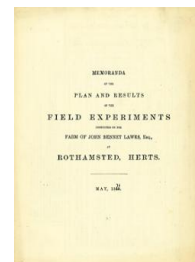


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## Memoranda of the Plan and Results of the Field Experiments, May 1870



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### Experiments on Permanent Meadow Land; the Park

#### Rothamsted Research

Rothamsted Research (1871) *Experiments on Permanent Meadow Land; the Park* ; Memoranda Of The Plan And Results Of The Field Experiments, May 1870, pp 2 - 2 - DOI:  
<https://doi.org/10.23637/ERADOC-1-234>

EXPERIMENTS WITH DIFFERENT MANURES ON PERMANENT MEADOW LAND.  
THE PARK.

The Land has probably been laid down with Grass for some centuries. No fresh seed has been artificially sown within the last 30 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 6½ acres.)

PLOTS.	Manures, per acre; fourteenth season—1869.	Produce per Acre, weighed as Hay.			
		Average Annum; 15 Years 1856-1870.	13th Season; 1865.	14th Season; 1869.	15th Season; 1870.
1	200 lbs. Ammonia-salts <sup>(1)</sup> [also, for the first 8 years, 1856-1863, 14 tons Farmyard Manure per acre per annum]	46½	41½	61	16½
2	Unmanured, 1864 and since [for the first 8 years, 1856-1863, 14 tons Farmyard Manure per acre per annum]	41½	36½	55½	13½
3	Unmanured, continuously	22½	17½	38	5½
4 <sup>(a)</sup>	Superphosphate of Lime <sup>(2)</sup> .. .. .	24½	19½	40½	7½
5 <sup>(b)</sup>	ditto .. .. .	36½	29½	45½	8½
6	400 lbs. "Ammonia-salts" <sup>(3)</sup> .. .. .	28½	24	35½	5½
7	400 lbs. "Ammonia-salts" <sup>(4)</sup> .. .. .	31½	27½	56½	16½
8	400 lbs. "Ammonia-salts" <sup>(5)</sup> .. .. .	35½	38	54½	17½
9	400 lbs. "Ammonia-salts" <sup>(6)</sup> .. .. .	32½	27½	46½	15½
10	400 lbs. "Ammonia-salts" <sup>(7)</sup> .. .. .	53½	59½	68½	29½
11	400 lbs. "Ammonia-salts" <sup>(8)</sup> .. .. .	49½	44½	57½	21½
11 <sup>(a)</sup>	800 lbs. <sup>(9)</sup> "Ammonia-salts" .. .. .	61½	63½	75½	42½
12	800 lbs. <sup>(10)</sup> "Ammonia-salts" .. .. .	72½	78½	88½	49½
13	Unmanured, continuously .. .. .	25½	24	38½	11½
14	Sulphates of Potass, Soda, and Magnesia <sup>(11)</sup> ; "Superphosphate of Lime" .. .. .	53½	55½	74½	42½
15	ditto .. .. .	57½	69	76½	56½
16	ditto .. .. .	36½	32	58½	15½
17	ditto .. .. .	48½	51½	74½	33½
18	Mixture supplying the quantity of Potass, Soda, Lime, Magnesia, Phosphoric Acid, Silica, and Nitrogen contained in 1 ton of hay (commencing in 1865) .. .. .	53½	29	54½	19½

(1) Equal parts Sulphate and Muriate of Ammonia of Commerce.  
 (2) 200 lbs. Bone-ash, 150 lbs. Sulphuric Acid (Sp. gr. 1.7).  
 (3) Plots 6, 8, and 10, had, besides the Manures specified, 2000 lbs. Sawdust per acre per annum for the first 7 years, 1856-1862, but without effect.  
 (4) 300 lbs. Sulphate of Potass, 100 lbs. Sulphate of Soda (200 lbs. 1856-1863), and 100 lbs. Sulphate of Magnesia.  
 (5) 250 lbs. Sulphate of Potass, 100 lbs. Sulphate of Soda (500 lbs. in 1862 and 1863), and 100 lbs. Sulphate of Magnesia (Sulphate of Potass also, as on Plots 7, &c., 1856-1861).  
 (6) 800 lbs. in 1856-7-8; only 400 lbs. in 1859-60-61; and 800 lbs. since.  
 (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) Average of 10 years only, as the manures specified were first applied in 1859 (previously, 1856-1868 inclusive, Sawdust only).  
 (10) Average of 11 years only, as these experiments did not commence until 1858.  
 (11) Average of 4 years only, as the experiment only commenced in 1865.