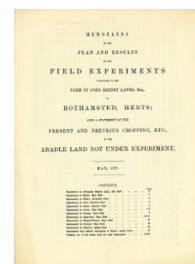


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Memoranda of the Field Experiments at Rothamsted: May 1877



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Experiments on Permanent Meadow Land; the Park

Rothamsted Research

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THE PARK.

EXPERIMENTS WITH DIFFERENT MANURES ON PERMANENT MEADOW LAND.

The Land has probably been laid down with Grass for some centuries. No fresh seed has been artificially sown within the last 40 years certainly; nor is there record of any having been sown since the Grass was first laid down. The experiments commenced in 1856, at which time the character of the herbage appeared uniform over all the Plots. Excepting as explained in the Table and in the foot-notes, the same description of Manure has been applied year after year to the same Plot.

(Area under experiment, about 7 acres.)

PLOTS.	Manures, per acre, per Annum.	PRODUCE PER ACRE, WEIGHED AS HAY.						PLOTS.
		Average per Annum.			Twenty-fourth Season, 1875 (18).			
		10 Years, 1866-66, (1)	20 Years, 1866-76, (2)	Total.	First Crop.	Second Crop.	Twenty-fourth Season, 1875, (18).	
1	{1856-63, 8 years, 14 tons Farmyard Manure, and 200 lbs. Ammonia-salts (1); average produce 49½ cwt.}	Cwts. 48½	Cwts. 43	Cwts. 51½	Cwts. 33½	Cwts. 17½	Cwts. 29½	1
2	{1856-63, 8 years, 14 tons Farmyard Manure; average produce (12 years, 1864-75) 38½ cwt.}	41½	36½	38½	26½	11½	20½	2
3	Unmanured, continuously.	22½	21½	20	20	19½	12½	3
4	3½ cwt. Superphosphate of Lime (2)	23½	21½	21½	21	15½	16½	4
5	3½ cwt. Superphosphate of Lime, and 400 lbs. Ammonia-salts	33½	30½	32½	36½	14½	36½	5
6	400 lbs. Ammonia-salts	30½	22	26½	24½	18	17½	6
7	{1856-68, 13 years, 400 lbs. Ammonia-salts; average produce 30½ cwt.}	31½	30½	30½	35½	15	50½	7
8	{1869 and since, 300 lbs. Sulph. Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia, and 3½ cwt. Superphosphate}	33½	36½	35½	40½	24	64½	8
9	{1856-61, 6 years, 300 lbs. Sulph. Potass, 200 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia, and 3½ cwt. Superphosphate; average produce 36 cwt.}	38½	26½	30½	28½	16	44½	9
10	{1862 and since, 250 lbs. Sulphate Soda, 100 lbs. Sulphate Magnesia, 3½ cwt. Superphosphate, and 400 lbs. Ammonia-salts}	53½	48½	51	52	24½	76½	10
11	{1856-61, 6 yrs. 300 lbs. Sulph. Potass, 200 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwt. Superphosphate, and 400 lbs. Ammonia-salts}	52½	39½	46½	43	24½	67½	11
12	{300 lbs. Sulph. Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwt. Superphosphate, and 400 lbs. Ammonia-salts}	61½	58½	57½	46½	50½	97½	12
13	{300 lbs. Sulph. Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwt. Superphosphate, and 400 lbs. Ammonia-salts}	63½	61½	62½	60	41	101	13
14	Unmanured continuously	25	22½	24	23½	14½	14½	14
15	300 lbs. Sulphate Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwt. Superphosphate, and 400 lbs. Ammonia-salts	55½	59½	57½	65	30½	95½	15
16	550 lbs. Nitrate of Soda (3), 800 lbs. Sulphate Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia, and 3½ cwt. Superphosphate	53½	60½	57	62½	17½	80½	16
17	275 lbs. Nitrate of Soda, 300 lbs. Sulphate Potass, 100 lbs. Sulphate Soda, 100 lbs. Sulphate Magnesia, and 3½ cwt. Superphosphate	36½	35	38½	29½	13½	42½	17
18	Mixture supplying the quantity of Potass, Soda, Lime, Magnesia, Phosphoric acid, Silica, and Nitrogen, contained in 1 ton of Hay (commencing 1865)	45½	47½	46½	45	16½	61½	18
19	275 lbs. Nitrate of Soda, 290 lbs. Sulphate of Potass, and 3½ cwt. Superphosphate (commencing 1872)	34½	33½	32½	30	13	43	19
20	327 lbs. Nitrate of Potass, and 3½ cwt. Superphosphate (commencing 1872)	21	33½	32½	34½	15½	50½	20

(1) "Ammonia-salts" - in all cases equal parts Sulphate and Nitrate of Ammonia of Commerce.
 (2) The "Superphosphate of Lime" is, in all cases, made from 200 lbs. Bone-ash, 150 lbs. Sulphuric Acid Sp. Gr. 1.7 (and water).
 (3) Plots 6, 8, and 10, laid, besides the Manures specified, 2000 lbs. Sawdust per acre per annum for the first 7 years, 1856-1862, but without effect.
 (4) 200 lbs. 1856-63 inclusive.
 (5) 500 lbs. in 1862 and 1863.
 (6) Only 400 lbs. in 1859-60-61.
 (7) The application of Silicates did not commence until 1862.
 (8) 550 lbs. Nitrate of Soda is reckoned to contain the same amount of Nitrogen as 400 lbs. of "Ammonia-salts."
 (9) The manures specified were first applied in 1859 (previously, 1856-7 and 8, Sawdust only).
 (10) Averages of 8 years, 10 years, and 18 years, as these experiments did not commence until 1858.
 (11) Averages of (1 year), 10 years, and 11 years, as the experiment only commenced in 1865.
 (12) Averages of 4 years only, 1872-75.
 (13) In previous years the second crop has either been fed off by sheep, without other food, or mown and left on the ground; but in the twentieth season, 1875, it was so unusually heavy, that it was cut, weighed as hay, and removed.
 (14) The second crop of the twentieth season (1875) is not included in these averages, as in all other years the first crop only was weighed and removed.