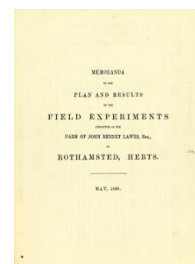


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Memoranda of the Plan and Results of the Field Experiments, May 1869



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Experiments on Permanent Meadow Land; the Park

Rothamsted Research

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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. | 1 acre .. 1 lb. (pound avoird.) .. 1 cwt. (hundred weight) .. 1 ton .. 1 lb. per acre .. 1 cwt. per acre .. | = (about) .. = (about) .. = (about) .. = (about) .. = (about) .. | 0.40 Hectare .. 0.45 Kilogramme .. 51.0 Kilogrammes .. 1016.0 Kilogrammes .. 1.12 Kilogrammes per Hectare .. 125.5 Kilogrammes per Hectare or | .. or or or or or .. 0.57 Zollv. Pfd. per Pr. Morgen. 0.64 Centner per Pr. Morgen. | 1.59 Prussian Morgen. 0.91 Zollverein Pfund. 1.02 Centner. 20.33 Centner. | Produce per Acre, weighed as Hay. | |
|--|---|--|--|--|--|---|--------------------------------|
| | | | | | | Average per Annum; 13 Years 1856-1868. | Thirteenth Season; 1868. |
| Manures, per acre; fourteenth season—1869. | | | | | | | |
| 1 | 200 lbs. Ammonia-salts (1) [also, for the first 8 years, 1856-1863, 14 tons Farmyard Manure per acre per annum] | .. | .. | .. | .. | Cwts. 41½ | 41½ |
| 2 | Unmanured, 1864 and since [for the first 8 years, 1856-1863, 14 tons Farmyard Manure per acre per annum] | .. | .. | .. | .. | 42 | 36½ |
| 3 | Unmanured, continuously | .. | .. | .. | .. | 22½ | 17½ |
| 4 | Superphosphate of Lime (2) | .. | .. | .. | .. | 24½ | 19½ |
| 5 | ditto | .. | .. | .. | .. | 38 | 29½ |
| 6 | 400 lbs. "Ammonia-salts" (3); and 400 lbs. "Ammonia-salts" | .. | .. | .. | .. | 29½ | 24 |
| 7 | Sulphates of Potass, Soda, and Magnesia (4); and "Superphosphate of Lime" (previously, 1856-1868 inclusive, Ammonia-salts as Plot 5) | .. | .. | .. | .. | 30½ | 27½ |
| 8 | ditto | .. | .. | .. | .. | 35 | 38 |
| 9 | ditto | .. | .. | .. | .. | 32½ | 27 |
| 10 | and 400 lbs. "Ammonia-salts" | .. | .. | .. | .. | 52½ | 59½ |
| 11 | and 400 lbs. "Ammonia-salts" | .. | .. | .. | .. | 50½ | 44½ |
| 11a | 400 lbs. (6) "Ammonia-salts" | .. | .. | .. | .. | 61½ | 63½ |
| 12 | 800 lbs. (6) "Ammonia-salts"; and 200 lbs. each, Silicate of Soda and Silicate of Lime (7) | .. | .. | .. | .. | 64½ | 72½ |
| 13 | Unmanured, continuously | .. | .. | .. | .. | 25½ | 24 |
| 14 | Sulphates of Potass, Soda, and Magnesia (8); "Superphosphate of Lime" | .. | .. | .. | .. | 58 | 55½ |
| 15 | and 550 lbs. Nitrate of Soda (8) | .. | .. | .. | .. | 56 | 69 |
| 16 | and 275 lbs. ditto | .. | .. | .. | .. | 37 | 32 |
| 17 | and 275 lbs. ditto | .. | .. | .. | .. | 47 | 51½ |
| 18 | Mixture supplying the quantity of Potass, Soda, Lime, Magnesia, Phosphoric Acid, Silica, and Nitrogen contained in 1 ton of hay (commencing in 1865) .. | .. | .. | .. | .. | 32½ (11) | 27½ |

(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 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.