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Memoranda of the Plan and Results of the Rothamsted Field Experiments, June 1862

Full Table of Content

Experiments on Rotation; Agdell Field

Rothamsted Research

Rothamsted Research (1862) *Experiments on Rotation; Agdell Field ;* Memoranda Of The Plan And Results Of The Rothamsted Field Experiments, June 1862, pp 6 - 6 **- DOI: https://doi.org/10.23637/ERADOC-1-230**

AGDELL FIELD.

Experiments on an actual Course of Rotation—Turnips, Barley, Leguminous Crop (or Fallow), and Wheat.

These Experiments were commenced in 1848; so that the present crop (1865) is the ~~15~~ 18th experimental one, or the ~~third~~ second crop of the ~~Fourth~~ Fifth Course.

One-third of the land has been continuously unmanured; one-third manured with superphosphate of lime alone once every four years, that is, for the turnip-crop commencing each course; and one-third manured (also for the turnip-crop only) with a complex manure, as described below.

In the Second, Third, and Fourth Courses, instead of clover, half of each plot was sown with beans, and the other half left fallow.

From half of each of the three plots the whole turnip-crop (roots and leaves) was removed; and on the other half the roots were eaten on the land by sheep, and the uneaten leaves were spread and ploughed in. In the case of all the other crops, the total produce was removed from the land.

The abstract of results given below relates to the portions of each plot from which the turnip-crops were entirely removed; and on which, in the later Courses, beans (not fallow) replaced the clover.

(Area under experiment about 2½ acres.)

[1 cwt. (hundredweight) per acre = (about) 125·5 kilogrammes per hectare. 1 lb. (pound, avoir.) per acre = 1·12 kilogramme per hectare.]

Years.	Description of Crop.	Plot 1. Unmanured continuously. Corn (or Roots).	Straw (or Leaf).	Total Produce.	Plot 2. Superphosphate of Lime, (1) alone, for the Turnip crops only. Corn (or Roots).	Straw (or Leaf).	Total Produce.	Plot 3. Complex Manure, (2) for the Turnip crops only. Corn (or Roots).	Straw (or Leaf).	Total Produce.
	1st Course, 1848-51.									
1848	Swedish Turnips	175¼ cwts.	19¾ cwts.	195 cwts.	292 cwts.	35 cwts.	327 cwts.	394¾ cwts.	46¼ cwts.	441 cwts.
1849	Barley	1706 lbs.	2088 lbs.	3794 lbs.	1705 lbs.	1870 lbs.	3575 lbs.	2673 lbs.	2983 lbs.	5656 lbs.
1850	Clover (weighed green) ..	.. ..	.. ..	194¼ cwts.	.. ..	.. ..	199¼ cwts.	.. ..	.. ..	219¼ cwts.
1851	Wheat	1958 lbs.	3431 lbs.	5389 lbs.	1882 lbs.	3371 lbs.	5253 lbs.	1948 lbs.	3552 lbs.	5500 lbs.
	2nd Course, 1852-55.									
1852	Swedish Turnips	26 cwts.	4¼ cwts.	30¼ cwts.	223¼ cwts.	20¼ cwts.	243½ cwts.	396½ cwts.	36½ cwts.	433 cwts.
1853	Barley	2035 lbs.	2430 lbs.	4465 lbs.	1687 lbs.	1873 lbs.	3560 lbs.	2269 lbs.	2604 lbs.	4873 lbs.
1854	Beans	390 lbs.	1055 lbs.	1445 lbs.	431 lbs.	1103 lbs.	1534 lbs.	710 lbs.	1355 lbs.	2065 lbs.
1855	Wheat	2240 lbs.	3619 lbs.	5859 lbs.	2264 lbs.	3525 lbs.	5789 lbs.	2429 lbs.	3942 lbs.	6371 lbs.
	3rd Course, 1856-59.									
1856	Swedish Turnips	32 cwts.	2½ cwts.	34½ cwts.	136 cwts.	7½ cwts.	143½ cwts.	333¾ cwts.	12½ cwts.	346¼ cwts.
1857	Barley	2737 lbs.	2600 lbs.	5337 lbs.	1601 lbs.	1475 lbs.	3076 lbs.	2733 lbs.	2435 lbs.	5168 lbs.
1858	Beans	415 lbs.	1100 lbs.	1515 lbs.	450 lbs.	1155 lbs.	1605 lbs.	837 lbs.	1520 lbs.	2357 lbs.
1859	Wheat	2232 lbs.	4030 lbs.	6262 lbs.	2190 lbs.	3930 lbs.	6120 lbs.	2544 lbs.	4610 lbs.	7154 lbs.
	4th Course, 1860-(63).									
1860	Swedish Turnips	1 cwt.	(6¼ lbs.)	1 cwt.	29¼ cwts.	1½ cwt.	30¾ cwts.	87½ cwts.	3¼ cwts.	90¾ cwts.
1861	Barley	2196 lbs.	2522 lbs.	4718 lbs.	1775 lbs.	2000 lbs.	3775 lbs.	3451 lbs.	3940 lbs.	7391 lbs.
1862	Beans	1821 lbs.	1840 lbs.	3661 lbs.	1890 lbs.	2150 lbs.	4040 lbs.	2710 lbs.	3280 lbs.	5990 lbs.
1863	Wheat	2883 lbs.	3467 lbs.	6350 lbs.	2229 lbs.	3390 lbs.	5619 lbs.	2929 lbs.	4697 lbs.	7626 lbs.

(1) First Course—100 lbs. bone-ash, and 100 lbs. sulphuric acid (sp. gr. 1·7); Second Course—160 lbs. bone-ash, 120 lbs. sulphuric acid; Third and Fourth Courses—200 lbs. bone-ash, 150 lbs. sulphuric acid *per acre*.

(2) First Course—100 lbs. pearlash, 100 bone-ash, 100 lbs. sulphuric acid, 100 lbs. sulphate of ammonia, 100 lbs. muriate of ammonia, and 1000 lbs. rape-cake; Second Course—300 lbs. sulphate of potass, 100 lbs. sulphate of soda, 100 lbs. sulphate of magnesia, 160 lbs. bone-ash, 120 lbs. sulphuric acid, 100 lbs. sulphate of ammonia, 100 lbs. muriate of ammonia, and 2000 lbs. rape-cake; Third and Fourth Courses—300 lbs. sulphate of potass, 200 lbs. sulphate of soda, 100 lbs. sulphate of magnesia, 200 lbs. bone-ash, 150 lbs. sulphuric acid, 100 lbs. sulphate of ammonia, 100 lbs. muriate of ammonia, and 2000 lbs. rape-cake *per acre*.

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