

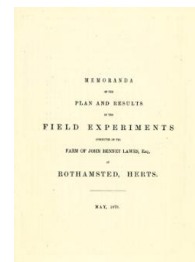
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ROTHAMSTED
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Memoranda of the Field Experiments at Rothamsted, May 1873

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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.

PLOTS.	Manures, per acre, per Annum.				Produce per Acre, weighed as Hay.				PLOTS.
	14th Season; 1866.	15th Season; 1871.	16th Season; 1871.	17th Season; 1872.	14th Season; 1866.	15th Season; 1871.	16th Season; 1871.	17th Season; 1872.		Average per Annum; 16 Years 1856-1871.
1	(1856-63, 8 years, 14 tons Farmyard Manure, and 200 lbs. Ammonia-salts (1); average produce 49½ cwts. } { 1864 and since, 200 lbs. Ammonia-salts alone; average produce (8 years, 1864-71) 45½ cwts.	61	16½	43½	31½	46½	1		
2	{ 1856-63, 8 years, 14 tons Farmyard Manure; average produce 42½ cwts. } { 1864 and since, unmanured; average produce (8 years, 1864-71) 38½ cwts.	55½	13½	33½	25½	40½	2		
3	Unmanured, continuously	38	5½	25½	14½	22½	3		
4	3½ cwts. Superphosphate of Lime (2)	40½	7½	24½	15½	24½	4		
2	3½ cwts. Superphosphate of Lime, and 400 lbs. Ammonia-salts	45½	8½	28½	18½	28½			
5	400 lbs. Ammonia-salts	35½	5½	29½	22½	28½	5		
6	{ 1856-68, 13 years, 400 lbs. Ammonia-salts; average produce 30½ cwts. } { 1869 and since, 300 lbs. Sulph. Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphos.; av. prod. (3 yrs., 1869-71) 36½ cwts. }	56½	16½	37½	25½	31½	6		
7	300 lbs. Sulphate Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia, and 3½ cwts. Superphosphate	54½	17½	39½	27½	35½	7		
8	{ 1856-61, 6 years, 300 lbs. Sulph. Potass, 200 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia, and 3½ cwts. Superphosphate; average produce 36 cwts. } { 1862 and since, 250 lbs. Sulphate Soda, 100 lbs. Sulphate Magnesia, and 3½ cwts. Superphosphate; average produce (10 years, 1862-71) 30 cwts. }	46½	12½	30	22½	32½	8		
9	300 lbs. Sulphate Potass, 100 lbs. Sulphate Soda, 100 lbs. Sulphate Magnesia, 3½ cwts. Superphosphate, and 400 lbs. Ammonia-salts	68½	29½	53½	50½	52½	9		
10	{ 1856-61, 6 yrs, 300 lbs. Sulph. Potass, 200 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphos., 400 lbs. Amm.-salts; av. prod. 55½ cwts. } { 1862 and since, 250 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphos., 400 lbs. Amm.-salts; av. prod. (10 yrs., 1862-71) 45½ cwts. }	57½	21½	46½	38½	49½	10		
11	{ 300 lbs. Sulph. Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphosph., 800 lbs. Ammonia-salts } { 300 lbs. Sulph. Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphosph., 800 lbs. Ammonia-salts, and 400 lbs. Silicate Soda (3)	75½	42½	56½	63½	60½	11		
2	Unmanured continuously	78½	49½	65½	63½	64½			
12	300 lbs. Sulph. Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphosph., 800 lbs. Ammonia-salts, and 400 lbs. Silicate Soda (3)	38½	11½	26½	20½	25½	12		
13	300 lbs. Sulph. Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphosph., 400 lbs. Ammonia-salts, 2000 lbs. Cut Wheat-straw	77½	48	63	62½	56½	13		
14	550 lbs. Nitrate of Soda (4), 300 lbs. Sulphate Potass, 100 lbs. Sulphate Soda, 100 lbs. Sulphate Magnesia, and 3½ cwts. Superphosphate	76½	56½	61½	55½	57½	14		
15	550 lbs. Nitrate of Soda	53½	15½	38½	32½	36½	15		
16	275 lbs. Nitrate of Soda, 300 lbs. Sulphate Potass, 100 lbs. Sulphate Soda, and 3½ cwts. Superphosphate	74½	33½	57	40	48½	16		
17	275 lbs. Nitrate of Soda	54½	19½	38½	29½	35½	17		
18	Mixture supplying the quantity of Potass, Soda, Lime, Magnesia, Phosphoric acid, Silica, and Nitrogen, contained in 1 ton of Hay (commencing 1865)	55½	14½	37½	33½	33½	18		
19	275 lbs. Nitrate of Soda, 290 lbs. Sulphate of Potass, and 3½ cwts. Superphosphate (commencing 1872)	..	..	..	..	..	19
20	327 lbs. Nitrate of Potass, and 3½ cwts. Superphosphate (commencing 1872)	..	..	..	..	..	20

(1) "Ammonia-salts"—in all cases equal parts Sulphate and Murate 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, had, 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) Average of 13 years only, as the manures specified were first applied in 1859 (previously, 1856-7 and 8, Sawdust only).
 (10) Average of 14 years only, as these experiments did not commence until 1858.
 (11) Average of 7 years only, as the experiment only commenced in 1865.