, and 17 per cent. in Victoria. In addition to these grain crops a small area of rice was for some years cultivated in Queensland. The results obtained, however, have not offered sufficient inducement to growers to continue this crop, and the total area devoted to it declined from 1113 acres in 1892-3 to 15 acres in 1911-12. Twelve acres were under cultivation during 1910-11 in the Northern Territory, producing 784 bushels of rice, and 2 acres in 1911-12 yielding 75 bushels. Should rice-growing ever be seriously taken up in Australia, it is probable that large tracts of country in the northern parts of Western Australia and in the Northern Territory will be found well suited to its cultivation.

§ 9. Potatoes.

1. **Area.**—The principal potato-growing State of the Commonwealth as regards area is Victoria, Tasmania prior to 1909-10 usually ranking second and New South Wales third; the relative positions of these two States have, however, been reversed during the last three seasons. The lower figures for Tasmania relating to 1909-10 and onwards may mainly be attributed to the prevalence of the Irish potato blight in that State; New South Wales, on the other hand, has increased her acreage under this crop from 26,301 acres in 1908-9 to 43,079 in 1911-12. The area devoted to this crop in the Commonwealth, which has fluctuated somewhat, reached its highest point in the season 1910-11, with a total of 151,515 acres.

The area under potatoes in each State from 1890 onwards is given hereunder :—

COMMONWEALTH AREA UNDER POTATOES, 1890-1 to 1911-12.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	F. C. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres	Acres.
1890-1 ...	19,406	53,818	6,270	6,626	511	20,133	...	106,764
1895-6 ...	24,722	43,895	9,240	6,448	668	19,247	...	104,220
1900-1 ...	29,408	38,477	11,060	6,628	1,794	23,068	...	110,435
1905-6 ...	26,374	44,670	7,170	9,540	2,145	28,634	...	118,533
1906-7 ...	36,815	55,372	8,031	9,894	2,264	34,305	...	146,681
1907-8 ...	31,917	54,149	7,889	9,062	1,854	38,640	...	143,511
1908-9 ...	26,301	47,903	6,227	8,069	2,026	35,159	...	125,685
1909-10 ...	35,725	62,390	7,708	8,131	1,741	21,375	...	137,070
1910-11 ...	44,452	62,904	8,326	7,812	1,791	26,230	...	151,515
1911-12 ...	43,079	47,692	7,688	7,412	2,705	21,818	69	130,463

2. **Total Yield.**—For the season 1911-12, Victoria's production represented about 39½ per cent. of the total for the Commonwealth, New South Wales and Tasmania coming next in order with 25 and 20½ per cent. respectively. The total Commonwealth production for the season 1906-7, viz., 507,153 tons, was the highest ever attained, the yield which most nearly approached it being 449,383 tons in 1903-4. Details as to production in the several States during the period from 1890 onwards are as follows :—

COMMONWEALTH PRODUCTION OF POTATOES, 1890-1 to 1911-12.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	F. C. Terr.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1890-1 ...	52,791	204,155	13,112	23,963	1,900	73,158	...	369,079
1895-6 ...	56,179	117,238	19,027	18,412	2,290	81,423	...	294,569
1900-1 ...	63,253	123,126	20,014	14,566	4,836	93,862	...	319,657
1907-8 ...	55,882	135,110	13,177	20,263	5,671	145,483	...	375,586
1908-9 ...	71,794	152,840	11,550	21,553	6,695	121,605	...	386,037
1909-10 ...	100,143	174,970	13,544	18,569	5,948	73,862	...	387,036
1910-11 ...	121,033	163,312	15,632	23,920	5,864	70,090	...	399,851
1911-12 ...	75,040	119,092	13,087	22,668	9,312	62,164	126	301,489

3. **Average Yield per Acre.**—The suitability of the soil, climate, and general conditions of Tasmania for potato growing is evidenced by the high yields per acre which are almost invariably obtained in the island State, the average yield during the past ten seasons being nearly 4 tons per acre. The lowest average yield is that obtained in Queensland

with an average of a little under two tons for the same period. Particulars for each State for the seasons 1901-2 and 1907-8 to 1911-12 are given hereunder :—

AVERAGE YIELD OF POTATOES, 1901-2 and 1907-8 to 1911-12.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fd. Cp. Terr.	C'wealth.
	Tons.	Tons	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1901-2	1.50	3.13	2.25	2.41	3.14	4.51	...	2.94
1907-8	1.75	2.50	1.67	2.24	3.06	3.77	...	2.62
1908-9	2.73	3.19	1.85	2.67	3.30	3.46	...	3.07
1909-10	2.80	2.80	1.76	2.28	3.42	3.46	...	2.82
1910-11	2.72	2.60	1.88	3.06	3.27	2.67	...	2.64
1911-12	1.74	2.50	1.70	3.06	3.44	2.85	1.83	2.31
Average for 10 Seasons	2.35	2.80	1.85	2.70	3.02	3.94	...	2.90

4. **Value of Potato Crop.**—The estimated value of the potato crop of each State for the season 1911-12 is furnished in the following table, together with the value per acre :—

VALUE OF POTATO CROP, 1911-12.

Particulars.	N.S.W.	Victoria.	Q'land	S. Aust.	W. Aust.	Tas.	Fed. Cap. Territory.	C'wealth.
Tot. value	£574,415	£821,735	£91,609	£147,342	£116,866	£543,935	£895	£2,296,797
Value per acre ...	£13/6/8	£17/4/7	£11/18/4	£19/17/7	£43/4/1	£24/18/7	£12/19/5	£17/12/1

5. **Relation to Population.**—The average production of potatoes per annum per head of the population of the Commonwealth for the past ten seasons has been approximately 204 lbs. 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, and in 1911-12 about 6½ cwt. Details for the seasons 1901-2 and 1907-8 to 1911-12 are as follows :—

POTATO PRODUCTION PER 1000 POPULATION.

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas.	Fd. Cp. Terr.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1901-2 ...	28	104	44	42	30	655	...	84
1907-8 ...	37	110	24	54	22	767	...	90
1908-9 ...	46	122	21	56	26	634	...	91
1909-10 ...	62	137	23	47	22	382	...	90
1910-11 ...	93	125	26	59	21	362	...	90
1911-12 ...	45	90	21	55	32	327	69	67

6. **Commonwealth Imports and Exports.**—Under normal conditions there is usually a fairly large export trade in potatoes carried on by the Commonwealth, principally with New Zealand, the Pacific Islands, and the Philippine Islands. Thus, during 1907, out of a total export of 17,842 tons, 13,346 tons went to New Zealand, 2102 tons to the Pacific

Islands, and 2112 tons to the Philippine Islands. On the other hand, when in 1902 and 1903 the drought of that period had brought about a shortage in some of the States, importations from New Zealand took place to the extent of 11,471 tons in the former and 2279 tons in the latter year. The quantities and values of the Commonwealth over-sea imports and exports of potatoes for the years 1901 and 1907 to 1911 are contained in the following table:—

COMMONWEALTH IMPORTS AND EXPORTS OF POTATOES, 1901 and 1907 to 1911

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Tons.	£	Tons.	£
1901 ...	17,655	86,067	6,028	45,485	— 11,627	— 40,582
1907 ...	150	981	17,842	53,452	17,692	52,471
1908 ...	129	1,112	3,375	18,560	3,246	17,448
1909 ...	138	1,202	2,604	16,370	2,466	15,168
1910 ...	1,665	1,313	7,089	42,395	5,424	41,082
1911 ...	245	1,881	1,834	12,241	1,589	10,360

Note. — signifies net imports.

7. **Comparison with Other Countries.**—The following table will furnish means for comparing the potato crop of Australia for 1910 with those of some of the leading potato-producing countries of the world for the same year:—

POTATO CROPS OF VARIOUS COUNTRIES, 1910.

Country.	Yield.	Country.	Yield.
	Tons.		Tons.
Germany	42,769,796	Canada *... ...	1,851,200
Russian Empire ...	35,602,168	Sweden	1,661,784
Austria	13,151,586	Italy	1,514,325
France	8,271,455	Denmark ...	734,338
United States ...	8,212,779	Japan (1909) ...	589,376
United Kingdom ...	6,347,966	Norway	542,637
Hungary (1909) ...	5,365,376	**Australia** ...	**399,851**
Belgium (1909) ...	2,419,648	New Zealand ...	141,510
Netherlands (1909) ...	2,357,000	Luxemburg ...	136,170

* Exclusive of British Columbia.

§ 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 1911-12 being only 16,001 acres. The principal of these crops are onions, mangolds, turnips, and "sweet potatoes" *(Batatas edulis)*. Of these, onions are most largely grown in Victoria, mangolds in Tasmania and Victoria, turnips in Tasmania, and sweet potatoes in Queensland. The total area under onions in the Commonwealth during the season 1911-12 was 4182 acres giving a total yield of 23,701 tons, and averaging 5.67 tons per acre. The area devoted in 1911-12 to root crops other than potatoes and onions, viz., 11,819 acres, yielded 99,078 tons, and gave an average of 8.38 tons per acre. The areas and yields here given are exclusive of the production of "market gardens," a reference to which will be made later.

2. **Commonwealth Imports and Exports.**—The only root crop, other than potatoes, in which any considerable oversea trade is carried on by the Commonwealth is that of onions. During the year 1911 oversea imports of onions amounted to 71 tons, obtained principally from the Straits Settlements, of which total 62 tons went to Western Australia. For the same year the exports of onions totalled 646 tons, the principal countries to which they were exported being New Zealand, the Philippine Islands, Canada, and the South African Union.

§ 11. Hay.

1. **Nature and Extent.**—As already stated, the most important crop of the Commonwealth is that of wheat grown for grain. Next to this in importance is the hay crop, which for the season 1911-12 represented nearly 21 per cent. of the area under crop in the Commonwealth. In most European countries the hay crop consists almost entirely of meadow and other grasses, whilst in Australia a very large proportion of the area under hay comprises cereal crops, mainly wheat and oats. A considerable quantity of lucerne hay is also made, particularly in New South Wales and Queensland. The area under hay of all kinds in the several States from 1860 onwards is given hereunder:—

AREA UNDER HAY, 1860-1 to 1911-12.

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas.	N. T.	F. C. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860-1	46,584	90,921	276	55,818	6,626	31,837	...	...	232,062
1865-6	61,909	97,902	1,449	101,996	8,824	30,244	...	...	302,324
1870-1	65,404	163,181	3,671	140,316	17,173	33,612	...	...	423,357
1875-6	77,125	155,274	8,531	161,429	17,319	34,758	...	...	454,436
1880-1	131,153	249,656	12,022	272,567	19,563	31,615	...	...	716,576
1885-6	219,886	421,036	28,881	312,672	19,677	41,693	...	...	1,043,845
1890-1	175,242	413,052	31,106	345,150	23,183	45,381	...	...	1,033,114
1895-6	319,296	464,482	28,609	362,972	63,804	54,748	...	...	1,293,911
1900-1	466,236	502,105	42,497	341,330	104,254	61,541	...	...	1,517,963
1905-6	438,036	591,771	37,425	317,924	124,906	64,350	...	...	1,574,412
1906-7	458,172	621,139	64,498	298,396	149,830	64,965	...	...	1,657,000
1907-8	542,761	682,194	54,037	328,672	131,056	73,859	...	...	1,812,579
1908-9	715,896	956,371	65,004	424,924	201,874	88,613	...	...	2,452,682
1909-10	630,491	864,359	72,298	424,448	158,629	77,804	...	...	2,228,029
1910-11	638,577	832,669	98,558	440,177	175,432	72,992	...	...	2,258,405
1911-12	651,866	860,205	61,299	521,182	344,032	77,466	18	2,220	2,518,288

It will be seen from this table that in all the States marked fluctuations occur in the area devoted to the hay crop from year to year. 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 the due development of the grain is not a satisfactory one. 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 the Commonwealth for the season 1911-12 was the highest on record.

2. **Kinds of Hay.**—Particulars concerning the kind of crop cut for hay are furnished in the returns prepared by five of the States: no information is available in the case of Tasmania.

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

KINDS OF HAY GROWN, 1907-8 to 1911-12.

Kind of Hay Crop.	1907-8.	1908-9.	1909-10.	1910-11.	1911-12.
	Acres.	Acres.	Acres.	Acres.	Acres.
NEW SOUTH WALES—					
Wheaten	365,925	490,828	380,784	422,972	439,591
Oaten	132,325	169,441	178,968	142,805	146,162
Barley	937	1,566	1,917	2,241	2,309
Lucerne	43,574	54,061	68,822	70,559	63,804
Total	542,761	715,896	630,491	638,577	651,866
VICTORIA—					
Wheaten	210,927	278,005	186,400	240,026	304,388
Oaten	460,192	662,141	660,525	575,791	535,146
Other	11,075	16,225	17,434	16,852	20,671
Total	682,194	956,371	864,359	832,669	860,205
QUEENSLAND—					
Wheaten	2,084	4,075	9,031	19,894	1,763
Oaten	5,629	9,314	16,752	13,052	5,403
Lucerne	44,101	48,247	42,935	61,750	51,059
Other	2,223	3,368	3,580	3,862	3,074
Total	54,037	65,004	72,298	98,558	61,299
SOUTH AUSTRALIA—					
Wheaten	271,067	348,307	318,197	336,439	401,648
Oaten	48,151	68,659	96,496	96,062	113,011
Lucerne	3,767	3,162	2,537	2,055	2,411
Other	5,687	4,796	7,218	5,621	4,112
Total	328,672	424,924	424,448	440,177	521,182
WESTERN AUSTRALIA—					
Wheaten	95,123	151,745	101,590	135,521	284,073
Oaten	33,854	48,309	55,006	38,637	58,393
Lucerne	2,079	124	254	233	167
Other		1,696	1,779	1,041	1,399
Total	131,056	201,874	158,629	175,432	344,032

It will be seen that wheat is the principal hay crop in New South Wales, South Australia, and Western Australia, oats in Victoria, and lucerne in Queensland.

3. **Total Yield.**—The Commonwealth hay crop for the season 1911-12 amounted to 2,868,032 tons, or 9.69 per cent. less than that produced in the previous season. The 1910-11 crop, viz., 3,175,851 tons, represented the largest ever harvested in the Commonwealth, the highest previous records being that of 3,137,374 tons for the season 1908-9, and 3,153,196 for 1909-10. For many years past the State of Victoria has been the largest hay producer in the Commonwealth, and in the season 1911-12 accounted for more than 36 per cent. of the total production. The total yields of the several States from 1860 onwards are given hereunder:—

COMMONWEALTH HAY CROP, 1860-1 to 1911-12.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	N. T.	Fed. Cap. Ter.	Commonwealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons	Tons.	Tons.
1860-1	50,927	144,211	414	71,241	8,099	62,318	...	...	337,210
1865-6	54,230	96,101	2,173	88,731	7,901	34,751	...	...	283,887
1870-1	69,602	183,708	5,506	197,149	20,833	40,763	...	...	517,561
1875-6	88,968	206,613	12,796	194,794	17,319	49,217	...	...	569,707
1880-1	174,194	300,581	23,441	261,371	19,563	35,883	...	...	815,033
1885-6	191,371	442,118	30,670	307,855	19,677	51,872	...	...	1,043,563
1890-1	213,034	567,779	50,116	310,125	25,014	52,021	...	...	1,218,089
1895-6	229,671	390,661	50,881	225,462	53,758	62,345	...	...	1,012,978
1900-1	526,260	677,757	78,758	353,662	103,813	94,198	...	...	1,834,448
1905-6	459,182	864,177	56,829	435,546	139,380	90,077	...	...	2,045,191
1906-7	621,846	881,276	94,343	398,866	158,112	104,797	...	...	2,259,240
1907-8	376,800	682,370	77,601	376,170	137,511	98,406	...	...	1,748,858
1908-9	730,014	1,415,746	92,947	591,141	170,008	137,518	...	...	3,137,374
1909-10	981,201	1,186,738	96,854	574,475	195,182	118,746	...	...	3,153,196
1910-11	843,044	1,292,410	151,252	595,064	178,891	115,190	...	...	3,175,851
1911-12	726,933	1,032,288	94,553	605,239	299,695	107,684	40	1,600	2,868,032

4. **Value of Hay Crop.**—The following table furnishes particulars concerning the total value and the value per acre of the hay crop of the several States of the Commonwealth for the season 1911-12:—

VALUE OF HAY CROP, 1911-12.

Particulars.	New South Wales.	Victoria.	Queensland.	South Aust.	Western Aust.	Tasmania.	N. T.	Fed. Cap. Ter.	Commonwealth.
Total value ...	£2,670,502	£3,716,237	£365,777	£2,118,337	£1,035,015	£376,894	£50	£6,148	£10,288,960
Value per acre	£3/13/6	£3/12/0	£3/17/4	£3/10/0	£3/9/1	£3/10/0	£1/5/0	£3/16/10	£3/11/9

5. **Average Yield per Acre.**—The States of the Commonwealth in which the highest average yields per acre have been obtained are those of Queensland and Tasmania, these being also the States in which the smallest areas are devoted to this crop. For the past ten seasons the lowest yield for the Commonwealth as a whole was that of 17 cwt. per acre in 1902-3, and the highest that of 31 cwt. in 1903-4. The average per decennium was 25 cwt. Particulars for the several States for the seasons 1901-2 and 1907-8 to 1911-12 are given hereunder:—

AVERAGE YIELD OF HAY PER ACRE, 1901-2 and 1907-8 to 1911-1912.

Season.	N.S.W.	Vic.	Q'land.	S. Aus.	W.Aus.	Tas.	N. T.	F. C. Terr.	Com'-wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1901-2	1.07	1.34	1.94	0.94	0.97	1.78	...	...	1.20
1907-8	0.69	1.00	1.44	1.14	1.04	1.33	...	...	0.96
1908-9	1.02	1.48	1.43	1.39	0.84	1.55	...	...	1.28
1909-10	1.56	1.37	1.34	1.35	1.23	1.53	...	...	1.42
1910-11	1.32	1.55	1.53	1.35	1.02	1.58	...	...	1.41
1911-12	1.12	1.20	1.54	1.16	0.87	1.39	2.22	0.72	1.14
Average for 10 seasons	1.12	1.35	1.51	1.25	1.00	1.48	...	...	1.25

6. **Relation to Population.**—During the past ten seasons the Commonwealth hay production per head of population has varied between 7 cwt. in 1902-3 and 14½ cwt. in 1903-4 and 1908-9; averaging about 11½ cwt. per head for the period. The State in which the hay production per head of population is highest is South Australia. Details for the seasons 1901-2 and 1907-8 to 1911-12 are given hereunder:—

HAY PRODUCTION PER 1000 OF POPULATION.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. T.	F. C. Terr.	Com'-wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1901-2 ...	339	731	241	964	463	624	...	...	529
1907-8 ...	248	554	142	1,007	540	519	...	...	420
1908-9 ...	467	1,132	167	1,532	655	717	...	...	741
1909-10 ...	608	929	168	1,462	735	615	...	...	729
1910-11 ...	513	993	253	1,463	648	594	...	...	718
1911-12 ...	440	777	154	1,472	1,045	566	12	899	639

7. **Oversea 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 the Commonwealth. In 1901 and 1902, however, the exceptional demand which was created by the South African war brought about a fairly large export of hay and chaff to Natal and Cape Colony. These colonies also took a considerable quantity of Australian compressed fodder. During the year 1904, when the war between Japan and Russia was being carried on, the exports of compressed fodder to Hong Kong were valued at £42,759 and those to Japan at £23,608. The total value of the hay and chaff exported during 1901 was £406,455, as compared with £25,293 only in 1911, while the exports of fodder which amounted in value to £142,472 in 1904, had shrunk to £48,279 in 1911.

During 1911 the principal consignees of the hay and chaff exported from the Commonwealth were India, New Zealand, Ceylon, and the Straits Settlements, while the principal countries to which compressed fodder was exported were the Philippine Islands and New Zealand.

Imports of hay and chaff into the Commonwealth are usually unimportant, and for the year 1911 totalled 54 tons, valued at £230, obtained principally from New Zealand.

8. **Hay Production in 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 a prominent place. The statistics of hay production in these countries are not prepared on a uniform basis, and consequently any attempt to furnish an extensive comparison of the production of hay in the various countries would probably be misleading. It may be noted, however, that in the United Kingdom the production of hay from clover, sainfoin, etc., was for the year 1911 represented by 4,186,278 tons from 3,013,988 acres, while from permanent grasses a yield of 7,470,193 tons of hay was obtained from 6,575,437 acres, giving a total of 11,656,471 tons from 9,589,425 acres, or about 24¼ cwt. per acre.

§ 12. Green Forage.

1. **Nature and Extent.**—In all the States of the Commonwealth a considerable area is devoted to the production of green forage, mainly in connection with the dairying industry. The total area so cropped during the season 1911-12 was 424,440 acres, which was 49,578 acres more than the corresponding area for 1910-11. Of this total the New South Wales area represented about 50 per cent., that in Queensland 22 per cent., while that in Victoria amounted to 17¾ per cent. of the total. 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 from 1890 onwards are furnished in the following table :—

AREA UNDER GREEN FORAGE, 1890-91 to 1911-1912.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. T.	Fd. Cp. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1890-1	37,473	10,091	9,546	7,349	161	1,497	...	...	66,117
1895-6	66,833	25,939	19,552	7,309	430	1,883	...	...	121,946
1900-1	78,144	18,975	41,445	13,136	1,024	3,749	...	...	156,473
1905-6	95,058	34,041	66,183	23,842	1,873	4,882	...	...	225,879
1906-7	122,914	36,502	50,513	17,985	3,265	5,326	...	...	236,505
1907-8	260,810	59,897	91,444	15,434	4,773	6,367	...	...	438,725
1908-9	235,539	63,066	87,675	16,086	4,902	6,243	...	...	413,511
1909-10	118,960	56,586	100,493	17,226	6,068	6,749	...	...	306,082
1910-11	179,382	71,826	89,667	20,728	4,545	8,695	19	...	374,862
1911-12	211,693	75,177	93,049	33,673	5,021	5,627	19	181	424,440

2. **Value of Green Forage Crops.**—The value of these crops is variously estimated in the several States, and the Commonwealth total for the season 1911-12 may be taken approximately as £1,217,000, or about £2 17s. 4d. per acre.

3. **Relation to Population.**—Particulars concerning the area under green forage per 1000 of the population of the Commonwealth and the several States for the seasons 1901-2 and 1907-8 to 1911-12 are given hereunder :—

AREA UNDER GREEN FORAGE PER 1000 OF POPULATION.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. T.	Fed. Cap. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2	82	27	79	38	8	24	...	...	54
1907-8	171	49	168	41	19	34	...	...	105
1908-9	151	50	157	42	19	33	...	...	98
1909-10	74	44	174	44	23	35	...	...	71
1910-11	109	55	150	51	16	45	6	...	85
1911-12	128	57	151	82	18	30	6	102	95

§ 13. Sugar-Cane.

1. **Area.**—Sugar-cane is grown for sugar-making purposes in only two of the States of the Commonwealth, viz., Queensland and New South Wales, and much more extensively in the former than the latter. Thus of the total area of 144,283 acres under sugar-cane in the Commonwealth for the season 1911-12 there were 130,376 acres, or about 90 per cent., in Queensland. Sugar-cane growing appears to have been started in the Commonwealth in or about 1862, as the earliest statistical record of sugar-cane as a crop is that which credits Queensland with an area of twenty acres for the season 1862-3. In the following season the New South Wales records shew that an area of two acres was devoted to the crop in the mother State. The area under cane in New South Wales reached its maximum in 1895-6 with a total of 32,927 acres. It then fell continuously to 1902-3, when it was lower than for any previous season since 1889-90. From 1902-3 to 1906-7 it remained practically stationary, but since then, with the exception of 1911-12 which was virtually the same as its predecessor, it has fallen every year and in 1910-11 had dropped to 13,763 acres, the lowest area under sugar-cane since 1882-3. In Queensland, on the other hand, although fluctuations in area are in evidence throughout, the general trend has been one of satisfactory increase, the area under cane for the season 1910-11 being the highest on record, that for 1905-6 being the next highest and that for 1906-7 only a little short of it. In 1907-8 the area in Queensland declined to 126,810 acres, and in 1908-9 still further to 123,902 acres, but there was a marked increase in 1909-10, while in 1910-11 there was a further increase when it rose to 141,779 acres. Owing to unfavourable climatic conditions the area under cane for 1911-12 shewed a falling off of 11,403 acres, or a reduction of about 8 per cent. The area under sugar-cane in the Commonwealth from 1865 is given in the following table:—

AREA UNDER SUGAR-CANE, 1865-6 to 1911-1912.

Season.	N.S.W.	Queensland.	C'wealth.	Season.	N.S.W.	Queensland.	C'wealth.
	Acres.	Acres.	Acres.		Acres.	Acres.	Acres.
1865-6	141	450	591	1900-1	22,114	108,535	130,649
1870-1	4,082	6,342	10,424	1907-8	17,953	126,810	144,763
1875-6	6,454	13,459	19,913	1908-9	16,981	123,902	140,883
1880-1	10,971	20,224	31,195	1909-10	14,083	128,178	142,261
1885-6	16,419	59,186	75,605	1910-11	13,763	141,779	155,542
1890-1	20,446	50,922	71,368	1911-12	13,907	130,376	144,283
1895-6	32,927	77,247	110,174				

2. **Productive and Unproductive Cane.**—The areas given in the preceding table represent the total area on which sugar-cane was grown during the seasons specified for purposes other than green forage. The whole area, however, was not in any case cut for crushing during that season, there being always a considerable amount of "stand over" cane, as well as a small quantity required for plants. In the season 1911-12 the New South Wales total comprised 5244 acres of productive and 8663 acres of unproductive cane, while in the case of Queensland the productive cane amounted to 95,766 acres and the unproductive to 34,610 acres.

3. **Yield of Cane.**—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 the Commonwealth was 1,073,883 tons, as against 2,000,758 tons for 1910-11. 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 22.64 tons for the former and 15.90 for the latter State. During the six seasons 1901-2 to 1906-7 in the case of New South Wales the yield remained practically constant at about 21 tons per acre. In 1907-8 the yield in New South Wales was so excellent that, notwithstanding the comparative smallness of the

area cultivated, the aggregate amount of cane produced was the largest in that State since 1898-9. In 1909-10, on the other hand, owing mainly to the decline in area of productive cane, the total yield amounted to only 131,081 tons, the lowest for the State since 1888. In 1910-11 there was a further decline in the acreage of productive cane; the yield of over 28½ tons per acre, however, was so excellent that the production exceeded that of the previous season by 29,230 tons of cane. The yield per acre for 1911-12 was approximately the same as for the previous year, but owing to the falling off in the acreage cropped, a decline to the extent of 12,512 tons was in evidence in regard to the quantity of cane produced. In Queensland the average yield per acre for 1910-11 was by far the highest recorded for that State, viz., 19.45 tons, while that for 1911-12 was 16.02, being slightly above the average in that State for the last ten years. Particulars relative to the total and average yields of the Commonwealth sugar crops for the seasons 1901-2 and 1907-8 to 1911-12 are as follows:—

YIELD OF SUGAR-CANE, 1901-2 and 1907-8 to 1911-12.

Season.	Total Yield of Cane.			Average Yield per Acre of Productive Cane.		
	N.S.W.	Queensland.	C'wealth.	N.S.W.	Queensland.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1901-2 ...	187,711	1,180,091	1,367,802	21.36	15.10	15.73
1907-8 ...	277,390	1,665,028	1,942,418	27.97	17.64	18.62
1908-9 ...	144,760	1,433,315	1,578,075	20.83	15.54	15.91
1909-10 ...	131,081	1,163,569	1,294,650	20.23	14.53	14.95
1910-11 ...	160,311	1,840,447	2,000,758	28.65	19.45	19.96
1911-12 ...	147,799	1,534,451	1,682,250	28.18	16.02	16.65

A preliminary estimate for Queensland for the season 1911-12 states that the prospects are extremely favorable, but that the total yield of cane in that State will probably be somewhat below that of the previous season in the absence of the unusually large "stand over" which obtained in 1910-11, unless the average tonnage per acre for 1911-12 season is very much in excess of the record average yield of its predecessor.

4. **Relation to Population.**—The sugar-cane production of the Commonwealth during the past five seasons has averaged about 8 cwt. per head of population. In Queensland, the principal sugar-producing State, the production of cane per head has ranged between 2 tons in 1909-10 and 3 tons in 1907-8. Details for the period 1907-8 to 1911-12 are as follows:—

SUGAR PRODUCTION PER 1000 OF POPULATION.

State.	1907-8.	1908-9.	1909-10.	1910-11.	1911-12.
	Tons.	Tons.	Tons.	Tons.	Tons.
New South Wales	182	93	81	98	89
Queensland	3,051	2,573	2,014	3,072	2,498
Commonwealth	467	373	299	452	375

5. ***Quality of Cane.***—The quantity of cane required to produce a ton of sugar varies considerably not only with the district in which the cane is grown but also with the season. In Queensland, for instance, during the seasons 1902-3 to 1906-7 the sugar content of the cane crushed continuously diminished, so that while in 1902-3 the quantity of cane used in producing a ton of sugar was 8.38 tons, in the season 1906-7 the quantity required was 9.38 tons, the production in the former case being approximately 12 per cent. and in the latter 10⅔ per cent. of the weight of cane crushed. For the season

1907-8, the cane was of much better quality, and the quantity required to produce a ton of sugar was only 8.84 tons, the sugar content representing in this case somewhat more than 11¼ per cent. of the weight of cane crushed. In 1908-9, owing in large measure to the effect of frosts, the quantity of cane required to produce one ton of sugar was increased to 9.49 tons, the sugar thus representing only about 10½ per cent. of the weight of cane crushed, while in 1909-10 only 8.65 tons of cane were required to each ton of sugar, the sugar representing about 11½ per cent. of the weight of cane crushed. The especially favourable weather existing throughout 1910 resulted in a very high average quantity of cane per acre being obtained, while the moisture which caused this led to a slight diminution in the saccharine density as compared with the previous year. In 1910-11 the quantity of cane required to produce one ton of sugar was 8.73 tons, the sugar produced representing about 11½ per cent. of the weight of cane crushed; in 1911-12 the ratio of sugar to cane crushed was virtually the same, being 11⅓ per cent. It should be noted also that in 1901-2 no less than 9.76 tons of cane were needed to produce a ton of sugar. It may be remarked in this connection that the systematic study of the beet in Germany shewed that by suitable culture its sugar content might be greatly increased, and this is by no means impossible in the case of sugar-cane.

6. **Sugar Bounties.**—The provision of bounties or similar aids to the sugar-growers of the Commonwealth early occupied the attention of the Commonwealth Parliament, the object in view being that of assisting the industry, whilst at the same time diminishing the employment of coloured labour in connection therewith. The earliest legislative provision made with this object in view was that contained in the Excise Tariff 1902, under which an excise duty of three shillings per cwt. of manufactured sugar was charged, and a rebate of four shillings per ton allowed on all sugar-cane delivered for manufacture, in the production of which white labour only had been employed after 28th February, 1902. This rebate was calculated on the basis of cane giving 10 per cent. of sugar, and was increased or reduced proportionately according to any variation from this standard, that is to say, the rebate amounted to two shillings per cwt. of the sugar content of the cane treated. In actual practice it was found that this system of rebates was producing effects that had not been anticipated at the time the legislation was passed, and that the greater part of the cost of substituting white for coloured labour in the sugar-growing industry was thereby being imposed upon the States engaged in the industry, viz., Queensland and New South Wales, instead of being a charge upon the whole Commonwealth. To remedy this state of affairs, the Sugar Rebate Abolition Act of 1903 was passed on 30th July, 1903, and the Sugar Bounty Act 1903 received assent on the same day. The rate of bounty provided by this latter Act was, as in the case of the rebate mentioned above, four shillings per ton of cane grown by white labour giving 10 per cent. of sugar, the bounty to be increased or reduced proportionately according to any variation from this standard. This Act remained in force until 31st December, 1906, when it was superseded by the provisions of the Sugar Bounty Act 1905, which extended the principle of bounties to the end of the year 1912, but stipulated that during the years 1911 and 1912 the rates payable on cane delivered should be respectively two-thirds and one-third of the rates prevailing during the earlier years of the period. During the 1910 Session of the Commonwealth Parliament an Amending Act (the Sugar Bounty Act 1910) was passed repealing the provision for successive decrements in the amount of bounty payable, and thus leaving the bounty at full rate applicable for an indefinite time. The rate of bonus allowed under this Act was six shillings per ton of cane of 10 per cent. quality grown by white labour, provided that the rates of wages and conditions of employment of such labour were fair and reasonable, in accordance with the provisions of the Act. Under the Sugar Bounty Abolition Act 1912, assented to on 24th December, 1912, the various provisions for sugar bounties were repealed, the Act to come into operation by proclamation. At the date of writing (21st January, 1913) no such proclamation had been made. Under the Excise Tariff 1905, assented to on 21st December, 1905, the excise duty on sugar was, from 1st January, 1907, increased to four shillings per cwt. of manufactured sugar in place of three shillings formerly imposed. This rate

of duty was, under the original Act, to continue in force until 31st December, 1910, reducing to 2s. 8d. per cwt. for 1911, 1s. 4d. per cwt. for 1912, and being abolished after 31st December, 1912. The Excise (Sugar) Act 1910, however, repealed these provisions for reduction and abolition, leaving the duty in force at the full rate for an indefinite time. This Act was in turn repealed by the Sugar Excise Repeal Act 1912, assented to on the 24th December, 1912, under which all provisions for collection of sugar excise duties were abolished, the Act to come into operation by proclamation. At the date of writing (21st January, 1913) no such proclamation had been made.

7. **Beet Sugar.**—During the past few years an effort has been made to revive the sugar-beet industry in Victoria. During 1910-11 £554 was paid as bounty on 1,847 tons of beet, and £2,244 on 7,481 tons during 1911-12. It is anticipated that the latter quantity will be increased by at least 75 per cent. during the ensuing season.

8. **Cost of Bounties.**—The amounts paid by the Commonwealth Government in sugar bounties and the expenses in connection therewith during the period 1907-8 to 1911-12 are shewn in the following table :—

SUGAR BOUNTIES AND EXPENSES, 1907-8 to 1911-1912.

Particulars.	1907-8.	1908-9.	1909-10.	1910-11	1911-12.
	£	£	£	£	£
Bounties ...	577,148	477,090	402,132	630,762	543,503
Expenses ...	7,474	6,616	5,645	6,862	*
	584,622	483,706	407,777	637,624	*

* Not available.

9. **Collection of Sugar Excise.**—The table hereunder contains particulars concerning the net amount of excise duty on sugar collected in respect of the several States for the years 1901-2 and 1907-8 to 1911-12. In this table refunds and drawbacks have been deducted and the requisite adjustment has been made between the States :—

SUGAR EXCISE, 1901-2 and 1907-8 to 1911-12.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	£	£	£	£	£	£	£
1901-2 ...	119,577	40,189	10,658	781	8,184	10,156	189,545
1907-8 ...	266,876	226,638	103,272	63,788	46,238	35,116	741,928
1908-9 ...	250,329	229,409	116,215	69,267	49,434	36,122	750,776
1909-10 ...	137,672	229,981	126,626	9,373	32,526	12,538	548,716
1910-11 ...	*	*	*	*	*	*	794,645
1911-12 ...	*	*	*	*	*	*	748,670

* Amounts not allocated to separate States.

10. **Production by White and Coloured Labour.**—The following table contains particulars furnished by the Commonwealth Treasury concerning the production of sugar in New Sonth Wales and Queensland during the past ten seasons, and furnishes an indication of the decline in the employment of coloured labour in the sugar industry during that period :—

SUGAR PRODUCTION, 1902-3 to 1911-12.

Season.	New South Wales.			Queensland.			Commonwealth.		
	Sugar Produced by—			Sugar Produced by—			Sugar Produced by—		
	White Labour.	Coloured Labour.	Total.	White Labour.	Coloured Labour.	Total.	White Labour.	Coloured Labour.	Total.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1902-3 ...	19,434	1,526	20,960	12,254	65,581	77,835	31,688	67,107	98,795
1903-4 ...	19,236	2,561	21,797	24,406	65,456	89,862	43,642	68,017	111,659
1904-5 ...	17,812	1,838	19,650	39,404	105,616	145,020	57,216	107,454	164,670
1905-6 ...	18,019	1,964	19,983	50,897	101,362	152,259	68,916	103,326	172,242
1906-7 ...	21,805	1,613	23,418	127,539	54,619	182,158	149,344	56,232	205,576
1907-8 ...	28,247	934	29,181	162,480	22,583	185,063	190,727	23,517	214,244
1908-9 ...	14,351	964	15,315	132,049	18,358	150,407	146,400	19,322	165,722
1909-10 ...	13,839	815	14,654	118,298	14,451	132,749	132,137	15,266	147,403
1910-11 ...	17,936	892	18,828	191,406	15,776	207,182	209,342	16,668	226,010
1911-12 ...	16,412	887	17,299	160,091	10,371	170,462	176,503	11,258	187,761

During the period under review the proportion of sugar produced by coloured labour declined from 68 per cent. of the total for 1902-3 to less than 6 per cent. of the total for 1911-12.

11. **Imports and Exports of Sugar.**—Notwithstanding the increase in the production of sugar in evidence in the Commonwealth during recent years, Australia's oversea import trade in cane sugar remained fairly extensive until 1906, the principal countries engaged in supplying this commodity being Java, Mauritius, and Fiji. In 1907 the exports of sugar exceeded the imports for the first time, the value of the net exports being £166,121. In 1908 the imports exceeded the exports by 96,218 cwt. in quantity and £37,080 in value; while in the following year the excess of imports over exports was 1,832,943 cwt., value £1,004,308. In 1910 and 1911 the net imports fell in quantity to 548,474 cwt. and 518,889 cwt. respectively, the corresponding values being £297,958 and £273,518. The principal countries to which Australian sugar is exported are South African Union, the Pacific Islands, the United Kingdom, and Portuguese East Africa, but the bulk of the sugar exported from the Commonwealth is not of Australian origin, but merely a re-export of sugar produced elsewhere. Thus of 146,623 cwt. exported during 1911, only 15,582 cwt. were of Australian origin. The sugar so re-exported comes mainly from Fiji, Java, and Mauritius. Particulars concerning the imports and exports of cane sugar for 1901 and the past five years are as follows:—

IMPORTS AND EXPORTS OF CANE SUGAR, 1901 and 1907 to 1911.

Year.	Oversea Imports.		Oversea Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	cwt.	£	cwt.	£	cwt.	£
1901 ...	1,970,883	1,239,550	94,764	68,876	1,876,119	1,170,674
1907 ...	123,351	77,259	365,213	243,380	— 241,862	— 166,121
1908 ...	391,048	245,495	294,830	208,415	96,218	37,080
1909 ...	1,993,967	1,122,863	161,024	118,555	1,832,943	1,004,308
1910 ...	680,166	406,709	131,687	108,751	548,479	297,958
1911 ...	665,512	404,474	146,623	120,956	518,889	273,518

Note. — signifies net exports.

§ 14. Vineyards.

1. **Nature and Extent.**—The introduction of the vine into Australia has been set down by different investigators as at various dates, the years 1815 and 1828 being principally favoured. It would seem, however, that the vine was really brought out with the First Fleet, which initiated the colonisation of Australia, in 1788, and that consequently the Australian vine is as old as Australian settlement. As already mentioned a report of Governor Hunter's gives the area under vines in 1797 as 8 acres. From New South Wales the vine spread to Victoria and South Australia, and these States have now far outstripped the mother State in the area which they have devoted to its cultivation. In Queensland and Western Australia also, vine-growing has been carried on for many years, but in neither State has the industry progressed with the rapidity attained in Victoria and South Australia. 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.—(i.) for wine-making, (ii.) for table use, (iii.) for drying. The total area under vines in the several States from 1860 onwards is given in the following table :—

COMMONWEALTH VINEYARDS, 1860-1 to 1911-12.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.		Acres.
1860-1 ...	1,584	1,138	—	3,180	335	There are no vineyards in Tasmania.	6,237
1865-6 ...	2,126	4,078	110	6,629	634		13,577
1870-1 ...	4,504	5,466	416	6,131	710		17,227
1875-6 ...	4,459	5,081	376	4,972	675		15,563
1880-1 ...	4,800	4,980	739	4,337	659		15,515
1885-6 ...	5,247	9,775	1,483	5,142	624		22,271
1890-1 ...	8,044	20,686	1,981	9,535	1,024		41,270
1895-6 ...	7,519	30,275	2,021	17,604	2,217		59,636
1900-1 ...	8,441	30,634	2,019	20,158	3,325		64,577
1905-6 ...	8,754	26,402	2,044	23,603	3,541		64,344
1906-7 ...	8,521	25,855	2,070	22,586	3,525		62,557
1907-8 ...	8,483	26,465	1,973	21,080	3,231		61,232
1908-9 ...	8,251	24,430	1,616	22,031	3,122		59,450
1909-10 ...	8,330	22,768	1,695	22,441	2,917		58,151
1910-11 ...	8,321	23,412	1,634	22,952	2,795		59,114
1911-12 ...	8,231	24,193	1,371	23,986	2,821		60,602

The area devoted to vines in the Commonwealth attained its highest point in the season 1904-5, when a total of 65,673 acres was reached. Each of the five following seasons shewed a diminution, the area in 1909-10 being reduced to 58,151 acres; this decline was in evidence in all the States. An increase took place in each of the two succeeding seasons, the total Commonwealth area under vines amounting to 60,602 acres in 1911-12.

The wine-growing industry in Australia, more particularly in Victoria and New South Wales, received a severe check on account of various outbreaks of phylloxera which took place in different parts of these States. With a view to its eradication extensive uprooting of vineyards in the infested areas was undertaken, while further planting within such areas, except with phylloxera-resisting vines, was prohibited.

In the States of Victoria, South Australia, and Western Australia satisfactory increases in the area under vines were in evidence in 1911-12, while in Queensland and New South Wales, small decreases were shewn.

2. **Wine Production.**—The production of wine in Australia has not increased as rapidly as the suitability of soil and general favourableness of conditions would appear to warrant. The cause of this is probably twofold, being in the first place due to the fact that the Australians are not a wine-drinking people and consequently do not provide a local market for this 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 recognised the wine production of Australia will exhibit a rapid development. Particulars concerning the quantity of wine produced in the several States during 1901-2 and the past five seasons are contained in the table given hereunder:—

AUSTRALIAN WINE PRODUCTION, 1901-2 and 1907-8 to 1911-12.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.		Gallons.
1901-2 ...	868,479	1,981,475	148,835	2,631,563	185,735	No production of wine in Tasmania.	5,816,087
1907-8 ...	778,500	1,365,600	90,191	2,061,987	153,755		4,450,033
1908-9 ...	736,262	1,437,106	77,698	3,132,247	132,488		5,515,801
1909-10 ...	808,870	991,941	91,410	2,569,797	140,559		4,602,577
1910-11 ...	805,600	1,362,420	74,306	3,470,058	153,665		5,866,049
1911-12 ...	850,210	983,423	57,358	2,921,597	162,559		4,975,147

3. **Relation to Population.**—In relation to population the area of the vineyards of the several States exhibits a well-marked decline during the seasons under review, the Commonwealth total having fallen during the period from 17 to 13 acres per 1000 of the population. Details for the period are furnished in the succeeding table:—

AREA OF VINEYARDS PER 1000 OF POPULATION.

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas	C'wealth
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres	Acres.
1901-2	6	24	4	58	19	...	17
1907-8	6	21	4	56	13	...	15
1908-9	5	20	3	57	12	...	14
1909-10	5	18	3	57	11	...	13
1910-11	5	18	3	56	10	...	13
1911-12	5	18	2	57	10	...	13

4. **Imports and Exports.**—During the past ten years the importations of wine into the Commonwealth have exhibited a marked fluctuation, declining continuously in value from £161,945 in 1901 to £96,870 in 1904, then increasing continuously to £133,114 in 1908 and decreasing again in 1909 to £116,021, and again increasing in the two following years, the 1911 importations being valued at £184,924. The principal countries of origin of wine imported into Australia are France, Spain, Portugal, and Germany, the greater portion of the sparkling wines coming from France and of still wines from Spain and Portugal. Particulars relative to the importations of wine into the Commonwealth during 1901 and the past five years are given hereunder:—

COMMONWEALTH IMPORTS OF WINE, 1901 and 1907 to 1911.

Year.	Quantity.			Value.		
	Sparkling.	Other.	Total.	Sparkling.	Other.	Total.
	Gallons.	Gallons.	Gallons.	£	£	£
1901	55,341	165,472	220,813	104,700	57,245	161,945
1907	50,393	67,906	118,299	94,549	26,397	120,946
1908	56,806	68,252	125,058	106,108	27,006	133,114
1909	47,669	60,946	108,615	91,046	24,975	116,021
1910	50,982	70,903	121,885	97,296	29,106	126,402
1911	78,115	75,446	153,561	153,561	31,363	184,924

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, Fiji, and the South Sea Islands. Details concerning the exports of wine from Australia during 1901 and the past five years are given in the following table :—

COMMONWEALTH EXPORTS OF WINE, 1901 and 1907 to 1911.

Year.	Quantity.			Value.		
	Sparkling.	Other.	Total.	Sparkling.	Other.	Total.
	Gallons.	Gallons.	Gallons.	£	£	£
1901	2,936	863,147	866,083	6,972	122,751	129,723
1907	2,771	979,527	982,298	5,233	121,811	127,044
1908	2,824	728,421	731,245	4,541	98,333	102,874
1909	2,649	974,413	977,062	4,455	121,116	125,571
1910	2,830	949,033	951,913	5,340	123,593	128,933
1911	2,343	1,097,624	1,099,967	4,126	147,608	151,734

The sparkling wine included in the foregoing table consists mainly of foreign wine re-exported.

5. **Other Viticultural Products.**—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 also carried on. The quantities of table grapes grown in the several States during 1901-2 and the past five seasons are as follows :—

TABLE GRAPES,1901-2 and 1907-8 to 1911-12.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1901-2 ...	3,475	5,110	750*	2,800 *	1,100*	...	13,235
1907-8 ...	2,978	3,325	1,044	2,805	2,715	...	12,867
1908-9 ...	3,150	3,018	1,336	3,214	1,982	...	12,700
1909-10 ...	4,181	3,189	1,520	2,496	3,928	...	15,314
1910-11 ...	3,914	2,913	1,254	2,531	3,200	...	13,812
1911-12 ...	4,223	3,102	973	2,123	3,506	...	13,927

* Estimated.

Statistics of the quantities of raisins and currants dried are available for a series of years for Victoria and South Australia, and are as follows for 1901-2 and the past five seasons :—

RAISINS AND CURRANTS DRIED, 1901-2 and 1907-8 to 1911-12.

Season.	Raisins.		Currants.	
	Victoria.	Sth. Australia.	Victoria.	Sth. Australia.
	lbs.	lbs.	lbs.	lbs.
1901-2	3,083,665	822,080	285,157	382,256
1907-8	7,685,104	2,742,656	1,169,280	2,235,184
1908-9	7,788,032	3,136,784	1,336,048	2,738,288
1909-10	9,076,928	3,114,496	3,069,696	4,037,824
1910-11	8,883,616	3,891,440	2,956,128	4,509,232
1911-12	11,527,488	3,880,912	5,240,368	5,229,840

In New South Wales, Queensland, and Western Australia also small quantities of raisins and currants are dried, but until recently no statistics were collected. The quantity so produced in New South Wales amounted to 100,912 lbs. in 1907-8, 160,720 lbs. in 1908-9, 165,984 lbs. in 1909-10, 297,472 lbs. in 1910-11 and 429,968 lbs. in 1911-12. For Queensland and Western Australia there are no particulars available.

§ 15. Orchards and Fruit Gardens.

1. **Nature and Extent.**—Fruit-growing has made rapid progress in the Commonwealth during recent years, the area devoted thereto having increased in the past ten years by no less than 47,749 acres. The States in which the increase was most marked were:—Tasmania, 16,383 acres; Western Australia, 12,118 acres; Victoria, 9930 acres; and South Australia, 6899 acres. During the same period the Queensland fruit-growing area increased slightly, while that in New South Wales exhibited a decline of 63 acres. The increased areas in Tasmania and Western Australia are mainly due to extensive plantings of apple trees with a view to the possibilities of the London market for fresh fruit. The total area devoted to orchards and fruit gardens in the several States is given hereunder:—

COMMONWEALTH ORCHARDS AND FRUIT GARDENS, 1901-2 and 1907-8 to 1911-12.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	F. Cp. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2...	48,448	50,055	14,396	16,315	6,076	11,485	...	...	146,775
1907-8...	46,714	54,111	14,397	20,736	13,900	19,441	...	...	169,299
1908-9...	45,880	54,946	14,104	20,855	15,016	20,757	...	...	171,558
1909-10	45,892	56,108	15,360	21,760	15,609	24,069	...	...	178,798
1910-11	47,533	57,375	15,153	22,410	16,738	25,934	13	...	185,156
1911-12	48,385	59,985	16,817	23,214	18,194	27,868	13½	48	194,524

The varieties of fruit grown differ materially in various parts of the several States, and range between such fruits as the pineapple, paw-paw, mango, and guava of the tropics, and the strawberry, the raspberry, and the currant of the colder parts of the temperate zone. The principal varieties grown in Victoria are the apple, plum, peach, apricot, cherry, and pear. In New South Wales citrus fruits (orange, lemon, etc.) occupy the leading position, although apples, pears, peaches, plums, and apricots are also extensively grown. In Queensland the banana, the orange, the pineapple, the apple, the peach, the mango, and the plum are the varieties most largely grown. In South Australia, in addition to the apple, pear, peach, apricot, plum, orange, and lemon,

the almond and the olive are also largely grown. In Western Australia the apple, orange, peach, pear, plum, fig, and apricot are the sorts chiefly grown, while in Tasmania although the apple represents more than four-fifths of the area in that State devoted to fruit-growing, small fruits, such as the currant, raspberry, and gooseberry, are very extensively grown, and the balance of the area is mainly occupied with the pear, plum, apricot, peach, and cherry.

2. **Relation to Population.**—In relation to population the orchards and fruit gardens of the Commonwealth have exhibited an increase during the past ten seasons more than compensating for the decline which was experienced in the case of vineyards. Taking the two in conjunction the relative area under vineyards and orchards has, during the period, remained practically stationary at about 55 acres per 1000 of population. Details for 1901-2 and the past five seasons are as follows :—

AREA OF ORCHARDS AND FRUIT GARDENS PER 1000 OF POPULATION.

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas.	N.T.	F. Cp. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2...	35	41	28	45	31	66	...	...	38
1907-8...	31	44	26	55	55	103	...	...	41
1908-9...	29	44	25	54	58	109	...	...	41
1909-10	28	44	27	55	59	125	...	...	41
1910-11	29	44	25	55	60	134	4	...	42
1911-12	29	44	27	56	62	144	4	25	43

3. **Commonwealth Imports and Exports.**—A very considerable fruit trade, both import and export, is carried on by the Commonwealth with oversea countries, the major portion of the importations consisting of dried fruits, while the bulk of the exports is made up of fresh fruits. Amongst the imports the principal dried fruits are currants, dates, sultanas, and raisins, and the principal fresh fruits bananas, oranges, lemons, and apples. The currants imported are mainly of Greek origin, the dates of Arabian, Persian, and Turkish, the raisins mainly of Spanish, and the sultanas of Turkish origin. Of the fresh fruits imported during 1911 the bananas were chiefly from Fiji, the oranges and lemons from Italy, and the apples from Canada. The dried fruits imported during the year were valued at £68,942, and the fresh at £197,924. In 1907 a very marked development in the trade in Australian dried fruits took place, the total export for the year being valued at £76,872, of which £71,506 represented Australian fruits and £5366 re-exports of foreign fruits. In 1908 the total export of dried fruits from Australia was valued at £35,359, of which £33,111 represented Australian fruits, and £2248 re-exports of foreign fruits. There was a further decline in 1909, when the total value of exports was only £13,013, made up of £11,826 of Australian produce, and £1187 of re-exports. There was a small increase in the total exports in 1910, and a further advance in 1911, the exports for the latter year amounting to £23,900; of this sum £20,133 represented Australian produce and the balance of £3767 re-exports of foreign fruits. The principal consignees of Australian dried fruits exported were United Kingdom and New Zealand. The fresh fruits exported during the year were valued at £420,780, and consisted mainly of apples. These were all of Australian origin with the exception of re-exports valued at £594. The principal countries to which these were sent were the United Kingdom, Germany, New Zealand, Brazil, United States of America, and India. The value of the net imports of dried fruits for the year 1911 was £45,042, whilst in the case of fresh fruits, the value of the net exports was £222,856, the second largest net export value since 1904.

Particulars concerning the oversea imports and exports of dried fruits for 1901 and the last five years are as follows :—

COMMONWEALTH OVERSEA IMPORTS AND EXPORTS OF DRIED FRUITS,
1901 and 1907 to 1911.

Year.	Oversea Imports.		Oversea Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£	lbs.	£
1901	14,265,731	179,305	831,996	14,206	13,433,735	165,099
1907	13,250,392	134,736	5,281,608	76,872	7,968,784	57,864
1908	10,351,443	99,518	2,509,640	35,359	7,841,803	64,159
1909	13,242,198	121,059	1,089,730	13,013	12,152,468	108,046
1910	9,885,118	89,076	973,171	14,765	8,911,947	74,311
1911	6,526,498	68,942	1,291,795	23,900	5,234,703	45,042

Similar information with regard to the Commonwealth oversea trade in fresh fruits for the same period is contained in the table given hereunder :—

COMMONWEALTH OVERSEA IMPORTS AND EXPORTS OF FRESH FRUITS,
1901 and 1907 to 1911.

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Centals.	£	Centals.	£	Centals.	£
1901	*	45,955	*	167,926	*	121,971
1907	189,052	95,015	435,534	266,160	246,482	171,145
1908	166,341	107,666	377,926	263,307	211,585	155,641
1909	250,311	146,081	372,308	243,699	121,997	97,618
1910	137,733	90,100	500,661	322,694	362,928	232,594
1911	338,749	197,924	651,837	420,780	313,088	222,856

* Not available.

4. **Jams and Jellies.**—A small oversea trade in jams and jellies is carried on by the Commonwealth, the value of the imports for the year 1911 amounting to £8304, and of the exports to £20,896. The country of origin of the bulk of the importations is the United Kingdom, while the destinations of the exports are principally South Africa, Ceylon, Philippine Islands and Fiji. Particulars relative to imports and exports for 1901 and the last five years are as follows:—

COMMONWEALTH OVERSEA TRADE IN JAMS AND JELLIES, 1901 and 1907 to 1911.

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£	lbs.	£
1901 ...	1,312,377	23,358	4,140,072	64,389	2,827,695	41,031
1907 ...	297,634	6,967	1,639,239	24,561	1,341,605	17,594
1908 ...	280,525	6,898	1,714,060	26,155	1,433,535	19,257
1909 ...	334,738	7,956	1,706,400	26,124	1,371,662	18,168
1910 ...	365,752	8,859	1,814,002	28,372	1,448,250	19,513
1911 ...	322,487	8,304	1,288,729	20,896	966,242	12,592

5. **Preserved Fruit.**—Details concerning the quantities and values of preserved fruit imported into and exported from the Commonwealth 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, other than fresh fruits, dried fruits, potatoes, and onions, imported into Australia during 1911 was £67,620, and the corresponding value of exports was £29,245.

§ 16. Minor Crops.

1. **Nature and Extent.**—In addition to the leading crops which in the foregoing pages have been dealt with in some detail, 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 those which may be classed under the heads of Market Gardens, Pumpkins and Melons, Turnips, Nurseries, Grass Seed, Tobacco, Hops, and Millet, while the possibilities of Cotton-growing in the tropical portions of the Commonwealth have in recent years received considerable attention, although the industry cannot yet be said to have assumed definite shape. The total area in the Commonwealth during the season 1911-12 devoted to minor crops was 68,927 acres, of which market gardens accounted for 30,292 acres.

2. **Market Gardens.**—Under this head are included all areas on which are grown mixed vegetables for sale. Where considerable areas are devoted to the production of one vegetable, such for instance as the potato, the onion, the melon, the tomato, etc., these crops are usually not included with market gardens, but are shewn either under some specific head, or under some such general head as "Other Root Crops," or "All other Crops." The area under market gardens in the several States of the Commonwealth during 1901-2 and each of the last five seasons is given in the table hereunder:—

COMMONWEALTH MARKET GARDENS, 1901-2 and 1907-8 to 1911-12.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust	Tas.	N. T.	Fd. Cp. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2 ...	7,834	8,752	2,328	9,005	2,142	1,746	...	...	31,807
1907-8 ...	10,052	9,022	2,365	2,961	3,543	1,791	...	...	29,734
1908-9 ...	10,331	9,279	2,875	2,818	3,471	1,603	...	...	30,377
1909-10 ...	10,254	10,214	2,677	2,784	3,481	1,720	...	...	31,130
1910-11 ...	9,813	10,778	2,317	2,818	3,576	1,741	*58	...	31,101
1911-12 ...	9,488	10,331	2,293	2,848	3,120	2,144	58	10	30,292

* Included with South Australia prior to 1910-11.

In all the States the area for 1907-8 was in excess of that for 1901-2 with the exception of South Australia, where the falling-off is more apparent than real, being in large part due to a change in the classification of crops introduced in connection with the new system of collection which came into force for 1907-8. It is believed that the figures given for the earlier years are considerably in excess of the truth.

3. **Grass Seed.**—The total area under this crop during 1911-12 was 5926 acres, of which 4007 acres were in Tasmania, 1188 acres in Victoria, 719 acres in Queensland, and 12 acres in South Australia. The total yield for 1911-12 was 87,727 bushels, or 14.8 bushels per acre.

4. **Tobacco.**—The tobacco-growing industry is one which has experienced marked fluctuations in Australia and which once promised to occupy an important place amongst the agricultural industries of the Commonwealth. Thus, as early as the season 1888-9 the area under this crop amounted to as much as 6641 acres, of which 4833 were in New South Wales, 1685 in Victoria, and 123 in Queensland. This promise of prosperity was, however, not fulfilled, and after numerous fluctuations, in the course of which the Victorian area rose in 1895 to over 2000 acres, and that in Queensland to over 1000 acres, the total area under tobacco for the season 1911-12 was only 2449 acres, distributed as follows:—New South Wales, 1501 acres; Victoria, 356 acres; and Queensland, 592 acres. This decline in production appears to have been due to the comparatively

small demand which existed in Australia for the locally-produced leaf, and to the fact that the cost of production and preparation in the Commonwealth prevented the Australian leaf from obtaining a footing in the outside markets. Probably under more favourable circumstances, and with greater attention given to the production of leaf of the best quality only, the industry is one which will eventually assume considerable proportions. In all the States in which its cultivation has 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 the Commonwealth furnish an indication of the extensive local market which exists for an article grown and prepared in such a manner as to meet with the requirements of consumers. The value of the net importations of tobacco into the Commonwealth during the year 1911 amounted to £777,378, comprising unmanufactured tobacco (£505,514), cigars (£170,104), cigarettes (£44,164), manufactured tobacco (£56,585), and snuff (£1011).

5. **Pumpkins and Melons.**—The total area under this crop in the Commonwealth during 1911-12 was 11,794 acres, of which 3678 acres were in New South Wales, 2328 acres in Victoria, 5421 acres in Queensland, and 364 acres in Western Australia; the production for the first three named was 11,223. 20,343 and 16,555 tons respectively; the quantity produced in Western Australia is not available.

6. **Hops.**—Hop-growing in the Commonwealth is practically confined to Tasmania and some of the cooler districts of Victoria, the total area for the season 1911-12 being 1154 acres, of which 1029 acres were in Tasmania, and 122 acres in Victoria; a small area of 3 acres was also grown in South Australia. The Tasmanian area, though still small, has increased rapidly during the past nine 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, has diminished to 122 acres in 1911-12. The cultivation of hops was much more extensive in Victoria some thirty years ago than at present, the area devoted to this crop in 1883-4 being no less than 1758 acres. During the year 1911 the net importations of hops into the Commonwealth represented a weight of 863,326 lbs. and a value of £46,117. The total value of the net importations of hops into Australia during the past ten years amounted to £501,442, thus indicating the existence of a regular and extensive local demand.

7. **Millet.**—Millet appears in the statistical records of three of the Commonwealth States. The total area devoted thereto in 1911-12 was 2449 acres, of which 1501 acres was in New South Wales, 592 in Queensland and 356 in Victoria. The particulars here given relate to millet grown for grain and fibre. That grown for green forage is dealt with in the section relating thereto.

8. **Nurseries.**—In all the States somewhat extensive areas are devoted to nurseries for raising plants, trees, etc., but statistics concerning the area so occupied for flowers, fruit trees, etc., are not available, and so far as they relate to forestry are given elsewhere.

9. **Cotton.**—Cotton-growing on a small scale has been tried in Queensland, but so far without very marked success. The area under cotton, though fluctuating, has shewn an upward tendency during the past five years. In 1907-8 300 acres were under cultivation in Queensland, while 605 acres were devoted to this crop in 1911-12, giving a yield of 186,894 lbs. of seed cotton, valued at £4672. Hopes are entertained that with the invention of a mechanical device for the picking of the cotton the industry will become firmly established, since the soil and conditions appear eminently suitable for the growth of this crop. Small areas in the Northern Territory have also been planted with cotton, and 20 acres were under cultivation in 1911-12.
The tropical portions of Western Australia have also long been regarded as suitable for its cultivation.

10. **Coffee.**—Queensland is the only State of the Commonwealth in which coffee-growing has been at all extensively tried, and here the results have up to the present

time been far from satisfactory. The total area devoted to this crop reached its highest point in the season 1901-2, when an area of 547 acres was recorded. Since then the area continuously declined to 1906-7, when it was as low as 256 acres. During the season 1907-8 an improvement occurred and the total reached was 304 acres, succeeded by a fall to 285 acres in 1908-9, 200 acres in 1910-11, and 198 acres in 1911-12. In the last-mentioned season the yield amounted to 80,871 lbs., valued at £3033.

11. **Other Crops.**—Miscellaneous small crops are grown in the several States, amongst which may be mentioned tomatoes, rhubarb, artichokes, arrowroot, chicory, and flowers.

§ 17. Bounties on Agricultural Products.

1. **General.**—The Bounties Act of 1907 passed by the Federal Parliament in order to encourage the manufacture and production of certain articles in the Commonwealth, includes among the number of items on which bonuses are payable, several agricultural products. The most important of these, viz., sugar, has been referred to on page 394 of this publication. Minor products of the soil on which these bounties are payable are as set out in the following table :—

AGRICULTURAL PRODUCTS (OTHER THAN SUGAR) ON WHICH BOUNTIES ARE PAYABLE.

Article.	Period dating from 1st July, 1907, during or in respect of which Bounty may be paid.	Rates of Bounty.	Maximum amounts which may be assigned in any one year.*	Amount available for year 1912-13.
			£	£
Cotton, ginned	8 years	10 % on market value	6,000	29,696
Fibres—				
New Zealand flax ...	10 ,,	10 ,, ,,	3,000	15,000
Flax and hemp ...	5 ,,	10 ,, ,,	8,000	39,151
Jute	5 ,,	20 ,, ,,	9,000	45,000
Sisal hemp	10 ,,	10 ,, ,,	3,000	14,811
Oil materials supplied to an oil factory for the manufacture of oil—				
Cottonseed	8 ,,	10 ,, ,,	1,000	4,956
Linseed (flax seed) ...	5 ,,	10 ,, ,,	5,000	24,994
Rice, uncleaned ...	5 ,,	20s. per ton	1,000	5,000
Coffee, raw, as prescribed	8 ,,	1d. per lb.	1,500	6,972
Tobacco leaf for the manufacture of cigars, high grade, of a quality to be prescribed	5 ,,	2d. ,,	4,000	19,435
Fruits—				
Dates (dried)... ...	15 ,,	1d. ,,	1,000	5,000
Dried (except currants and raisins) or candied, and exported ...	5 ,,	10 % on market value	6,000	27,055

* Any unexpended amount assigned in any year is available for the years following.

Although the rate of bonus on the several articles, is, as shewn above, fairly liberal, the bounties have not been availed of to any great extent, as will be seen from the following table, which gives particulars as to the quantity of the articles raised and the amounts paid as bounties in respect thereof for the five financial years which have elapsed since the operation of the Act :—

PARTICULARS OF BOUNTIES PAID ON AGRICULTURAL PRODUCTS (OTHER THAN SUGAR), 1907-8 to 1911-12.

Article.	Quantity produced on which Bounties were paid.					Amount paid as Bounties.				
	1907-8.	1908-9.	1909-10.	1910-11.	1911-12.	1907-8.	1908-9.	1909-10.	1910-11.	1911-12.
						£	£	£	£	£
Cotton, ginned ... ...lbs.	662	21,865	24,994	53,173	60,443	10	32	34	91	137
Fibres—										
Flax and hemp... tons	...	32	28	28	137	...	126	120	123	480
Sisal hemp ... ,,	...	14	11	45	8	...	34	25	112	18
Oil materials supplied to an oil factory for the manufacture of oil—										
Cottonseed ... ...lbs.	...	36,491	45,610	96,312	...	...	12	10	22	...
Linseed (flax seed) cwt.	...	36	...	...	...	...	6	...	...	...
Coffee, raw, as prescribed lbs.	2,111	53,365	28,134	26,825	16,269	9	222	117	112	68
Tobacco leaf for the manufacture of cigars, high grade, of a quality to be prescribed ... lbs.	...	14,538	33,093	10,902	9,258	...	121	276	90	78
Fruits—										
Dried (except currants and raisins) or candied, and exported ... lbs.	54,992	12,096	23,932	454,075	636,452	1,061	28	104	940	1,734

During the year 1911-12 the total amount paid in respect of cotton, sisal hemp, and coffee was claimed by the State of Queensland, with the exception of the small amount of £1, which was paid in New South Wales on account of cotton. South Australia collected £992, Tasmania £360, and Victoria £382 of the fruit bonus, while £73 of the bounty paid for tobacco leaf was paid to Queensland, the remaining £5 being earned in Victoria. The last-mentioned State also claimed the total amount paid for flax and hemp.

No bounties have yet been paid on New Zealand flax, jute, uncleaned rice or dates.

§ 18. Fertilisers.

1. **General.**—In the early days of settlement and cultivation in the Commonwealth, scientific cultivation was in a much less developed state than it is to-day. The early farmers were neither under the necessity, nor were they as a rule aware of the need, of supplying the constituents to the soil demanded by each class of crop. The widely-divergent character of the soils in the Commonwealth, their degeneration by repeated cropping, the limitations of climatic conditions, the difficulties of following any desired order of rotation of crops, all rendered it necessary to give attention to artificial manuring. The introduction of the modern seed-drill, acting also as a fertiliser distributor, has greatly facilitated the use of artificial manures, and much land formerly regarded as useless for cultivation has now been made available. There is reason to believe that this feature will be even more strikingly characteristic of the future.

2. **Fertilisers 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 fertilisers. The following is a list of such Acts in force:—

New South Wales ...	The Fertilisers Act of 1904.
Victoria	The Artificial Manures Acts of 1904 and 1910.
Queensland ...	The Fertilisers Act of 1905.
South Australia ...	The Fertilisers Act of 1900; amended 1903.
Western Australia ...	The Fertilisers and Feeding Stuffs Act of 1904; amended 1905.
Tasmania... ...	The Manures Adulteration Acts of 1893 and 1898.

As regards their main features these measures are practically identical. The words "fertiliser" and "manure," as used in these Acts, mean any substance containing nitrogen, phosphoric acid, or potash, manufactured, produced, or prepared in any manner for the purpose of fertilising the soil or supplying nutriment to plants, but do not include farm-yard or stable manure or similar articles in their natural or unmanufactured state. The Acts provide that every vendor of fertilisers must, within a stated period, forward to the Secretary of Agriculture, or corresponding officer, samples of the fertilisers on sale by him, together with the distinctive names or brands by which they are known, and the price at which he intends to sell during the year. On every bag, package, or bundle of fertiliser sold, or exposed for sale, he must attach a printed label shewing thereon:—

(i.) The number of net pounds of fertiliser in such bag or parcel;
(ii.) The figure or trade mark attached to the fertiliser and intended to identify it;
(iii.) The proportion per centum of nitrogen, phosphoric acid, and potash contained therein.

In addition to the above the vendor must furnish every purchaser with an invoice certificate, signed by himself or his agent, stating his full name and place of business and the quality of the fertiliser sold.

Any officer or analyst appointed under the Acts may enter any manufactory, warehouse, store, vessel, wharf, railway station, conveyance, or other place where fertiliser is manufactured, stored, exposed for sale, or in course of delivery or transit, and demand and take samples of such fertiliser. Every sample so taken must be divided by such officer into three parts, and each marked, sealed, and fastened by him in the presence of the person in charge, and disposed of as follows.—

(i.) One part to be taken by person in charge.
(ii.) One part to be used for analysis.
(iii.) One part to be retained by the officer for future comparison.

Every buyer of fertiliser is entitled to submit a sample to the analyst appointed under the Act, and receive a certificate of its analysis. If the analysis prove it to be under what it is represented to be, the vendor must pay the cost of analysis.

3. **Imports.**—The local production of artificial manures falls short of the existing demand, and large quantities are consequently imported.

The importation of fertilisers has increased nearly 200 per cent. since 1901. The chief items, both as regards quantity and value, are those relating to phosphates, a fertiliser which has proved itself to be very suitable for the growing of cereals in Australian soils. The greatest quantity of the manufactured superphosphates imported from any one country is obtained from the United Kingdom, whence came over 50 per cent. of the total imported during 1911, while Japan contributed 31½ per cent., the Netherlands 10½ per cent., and Germany 6 per cent., the balance, representing about 2 per cent., being imported from Sweden and Belgium. Ocean Island, with about 71 per cent., was the principal contributor of rock phosphates; of the balance about 23 per cent. was obtained from Christmas Island, and 6½ per cent. from the Pacific Islands. Guano is imported chiefly from Ocean Island, one of the South Sea group, and in lesser quantities from Malden Island and Peru, while India and the East Indies have practically a monopoly of the bone-dust trade with the Commonwealth.

The increasing demand for artificial manures is shewn in the following table. It will be noticed that the quantity of rock phosphates imported during the last four years has shewn a marked increase over previous years. The imports were particularly large during 1910, when an increase of over 100 per cent. is shewn over the quantity imported in the previous year. The figures for the manufactured superphosphates shewed an increase of about 50 per cent. during that year, while those for 1911 shew a further increase of some 5 per cent.

COMMONWEALTH IMPORTS OF FERTILISERS, 1907 to 1911.

Fertiliser.		1907.	1908.	1909.	1910.	1911.
Bonedust	Cwt.	93,798	74,657	71,959	12,740	4,164
"	£	24,103	18,088	17,632	3,294	1,086
Guano	Cwt.	606,630	696,660	468,215	788,304	484,003
"	£	75,130	84,961	56,723	89,961	52,447
Superphosphates ...	Cwt.	780,464	610,596	757,515	1,196,613	1,254,892
" " ...	£	133,352	94,203	105,229	174,751	183,832
Rock Phosphates ...	Cwt.	769,630	1,267,665	1,006,030	2,112,127	1,721,140
" "	£	103,609	183,817	143,246	294,212	228,292
Other	Cwt.	227,689	197,240	151,241	377,327	161,121
"	£	52,975	60,676	38,007	107,573	47,479
Total ...	Cwt.	2,478,211	2,846,818	2,454,960	4,487,111	3,625,320
	£	389,169	441,745	360,837	669,791	513,136

4. **Exports.**—The subjoined table shews the exports of artificial manures for the years 1907 to 1911. Practically the whole of the fertiliser is manufactured locally, and is shipped mainly to New Zealand and the Pacific Islands:—

COMMONWEALTH EXPORTS OF FERTILISERS, 1907 to 1911.

Fertiliser.		1907.	1908.	1909.	1910.	1911.
Bonedust	Cwt.	59,878	65,491	62,637	80,602	122,456
"	£	16,001	17,069	16,571	19,066	34,787
Guano	Cwt.	5,000	...	...	2,812	2,719
"	£	875	...	...	490	603
Superphosphates ...	Cwt.	194,943	250,236	235,939	260,261	200,925
" " ...	£	41,041	47,418	44,041	51,051	38,007
Rock Phosphates ...	Cwt.	5,028	5,077	3,320	11,190	2,106
" " ...	£	1,062	1,145	658	1,819	353
Soda Nitrate ...	Cwt.	1,980	429	3,579	6,215	6,107
"	£	1,168	222	2,075	2,844	3,098
Ammonia Sulphate	Cwt.	...	70,258	69,894	69,015	56,630
" " ...	£	...	45,915	42,766	43,081	37,141
Other	Cwt.	148,816	120,524	177,189	229,841	215,382
"	£	50,813	28,565	33,880	48,989	53,510
Total ...	Cwt.	415,645	512,015	552,558	659,936	606,325
	£	110,960	140,334	139,991	167,340	167,499

5. **Statistics of Use of Fertilisers.**—The statistics available in connection with the use of manures in the Commonwealth for a series of years refer to New South Wales, Victoria, South Australia, and Western Australia; those for Tasmania were collected for the first time for 1911-12. Particulars concerning the first-mentioned State are given hereunder:—

FERTILISERS USED IN NEW SOUTH WALES, 1907-8 to 1911-12.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage to Total Area of Crop.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1907-8	2,572,873	423,678	16.47	144,021	13,356
1908-9	2,717,085	509,262	18.74	216,078	15,545
1909-10	3,180,561	826,197	25.98	189,008	21,659
1910-11	3,386,017	1,030,554	30.43	186,204	25,017
1911-12	3,628,513	1,407,453	38.80	178,689	33,820

Particulars for Victoria for 1901-2 and the past five seasons are as follows:—

FERTILISERS USED IN VICTORIA, 1901-2 and 1907-8 to 1911-12.

Season.	Total Area of Crops.	Farmers Using Manure.	Area Manured.		Manure Used.	
			Aggregate.	Percentage to Total Area of Crop.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	No.	Acres.	%	Tons.	Tons.
1901-2 ...	2,965,681	11,439	556,777	18.77	153,611	23,535
1907-8 ...	3,232,523	23,733	2,018,079	62.43	232,394	62,337
1908-9 ...	3,461,761	24,437	2,053,987	59.33	235,492	64,715
1909-10 ...	3,658,535	26,690	2,407,331	65.80	197,446	77,579
1910-11 ...	3,952,070	27,845	2,714,854	68.69	203,884	86,316
1911-12 ...	3,640,241	26,159	2,676,408	73.52	205,739	82.581

The figures relating to the use of fertilisers in South Australia, for the years for which they are available, are shewn in the table below :—

FERTILISERS USED IN SOUTH AUSTRALIA, 1907-8 to 1911-12.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage to Total Area of Crop.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1907-8	2,265,017	1,573,861	69.49	124,092	60,008
1908-9	2,321,812	1,712,394	73.75	120,648	64,842
1909-10 ...	2,530,301	2,031,832	80.30	133,935	76,413
1910-11 ...	2,746,334	2,235,578	81.40	129,918	81,899
1911-12 ...	2,965,338	2,511,130	84.68	134,503	87,475

Corresponding particulars relative to Western Australia for the seasons 1904-5 and 1907-8 to 1911-12 are given in the following table, and furnish interesting evidence of the rapid extension of the use of manures in that State:—

FERTILISERS USED IN WESTERN AUSTRALIA, 1904-5 and 1907-8 to 1911-12.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage to Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1904-5	327,391	205,923	63.90	72,523	10,787
1907-8	493,837	391,146	79.21	73,809	17,273
1908-9	585,339	493,545	84.32	61,834	21,358
1909-10... ...	722,086	608,870	84.32	67,263	24,654
1910-11... ...	855,024	773,561	90.47	62,229	33,194
1911-12... ...	1,072,653	992,463	92.52	51,600	43,843

Statistics relating to the use of manures in Tasmania were collected for the first time in 1911-12, and are as follows:—

FERTILISERS USED IN TASMANIA, 1911-12.

Total Area of Crops.	Area Manured.		Manure Used.	
	Aggregate.	Percentage to Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial
Acres. 270,000	Acres. 129,914	% 48.12	Tons. 25,792	Tons. 8,750

A marked increase in the proportion of cropped land treated with manure is in evidence in all of the States for which returns are available. Thus in New South Wales the area of manured land represented in 1907-8 only 16½ per cent. of the area under crop, as against 38¾ per cent. in 1911-12. Similarly, in Victoria the percentage increased from 18¾ per cent. in 1901-2 to 73½ per cent. in 1911-12, in South Australia from 69½ per cent. in 1907-8 to over 84½ per cent. in 1911-12, and in Western Australia from 64 per cent. in 1904-5 to 92½ per cent. in 1911-12.

6. **Local Production of Fertilisers.**—Statistics relative to the local production of fertilisers are necessarily very incomplete, and detailed returns for fertiliser factories other than bone mills are not available. The number of firms engaged in the manufacture of artificial manures in the Commonwealth at latest available date was 78, made up as follows:—New South Wales, 20; Victoria, 24; Queensland, 13; South Australia, 12; Western Australia, 6; and Tasmania, 3. If, however, approximately complete returns of the quantities of fertilisers used in the various States could be given, a comparison with the importations would give valuable information, but, as already mentioned, such particulars are only available for four of the States prior to 1911-12, and even then do not furnish the whole of the information necessary.

7. **Benefits Derived from the Use of Fertilisers.**—There is little doubt that the increased and increasing use throughout the Commonwealth of fertilisers, natural and artificial, combined with the greater attention being devoted to fallowing and to the combination of sheep-farming with agriculture, is having the effect of improving the prospects of those dependent for a livelihood on the products of the soil. Reference has previously been made to the loss to the soil of phosphoric acid which the Commonwealth export of wheat and its milled products involves, and the necessity which thus arises for returning this ingredient in some form. Similarly, other staple products exported impose their respective tolls upon the soil of the Commonwealth, and the increased use of fertilisers furnishes evidence that producers are alive to the necessity for making good the deficiency so arising.

§ 19. Ensilage.

1. **Value to Stockowners.**—The use of ensilage as a substitute for green fodder during periods of drought or spells of dry weather, or for winter use, is less extensive in Australia than the circumstances would appear to warrant. There is, however, a growing disposition on the part of dairy farmers to make silos on their holdings, as they find that dairy cattle eat ensilage greedily, and that by its means the output of milk, both in regard to quantity and quality, may be kept up long after the supply of ordinary green food is exhausted. Sheepbreeders are also recognising the fact that during protracted periods of dry weather the silo enables them to keep their stock in good condition, and that lambing can take place satisfactorily. Ensilage thus obviates the expense of travelling or trucking sheep for hundreds of miles to get beyond the drought area, or the equally costly and even ruinous alternative of providing chaff for food at high prices and costly freight. In the rearing of lambs for the London market, ensilage appears to be destined to play an important part, as the lambs thrive upon it much better than upon

dry food. By the judicious economising of the surplus growth of green food with the use of the silo, farmers and squatters can carry more stock on their holdings than they otherwise would be justified in doing. Not only is the great waste of superabundant food thus avoided, but it becomes possible to change into a succulent and nutritious food much growth that in any other state would not be eaten by stock. Thus such vegetation as marsh mallows, thistles, weeds of all sorts, and even the swamp reed *Arundo phragmites*, which grows in great quantities in lagoons, billabongs, and swamps, are all eaten with avidity when offered to stock in the form of ensilage. The pit and stack silos are rapidly being superseded by those built of red gum and hardwood or concrete. This is found to a great extent to obviate the loss sustained by mould, at the same time reducing the risk of fire. The silos vary in capacity from forty to 130 tons. A portable silo made of iron which has been devised, is made in sections of such size and weight as to admit of ready handling. These silos can be increased in diameter or height by the addition of further sections.

2. **Government Assistance in the Production of Ensilage.**—The Government of Victoria, recognising the fact that defective methods of making ensilage have often been adopted, leading to partial or total failure, have for some years been making special efforts to educate the farming community in this respect, so that mistakes may be avoided and the conditions essential for the production of good ensilage may be better appreciated. These conditions vary with the climate and with the locality. The Government also undertakes the erection of silos on very liberal terms, repayment extending over a series of years. Experts supervise the erection of the silos, and give practical lessons as to packing them, etc. The New South Wales Government have, by giving advice in the " Agricultural Gazette " and by the issue of special bulletins, taken steps towards the education of the farmers. Silos have also been erected on the various experimental farms with a view to demonstrating the value of ensilage. No financial assistance is, however, given in New South Wales in this connection.

3. **Quantity Made.**—Particulars concerning the number of silos and the quantity of ensilage made in the several States of the Commonwealth in the seasons 1907-8 to 1911-12 are furnished in the table given hereunder:—

COMMONWEALTH ENSILAGE-MAKING, 1907-8 to 1911-1912.

State.	1907-8.		1908-9.		1909-10.		1910-11.		1911-12.	
	*Holdings.	Ensilage Made.	*Holdings.	Ensilage Made.	*Holdings.	Ensilage Made.	*Holdings.	Ensilage Made.	*Holdings.	Ensilage Made.
	No.	Tons.	No	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
New South Wales	212	12,856	300	27,468	364	34,847	258	29,616	158	20,477
Victoria	203	11,031	392	18,205	518	27,280	460	25,969	371	20,888
Queensland	63	2,949	59	4,654	79	4,517	97	5,804	61	4,379
South Australia	56	2,088	67	2,017	81	2,244	68	1,530	39	1,250
Western Australia	37	1,169	51	1,171	28	770	14	414	9	307
Tasmania	11	512	11	512	13	686	21	1,073	34	280
Commonwealth	582	30,605	880	54,027	1,083	70,344	918	64,406	672	47,581

* No. of holdings on which ensilage was made.

Since the drought of 1902-3 greater attention has been paid to ensilage than was previously the case, and during the four seasons ended 1909-10 a continuous and fairly rapid increase was in evidence in all the States, both in the number of holdings on which ensilage was made, and in the quantity produced. The season for 1911-12 shews a falling-off in all the States. The reduction cannot be accepted as an indication of a lessening of appreciation of the benefits of ensilage, but rather of the fact that stocks had not been drawn upon to any great extent during the previous two seasons.

§ 20. Agricultural Colleges and Experimental Farms.

1. **Introduction.**—It has been thought preferable to refer to what may be called the effort in the direction of agricultural education in this section rather than under the heading of education.

In most of the States agricultural colleges and experimental farms have been established with a view to promoting agriculture and to establishing improved and more scientific systems of stock-breeding and dairying. In these 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 fertilisers are made, manures are tested, and elementary veterinary science, etc., is taught, while general experimental work is carried on with cereal and other crops, not merely for the purpose of shewing that it is practicable to produce certain crops in a given place, but also to shew how it is possible to make farming pay best in that 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 carpenters', blacksmiths', and other trades.

Travelling expert lecturers are sent to the various agricultural and dairying centres, and there is a wide distribution of periodical agricultural gazettes and bulletins on matters of importance at special seasons.

2. **Particulars of Agricultural Colleges and Experimental Farms.**—In the table given below particulars of agricultural colleges and experimental farms in the several States of the Commonwealth in 1911-12 are shewn. Tasmania is the only State in which such colleges or farms are not established.

PARTICULARS OF AGRICULTURAL COLLEGES AND EXPERIMENTAL FARMS IN THE COMMONWEALTH, 1911-12.

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	C'wealth
Number of colleges	1	2	1	1	...	5
Number of experimental farms ...	15	3	7	7	4	36
Total number of students ...	263	250	60	57	...	630
Total number of hands employed	163	102	65	43	19	392
Area under cereals and hay ... Acres	2,116	1,299	307	3,147	918	7,787
Area under fruit trees and vines... ,,	380	153	88	83	13	717
Area under all other crops ... ,,	772	311	366	301	109	1,859
Total area under crop ... ... ,,	3,268	1,763	761	3,531	1,040	10,363
Area of arable land ... ... ,,	5,536	4,532	1,361	6,993	3,314	21,736
Total area of farms ... ... ,,	20,781	8,992	13,206	13,262	7,130	63,371
Number of Live Stock—						
Horses ... ... No.	406	187	204	194	70	1,061
Cattle ... ... ,,	838	487	846	280	205	2,656
Sheep ... ... ,,	3,735	3,587	1,385	2,982	830	12,519
Pigs ... ... ,,	758	339	305	449	218	2,069
Value of plant and machinery ... £	11,969	7,150	5,450	8,109	2,733	35,411
Value of produce for year ... £	23,235	14,181	3,140	7,805	(a)2,251	50,612

(a) Exclusive of particulars for one Experimental Farm.

3. **New South Wales.**—In order to meet the demand for agricultural training, and for the purpose of conducting experiments in various branches of agriculture and of disseminating agricultural knowledge, an agricultural college and farm and fifteen experimental farms are now established by the New South Wales Government. Theoretical instruction in agriculture, with practical illustrations, forms part of the curriculum of the Sydney Technical College. The School of Agriculture in the Sydney

University, which has been established for two years, is doing very satisfactory work. At the Hurlstone Continuation College there is a special course in both theoretical and practical agriculture for teachers. Instruction in "nature knowledge" is given in the State primary schools, many of which have their own experimental plots. As a means of further encouraging the study of agriculture the Department of Public Instruction has a travelling inspector in agriculture, whose duty it is to visit the country and metropolitan schools, giving lectures on the value, necessity, and advantages of agricultural knowledge, and giving practical demonstrations wherever practicable.

(i.) *Particulars of Agricultural College and Experimental Farms.* The following table shews the number of students at the Hawkesbury College and at the experimental farms at which students are received for each year from 1907 to 1911 inclusive:—

NEW SOUTH WALES.—NUMBER OF STUDENTS AT GOVERNMENT AGRICULTURAL COLLEGE AND EXPERIMENTAL FARMS, 1907 to 1911.

Name.	1907.	1908.	1909.	1910.	1911.
Hawkesbury Agricultural College	230	190	188	154	149
Wagga Farm	63	52	49	42	53
Bathurst Farm	23	25	32	33	34
Cowra	...	...	...	...	11
Yanco	...	...	...	...	11
Wollongbar Farm...	18	7	11	12	4
Dural	...	...	...	3	1
Berry Dairy Stud Farm	11	2	...	...	...
Total	345	276	280	244	263

The following table gives particulars of the Hawkesbury College and of fifteen experimental farms for the year ended the 31st March, 1912.

NEW SOUTH WALES.—PARTICULARS OF GOVERNMENT AGRICULTURAL COLLEGE AND EXPERIMENTAL FARMS AT THE 31st MARCH, 1912.

Name of College or Farm.	Total Area of Farm.	Total Area under Crop.	Area under Cereals and Hay.	Area under Fruit Trees and Vines.	Area under all other Crops.	Number of Hands Employ'd	Value of Plant and Machinery.	Value of Produce for the Year.
	Acres.	Acres.	Acres.	Acres.	Acres.	No.	£	£
Hawkesbury	3,551	669	411	38	220	24	1,966	7,800
Wagga ...	3,228	882	690	95	97	15	1,318	5,411
Bathurst ...	680	477	212	43	222	15	2,419	3,140
Wollongbar	262	52	13	...	39	8	750	436
Berry[1] ...	325	32	20	...	12	6	191	255
Howlong[2] ...	220	45	8	37	...	8	285	295
Grafton ...	1,000	166	139	...	27	17	1,600	1,800
Glen Innes...	1,105	290	196	26	68	12	588	1,115
Cowra ...	996	271	206	1	64	12	804	775
Pera[3] ...	556	50	25	25	...	3	197	798
*Raym'd T [2]	610	25	...	25	...	4	...	200
Yanco[3] ...	1,883	119	56	63	...	25	875	593
Nyngan ...	4,400	160	138	...	22	5	556	562
Dural ...	37	30	2	27	1	4	200	55
Coonamble...	1,928	...	...	...	...	5	220	...
Temora ...	...	...	...	...	...	...	...	...

1. Dairy stud farm. 2. Viticultural station, *Raymond Terrace. 3. Irrigation farm.

4. **Victoria.**—In 1884, the Agricultural Colleges Act, passed to make provision for the establishment of agricultural colleges and experimental farms in Victoria, provided for the permanent reservation from sale of 150,000 acres of Crown lands by way of endowment of agricultural colleges and experimental farms, which, together with other lands reserved as sites for such institutions prior to the passing of the Act, are vested in three trustees appointed by the Governor. Provision was made for the appointment of a Council of Agricultural Education, consisting of eleven members, five of whom are elected by the members of the Agricultural Societies of the State, five are nominated by the Governor, whilst the Secretary for Agriculture is also a member of the Council and its Treasurer. Two agricultural colleges and three experimental farms, orchards and vineyards are now in existence in different parts of the State. There are five Agricultural High Schools under the control of the Education Department, while elementary experimental agriculture is taught at many of the State primary schools. Instruction in agriculture is also given at the technical schools at Melbourne and Bairnsdale.

(i.) *Particulars of Agricultural Colleges and Experimental Farms.* The table given hereunder furnishes particulars relating to the agricultural colleges of Dookie and Longerenong, and the three experimental farms:—

VICTORIA.—PARTICULARS OF GOVERNMENT AGRICULTURAL COLLEGES AND EXPERIMENTAL EARMS FOR THE YEAR 1911-12.

Name of College or Farm.	Total Area of Farm.	Total Area under Crop.	Area under Cereals and Hay.	Area under Fruit Trees & Vines.	Area under all other Crops.	Number of Hands Employed.	Value of Plant and Machinery.	Value of Produce for the Year.
	Acres.	Acres.	Acres.	Acres.	Acres.	No.	£	£
Dookie ...	5,118	881	735	72	74	45	5,000	8,150
Longerenong	2,386	431	342	27	62	13	1,000	3,376
Rutherglen	913	197	130	38	29	31	900	2,155
Wyuna ...	540	238	92	1	145	5	*1,622	†
Burnley ...	35	15½	...	14½	1	8	250	500

* 1910, 1911 not available. † Not available.

5. **Queensland.**—Organised experimental agriculture in Queensland dates from the establishment of the Department of Agriculture and Stock, but such work as has been done in connection with stock-breeding, other than that carried on by private individuals, has been of later birth, and has been confined to dairy stock and draught horses. Agriculture in Queensland in the early nineties was upon the well-defined lines of the other States, so that the knowledge to be gained as to what could be profitably adapted to Queensland, with its varied climate and rainfall, covered a wide field. Instructors were appointed conversant with the different lines of agriculture, of which grain cultivation, dairying, fruit-growing, tobacco cultivation, and tropical agriculture, such as sugar, rubber, and spices, are the most important. This has been followed by the establishment of an agricultural college, of farms in the temperate parts of the State, and of nurseries in the tropical parts. With wheaten grain a system of experiments has been carried out for some years with the distinctive object of evolving a type of wheat adapted for Queensland, and as far as possible resistant to the attacks of rust. In dairying, a commencement was made by despatching to the different farming centres properly equipped travelling dairies with the latest appliances. The export of Queensland dairy produce has arisen through this effort. No travelling dairies are, however, now employed. A fruit farm has been established, at which fruits suitable for or likely to adapt themselves to the Queensland climate and conditions have been experimented with during a series of years. To cope with the insect and fungus pests to which such fruits are peculiarly susceptible, careful inspection is made of fruits in the markets and for export, and every effort is put forth to prevent the introduction of fresh diseases and to exterminate those which are already within the State.

(i.) *Particulars of Agricultural College and Experimental Farms.* The table given below contains particulars of the Gatton Agricultural College and the seven experimental farms. Figures relating to the technical colleges are not available:—

QUEENSLAND.—PARTICULARS OF GOVERNMENT AGRICULTURAL COLLEGE AND EXPERIMENTAL FARMS FOR THE YEAR 1911.

Name of College or Farm.	Total Area of Farm.	Total Area under Crop.	Area under Cereals and Hay.	Area under Fruit Trees and Vines.	Area under all other Crops.	Number of Hands Employ'd	Value of Plant and Machinery.	Value of Produce for the Year.
	Acres.	Acres.	Acres.	Acres.	Acres.	No.	£	£
Gatton ...	1,692	249	41	14	194	30	1,400	1,220
Biggenden ...	211	31	...	4	27	2	400	150
Roma ...	791	109	69	13	27	6	600	400
Gindie ...	8,611	62	35	4	23	5	650	350
Westbrook ...	300	66	12	37	17	7	1,000	300
Warren ...	1,128	43	29	5	9	5	800	370
Kamerunga	40	17	...	3	14	6	200*	200*
Hermitage ...	433	184	121	8	55	4	600	350

*1910 figures; 1911 not available.

6. **South Australia.**—To this State belongs the honour of starting the first experimental farm in the Commonwealth. As far back as the year 1879 a resolution was passed by the local Parliament in favour of the establishment of a School of Agriculture, with an experimental farm, under the charge of a professor of agriculture. Active operations in this connection were commenced in 1882, when the first series of plots of wheat were sown at Roseworthy. Experimental work, chiefly directed towards improving the wheat yield, has been developed along three main lines, viz.: (*a*) The improvement of varieties of wheat, (*b*) the improvement of methods of cultivation, and (*c*) the use of manures. The Central Agricultural Bureau, established at Adelaide under the control of an Advisory Board, has an extensive membership distributed throughout the agricultural districts of the State. It assists farmers by the dissemination of knowledge; by helping to introduce new economic plants; by improving the breed of stock; and it acts as a means of keeping the Agricultural Department in touch with the producers. The branches of the bureau hold meetings at regular intervals in their several districts, ideas and methods as regards practical subjects are interchanged, and discussions are held on matters of general interest to agriculturists.

(i.) *Particulars of Agricultural College and Experimental Farms.* The subjoined table gives details of the several farms in the State during 1911-12 :—

SOUTH AUSTRALIA.—PARTICULARS OF AGRICULTURAL COLLEGE AND EXPERIMENTAL FARMS FOR THE YEAR 1911-12.

Name of College or Farm.	Total Area of Farm.	Total Area under Crop.	Area under Cereals and Hay.	Area under Fruit Trees and Vines.	Area under all other Crops.	No. of Hands Employ'd	Value of Plant and Machinery.	Value of Produce for the Year.
	Acres.	Acres.	Acres.	Acres.	Acres.	No.	£	£
Roseworthy	1,890	724	521	68	135	12	1,600	3,000
Kybybolite...	2,256	485	349	15	121	7	850	520
MurrayBridge	58	29	14	...	15	2	245	129
Parafield ...	176	80	80	...	...	3	450	550
Loxton and Veitch's Well	4,950	1,080	1,080	...	...	5	1,070	1,000
Shannon ...	1,164	318	318	...	...	3	570	530
Minburra ...	1,168	268	268	...	...	1	1,600	207
Turretfield ...	1,600	547	517	...	30	10	1,724	1,869

7. **Western Australia.**—A considerable amount of developmental work has been done of late years towards the promulgation of agricultural knowledge on the State farms at Chapman and Narrogin, and, more recently still, on the experimental farms at Brunswick and Nangeenan.

(i.) *Particulars of State and Experimental Farms.* Particulars of the farms at Narrogin, Chapman, Brunswick, and Nangeenan for the year 1911 are given hereunder:—

WESTERN AUSTRALIA.—PARTICULARS OF STATE AND EXPERIMENTAL FARMS FOR THE YEAR 1911.

Name of Farm.	Total Area of Farm.	Total Area under Crop.	Area under Cereals and Hay.	Area under Fruit Trees and Vines.	Area under all other Crops.	Number of Hands Employed	Value of Plant and Machinery.	Value of Produce for Year.
	Acres.	Acres.	Acres.	Acres.	Acres.	No.	£	£
Narrogin ...	2,826	308	265	13	30	4	589	716
Chapman ...	1,272	320	313	...	7	4	432	982
Brunswick ...	944	147	75	...	72	7	844	553
Nangeenan...	2,088	265	265	...	...	4	868	*1606

* 1910 figure; 1911 not available.

8. **Tasmania.**—In Tasmania there is a Council of Agriculture consisting of eleven members, whose duties are to collect and publish information of every kind calculated to prove beneficial to agriculturists, such as suitableness of various districts for growth or production of animal and vegetable products, information respecting plants, methods of cultivation, breeding and feeding animals, and how best to improve the same: to prevent as far as possible the introduction and spread of diseases and pests, and to publish bulletins, abstracts, and reports containing all such information as may be desirable. Other matters embrace the employment of experts in any branch of agricultural science, distribution of plants and seeds for experiment, and the establishment of local boards of agriculture in different parts of the State. Lectures are given by the experts from time to time, and useful information and knowledge is diffused by means of the monthly gazette published by the Council, and also by means of special bulletins. There are no agricultural colleges or experimental farms, and practically no agricultural teaching is given in the elementary schools.

§ 21. Government Loans to Farmers.

1. **Introduction.**—All the Australian States have established systems under which financial aid is rendered to agriculturists by the Government. The principle upon which such aid is founded was probably first practically applied in Germany, viz., in the year 1770, when the *Landschaften Bank* was created. The establishment of the *Crédit Foncier* nearly a century later in France was a creation of a similar character. This latter institution was designed to enable house and land owners to raise money on mortgage at a low rate of interest, with facility for repayment by an annuity including redemption of the capital. It dates from 1852, but the mortgage bank known as the *Caisse Hypothécaire*, which, after a struggling existence, was finally liquidated in 1846, was based essentially on the same principle. Over the operations of the *Crédit Foncier*, created under governmental patronage and invested with such cial privileges as to

virtually constitute it a monopoly, the Government exercised a direct control, viz., by appointing its governor and its two deputy-governors. The *Crédit Foncier* was empowered to lend money only on a first mortgage, and to the amount of one-half of the estimated value of houses and farms, and one-third that of vineyards, woods, and other plantations, and the commission charged could not exceed six-tenths per cent. The system developed and adopted in the Commonwealth, with the object of assisting farmers to make improvements or to develop or utilise the agricultural or pastoral resources of the land, is analogous. Particulars of advances made under the Closer Settlement and similar Acts are dealt with in the section on Closer Settlement. (See page 295.)

2. **Particulars of Transactions in each State, 1908 to 1912.**—The subjoined table gives particulars of transactions in each State in which advances to farmers are made, for the years 1908 to 1912 inclusive. Tasmanian figures are not available for 1908.

STATE GOVERNMENT ADVANCES DEPARTMENTS.—PARTICULARS OF LOANS TO FARMERS, 1908 to 1912*

State.	Total Advanced to Date.					Balance Due.				
	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.
	£	£	£	£	£	£	£	£	£	£
N.S.W.¶ ...	789,333	1,062,625	1,362,853	1,617,192	1,948,885	423,511	591,292‡	795,113‡	928,086	1,074,358
Victoria ...	2,254,488	2,492,698	2,657,713	2,797,323	2,954,618	1,202,785	1,293,404‡	1,308,425‡	1,306,657	1,343,834
Q'nsland ...	153,228	187,014	235,793	306,944	430,403	119,344	136,946	163,640	206,997	305,652
S. Aust.§ ...	1,233,264	1,386,153	1,544,946	1,786,762	2,064,583	631,413	668,535	710,316	819,818	966,670
W. Aust ...	743,598	1,004,675	1,257,082	1,540,241	1,946,184	610,202	835,239	935,960	976,811	1,280,732
Tasmania	...	5,687	9,187	14,610	18,636	...	5,657	8,521	13,561	16,592
C'wealth ...	5,173,911	6,138,852	7,067,574	8,063,072	9,363,326	2,987,255	3,531,073	3,921,975	4,251,930	4,987,838
	Annual Profits.					Accumulated Profits.				
	£	£	£	£	£	£	£	£	£	£
N.S-W. ¶ ...	†	4,661	5,390	8,200	9,543	†	6,583	8,039	15,606	25,349
Victoria ...	6,751	7,037	5,926	3,022	3,069	68,949	75,987	81,913	84,936‖	88,006‖
Q'nsland ...	1,326	1,405	1,974	2,548	3,318	2,623	4,028	6,003	8,551	11,869
S. Aust.§ ...	3,797	4,218	4,587	6,662	6,289	29,380	33,598	38,186	44,848	51,137
W. Aust. ...	4,637	6,061	6,823	6,753	8,060	18,194	24,255	31,078	37,831	45,892
Tasmania	...	...	(—) 98	48	81	...	...	(—) 98	(—) 50	31
C'wealth ...	16,511	23,382	24,602	27,233	30,360	119,146	144,451	165,121	191,722	222,284

* Compiled from figures furnished by the Government Savings Bank of Victoria. ¶ For years ended 31st December prior. † Returns not available. ‡ Balance after deduction of special principal payments in advances. § Includes loans to farmers and other producers and to local bodies on the security of their own rates. ‖ Including profits in connection with House and Shop oans.

3. **New South Wales.**—(i.) *Initial Legislation.* New South Wales adopted the principle of advances to settlers on 4th April, 1899, when the Advances to Settlers Act received assent. The objects of this Act were to authorise the raising of a loan for making temporary advances to settlers; to provide for the making and repayment of such advances; and for purposes incidental to, or consequent on, those objects. In order to provide the funds necessary for the carrying out of this Act, the Colonial Treasurer was authorised to sell inscribed stock, secured upon the Consolidated Revenue, to an amount not exceeding £500,000, to be sold in amounts of £10 or some multiple of £10 and bearing interest at the rate of 3½ per cent. per annum, payable half-yearly. A board, consisting of not more than three members, appointed by the Governor, called the Advances to Settlers Board, was appointed to deal with applications for loans and to decide whether they should be granted. The maximum amount that was authorised to be advanced to any one person was £200, and was to be repaid in full, together with interest at the rate of 4 per cent., within ten years of the making of the loan, but on no account was a loan to be granted except on the recommendation of the Board and when

the security given was deemed satisfactory. An Amendment Act was passed in 1902, by which the advance limit of £200 was increased to £500, and the period within which repayments were to be made was extended to thirty-one years. In the latter part of the same year a further Amendment Act came into force. Under the provisions of this Act the amount of inscribed stock was increased to £1,000,000, and the maximum amount of advance to any person was raised to £1500, interest on the latter being payable at the rate of not less than 4 per cent. per annum.

(ii.) *Legislation now in Force.* The above Acts were all repealed by the Government Savings Bank Act of 1906, which received assent on 21st December of that year. All property held by the Advances to Settlers Board was to be vested in three Commissioners appointed under this Act, who were styled "The Commissioners of the Government Savings Bank of New South Wales." An Advances Department of the Savings Bank was constituted, and debentures to the amount of £305,000 (that being the amount of stock issued under the Advances to Settlers Acts and held at the beginning of this Act) were issued, an equivalent amount of Government stock transferred to the Savings Bank Department being, at the same time, cancelled. All monies, securities, documents, property, etc., held by or on behalf of the Advances to Settlers Board were transferred to, and became vested in, the Commissioners, and were carried to the accounts of the Advances Department of the Savings Bank.

(iii.) *Security on which, and Objects for which, Advances are made.* The Commissioners are authorised to issue debentures to the amount of £2,000,000, bearing interest at a rate not exceeding 4 per cent. per annum. They may lend moneys from the Advances Department (*a*) upon mortgage of an estate of inheritance in fee simple in any land in the State; (*b*) upon mortgage of conditional purchases with or without associated conditional leases, homestead grants or selections, settlement leases or purchases, or conditional purchase leases; and (*c*) on deposit at call or short notice in the Treasury on any bank of issue in the State, or on deposit in the Savings Bank Department. Loans may be made for any of the following purposes:—(*a*) To pay off existing encumbrances or to purchase the land; (*b*) to pay off money to the Crown in respect of the land; (*c*) to make improvements or to develop the agricultural or horticultural resources of the land; and (*d*) to build homes on the land.

(iv.) *Amount and Repayment of Advances.* No loan to any one person may amount to less than £50 or more than £2000, and applications for loans not exceeding £500 have priority over those of a larger amount. In no case does the amount of the advance exceed 80 per cent. of the Commissioners' valuation of the security. Advances may be made up to two-thirds of the value of the interest of the borrower in the land, buildings and improvements, except where the land is held as a conditional lease, homestead grant, settlement lease, homestead selection, settlement purchase, or conditional purchase as to which the first five years' certificate has not issued, in which cases the amount advanced may not exceed one-half of the holder's interest in the improvements. Loans are made only in respect of first mortgages, and except in the case of loans on the security of freeholds or certificated conditional purchases, are repayable by equal half-yearly instalments within such period, not exceeding thirty-one years, as the Commissioners think fit. Loans granted on the security of freeholds and certificated conditional purchases are repayable either in the same manner as loans on other securities just mentioned, or at the expiration of a fixed term not exceeding five years, during which period interest only is payable.

(v.) *Advances on Purchases of Farms.* To facilitate close settlement on private estates suitable for the purpose, the Commissioners are authorised to make advances in order to assist persons in purchasing land. In the case of such advances the title to the land must be either freehold or a certificated conditional purchase, and the amount advanced may not exceed 80 per cent. of the Commissioners' valuation.

(vi.) *Particulars of Advances to Farmers, 1907 to 1911.* The following table shews particulars of the advances made up to the 31st December in 1907, 1908, 1909, 1910 and 1911:—

PARTICULARS OF GOVERNMENT ADVANCES TO FARMERS IN NEW SOUTH WALES, 1907 to 1911.*

Particulars.	1907.	1908.	1909.	1910.	1911.
Total applications received No.	12,397	13,796	15,497	16,861	18,479
Total amount applied for ... £	2,166,901	2,794,898	3,583,748	4,219,028	5,004,853
Total applications refused or withdrawn ... No.	5,541	5,632	6,256	6,725	7,200
Total applications approved No.	6,856	8,164	9,241	10,136	11,279
Total amount advanced ... £	789,333	1,062,625	1,362,853	1,617,192	1,948,685
Av. amount advanced per loan £	115	130	147	160	173
Repayments of principal ... £	365,823	470,548	566,102	689,106	874,527

* Year ended 31st December.

(vii. *Closer Settlement Promotion Act 1910.* In 1910 an Act was passed whereby intending settlers might acquire by direct purchase from the owner, areas of private land suitable for closer settlement, under the same conditions, regarding residence, the payment of purchase money etc. as apply to settlement purchases under the Closer Settlement Acts. The purchasers are financed to the extent of 95 per cent. of the purchase money, provided that such does not exceed the bank's valuation of the properties. It is anticipated that a considerable amount of business will be done under this Act which will materially expand the operations of advances to farmers in this State. The following table will shew the business transacted up to the end of 1911 :—

PARTICULARS OF TRANSACTIONS UNDER THE CLOSER SETTLEMENT PROMOTION ACT.

Applications.	Estates.	Farms.	Prices agreed upon by Vendors and Purchasers.
			£
Cases settled and surrender arranged	19	128	268,787
,, reported on but not yet settled	12	106	217,649
,, awaiting inspection and report	15	69	138,345
,, inspection not yet authorised	2	19	38,091
,, refused	13	82	122,735
Total cases submitted up to end of 1911	61	404	785,607

4. **Victoria.**—(i.) *Legislation.* The Advances Department of the Government Savings Bank of Victoria was established by the Savings Bank Act of 1896, amended in 1901 and again in 1903. The funds for the purpose of making advances are raised by the issue of mortgage bonds, the total amount of which is limited to £3,000,000.

(ii.) *Security on which Advances are Granted.* In order to assist farmers, graziers, market gardeners, or other persons employed in agricultural, horticultural, viticultural, or pastoral pursuits, the Savings Bank Commissioners are empowered to make advances, either by instalments or otherwise, upon the security of any lands held by such person either (*a*) in fee simple, or (*b*) under a Crown lease in which the rent received is taken by the Crown in part payment of the lands demised. Security must be, in every case, a first mortgage. A loan may be either in cash or in mortgage bonds at par face value at the option of the Commissioners.

(iii.) *Amount of Advances.* The limits of the advances are £50 and £2000, as in New South Wales, applications for advances under £500 having also similar priority. In the case of land held in fee simple or under lease as specified in (*b*) above, the amount of the advance which may be made must not exceed two-thirds of the actual value of such land at the time of advance, which is reduced by the amount of all rent payable in respect of the land, previous to the issue of a Crown grant for such. If the person appointed by the Commissioners as valuator of any land certify that the improvements effected thereon increase the productive power of the land and exceed £2 per acre, the Commissioners may make, notwithstanding anything contained above, an advance of fifteen shillings for every acre so improved.

(iv.) *Special Provision for Vineyards, Orchards, etc.* In the case of land which has acquired a special value by reason of being cultivated as vineyards, hop-grounds, orchards, fruit-growing plantations, etc., advances may be made on the following terms:—(*a*) The total amount which may be at any time advanced upon any such land may not be more than £100,000 in the whole. (*b*) The amount of two-thirds of the actual value referred to above may be increased by one-quarter of any special increase in value, but such increase is in no case to be considered as greater than £30 an acre. (*c*) No advance may be for a longer period than fifteen years.

(v.) *Purposes for which Advances Granted.* Advances are made for the following purposes only:—(*a*) To pay off existing liabilities; (*b*) to pay off money owing to the Crown in respect of the land; (*c*) to make improvements or to improve and develop the agricultural, horticultural, viticultural, or pastoral resources of the land.

(vi.) *Repayment of Advances.* The rate of interest charged on loans, originally fixed at 4½ per cent. per annum, may, by the Amendment Act of 1903, be altered by the Commissioners with the approval of the Governor-in-Council, up to but not beyond 5 per cent. per annum. All advances, together with interest, must be repaid by sixty-three half-yearly instalments, or such smaller number as may be agreed upon between the borrower and the Commissioners.

(vii.) *Particulars of Advances to Farmers, 1907 to 1912.* The following table gives particulars as to the loans raised and repaid by the Advances Department, the number and amount of applications received and granted, and the amounts advanced and repaid for each financial year from 1907-8 to 1911-12 inclusive:—

LOANS TO FARMERS.—TRANSACTIONS OF ADVANCES DEPARTMENT OF GOVERNMENT SAVINGS BANK, VICTORIA, DURING EACH FINANCIAL YEAR, 1907 to 1912.

Particulars.	1907-8.	1908-9.	1909-10.	1910-11.	1911-12.	Total to the 30th June, 1912.
Bonds & debentures issued £	200,000	200,000	200,000	700,000	500,000*	3,983,600*
,, ,, redeemed £	79,500	30,000	125,025	100,000	109,925	1,383,700
Applications received No.	704	825	669	684	801	13,988
,, ,, Amount, £	344,703	468,085	319,060	356,410	449,444	6,828,889
Applications granted No.	390	502	416	339	350	7,459
,, ,, Amount, £	162,615	250,895	177,765	149,610	166,315	3,222,440†
Amounts advanced ... £	143,180	238,210	165,015	139,610	157,295	2,954,618
,, repaid ... £	168,800	151,437	153,355	156,817	120,118	1,610,784

* Including £277,658 not yet issued at end of financial year. † Of this amount £2,954,618 has been actually paid over to borrowers, a further sum of £37,450 being in course of settlement; the balance represents applications withdrawn or lapsed, or amounts offered but not accepted.

The number of loans at the 30th June, 1911, was 3139, and the average balance of each loan was £428 2s. 2d. The number of repayments by farmers which became due during the year 1911-12 was 7010, representing amounts of £58,845 for interest and

£29,857 for principal. These instalments have been well met, and on 30th June, 1912, there were only ten farmers in arrear, the principal in arrear amounting to £30, and interest to £66.

5. **Queensland.**—(i.) *Legislation.* The Queensland Government was authorised, under the Agricultural Bank Act of 1901, to establish a bank for the purpose of promoting the occupation, cultivation, and improvement of the agricultural lands of the State, and a body of three trustees was appointed to administer the Act. The Government was empowered to raise a sum not exceeding £250,000 by the issue of debentures, bearing interest at a rate of not more than 4 per cent. The original Act was amended in 1904 and again in 1905, the latter amendment specifying that no advance be made to any alien. A further Act "The Agricultural Bank Act (consolidated) of 1911," provided for the appointment of a managing director and two trustees in lieu of three trustees as formerly.

(ii.) *Security on which and Purposes for which Advances are made.* Advances may be made to owners of agricultural lands or to occupiers of Crown lands held either as agricultural farms or homesteads, grazing farms or homesteads, unconditional selections, or miners' homestead leases, and may be for any of the following purposes:—(*a*) The payment of existing liabilities; (*b*) agricultural, dairying, horticultural, or viticultural pursuits on the holding; (*c*) making improvements or adding to improvements already made; (*d*) the purchase of stock, machinery, or implements. Advances are only made on the security of first mortgages.

(iii.) *Amount and Repayment of Advances.* No advance may exceed ten shillings in the pound of the fair estimated value of the holding in the cases of (*a*) and (*b*) above, while in the other cases the limit of the amount of the advance is twelve shillings in the pound of such value, and the advance at any time must not exceed £800. Applications for amounts not larger than £200 have priority over those for a larger amount. During the first five years following the date of the loan the borrower must pay interest at the rate of 5 per cent. per annum. After the expiration of that period the loan, together with the interest, must be repaid by half-yearly instalments within twenty years, the amount of such half-yearly instalment being £4 0s. 3d. for each £100 advanced. In the case of advances for the purposes of paying off existing liabilities or of buying stock, machinery, or implements, the loan must be repaid by equal half-yearly instalments of the amount of £3 11s. for every £100 advanced within twenty-five years from the date of its granting.

(iv.) *Transactions of Agricultural Bank, 1908 to 1912.* The subjoined table shews particulars of the transactions of the Agricultural Bank for each year ended 30th June, from 1908 to 1912 inclusive:—

PARTICULARS OF TRANSACTIONS OF THE AGRICULTURAL BANK, QUEENSLAND,

DURING EACH FINANCIAL YEAR, 1907-8 TO 1911-12.

Particulars.	1907-8.	1908-9.	1909-10.	1910-11.	1911-12.
Applications received ... No.	512	586	746	1,101	1,712
,, ,, Amount, £	70,107	92,363	114,901	165,562	353,893
Applications granted ... No.	319	430	680	905	1,417
,, ,, Amount, £	36,706	50,113	79,518	114,606	222,967
Amounts advanced ... £	23,868	33,786	48,245	71,150	123,476
,, repaid ... £	16,740	16,184	21,551	27,793	24,821
,, outstanding to date £	119,344	136,947	163,641	206,998	305,652

6. **South Australia.**—(i.) *Legislation.* Under the State Advances Act of 1895, amended in 1896 and 1901, a State Bank has been established in South Australia for the purpose of making advances (i.) to farmers and other producers, (ii.) in aid of industries on the security of lands held in fee simple or under Crown leases, and (iii.) to local authorities upon the security of their rates. The bank, managed by a board consisting of five trustees appointed by the Governor, has funds raised by the issue of mortgage bonds, carrying interest at a rate not exceeding 4 per cent., to an amount not greater than the total amount due to the bank for State advances, and in any case not greater than £3,000,000. On 23rd December, 1908, the Advances to Settlers on Crown Lands Act was passed. This measure is referred to in (iv.) below. Several Acts have, from time to time, been passed dealing with seed wheat advances.

(ii.) *Amount and Repayment of Advances.* No advance to farmers or to other producers, or in aid of any industry, may exceed three-fifths of the unimproved value of the fee simple of the land and permanent improvements thereon, and if the land has acquired a special additional value by reason of cultivation as a vineyard or orchard, *plus* one-third of such special additional value. If the advance be on the security of a Crown lease, the amount of the loan may not exceed one-half the selling value of the lease, including the interest of the holder in any improvements on the land. The amount lent to any one person at any time may not exceed £5000. Advances are repayable by half-yearly instalments, the rate of interest, up to the limit of 5 per cent. per annum, being a matter of arrangement between the bank and the borrower.

(iii.) *Transactions of the State Bank, 1908 to 1912.* In addition to assisting farmers and other producers, the State Bank makes, as mentioned above, advances in aid of industries and also to local authorities. The following table shews particulars of the transactions with farmers of the State Bank for each year from 1908 to 1912 inclusive:—

SOUTH AUSTRALIA.—PARTICULARS OF TRANSACTIONS OF THE STATE BANK

FOR EACH YEAR ENDED 31ST MARCH, 1908 TO 1912.

Particulars.	1907-8.	1908-9.	1909-10.	1910-11.	1911-12.
Loans raised ... ... £	64,180	138,700	57,089	49,279	88,850
,, repaid ... ... £	53,015	123,600	4,056	3,146	39,820
Applications received ... No.	250	796	301	399	375
,, ,, Amount, £	138,466	348,777	192,619	300,098	400,181
Applications granted ... No.	210	718	234	190	145
,, ,, Amount, £	93,177	224,820	79,037	127,729	134,421
Amounts advanced ... £	76,092	166,752	71,870	91,405	132.402
,, repaid ... £	50,727	105,501	52,960	50,014	38,638
,, outstanding to date £	381,316	442,567	461,477	502,868	596,632

(iv.) *The Advances to Settlers on Crown Lands Acts 1908 and 1909.* Under the 1908 Act a Board, called the Advances to Settlers Board, was created. The Treasurer is authorised to set apart a sum not exceeding £200,000 in any one financial year for the purpose of loans to settlers. The maximum amount which may be advanced to any one settler is £600, and for a period of five years following the date on which the advance is made the settler is required to pay interest at the rate of 5 per cent. per annum, payable half-yearly. At the expiration of that period it is provided that he must repay the amount advanced by fifty equal half-yearly instalments, together with interest at 5 per cent. on the balance outstanding. A rebate of 1 per cent. interest is allowed if the half-yearly payment is made within fourteen days of the date on which it falls due. Advances may be made on prescribed security for the purpose of making improvements on a holding, such as ring-barking, clearing, boring for water, etc.; or for discharging a mortgage existing on a holding; or for stocking a holding, provided that the necessary improvements

have been made on the land. The amount of the advance may not exceed a sum equal to fifteen shillings in the pound on the value of improvements already made, and may not exceed twelve shillings in the pound on improvements made if the land be mortgaged.

For the year 1909-10, the number of applications for advances was 102, aggregating £19,577, and fifty-five, totalling £9418, were approved of. As, however, some of these were granted by instalments, the actual amount advanced was £8087. During 1910-11, there were 109 applications received, aggregating £21,996; of these, 82, amounting to £15,131 were granted, of which amount £12,747 was advanced by the close of the year. During 1911-12, 546 applications amounting to £87,534 were received, of which 285, amounting to £56,044, were granted, the total advanced during the year being £65,916, and the amount repaid £2844. On the 30th June, 1912, the sum of £82,094 represented the amount of advances outstanding.

7. **Western Australia.**—(i.) *Legislation.* By the Agricultural Bank Act of 1894 the Governor of Western Australia was empowered to establish a bank for the purpose of promoting the occupation, cultivation, and improvement of the agricultural lands of the State. This Act was amended from time to time until a consolidating Act was passed in the year 1906 repealing all previous enactments on the subject. Under this last Act the bank was placed under the control of three trustees, appointed by the Governor, in whom is vested the whole of the bank property. The necessary funds are provided for by the issue of mortgage bonds bearing interest at a rate not exceeding 4 per cent. per annum. The amount authorised to be raised was £1,000,000, but by Amending Acts in 1907, 1909, 1910, and 1911 the amount was raised successively to the present total of £3,000,000.

(ii.) *Purposes for which Advances may be made.* The bank is authorised to make advances for (*a*) ring-barking, clearing, fencing, draining, or water conservation; (*b*) for discharging any existing mortgage; (*c*) for the purchase of stock for breeding purposes; or (*d*) for the purchase of agricultural machinery manufactured in Western Australia subject to the employees engaged in the manufacture of such machinery being paid the ruling rate of wages.

(iii.) *Amount of Advances.* Advances may be made to an amount not exceeding £400 up to the full value of the improvements proposed to be made. Further advances may be made to an amount not exceeding £250 up to half the value of additional improvements proposed to be made. No advance, however, for the purpose of discharging existing mortgages may be made to an amount exceeding three-quarters of the value of improvements already made, and the total advances to any one person may not at any time exceed £750. Not more than £100 may be advanced to any person for the purpose of purchasing stock or agricultural machinery. Advances are made only on a first mortgage, but a second mortgage may be taken as a collateral security. When any land is held by two or more persons as joint proprietors, the amount to be advanced may be multiplied by the number of such joint proprietors.

(iv.) *Repayment of Advances.* During the five years following the date of the loan the borrower pays interest only, at the rate of 5 per cent. per annum. After the expiration of that period the amount advanced, with interest at 5 per cent., must be repaid within twenty-five years by equal half-yearly instalments. In the case of advances for the purpose of buying stock the bank fixes the time and manner of repayment.

(v.) *Particulars of Transactions of Agricultural Bank, 1908 to 1912.* The following table gives particulars of transactions of the Agricultural Bank for each year from 1908 to 1912 inclusive :—

PARTICULARS OF TRANSACTIONS OF AGRICULTURAL BANK, 1908 to 1912.

AMOUNTS ADVANCED FOR WHICH IMPROVEMENTS HAVE BEEN EFFECTED.

Year ended the 30th June.	Amounts Advanced to Date.	Improvements Effected to Date.							
		Clearing.	Cultivating.	Ring-barking.	Fencing.	Draining.	Wells and Reservoirs.	Buildings	Total.
	£	£	£	£	£	£	£	£	£
1908	743,599	643,341	120,688*	44,363	98,663	4,127	34,789	82,325	1,028,296
1909	1,004,675	780,907	124,338*	62,711	177,410	4,675	48,543	83,708	1,282,292
1910	1,257,082	899,712†	124,782*	81,042	240,729	5,043	61,387	83,868	1,496,563
1911	1,540,241	1,031,891†	124,812*	107,676	297,077	5,386	78,581	83,868	1,729,291
1912	1,946,184	1,194,750†	124,782*	149,043	361,637	5,660	103,519	83,868	2,023,259

* Including £4321 for orchards. † Including £6300 in 1910, £8611 in 1911, and £12,180 in 1912 for poison and blackboy grubbing.

The following table gives particulars as to the amount of loans raised and repaid, the number and amount of applications received and granted, and the amounts lent and repaid for each financial year from 1907-8 to 1911-12 inclusive :—

WESTERN AUSTRALIA.—PARTICULARS OF TRANSACTIONS OF THE AGRICULTURAL BANK FOR EACH FINANCIAL YEAR, 1907-8 to 1911-12.

Particulars.	1907-8.	1908-9.	1909-10.	1910-11.	1911-12.
Applications received ... No.	2,598	2,915	2,593	2,839	3,933
,, ,, Amount, £	368,710	433,575	439,425	534,650	867,300
Applications granted ... No.	2,453	2,628	2,502	2,636	3,392
,, ,, Amount, £	308,700	347,525	392,650	468,200	649,030
Amounts advanced ... £	218,421	261,077	252,407	283,159	405,943
,, repaid ... £	28,754	36,040	151,686	242,307	102,023
,, outstanding to date £	610,202	835,239	935,960	976,812	1,280,732

8. **Tasmania.**—(i.) *Legislation.* Under the State Advances Act 1907, assented to 22nd November of that year, authority is given to make advances to persons holding land on credit purchase. Three persons called "the Trustees of the Agricultural Bank of Tasmania" have power to administer the provisions of the Act. Funds were raised by the issue of debentures or inscribed stock for a sum not exceeding £50,000, interest at 4 per cent. per annum being payable on same.

(ii.) *Purposes for which Advances may be made.* Loans may be granted for any of the following purposes:—(*a*) payment of liabilities already existing on the holding; (*b*) carrying on agricultural, dairying, grazing, or horticultural pursuits; (*c*) making or adding to improvements.

(iii.) *Amount of Loans.* The minimum amount of any loan is £25, and the maximum £500. No advance may exceed one-half of the amount actually paid to the Crown in respect of the land held by the borrower under purchase upon the credit system, *plus* one-half of the present value of any improvements upon such land.

(iv.) *Repayment of Loans.* Interest at the rate of 6 per cent. per annum is payable on all advances made. After five years the borrower must begin to pay off the principal in fifty half-yearly instalments, but the advance may, at the option of the borrower, be repaid at any time sooner than is provided, and in larger instalments.

(v.) *Particulars of the operations of the Agricultural Bank.* During the eighteen months ended 30th June, 1909, seventy-seven applications for advances were made, which, with forty-nine carried over from the previous year, made a total of 126 applications, representing £11,110. Of these, ninety-four, of a value of £6571, were granted, the amount advanced being £5687. The amount repaid during the period was £30, leaving a balance of £5657 outstanding. For the year 1909-10, the number of applications for loans was eighty-two, totalling £5845. The trustees of the bank approved of sixty-one of these, amounting to £3593, and refused eleven, representing a value of £850, owing to the applicants not being entitled to loans in accordance with the Act. During the year one borrower failed to comply with the requirements of his mortgage deed and his selection was sold.

During 1910-11, ninety applications for loans totalling £7393 were received. Of these, 71, amounting to £5448, were approved and five were not entertained; the remainder were awaiting consideration of the trustees at the end of the year. The sum of £5423 was actually paid to borrowers during the year. Sixty-four applications for loans totalling £4496 were received during 1911-12. Of these, 52 amounting to £3241 were approved. The amount advanced was £4026, making the total amount advanced under the Act to 30th June, 1912, £18,636, of which £2044 had been repaid, leaving a balance outstanding of £16,592.

§ 22. Graphical Representation of Crops.

1. **Areas of Principal Crops.**—A graphical representation of the areas in the Commonwealth devoted to each of the leading crops from 1860 to the present time is furnished on page 427.

(i.) *Wheat.* In the case of wheat, the Commonwealth's principal crop, the graph indicates that the fifty-two seasons under review divide themselves naturally into five distinct periods, three of moderate and fluctuating increases, and two of extremely rapid increases. Thus, between the seasons 1860-1 and 1875-6, a moderate rate of increase was in evidence, the area increasing from 640,000 to 1,420,000 acres. During the five succeeding seasons a very rapid increase took place, the total in 1880-1 amounting to over 3,000,000 acres. For fifteen years thereafter the increase in area was not large, and in two seasons, viz., 1885-6 and 1890-1, marked decreases were experienced. The total increase for the fifteen years was about 700,000 acres, the total for 1895-6 being rather more than 3,750,000 acres. The succeeding five years witnessed a rapid increase in area to a total of more than 5,600,000 acres, followed by a further period of marked fluctuations; this latter period, however, contained the three seasons of maximum wheat-cropping, viz., that of 1909-10, when an area of 6,586,000 acres was so cropped, that of 1910-11, when the area amounted to 7,372,456 acres, and that of 1911-12, when 7,427,834 acres was cropped.

(ii.) *Hay.* Hay-growing, which, next to the growing of wheat for grain, is the most important branch of agriculture in the Commonwealth, will be seen from the graph to have fluctuated very considerably from year to year during the period under review, these fluctuations being due in the main to seasonal variations and to variations in the relative prices of grain and hay crops. It will be seen that the features of the graphs are a moderate increase from 1860-1 to 1875-6, a fairly rapid increase from 1875-6 to 1882-3, moderate increase thence to 1896-7, succeeded by marked fluctuations from this point onwards with, on the whole, a moderate rate of increase until 1908-9 when 2,453,000 acres was attained, succeeded by a decline in 1909-10 to 2,228,000 acres, and a slight increase in 1910-11 to 2,258,000 acres, and a substantial increase in 1911-12, when the maximum of 2,518,000 was attained.

(iii.) *Oats.* The graph relating to oats exhibits extremely marked fluctuations from year to year in the area devoted to this crop, the general tendency, however, being one of increase, especially during the period 1892-3 to 1896-7. During the four seasons following 1905-6 the area under oats has increased rapidly to a maximum of 698,000 acres in 1909-10, the succeeding two years experiencing a slight falling off, when areas of 677,000 and 617,000 acres were so cropped during 1910-11 and 1911-12 respectively.

(iv.) *Maize.* The graph relating to maize indicates that the area devoted thereto in Australia, although somewhat fluctuating, increased with fair rapidity until the season 1896-7, since when it has varied above and below the point then reached, on the whole remaining practically stationary up to 1909-10. The maximum area under maize, prior to 1910-11, viz., 372,000 acres, was attained in the season 1903-4; in 1910-11 this record was exceeded by 43,000 acres; a falling off occurred in 1911-12, when the area under crop was 340,000 acres.

(v.) *Sugar-Cane.* In the case of sugar-cane the graph shews a fairly rapid rate of increase to 1874-5, followed by a period of five years during which the area increased but slowly. From 1879-80, however, the sugar-cane area rose rapidly until in 1884-5 a total of more than 75,000 acres was reached. Then followed a period of diminished cultivation, and it was not until 1892-3 that so high a total was again attained. After this the area rose rapidly to 136,000 acres in 1898-9, but during the next five years a decline took place, the area for 1903-4 being 132,000 acres. The season of maximum area, viz., 156,000 acres, was 1905-6. A marked decline in area was in evidence during the four following seasons; in the year 1910-11, however, the former maximum was again attained, but this was followed by a slight falling off in 1911-12 to the extent of 11,000 acres.

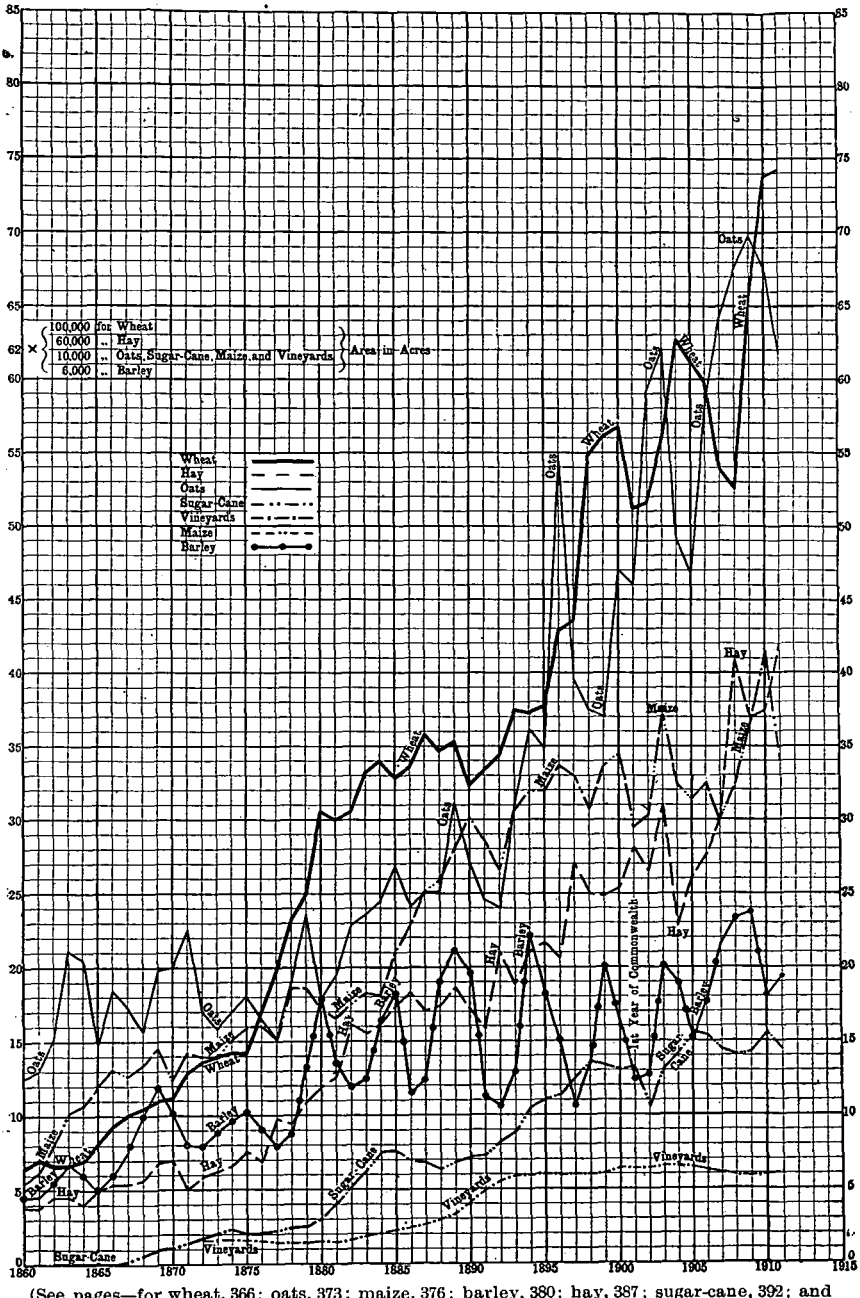
(vi.) *Barley.* The Commonwealth barley crop has exhibited from time to time very marked fluctuations in area. The graph representing this crop shews consequently a very irregular line. The total has, on the whole, increased but slightly since 1880, rapid increases in certain years being succeeded by equally rapid decreases in subsequent years. The maximum area under barley, viz., 143,000 acres, was attained in the season 1909-10.

(vii.) *Vines.* The graph relating to area under vines, from 1872-3 onwards, indicates that there were two periods of very slow increase, one from 1872-3 to 1881-2, the other from 1893-4 to 1904-5. Between these, viz., from 1881-2 to 1893-4, a moderate rate of increase of area was experienced, the total for the Commonwealth advancing during that time from 14,600 acres to 57,400 acres, while since 1904-5 the area has fluctuated considerably, the general tendency evidencing a fairly consistent diminution. The season of maximum area under vineyards was 1904-5, with a total of about 65,700 acres.

2. **Production.**—The diagram on page 428 furnishes a graphical representation of the aggregate yields from 1860-1 to 1911-12 of five of the principal crops of the Commonwealth.

(i.) *Wheat.* This graph brings out clearly the fact that while on the whole the production of wheat in the Commonwealth is increasing with fair rapidity, the fluctuations in the total quantity produced have been more marked in recent than in earlier years. Thus since the year 1890 there have been three seasons of extremely low output, viz., in 1891-2, 1895-6, and 1902-3, with aggregate yields respectively of 25,700,000 bushels, 18,300,000 bushels, and 12,400,000 bushels. On the other hand there have been five seasons in which the total production was exceptionally high. These will be seen from the graph to have been the seasons 1893-4, 1900-1, 1903-4, 1909-10 and 1910-11, the

GRAPHS SHEWING THE AREA UNDER THE PRINCIPAL CROPS IN THE COMMONWEALTH FROM 1860-1 TO 1910-11.



(See pages—for wheat, 366; oats, 373; maize, 376; barley, 380; hay, 387; sugar-cane, 392; and vineyards, 397.)

EXPLANATION OF GRAPHS.—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-hand of the diagram. The height of each graph above the base line denotes, for the crop to which it relates, the total area under cultivation in the Commonwealth during the successive seasons.

GRAPHS SHEWING THE PRODUCTION OF THE PRINCIPAL CROPS IN THE COMMONWEALTH FROM 1860-1 TO 1910-11.

(See pages—for wheat, 367; oats, 373; maize, 377; barley, 380; and hay, 389.)

EXPLANATION OF GRAPHS.—In this diagram 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 the wheat graph, 10,000,000 bushels; oats, 2,000,000 bushels; barley, 500,000 bushels; maize, 2,000,000 bushels; and hay, 500,000 tons. The height of each graph above its base line denotes the aggregate yield in the Commonwealth of that particular crop during the successive seasons.

total yields for which were 37,100,000 bushels, 48,400,000 bushels, 74,100,000 bushels, 90,400,000 bushels, and 95,100,000 bushels respectively. Each of these yields represented at the date of its attainment the maximum Australian wheat crop, the last-mentioned being the highest yet reached.

(ii.) *Oats.* From 1860-1 to 1880-1 the oat crop of the Commonwealth, although exhibiting from year to year fluctuations more or less marked, gave no indications of a tendency to increase with the advance in population. This is well shewn in the diagram, by the persistence with which the graph for this period adheres to the line denoting 4,000,000 bushels, the yield for 1880-1 being actually lower than that for 1860-1. From this latter season to 1894-5 the variation was on a somewhat higher level, and is shewn in the diagram to have been in the vicinity of the line representing 6,000,000 bushels. From this point onwards a tendency to more rapid increase in production is in evidence, obscured somewhat by extensive fluctuations corresponding to those referred to above in the case of wheat. Thus in 1895-6 and 1902-3 the total yields were only 4,400,000 and 7,300,000 bushels respectively, while in 1900-1 and 1903-4 aggregates respectively of 12,000,000 and 17,500,000 bushels were reached, this latter being the maximum oat crop of the Commonwealth. The 1911-12 crop was the lowest for four seasons.

(iii.) *Barley.* The Australian barley crop will be seen from the graph to have fluctuated very considerably throughout, these variations being due rather to fluctuations in the area sown than to adverse seasons. From 1879-80 to 1902-3 the curve rises above and falls below the line representing 1,500,000 bushels. For more recent years the graph bears the evidence of an increasing, though still fluctuating, output. The maximum barley crop of the Commonwealth was that of 2,870,000 bushels in 1908-9.

(iv.) *Maize.* The maize graph indicates a rapid increase in output from 1860-1 to 1869-70, followed by a moderate increase from the latter season to 1886-7, and a further rapid increase to 1891-2. From the last-mentioned season onwards the production has fluctuated considerably, but little increase has, on the whole, been experienced, the total for 1891-2 being 9,262,000 bushels, as compared with 10,771,000 bushels for 1909-10, the maximum Australian maize crop up to that date; this was exceeded in the following season, when the production of maize amounted to 13,044,000 bushels. As in the case of all other crops, the maize yield for 1911-12 was considerably lower than that for the year immediately preceding it.

(v.) *Hay.* The graph relating to the Commonwealth output of hay indicated a fairly continuous increase in production from the season 1860-1, when the total stood at 340,000 tons, to that of 1887-8, when it reached 1,330,000 tons. In subsequent years marked fluctuations have been in evidence, but the tendency has, on the whole, been one of increase. The maximum hay crop of the Commonwealth was that of the season 1910-11, when the total production reached 3,176,000 tons.