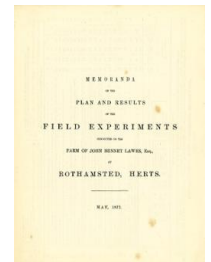


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Memoranda of the Field Experiments at Rothamsted, May 1872



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Experiments on Wheat; Broadbalk Field

Rothamsted Research

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(4)

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.)

Plots.	PRODUCE PER ACRE.										Plots.
	Average per Annum, 20 Years, 1852-1871.					Twenty-eighth Season, 1871.					
	Dressed Corn.		Total Straw.	Dressed Corn.		Total Straw.					
	Quantity.	Weight per Bushel.		Quantity.	Weight per Bushel.						
	Bushels.	lbs.	Bushels.	lbs.	Bushels.	lbs.					
0	Superphosphate of Lime (three times as much as on No. 5 and succeeding Plots)	17½	58½	15½	56½	14	cwts. 14	0			
1	Sulphates of Potass, Soda, and Magnesia (twice as much as on No 5 and succeeding Plots)	15½	58½	13½	57	10½	57	1			
2	Farmyard Manure (14 tons every year)	35½	60	33½	60	39	60	2			
3	Unmanured continuously	14½	57½	13	54½	9½	54½	3			
4	Unmanured for Crop of 1852, and since; previously Superphosphate (made with Muriatic Acid), and Sulphate Ammonia	15½	58½	13½	57	10½	57	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	58½	15½	56½	11½	56½	5 (a and b)			
6 (a and b)	200 lbs. (1) Sulphate Potass, 100 lbs. (2) Sulphate Soda, 100 lbs. Sulphate Magnesia, 3½ cwts. Superphosphate of Lime (3)	20½	59½	24½	57	17	56½	6 (a and b)			
7 (a and b)	200 lbs. (1) Sulphate Potass, 100 lbs. (2) Sulphate Soda, 100 lbs. Sulphate Magnesia, 3½ cwts. Superphosphate of Lime (3)	35½	59½	35½	57	22½	57	7 (a and b)			
8 (a and b)	200 lbs. (1) Sulphate Potass, 100 lbs. (2) Sulphate Soda, 100 lbs. Sulphate Magnesia, 3½ cwts. Superphosphate of Lime (3)	38½	59	41½	57½	27½	57½	8 (a and b)			
9 {a b}	200 lbs. (1) Sulphate Potass, 100 lbs. (2) Sulphate Soda, 100 lbs. Sulphate Magnesia, 3½ cwts. Superphosphate of Lime (3)	36½	58½	41½	58½	34½	58½	9 {a b}			
10 {a b}	400 lbs. Ammonia-salts alone, for 1845, and each year since; Mineral Manure in 1844	22½	57½	21½	53½	10½	53½	10 {a b}			
11 (a and b)	400 lbs. Ammonia-salts alone, for 1845, and each year since (excepting 1846 and 1850); Mineral Manure in 1844, 748, and 50	25½	58	24½	57	10	53½	11 (a and b)			
12 (a and b)	400 lbs. Ammonia-salts, 3½ cwts. Superphosphate	28	57½	26½	54	11	54	12 (a and b)			
13 (a and b)	400 lbs. Ammonia-salts, 3½ cwts. Superphosphate, and 366½ lbs. (1) Sulphate of Soda	33½	59½	33½	59½	21	56	13 (a and b)			
14 (a and b)	400 lbs. Ammonia-salts, 3½ cwts. Superphosphate, and 280 lbs. (1) Sulphate of Potass	33½	59½	33½	59½	30½	57½	14 (a and b)			
15 {a b}	400 lbs. Ammonia-salts, 3½ cwts. Superphosphate, and 200 lbs. (1) Sulphate of Magnesia	33½	59½	33½	59½	24½	56½	15 {a b}			
16 (a and b)	200 lbs. (1) Sulph. Potass, 100 lbs. (2) Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphosphate of Lime (3)	32½	59½	32½	59½	29½	59	16 (a and b)			
17 (a and b)	200 lbs. (1) Sulph. Potass, 100 lbs. (2) Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphosphate of Lime (3)	34	59½	33½	58½	32	58½	17 (a and b)			
18 (a and b)	1852-64, 13 years, 200 lbs. Sulph. Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphosphate, and 800 lbs. Ammonia-salts; average produce 39½ bush. Corn, 46½ cwts. Straw	32½	59	36½	56½	13½	56½	18 (a and b)			
19	3½ cwts. Superphosphate of Lime (3), 300 lbs. Sulphate of Ammonia, and 500 lbs. Rape-cake	31½ (9)	59½ (9)	31½ (9)	56½ (11)	16 (11)	56½ (11)	19			
20	Unmanured continuously	30½ (10)	58½ (10)	16½ (10)	58½ (15)	28½ (15)	58½ (15)	20			
21	200 lbs. (1) Sulph. Potass, 100 lbs. (2) Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphosphate, and 100 lbs. Muriate Ammonia	15½ (13)	58 (13)	14½ (13)	55½	12	55½	21			
22	200 lbs. (1) Sulph. Potass, 100 lbs. (2) Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphosphate, and 100 lbs. Sulphate Ammonia	21	58½	19	56½	16½	56½	22			

(1) 300 lbs. per annum for Crop of 1853, 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).