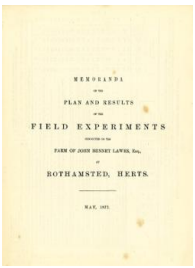
Memoranda of the Field Experiments at Rothamsted, May 1872


MEMORANDA
OF THE
PLAN AND RESULTS
OF THE
FIELD EXPERIMENTS
CONDUCTED ON THE
FARM OF JOHN BENNET LAWES, Esq.,
AT
ROTHAMSTED, HERTS.
MAY, 1872.

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Experiments on Wheat; Broadbalk Field

Rothamsted Research

Rothamsted Research (1873) *Experiments on Wheat; Broadbalk Field ;* Memoranda Of The Field Experiments At Rothamsted, May 1872, pp 4 - 4 **- DOI: https://doi.org/10.23637/ERADOC-1-236**

BROADBALK FIELD.

EXPERIMENTS ON THE GROWTH OF **WHEAT** YEAR AFTER YEAR ON THE SAME LAND; WITHOUT MANURE, AND WITH DIFFERENT KINDS OF MANURE.

Previous Cropping—1839, Turnips, with Farmyard Manure; 1840, Barley; 1841, Peas; 1842, Wheat; 1843, Oats; the last four Crops Unmanured.

First Experimental Wheat Crop in 1844. Wheat every year since; and, with some exceptions, nearly the same description of Manure on the same Plots each year—especially during the last 20 years.

(Area under experiment, about 13 acres.)

		PRODUCE PER ACRE.						
		Average per Annum, 20 Years, 1852–1871.			Twenty-eighth Season, 1871.			
		Dressed Corn.			Dressed Corn.			
PLOTS.	Manures, per acre, per annum.	Quantity.	Weight per Bushel.	Total Straw.	Quantity.	Weight per Bushel.	Total Straw.	PLOTS.
		Bushels.	lbs.	cwts.	Bushels.	lbs.	cwts.	
0	Superphosphate of Lime (three times as much as on No. 5 and succeeding Plots)	17 3/4	58 3/8	15 1/4	14	56 1/2	14	0
1	Sulphates of Potass, Soda, and Magnesia (twice as much as on No 5 and succeeding Plots)	15 1/8	58 1/8	13 7/8	10 1/4	57	13	1
2	Farmyard Manure (14 tons every year)	35 7/8	60	33 7/8	39	60	40 1/4	2
3	Unmanured continuously	14 1/2	57 1/2	13	9 1/8	54 3/4	9 7/8	3
4	Unmanured for Crop of 1852, and since; previously Superphosphate (made with Muriatic Acid), and Sulphate Ammonia	15 3/4	58 3/8	13 3/4	10 1/4	57	11 3/8	4
5 (*a* and *b*)	200 lbs. (1) Sulphate Potass, 100 lbs. (2) Sulphate Soda, 100 lbs. Sulphate Magnesia, 3½ cwts. Superphosphate of Lime (3)	17	58 7/8	15 1/4	11 7/8	56 1/2	12 3/4	5 (*a* and *b*)
6 (*a* and *b*)	200 lbs. (1) Sulphate Potass, 100 lbs. (2) Sulphate Soda, 100 lbs. Sulphate Magnesia, 3½ cwts. Superphos., and 200 lbs. Ammonia-salts (4)	26 3/8	59 3/8	24 1/8	17	56 1/2	20 1/8	6 (*a* and *b*)
7 (*a* and *b*)	200 lbs. (1) Sulphate Potass, 100 lbs. (2) Sulphate Soda, 100 lbs. Sulphate Magnesia, 3½ cwts. Superphos., and 400 lbs. Ammonia-salts	35 1/4	59 1/4	35 3/8	22 1/4	56 5/8	27 1/2	7 (*a* and *b*)
8 (*a* and *b*)	200 lbs. (1) Sulphate Potass, 100 lbs. (2) Sulphate Soda, 100 lbs. Sulphate Magnesia, 3½ cwts. Superphos., and 600 lbs. Ammonia-salts	38 1/4	59	41 3/8	27 5/8	57 3/4	35 1/8	8 (*a* and *b*)
9 *a*	200 lbs. (1) Sulphate Potass, 100 lbs. (2) Sulphate Soda, 100 lbs. Sulphate Magnesia, 3½ cwts. Superphos., and 550 lbs. Nitrate Soda (5)	36 3/4	58 3/8	41 1/2	34 1/2	58 5/8	43 7/8	9 *a*
9 *b*	550 lbs. Nitrate of Soda	26	56 3/8	28 1/4	17 5/8	52 3/8	21 3/8	9 *b*
10 *a*	400 lbs. Ammonia-salts alone, for 1845, and each year since; Mineral Manure in 1844	22 1/2	57 1/2	21 5/8	10 1/8	53 3/4	11 1/8	10 *a*
10 *b*	400 lbs. Ammonia-salts alone, for 1845, and each year since (excepting 1846 and 1850); Mineral Manure in 1844, '48, and '50	25 7/8	58	24 3/4	10	53 3/4	12	10 *b*
11 (*a* and *b*)	400 lbs. Ammonia-salts, 3½ cwts. Superphosphate	28	57 3/8	26 3/8	11	54	12 1/8	11 (*a* and *b*)
12 (*a* and *b*)	400 lbs. Ammonia-salts, 3½ cwts. Superphosphate, and 366⅔ lbs. (6) Sulphate of Soda	33 7/8	59 1/8	32 3/8	21	56	23	12 (*a* and *b*)
13 (*a* and *b*)	400 lbs. Ammonia-salts, 3½ cwts. Superphosphate, and 200 lbs. (6) Sulphate of Potass	33 7/8	59 5/8	33 7/8	30 1/8	57 7/8	33 3/4	13 (*a* and *b*)
14 (*a* and *b*)	400 lbs. Ammonia-salts, 3½ cwts. Superphosphate, and 280 lbs. (6) Sulphate of Magnesia	33 7/8	59 1/4	32 7/8	24 1/4	56 7/8	26 3/8	14 (*a* and *b*)
15 *a*	200 lbs. (1) Sulph. Potass, 100 lbs. (2) Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphos. (7), 400 lbs. Sulph. Ammonia	32 7/8	59 5/8	32 1/2	29 1/4	59	32 1/8	15 *a*
15 *b*	200 lbs. (1) Sulph. Potass, 100 lbs. (2) Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphos. (7), 300 lbs. Sulph. Ammonia, and 500 lbs. Rape-cake	34	59 3/4	33 7/8	32	58 3/4	34	15 *b*
16 (*a* and *b*)	1852–64, 13 years, 200 lbs. Sulph. Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwts. Superphos., and 800 lbs. Ammonia-salts; average produce 39½ bush. Corn, 46⅝ cwts. Straw. 1865 and since, unmanured; average produce (7 years, 1865–71) 19¼ bushels Corn, 16⅝ cwts. Straw	32 3/8	59	36 1/8	13 1/2	56 7/8	13 3/4	16 (*a* and *b*)
17 (*a* and *b*) (7)	400 lbs. Ammonia-salts	31 5/8 (9)	59 1/2 (9)	31 1/4 (9)	16 (11)	56 3/8 (11)	16 1/4 (11)	17 (*a* and *b*)
18 (*a* and *b*) (7)	200 lbs. (1) Sulphate Potass, 100 lbs. (2) Sulphate Soda, 100 lbs. Sulphate Magnesia, and 3½ cwts Superphosphate	17 5/8 (10)	58 7/8 (10)	16 1/8 (10)	28 3/8 (12)	58 5/8 (12)	29 7/8 (12)	18 (*a* and *b*)
19	3½ cwts. Superphosphate of Lime (7), 300 lbs. Sulphate of Ammonia, and 500 lbs. Rape-cake	30 3/4	58 3/8	29 1/8	22 1/4	56	24	19
20	Unmanured continuously	15 1/2 (13)	58 (13)	14 1/2 (13)	10 1/2	55 3/4	12	20
21	200 lbs. (1) Sulph. Potass, 100 lbs. (2) Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphos., and 100 lbs. Muriate Ammonia	21 3/8	58 3/4	19 1/2	15 1/4	56 3/4	16 3/4	21
22	200 lbs. (1) Sulph. Potass, 100 lbs. (2) Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphos., and 100 lbs. Sulphate Ammonia	21	58 5/8	19	16 3/4	56 7/8	16 3/4	22

1 acre .. .. .. = (about) 0·40 Hectare .. .. or 1·59 Prussian Morgen.
1 bushel .. .. = (about) 0·36 Hectolitre .. .. .. or 0·66 Prussian Scheffel.
1 lb. (pound avoir.) = (about) 0·45 Kilogramme .. .. .. or 0·91 Zollverein Pfund.
1 cwt. (hundredweight) = (about) 51·0 Kilogrammes .. .. .. or 1·02 Centner.
1 bushel per acre .. = (about) 0·9 Hectolitre per Hectare .. or 0·42 Pr. Scheffel per Pr. Morgen.
1 lb. per acre .. = (about) 1·12 Kilogramme per Hectare or 0·57 Zollv. Pfd. per Pr. Morgen.
1 cwt. per acre .. = (about) 125·5 Kilogrammes per Hectare or 0·64 Centner per Pr. Morgen.

(1) 300 lbs. per annum for Crop of 1858, and previously.
(2) 200 lbs. per annum for Crop of 1858, and previously.
(3) "Superphosphate of Lime"—in all cases, excepting for Plots 15 and 19, made from 200 lbs. Bone-ash, 150 lbs. Sulphuric acid sp. gr. 1·7 (and water).
(4) The "Ammonia-salts," in all cases, equal parts Sulphate and Muriate of Ammonia of Commerce.
(5) 550 lbs. Nitrate Soda is reckoned to contain the same amount of Nitrogen as 400 lbs. "Ammonia-salts."
(6) For 1858, and previously—1½ time as much.
(7) Made with Muriatic instead of Sulphuric Acid.
(8) The Manures of Plots 17 and 18 are, year by year, transposed.
(9) Average of 20 years' Ammonia-salts, alternated with Mineral Manures.
(10) Average of 20 years Mineral Manures, alternated with Ammonia-salts.
(11) Plots 17 had the Mineral Manures for the Crop of 1871.
(12) Plots 18 had the Ammonia-salts for the Crop of 1871.
(13) Average of 19 years only; as in 1868, owing to a mistake in carting, the produce could not be ascertained.

The Plots marked "(*a* and *b*)" are divided into duplicate portions, "*a*" and "*b*," respectively, which are manured alike; excepting that, for the crops of 1864-5-6 and 7, the "*a*" portions of plots 5, 6, 7, 8, 9, 16, and 17 (or 18), received a mixture of soluble Silicates in addition to the other Manures, but, hitherto, without any material effect; and for the crops of 1868, and since, cut straw (that produced in the previous season) has been applied (instead of Silicates) on the "*a*" portions of plots 5, 6, 7, 8, 11, 12, 13, 14, and 17 (or 18).