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**FOUNDATIONS OF
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LINCHES AT CLOTHALL, HERTFORDSHIRE

FOUNDATIONS OF AGRICULTURAL ECONOMICS

by

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My young friend, as you have resolved on agriculture as the occupation of your future years, notwithstanding the very discouraging present, and 'the shadows, clouds and darkness' which rest on the future, in the opinion of a large proportion of those engaged in the cultivation of the soil, I am anxious that you should start upon a sound foundation.

From "A letter on agricultural education addressed to a youth who had resolved on farming as his future occupation," by Charles Lawrence, Esq., 1851.

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P R E F A C E

THIS volume represents an attempt to bring within reasonable compass some account of the origin and incidence of the numerous economic problems which affect the agricultural community. The bulk of what it contains has been delivered in the form of lectures to third year and Diploma students, for whose benefit it was originally planned. Subsequently, I felt that, by the inclusion of certain additional matter, it could be made to form a connected narrative rather than a series of essays, and thus might also appeal to that wider class of landowners and farmers who are interested in knowing something of the evolution and history of their "burdens," of the past struggles of their predecessors and of the alternative methods of land tenure and marketing practised in other countries.

It is inevitable in a work of this character that reference should frequently be made to bygone events, but I have purposely refrained from any excursion into agricultural history pure and simple, for in Lord Ernle's *English Farming Past and Present* there exists a monumental work which, so far as a descriptive account of the social life, the agricultural practices and the personalities of past centuries are concerned, must always hold the field. As regards the economic history of the subject, however, there does appear to be a gap in our literature. True, practically every branch dealt with in the following pages has its existing authorities, but it must be confessed that in almost every case there have been political axes to grind or particular theories to ventilate. Land tenure, for example, has provided lists for the breaking of many lances; taxation has involved the historian, the economist and the politician in a maze of conflicting statements and counter-statements; the subject of marketing and co-operation has too frequently been reserved for the eulogies of avowed partisans; it has been left to foreign authors to treat unbiassedly such questions as those raised in the consideration of large and small holdings or the past and present economic situation of the farm worker; finally, the

history of agriculture after the year 1914 is still mainly hidden in official publications. In these circumstances, I hope that all the more important factors have been dealt with as adequately as the assigned limits of two chapters will permit; I have certainly endeavoured to set forth all sides of the controversial questions that inevitably arise, and at the same time to point out the many pitfalls in this subject that await the impetuous users of statistics or the over hasty generalisers from events that occurred or customs that prevailed long ago or far away.

No apology is offered for frequent references to, and comparisons drawn with, the previous depressions that have affected British agriculture, for in producing a book on this subject at such a time as the present, it is imperative that anyone with either a sense of proportion or a respect for history, should recall former struggles; thus it is that the evidence adduced before the Royal Commission of 1893 and its predecessors, as well as their published *Reports*, has been freely drawn on. At this juncture, too, it might be thought incumbent upon an author to refer to the Government enquiries recently undertaken, but as my own views, together with certain suggestions of a constructive nature, will be found embodied in the following pages, I have refrained from commenting at any length upon the tentative proposals so far emanating from the Tribunal of Enquiry and other committees of investigation. In fact, I ought to state that the whole of this volume was written in the autumn of 1922, and that it was accordingly compiled in ignorance of what suggestions might result from the deliberations of the bodies just referred to; even now I do not know whether the full *Report* of the Tribunal will appear before or after these words are read.

Briefly, the general plan adopted has been as follows: first to give some description of the methods of land tenure practised at different periods here and abroad, and then to discuss the economics of its division; next follows an account of the statutory burdens placed upon it, succeeded by an analysis of the productivity of British agriculture prior to the Great War, accompanied by a narrative showing how it was expanded to meet that occurrence; then, in turn, will be found a description of

the utilisation of man-power on the land, of the methods of marketing adopted by agriculturists, with an amplified account of the output of two of the principal individual products; finally, the technical side is covered by a chapter on the basic sources of our knowledge, accompanied by statistical tables.

Certain features are the result of original research. For instance, the description of the incidence and collection of vicarial tithes appears to have broken fresh ground, which I hope to explore further in a separate undertaking; the history of the attempts made to collect agricultural statistics from 1830 to 1860 has been a forgotten field; the comparison of the yields of cereal crops in different decades (together with the illustrative maps) is the result of detailed investigation into a subject that is of interest at a time when the plant breeder was never a more potent factor; the statistics relative to yields on large and small holdings in Roumania afford evidence that has, so far as I am aware, never before been published in this country. The description of the ploughing-up campaign of 1917-19 was prepared by me at the time in question for the Ministry of Agriculture, whose permission to publish *in extenso* I secured (and hereby most gratefully acknowledge) in the summer of 1922. In this connection I should perhaps explain that, while this volume was actually in the press, I discovered that Sir Thomas Middleton, K.B.E., had also incorporated my Report in his book, entitled *Food Production in War*. However, I decided to retain this matter for two reasons; in the first instance, the Report adopted by Sir Thomas Middleton was based on my original figures, which compared the yield on the new arable land with the "ten-year average," while the subsequent passage of time had enabled me to effect a more just comparison with the actual yield of the "old" arable; secondly, the maps contained herein afford a graphic commentary on the results of a too little appreciated operation.

No excuse is offered for giving yet another description of the familiar survivals at Axholme, Braunton and Laxton, for I conceive it to be the duty of every writer on past customs to familiarise himself and, if possible, his own generation, with existing examples, and we owe it also to the memory of Young,

Cobbett and many others to make, in our turn, some small attempt to help in their researches the economist and the historian of the future. Here, it may be relevant to reiterate that a knowledge of what has gone before is always the best antidote against existing depression, and if this volume can encourage a single present-day agriculturist by describing the ultimate recoveries of his predecessors from worse economic handicaps than those of 1923, or persuade any town dweller that agriculture deserves his attention, it will not have been written in vain. Some few years ago, an East Anglian grammar school was wont to include in its prospectus the following words: "Where desired, a rural bias will be given to the curriculum"; it would indeed be well if such a bias could be applied to the knowledge of history and economics possessed by this urban nation.

The pleasant duty of thanking those who have assisted me in various ways remains. First, I must refer most gratefully to Professor T. B. Wood, F.R.S., C.B.E., for his kindness in reading through the whole of the proof sheets from the standpoint of the scientific agriculturist, and to Dr J. H. Clapham, C.B.E., who, as an economist and historian, performed a similar labour. Each suggested certain slight emendations that I was only too glad to incorporate. My former colleague at the Ministry of Agriculture, Mr R. Ross, read the chapter on "Statistics," as did Mr A. W. Lowe, also of the Ministry, that on "Tithe"; to both I am much indebted, and I am, moreover, fortified by the knowledge that these experts discovered in my description of their own subjects no serious errors of omission or of commission. My college friend and contemporary, the Rev. E. C. Hudson, now vicar of St Lawrence, York, when formerly vicar of Kellington, Yorkshire, allowed me access to his parish records, with results that will be found in Chapter V; again, I am similarly indebted to the Rev. E. Jauncey, B.D., vicar of Brotherton in the same county, who kindly permitted me to transcribe the very interesting eighteenth century account of the Ings in that parish and also of the system of tithing in vogue there at the same time. Mr E. S. Vidal, formerly of St Catharine's College, and now resident at Barnstaple, took

much trouble in supplying me with information relating to the past and present state of the Great Field at Braunton. To the Rev. C. H. Collinson, a former vicar of the parish, I owe it that the history of the open fields at Laxton has been adequately dealt with, and my account of the customs at present associated with their tenure, corroborated. Mr F. Willis of the School House, Laxton, also sent me valuable information, and a former pupil, Mr J. H. Turner, of St Catharine's, was instrumental in securing the three illustrations. The references to Danish agriculture and land-tenure have been checked by my friend Mr Knud Juël of Hverringe, Kjerteminde. I must also thank Mr J. E. Few, M.A., of King's College and Mr W. Dawson, M.A., Reader in Forestry, who have most willingly answered questions put to them on matters relating to law and forestry respectively. I wish to acknowledge the permission kindly accorded me by the Delegates of the Clarendon Press to reproduce the map of Lower Heyford, and I ought to state that the original of that of Rampton is in the possession of our own University Library. Acknowledgment of information derived from published sources has been made in the text, but I should add that the bulk of the figures and tables relating to British agriculture are taken from the official publications of the Ministry of Agriculture.

J. A. VENN.

SCHOOL OF AGRICULTURE,
CAMBRIDGE. *June 12th, 1923.*

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islands, when low prices virtually forced its abandonment elsewhere. The distinction to be drawn between a highly developed country and one situated in the newer parts of the world is as follows. The settlers in Canada, Australia, the Argentine and other new States, on commencing their operations, possess in their soil the stored fertility of past ages upon which to draw. At first no application of manure is called for, and their capital outlay is confined to the mere mechanical preparation of the richest tracts of land, even the rent of which is almost a negligible factor. As in the course of years this fertility is gradually absorbed, a relatively small application of manure, accompanied by a perhaps slightly augmented labour-bill and the abolition of a bare fallow in the rotation, will bring the cultivator almost *pro rata* returns—he is still only assisting nature to a slight degree. Within another generation or so, however, his land calls for as much “farming” as that situated in the older countries of the world, and the Law of diminishing returns, at first masked by the response of the virgin richness of the soil, makes itself felt when that wealth has been “stolen.” Thereafter, as population increases, means of communication are established, and demand springs up for land as the products of it rise in value, the Law assumes its place in the agricultural economy of the country. Before this full development is attained, however, there is another direction in which its incidence seems to be obviated, and that is when the agriculture of a whole country or a province alone is taken into consideration. Then the application of additional capital can take the form of adding fresh untilled soil to that already under the plough, when of course once more the latent resources are being drawn on and no expenditure is being laid out in assisting nature. Theoretically, such a position could be achieved in the case of individual farmers situated on the outskirts of land reclamation, whose properties were bordered by untouched tracts ready to be assimilated into the original holdings; thus for the time being even separate occupiers could in a fresh direction secure a non-diminishing return, but only precariously and at the expense of constant fresh commitments in real estate.

APPENDIX II

TABLE I.

*Acreeage under Wheat, Barley, Oats and Potatoes in the
United Kingdom from 1866 to 1921.*

Year	Thousands of acres			
	Wheat	Barley	Oats	Potatoes
1866	3661	2398	4471	1555
1867	3641	2440	4422	1501
1868	3951	2348	4469	1584
1869	3982	2483	4480	1635
1870	3774	2624	4425	1639
1871	3831	2617	4362	1694
1872	3840	2544	4341	1564
1873	3670	2575	4198	1426.
1874	3831	2507	4089	1421
1875	3514	2751	4176	1432
1876	3125	2762	4299	1392
1877	3321	2652	4239	1393
1878	3382	2723	4124	1365
1879	3056	2932	3998	1393
1880	3066	2695	4192	1381
1881	2967	2663	4306	1443
1882	3164	2452	4245	1388
1883	2713	2486	4370	1360
1884	2751	2346	4277	1374
1885	2553	2447	4283	1356
1886	2355	2436	4404	1354
1887	2384	2248	4403	1357
1888	2663	2257	4163	1394
1889	2539	2308	4128	1366
1890	2479	2294	4124	1310
1891	2388	2291	4115	1286
1892	2295	2212	4234	1265
1893	1953	2244	4420	1251
1894	1977	2261	4508	1221
1895	1454	2338	4512	1251
1896	1732	2278	4289	1269
1897	1939	2214	4226	1194
1898	2158	2069	4098	1201
1899	2055	2159	4110	1222
1900	1899	2164	4131	1215
1901	1744	2134	4096	1212
1902	1771	2077	4139	1203
1903	1619	2017	4238	1184
1904	1406	1999	4332	1188
1905	1835	1868	4118	1225
1906	1799	1928	4119	1182
1907	1664	1883	4198	1139
1908	1663	1822	4169	1149
1909	1867	1827	4018	1155
1910	1856	1897	4095	1132

APPENDIX II

TABLE I (CONTD.).

Acreeage under Wheat, Barley, Oats and Potatoes in the United Kingdom from 1866 to 1921.

Year	Thousands of acres			
	Wheat	Barley	Oats	Potatoes
1911	1951	1756	4051	1163
1912	1971	1814	4075	1207
1913	1792	1932	3983	1184
1914	1906	1873	3899	1209
1915	2335	1524	4182	1214
1916	2053	1053	4171	1155
1917	2106	1797	4789	1377
1918	2796	1839	5631	1518
1919	2372	1871	5144	1230
1920	1979	2049	4035	1291
1921	2084	1782	4415	1280

TABLE II.

Acreeage under Wheat, Barley and Oats in England and Wales from 1870 to 1922.

Year	Thousands of acres			Year	Thousands of acres		
	Wheat	Barley	Oats		Wheat	Barley	Oats
1870	3375	2128	1744	1897	1839	1803	2068
1871	3439	2134	1708	1898	2046	1666	1962
1872	3403	2064	1698	1899	1954	1742	2002
1873	3369	2090	1664	1900	1796	1750	2077
1874	3509	2042	1592	1901	1665	1737	2041
1875	3240	2245	1659	1902	1679	1680	2103
1876	2917	2263	1777	1903	1540	1644	2167
1877	3087	2148	1720	1904	1338	1640	2272
1878	3143	2211	1665	1905	1748	1502	2088
1879	2813	2389	1652	1906	1706	1533	2086
1880	2835	2203	1760	1907	1577	1502	2172
1881	2731	2172	1871	1908	1583	1470	2160
1882	2925	1993	1784	1909	1774	1464	2038
1883	2545	2046	1929	1910	1756	1537	2063
1884	2608	1938	1869	1911	1843	1424	2047
1885	2423	2020	1894	1912	1863	1457	2072
1886	2230	2023	2023	1913	1702	1559	1975
1887	2267	1879	2024	1914	1807	1505	1930
1888	2496	1860	1867	1915	2170	1232	2088
1889	2390	1898	1873	1916	1912	1332	2085
1890	2324	1895	1889	1917	1918	1460	2259
1891	2254	1890	1907	1918	2557	1501	2780
1892	2158	1824	1999	1919	2221	1510	2564
1893	1853	1863	2155	1920	1875	1637	2272
1894	1883	1878	2229	1921	1976	1436	2149
1895	1384	1950	2288	1922	1967	1364	2164
1896	1656	1886	2087				

TABLE III. *Extent of arable, permanent grass and corn (wheat, oats, barley) in England and Wales from 1870 to 1922.*

Year	Thousands of acres			Year	Thousands of acres		
	Arable	P. grass	Corn		Arable	P. grass	Corn
1870	14,849	11,108	7,246	1897	12,505	15,122	5,709
1871	14,946	11,375	7,280	1898	12,406	15,178	5,673
1872	14,943	11,522	7,225	1899	12,316	15,244	5,697
1873	14,721	11,819	7,123	1900	12,217	15,321	5,623
1874	14,615	12,072	7,143	1901	12,118	15,399	5,442
1875	14,607	12,203	7,144	1902	12,103	15,388	5,462
1876	14,527	12,386	6,957	1903	11,932	15,520	5,348
1877	14,453	12,590	6,964	1904	11,761	15,668	5,249
1878	14,407	12,758	7,019	1905	11,656	15,750	5,338
1879	14,255	13,007	6,854	1906	11,589	15,805	5,324
1880	14,096	13,267	6,798	1907	11,547	15,830	5,250
1881	13,978	13,471	6,773	1908	11,406	15,942	5,213
1882	13,892	13,638	6,702	1909	11,358	15,965	5,276
1883	13,721	13,874	6,520	1910	11,320	15,972	5,355
1884	13,570	14,084	6,416	1911	11,299	15,950	5,314
1885	13,576	14,122	6,337	1912	11,335	15,839	5,392
1886	13,412	14,325	6,275	1913	11,058	16,071	5,235
1887	13,278	14,476	6,169	1914	10,998	16,116	5,242
1888	13,251	14,555	6,222	1915	10,966	16,087	5,489
1889	13,195	14,050	6,160	1916	11,051	16,023	5,328
1890	13,080	14,792	6,109	1917	11,246	15,835	5,638
1891	12,904	15,098	6,060	1918	12,399	14,589	6,837
1892	12,764	15,020	5,981	1919	12,309	14,439	6,295
1893	12,627	15,127	5,872	1920	12,020	14,487	5,783
1894	12,627	15,111	5,990	1921	11,618	14,526	5,552
1895	12,460	15,223	5,621	1922	11,311	14,715	5,492
1896	12,335	15,331	5,630				

TABLE IV. *Yield in bushels per acre of Wheat, Barley and Oats in Great Britain 1885 to 1921.*

Year	Wheat	Barley	Oats	Year	Wheat	Barley	Oats
1885	31·3	35·1	36·8	1904	26·8	31·1	39·2
1886	26·9	32·2	37·8	1905	32·8	33·9	38·2
1887	32·1	31·3	34·7	1906	33·7	34·6	40·6
1888	28·0	32·8	37·2	1907	34·0	35·3	43·0
1889	29·9	31·8	39·3	1908	32·3	32·8	39·8
1890	30·7	35·0	41·4	1909	33·7	36·6	41·3
1891	31·3	34·1	38·8	1910	30·3	32·7	40·3
1892	26·4	34·6	38·8	1911	32·9	31·9	38·0
1893	25·9	28·7	35·6	1912	29·0	31·1	36·3
1894	30·7	34·5	41·6	1913	31·5	33·0	38·1
1895	26·2	31·7	37·1	1914	32·7	33·4	39·8
1896	33·7	33·6	36·8	1915	31·5	29·9	39·8
1897	29·1	32·8	38·5	1916	28·8	31·0	38·9
1898	34·7	35·7	40·8	1917	30·2	30·8	39·5
1899	32·7	34·2	38·8	1918	33·2	32·7	41·3
1900	28·5	31·3	37·9	1919	29·1	29·6	36·4
1901	30·8	31·0	36·7	1920	28·7	31·8	38·6
1902	32·8	34·8	42·6	1921	35·4	30·1	37·5
1903	30·1	32·0	39·7				

TABLE V.

Yield of Wheat, Barley and Oats for three decades in each County of England and Wales.

	Wheat			Barley			Oats		
	1885- 1894	1895- 1904	1905- 1914	1885- 1894	1895- 1904	1905- 1914	1885- 1894	1895- 1904	1905- 1914
Bedfordshire ...	28.82	29.66	31.19	32.10	29.62	30.89	39.42	37.53	41.02
Berkshire ...	28.06	28.92	29.95	31.19	28.23	29.48	41.66	38.52	36.60
Buckinghamshire ...	27.48	28.54	30.96	31.87	29.74	31.76	38.42	36.20	36.78
Cambridgeshire and the Isle of Ely	32.99	31.81	34.18	35.47	32.73	36.66	58.30	47.25	54.60
Cheshire ...	30.39	31.13	33.42	29.89	31.72	30.87	35.74	36.00	34.02
Cornwall ...	25.96	30.34	29.88	28.37	32.56	32.10	37.67	40.65	38.16
Cumberland ...	30.09	32.25	31.10	32.36	34.15	35.44	38.08	42.97	43.38
Derbyshire ...	29.07	30.21	34.11	32.87	32.84	34.41	37.47	36.42	36.74
Devonshire ...	21.18	24.40	28.27	27.03	28.21	31.36	32.85	34.75	37.75
Dorset ...	28.49	30.33	31.74	33.81	32.86	33.21	40.93	43.68	43.85
Durham ...	26.38	30.70	34.43	31.38	36.41	36.69	34.16	37.98	37.61
Essex ...	30.71	30.68	32.45	34.54	33.69	33.64	45.96	45.57	44.25
Gloucestershire ...	27.82	28.28	30.07	30.44	28.66	30.28	37.32	35.99	36.91
Hampshire ...	26.71	28.28	29.53	31.62	31.27	30.98	41.33	40.62	40.04
Herefordshire ...	26.72	29.05	31.12	28.12	30.34	32.31	33.88	35.47	36.32
Hertfordshire ...	28.36	29.83	31.37	32.82	31.78	31.90	40.69	38.36	37.22
Huntingdonshire ...	29.21	30.11	28.60	30.30	29.20	28.85	43.98	41.87	36.13
Kent ...	32.12	33.90	35.19	37.38	37.83	38.03	47.72	46.60	44.52
Lancashire ...	29.93	32.81	36.20	33.85	36.14	35.39	40.22	42.74	42.48
Leicestershire ...	31.00	29.43	31.59	31.79	30.48	32.65	34.48	32.62	35.42
Lincolnshire ...	32.46	34.04	34.93	34.95	33.75	34.41	48.22	48.92	49.32
Middlesex ...	30.02	31.50	35.04	34.32	29.86	31.21	45.90	38.53	43.95

Monmouthshire ...	24.46	24.29	27.78	25.88	25.74	27.63	30.69	30.66	31.69
Norfolk ...	31.36	32.57	32.87	34.52	33.59	33.00	46.51	47.62	47.05
Northamptonshire ...	31.16	31.65	34.09	33.38	30.99	35.12	38.68	36.37	40.05
Northumberland ...	29.85	33.14	36.26	35.34	35.79	35.77	36.00	37.72	36.50
Nottinghamshire ...	28.72	27.97	30.67	32.53	31.21	32.94	38.55	36.22	38.09
Oxfordshire ...	27.98	29.20	31.46	32.42	30.82	32.76	40.75	38.73	38.94
Rutland ...	30.50	30.60	34.20	32.16	29.03	35.04	37.39	34.51	41.64
Shropshire ...	29.59	30.09	30.75	31.61	31.57	31.60	35.38	35.90	34.34
Somersetshire ...	28.14	29.19	31.58	33.05	31.91	32.40	35.68	35.92	37.61
Staffordshire ...	28.08	29.96	32.45	30.53	30.80	31.25	33.57	33.42	35.50
Suffolk ...	29.05	29.63	31.75	32.81	32.06	32.87	40.86	43.32	46.64
Surrey ...	27.44	28.86	30.10	30.73	28.95	30.09	41.96	39.11	39.99
Sussex ...	30.58	31.92	32.47	34.50	32.82	32.54	46.25	46.33	42.69
Warwickshire ...	29.08	29.20	30.73	31.15	31.54	32.16	33.77	34.47	34.86
Westmorland ...	28.41	32.09	33.38	31.96	32.10	32.67	31.74	32.96	35.03
Wiltshire ...	29.13	31.17	32.23	32.80	30.06	32.03	44.53	43.97	41.59
Worcestershire ...	28.52	29.26	30.39	31.71	31.08	31.25	34.59	37.85	37.09
Yorkshire, E. Riding	29.88	31.07	31.13	33.56	34.14	33.14	45.86	43.64	42.12
Yorkshire, N. Riding	27.45	31.18	31.89	33.59	35.28	34.47	39.47	40.66	38.07
Yorkshire, W. Riding	27.04	28.34	30.43	32.80	33.84	33.97	42.21	40.36	39.73
Anglesey ...	26.84	38.11	34.02	31.77	40.46	34.11	41.02	45.54	44.62
Brecon ...	21.29	25.49	26.42	22.55	23.87	23.40	25.87	25.31	26.27
Cardigan ...	25.81	24.72	27.69	29.27	28.61	32.49	34.25	31.33	33.05
Carmarthen ...	19.16	20.70	23.44	23.10	24.93	24.64	27.64	25.79	28.48
Carnarvon ...	23.24	23.61	29.51	29.84	28.40	28.57	32.68	31.47	35.41
Denbigh ...	26.60	28.42	32.88	31.32	33.89	34.52	33.99	33.93	38.54
Flint ...	28.22	29.33	30.39	31.18	32.15	30.84	35.91	35.30	37.50
Glamorgan ...	26.52	28.78	30.89	31.90	32.01	32.72	36.75	39.85	41.05
Merioneth ...	26.31	26.18	30.51	35.19	32.34	30.69	44.96	38.65	38.76
Montgomery ...	20.72	21.71	25.01	29.36	28.09	27.25	26.98	29.42	26.53
Pembroke ...	20.68	27.51	29.03	26.50	33.23	36.00	31.64	37.27	43.93
Radnor ...	21.20	25.41	25.22	24.34	28.53	26.14	26.11	27.26	26.56

TABLE VI. *Comparative yields of the three principal cereals on old and new arable land in 1918.*

	Wheat		Oats		Barley	
	New arable	Old arable	New arable	Old arable	New arable	Old arable
Bedfordshire ...	27·8	30·1	31·0	39·3	20·7	30·8
Berkshire ...	25·6	31·0	32·0	40·0	20·0	29·5
Buckinghamshire ...	19·3	31·1	35·7	39·5	20·6	29·3
Cambridgeshire and Isle of Ely	23·9	32·4	34·2	48·8	—	—
Chester ...	31·3	35·5	38·5	39·0	28·2	31·3
Cornwall ...	38·5	35·1	48·3	45·4	34·3	37·6
Cumberland ...	—	—	50·1	44·2	—	—
Derbyshire ...	36·4	36·0	43·3	37·2	28·7	33·4
Devonshire ...	29·8	32·4	41·9	41·4	23·9	32·6
Dorset ...	43·2	36·5	49·7	43·2	21·3	31·8
Durham ...	34·3	39·1	41·6	42·8	29·8	37·1
Essex ...	36·9	32·9	39·3	45·3	29·0	32·1
Gloucestershire ...	27·3	30·7	32·6	36·9	24·2	29·3
Hampshire ...	30·8	30·7	33·6	37·5	28·3	30·0
Herefordshire ...	33·6	32·7	40·5	39·3	26·6	30·9
Hertfordshire ...	31·4	32·3	30·0	43·5	26·2	31·6
Huntingdonshire ...	23·8	28·3	29·6	36·9	19·9	28·4
Kent ...	24·3	36·2	31·4	46·0	22·8	33·0
Lancashire ...	40·0	33·8	40·6	36·6	37·9	29·0
Leicestershire ...	26·7	35·8	29·3	43·3	25·2	33·7
Lincolnshire ...	31·1	35·6	43·1	50·5	26·3	33·2
Middlesex ...	—	—	—	—	—	—
Monmouthshire ...	37·9	30·2	42·6	38·7	34·0	29·7
Norfolk ...	28·6	33·0	38·3	48·4	23·9	31·3
Northamptonshire ...	28·4	32·7	30·1	37·7	28·6	33·2
Northumberland ...	—	—	—	—	—	—
Nottinghamshire ...	28·5	32·6	35·9	39·8	34·2	30·8
Oxfordshire ...	28·3	32·0	30·1	35·7	29·6	30·2
Rutland ...	31·7	32·7	31·3	36·4	23·6	32·9
Shropshire ...	31·7	33·1	41·3	40·3	25·3	32·6
Somersetshire ...	30·9	35·7	40·8	37·7	29·4	36·2
Staffordshire ...	35·1	36·4	48·5	40·4	32·9	31·4
Suffolk ...	36·0	32·2	42·6	46·2	23·3	31·7
Surrey ...	22·5	30·3	27·4	39·6	22·1	29·6
Sussex ...	18·3	31·2	36·3	40·7	28·2	29·3
Warwickshire ...	30·5	29·6	48·3	36·0	30·1	34·0
Westmorland ...	—	—	45·2	37·6	—	—
Wiltshire ...	35·9	32·5	43·5	41·3	27·1	30·9
Worcester ...	31·2	30·8	44·3	37·2	31·2	29·7
Yorkshire, E. Riding	29·7	33·0	38·2	42·6	39·3	32·7
Yorkshire, N. Riding	39·5	35·2	45·5	45·3	41·5	36·1
Yorkshire, W. Riding	32·2	32·0	38·0	34·8	36·3	33·1
Anglesey ...	—	—	—	—	—	—
Brecon ...	29·6	28·2	44·0	29·6	28·3	24·4
Cardigan ...	33·8	28·4	25·6	30·4	29·0	30·3
Carmarthen ...	—	—	—	—	—	—
Carmarvon ...	37·4	27·9	41·8	33·6	37·2	28·3
Denbigh ...	34·0	32·7	40·1	35·6	38·0	32·0
Flint ...	35·5	34·8	43·5	39·2	31·0	31·4
Glamorgan ...	34·6	32·4	45·2	41·1	32·7	32·2
Merioneth ...	40·0	25·9	31·4	42·5	35·8	31·9
Montgomery ...	30·0	28·8	43·9	29·4	38·0	27·1
Pembroke ...	25·2	29·1	57·9	50·5	38·3	37·3
Radnor ...	—	—	25·0	25·1	26·0	22·9
England and Wales	31·2	32·0	40·7	41·2	28·8	32·4

TABLE VII. *Comparative yields of the three principal cereals on old and new arable land in 1919.*

	Wheat		Oats		Barley	
	New arable	Old arable	New arable	Old arable	New arable	Old arable
Bedfordshire ...	25·5	26·7	27·5	37·4	19·0	27·1
Berkshire ...	26·1	29·2	34·7	38·4	23·6	29·2
Buckinghamshire ...	21·1	26·9	29·7	33·7	16·7	28·6
Cambridgeshire ...	29·1	28·5	—	—	—	—
Cheshire ...	35·1	30·8	42·1	37·4	22·7	31·4
Cornwall ...	—	—	—	—	—	—
Cumberland ...	—	—	48·9	41·6	6·0	33·9
Derbyshire ...	14·7	25·3	25·9	25·5	17·8	25·0
Devonshire ...	31·2	29·2	32·2	37·7	25·2	31·5
Dorset ...	32·5	30·3	33·4	36·0	31·4	29·5
Durham ...	28·8	32·8	32·7	32·5	26·8	34·1
Essex ...	—	—	—	—	—	—
Gloucestershire ...	30·1	26·9	26·5	31·7	25·5	25·6
Hampshire ...	26·5	28·3	29·0	34·2	27·2	26·3
Herefordshire ...	23·7	28·7	25·5	29·3	38·1*	25·1
Hertfordshire ...	28·2	26·6	35·6	37·6	—	—
Huntingdonshire ...	—	—	—	—	—	—
Kent ...	21·4	29·3	24·1	38·4	18·9	27·2
Lancashire ...	—	—	—	—	—	—
Leicestershire ...	—	—	—	—	—	—
Lincolnshire ...	31·3	30·5	40·4	38·9	27·9	28·6
Middlesex ...	—	—	—	—	—	—
Monmouthshire ...	32·4	30·1	31·9	32·4	25·1	25·3
Norfolk ...	28·8	28·6	44·1	42·6	24·6	29·9
Northamptonshire ...	—	—	—	—	—	—
Northumberland ...	15·6	30·8	31·6	35·1	23·3	35·7
Nottinghamshire ...	32·0	26·1	26·2	23·8	22·3	25·3
Oxfordshire ...	—	—	—	—	—	—
Rutland ...	22·9	31·7	29·0	40·1	22·1	31·9
Shropshire ...	37·9	30·1	41·0	25·7	35·9	26·3
Somersetshire ...	31·7	31·7	33·9	37·3	30·5	29·9
Staffordshire ...	32·0	29·3	40·5	26·6	27·8	27·3
Suffolk ...	27·2	26·3	40·1	35·9	30·7	27·4
Surrey ...	27·0	26·7	34·1	30·4	21·2	24·4
Sussex ...	27·5	31·0	42·0	36·6	38·2	28·0
Warwickshire ...	29·4	28·6	27·3	23·2	21·1	27·0
Westmorland ...	—	—	32·2	33·4	36·0	32·2
Wiltshire ...	28·6	28·0	26·4	36·4	16·2	26·0
Worcestershire ...	27·6	27·0	29·7	26·4	20·0	25·3
Yorkshire, E. Riding	30·6	31·7	39·1	36·5	33·1	30·2
Yorkshire, N. Riding	25·4	30·1	43·1	37·4	33·1	32·2
Yorkshire, W. Riding	—	—	—	—	—	—
Anglesey ...	—	—	—	—	—	—
Brecon ...	27·0	26·4	32·0	25·6	31·9	22·9
Cardigan ...	—	—	—	—	—	—
Carmarthen ...	25·1	29·8	27·6	35·1	32·0	32·6
Carnarvon ...	33·6	30·0	42·2	34·4	32·8	28·8
Denbigh ...	36·5	28·5	41·8	33·9	31·9	29·0
Flint ...	31·6	30·8	34·5	34·8	38·5	31·3
Glamorgan ...	32·5	30·4	32·5	30·4	31·1	33·5
Merioneth ...	13·2	23·0	21·5	30·3	24·3	25·2
Montgomery ...	16·3	26·4	40·2	25·4	—	—
Pembroke ...	37·3	26·6	53·9	44·6	—	—
Radnor ...	47·6	23·2	22·2	21·6	21·0	23·8
England and Wales	28·4	28·7	36·6	35·6	28·0	29·0

TABLE VIII.

Area and Production of certain Crops on Large and Small Holdings in Roumania (Old Kingdom).

(From official Roumanian publications.)

	WHEAT					
	Large holdings			Small holdings		
	Area hectares	Yield hectolitres	Hecto-litres per hectare	Area hectares	Yield hectolitres	Hecto-litres per hectare
1907	924,419	8,464,001	9·2	789,898	6,420,306	8·1
1908	965,554	10,488,724	10·9	836,131	8,827,394	10·5
1909	907,338	11,752,595	12·9	781,706	8,246,284	10·5
1910	1,044,101	22,515,763	21·6	904,116	16,516,030	18·2
1911	983,827	17,340,919	17·7	946,337	15,687,176	16·6
1912	1,043,451	16,832,584	16·1	1,025,969	14,504,238	14·1
1913	758,582	14,573,290	19·2	864,523	14,758,893	17·0
1914	927,592	8,578,695	9·2	1,184,138	8,783,918	7·4
1915	852,022	15,732,206	18·4	1,052,227	15,716,086	14·9
1916	—	—	—	—	—	—
1917	—	—	—	—	—	—
1918*	672,189	2,681,522	3·99	943,853	3,838,771	4·06
1919	340,863	—	—	858,895	—	—
1920	91,550	—	—	746,986	—	—
	OATS					
1907	129,841	2,728,303	21·0	222,627	3,559,031	15·9
1908	186,197	2,579,369	13·8	304,141	3,486,058	11·4
1909	171,310	3,828,389	22·3	313,194	5,314,648	16·9
1910	150,254	3,860,545	25·7	296,506	6,587,078	22·2
1911	132,583	3,517,893	26·5	268,832	5,722,736	21·3
1912	116,483	2,704,217	23·2	265,302	4,616,813	17·4
1913	192,577	5,236,472	27·1	329,572	7,145,988	21·6
1914	131,063	3,056,344	23·3	296,443	5,758,731	19·4
1915	146,905	3,950,079	26·9	284,058	6,288,469	22·1
1916	—	—	—	—	—	—
1917	—	—	—	—	—	—
1918*	141,017	765,498	5·4	189,197	966,639	5·1
1919	39,766	—	—	201,945	—	—
1920	73,954	—	—	385,971	—	—
	BARLEY					
1907	126,626	2,098,895	16·6	383,067	4,970,963	12·9
1908	168,965	1,713,261	10·1	451,225	2,823,138	6·2
1909	152,889	2,249,931	14·7	396,297	4,782,257	12·0
1910	140,717	2,991,646	21·3	408,674	7,354,286	17·9
1911	121,928	2,404,794	19·7	385,273	6,812,933	17·7
1912	115,158	2,072,278	18·0	384,272	5,431,863	14·1
1913	146,276	2,868,273	19·7	416,263	6,765,934	16·2
1914	123,120	2,139,457	17·3	445,302	6,848,416	15·4
1915	122,121	2,390,998	19·6	432,779	7,718,754	17·8
1916	—	—	—	—	—	—
1917	—	—	—	—	—	—
1918*	81,136	313,747	3·8	165,915	465,459	2·8
1919	30,168	—	—	207,490	—	—
1920	49,388	—	—	402,387	—	—

TABLE VIII (CONTD.).

	MAIZE					
	Large holdings			Small holdings		
	Area hectares	Yield hectolitres	Hecto-litres per hectare	Area hectares	Yield hectolitres	Hecto-litres per hectare
1907	367,839	4,865,411	13·2	1,560,753	15,424,105	9·9
1908	300,199	4,610,535	15·3	1,720,116	23,190,685	13·4
1909	308,586	4,355,353	14·1	1,814,887	20,361,128	11·2
1910	266,845	6,027,817	22·5	1,719,414	30,503,609	17·7
1911	292,135	6,562,379	22·4	1,793,116	32,452,435	18·1
1912	226,716	5,671,372	25·0	1,812,504	30,950,013	17·1
1913	264,341	5,656,065	21·4	1,882,630	34,750,803	18·4
1914	235,732	4,901,840	20·8	1,829,834	31,237,206	17·0
1915	222,188	3,731,784	16·8	1,885,101	26,719,736	14·2
1916	—	—	—	—	—	—
1917	—	—	—	—	—	—
1918*	237,981	998,481	4·2	1,479,840	7,492,088	5·06
1919	83,795	—	—	1,883,667	—	—
1920	85,704	—	—	1,869,170	—	—
SUGAR BEET						
	Hectares	Quintals	Quintals per hectare	Hectares	Quintals	Quintals per hectare
1907	3,875	723,287	186·6	2,764	368,274	133·2
1908	5,741	1,160,695	202·2	3,277	507,735	154·9
1909	7,402	1,398,343	188·9	4,004	680,354	169·9
1910	7,808	1,954,380	250·3	5,510	1,126,979	204·5
1911	7,614	1,661,862	218·2	5,989	968,656	161·7
1912	8,483	1,670,772	196·9	5,880	1,251,617	212·8
1913	7,764	1,726,172	222·3	5,250	1,097,474	209·0
1914	7,329	1,265,725	172·7	7,456	983,900	131·9
1915	7,708	1,043,606	135·4	6,125	810,843	132·4
1916	—	—	—	—	—	—
1917	—	—	—	—	—	—
1918*	4,057	278,116	68·5	2,080	178,810	85·9
1919	277	—	—	1,689	—	—
1920	260	—	—	2,976	—	—
POTATOES						
	Hectares	Quintals	Quintals per hectare	Hectares	Quintals	Quintals per hectare
1907	2,447	268,240	109·6	7,339	549,066	74·8
1908	2,406	304,073	126·4	7,482	500,963	66·9
1909	1,559	192,465	123·4	7,091	474,756	66·9
1910	2,807	348,441	124·1	7,485	698,491	93·3
1911	3,310	361,893	109·3	8,721	792,050	90·8
1912	3,244	308,537	95·1	8,753	711,483	81·3
1913	2,353	186,401	79·2	7,792	500,247	64·2
1914	2,441	174,911	71·6	8,115	547,331	67·4
1915	2,437	260,995	109·5	8,851	757,713	85·6
1916	—	—	—	—	—	—
1917	—	—	—	—	—	—
1918*	2,724	68,270	25·06	11,234	385,864	34·3
1919	1,250	—	—	11,929	—	—
1920	1,100	—	—	13,026	—	—

* Excluding the Dobruja.

TABLE IX. *Acreage under Wheat in the principal countries of the world from 1913 to 1921.*

	Thousands of acres								
	1913	1914	1915	1916	1917	1918	1919	1920	1921
United Kingdom ...	1,792	1,906	2,335	2,053	2,106	2,796	2,372	1,979	2,084
Australia ...	9,287	9,651	12,484	11,533	9,775	7,990	7,410	9,082	9,405
Canada ...	11,015	10,294	15,109	15,370	14,759	17,354	19,126	18,232	23,201
Egypt ...	1,303	1,595	1,450	1,119	1,289	1,326	—	—	—
India ...	28,475	32,475	30,320	32,940	35,513	23,806	29,864	25,087	28,664
New Zealand ...	167	230	329	219	281	211	192	212	363
Union of South Africa	—	—	—	—	987	953	—	823	839
Algeria ...	3,446	3,367	3,208	3,271	3,220	3,185	2,799	2,647	2,816
Argentina ...	16,237	15,465	16,413	16,082	17,868	16,061	14,951	15,014	13,927
Belgium ...	394	400	—	—	—	—	328	306	353
Bulgaria ...	3,647	2,523	2,407	2,219	2,480	2,444	2,079	2,154	2,361
Chile ...	1,018	1,073	1,142	1,272	1,302	1,313	—	1,250	1,314
Czecho-Slovakia ...	—	—	—	—	—	—	—	1,567	1,538
Denmark ...	—	—	164	152	131	140	124	165	220
France ...	16,159	14,969	13,558	12,424	10,353	10,988	11,311	12,278	13,165
Germany ...	4,876	4,930	4,948	—	3,572	3,545	—	3,413	3,561
Hungary ...	8,480	8,620	8,201	—	—	—	—	2,081	2,697
Italy ...	11,837	11,780	12,497	11,674	10,552	10,794	10,567	11,290	11,780
Japan ...	1,184	1,173	1,227	1,303	1,393	1,389	1,375	1,300	—
Jugo-Slavia ...	—	—	—	—	—	—	—	3,952	—
Netherlands ...	141	148	163	134	121	143	162	156	176
Poland ...	—	—	—	—	—	—	—	1,791	2,081
Roumania ...	4,009	5,216	4,703	4,842	—	3,992	2,938	2,072	6,149
Russia (in Europe) ...	62,076	61,933	—	—	—	—	—	—	—
Russia (in Asia) ...	20,613	21,939	—	—	—	—	—	—	—
Spain ...	9,640	9,677	10,033	10,144	10,336	10,224	10,374	10,255	10,382
Sweden ...	288	269	299	307	329	381	348	360	360
Switzerland ...	105	103	113	124	139	202	130	119	117
Tunis ...	1,235	1,003	1,352	1,482	1,447	1,413	1,189	1,343	1,500
United States of America	50,184	53,541	60,469	52,316	45,089	59,110	73,243	57,192	62,408
Uruguay ...	911	783	949	779	975	839	720	750	741

For Egypt, India and countries in the Southern Hemisphere the agricultural years 1913-14, 1914-15, etc. are shown as 1913, 1914, etc.

After 1918 the boundaries of France, Germany, Hungary, Roumania, etc. differed from those previously existing; the necessary adjustments have been effected in the above returns.

TABLE X. *Production of Wheat in the principal countries of the world from 1913 to 1921.*

	Thousands of quarters										Average yield in bushels per acre*
	1913	1914	1915	1916	1917	1918	1919	1920	1921		
United Kingdom ...	7,087	7,804	9,239	7,472	8,040	11,643	8,665	7,104	9,224	30.4	
Australia ...	12,918	3,111	22,383	19,052	14,342	9,392	5,498	18,349	17,021	11.9	
Canada ...	28,965	20,160	49,193	32,848	29,218	23,634	24,157	32,899	37,607	13.5	
Egypt ...	4,105	4,892	4,567	3,728	4,068	3,766	—	—	—	25.2	
India ...	39,004	47,072	40,376	47,759	47,423	34,999	47,110	31,631	44,403	11.2	
New Zealand ...	654	830	889	635	851	821	500	747	—	28.0	
Union of South Africa	—	—	—	—	1,269	1,075	828	1,014	1,086	8.5	
Algeria ...	4,604	—	4,331	3,643	3,621	6,150	2,620	1,070	4,220	8.6	
Argentina ...	14,234	21,141	21,122	9,672	27,947	23,027	26,800	23,116	19,359	10.6	
Belgium ...	1,846	1,746	—	—	—	—	1,236	1,284	1,440	35.3	
Bulgaria ...	6,405	2,899	4,616	3,470	4,160	3,167	4,252	5,149	5,314	14.1	
Chile ...	2,050	2,374	2,526	2,811	2,889	2,698	—	3,395	2,958	18.2	
Czecho-Slovakia ...	—	—	—	—	—	—	—	3,271	5,083	16.8	
Denmark ...	805	696	960	727	517	791	739	868	1,401	39.2	
France ...	38,885	34,266	27,272	25,006	16,723	26,362	22,241	28,908	38,552	16.7	
Germany ...	21,379	18,238	17,795	—	10,221	11,288	9,978	10,357	13,475	24.6	
Hungary ...	21,025	13,151	18,920	—	—	—	—	3,643	5,886	14.4	
Italy ...	26,793	21,192	21,312	22,060	17,495	22,040	21,190	17,667	24,105	14.8	
Japan ...	3,241	2,783	3,243	3,650	4,208	3,987	3,726	3,536	3,484	23.1	
Jugo-Slavia ...	—	—	—	—	—	—	—	8,089	6,463	15.8	
Netherlands ...	625	700	859	580	478	603	752	835	1,086	34.9	
Poland ...	—	—	—	—	—	—	—	2,282	4,446	11.9	
Roumania ...	10,083	5,963	10,810	—	—	2,241	6,036	3,000	12,152	12.1	
Russia (in Europe) ...	104,397	72,182	—	—	—	—	—	—	—	10.2	
Russia (in Asia) ...	23,659	31,697	—	—	—	—	—	—	—	9.6	
Spain ...	14,046	14,507	17,407	19,036	17,829	16,959	16,152	17,326	18,139	13.6	
Sweden ...	1,138	1,017	1,109	1,109	833	1,105	1,188	1,316	1,572	25.6	
Switzerland ...	438	410	495	477	569	887	440	448	475	33.6	
Tunis ...	689	275	1,033	689	914	1,056	918	653	1,328	4.7	
United States of America	92,522	107,991	124,327	77,122	77,163	111,153	114,048	95,400	96,341	13.2	



1885—1894



1895—1904



1905—1914

Series 1. Yield per acre of Wheat during three successive decades in each county of England and Wales.

Under 28 bushels 28 bushels and under 30

30 bushels and under 32

32 bushels and under 34

34 bushels and over



1885—1894

Under 28 bushels

28 bushels and under 30



1895—1904

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30 bushels and under 32



1905—1914

32 bushels and under 34

34 bushels and over

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