

SECTION VIII.

AGRICULTURAL PRODUCTION.

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

§ 1. Introductory.

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

2. **The First Sowing.**—In his despatch of the 15th May, 1788, Captain Phillip states that it was proposed to sow 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 grain crops were successfully raised. In his despatch of 12th February, 1790, Phillip refers to the harvest at Rosehill at the end of December, 1789, as consisting of 200 bushels of wheat and 60 of barley, in addition to small quantities of oats, Indian corn, and flax. By the year 1791 there were 213 acres under crop in this locality. In 1792 a new settlement was formed at Toongabbie, about 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, 3,361 acres; maize, 1,527 acres; barley, 26 acres; potatoes, 11 acres; and vines, 8 acres.

At a muster taken in 1808 the following was the return of crops:—Wheat, 6,877 acres; maize, 3,389 acres; barley, 544 acres; oats, 92 acres; peas and beans, 100 acres; potatoes, 301 acres; turnips, 13 acres; orchards, 546 acres; and flax and hemp, 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 of the last five seasons. 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 TO 1917-18.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	Fed. Ter.	C'wealth.
	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
1910-11	3,386,017	3,952,070	667,113	2,746,334	855,024	286,920	360	..	11,893,838
1913-14	4,567,592	4,391,321	747,814	3,169,559	1,537,923	264,140	354	4,309	14,683,012
1914-15	4,807,001	4,622,759	792,568	3,282,364	1,867,547	274,474	391	4,870	15,651,974
1915-16	5,796,376	5,711,265	729,588	3,763,570	2,189,456	333,334	274	4,371	18,528,234
1916-17	5,164,434	4,851,335	885,259	3,627,477	2,004,944	270,526	274	2,131	16,806,380
1917-18	4,461,172	4,110,225	727,958	3,079,778	1,679,772	238,199	134	1,744	14,298,982

The increase in the area under crop during the past ten years has been most marked in the case of New South Wales, Western Australia, and Victoria, the respective increases being 1,888,299, 1,185,935, and 877,702 acres. During the same period an increase of 814,761 acres was experienced in South Australia, and 195,334 in Queensland, while Tasmania experienced a decrease of 18,829 acres. The total area under crop in the Commonwealth increased during the period by 4,945,080 acres. The total for 1915-16 was the highest ever attained by the Commonwealth. During these past ten seasons the percentage of increase was particularly high in Western Australia, viz., 240 per cent. New South Wales had an increase of 73 per cent., while South Australia, Queensland, and Victoria added to their areas under crop to the extent of 36, 37, and 27 per cent. respectively. The Tasmanian decrease for the ten years represented about 7¼ per cent., while the increase for the whole of the Commonwealth during the same period was 53 per cent.

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 1916-17 and 1917-18, increased at a rate which is greater than that

at which the population of the Commonwealth has increased. This relatively greater increase was 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 1,000 OF POPULATION, 1901-2 AND
1913-14 TO 1917-18.**

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2 ..	1,656	2,451	954	6,224	1,123	1,327	..	..	2,200
1913-14 ..	2,494	3,110	1,133	7,203	4,796	1,310	96	2,168	3,014
1914-15 ..	2,532	3,231	1,171	7,431	5,782	1,363	98	2,486	3,168
1915-16 ..	3,099	4,025	1,075	8,584	6,885	1,658	60	2,390	3,757
1916-17 ..	2,779	3,468	1,322	8,383	6,493	1,353	57	959	3,447
1917-18 ..	2,373	2,913	1,074	7,060	5,429	1,172	27	829	2,897

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 in 1917-18 represented only about one acre in every 133. In Victoria the proportion was about one acre in every 13½, in New South Wales one in 44, in Tasmania one in 70, in South Australia one in 79, in Western Australia one in 372, in Queensland one in 588, in the Federal Territory one in 345, and in the Northern Territory about one in 2,500,000.

**PERCENTAGE OF AREA UNDER CROP ON TOTAL AREA, 1901-2 AND
1913-14 TO 1917-18.**

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	C'wealth.
	%	%	%	%	%	%	%	%	%
1901-2 ..	1.147	5.273	0.113	0.919	0.035	1.386	..	..	0.442
1913-14 ..	2.230	7.807	0.174	1.303	0.246	1.574	0.0001	0.738	0.771
1914-15 ..	2.427	8.219	0.185	1.349	0.299	1.636	0.0001	0.834	0.822
1915-16 ..	2.927	10.154	0.170	1.547	0.351	1.987	0.0001	0.749	0.973
1916-17 ..	2.608	8.625	0.206	1.491	0.321	1.612	0.0001	0.354	0.883
1917-18 ..	2.253	7.308	0.170	1.266	0.269	1.420	..	0.290	0.751

5. **Artificially-sown Grasses.**—In all the States considerable areas are devoted to artificially-sown grasses, mainly sown on uncultivated land after burning off the existing vegetation and consequently not included with "area under crops." Statistics regarding the area under such grasses are as shewn hereunder :—

AREA UNDER SOWN GRASSES, 1901-2 AND 1913-14 TO 1917-18.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Fed. Ter.	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
1913-14	1,234,405	1,094,566	236,582	30,277	6,919	605,559	50	3,208,362
1914-15	1,278,883	1,202,130	290,147	24,974	8,025	647,602	70	3,451,831
1915-16	1,247,029	1,182,995	305,186	25,443	9,119	675,335	70	3,445,377
1916-17	1,357,087	1,292,817	363,876	29,644	8,327	654,072	70	3,706,093
1917-18	1,389,640	1,268,310	406,094	20,155	11,769	679,512	83	3,776,023

(a) Including 4 acres Northern Territory 1913-14, 200 acres 1915-16 and 1916-17, and 460 acres 1917-18.

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 recent years, and which is referred to in the succeeding section.

§ 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 1917-18 :—

DISTRIBUTION OF CROPS IN AUSTRALIA, 1917-18.

Crop.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	Total for C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat ..	3,328,856	2,690,216	127,815	2,355,682	1,249,762	21,812	..	515	9,774,658
Oats ..	82,512	293,214	3,002	106,556	95,666	34,771	..	79	615,800
Maize ..	145,733	20,987	165,124	70	97	..	25	21	332,057
Barley—									
Malting ..	4,246	41,065	5,813	79,396	1,515	4,750	..	..	136,785
Other ..	2,124	43,866	1,889	16,258	3,513	435	..	..	68,085
Beans and Peas ..	319	11,899	28	6,335	441	24,369	..	..	43,391
Rye ..	1,676	1,597	43	655	380	392	..	1	4,744
Other Cereals ..	..	..	6	30	1	..	46	..	83
Hay ..	619,614	748,808	96,431	407,011	265,899	74,107	14	1,030	2,212,914
Green Forage ..	152,374	55,903	87,909	41,869	29,856	5,873	47	19	373,850
Grass Seed ..	..	2,312	8,461	21	..	1,186	..	..	11,980
Orchards and other Fruit Gardens	64,116	83,818	26,001	29,200	21,137	38,024	..	18	262,134
Vines—									
Productive ..	6,462	18,900	1,140	24,921	2,381	..	..	..	53,804
Unproductive ..	2,132	6,336	134	4,841	615	..	..	..	14,058
Market Gardens ..	10,100	11,362	1,991	1,502	2,334	447	..	39	27,775
Sugar-cane—									
Productive ..	5,588	..	108,707	..	..	..	..	..	114,295
Unproductive ..	5,134	..	67,055	..	..	..	..	..	72,189
Potatoes ..	22,558	66,966	10,738	4,164	4,484	27,300	..	22	136,241
Onions ..	163	5,134	71	286	54	39	..	..	5,747
Other root crops ..	820	2,390	2,716	386	352	2,707	..	..	9,377
Tobacco ..	791	82	289	..	..	..	..	..	1,162
Broom Millet ..	1,918	921	940	..	..	..	2	..	3,781
Pumpkins and Melons ..	2,805	1,464	8,508	280	649	..	..	..	13,706
Hops ..	..	64	..	3	..	1,229	..	..	1,296
All other crops ..	1,125	2,921	3,147	492	636	749	..	..	9,070
Total area ..	4,461,172	4,110,225	727,958	3,079,778	1,679,772	238,199	134	1,744	14,298,982

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 1917-18 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 the same States, the hay crop is second in importance. In Victoria, South Australia, and Western Australia the oat crop occupies third position, while green forage ranks third in New South Wales followed closely by maize. In Queensland, on the other hand, the three principal crops in the order of importance are sugar-cane, maize, and wheat, while in Tasmania hay, orchards and fruit gardens, and oats, occupy the leading positions. For the Commonwealth as a whole, the wheat, hay, and oat crops represent over 88 per cent. of the total area under crop.

PROPORTION OF AREA UNDER CHIEF CROPS, 1917-18.

Crop.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	C'wealth.
	%	%	%	%	%	%	%	%	%
Wheat ..	74.61	65.45	17.56	76.49	74.40	9.16	..	29.53	68.37
Hay ..	13.89	18.22	13.25	13.22	15.83	31.11	10.45	59.07	15.49
Oats ..	1.85	7.13	0.41	3.46	5.69	14.60	..	4.53	4.31
Green Forage..	3.42	1.36	12.08	1.36	1.78	2.47	35.07	1.09	2.61
Maize ..	3.27	0.51	22.68	0.00	0.00	..	18.66	1.20	2.32
Orchards and Fruit Gardens	1.44	2.04	3.57	0.94	1.26	15.96	..	1.03	1.83
Barley ..	0.14	2.07	1.06	3.11	0.30	2.18	..	..	1.43
Sugar-cane ..	0.24	..	24.14	..	..	..	..	..	1.30
Potatoes ..	0.51	1.63	1.48	0.13	0.27	11.46	..	1.26	0.95
Vineyards	0.19	0.61	0.17	0.97	0.18	..	..	..	0.47
All other..	0.44	0.98	3.60	0.32	0.29	13.06	35.82	2.29	0.92
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 for 1917-18 and the position regarding them in each State and Territory is shewn in the following table. New South Wales exhibited the largest area under wheat and green forage; Victoria was in the leading position in regard to hay, oats, orchards and fruit gardens, and potatoes; and Queensland was first in sugar-cane and maize and second in green forage. South Australia had the largest area under vineyards and barley, and occupied second position in regard to oats; Western Australia held third position in oats and fourth in wheat, hay, maize, and vineyards; while Tasmania was second in regard to potatoes, and third in orchards and fruit gardens.

RELATIVE POSITIONS OF STATES AND TERRITORIES IN REGARD TO AREA UNDER EACH OF THE PRINCIPAL CROPS DURING THE SEASON 1917-18.

Crop.	N.S.W.	Victoria	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'w'lh.
Wheat.. .. %	34.05	27.52	1.31	24.10	12.79	0.22	..	0.01	100.00
position	1	2	5	3	4	6	..	7	
Hay %	28.00	33.83	4.36	18.39	12.02	3.35	..	0.05	100.00
position	2	1	5	3	4	6	..	7	
Oats %	13.40	47.61	0.49	17.30	15.54	5.65	..	0.01	100.00
position	4	1	6	2	3	5	..	7	
Green Forage .. %	40.76	14.95	23.51	11.20	7.99	1.57	0.01	0.01	100.00
position	1	3	2	4	5	6	7	8	
Maize %	43.89	6.32	49.72	0.02	0.03	..	0.01	0.01	100.00
position	2	3	1	5	4	..	6	7	
Orchards and Fruit Gardens .. %	24.46	31.97	9.92	11.07	8.06	14.51	..	0.01	100.00
position	2	1	5	4	6	3	..	7	
Barley %	3.11	41.46	3.76	46.69	2.45	2.53	..	..	100.00
position	4	2	3	1	6	5	..	..
Sugar-cane .. %	5.75	..	94.25	..	..	..	..	..	100.00
position	2	..	1	..	..	..	..	..
Potatoes .. %	16.56	49.15	7.88	3.06	3.29	20.04	..	0.02	100.00
position	3	1	4	6	5	2	..	7	
Vineyards .. %	12.66	37.19	1.88	43.86	4.41	..	..	..	100.00
position	3	2	5	1	4	..	..	..
All other crops .. %	14.93	30.39	19.83	7.56	3.67	23.55	0.04	0.03	100.00
position	4	1	3	5	6	2	7	8	
Total area under crop .. %	31.20	28.74	5.09	21.54	11.75	1.67	..	0.01	100.00
position	1	2	5	3	4	6	..	7	

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

ACREAGE OF CHIEF COMMONWEALTH CROPS, 1913-14 TO 1917-18.

Crop.	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.
	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat	9,287,398	9,651,081	12,484,512	11,532,828	9,774,658
Hay	2,754,672	2,628,613	3,597,771	2,671,862	2,212,914
Oats	859,020	774,734	721,644	844,130	615,800
Green Forage ..	486,504	1,352,158	515,561	390,151	373,850
Maize	331,879	339,781	323,637	360,072	332,057
Orchards and Fruit Gardens	216,021	232,711	247,008	257,687	262,134
Barley	222,564	153,656	169,514	230,253	204,870
Sugar-cane	160,976	172,616	164,285	178,190	186,484
Potatoes	174,262	151,845	120,993	149,895	136,241
Vineyards	61,197	60,985	62,124	65,394	67,862
All other Crops ..	128,519	133,794	121,185	125,918	132,112
Total	14,683,012	15,651,974	18,528,234	16,806,380	14,298,982

During the period under review the area devoted to the several crops has varied considerably, that under wheat attaining a maximum in the season 1915-16, and a minimum in 1913-14, while hay also reached its maximum area in 1915-16, and its minimum in 1917-18. Of the other crops, maize and barley attained their maximum areas in 1916-17, orchards and fruit gardens, sugar-cane and vineyards in 1917-18, green forage in 1914-15, and potatoes and oats in 1913-14.

§ 4. *Wheat.*

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

AREA UNDER WHEAT, 1860-1 TO 1918-19.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860-1	128,829	161,252	196	273,672	13,584	66,450	..	..	643,983
1865-6	191,653	178,628	2,068	410,608	22,249	73,270	..	..	818,476
1870-1	147,997	284,167	2,892	604,781	26,640	57,382	..	..	1,123,539
1875-6	133,609	321,401	4,478	898,820	21,561	42,745	..	..	1,422,614
1880-1	233,138	977,285	12,632	1,733,542	27,688	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	353,293	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	70,304	1,913,247	74,308	51,825	..	..	5,666,614
1905-6	1,939,447	2,070,517	119,356	1,757,036	105,071	41,319	..	..	6,122,746
1910-11	2,128,826	2,398,089	106,718	2,104,717	581,862	52,242	2	..	7,372,456
1913-14	3,203,572	2,565,861	132,655	2,267,851	1,097,193	18,432	9	1,825	9,287,398
1914-15	2,756,343	2,863,535	127,015	2,502,630	1,376,012	23,865	..	1,831	9,651,081
1915-16	4,186,493	3,679,971	93,703	2,739,214	1,734,117	48,642	..	2,372	12,484,512
1916-17	3,805,699	3,125,692	227,778	2,778,357	1,566,608	27,789	..	905	11,532,828
1917-18	3,328,856	2,690,216	127,815	2,355,682	1,249,762	21,812	..	515	9,774,658
1918-19a	62,410,530	2,214,490	21,637	2,186,349	1,145,408	14,624	..	(c)	7,993,238

(a) Preliminary figures except Victorian which are final. (b) Including Federal Territory. (c) Included with New South Wales.

The area devoted in the Commonwealth to the production of wheat for grain was higher for the season 1915-16 than for any previous season, there being an increase in all the States with the exception of Queensland, which shewed a falling-off. The figures for the season 1916-17 shew a reduction in area under wheat for grain in all the States with the exception of Queensland and South Australia, where the acreages for both States are the highest on record. In 1917-18 there was a marked decline in the area under wheat in all the States, the Commonwealth total shewing a shortage of 1½ million acres as compared with 1916-17. Even, then, however, the total of 9½ million acres was considerably higher than for any pre-war season. The average area under wheat in the Commonwealth in the past ten seasons, 1908-18, was 8,671,913 acres. The last five seasons exceeded this average, while the previous five seasons fell short of it.

Although final figures for 1918-19 for all the States are not yet available, the data to hand indicate the total area under wheat for grain in the Commonwealth as about 8,000,000 acres, representing a decrease of more than 18 per cent. on the 1917-18 area. New South Wales returns shew a decrease in acreage of about 28 per cent. ; Victoria, 18 per cent. ; Queensland, 83 per cent. ; South Australia, 7 per cent. ; Western Australia, 8 per cent. ; and Tasmania, 32 per cent. The total for the Commonwealth is lower than for any season since 1912-13, when an area of 7,339,651 acres was reaped.

(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 1918-19.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	Fed. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bush.	Bush.	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
1910-11	27,913,547	34,813,019	1,022,373	24,344,740	5,897,540	1,120,744	20	..	95,111,983
1913-14	37,996,068	32,936,245	1,769,432	16,936,988	13,331,350	349,736	..	24,313	103,344,132
1914-15	12,812,803	3,940,947	1,585,087	3,527,423	2,624,190	334,220	..	17,727	24,892,402
1915-16	66,726,459	58,521,706	414,438	34,134,504	18,236,355	993,790	..	38,451	179,065,703
1916-17	36,585,380	51,162,438	2,463,141	45,745,064	16,103,216	348,330	..	12,620	152,420,189
1917-18	37,704,626	37,737,552	1,035,268	28,692,594	9,303,787	252,383	..	7,374	114,733,584
1918-19a	17,832,910b	25,239,871	104,509	22,936,925	8,837,334	278,839	..	(c)	75,230,388

(a) Final figures Victoria, those for remaining States approximate.
 (b) Including Federal Territory. (c) Included with New South Wales.

The yield for the 1917-18 season was 114,733,584 bushels, which had only twice been exceeded, viz., in 1915-16 and 1916-17. The harvest of 1915-16 totalled 179,065,703 bushels, and was the largest ever reaped in the Commonwealth. It exceeded by over 75,700,000 bushels that of 1913-14, the previous largest return. The 1916-17 yield was 152,420,189 bushels, that for 1910-11 was 95,111,983 bushels, that for 1912-13, 91,981,070 bushels, and that for 1909-10 was 90,413,597 bushels, these being the only occasions, prior to 1917-18, on which a yield exceeding 90,000,000 bushels was obtained. The harvest for 1914-15 was poor, the prolonged drought having been disastrous to the wheat areas. The yield was 24,892,402 bushels, the lowest since 1902. The approximate estimate for the 1918-19 season gives about 75,000,000 bushels, which is much below the average of the three preceding seasons, and represents a shortage of 34 per cent. on the 1917-18 yield. The decline was due in part to the diminished area under wheat and to the drought conditions during the season 1918-19.

(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 1913-14 to 1917-18 and for the decennium 1908-18 :—

YIELD OF WHEAT PER ACRE, 1901-2 AND 1913-14 TO 1917-18.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1901-2 ..	10.64	6.91	19.40	4.60	10.10	21.86	..	..	7.54
1913-14..	11.86	12.84	13.34	7.47	12.15	18.97	..	13.32	11.13
1914-15..	4.65	1.38	12.48	1.41	1.91	16.10	..	10.55	2.58
1915-16..	15.94	15.90	4.42	12.46	10.52	20.43	..	16.21	14.34
1916-17..	9.61	16.37	10.81	16.46	10.28	12.53	..	14.06	13.22
1917-18..	11.33	14.03	8.10	12.18	7.44	11.57	..	14.32	11.74
Average 10 seasons 1908-18	11.73	12.51	11.28	10.61	8.94	19.40	..	14.28	11.37

As the above figures shew, there were considerable variations in the average yields, chiefly due to the vagaries of the season. The average of 2.58 bushels for 1914-15 was the lowest ever recorded for the Commonwealth with one exception, viz., the average of 2.40 bushels for 1902-3. Both were the results of exceptionally severe droughts. In both cases the yield per acre for the succeeding season was considerably above the ten-yearly average, being 14.34 bushels per acre for 1915-16 and 13.32 for 1903-4. The Commonwealth yield per acre for 1917-18, although not high, was somewhat above the ten-yearly average. This was also the case in Victoria and South Australia, the yield per acre in the other four States being below the average.

The Tasmanian yield per acre of 11.57 was the lowest ever experienced there.

(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 3½ bushels in 1902-3 and 36½ bushels in 1915-16. The State in which wheat-growing occupies the most important position relatively to population is South Australia, which in 1916-17 had a yield averaging over 105 bushels per head. Queensland and Tasmania are the States in which the average production of wheat per head is least, the quantity raised being considerably below that required for local consumption. Particulars for 1901-2 and the past five seasons are as follows :—

AUSTRALIAN WHEAT PRODUCTION PER 1,000 OF POPULATION, 1901-2 AND 1913-14 TO 1917-18.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1901-2 ..	10,766	10,023	3,340	22,299	4,943	5,499	..	..	10,082
1913-14..	20,743	23,324	2,680	38,489	41,572	1,734	..	12,230	21,212
1914-15..	6,883	2,755	2,342	7,986	8,124	1,908	..	9,049	5,038
1915-16..	35,675	41,241	611	77,854	57,344	4,944	..	21,023	36,307
1916-17..	19,685	36,574	3,679	105,718	52,147	1,742	..	5,677	31,264
1917-18..	19,943	26,745	1,527	65,776	30,068	1,242	..	3,505	23,247

The normal annual consumption of wheat in Australia, exclusive of the requirements for seed, poultry and other live stock, is 325 lbs. (5.43 bushels) per head of population.

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 34.94 bushels per acre, to Mexico with a minimum of under 3 bushels per acre. Australia with approximately 11.74 occupies a relatively subordinate position.

AVERAGE YIELD OF WHEAT PER ACRE IN VARIOUS COUNTRIES, 1917.

Country.	Average Yield in bushels per acre.	Country.	Average Yield in bushels per acre.
Belgium (1914)	34.94	Rumania (1916)	15.72
Denmark	31.81	United States	13.73
Switzerland	31.77	France	13.39
United Kingdom	30.58	Spain	13.20
Germany (1915)	27.75	Italy	12.86
Netherlands	27.43	Australia	11.74
Egypt	25.91	India	11.16
Bulgaria (1913)	23.82	Portugal (1911)	9.78
New Zealand	22.38	Russia in Europe (1914)	9.07
Sweden	22.09	Algeria	8.72
Japan	20.27	Russia in Asia (1915)	6.97
Austria (1913)	19.89	Uruguay	6.70
Hungary (1915)	17.89	Union of South Africa	6.15
Chile (1916)	17.12	Tunis	5.15
Serbia (1914)	16.03	Argentine Republic	4.23
Canada	15.75	Mexico (1914)	2.97

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 IN VARIOUS COUNTRIES, 1917.

Country.	Yield in bushels.	Country.	Yield in bushels.
Russia in Europe (1915) (a)	633,312,898	Algeria	28,092,243
United States	630,912,663	Japan	25,720,121
India	367,627,501	Chile	23,330,550
Canada	254,739,901	Turkey in Europe (1915)	17,449,200
Hungary (1915)	148,254,220	Persia (1915)	15,510,400
France	139,738,041	Serbia (1915)	9,694,000
Germany (1915)	137,340,714	Belgium (1915)	7,755,200
Spain	136,769,738	Sweden	7,266,622
Italy	135,715,031	Portugal (1916)	7,118,304
Australia	114,733,584	Tunis	6,749,932
Russia in Asia (1915)	91,672,280	Uruguay	5,225,066
Rumania (1916)	76,117,288	New Zealand	4,900,317
Argentine Republic	68,075,146	Union of South Africa	4,643,426
United Kingdom	64,322,816	Switzerland	4,416,586
Austria (1915)	54,286,400	Denmark	4,167,451
Bulgaria (1916)	37,070,825	Mexico (1915)	3,877,600
Turkey in Asia (1915)	33,929,000	Netherlands	3,346,369
Egypt	28,921,080		

(a) Including Poland and Northern Caucasia.

Various estimates of the total quantity of wheat produced in the world have been made. That furnished by the International Institute of Agriculture, Rome, gives the following figures for the ten years 1907 to 1916:—

WORLD'S PRODUCTION OF WHEAT, 1907 TO 1916.

Year.	1,000,000 bushels.	Year.	1,000,000 bushels.	Year.	1,000,000 bushels.
1907	3,131	1911	3,512	1915	4,492
1908	3,137	1912	3,795	1916	3,657
1909	3,569	1913	4,048	Average for 10	
1910	3,525	1914	3,548	years	3,641

In this estimate the figures given for Australia and New Zealand relate to the agricultural year ending on 30th June in the year specified.

For the ten years referred to, the Australian production of wheat aggregated 830,113,000 bushels, thus representing 2.3 per cent. of the world's production. The total quantity of wheat produced in the British Empire during the same period of ten years was approximately 7,214 million bushels, so that the Australian production of wheat represented 11.5 per cent. of that of the British Empire, while the British Empire production represented 19.8 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 prime importance 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 1916.

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	1907 ..	30 7	36 3	26 0
1871 ..	56 8	60 0	52 6	1908 ..	32 0	35 6	30 5
1881 ..	45 4	55 2	40 9	1909 ..	36 11	44 9	31 4
1891 ..	37 0	41 8	32 3	1910 ..	31 8	33 9	29 0
1901 ..	26 9	27 8	25 8	1911 ..	31 8	33 4	30 0
1902 ..	28 1	31 8	24 10	1912 ..	34 9	39 2	29 10
1903 ..	26 9	30 3	24 11	1913 ..	31 8	34 3	30 0
1904 ..	28 4	30 6	26 3	1914 ..	34 11	43 3	30 11
1905 ..	29 8	32 3	26 8	1915 ..	52 10	62 0	42 9
1906 ..	28 3	30 9	25 9	1916 ..	58 5	75 10	46 3

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

EXPORT VALUES OF AUSTRALIAN WHEAT, 1908 TO 1917-18.

Year ..	1908.	1909.	1910.	1911.	1912.	1913.	1914-15	1915-16	1916-17	1917-18
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Price per bushel	4 1	4 2	4 2	3 6	3 11	3 9	4 1	5 7	4 10	5 3

The export values here shown 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 shows the imports, exports, and net exports of wheat and flour during 1901 and from 1913 to 1917-18. 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 and 1915-16 the Commonwealth imports of wheat and flour were equivalent to 12,607,940 and 5,633,596 bushels of wheat respectively. This importation was necessitated in each case 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 6,886,293 bushels in 1914-15 and 69,810,522 bushels in 1916-17, the net exports for the period averaging 40,214,183 bushels.

IMPORTS AND EXPORTS OF WHEAT AND FLOUR, COMMONWEALTH, 1901 AND 1913 TO 1917-18.

Year.	Imports.			Exports.			Net Exports.
	Wheat.	Flour.	Total.	Wheat.	Flour.	Total.	
	Bushels.	Eq. Bushels. α	Bushels.	Bushels.	Eq. Bushels. α	Bushels.	
1901 ..	22,992	302,550	325,542	20,260,058	4,840,700	25,100,758	24,775,216
1913 ..	60	2,650	2,710	42,922,887	11,082,900	54,005,787	54,003,077
1914-15	1,641,237	5,150	1,646,387	4,210,593	2,675,700	6,886,293	5,239,906
1915-16	5,616,696	16,900	5,633,596	28,621,445	7,347,750	35,969,195	30,335,599
1916-17	40	3,000	3,040	55,278,872	14,531,650	69,810,522	69,807,482
1917-18	20	1,050	1,070	22,981,772	18,704,150	41,685,922	41,684,852

(α) Equivalent in bushels of wheat.

(ii) *Destination of Exported Breadstuffs.* In the next two tables will be found a list of the principal countries to which the Commonwealth exported wheat and flour during each year of the period 1913 to 1917-18. The countries are as shown in the Australian Customs returns, but owing to the fact that in normal times wheat ships are frequently instructed to call for orders at various ports, the countries to which these ports belong cannot always be considered as the ultimate destination of the whole of the wheat said to be exported to them.

EXPORTS OF WHEAT FROM THE COMMONWEALTH, 1913 TO 1917-18.

Country to which Exported.	1913.	1914-15.	1915-16.	1916-17.	1917-18.	Total for Five Years.
	Bushe's.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
United Kingdom	27,922,717	1,532,693	14,494,248	22,715,735	5,309,162	71,974,555
France	1,943,208	9,482	2,186,567	8,562,240	5,074,098	17,775,595
Union of South Africa	4,482,865	1,088,507	2,919,608	6,549,395	1,216,172	16,256,547
Italy	1,879,923	157,000	3,258,313	8,154,602	517,962	13,967,800
United States	..	..	..	357,643	6,593,878	6,951,521
Canary Islands (a)	1,477,005	..	2,960,558	884,615	..	5,322,178
Egypt	92,413	..	267,568	4,842,000	..	5,201,981
Peru	943,130	290,810	156,302	1,154,355	340,965	2,885,562
Japan	1,215,778	223,996	..	..	702,958	2,142,732
Spain	220,625	72,970	1,550,252	..	..	1,843,847
Belgium	1,742,803	..	..	..	..	1,742,803
New Zealand	..	151,042	30,380	225,852	1,295,448	1,702,722
Chile	..	650,510	..	..	..	650,510
Germany	290,553	..	..	..	..	290,553
Other Countries	711,867	33,583	797,645	1,832,435	1,931,129	5,306,659
Total	42,922,887	4,210,593	28,621,441	55,278,872	22,981,772	154,015,565

(a) 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, 1913 TO 1917-18.

Country to which Exported.	1913.	1914-15.	1915-16.	1916-17.	1917-18.	Total for Five Years.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
United Kingdom	18,894	850	43,604	127,502	145,914	336,764
Union of South Africa	38,209	14,075	22,019	25,106	7,330	106,739
Java	38,103	6,003	11,674	13,826	15,573	85,179
France	..	..	14,087	33,320	32,597	80,004
Egypt	37,687	3,592	1,345	9,772	13,994	66,390
Straits Settlements	21,625	3,352	5,023	9,755	23,609	63,364
United States	..	..	..	8,131	54,889	63,020
Philippine Islands	14,366	3,313	3,383	..	35,158	56,220
Italy	..	..	14,142	25,679	6,099	45,920
New Zealand	3,057	5,064	2,190	9,006	5,736	25,053
Portuguese East Africa	15,612	3,163	216	409	..	19,400
New Caledonia	4,143	3,791	3,566	3,533	3,314	18,347
Sumatra	4,527	633	1,507	4,072	2,530	13,269
Fiji	2,619	1,834	1,257	2,199	2,280	10,189
Hong Kong	2,466	140	1,442	648	3,604	8,300
Ceylon	5,454	2,173	342	20	..	7,989
Japan	610	2	53	300	3,702	4,667
China	2,188	545	384	335	923	4,375
Mauritius	1,906	1,810	..	112	..	3,828
Other Countries	10,192	3,174	20,721	16,908	16,831	67,826
Total	221,658	53,514	146,955	290,633	374,083	1,086,843

For the five years under review the export of wheat to the United Kingdom amounted to 71,974,555 bushels, or nearly 47 per cent. of the total export for the period, while the export of flour to the United Kingdom aggregated 336,764 tons, or 31 per cent. of the total export. During the quinquennium the heaviest exports of flour have been to the United Kingdom, South Africa, and Java.

(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, slightly over 26 per cent. of the total equivalent in wheat exported as wheat or flour from the Commonwealth.

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 lb. per bushel.
Bran	..	..	3.00 ,, 0.27 ,,
Pollard	..	..	0.90 ,, 0.08 ,,

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

During the last ten years for which complete annual returns are available, the net exports from the Commonwealth of wheat and its milled products have amounted to 328,847,537 bushels of wheat, 1,816,153 tons of flour, and 3,359,000 bushels of bran, pollard, and sharps. On the basis of the figures quoted above this export would contain no less than 172,000,000 lbs. of phosphoric acid, the value of which as a fertilizer would be over a million pounds sterling.

(iv) *Local Consumption of Wheat.* The estimated consumption of wheat for food and for seed purposes in the Commonwealth during the past ten years is given in the following tables:—

**WHEAT USED FOR HUMAN CONSUMPTION IN THE COMMONWEALTH,
1908 TO 1916-17.**

Year.	Flour Milled.	Net Exports of Flour.		Net Quantity Available for Home Consumption.		Net Quantity Available per Head of Population.	
		Flour.	Flour in Biscuits Exported.	Flour.	Equivalent in Terms of Wheat.	Flour.	Equivalent in Terms of Wheat.
	Tons.	Tons.	Tons.	Tons.	Bushels.	Tons.	Bushels.
1908 ..	552,388	116,625	1,810	433,953	21,697,650	.1035	5.173
1909 ..	603,688	129,889	1,980	471,819	23,590,950	.1104	5.519
1910 ..	649,282	139,774	2,340	507,168	25,358,400	.1161	5.803
1911 ..	696,301	175,649	2,570	518,082	25,904,100	.1154	5.769
1912 ..	677,053	167,948	2,820	506,285	25,314,250	.1090	5.450
1913 ..	760,613	221,605	2,600	536,408	26,820,400	.1117	5.583
1914 ..	713,845	174,180	2,400	537,265	26,863,250	.1092	5.461
1915 ..	541,810	7,633	2,160	532,017	26,600,850	.1075	5.374
1915-16 ..	577,038	146,618	2,650	427,770	21,388,500	.0867	4.335
1916-17 ..	869,975	290,572	2,885	576,518	28,825,900	.1183	5.913
Aggregate 10 years	6,641,993	1,570,493	24,215	5,047,285	252,364,250	.1086	5.432

ESTIMATED QUANTITY OF WHEAT USED FOR SEED PURPOSES IN THE COMMONWEALTH, 1908 TO 1917.

Year.	Area for Grain and Hay.	Wheat for Seed Purposes.		
		Quantity.	Per Acre.	Per Head of Population.
		Acres.	Bushels.	Bushels.
1908	6,535,433	6,429,000	.984	1.533
1909	7,582,238	7,322,000	.966	1.713
1910	8,527,308	8,332,000	.977	1.907
1911	8,859,949	8,282,000	.935	1.844
1912	9,112,676	8,484,000	.931	1.827
1913	10,661,430	9,747,000	.914	2.029
1914	11,012,679	10,059,000	.913	2.045
1915	14,414,024	13,041,000	.905	2.634
1916	12,894,917	11,523,000	.894	2.348
1917	10,910,669	9,713,000	.890	1.968
Aggregate for 10 years ..	100,511,323	92,932,000	.925	1.984

In addition to the above, there is to be taken into consideration grain fed to poultry and other live stock. This, doubtless, varies in quantity from year to year according to the prices current for wheat, and other causes. No data are available on which to base an estimate of actual quantity so consumed. The flour available for human consumption necessarily fluctuates from year to year coincident with stocks being heavy or light. In some years the flour available per head of population, after deducting net exports from quantity milled, shows a substantial increase over the average for the previous year, this, however, being counterbalanced by a decline in the following year. The average quantity of flour consumed per annum for the ten years under consideration was 0.1086 tons per head of population, which, when expressed in equivalent terms in wheat, represents 5.432 bushels. The estimates of quantity of grain used for seed purposes have been based on data supplied by the Agricultural and Statistical Departments of the several States giving average quantities of seed used per acre for wheat sown either for grain or hay. The average annual quantity thus used during the ten years was 1.984 bushels per head of population, and 0.925 bushels or 55½ lbs. per acre sown.

A steady decline in the average quantity of seed wheat per acre is in evidence during the period under review, chiefly due to the general use of more economical methods of sowing by the use of drills, etc.

6. **Value of the Wheat Crop.**—The estimated value of the wheat crop in each State and in the Commonwealth during the season 1917-18 is shewn below :—

VALUE OF THE WHEAT CROP, (a) 1917-18.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Ter.	C'wealth.
Aggregate value..	£ 8,954,850	£ 8,962,669	£ 196,123	£ 6,814,491	£ 2,209,649	£ 59,941	£ 1,750	£ 27,199,473
Value per acre ..	£2/13/10	£3/6/8	£1/10/8	£2/17/10	£1/15/4	£2/15/0	£3/8/0	£2/15/8

(a) Exclusive of the value of straw.

7. **The Australian Wheat Marketing Scheme.**—(i) *General Principles.* Owing to the abnormal conditions prevailing, a Wheat Marketing Scheme was entered into by the Governments of the Commonwealth and of the States of New South Wales, Victoria, South Australia, and Western Australia, for the purpose of realising to the best advantage the 1915-16 wheat harvest of the States named, and of making advances to farmers pending realisation. It was subsequently decided that the 1916-17 harvest, and later, the 1917-18 and 1918-19 harvests, should be dealt with on similar lines to those of the 1915-16 harvest.

The general principles of the scheme may be shortly stated thus :—

1. That all growers should participate equitably in the realisation of the harvest and the proceeds thereof.
2. That the limited freights available should be allotted between the States in accordance with the exportable surplus of each.

The securing and general allotment of freights is under the control of the Chartering Agents, who are responsible to the Commonwealth Government.

The distribution of freights among the States is in charge of the Australian Wheat Board, which also has the duty of realising the crop. This Board consists of Ministerial representatives of the Governments of the Commonwealth and of the States and a representative of the growers, one from each State. It has the assistance of an Advisory Board consisting of well-known wheat shippers. A London Wheat Committee, consisting of the High Commissioner and the Agents-General of the States concerned, acting with the advice of the London representatives of the wheat shippers, arranges overseas sales. Adjustments are to be made between the States so that, having regard to the quantity shipped, each will ultimately receive the average net result of the whole of the overseas realisations.

In certain States the crop is bought by the State Government, and in others the wheat is received from the growers for sale on their behalf.

The Australian Wheat Board fixes all prices at which wheat may be sold, except in the case of poultry feed, which is left to the States to regulate.

Each State has a local Board or Commission to control the operations of the scheme within the State concerned. This Board or Commission effects all local sales, including sales to millers.

(ii) *Advances and Finance.* Under arrangements with the Australian banks made by the Commonwealth and State Governments, advances are made to farmers upon delivery of their wheat at railway stations to representatives of agents appointed by the different State Governments. Upon the 1915-16 crop, advances made amount to 4s. 9d. per bushel, less rail freight and handling charges. This will still leave for distribution a small amount, varying in the different States in accordance with differences in local realising, and in interest and other expenses. Upon the 1916-17 and 1917-18 crops, advances have been made amounting to 3s. 3d. per bushel, and on 1918-19, 4s. 4d. per bushel, less rail freight to seaport. This represents the position as at 4th August, 1919.

Proceeds of wheat as realised are applied in reduction of the bank overdrafts caused by payment of advances and expenses. The rate of interest payable to the banks is five per cent. The Government of each State has undertaken to repay all advances made on account of such State, and the Commonwealth Government has guaranteed repayment by the States. Advances to growers are made by means of certificates issued by the agents appointed by the various States. The certificates are payable at banks named by the growers.

(iii) *Results of the Scheme.* In all the States, certain wheat, particularly seed wheat, has not been brought under the scheme. The quantity of wheat pooled therefore differs from that harvested in each State. In addition, wheat grown in one State may be pooled in another. A considerable quantity of New South Wales wheat is included in Victorian returns, and the Victorian total also includes a small quantity of South Australian wheat.

Deliveries made on account of each harvest to 4th August, 1919, are as follows :—

WHEAT POOLED IN EACH STATE, 1915-16 TO 1918-19.

State in which pooled.	1915-16.	1916-17.	1917-18.	1918-19 (to 4/8/1919).
	Bushels.	Bushels.	Bushels.	Bushels.
New South Wales	58,574,000	32,050,000	33,715,000	13,855,000
Victoria	59,902,000	50,407,000	36,233,000	22,969,000
South Australia	29,894,000	41,996,000	25,867,000	20,393,000
Western Australia	15,004,000	13,822,000	7,526,000	7,561,000
Total	163,374,000	138,275,000	103,341,000	64,778,000

On 4th August, 1919, the total overdraft on all pools amounted to £17,231,000.

The quantities of wheat disposed of and in hand on that date were as follows :—

POOLED WHEAT DISPOSED OF AND IN HAND IN EACH STATE, 4th AUGUST, 1919.

Particulars.	N.S.W.	Vic.	S. Aust.	W. Aust.	Total.
1915-16. (In thousands of bushels.)					
Shipments	28,977	37,758	18,315	10,169	95,219
Local sales	29,597	22,144	7,758	4,835	64,334
Stocks on hand .. .. .	..	..	3,821	..	3,821
Total	58,574	59,902	29,894	15,004	163,374
1916-17. (In thousands of bushels.)					
Shipments	4,777	16,985	15,401	2,473	30,636
Local sales	19,523	19,915	12,379	10,840	62,657
Stocks on hand	7,750	13,507	14,216	509	35,982
Total	32,050	50,407	41,996	13,822	138,275
1917-18. (In thousands of bushels.)					
Shipments	10,752	6,421	7,286	1,900	26,359
Local sales	20,121	12,237	3,463	2,892	38,713
Stocks on hand	2,842	17,575	15,118	2,734	38,269
Total	33,715	36,233	25,867	7,526	103,341
1918-19. (In thousands of bushels.)					
Shipments .. .. .	..	343	963	9	1,315
Local sales	2,219	5,090	609	857	8,775
Stocks on hand	11,636	17,536	18,821	6,695	54,688
Total	13,855	22,969	20,393	7,561	64,778

The value realised to 4th August, 1919 (all pools) is as follows :—

TOTAL VALUE OF POOLED WHEAT SOLD IN EACH STATE, 4th AUGUST, 1919.

Particulars.	N.S.W.	Victoria.	S. Aust.	W. Aust.	Total.
	£	£	£	£	£
Oversea shipments and Australian Wheat Board flour contracts	11,296,000	18,891,000	12,459,000	5,416,000	48,062,000
Local sales	15,071,000	9,759,000	3,534,000	2,420,000	30,784,000
Total shipments and local deliveries	26,367,000	28,650,000	15,993,000	7,836,000	78,846,000

Since the initiation of the "Pool," several sales of magnitude have been made, including one of 3,000,000 tons to the British Wheat Commission, at a rate of 4s. 9d. per bushel f.o.b., equalling £26,600,000. This is the largest wheat transaction ever recorded.

§ 5. Oats.

1. *Progress of Cultivation.*—Oats came next in importance to wheat amongst the grain crops cultivated last season, but while wheat grown for grain accounted for over 68 per cent., oats represented less than 4½ 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 1917-18.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Fed. Ter.	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
1910-11	77,991	392,681	2,537	77,674	61,918	63,887	..	676,688
1913-14	103,262	442,060	4,093	116,932	133,625	58,886	154	859,020
1914-15	43,285	434,815	2,728	140,567	96,085	57,063	191	774,734
1915-16	58,449	353,932	339	126,529	104,086	78,212	97	721,644
1916-17	67,003	441,598	6,564	151,609	122,220	55,028	108	844,130
1917-18	82,512	293,214	3,002	106,556	95,666	34,771	79	615,800

(a) Including 8 acres, Northern Territory.

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 1917-18.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	F. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	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
1910-11	1,702,706	9,699,127	50,469	1,136,618	776,233	2,063,303	..	15,428,456
1913-14	1,832,616	8,890,321	56,236	1,200,740	1,655,681	1,593,664	2,790	15,232,048
1914-15	511,759	1,608,419	43,607	368,425	464,943	1,341,800	2,151	4,341,104
1915-16	1,344,138	9,328,894	2,454	2,134,374	1,538,092	2,189,467	1,560	16,538,979
1916-17	1,083,030	8,289,289	108,664	1,839,541	1,689,352	1,006,183	1,950	14,018,009
1917-18	1,452,144	6,141,287	44,688	1,248,529	908,592	589,224	2,967	10,387,431

The principal oat-growing State of the Commonwealth is Victoria. During the past five seasons it has produced more than 56 per cent. of the total quantity of oats grown in the Commonwealth; South Australia, Tasmania, Western Australia, and New South Wales come next in order of importance. In New South Wales and Tasmania, the highest production of oats for any season was that of 1909-10, while Victoria experienced its maximum yield in 1903-4, South Australia in 1915-16, Queensland in 1916-17, and Western Australia in 1912-13. 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 16,538,979 and 16,248,857 for 1915-16 and 1908-9 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 in each of the seasons 1901-2 and 1913-14 to 1917-18, and also for the decennium 1908-18, are given in the succeeding table :—

AVERAGE YIELD OF OATS PER ACRE, 1901-2 AND 1913-14 TO 1917-18.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1901-2	21.31	20.43	27.50	13.54	16.78	31.48	..	21.22
1913-14	17.75	20.11	13.74	10.27	12.39	27.06	18.12	17.73
1914-15	11.82	3.70	15.98	2.62	4.84	23.51	11.26	5.60
1915-16	23.00	26.36	7.24	16.87	14.78	27.99	16.08	22.92
1916-17	16.16	18.77	16.55	12.13	13.82	18.28	18.06	16.61
1917-18	17.60	20.94	14.89	11.72	9.50	16.95	37.56	16.87
Average for 10 seasons 1908-18	18.96	19.44	16.87	11.72	12.70	28.26	18.72	18.02

The smallest average yield per acre ever recorded for the Commonwealth was that experienced in the abnormally dry season 1914-15, viz., 5.60 bushels, while the largest in the past ten years was that of the season 1908-9, amounting to 24.03 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 about 6.7 bushels per head during the last five years under review, as compared with 2.5 bushels per head for the Commonwealth as a whole. Particulars for the seasons 1901-2 and 1913-14 to 1917-18 are furnished in the succeeding table :—

OAT PRODUCTION PER 1,000 OF POPULATION, 1901-2 AND 1913-14 TO 1917-18.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1901-2	500	5,558	83	1,306	845	9,734	..	2,559
1913-14	1,000	6,296	85	2,729	5,163	7,902	1,403	3,126
1914-15	275	1,124	64	834	1,439	6,662	1,098	879
1915-16	719	6,574	4	4,868	4,837	10,892	820	3,353
1916-17	583	5,926	162	4,251	5,471	5,033	877	2,875
1917-18	768	4,352	66	2,862	2,936	2,900	1,410	2,105

5. **Value of Oat Crop.**—The estimated value of the oat crop of the several States of the Commonwealth for the season 1917-18 is as follows :—

VALUE OF OAT CROP, (a) 1917-18.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Ter.	C'wealth.
Aggregate value ..	£296,470	£1,145,094	£5,958	£156,066	£166,575	£103,114	£610	£1,873,887
Value per acre ..	£3/11/10	£3/18/1	£1/19/8	£1/9/4	£1/14/10	£2/19/4	£7/14/5	£3/0/0

(a) 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, 1908, 1910, and in each of the four years prior to 1916–17. The quantities and values of oats imported into and exported from the Commonwealth during the years 1901 and 1913 to 1917–18 are given hereunder:—

COMMONWEALTH IMPORT AND EXPORT OF OATS, 1901 AND 1913 TO 1917–18.

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
1913 ..	146,102	20,282	111,280	14,102	— 34,822	— 6,180
1914–15 ..	1,767,490	344,201	38,163	7,904	— 1,729,327	— 336,297
1915–16 ..	2,473,412	501,755	582,055	85,119	— 1,891,357	— 416,636
1916–17 ..	3,700	635	670,985	97,879	667,285	97,244
1917–18 ..	838	219	368,113	53,809	367,275	53,590

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

The principal countries from which the Commonwealth imports of oats have been obtained are the Dominion of New Zealand, Chile, Japan, and the United States of America, 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 and New Zealand in the later years. Of the 368,113 bushels exported during 1917–18, 327,498 bushels were shipped to New Zealand.

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 1917–18 amounted to 232,438 lbs., and represented a value of £5,096, while the exports amounted to 3,295,247 lbs., valued at £46,895, principally to India, New Zealand, and the Union of South Africa.

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, 1917.

Country.	Quantity of Oats Produced.	Country.	Quantity of Oats Produced.	Country.	Quantity of Oats Produced.
	Bushels.		Bushels.		Bushels.
United States ..	1,538,715,048	Hungary (1915)	78,448,695	Netherlands ..	18,025,024
Russia in Europe		Sweden ..	68,588,928	Norway ..	11,444,736
(1915) (a) ..	758,628,205	Belgium (1915)	38,776,000	Australia ..	10,387,431
Germany (1915)	399,780,056	Denmark ..	36,531,839	Bulgaria (1916)	7,146,417
Canada ..	390,677,700	Italy ..	32,851,997	Union of South	
France ..	230,160,764	Spain ..	32,036,731	Africa ..	6,716,003
United Kingdom	208,167,272	Argentine Rep.	30,808,501	New Zealand	5,302,618
Austria (1915)	136,685,400	Rumania		Tunis ..	3,873,722
Russia in Asia		(1916) ..	28,049,589		
(1915) ..	82,242,927	Algeria ..	18,031,809		

(a) Including Poland and Northern Caucasia.

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 according to the magnitude of the average yield of oats for the years specified, the results are as follows :—

YIELD OF OATS PER ACRE, VARIOUS COUNTRIES, 1917.

Country.	Average per Acre.	Country.	Average per Acre.	Country.	Average per Acre.
	Bushels.		Bushels.		Bushels.
Belgium (1914) ..	70.29	Tunis	31.24	Rumania (1916) ..	26.26
Netherlands ..	48.58	France	29.87	Spain	22.48
United Kingdom	43.70	New Zealand ..	29.79	Russia in Europe	
Norway	37.28	Italy	29.68	(1915)	21.72
Denmark	37.24	Hungary (1915)	29.45	Bulgaria (1914) ..	20.90
Sweden	35.56	Canada	29.34	Australia	16.87
United States ..	35.31	Union of South		Russia in Asia	
Germany (1915) ..	35.06	Africa	26.86	(1915)	13.38
Austria (1913) ..	31.35	Algeria	26.44	Argentine Rep. ..	12.20

10. **Price of Oats.**—The average wholesale prices of oats in the markets of the several capitals for the year 1917 are given in the following table :—

AVERAGE WHOLESALE PRICE OF OATS PER BUSHEL, 1917.

Particulars.	Sydney.(a)	Melbourne.	Brisbane.	Adelaide.	Perth.	Hobart.
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
Average price per bushel ..	3 9	2 5½	2 8	2 0¼	2 6½	2 11

(a) Year ended 30th June, 1917.

§ 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 1917-18 being 310,857 acres, or 93½ per cent. of the total for the Commonwealth. Of the balance, Victoria contributed 20,987 acres, South Australia 70 acres, Western Australia 97 acres, the Northern Territory 25 acres, and the Federal Territory 21 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 the preceding season. Since then the area devoted to this crop has fluctuated slightly from year to year, that for 1916-17 having been exceeded on two occasions only.

AREA UNDER MAIZE, 1875-6 TO 1917-18.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	N. Ter.	F. Ter.	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
1910-11 ..	213,217	20,151	180,862	(a)619	46	19	..	414,914
1913-14 ..	156,793	17,962	156,775	239	38	45	27	331,879
1914-15 ..	143,663	19,433	176,372	189	73	51	..	339,781
1915-16 ..	154,119	22,258	146,474	702	28	45	11	323,637
1916-17 ..	155,373	23,076	181,405	117	51	45	5	360,072
1917-18 ..	145,733	20,987	165,124	70	97	25	21	332,057

(a) Particulars for years prior to 1907-8 not available.

3. Total Yield.—The average yield for the season 1917-18 was the largest since 1913-14. The 1910-11 crop was a record one, and exceeded 13,000,000 bushels, while the average annual production of maize during the last decade was 9,155,881 bushels. Particulars concerning the yield from 1875 onwards are given hereunder :—

MAIZE CROP, 1875-6 TO 1917-18.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W.Aust.	N. Ter.	F. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	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
1910-11	7,594,130	982,103	4,460,306	(a)6,375	718	449	..	13,044,081
1913-14	4,452,989	800,529	3,915,376	2,336	421	1,350	320	9,173,321
1914-15	3,174,825	1,018,419	4,260,673	170	999	475	..	8,455,561
1915-16	3,773,405	999,886	2,003,463	15,837	273	450	195	6,793,509
1916-17	4,333,430	1,172,330	3,018,934	993	949	450	50	8,527,136
1917-18	3,499,529	1,152,787	4,188,586	796	701	432	429	8,843,260

(a) Particulars for years prior to 1907-8 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 1913-14 to 1917-18, and also for the decennium 1908-18 :—

AVERAGE YIELD OF MAIZE PER ACRE, 1901-2 AND 1913-14 TO 1917-18.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	N. Ter.	F. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1901-2 ..	22.98	61.42	21.96	(a)	10.16	..	..	23.86
1913-14 ..	28.40	44.57	24.97	9.77	11.08	30.00	11.85	27.64
1914-15 ..	22.10	52.41	24.16	0.90	13.68	9.31	..	24.89
1915-16 ..	24.48	44.92	13.68	22.56	9.75	10.00	17.73	20.99
1916-17 ..	27.89	50.80	16.64	8.49	18.61	10.00	10.00	23.68
1917-18 ..	24.01	54.93	25.37	11.37	7.23	17.28	20.43	26.63
Average for 10 seasons 1908-18	28.57	48.38	21.63	14.88	12.91	19.04	14.41	26.57

(a) Particulars not available.

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 average 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 1917-18 has been estimated at £1,902,029, made up as follows:—

VALUE OF MAIZE CROP, 1917-18.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	N. Ter.	F. Ter.	C'wealth.
Aggregate value	£ 962,620	£ 293,000	£ 645,740	£ 209	£ 260	£ 80	£ 120	£ 1,902,029
Value per acre	£6/12/1	13/19/3	3/18/3	2/19/9	2/13/7	3/4/0	5/14/3	5/14/7

6. **Relation to Population.**—During the past ten seasons the Commonwealth production of maize has ranged between 1.4 bushels per head of population in 1915-16 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 3 bushels per head in 1915-16 and 7½ bushels per head in 1910-11. Details for the several States for the seasons 1901-2 and 1913-14 to 1917-18 are as follows:—

MAIZE PRODUCTION PER 1,000 OF POPULATION, 1901-2 AND 1913-14 TO 1917-18.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	N. Ter.	F. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1901-2 ..	2,795	509	5,070	(a)	27	..	..	1,839
1913-14..	2,431	567	5,931	5	1	368	161	1,883
1914-15..	1,705	712	6,216	..	3	120	..	1,711
1915-16..	2,017	705	2,952	36	1	99	107	1,377
1916-17..	2,332	835	4,509	2	3	94	32	1,749
1917-18..	1,851	817	6,179	2	2	88	204	1,792

(a) Particulars 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 over 77 per cent.

PRODUCTION OF MAIZE IN VARIOUS COUNTRIES, 1917.

Country.	Production of Maize.	Country.	Production of Maize.
	Bushels.		Bushels.
United States ..	3,062,813,484	Union of South Africa ..	33,928,031
Hungary (1915) ..	175,025,170	Spain ..	26,713,756
Italy ..	84,337,800	Philippine Islands (1916)	13,652,060
Rumania (1915) ..	83,767,793	France (1915) ..	13,571,600
India (British) (1915)	79,684,680	Serbia (1915) ..	11,632,800
Russia in Europe (1916)	69,786,137	Russia in Asia (1913)	10,765,860
Egypt (1916) ..	66,270,123	Portugal (1915)	8,991,185
Mexico (1915) ..	58,164,000	Australia ..	8,843,260
Argentine Republic	57,038,527	Canada ..	7,525,161
Austria (1915) ..	40,714,800	Uruguay (1916)	4,463,118
Bulgaria (1915) ..	33,929,000	Japan ..	3,591,627

8. **Comparison of Yields.**—The average yield per acre of maize in the Commonwealth during 1917 was 26.63 bushels, and may be regarded as highly satisfactory when compared with that of other maize-producing countries. Egypt, Canada, and Hungary are the

only countries shewing a higher average. The remaining countries shewn in the following table had average yields per acre ranging from 6.36 to 25.58 bushels.

AVERAGE YIELD OF MAIZE PER ACRE IN VARIOUS COUNTRIES, 1917.

Country.	Average Yield per Acre.	Country.	Average Yield per Acre.
	Bushels.		Bushels.
Egypt (1916)	35.82	Austria (1913)	18.61
Canada	32.11	France (1915)	17.72
Hungary (1915)	28.26	Rumania (1915)	16.09
Australia (a)	26.63	Serbia (1913)	15.85
United States of America	25.58	India (1915)	13.12
Japan	25.29	Union of South Africa	13.01
Spain	24.24	Uruguay (1915)	12.95
Italy	23.25	Philippine Islands (1916)	12.77
Bulgaria (1914)	19.07	Russia in Asia (1913)	10.09
Russia in Europe	19.04	Argentine Republic	6.36

(a) Average yield for 10 years, 26.57 bushels.

9. **Oversea Imports and Exports.**—Except in the years 1902, 1903, 1912, 1914–15 and 1915–16, when many of the maize crops failed, the Commonwealth oversea trade in maize has been practically insignificant. In the first of the years mentioned, nearly two million, and in 1915–16 nearly three and a half million bushels were imported. In 1908 and 1909 also, owing to the small harvests of the seasons 1907–8 and 1908–9, the imports of maize were largely in excess of the exports. Details of imports and exports for 1901 and the past five years are as follows :—

COMMONWEALTH IMPORTS AND EXPORTS OF MAIZE, 1901 AND 1913 TO 1917-18.

Year.	Imports.		Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1901	188,423	24,764	533	75	187,890	24,689
1913	273,123	53,387	15,261	3,349	257,862	50,038
1914–15	1,457,660	282,461	12,266	2,873	1,445,394	279,588
1915–16	3,432,571	712,650	4,237	1,088	3,428,334	711,562
1916–17	41,952	8,162	50,296	11,894	— 8,344	— 3,732
1917–18	3,226	770	128,988	29,069	— 125,762	— 28,299

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

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

10. **Prepared Maize.**—A moderate 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 1917–18 these importations amounted to 125,524 lbs., and represented a value of £1,588. The exports of this commodity have been steadily increasing in dimensions during the past five years, ranging from 12,622 lbs., valued at £204, in 1913, to 2,277,604 lbs., valued at £35,425, in 1917–18.

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 1908 to 1917 :—

AVERAGE SYDNEY PRICE OF MAIZE PER BUSHEL, 1908 TO 1917.

Particulars.	1908.	1909.	1910.	1911.	1912.	1913.	1914. ^a	1915. ^a	1916. ^a	1917. ^a
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Average price per bushel..	4 7	4 2	2 11	3 0	4 8	4 1	4 6	5 2	3 8	4 8

(a) For year ended 30th June of year following.

§ 7. Barley.

1. **Area under Barley.**—The area devoted to barley in the Commonwealth has fluctuated very considerably, though with a tendency to increase during the past few years. Taking a series of years, the principal barley-growing State is Victoria, but for the past five seasons South Australia has attained the lead in regard to acreage, and for 1917-18 accounted for nearly 47 per cent. of the Commonwealth area devoted to this crop; Victoria was next in importance with a percentage of about 41; the remaining 12 per cent. being represented by Queensland, New South Wales, Tasmania, and Western Australia, 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 1917-18.

Season.	N.S.W.	Victoria.	Q'land.	S. 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
1910-11 ..	7,082	52,687	5,578	34,473	3,369	5,235	108,424
1913-14 ..	20,601	83,351	8,826	90,552	11,502	7,723	222,564
1914-15 ..	4,861	62,492	7,166	66,315	6,986	5,836	153,656
1915-16 ..	6,369	61,400	1,367	84,900	10,069	5,409	169,514
1916-17 ..	5,195	93,015	12,674	103,627	11,105	4,637	230,253
1917-18 ..	6,370	84,931	7,702	95,654	5,028	5,185	204,870

(a) Including 9 acres Federal Territory.

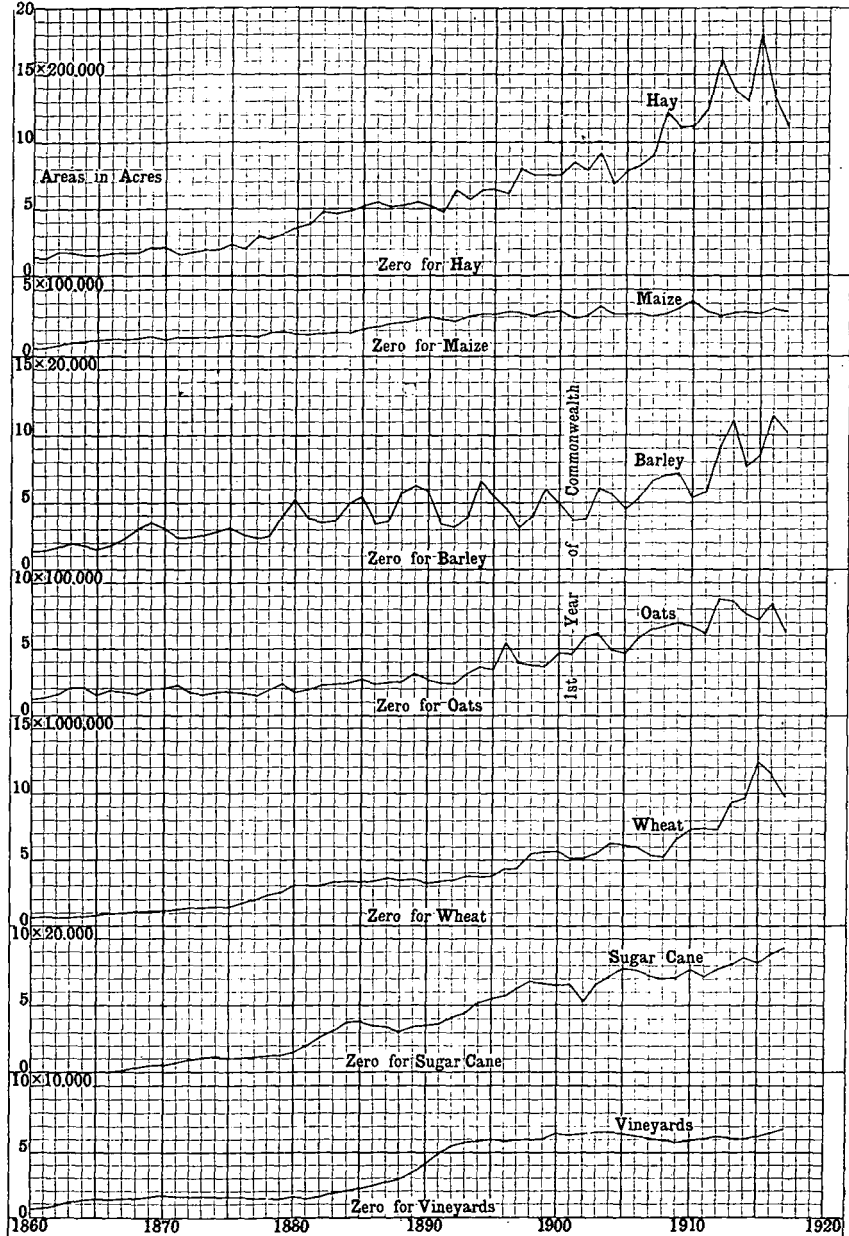
2. **Total Yield.**—The total production of barley in the Commonwealth for the season 1917-18 amounted to 3,996,858 bushels, giving an average yield of 19.51 bushels per acre as compared with 18.31 for the decennium 1908-18. Particulars concerning the yields of the several States from 1875 onwards are as follows:—

COMMONWEALTH BARLEY CROP, 1875-6 TO 1917-18.

Season.	N.S.W.	Victoria.	Q'land.	S. 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
1910-11 ..	82,005	1,340,387	83,621	544,471	33,566	142,318	2,226,368
1913-14 ..	303,297	1,812,890	115,975	1,332,714	167,915	187,484	3,920,425
1914-15 ..	46,500	600,599	105,613	447,310	24,090	104,798	1,328,910
1915-16 ..	114,846	1,734,511	8,130	1,697,670	130,870	115,523	3,801,550
1916-17 ..	73,370	1,799,784	250,167	1,734,420	134,055	88,696	4,080,492
1917-18 ..	97,824	1,970,650	143,574	1,651,036	35,761	98,013	3,996,858

(a) Including Federal Territory, 150 bushels.

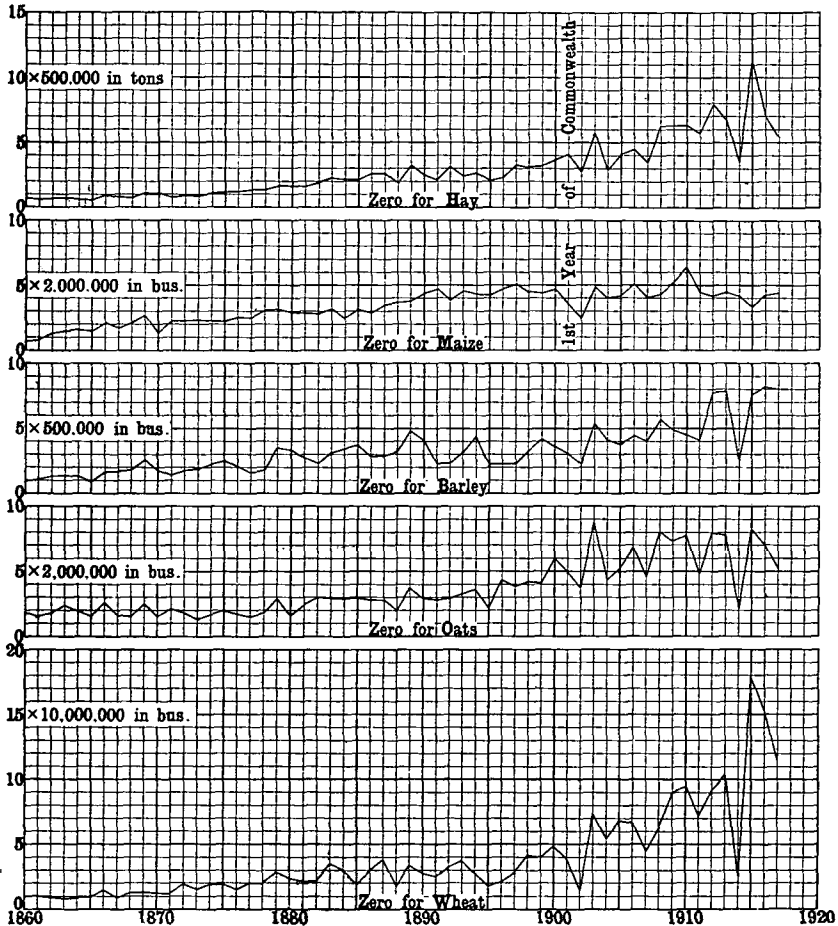
GRAPHS SHEWING THE AREA UNDER THE PRINCIPAL CROPS IN THE COMMONWEALTH FROM 1860-1 TO 1917-18.



(See pages—for wheat, 331; oats, 341; maize, 345; barley, 348; hay, 358; sugar-cane, 363; and vineyards, 367.)

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 1917-18.



(See pages—for wheat, 332 ; oats, 341 ; maize, 345 ; barley, 348 ; and hay, 360.)

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.

3. **Malting and other Barley.**—In recent years the statistics of all the States have distinguished between "malting" and "other" barley. Particulars for 1917-18 season are as follows:—

MALTING AND OTHER BARLEY, 1917-18.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Malting barley ..	4,246	41,065	5,813	79,396	1,515	4,750	136,785
Other barley	2,124	43,866	1,889	16,258	3,513	435	68,085
Total ..	6,370	84,931	7,702	95,654	5,028	5,185	204,870
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
Malting barley ..	63,891	980,219	108,518	1,351,532	8,736	89,553	2,602,449
Other barley	33,933	990,431	35,056	299,504	27,025	8,460	1,394,409
Total ..	97,824	1,970,650	143,574	1,651,036	35,761	98,013	3,996,858

Taking the Commonwealth as a whole, nearly 67 per cent. of the area devoted to this grain in 1917-18 was cropped for malting barley. The proportion varies considerably in the several States.

4. **Total Acreage and Yield.**—The following table sets out the total acreage and yield of malting and other barley in the Commonwealth as a whole during the past ten seasons:—

AREA AND YIELD, MALTING AND OTHER BARLEY, COMMONWEALTH, 1907-8 TO 1917-18.

Season.	Acres.			Bushels.			Average Bushels per Acre.		
	Malting.	Other.	Total.	Malting.	Other.	Total.	Malting.	Other.	Total.
1908-9 ..	95,644	44,599	140,243	1,084,841	889,363	2,874,204	20.75	19.94	20.49
1909-10 ..	91,814	51,199	143,013	1,536,032	900,352	2,436,384	16.78	17.59	17.04
1910-11 ..	67,408	41,018	108,424	1,369,464	856,904	2,226,368	20.32	20.89	20.53
1911-12 ..	80,919	35,547	116,466	1,459,488	597,348	2,056,836	18.04	16.80	17.66
1912-13 ..	135,880	45,507	181,387	2,920,857	938,259	3,859,116	21.50	20.62	21.28
1913-14 ..	151,944	70,620	222,564	2,625,415	1,295,010	3,920,425	17.28	18.34	17.61
1914-15 ..	101,930	51,728	153,656	995,413	333,497	1,328,910	9.77	6.45	8.55
1915-16 ..	106,217	83,297	189,514	2,365,128	1,436,424	3,801,550	22.27	22.69	22.43
1916-17 ..	141,846	88,407	230,253	2,505,118	1,575,374	4,080,492	17.66	17.82	17.72
1917-18 ..	136,785	68,085	204,870	2,602,449	1,394,409	3,996,858	19.03	20.48	19.51
Average 10 seasons 1908-18	111,039	56,000	167,039	2,036,420	1,021,694	3,058,114	18.34	18.24	18.31

For the past ten seasons the area and production of malting barley have represented approximately twice the corresponding figures for other barley. The average yield per acre for four of the seasons was in favour of malting, while for the remaining six seasons the yield per acre for other barley shewed the more satisfactory results. The average yields for the past ten seasons for malting and for other barley were 18.34 and 18.24 bushels per acre respectively.

5. **Value of Barley Crop.**—The estimated value of the total barley crop of the Commonwealth for the seasons 1913-14 to 1917-18 was £564,871, £343,423, £655,917, £734,154, and £834,075, in the order named. The extent to which the several States have contributed to the latter total is shewn in the following table:—

VALUE OF BARLEY CROP,(a) 1917-18.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	F. Ter.	C'wealth.
Total value ..	£21,050	£419,412	£24,527	£341,386	£8,097	£19,603	..	£834,075
Value per acre ..	£3/6/1	£4/18/9	£3/3/8	£3/11/5	£1/12/2	£3/15/7	..	£4/1/5

(a) Exclusive of the value of straw.

6. **Relation to Population.**—During the last five seasons embraced in the following table, the quantity of barley produced in the Commonwealth has averaged under three-quarters of a bushel per head of population. For the season 1917-18 the production ranged from 3½ bushels per head in South Australia to 2½ pounds per head in New South Wales. Details for the season 1901-2 and for the last quinquennium are as follows:—

BARLEY PRODUCTION PER 1,000 OF POPULATION, 1901-2 AND 1913-14 TO 1917-18.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1901-2	75	573	547	677	179	956	397
1913-14	166	1,284	176	3,029	524	930	805
1914-15	25	420	156	1,012	75	520	269
1915-16	61	1,222	12	3,872	412	575	771
1916-17	39	1,287	374	4,008	434	444	837
1917-18	52	1,397	212	3,785	116	482	810

7. **Commonwealth Imports and Exports.**—The Commonwealth oversea trade in barley is not extensive, and in most years the imports exceed the exports. In 1902, 1903, 1912, and 1914-15 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 droughts of those periods. In 1904, the excellent crop of the season furnished the material for a heavy exportation to Japan, the total exported thither during that year being 551,821 bushels. In 1909 also there was a fairly heavy export, mainly to the United Kingdom. Particulars of the Commonwealth oversea imports and exports of barley for the years 1901 and 1913 to 1917-18 are contained in the following table:—

COMMONWEALTH IMPORTS AND EXPORTS OF BARLEY, 1901 AND 1913 TO 1917-18.

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
1913	22,810	6,026	7,414	1,069	- 15,396	- 4,957
1914-15	290,226	66,402	103,522	15,245	- 186,704	- 51,157
1915-16	147,144	27,387	185,122	36,661	37,978	9,274
1916-17	58	9	256,804	52,891	256,746	52,882
1917-18	34	8	282,252	64,703	282,218	64,695

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

In six years during the period embraced in the above table the Commonwealth exports of barley have exceeded in value the imports, viz., in 1904, 1905, 1909, 1915-16, 1916-17, and 1917-18. During the last ten years the total importations amounted to

1,763,243 bushels, valued at £396,200, and the total exports to 1,075,200 bushels, valued at £206,366, giving a net importation of 688,043 bushels, and a net import value of £189,834.

From time to time an export trade in Australian pearl and Scotch barley has been carried on, the total exports for 1917-18 reaching 792,726 lbs., valued at £6,960. The trade for the year was mainly with South Africa and New Zealand.

8. **Commonwealth Imports and Exports of Malt.**—In normal times the importations of malt into the Commonwealth are fairly extensive, the supply being obtained principally from the United Kingdom. Since the outbreak of the war in 1914, however, imports have continuously declined, and in 1917-18 exports totalled 117,075 bushels, valued at £47,626. These exports were mainly to Japan, South Africa, and the Philippines. Details of imports and exports for the years 1901 and 1913 to 1917-18 are given hereunder:—

COMMONWEALTH IMPORTS AND EXPORTS OF MALT, 1901 AND 1913 TO 1917-18.

Year.	Imports.		Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1901	516,135	140,615	.. ..	.. ..	516,135	140,615
1913	85,002	31,071	120	55	84,882	31,016
1914-15	68,215	23,743	165	87	68,050	23,656
1915-16	23,910	9,596	30	13	23,880	9,583
1916-17	7,452	4,196	73	35	7,379	4,161
1917-18	35	106	117,075	47,626	- 117,040	- 47,520

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

9. **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 1917 are as follows, the Australian figures being added for the sake of comparison:—

PRODUCTION OF BARLEY IN VARIOUS COUNTRIES, 1917.

Country.	Production of Barley.	Country.	Production of Barley.
	Bushels.		Bushels.
Russia in Europe (1915) (a)	380,229,700	Denmark	17,319,300
United States	202,580,365	Egypt	13,181,901
British India	150,690,321	Sweden	11,887,752
Germany (1915)	110,586,244	Tunis	8,014,030
Spain	74,398,521	Italy	7,194,887
Japan	74,163,947	Chile (1916)	4,224,645
Austria (1915)	61,012,097	Australia	3,996,858
United Kingdom	57,478,744	Belgium (1915)	3,877,600
Hungary (1915)	54,466,708	Norway	2,908,200
Canada	53,372,983	Netherlands	2,494,266
France	38,346,556	Serbia (1915)	2,181,150
Algeria	30,498,293	Argentine Republic	2,098,751
Rumania (1916)	29,118,837	Union of South Africa	969,400
Russia in Asia (1914)	18,855,799	New Zealand	715,417

(a) Including Northern Caucasia.

10. Average Yield of Barley per Acre in various Countries.—The following table shows the average yield of barley per acre in various countries of the world, ranging from nearly 48 bushels in the Netherlands to 5½ bushels in the Argentine Republic :—

AVERAGE YIELD OF BARLEY PER ACRE IN VARIOUS COUNTRIES, 1917.

Country.	Average yield per Acre.	Country.	Average yield per Acre.
	Bushels.		Bushels.
Netherlands	47.97	Rumania (1916)	20.03
Chile (1916)	34.91	Australia	19.51
United Kingdom	32.00	Hungary (1915)	19.25
Norway	29.98	India	19.18
Egypt	29.62	Spain	18.21
Denmark	29.16	Union of South Africa	17.01
Germany (1915)	27.63	Russia in Asia (1916)	16.88
Sweden	27.14	Italy	15.34
Japan	27.09	Russia in Europe (1915)	14.23
New Zealand	23.85	Algeria	10.74
United States	22.93	Tunis	7.72
Canada	22.31	Argentine Republic	5.41
France	21.43		

11. 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. Details for each State for 1901-2 and the past five seasons, and also for the decennium 1908-18, are given in the following table :—

AVERAGE YIELD PER ACRE OF BARLEY, 1901-2 AND 1913-14 TO 1917-18.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. 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
1913-14	14.72	21.75	13.14	14.72	14.60	24.28	17.61
1914-15	9.57	9.61	14.74	6.75	3.45	17.96	8.65
1915-16	18.03	28.25	5.95	20.00	13.00	21.36	22.43
1916-17	14.12	19.35	19.74	16.74	12.07	19.13	17.72
1917-18	15.36	23.20	18.64	17.26	7.11	18.90	19.51
Average for 10 seasons 1908-18	15.33	21.22	16.03	16.29	11.46	23.72	18.31

12. Price of Barley.—The average prices of barley in the Melbourne market during each of the past ten years are given in the following table :—

AVERAGE MELBOURNE PRICE OF BARLEY PER BUSHEL, 1908 TO 1917.

Particulars.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
Malting barley	4 10	3 10	4 1	4 10½	5 11½	3 11½	3 9½	5 4½	4 4½	4 4½
Cape barley ..	3 8	2 7	2 5	2 8	4 11	3 0	2 9¼	4 4¼	3 1½	3 1½

§ 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 crops for the season 1917-18 was 43,391 acres, giving a yield of 744,079 bushels, or an average of 17.15 bushels per acre, being slightly lower than the average yield for the decennium ended 1917-18, which was 17.39 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 1917-18 was 4,744 acres, yielding 45,808 bushels, and giving an average of 9.66 bushels per acre. This was below the average for the past ten seasons, which was 11.50 bushels per acre. Over 42 per cent. of the rye grown during the season was produced in New South Wales and 37 per cent. in Victoria. In addition to these grain crops a small area of rice has for some years been cultivated in Queensland and the Northern Territory. The results obtained, however, have not up to the present been very satisfactory. Should rice-growing ever be seriously taken up in Australia, it is probable that large tracts of country in the northern parts of Queensland and 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, for some years prior to 1909-10, usually ranking second, and New South Wales third. The relative positions of the two latter States were, however, reversed during the five seasons ended 1913-14, while the position was again reversed in the last four seasons ended 1917-18.

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

COMMONWEALTH AREA UNDER POTATOES, 1890-1 TO 1917-18.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	F. Ter.	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
1910-11 ..	44,452	62,904	8,326	7,812	1,791	26,230	..	151,515
1913-14 ..	38,695	74,574	10,085	10,809	5,229	30,811	30	170,233
1914-15 ..	30,410	65,495	8,385	7,639	4,778	31,613	8	148,328
1915-16 ..	19,582	56,910	5,796	4,341	4,866	29,491	7	120,993
1916-17 ..	22,437	73,618	8,908	4,737	5,838	34,345	12	149,895
1917-18 ..	22,558	66,966	10,738	4,164	4,484	27,309	22	136,241

2. **Total Yield.**—For the season 1917–18, Victoria's production represented about 52½ per cent. of the total for the Commonwealth, Tasmania and New South Wales coming next in order with 20 and 14½ 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 1917–18.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	F. Ter.	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
1905–6 ..	50,386	115,352	11,308	20,328	6,297	64,606	..	268,277
1910–11 ..	121,033	163,312	15,632	23,920	5,864	70,090	..	399,851
1913–14 ..	106,805	176,602	16,548	32,950	17,803	80,389	44	431,141
1914–15 ..	40,694	189,225	16,014	18,035	14,724	78,907	15	357,614
1915–16 ..	44,420	173,821	7,439	12,991	14,118	79,890	25	332,704
1916–17 ..	45,296	187,992	19,457	20,343	16,841	67,038	35	357,002
1917–18 ..	49,934	182,195	22,139	11,315	11,320	70,442	50	347,395

3. **Average Yield per Acre.**—The suitability of the soil, climate, and general conditions for potato growing is evidenced by the satisfactory yields per acre which are generally obtained in Australia, except in the most northerly portions, the average yield during the past ten seasons being 2.66 tons per acre. The lowest average yield is that obtained in Queensland with an average of 1.84 tons for the same period.

Particulars for each State for the seasons 1901–2 and 1913–14 to 1917–18, and also for the past decennium, are given hereunder:—

AVERAGE YIELD OF POTATOES PER ACRE, 1901–2 AND 1913–14 TO 1917–18.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Ter.	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
1913–14 ..	2.76	2.37	1.64	3.05	3.40	2.61	1.47	2.53
1914–15 ..	1.34	2.89	1.91	2.36	3.08	2.50	1.88	2.41
1915–16 ..	2.27	3.05	1.28	2.99	2.90	2.71	3.57	2.75
1916–17 ..	2.02	2.55	2.18	4.29	2.88	1.95	2.92	2.38
1917–18 ..	2.21	2.72	2.06	2.72	2.52	2.58	2.27	2.55
Average for 10 seasons 1908–18	2.35	2.82	1.84	3.00	3.01	2.75	1.88	2.66

4. **Value of Potato Crop.**—The estimated value of the potato crop of each State for the season 1917–18 is furnished in the following table, together with the value per acre:—

VALUE OF POTATO CROP, 1917–18.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Ter.	C'wealth.
Total value ..	£263,230	£592,134	£196,484	£61,104	£142,915	£493,094	£266	£1,749,227
Value per acre ..	£11/13/5	£8/16/10	£18/6/0	£14/13/6	£31/17/5	£18/1/1	£12/1/10	£12/16/9

5. **Relation to Population.**—The average production of potatoes per annum per head of the population of the Commonwealth for the past five seasons has been approximately 166 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, while for the past five seasons it has averaged about 7½ cwt. Details for the seasons 1901-2 and 1913-14 to 1917-18 are as follows :—

POTATO PRODUCTION PER 1,000 OF POPULATION, 1901-2 AND 1913-14 TO 1917-18.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	F. Ter.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1901-2 ..	28	104	44	42	30	655	..	84
1913-14 ..	59	125	25	75	56	398	22	88
1914-15 ..	22	132	24	41	46	392	8	72
1915-16 ..	24	122	11	30	44	397	14	67
1916-17 ..	24	134	29	47	55	335	16	73
1917-18 ..	26	129	33	26	37	347	24	70

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, 2,102 tons to the Pacific Islands, and 2,112 tons to the Philippine Islands. On the other hand, when the droughts of 1902, 1903, 1912 and 1914 had brought about a shortage in some of the States, large importations from New Zealand took place. The quantities and values of the Commonwealth oversea imports and exports of potatoes for 1901 and for the past five years are shewn in the following table :—

COMMONWEALTH IMPORTS AND EXPORTS OF POTATOES, 1901 AND 1913 TO 1917-18.

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
1913	996	5,537	1,689	12,012	693	6,475
1914-15	2,708	15,406	1,803	12,690	- 905	- 2,716
1915-16	17,596	149,488	1,208	13,110	- 16,388	- 136,378
1916-17	91	951	4,492	37,579	4,401	36,628
1917-18	38	367	3,348	23,203	3,310	22,836

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

§ 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 1917-18 being only 15,124 acres. The principal of these crops are onions, mangolds, sugar beet, turnips, and "sweet potatoes" (*Batatas edulis*). Of these, onions, sugar beet, and mangolds are most largely grown in Victoria, turnips in Tasmania, and sweet potatoes in Queensland. The total area under onions in the Commonwealth during the season 1917-18 was 5,747 acres.

giving a yield of 25,143 tons, and averaging 4.4 tons per acre. The area devoted in 1917-18 to root crops other than potatoes and onions, viz., 9,377 acres, yielded 64,239 tons, and gave an average of 6.9 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 overseas trade is carried on by the Commonwealth is that of onions. During 1916-17, 27 tons were imported and 7,806 tons exported. Of the latter, 4,105 tons were shipped to New Zealand, 1,497 tons to Canada, 620 tons to the United States, and 593 tons to the Philippine Islands. For 1917-18 the quantity imported was 34 tons, while the exports totalled 2,870 tons. Of the exports, 1,618 tons went to New Zealand, 631 tons to the Pacific Islands, and 447 tons to the Philippines.

§ 11. Hay.

1. **Nature and Extent.**—As already stated, the most important crop of the Commonwealth is that of wheat for grain. Next to this in importance is the hay crop, which for the five seasons ended 1917-18 averaged more than 17 per cent. of the area under crop in the Commonwealth, and for 1917-18 itself, 15.5 per cent. 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 1917-18.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	F. Ter.	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
1910-11	638,577	832,669	98,558	440,177	175,432	72,992	..	..	2,258,405
1913-14	798,978	977,684	76,469	568,550	246,640	84,138	61	2,152	2,754,672
1914-15	783,107	895,755	79,327	445,832	332,037	89,598	120	2,837	2,628,613
1915-16	1,107,228	1,330,455	55,174	709,831	290,036	103,216	140	1,691	3,597,771
1916-17	857,533	897,186	112,964	483,040	240,726	79,274	140	999	2,671,862
1917-18	619,614	748,808	96,431	407,011	265,899	74,107	14	1,030	2,212,914

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 satisfactory. On the other hand, improved grain prices or the prospect of a heavy

yield will frequently cause crops originally intended for hay to be left for grain. The area under hay in the Commonwealth for the season 1915-16 was the highest on record, and that for 1912-13 the next.

2. **Kinds of Hay.**—Particulars concerning the kind of crop cut for hay are furnished in the returns prepared by five of the States. In the case of Tasmania the bulk consists of oaten hay; full particulars, however, are not available for that State.

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

KINDS OF HAY GROWN, 1913-14 TO 1917-18.

Kind of Hay Crop.	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.
	Acres.	Acres.	Acres.	Acres.	Acres.
NEW SOUTH WALES—					
Wheaten	533,890	568,982	878,881	633,438	434,908
Oaten	209,821	158,949	175,285	160,898	118,209
Barley	1,395	1,179	1,348	866	843
Lucerne	52,457	52,570	50,528	61,584	64,668
Other	1,415	1,427	1,186	747	986
Total	798,978	783,107	1,107,228	857,533	619,614
VICTORIA—					
Wheaten	220,560	192,562	333,449	195,532	192,478
Oaten	729,678	677,895	964,318	672,905	532,634
Lucerne, etc.	27,446	25,298	32,688	23,749	23,696
Total	977,684	895,755	1,330,455	897,186	748,808
QUEENSLAND—					
Wheaten	12,648	14,906	14,003	21,047	7,247
Oaten	16,020	12,573	6,377	30,041	10,901
Lucerne	44,270	47,785	32,288	55,928	73,347
Other	3,531	4,063	2,506	5,948	4,936
Total	76,469	79,327	55,174	112,964	96,431
SOUTH AUSTRALIA--					
Wheaten	411,101	318,586	476,423	323,633	292,803
Oaten	151,694	118,505	190,321	148,881	107,284
Lucerne	2,378	3,976	3,380	2,855	2,123
Other	3,377	4,765	39,707	7,671	4,801
Total	568,550	445,832	709,831	483,040	407,011
WESTERN AUSTRALIA—					
Wheaten	195,497	266,113	225,959	188,272	208,303
Oaten	49,801	64,037	62,622	51,255	56,002
Lucerne	264	328	258	230	352
Other	1,078	1,559	1,197	969	1,242
Total	246,640	332,037	290,036	240,726	265,899

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

3. **Total Yield.**—The Commonwealth hay crop for the season 1915-16 was the highest on record, and amounted to 5,633,988 tons. The second in importance was 3,955,311 tons for the season 1912-13, while the third was 3,507,589 tons for 1916-17. For many years past the State of Victoria has been the largest hay producer in the Commonwealth, and in the five seasons, 1913-14 to 1917-18 inclusive, accounted for 38 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 1917-18.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.Ter.	F.Ter.	C'wealth.
	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	390,861	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
1910-11	843,080	1,292,410	151,252	595,064	178,891	115,190	..	..	3,175,887
1913-14	952,489	1,350,374	103,935	571,616	278,585	112,958	81	2,558	3,372,596
1914-15	610,559	568,956	102,193	210,437	156,932	81,971	220	2,676	1,733,944
1915-16	1,570,941	2,342,094	53,858	1,100,127	395,172	168,449	350	2,997	5,633,988
1916-17	1,172,078	1,232,721	145,279	615,059	236,989	103,141	350	1,972	3,507,589
1917-18	781,972	949,545	153,895	488,693	267,163	80,405	14	2,234	2,723,921

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 1917-18:—

VALUE OF HAY CROP, 1917-18.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	C'wealth.
	£	£	£	£	£	£	£	£	£
Total value ..	3,530,630	3,418,362	560,892	1,429,427	1,070,110	281,417	70	11,080	10,301,988
Value per acre	£5/14/-	£4/11/4	£5/16/4	£3/10/3	£4/0/6	£3/15/11	£5/-/-	£10/15/2	£4/13/1

5. **Average Yield per Acre.**—The States of the Commonwealth in which the highest average yields per acre have been obtained during the last decennium are those of Tasmania and Queensland, these being also the States in which the smallest areas are devoted to this crop. For the same period the lowest yield for the Commonwealth as a whole was that of 13 cwt. per acre in 1914-15; the next lowest was in 1907-8, when

the average yield was 19 cwt.; while the highest was that of 31 cwt. in 1915-16. The average for the decennium was 25 cwt. Particulars for the several States for the seasons 1901-2 and 1913-14 to 1917-18, and the average for the last ten years, are given hereunder:—

AVERAGE YIELD OF HAY PER ACRE, 1901-2 AND 1913-14 TO 1917-18.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wth.
	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
1913-14	1.19	1.38	1.36	1.01	1.13	1.34	1.33	1.19	1.22
1914-15	0.78	0.64	1.29	0.47	0.47	0.91	1.83	0.94	0.66
1915-16	1.42	1.76	0.98	1.55	1.36	1.63	2.50	1.77	1.57
1916-17	1.37	1.37	1.29	1.27	0.98	1.30	2.50	1.97	1.31
1917-18	1.26	1.27	1.60	1.20	1.00	1.08	1.00	2.17	1.23
Average for 10 seasons 1908-18	1.22	1.35	1.38	1.20	0.98	1.43	2.12	1.27	1.25

6. **Relation to Population.**—During the past five seasons the Commonwealth hay production per head of population has varied between 7 cwt. in 1914-15 and 22½ cwt. in 1915-16; averaging about 14 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 1913-14 to 1917-18 are given hereunder:—

HAY PRODUCTION PER 1,000 OF POPULATION, 1901-2 AND 1913-14 TO 1917-18.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1901-2	339	231	241	964	463	624	..	..	529
1913-14	520	956	157	1,299	869	560	22	1,287	692
1914-15	328	398	151	476	486	407	55	1,366	351
1915-16	840	1,651	79	2,509	1,243	838	77	1,639	1,142
1916-17	631	881	217	1,421	767	516	73	887	719
1917-18	414	673	227	1,120	863	396	3	937	552

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 only £10,264 in 1917-18, while the exports of compressed and other fodder, which amounted in value to £142,472 in 1904, had shrunk to £23,263 in 1917-18.

During 1917-18 the principal purchases of the hay and chaff exported from the Commonwealth were made by India, the Straits Settlements, Hong Kong, and New Zealand, while the bulk of the compressed fodder was exported to the Philippine Islands, New Zealand, and India.

Imports of hay and chaff into the Commonwealth are usually unimportant; for the year 1915-16, however, they totalled 36,725 tons, valued at £227,133, obtained principally from New Zealand and the United States, while for 1917-18 only 16 tons were imported, valued at £99.

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 prominent places. The statistics of hay production in these countries are not prepared on a uniform basis, and consequently any attempt to furnish extensive comparisons would be misleading. It may be noted, however, that in the United Kingdom the production of hay from clover, sainfoin, &c., for the year 1917, amounted to 4,733,223 tons from 3,095,653 acres, while from permanent grasses a yield of 8,429,304 tons of hay was obtained from 6,494,428 acres, giving a total of 13,162,527 tons from 9,590,081 acres, or about 27 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 1917-18 was 373,850 acres. Of the total, the New South Wales area represented about 41 per cent., that in Queensland 23½ per cent., while that in Victoria amounted to 15 per cent. Under normal conditions the principal crops cut for green forage are maize, sorghum, oats, barley, rye, rape, and lucerne, while small quantities of sugar-cane also are so used. Particulars concerning the area under green forage in the several States from 1890 onwards are furnished in the following table:—

AREA UNDER GREEN FORAGE, 1890-1 TO 1917-18.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	F. Ter.	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
1910-11	179,382	71,826	89,667	20,728	4,545	8,695	19	..	374,862
1913-14	146,093	98,963	171,290	49,948	13,126	7,037	21	26	486,504
1914-15	α949,539	139,654	184,239	52,656	19,098	6,809	83	80	1,352,158
1915-16	162,808	60,426	236,293	32,664	15,622	7,587	24	137	515,561
1916-17	149,824	49,667	116,449	37,352	28,653	8,133	24	49	390,151
1917-18	152,374	55,903	87,909	41,869	29,856	5,873	47	19	373,850

(a) Including area fed off.

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 1917-18 may be taken approximately as £1,055,244, or about £2 16s. 5d. per acre.

3. **Relation to Population.**—Particulars concerning the area under green forage per 1,000 of the population of the Commonwealth and the several States for the seasons 1901-2 and 1913-14 to 1917-18 are given hereunder:—

AREA UNDER GREEN FORAGE PER 1,000 OF POPULATION, 1901-2 AND 1913-14 TO 1917-18.

Season.	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2 ..	82	27	79	38	8	24	..	..	54
1913-14 ..	80	70	259	114	41	35	6	13	100
1914-15 ..	(a)510	98	272	119	59	34	21	41	274
1915-16 ..	87	43	348	74	49	38	5	75	105
1916-17 ..	81	36	174	86	93	41	5	22	80
1917-18 ..	80	40	130	96	96	29	10	9	76

(a) Including area fed off.

§ 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 186,484 acres under sugar-cane in the Commonwealth for the season 1917-18, there were 175,762 acres, or about 94 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 20 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; from that time, with slight variations, it gradually fell to 10,722 acres in 1917-18. 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 1917-18 being the highest on record. The area under sugar-cane in the Commonwealth from 1865 is given in the following table:—

AREA UNDER SUGAR-CANE, 1865-6 TO 1917-18.

Season.	New South Wales.		Queensland.		Commonwealth.		
	Productive.	Unproductive.	Productive.	Unproductive.	Productive.	Unproductive.	Total.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1865-6 ..	141		450		591		591
1870-1 ..	1,475	2,607	2,188	4,154	3,663	6,761	10,424
1875-6 ..	3,654	2,800	7,668	5,791	11,322	8,591	19,913
1880-1 ..	4,465	6,506	12,306	7,918	16,771	14,424	31,195
1885-6 ..	9,583	6,835	40,756	18,430	50,339	25,265	75,604
1890-1 ..	8,344	12,102	39,435	11,487	47,779	23,589	71,368
1895-6 ..	14,398	18,529	55,771	21,476	70,169	40,005	110,174
1900-1 ..	10,472	11,642	72,651	35,884	83,123	47,526	130,649
1905-6 ..	10,313	11,492	96,093	38,014	106,406	49,506	155,912
1910-11 ..	5,596	8,167	94,641	47,138	100,237	55,305	155,542
1913-14 ..	6,198	7,034	102,803	44,940	109,001	51,974	(a)160,976
1914-15 ..	6,012	5,409	108,013	53,182	114,025	58,591	172,616
1915-16 ..	6,030	5,228	94,459	58,568	100,489	63,796	164,285
1916-17 ..	5,223	5,746	75,914	91,307	81,137	97,053	178,190
1917-18 ..	5,588	5,134	108,707	67,055	114,295	72,189	186,484

(a) Including 1 acre Northern Territory.

2. **Productive and Unproductive Cane.**—The areas given in the preceding table represent the area on which sugar-cane was grown during the seasons specified for purposes other than green forage. The whole area was not in any case cut for crushing during that season, there being always a considerable amount of young and "stand over" cane, as well as a small quantity required for plants. The season of 1917-18 had not only the highest recorded acreage under sugar-cane, but also the highest area cut for crushing, 1916-17 ranking second in respect of total area and 1914-15 in respect of area of productive cane.

3. **Yield of Cane and Sugar.**—Queensland statistics of the production of sugar-cane are not available for dates prior to the season 1897–8. In that season the total for the Commonwealth was 1,073,883 tons, as against 2,879,092 tons for the record season 1917–18. The second highest yield was in the season 1913–14, with a total of 2,271,558 tons. The average production of cane during the decennium ended 1917–18 was 1,797,910 tons. The three highest yields of sugar were in 1917–18, 1913–14, and 1914–15, the quantities being 327,589 tons, 265,029 tons, 245,876 tons respectively. The decennial average was 205,800 tons of sugar. Particulars relative to the total yields of cane and sugar for a series of years are as follows :—

YIELD OF CANE AND CANE-SUGAR, 1900–1 TO 1917–18.

Season.	New South Wales.		Queensland.		Commonwealth.	
	Cane.	Sugar.	Cane.	Sugar.	Cane.	Sugar.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1900–1 ..	199,118	19,938	848,328	92,554	1,047,446	112,492
1905–6 ..	201,998	20,102	1,415,745	152,722	1,617,743	172,824
1910–11 ..	160,311	20,115	1,840,447	210,756	2,000,758	230,871
1913–14 ..	185,970	22,192	2,085,588	242,837	2,271,558	265,029
1914–15 ..	181,606	20,029	1,922,633	225,847	2,104,239	245,876
1915–16 ..	157,748	19,144	1,152,516	140,496	1,310,264	159,640
1916–17 ..	143,558	16,064	1,579,514	176,973	1,723,072	193,037
1917–18 ..	174,881	19,875	2,704,211	307,714	2,879,092	327,589

Large quantities of molasses are produced as a by-product in the sugar mills; details giving the quantity produced and proportions used for distilling, fuel, manure and other purposes for a series of years will be found in Section XIII.—“Manufacturing Industries,” § 8, 17.

4. **Average Yields of Cane and Sugar per Acre.**—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 26.38 tons for the former and 17.63 for the latter State. During the nine seasons 1901–2 to 1909–10 the yield remained practically constant in New South Wales at about 21 tons per acre, except in 1907–8, when the average reached nearly 28 tons. For the past eight years, however, the average yield per acre in this State has shewn an upward tendency, reaching 30 tons or over during 1913–14, 1914–15, and 1917–18. In Queensland the average yield per acre for 1910–11, viz., 19.45 tons, was by far the highest recorded for that State prior to 1913–14, when the average was for the first time over 20 tons to the acre. In 1916–17 the yield was again over 20 tons, while the 1917–18 season gives the highest recorded average, exceeding that of 1913–14 by $4\frac{1}{2}$ tons per acre.

The years during the past decennium which gave the highest average quantity of sugar produced per acre crushed in New South Wales were 1910–11, 1913–14 and 1917–18, the averages being 3.59, 3.58 and 3.56 tons per acre in the order named. In Queensland the highest average occurred in 1917–18 with 2.83 tons per acre; the next in order were those for 1913–14 and 1916–17 with 2.36 and 2.33 tons respectively.

5. **Quality of Cane.**—The quantity of cane required to produce a ton of sugar varies not only with the district in which the cane is grown but also with the season, and for the decennium ended 1917–18 averaged 8.74 tons, the average production of sugar being

approximately 11½ per cent. of the weight of cane crushed. The quality during the decennium did not differ largely from this average except for the season 1908-9, when 9½ tons of cane were required to produce a ton of sugar, which thus represented only 10½ per cent. of the weight of cane crushed. This poor result was largely due to the effect of frosts. The systematic study of beet culture in European countries has shewn that by suitable methods the sugar contents of the root can be greatly increased, and it is believed that a similar improvement can be effected in the yield from sugar-cane.

AVERAGE YIELD OF SUGAR-CANE AND SUGAR PER ACRE, 1900-1 TO 1917-18.

Season.	New South Wales.			Queensland.			Commonwealth.		
	Cane per acre Crushed.	Sugar per acre Crushed.	Cane to each ton of Sugar.	Cane per acre Crushed.	Sugar per acre Crushed.	Cane to each ton of Sugar.	Cane per acre Crushed.	Sugar per acre Crushed.	Cane to each ton of Sugar.
1900-1	Tons. 19.01	Tons. 1.90	Tons. 9.99	Tons. 11.68	Tons. 1.27	Tons. 9.17	Tons. 12.60	Tons. 1.35	Tons. 9.31
1905-6	19.59	1.95	10.05	14.73	1.59	9.27	15.20	1.62	9.36
1910-11	23.65	3.59	7.97	19.45	2.23	8.73	19.96	2.30	8.67
1913-14	30.00	3.58	8.38	20.29	2.36	8.59	20.84	2.43	8.57
1914-15	30.21	3.33	9.07	17.80	2.09	8.51	18.45	2.16	8.56
1915-16	26.16	3.17	8.24	12.20	1.49	8.20	13.04	1.59	8.21
1916-17	27.49	3.08	8.94	20.81	2.33	8.93	21.24	2.38	8.93
1917-18	31.30	3.56	8.80	24.88	2.83	8.79	25.19	2.87	8.79
Average 10 seasons 1908-18	26.38	3.05	8.65	17.63	2.02	8.74	18.16	2.08	8.74

6. **Relation to Population.**—The sugar-cane production of the Commonwealth during the past five seasons has averaged about 8½ cwt. per head of population. In the same period in Queensland, the principal sugar-producing State, the production of cane per head has ranged between 34 cwt. in 1915-16 and 4 tons in 1917-18. Details for the period 1913-14 to 1917-18 are as follows:—

SUGAR-CANE PRODUCTION PER 1,000 OF POPULATION, 1913-14 TO 1917-18.

State.	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.
	Tons.	Tons.	Tons.	Tons.	Tons.
New South Wales	102	98	84	77	92
Queensland	3,159	2,841	1,698	2,359	3,990
Commonwealth	466	426	266	353	583

7. **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, and at the same time diminishing the employment of coloured labour in connection therewith. An account of the various Acts in connection with sugar bounties and sugar excise tariffs will be found on pages 394 to 396 of the Year Book No. 6. In 1912 the Sugar Excise Repeal Act and the Sugar Bounty Abolition Act were passed by the Federal Parliament, conditionally on the Queensland Parliament approving of legislation prohibiting the employment of coloured labour in connection with the industry. The State Sugar Cultivation Act, the Sugar

Growers Act, and the Sugar Growers' Employees Act, of 1913, having been approved of, the 1912 Federal Acts, which repeal all previous enactments in regard to excise on sugar and bounty on cane, came into force by proclamation in July, 1913.

8. **Sugar Purchase by Commonwealth Government.**—In June, 1915, the Commonwealth Government assumed control of the Australian sugar output, paying the growers a fixed price of £18 per ton of raw sugar, subsequently raised in 1917 to £21. The Commonwealth Government disposed of the refined product at an average of £25 10s. per ton in 1915, the object then being to enable the consumer to purchase sugar of 1A grade at 3d. per lb. In January, 1916, however, the wholesale price was raised to £29 5s. per ton, and the retail price to 3½d. per lb. This arrangement was continued from year to year until 1918, when an agreement on this basis was made for a period ending 30th September, 1920.

9. **Beet Sugar.**—During the past few years an effort has been made to revive the sugar-beet industry in Victoria. In 1910–11 £554 was paid as bounty on 1,847 tons of beet, £2,244 on 7,481 tons during 1911–12, £1,667 on 6,207 tons during 1912–13, and £1,001 on 3,330 tons during 1913–14. For the 1913 crop the State Government paid £1 per ton for all topped clean roots delivered at the Maffra factory, for the 1914 crop £1 1s. was paid, £1 5s. for the 1915 and 1916 crops, and £1 7s. 6d. for the 1917 and 1918 crops, while for the 1919 crop it has been arranged to pay £1 10s. per ton.

10. **Acreage and Yield of Sugar Beet.**—The following table shows the acreage under sugar beet, and the production in Victoria during the past five seasons :—

AREA AND PRODUCTION OF SUGAR BEET IN VICTORIA, 1913-14 TO 1917-18.

Particulars.	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.
Area acres	1,093	990	461	1,320	1,200
Production tons	7,431	10,343	4,928	15,159	14,487
Average per acre "	6.80	10.45	10.69	11.48	12.07

11. **Imports and Exports of Sugar.**—Notwithstanding the increase in the production of sugar 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 1914–15 also the exports were the greater by 5,308 tons, representing a net value of £138,474. These, however, are the only two years in which there has been an excess of exports. 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 1913 TO 1917-18.

Year.	Oversea Imports.		Oversea Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Tons.	£	Tons.	£
1901	98,544	1,239,550	4,738	68,876	93,806	1,170,674
1913	74,861	864,768	3,419	54,322	71,442	810,446
1914-15 ..	13,125	181,020	18,433	319,494	- 5,308	- 138,474
1915-16 ..	116,111	1,869,768	1,103	22,458	115,008	1,847,310
1916-17 ..	81,161	1,639,097	1,033	21,798	80,128	1,617,299
1917-18 ..	15,805	278,985	2,070	45,860	13,735	233,125

Note.—The minus sign (—) 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 1917-18.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	There are no vineyards in Tasmania.	Acres.
1860-1	1,584	1,138	..	3,180	335		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
1910-11	8,321	23,412	1,634	22,952	2,795		59,114
1913-14	8,153	22,435	1,537	26,208	2,864		61,197
1914-15	7,985	21,801	1,415	26,864	2,920		60,985
1915-16	7,883	22,353	1,373	27,764	2,751		62,124
1916-17	8,666	23,264	1,256	29,177	3,031		65,394
1917-18	8,594	25,236	1,274	29,762	2,996		67,862

The area devoted to vines in the Commonwealth attained a maximum in the season 1904-5, when a total of 65,673 acres was reached. Each of the five following seasons shewed a decrease, the area in 1909-10 being only 58,151 acres. Since that year, however, the total has risen gradually until in 1917-18 the previous maximum of 1904-5 was passed, the total reached being 67,862 acres. South Australia is the only State where a steady annual increase has been recorded.

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

2. **Wine Production.**—The production of wine in Australia has not increased as rapidly as the suitability of soil and climate 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 the product, and in the second to the fact that the new and comparatively unknown wines of Australia find it difficult to establish a footing in the markets of the old world, owing to the competition of well-known brands. Active steps are being taken in various ways to bring the Australian wines under notice, and it may be confidently expected that when

their qualities are duly recognised the wine production of this country 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 1913-14 TO 1917-18.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	No production of wine in Tasmania.	Gallons.
1901-2 ..	868,479	1,981,475	148,835	2,631,563	185,735		5,816,087
1913-14 ..	561,100	1,121,491	58,897	2,759,665	208,738		4,709,891
1914-15 ..	549,140	605,636	51,164	1,507,196	162,190		2,875,326
1915-16 ..	571,000	1,380,367	59,008	3,709,878	166,820		5,887,073
1916-17 ..	628,950	1,302,660	23,171	2,951,048	220,439		5,126,268
1917-18 ..	538,215	800,068	39,125	5,331,166	156,532		6,865,106

3. **Relation to Population.**—In relation to population the area of the vineyards of the several States exhibits a well-marked decline from 1901 to 1908, the Commonwealth total having fallen during the period from 17 to 13 acres per 1,000 of the population. During the following nine seasons, however, the relation has changed little, there being a slight further decline to 1914-15, and an upward trend thereafter. Details for the period are furnished in the succeeding table:—

AREA OF VINEYARDS PER 1,000 OF POPULATION, 1901-2 AND 1913-14 TO 1917-18.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2 ..	6	24	4	58	19	..	17
1913-14 ..	4	16	2	60	9	..	13
1914-15 ..	4	15	2	61	9	..	12
1915-16 ..	4	16	2	63	9	..	13
1916-17 ..	5	17	2	67	10	..	13
1917-18 ..	5	18	2	68	10	..	14

4. **Imports and Exports.**—The principal countries of origin of wine imported into Australia are France, Spain, Portugal, and Italy, 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 1913 TO 1917-18.

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
1913 ..	68,907	81,006	149,913	138,563	34,797	173,360
1914-15 ..	28,179	71,633	99,812	56,998	32,953	89,951
1915-16 ..	26,744	62,357	89,101	55,573	27,494	83,067
1916-17 ..	18,659	47,741	66,400	39,212	26,497	65,709
1917-18 ..	9,274	31,808	41,082	20,569	20,635	41,204

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 1913 TO 1917-18.

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
1913	1,768	701,872	703,640	3,767	102,263	106,030
1914-15 ..	2,325	635,579	637,904	4,106	97,337	101,443
1915-16 ..	3,638	726,113	729,751	7,001	113,598	120,599
1916-17 ..	2,919	603,523	606,442	5,426	106,200	111,626
1917-18 ..	4,976	367,738	372,714	8,269	93,618	101,887

The sparkling wine included in the foregoing table consists largely 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 1913-14 TO 1917-18.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1901-2 ..	3,475	5,110	750 ^a	2,800 ^a	1,100 ^a	..	13,235
1913-14 ..	3,883	2,849	1,306	2,067	2,690	..	12,795
1914-15 ..	2,667	3,083	1,191	1,283	1,348	..	9,572
1915-16 ..	2,940	3,524	932	1,608	2,027	..	11,031
1916-17 ..	2,214	2,606	668	758	1,940	..	8,186
1917-18 ..	1,710	1,127	696	984	1,570	..	6,087

(a) Estimated.

Statistics of the quantities of raisins and currants dried for 1901-2 and the past five seasons are given in the following table :—

RAISINS AND CURRANTS DRIED, 1901-2 AND 1913-14 TO 1917-18.

Season.	N. S. Wales.		Victoria.		South Aust.		Western Aust.		Commonwealth.	
	Raisins.	Currants.	Raisins.	Currants.	Raisins.	Currants.	Raisins.	Currants.	Raisins.	Currants.
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
1901-2 ..	(a)		27,533	2,546	7,340	3,413	(a)	(a)	(b) 40,832	
1913-14 ..	4,874		120,303	62,098	35,548	49,170	940	837	273,770	
1914-15 ..	2,591	1,252	111,006	28,527	35,305	24,774	989	1,152	149,891	55,705
1915-16 ..	5,539	2,415	180,104	70,556	59,929	66,518	1,496	1,128	247,068	140,617
1916-17 ..	4,239	2,276	142,970	66,449	35,624	50,147	1,332	1,843	184,165	120,715
1917-18 ..	3,508	1,904	104,911	53,799	42,192	51,924	703	1,948	151,314	109,575
Average 10 seasons ..	4,243		110,179	44,229	36,905	44,220	c 1,073	c 1,251	242,100	

(a) No record.

(b) Incomplete.

(c) Average for six seasons.

6. Imports and Exports.—The following table gives the overseas imports and exports of raisins and currants during 1903 and the past five years :—

COMMONWEALTH OVERSEA IMPORTS AND EXPORTS OF RAISINS AND CURRANTS, 1903 AND 1913 TO 1917-18.

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
RAISINS.						
	lbs.	£	lbs.	£	lbs.	£
1903.. ..	1,237,470	16,549	689,726	8,913	— 547,744	— 7,636
1913.. ..	189,504	4,837	1,918,320	25,365	1,728,816	20,528
1914-15 ..	76,132	2,646	1,184,164	19,506	1,108,032	16,860
1915-16 ..	124,964	3,983	6,952,041	215,270	6,827,077	211,287
1916-17 ..	45,237	1,907	5,621,551	166,341	5,576,314	164,434
1917-18 ..	164,699	4,791	3,957,863	114,510	3,793,164	109,719
CURRANTS.						
1903.. ..	8,640,693	61,313	92,650	800	— 8,548,043	— 60,513
1913.. ..	81,530	1,033	472,193	5,122	390,663	4,089
1914-15 ..	29,818	476	929,726	12,583	899,908	12,107
1915-16 ..	1,218,947	17,728	1,168,557	25,316	— 50,390	— 7,588
1916-17 ..	2,416	54	6,525,426	165,006	6,523,010	164,952
1917-18 ..	201	5	4,934,822	134,654	4,934,621	134,649

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

Except in the years 1904, 1907, 1908, which followed abnormally good seasons, the imports of raisins exceeded the exports for all years prior to 1912. During the past five years, however, the value of the exports exceeded that of the imports, the average excess for the quinquennium being £104,566. The increased production of currants in Australia in recent years had a tendency to reduce gradually the importation and increase the exportation of currants, the first year shewing a margin in favour of exports being 1912, when an excess value of £1,276 was recorded. In 1916-17 the excess was no less than £164,952, while in 1917-18 it totalled £134,649.

§ 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 92,835 acres. The States in which the increase is most marked are :—Victoria, 29,707 acres; Tasmania, 18,583 acres; New South Wales, 17,402 acres; and Queensland, 11,604 acres. During the same period the South Australian fruit-growing area increased by 8,284 acres, while that in Western Australia exhibited an increase of 7,237 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 1913-14 TO 1917-18.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	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
1913-14 ..	51,457	67,183	20,072	24,425	20,575	32,200	50	59	216,021
1914-15 ..	53,905	74,302	22,212	25,811	21,378	35,007	50	46	232,711
1915-16 ..	57,515	80,120	22,616	27,576	21,805	37,351	..	25	247,008
1916-17 ..	60,360	83,087	25,293	28,794	21,747	38,380	..	26	257,687
1917-18 ..	64,116	83,818	26,001	29,020	21,137	38,024	..	18	262,134

The varieties of fruit grown differ materially in various parts of the several States, and range from such fruits as the pineapple, paw-paw, mango, and guava of the tropics, to the strawberry, the raspberry, and the currant of the colder parts of the temperate zone. The principal varieties grown in Victoria are the apple, 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 over 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 chery. The following table gives the acreage under the principal kinds of fruit grown, and the quantity and value of fruit produced. The acreages shewn are exclusive of young trees not yet bearing. The acreages for each kind of fruit in Victoria are not available :—

PARTICULARS OF THE PRINCIPAL KINDS OF FRUIT GROWN IN THE SEVERAL STATES OF THE COMMONWEALTH DURING THE SEASON 1917-18.

Fruit.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	F. Ter.	C'wealth.
Apples .. acres	7,415	..	1,343	8,530	7,499	20,607	11	..
	614,569	1,864,508	54,358	434,620	499,448	1,489,051	1,432	4,957,986
.. bushels	192,068	388,439	37,598	94,225	223,191	372,263	363	1,308,147
	£
Apricots .. acres	1,143	..	109	2,178	444	825	1	..
	85,814	238,420	3,772	169,950	24,439	44,613	71	567,079
.. bushels	42,907	71,526	1,414	62,932	18,635	12,540	35	209,989
	£
Bananas .. acres	1,944	..	9,141	..	79	..	..	..
	200,131	..	1,356,837	..	61,789	..	..	..
.. bunches	120,080	..	169,604	..	1,789	..	..	291,473
	£
Lemons .. acres	2,656	..	302	404	188	..	..	..
	250,600	76,296	15,948	47,188	22,432	..	..	412,464
.. bushels	150,358	20,981	7,110	12,977	8,599	..	..	200,025
	£
Nectarines } acres	7,534	..	1,875	2,049	1,178	67	1	..
	598,365	443,256	67,611	104,124	62,423	4,820	75	1,280,674
and } bshls.	254,305	121,272	19,756	40,122	43,187	1,084	32	479,758
Peaches } £	16,438	..	2,746	2,416	1,860	..	..	..
	1,482,680	75,315	400,999	203,915	150,710	..	..	2,313,619
Oranges .. acres	563,469	30,126	103,591	86,664	68,769	..	..	852,619
	£
Pineapples acres	33	..	4,166	..	..	..	..	..
	5,619	..	944,282	..	..	..	..	949,901
.. dozen	983	..	102,297	..	..	..	..	103,280
	£
Pears .. acres	1,963	..	232	1,384	926	1,308	1	..
	174,650	414,721	3,885	104,679	83,766	136,409	64	918,174
.. bushels	61,128	103,680	3,367	24,281	29,318	47,848	23	269,645
	£
Plums .. acres	1,533	..	537	1,393	705	438	2	..
	140,826	242,598	11,435	74,891	42,850	52,331	152	565,083
.. bushels	55,450	48,520	4,336	28,408	27,317	11,992	57	176,080
	£
Other fruits acres	2,599	..	2,913	2,961	825	2,021	2	..
	109,098	124,154	59,354	61,968	25,236	69,039	50	448,899
Total .. acres	43,258	57,433	23,364	21,315	13,704	25,266	18	184,358
	£ 1,549,846	908,698	508,427	411,577	446,041	514,766	560	4,339,915

(a) Cases. (b) Bushels.

2. Relation to Population.—The acreage of orchards and fruit gardens of the Commonwealth in relation to population has increased during the last sixteen years to an extent which more than compensates for the decline experienced in the case of

vineyards. Taking the two in conjunction, the relative area under vineyards and orchards has, during the period, considerably increased, averaging 55 acres per 1,000 of population in 1901-2, and 67 in 1917-18. Details for orchards and fruit gardens for 1901-2 and the past five seasons are as follows :—

**AREA OF ORCHARDS AND FRUIT GARDENS PER 1,000 OF POPULATION,
1901-2 AND 1913-14 TO 1917-18.**

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2 ..	35	41	28	45	31	66	..	..	38
1913-14..	28	48	30	56	64	160	14	30	44
1914-15..	29	52	33	58	66	174	13	23	47
1915-16..	31	57	33	63	69	186	..	14	50
1916-17..	32	59	38	67	70	192	..	12	53
1917-18..	34	59	38	67	68	187	..	9	53

3. Commonwealth Imports and Exports.—A 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. In normal times the currants imported have been mainly from Greece, the dates from Arabia, Asia Minor and Persia, the raisins mainly from Spain. Of the fresh fruits imported during 1917-18, the bananas and citrus fruits were chiefly from Fiji, and the apples from Canada. In 1916-17 the value of dried fruits exported was the largest on record, viz., £372,712; while the total of £266,297 for 1917-18 ranked second in this respect. The principal consignees of Australian dried fruits exported in 1917-18 were United Kingdom, Canada, and New Zealand. The fresh fruits exported during the year were valued at £46,481, and consisted largely of citrus fruits consigned to New Zealand, and apples to Java and the Straits Settlements.

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, (a)
1901 AND 1913 TO 1917-18.**

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
1913 ..	10,551,877	112,439	2,478,585	32,099	8,073,292	80,340
1914-15 ..	4,071,250	58,451	2,313,768	35,691	1,757,482	22,760
1915-16 ..	11,857,787	159,398	8,254,878	244,069	3,602,909	- 84,671
1916-17 ..	6,058,769	89,006	13,460,274	372,712	- 7,401,505	- 283,706
1917-18 ..	1,587,451	42,856	9,427,669	266,297	- 7,840,218	- 223,441

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

(a) Including raisins and currants published under Vineyards, § 14, 6.

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 1913 TO 1917-18.**

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs. (a)	£	lbs. (a)	£	lbs. (a)	£
1901.. ..		45,955		167,926		121,971
1913.. ..	47,233,100	356,060	58,491,400	399,800	11,258,300	43,740
1914-15 ..	36,999,600	344,466	26,031,400	176,024	-10,968,200	-168,442
1915-16 ..	43,281,700	374,174	64,554,800	415,305	21,273,100	41,131
1916-17 ..	46,304,700	299,360	16,294,800	141,583	-30,009,900	-157,777
1917-18 ..	25,635,100	160,899	4,648,900	46,481	-20,986,200	-114,418

Note.—The minus sign (–) signifies net imports. (a) Not available.

4. **Jams and Jellies.**—A considerable oversea trade in jams and jellies is now carried on by the Commonwealth, the value of the imports for the year 1917-18 amounting to £521, and of the exports to £1,410,548. The destinations of the exports were principally the United Kingdom, Egypt, United States of America, India, and the Philippines. 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 1913 TO 1917-18.**

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
1913.. ..	453,951	12,213	1,858,231	29,402	1,404,280	17,189
1914-15 ..	438,756	11,824	4,770,117	90,909	4,331,361	79,085
1915-16 ..	288,165	9,087	22,849,553	437,144	22,561,388	428,057
1916-17 ..	152,260	6,210	45,074,352	949,112	44,922,092	942,902
1917-18 ..	16,658	521	64,891,116	1,410,548	64,874,458	1,410,027

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 1917-18 was £50,368, and the corresponding value of exports was £278,045.

§ 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 included under the headings—Market Gardens, Pumpkins and Melons, Turnips, Mangolds, Nurseries, Grass Seed, Tobacco, Flax, Hops, and Millet. Cotton-growing has in recent years received some attention in the tropical portions of the Commonwealth, although the industry cannot yet be said to be beyond the experimental stage. The total area in the Commonwealth during the season 1917-18 devoted to crops not dealt with in previous sections was 68,770 acres, of which market gardens accounted for 27,775 acres, or more than 40 per cent.

2. **Market Gardens.**—Under this head are included all areas on which mixed vegetables are grown. Where considerable areas are devoted to the production of one vegetable, such for instance as the potato, the onion, the melon, the tomato, etc., the figures are usually not included with market gardens, but are shewn either under some specific head, or under some 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 1913–14 TO 1917–18.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	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
1913–14 ..	10,585	10,777	2,611	2,265	2,851	(a)769	60	22	29,940
1914–15 ..	10,475	12,935	2,648	1,830	2,785	628	60	27	31,388
1915–16 ..	10,940	11,379	2,330	1,712	2,787	435	..	27	29,610
1916–17 ..	10,683	10,746	2,305	1,522	2,153	448	..	27	27,884
1917–18 ..	10,100	11,362	1,991	1,502	2,334	447	..	39	27,775

(a) Crops, other than Market Gardens, were included in previous years.

The area for 1917–18 was in excess of that for 1901–2 in New South Wales, Victoria, and Western Australia. In South Australia the falling-off is more apparent than real, being in large part due to a change in the classification of crops introduced in connexion 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 reality. During the past five seasons there has been very little variation in the total area of market gardens in the Commonwealth as a whole. Comparing the earliest years with the latest, Victoria shews an increase, while the remaining States shew decreases. For the Commonwealth as a whole a corresponding decrease of 2,165 acres is shewn.

3. **Grass Seed.**—The total area under this crop during 1917–18, exclusive of New South Wales, for which State no figures as to area are available, was 11,980 acres, of which 2,312 acres were in Victoria, 8,461 acres in Queensland, and 1,186 acres in Tasmania. The total yield for 1917–18, including New South Wales, was 267,148 bushels, valued at £73,165.

4. **Tobacco.**—Tobacco-growing is an industry which has experienced marked fluctuations, although at one time it 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 6,641 acres, of which 4,833 were in New South Wales, 1,685 in Victoria, and 123 in Queensland. This promise of importance was, however, not fulfilled, and after numerous fluctuations, in the course of which the Victorian area rose in 1895 to over 2,000 acres, and that in Queensland to over 1,000 acres, the total area for the season 1917–18 had declined to 1,162 acres, distributed as follows :—New South Wales, 791 acres ; Victoria, 82 acres ; and Queensland, 289 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 outside markets. Possibly under more favourable circumstances, and with greater attention given to the production of leaf of the best quality only, the industry may 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 the requirements of consumers. The value of the net importations of tobacco into the Commonwealth during the year 1917–18 amounted to £365,910, comprising unmanufactured tobacco £424,011, cigars £79,362, cigarettes £9,268, and snuff £506, while manufactured tobacco shewed a balance in favour of exports amounting to £147,237.

5. **Pumpkins and Melons.**—The total area under this crop in the Commonwealth during 1917–18 was 13,706 acres, of which 2,805 acres were in New South Wales, 1,464 acres in Victoria, 8,508 acres in Queensland, 649 acres in Western Australia, and 280 in South Australia. The production for the Commonwealth amounted to 59,063 tons.

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 1917-18 being 1,296 acres, of which 1,229 acres were in Tasmania, and 64 acres in Victoria; a small area of 3 acres was also grown in South Australia. The Tasmanian area, though still small, has increased considerably during the past sixteen years, the total for the season 1901-2 being only 599 acres. On the other hand, the Victorian area, which in 1901-2 was 307 acres, had diminished to 64 acres in 1917-18. 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 1,758 acres. During the year 1917-18 the exports of hops exceeded the imports for the first time, the excess weight being 80,447 lbs., and the excess value £7,668.

7. **Flax.**—For the past twenty years flax has been grown intermittently in the Gippsland district of Victoria, and attempts have also been made to introduce its cultivation into Tasmania and New South Wales, but without success. The chief reason for this failure was the dominant position held by Russia in the European fibre markets. That country produced 80 per cent. of the world's output of fibre, and the low standard of wages resulted in a correspondingly low price for fibre. Consequently the price the Australian farmer received for his flax rendered its cultivation unattractive compared with that of other agricultural products. In 1907, the Commonwealth Government, with a view to foster the industry, provided for the payment of a bounty of 10 per cent. of the market value of all flax products, but the low returns for fibre, about £45 per ton, prevented the extension of flax growing to any appreciable degree, and on 1st July, 1917, the bounty provisions expired. At the end of that year, however, the shortage of flax fibre in Europe had become very acute owing to the occupation of the Baltic Provinces by Germany, and at the suggestion of the Advisory Council of Science and Industry, and with a view primarily of assisting the Imperial Government, the Commonwealth Government formulated a scheme to encourage the cultivation of flax. A Flax Industry Committee, consisting of representatives of the Department of Agriculture of Victoria, the flax growers, and the cordage manufacturers, was appointed with executive powers under War Precautions Regulations. At the same time, a guarantee was given by the Commonwealth Government of £5 per ton for flax of specified standard grown in 1918.

The area was increased from 400 acres in 1917 to 1,400 acres in 1918, and the fibre from the latter crop has been sold to the Imperial Government at £170 per ton c.i.f., its pre-war value having been about £45 per ton. Owing to the disorganisation of Russian industries, and the depletion of the world's stocks of linens, there is every indication that the present high values of flax products will be retained for many years. The value of the products of the Australian 1918 crop is estimated as follows:—Fibre £12,800, linseed £5,700, and tow £1,500, or a total of £20,000. A further guarantee has been given by the Commonwealth Government of £6 per ton for the 1919 flax crop. About 2,500 acres have been planted in 1919, and with a normal season the return from flax products is estimated at about £38,000. There are four mills operating in Gippsland, and the erection of additional mills is anticipated. The whole of the commercial flax crop is grown in Victoria, but a grant of £1,000 has been made by the Commonwealth Government for experimental work, and in all the States experiments are being carried out to determine the suitability of the soil and climate for the cultivation of this crop. Experiments are also being carried out with a view to improve the existing methods of treatment at the mills, as it is considered that, without definite and exact data, the results of carefully conducted tests and investigation, the industry will rest on an empirical basis, and will be unable to compete with the older established and highly organised fibre industries in other parts of the world.

8. **Millet.**—Millet appears in the statistical records of three of the Commonwealth States. The total area devoted thereto in 1917-18 was 3,781 acres, of which 1,918 acres were in New South Wales, 921 in Victoria, 940 in Queensland, and 2 in the Northern Territory. 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.

9. **Nurseries.**—In all the States somewhat extensive areas are devoted to nurseries for raising plants, trees, etc. Statistics concerning the area so occupied for flowers, fruit trees, etc., are available for New South Wales, Victoria, South Australia, and Western Australia. During 1917-18 the area in those States was 618, 1,247, 167, and 89 acres respectively. Statistics so far as they relate to forestry are given elsewhere.

10. **Cotton.**—Cotton-growing on a small scale has been tried in Queensland, but so far without very marked success. In 1902, 8 acres were devoted to this crop, in 1907, 300 acres were under cultivation, and in 1911 the maximum either in regard to area or production was reached, an area of 605 acres producing 186,894 lbs. of unginned cotton. A gradual falling-off has since been experienced, and in 1917 the area was only 133 acres with a production of 76,656 lbs. of cotton. Special efforts have recently been made to encourage the growth of cotton in Queensland, and the Agricultural Department of that State in 1916 distributed to upwards of 300 intending growers sufficient seed to plant about 800 acres. 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. The tropical portions of Western Australia have also long been regarded as suitable for its cultivation.

11. **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. The area then continuously declined to 1906–7, when it was as low as 256 acres. In subsequent seasons the area fluctuated somewhat, but on the whole with a downward tendency, and in 1917–18 only 51 acres were recorded with a yield of 16,242 lbs.

12. **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 included among the items on which bonuses were payable several agricultural products. Under an Act passed in 1912 the provisions of the 1907 Act in respect of certain items were renewed. Products of the soil on which these bounties were payable are as follows :—

BOUNTIES ON AGRICULTURAL PRODUCTS.

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.
Cotton, ginned	8 years	10 % on market value	£ 6,000
Fibres—			
New Zealand flax	10 "	10 " "	3,000
Flax and hemp	10 "	10 " "	8,000
Jute	10 "	20 " "	9,000
Sisal hemp	10 "	10 " "	3,000
Oil materials supplied to an oil factory for the manufacture of oil—			
Cotton seed	8 "	10 " "	1,000
Linseed (flax seed)	10 "	10 " "	5,000
Rice, uncleaned	10 "	20s. per ton	1,000
Coffee, raw, as prescribed	8 "	1d. per lb.	1,500
Tobacco leaf for the manufacture of cigars, high grade, of a quality to be prescribed	10 "	2d. "	4,000
Fruits—			
Dates (dried) (a)	15 "	1d. "	1,000
Dried (except currants and raisins) or candied, and exported	10 "	10% on market value	6,000

(a) Any unexpended amount assigned in any year to be available for the years following.

At the present time the only one of these bounties still in force is that relating to dates.

2. **Bounties Paid.**—Although the rate of bonus on the several articles was fairly liberal, the bounties were not 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 thereto for the five financial years ended 1917-18.

PARTICULARS OF BOUNTIES PAID ON AGRICULTURAL PRODUCTS (OTHER THAN SUGAR), 1913-14 TO 1917-18.

Article.	Quantity produced on which Bounties were paid.					Amount paid as Bounties.				
	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.(a)
Cotton, ginned lbs.	9,642	..	13,751	..	..	£ 21	..	£ 22	..	..
Fibres—										
Flax and hemp tons	137	34	238	122	..	318	77	634	267	..
Sisal hemp „	..	..	2,250	..	5	..	..	2	..	19
Oil materials supplied to an oil factory for the manufacture of oil—										
Cottonseed lbs.	6,306	..	22,400	..	..	1	..	10	..	..
Linseed (flax seed) cwt.	..	..	..	..	..	..	..	..	..	..
Coffee, raw, as prescribed lbs.	17,540	17,022	732	..	..	73	71	3	..	..
Tobacco leaf for the manufacture of cigars, high grade, of a quality to be prescribed lbs.	41,263	41,891	17,423	57,795	1,577	344	349	145	488	13
Fruits—										
Dried (except currants and raisins) or candied, and exported lbs.	142,928	41,212	6,000	579,334	131,432	433	98	16	2,063	342

(a) Bounties paid on goods produced during 1916-17.

During the year 1916-17 the total amount paid in respect of flax and hemp was claimed by the State of Victoria. The bounty paid for tobacco leaf was paid to New South Wales and Queensland, the amounts being £16 and £472 respectively. Victoria, South Australia, and Tasmania claimed the bonuses on dried fruits, the amounts being £80, £1,698, and £285 in the order named. The sums paid in 1917-18 were due in respect of bounties earned prior to 1st July, 1917.

No bounties were paid on New Zealand flax, jute, or uncleaned rice, nor have any yet been paid on dates.

§ 18. Fertilisers.

1. **General.**—In the early days of settlement and cultivation in the Commonwealth, scientific cultivation was in a comparatively undeveloped state. The early farmers were neither under the necessity, nor in fact aware of the necessity, 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 essential 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 productive. 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 Fertilisers Act of 1915.
Queensland ..	The Fertilisers Act of 1914 ; amended 1916.
South Australia ..	The Fertilisers Act of 1918.
Western Australia ..	The Fertilisers and Feeding Stuffs Act of 1904 ; amended 1905 and 1911.
Tasmania ..	The Fertilisers Act of 1912.

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 has assumed large proportions during the last few years, though considerable quantities are still imported. The importation of fertilisers has increased over 200 per cent. since 1901. The chief items,

as regards both 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. During 1917-18 the quantities of rock phosphates imported represented 98½ per cent. of the total importation of fertilisers. The colony of Gilbert and Ellice Islands, with 62 per cent., was the principal contributor; Pleasant Island contributed 28 per cent., and the balance of 10 per cent. was obtained from Christmas Island. The whole of the soda nitrate came from Chile.

The imports of artificial manures during the last five years are given in the following table. It will be noticed that the quantities of rock phosphates imported have been consistently large, and have shewn an increase during the five years of nearly 14 per cent. The importation of manufactured superphosphates on the other hand, though considerable in 1913 and 1914-15, has declined to zero in 1917-18, the falling off in 1915-16 and 1916-17 being particularly heavy.

COMMONWEALTH IMPORTS OF FERTILISERS, 1913 TO 1917-18.

Fertiliser.	1913.	1914-15.	1915-16.	1916-17.	1917-18.
Bonedust cwt.	15,341	10,901	..	40	..
.. £	4,378	3,136	..	18	..
Guano cwt.	26,819	2,053	1,800	264,581	..
.. £	5,733	814	792	30,772	..
Superphosphates .. cwt.	534,198	502,382	57,790	200	..
.. £	89,474	79,889	10,308	61	..
Rock phosphates .. cwt.	3,200,648	3,464,547	3,813,788	3,556,561	3,643,038
.. £	397,634	397,284	440,434	444,984	433,940
Soda nitrate cwt.	66,783	67,508	112,203	165,472	53,800
.. £	37,320	34,059	49,463	107,977	43,264
Other cwt.	212,525	108,291	5,109	1,202	397
.. £	52,832	31,644	3,509	1,494	909
Total { cwt.	4,056,314	4,155,682	3,990,690	3,988,056	3,697,235
.. £	587,421	546,826	504,506	585,306	478,113

4. Exports.—The subjoined table shews the exports of artificial manures for the years 1913 to 1917-18. Practically the whole of these fertilisers are manufactured locally, and are shipped mainly to New Zealand, Java, Japan and the Pacific Islands :—

COMMONWEALTH EXPORTS OF FERTILISERS, 1913 TO 1917-18.

Fertiliser.	1913.	1914-15.	1915-16.	1916-17.	1917-18.
Bonedust cwt.	86,295	148,229	71,795	37,337	17,252
.. £	26,023	45,707	22,563	12,832	7,221
Guano cwt.	6,242	2,800	..	4,455	840
.. £	848	470	..	1,061	234
Superphosphates .. cwt.	257,629	311,067	823,361	483,552	699,784
.. £	47,308	64,224	158,862	105,492	179,691
Rock phosphates .. cwt.	18,555	22,340	75,839	66,010	70,004
.. £	3,050	3,429	10,695	8,464	9,810
Soda nitrate cwt.	10,154	1,500	2,619	7,339	30,037
.. £	5,388	897	1,835	5,678	14,532
Ammonia sulphate .. cwt.	46,067	113,801	129,651	109,248	18,888
.. £	31,577	75,379	102,821	111,794	16,741
Other cwt.	237,734	224,309	86,964	72,572	118,147
.. £	63,154	38,972	28,059	20,925	211,322
Total { cwt.	662,676	824,046	1,190,229	780,513	954,952
.. £	177,434	229,078	322,835	266,246	439,551

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 all the States with the exception of Queensland; those for that State were collected for the first time for 1915-16. Particulars concerning New South Wales are given hereunder:—

FERTILISERS USED IN NEW SOUTH WALES, 1913-14 TO 1917-18.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage on Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1913-14	4,567,592	2,224,623	48.71	166,503	50,476
1914-15	4,807,001	2,329,819	48.47	168,450	55,169
1915-16	5,796,376	2,753,301	47.50	177,788	56,621
1916-17	5,164,434	2,352,180	45.55	166,374	50,704
1917-18	4,461,172	1,974,620	44.26	181,052	44,883

Particulars for Victoria for the past five seasons are as follows:—

FERTILISERS USED IN VICTORIA, 1913-14 TO 1917-18.

Season.	Total Area of Crops.	Farmers Using Manure.	Area Manured.		Manure Used.	
			Aggregate.	Percentage on Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	No.	Acres.	%	Tons.	Tons.
1913-14	4,391,321	30,610	3,401,013	77.45	219,423	105,612
1914-15	4,622,759	31,874	3,728,279	80.65	209,534	117,935
1915-16	5,711,265	33,378	4,336,252	75.92	187,602	128,667
1916-17	4,851,335	33,165	3,870,742	79.79	181,268	117,812
1917-18	4,110,225	30,109	3,336,418	81.17	167,114	106,119

During the last three seasons, 1915-16, 1916-17, and 1917-18, 25,166, 22,145, and 17,862 acres were respectively manured in Queensland, 43,483, 34,811, and 42,779 loads of natural and 7,608, 6,869, and 4,833 tons of artificial manure were used, while the percentages of area manured on total area under crop were 3.45, 2.50, and 2.45.

The figures relating to the use of fertilisers in South Australia are shown in the table below:—

FERTILISERS USED IN SOUTH AUSTRALIA, 1913-14 TO 1917-18.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage on Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1913-14	3,169,559	2,584,814	81.55	100,435	97,023
1914-15	3,282,364	2,722,349	82.94	103,537	96,812
1915-16	3,763,570	3,112,462	82.70	90,142	102,685
1916-17	3,627,477	2,872,571	79.19	101,032	96,893
1917-18	3,079,778	2,553,713	82.92	87,550	90,795

Corresponding particulars relative to Western Australia for the seasons 1913-14 to 1917-18 are given in the following table :—

FERTILISERS USED IN WESTERN AUSTRALIA, 1913-14 TO 1917-18.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage on Total Area of Crops	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1913-14	1,537,923	1,459,218	94.88	58,390	58,962
1914-15	1,867,547	1,808,504	96.84	54,245	67,839
1915-16	2,189,456	2,117,166	96.70	53,257	70,523
1916-17	2,004,944	1,903,026	94.92	49,216	70,326
1917-18	1,679,772	1,586,748	94.46	49,578	58,989

Statistics relating to the use of manures in Tasmania for the past five seasons are as follows :—

FERTILISERS USED IN TASMANIA, 1913-14 TO 1917-18.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage on Total Area of Crops	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Tons.	Tons.
1913-14	264,140	136,764	51.78	30,530	14,398
1914-15	274,474	144,732	52.73	31,572	13,065
1915-16	333,334	182,374	54.71	30,486	15,232
1916-17	270,526	144,532	53.43	30,990	13,886
1917-18	238,199	120,476	50.58	28,006	11,472

6. **Local Production of Fertilisers.**—Statistics relative to the local production of fertilisers are 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 89, made up as follows :— New South Wales, 21 ; Victoria, 29 ; Queensland, 22 ; South Australia, 10 ; Western Australia, 4 ; and Tasmania, 3.

7. **Benefits Derived from the Use of Fertilisers.**—There is little doubt that the 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, 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 40 to 130 tons. A portable silo made of iron has been devised 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 that defective methods of making ensilage have often been adopted, has for some years been making special efforts to educate the farming community, by the issue of bulletins, lectures, etc., 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 different types of silos on very liberal terms, repayment extending over a series of years. Experts erect the silos and give practical lessons as to packing them, etc. The New South Wales Government has, by giving advice in the "Agricultural Gazette," and by the issue of special bulletins, taken steps towards the education of the farmers. Silos also have 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 1913-14 to 1917-18 are furnished in the following table:—

COMMONWEALTH ENSILAGE-MAKING, 1913-14 TO 1917-18.

State or Territory.	1913-14.		1914-15.		1915-16.		1916-17.		1917-18.	
	Holdings.	Ensilage Made.	Holdings.	Ensilage Made.	Holdings.	Ensilage Made.	Holdings.	Ensilage Made.	Holdings.	Ensilage Made.
	(a)		(a)		(a)		(a)		(a)	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
New South Wales ..	129	18,358	83	10,963	130	18,511	119	16,336	116	14,789
Victoria ..	270	19,505	161	9,055	269	16,356	179	10,974	117	9,852
Queensland ..	75	4,273	52	3,363	37	3,012	70	5,115	60	4,556
South Australia ..	16	778	6	681	43	1,688	20	1,795	13	921
Western Australia ..	22	658	11	403	12	518	12	278	11	325
Tasmania ..	17	662	10	231	17	849	7	114	38	518
Federal Territory ..	1	8	..	..	..	..	..	..	..	..
Northern Territory ..	..	..	..	..	..	..	1	55	1	50
Commonwealth ..	530	44,242	323	24,696	508	40,934	408	34,667	356	31,011

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

Following the drought of 1902-3 greater attention was 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 following five seasons, however, shewed a falling-off, but 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 seasons. The accumulated stocks proved of very great value during the 1914 drought, though far below what would have been the case if more attention had been paid to ensilage-making during the previous years of surplus green food. A very substantial increase took place in 1915-16, both in the holdings on which ensilage was made and in the quantity produced, but 1916-17 and 1917-18 returns shew a falling-off in all the States with the exception of Queensland and Tasmania.

§ 20. Agricultural Colleges and Experimental Farms.

1. **Introduction.**—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 previous issues detailed information is given in respect of agricultural colleges, experimental farms and agricultural education generally. See Year Book No. 11, pp. 393-5.

§ 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, 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 annual instalments 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 1864, was based essentially on the same principle. Over the operations of the *Crédit Foncier*, created under governmental patronage and invested with such special privileges as to virtually constitute it a monopoly, the Government exercised a direct control, 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.

2. Aggregate of Transactions in each State, 1915 to 1918.—The subjoined table gives aggregates of transactions in reference to advances to farmers in each State during the past four years :—

STATE GOVERNMENT ADVANCES DEPARTMENTS—AGGREGATE OF LOANS TO FARMERS, 1915 TO 1918. (a)

State.	Total Advanced to 30th June—				Balance Due at 30th June—			
	1915.	1916.	1917.	1918.	1915.	1916.	1917.	1918.
	£	£	£	£	£	£	£	£
N.S.W.	3,918,978	4,119,842	4,281,897	4,514,157	2,514,078	2,513,332	2,522,674	2,544,054
Victoria	3,714,733	3,666,952	4,040,582	4,204,582	1,783,043	1,833,988	1,920,737	1,957,694
Q'land	1,147,996	1,517,040	1,810,910	2,026,823	880,204	1,186,895	1,428,530	1,525,649
S. Aust. ^b	2,769,009	2,831,631	2,847,017	2,956,859	1,330,026	1,300,877	1,232,705	1,223,897
W. Aust.	3,961,158	3,533,493	3,626,658	3,700,488	2,561,679	2,695,550	2,753,559	2,789,388
Tasmania	72,252	97,776	117,027	124,319	66,572	87,106	103,152	105,965
Commonwealth	14,984,726	15,966,734	16,723,891	17,527,228	9,135,602	9,617,748	9,961,357	10,146,647
	Profits for Year ended 30th June—				Accumulated Profits at 30th June—			
	£	£	£	£	£	£	£	£
N.S.W.	15,111	16,633	17,477	17,446	71,741	88,374	104,898	120,085
Victoria	10,102	14,000	15,623	14,284	112,411	126,411	142,064	156,348
Q'land	4,448	6,674	(d)	(d)	22,654	29,328	429,328	429,328
S. Aust. ^b	10,668	11,670	11,400	11,454	79,899	91,069	102,469	113,923
W. Aust.	9,363	7,706	2,894	2,371	74,645	82,351	85,245	88,239
Tasmania	712	1,278	1,238	1,224	1,509	2,787	4,025	5,249
C'ommonwealth	50,404	57,961	48,632	46,779	362,359	420,320	4468,029	4513,172

(a) Compiled from figures furnished by the Government Savings Bank of Victoria. (b) Includes loans to farmers and other producers and to local bodies on the security of their own rates. (c) Including profits in connection with house and similar loans. (d) Not shown since amalgamation with Government Savings Bank. (e) See note (d).

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, which 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 £1,500, 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. This Act was amended in 1913, 1914, and 1916.

(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 such rate as they may determine. They may lend monies 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, conditional, additional conditional, or special conditional purchase leases, Crown leases, homestead farm leases, irrigation farm leases, or any holding which has been converted into any of the foregoing tenures under the Crown Lands Acts; and (c) on deposit at call or for periods not exceeding two years in the Treasury or 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 pastoral 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 £2,000, and applications for loans not exceeding £500 have priority over those of a larger amount. 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, in connection with which the conditions of residence and improvements have not been completed, conditional, additional conditional, or special conditional purchase lease, Crown lease, homestead farm lease, or irrigation farm lease, or a conditional purchase as to which the first five years' certificate has not issued, in which cases the amount advanced may not exceed three-fourths 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 and a-half 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 certificated conditional purchase, and the amount advanced may not exceed 80 per cent. of the Commissioners' valuation.

4. *Victoria.*—(i) *Legislation.* The Advances Department of the Government Savings Bank of Victoria was established by the Savings Bank Act of 1896. This Act has been frequently amended, and in 1915 the various Acts and amendments were consolidated under the title of the State Savings Bank Act of 1915. This latter Act was amended twice in 1915, and again in 1916. For the purpose of advancing money to settlers and others, a branch of the bank called the *Crédit Foncier* Department was established, which was authorised to borrow on debentures or mortgage bonds up to a sum of £6,000,000.

(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 debentures or mortgage bonds at par face value at the option of the Commissioners.

(iii) *Amount of Advances.* The limits of the advances are £50 and £2,000, as in New South Wales, applications for advances under £500 having also similar priority. The amount of the advance which may be made for land held in fee simple or under lease as specified in (b) above must not exceed two-thirds of the actual value of such land at the time of the advance. In the case of land held under lease as aforesaid, such two-thirds value must be 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 held under lease as above, certify that the improvements effected thereon increase the productive power of the land and are equal to at least £1 per acre, and that the value of such land and improvements exceeds £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 increase of 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 lands 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 is fixed at $4\frac{1}{2}$ per cent. per annum, but, by the Amendment Act of 1915, it may be altered from time to time by the Commissioners, subject to the approval of the Governor in Council. 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.

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 original Act was amended in 1904, 1905, 1911, 1914, and 1915, and in 1916 it was repealed by the Queensland Government Savings Bank Act of 1916, when the duties of the trustees under the former Act were transferred to the Commissioner of the Government Savings Bank. In order to provide for the amount of the unpaid balances of all monies advanced under the Agricultural Bank Act, and also to obtain funds for the purpose of making advances, the Commissioner may raise, by the issue of debentures, any sum of money which, with the above-mentioned balances, shall not exceed £5,000,000.

(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, grazing, prickly-pea or unconditional selections, and may be made for any of the following purposes:—(a) The payment of existing liabilities; (b) agricultural, dairying, grazing, horticultural, or viticultural pursuits on the holding; (c) adding to the improvements already made; (d) the purchase of stock, machinery, or implements; (e) not exceeding £400 for unspecified purposes, provided the applicant is a bona fide resident settler. Advances are only made on the security of first mortgages.

(iii) *Amount and Repayment of Advances.* The amount which may be advanced must not exceed fifteen shillings in the pound of the fair estimated value of the holding with the improvements thereon, and no advance to any one person must exceed £1,200. Advances, not exceeding on the whole £300, may be made to the full value of the improvements proposed to be made, for any of the following purposes, namely:—Buildings, up to £80; ringbarking, clearing, fencing, draining, or water conservation, up to £200; providing a well or bore, up to £150. Where the holder of agricultural land has an area of thirty-five or more acres cleared and sown with Rhodes grass, or any other approved grass, an amount not exceeding £100 may be advanced for the purchase of approved dairy stock to the full value of the improvements already made. The Commissioner may require, in addition to any other security, a lien over the stock so purchased. No advance may be made to any alien who has not first obtained a certificate that he is able to read or write from dictation words in such language as the Commissioner may direct. 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 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. Advances made on the security of a mortgage of a grazing selection must be repaid, with interest at 5 per cent. per annum, within a term ending not later than the date upon which the lease would expire. Any advances under this Act may, at the option of the borrower, be repaid sooner or in larger instalments than herein specified.

6. South Australia.—(i) *Legislation.* Under the State Advances Act of 1895, amended in 1896, 1901, and 1912, a State Bank has been established in South Australia for the purpose of making advances (i) to farmers, graziers, and other producers, and in aid of industries, upon the security of lands held in fee simple, or under Crown lease; and (ii) 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 $4\frac{1}{2}$ per cent., payable half-yearly, 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. By the Amending Act of 1912, a fund called The Loan to State Bank Fund was constituted, and the Treasurer was empowered to raise any sum or sums of money up to £400,000 in any one financial year, and not exceeding in the aggregate at any time a sum of £3,000,000, by the issue and sale of Government Inscribed Stock or Treasury Bills, for the purpose of purchasing or taking up from the bank, mortgage bonds for such amounts as are required by the bank. The Advances to Settlers on Crown Lands Act, and the Loans to Producers Act, were passed in 1908 and 1917 respectively, and are referred to in (iii) and (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, graziers, or 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 £5,000. 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. Security must be, in every case, a first mortgage, but, with the exception of the State Advances Act, a second mortgage may be taken as collateral security. The balance, or any portion thereof, of the principal money owing in respect of any State advance may be paid, with all interest due thereon, on the day appointed for any half-yearly payment.

(iii) *The Advances to Settlers on Crown Lands Act.* This Act was passed in 1908, and subsequently amended in 1909, 1911, and 1912. The Act with amendments was consolidated in 1914, and again amended in 1915 and 1916, and is administered by a board called the Advances to Settlers Board. 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 £850, and for a period of

five years following the date on which the advance is made the settler is required to pay interest at a rate fixed by the Treasurer, payable half-yearly. At the expiration of that period it is provided that he must repay the amount advanced by seventy equal half-yearly instalments, together with simple interest at the fixed rate on the balance outstanding. A rebate of interest at a fixed rate is allowed if the half-yearly payment is made within fourteen days of the date on which it falls due. All advances made to settlers for the purpose of stocking their holdings must be repaid, together with simple interest at the fixed rate, within such time, and by such instalments, as the board may determine. Advances may be made on the prescribed security for the purpose of:—(a) making improvements on a holding such as ringbarking, clearing, fencing, boring for water, erecting permanent buildings, etc.; (b) stocking a holding; (c) discharging any mortgage existing on a holding; and (d) any other purpose. The amounts which may be advanced for the abovementioned purposes are for:—(a) any sum, not exceeding £400, up to the fair estimated aggregate value of the holding and the improvements made on or about to be made thereon, or in case such estimated value is in excess of £400, any further sum not exceeding £250, up to three-fourths of the amount of such excess; (b) any sum, not exceeding £200; and (c) and (d) any sum, not exceeding three-fourths of the fair estimated aggregate value of the holding and the improvements thereon. Under this Act, the Commissioner of Crown Lands may, on the application of a settler, erect on such settler's holding water improvements, in the nature of sheds having rain-water catchment roofs, and tanks connected therewith for the storage of water. The cost of such improvements are deemed to be an advance from the board, and the settler is obliged to execute a first mortgage on his holding, in order to secure to the board the due payment of the advance.

(iv) *The Loans to Producers Act 1917.* Under the provisions of this Act, any owner of a freehold estate or holder of a Crown lease may obtain loans for one or more of the following purposes:—(a) the purchase of fruit-grading machinery, (b) the erection of silos, and (c) any other prescribed purpose. Advances must be repaid, together with simple interest at the fixed rate, within such time and by such instalments as the Minister may determine.

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 subsequent Amending Acts, this was raised successively to the present total of £4,500,000. Amendments to the consolidated Act of 1906 were made in 1907, 1909, 1910, 1911, 1912, 1913, 1914, and 1917.

(ii) *Purposes for which Advances may be made.* The bank is authorised to make advances to persons engaged in the business of farming or grazing, or in agricultural, horticultural, or pastoral pursuits, or in any industry that the Governor may by proclamation declare to be a rural industry, for any purpose incidental to or in aid of any such business, pursuit, or industry, including the erection of a dwelling house.

(iii) *Amount of Advances.* The amount advanced to any one borrower cannot exceed £2,000, and no advance for the purpose of any proclaimed rural industry can exceed a sum limited by the proclamation relative to such rural industry. Advances are made only on a first mortgage, but a second mortgage may be taken as collateral security.

(iv) *Repayment of Advances.* During the five years following the date of the loan the borrower pays interest only, at such rate per annum as may be prescribed. If the rate of interest be more than 5 per cent., it must not exceed by more than 1 per centum per annum the rate payable on funds raised by the bank. After the expiration of the above period the amount advanced, with interest at the prescribed rate, must be repaid within twenty-five years by equal half-yearly payments. Whenever an advance is made for any purpose other than that of effecting improvements, it must be repaid, together with

interest at 6 per cent. per annum, by half-yearly instalments within such period, not exceeding twenty-five years, as the trustees think fit. Advances may be repaid by larger instalments than specified, and at any time within the prescribed period.

8. *Tasmania.*—(i) *Legislation.* Under the State Advances Act 1907, an agricultural bank, administered by three trustees appointed by the Governor, was established for the purpose of making advances to promote the agricultural development of the State. Funds were raised by the issue of debentures or inscribed stock for a sum not exceeding £150,000, interest at a rate determined by the Treasurer being payable on same. This Act was the subject of amendments in 1912, 1914, and 1916.

(ii) *Security on which, and Objects for which, Advances are made.* The trustees may make advances on the prescribed security to farmers, graziers, and persons engaged in agricultural, dairying, grazing, or horticultural pursuits, owning land in fee simple or holding land under purchase from the Crown upon the credit system, for any of the following purposes:—(a) The payment of liabilities already existing on the holding; (b) agricultural, dairying, grazing, or horticultural pursuits on the holding; and (c) making or adding to improvements.

(iii) *Amount of Loans.* The minimum amount of any loan is £25, and the maximum £1,000. No advance on the security of freehold land may exceed three-fifths of its capital value as estimated by the trustees, and in respect of land held from the Crown under the credit purchase system, the advance may not exceed one-half of the capital value of the land after deducting from such capital value the amount of instalments due at the date of the loan. Advances are made only on the security of a first mortgage, but a second mortgage may be taken as collateral security.

(iv) *Repayment of Loans.* Interest at a rate determined by the Treasurer 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.

9. *Particulars Respecting Agricultural and Stock Departments.*—In Year Book No. 7, 1901–1913, on pages 364 to 369, will be found particulars respecting Agricultural and Stock departments of the several States of the Commonwealth as on 30th June, 1913. The main features of organisation are set out under their respective headings, and will be found to embrace such items as the number on staffs, expenditure, facilities for agricultural education and work undertaken in agricultural colleges, technical schools, experimental farms, and orchards and vineyards. The nature of lectures and other forms of agricultural instruction by experts is dealt with, as well as the extent of distribution of plants, and the special steps taken by the departments to disseminate information amongst agriculturists, and also to facilitate placing the products of the State on the market.

§ 22. Graphical Representation of Crops.

1. *Areas of Principal Crops.*—A graphical representation of the areas devoted to each of the principal crops in the Commonwealth since 1860 will be found on page 349. The crops so represented are as follows:—Wheat, hay, oats, maize, sugar-cane, barley, and vines.

2. *Production.*—On page 350 will be found a graphical representation of the aggregate yields in the Commonwealth since 1860 of wheat, oats, barley, maize, and hay.