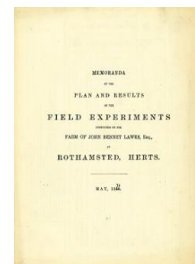


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# Memoranda of the Plan and Results of the Field Experiments, May 1870



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## Experiments on Rotation; Agdell Field

### Rothamsted Research

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EXPERIMENTS ON AN ACTUAL COURSE OF ROTATION—TURNIPS, BARLEY, LEGUMINOUS CROP (OR FALLOW), AND WHEAT.

AGDELL FIELD.

These Experiments were commenced in 1848; so that the present crop (1869) is the 22nd experimental one, or the second crop of the Sixth 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 in the foot-note, No. 2.

In the Second, Third, Fourth, and Fifth 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 uncaten 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 lb. (pound avoird.) per acre = (about) 1.12 Kilogramme per Hectare, or 0.57 Zollverein Pfund. per Prussian Morgen.  
 1 cwt. (hundredweight) per acre = (about) 125.5 Kilogrammes per Hectare, or 0.64 Centner per Pr. Morgen.

Years.	Description of Crop.	PRODUCE PER ACRE.								
		PLOT 1. Unmanured continuously.			PLOT 2. Superphosphate of Lime (1), alone, for the Turnip Crops only.			PLOT 3. Complex Manure (2), for the Turnip Crops only.		
		Corn (3) (or Roots).	Straw (or Leaf).	Total Produce (4).	Corn (3) (or Roots).	Straw (or Leaf).	Total Produce (4).	Corn (3) (or Roots).	Straw (or Leaf).	Total Produce (4).
1ST COURSE, 1848-51.										
1848	Norfolk White Turnips	65½ cwt.	45½ cwt.	111½ cwt.	225½ cwt.	106½ cwt.	332 cwt.	218 cwt.	151½ cwt.	369½ cwt.
1849	Barley	44½ bush.	2983 lbs.	5656 lbs.	29½ bush.	2111 lbs.	3841 lbs.	28½ bush.	2088 lbs.	379½ lbs.
1850	Clover (calcd. as hay)	..	..	54 cwt.	..	..	57½ cwt.	..	..	63 cwt.
1851	Wheat	28½ bush.	3431 lbs.	5389 lbs.	29½ bush.	3371 lbs.	5253 lbs.	28½ bush.	3552 lbs.	5500 lbs.
2ND COURSE, 1852-55.										
1852	Swedish Turnips	26 cwt.	4½ cwt.	30½ cwt.	223½ cwt.	20½ cwt.	243½ cwt.	396½ cwt.	56½ cwt.	433 cwt.
1853	Barley	34½ bush.	2430 lbs.	4465 lbs.	28½ bush.	1873 lbs.	3560 lbs.	32½ bush.	2604 lbs.	4873 lbs.
1854	Beans	5½ bush.	1055 lbs.	1445 lbs.	5½ bush.	1103 lbs.	1534 lbs.	9½ bush.	1355 lbs.	2065 lbs.
1855	Wheat	35½ bush.	3619 lbs.	5859 lbs.	35½ bush.	3525 lbs.	5789 lbs.	37½ bush.	3942 lbs.	6371 lbs.
3RD COURSE, 1856-59.										
1856	Swedish Turnips	32 cwt.	2½ cwt.	34½ cwt.	136 cwt.	7½ cwt.	143½ cwt.	333½ cwt.	12½ cwt.	346½ cwt.
1857	Barley	48½ bush.	2600 lbs.	5337 lbs.	28½ bush.	1475 lbs.	3076 lbs.	48 bush.	2433 lbs.	5163 lbs.
1858	Beans	6½ bush.	1100 lbs.	1515 lbs.	6½ bush.	1155 lbs.	1605 lbs.	12½ bush.	1520 lbs.	2357 lbs.
1859	Wheat	35½ bush.	4030 lbs.	6282 lbs.	34½ bush.	3330 lbs.	6120 lbs.	38½ bush.	4610 lbs.	7154 lbs.
4TH COURSE, 1860-63.										
1860	Swedish Turnips	1 cwt.	(6½ lbs.)	1 cwt.	29½ cwt.	1½ cwt.	31½ cwt.	87½ cwt.	3½ cwt.	90½ cwt.
1861	Barley	38½ bush.	2522 lbs.	4718 lbs.	30½ bush.	2000 lbs.	3775 lbs.	60½ bush.	3940 lbs.	7391 lbs.
1862	Beans	29 bush.	1840 lbs.	3661 lbs.	29½ bush.	2150 lbs.	4040 lbs.	43½ bush.	3280 lbs.	5990 lbs.
1863	Wheat	44½ bush.	3467 lbs.	6350 lbs.	34½ bush.	3390 lbs.	5619 lbs.	46½ bush.	4697 lbs.	7626 lbs.
5TH COURSE, 1864-67.										
1864	Swedish Turnips	8½ cwt.	0½ cwt.	9½ cwt.	63 cwt.	4½ cwt.	72½ cwt.	176½ cwt.	8½ cwt.	185 cwt.
1865	Barley	39 bush.	2154 lbs.	4182 lbs.	33½ bush.	1615 lbs.	3394 lbs.	47½ bush.	2395 lbs.	5148 lbs.
1866	Beans	10½ bush.	1013 lbs.	1689 lbs.	7½ bush.	978 lbs.	1463 lbs.	12½ bush.	1990 lbs.	3343 lbs.
1867	Wheat	21 bush.	2143 lbs.	3473 lbs.	19½ bush.	1966 lbs.	3222 lbs.	23½ bush.	3003 lbs.	4567 lbs.
SUMMARY—AVERAGE OF THE 5 COURSES, 1848-1867.										
1848, '52, '56, '60, '64	Swedish Turnips	26½ cwt.	10½ cwt.	37½ cwt.	136½ cwt.	28 cwt.	164½ cwt.	242½ cwt.	42½ cwt.	285 cwt.
1849, '53, '57, '61, '65	Barley	41½ bush.	2538 lbs.	4872 lbs.	30½ bush.	1815 lbs.	3529 lbs.	44½ bush.	2732 lbs.	5275 lbs.
1850, '54 '58, '62, '66	(Clover, 1850 (calcd. as hay) Beans	.. 12½ bush.	.. 1252 lbs.	54 cwt. 2078 lbs.	.. 12½ bush.	.. 1347 lbs.	57½ cwt. 2161 lbs.	.. 21½ bush.	.. 2036 lbs.	63 cwt. 3439 lbs.
1851, '55, '59, '63, '67	Wheat	33 bush.	3338 lbs.	5467 lbs.	30½ bush.	3236 lbs.	5200 lbs.	35½ bush.	3961 lbs.	6244 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, Fourth, Fifth, and Sixth Courses—200 lbs. Bone-ash, and 150 lbs. Sulphuric Acid, per acre.

(2) First Course—100 lbs. Pearl-ash, 100 lbs. 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, Fourth, Fifth, and Sixth 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.

(3) The quantities given in Bushels represent the Dressed Corn only.

(4) The "Total Produce" of the Corn-crops includes Dressed Corn, Offal Corn, and Total Straw.