ROTHAMSTED RESEARCH

Yields of the Field Experiments 1878

Full Table of Content

Experiments on Permanent Meadow Land; the Park

Rothamsted Research

Rothamsted Research (1879) *Experiments on Permanent Meadow Land; the Park ;* Yields Of The Field Experiments 1878, pp 8 - 8 **- DOI: https://doi.org/10.23637/ERADOC-1-242**

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.

During the first 19 years of the experiments, 1856-1874, the first crop only, each year, was mown, made into hay, removed from the land, and weighed. As a rule, the second crop was fed-off by sheep having no other food, the object being not to disturb the condition of the manuring. A given number was allotted to each Plot, according to the amount of produce, penned upon a portion of it, and the area extended, day by day, until the whole was eaten down. Frequently, however, the animals suffered considerably; and in 1866, 1870, 1873, and 1874, the second crops (and third, if any) were cut, and spread on the respective Plots. In the twentieth season, 1875, the second crops being unusually heavy, and the weather favourable, they were, for the first time, cut, weighed as hay, and removed. In 1876 they were cut and spread on the Plots. In 1877 the second crops were again made into hay, weighed, and removed; and it is intended, in future, to adopt this plan, whenever the weather will permit.

(Area under experiment, about 7 acres.)

1 acre .. .. = (about) 0·40 Hectare .. .. .. or 1·59 Prussian Morgen.
1 lb. (pound avoir.) .. = (about) 0·45 Kilogramme .. .. .. or 0·91 Zollverein Pfund.
1 cwt. (hundredweight) = (about) 51·0 Kilogrammes .. .. .. or 1·02 Centner.
1 ton .. .. = (about) 1016·0 Kilogrammes .. .. or 20·33 Centner.
1 lb. per acre .. .. = (about) 1·12 Kilogramme per Hectare or 0·57 Zollv. Pfd. per Pr. Morgen.
1 cwt. per acre .. .. = (about) 125·5 Kilogrammes per Hectare or 0·64 Centner per Pr. Morgen.
1 ton per acre .. .. = (about) 2510·0 Kilogrammes per Hectare or 12·82 Centner per Pr. Morgen.

Plots.	Manures, per acre, per Annum.	Produce per Acre, Weighed as Hay. Average per Annum. 10 Years, 1856–65.	10 Years, 1866–75. [13]	20 Years, 1856–75. [13]	Twenty-first Season, 1876. First Crop.	Second Crop.	Total.	Twenty-second Season, 1877. First Crop.	Second Crop.	Total.	Plots.
		Cwts.	Cwts.	Cwts.	Cwts.	Cut, and spread on the respective Plots.	Cwts.	Cwts.	Cwts.	Cwts.	
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 (12 years, 1864–75) 38⅞ cwts.	48⅜	37¾	43	29¾		..	42¼	20	62¼	1
2	1856–63, 8 years, 14 tons Farmyard Manure; average produce 42⅞ cwts. 1864 and since, unmanured; average produce (12 years, 1864–75) 32⅝ cwts.	41⅝	32	36⅞	20½		..	32¼	16¼	48½	2
3	Unmanured, continuously	22½	20	21¼	12¼		..	21	17½	38½	3
4 (1)	3½ cwts. Superphosphate of Lime [2]	23½	21¼	22½ [9]	16½		..	27¾	18¾	46½	1) 4
4 (2)	3½ cwts. Superphosphate of Lime, and 400 lbs. Ammonia-salts	33⅞	30½	32½ [9]	33½		..	42	13½	55½	2)
5	400 lbs. Ammonia-salts	30½	22	26¼	17⅜		..	26¾	20	46¼	5
[3] 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. (7 yrs., 1869–75) 31¼ cwts.	31⅛	30¼	30¾	32		..	37¾	19½	57¼	6
7	300 lbs. Sulphate Potass, 100 lbs. [4] Sulphate Soda, 100 lbs. Sulphate Magnesia, and 3½ cwts. Superphosphate	33⅞	36⅜	35¼	34⅜		..	45½	24	69½	7
[3] 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. [5] Sulphate Soda, 100 lbs. Sulphate Magnesia, and 3½ cwts. Superphosphate; average produce (14 years, 1862–75) 27½ cwts.	33⅝	26¼	30⅛	24¼		..	32½	15½	48	8
9	300 lbs. Sulphate Potass, 100 lbs. [4] Sulphate Soda, 100 lbs. Sulphate Magnesia, 3½ cwts. Superphosphate, and 400 lbs. Ammonia-salts	53⅝	48½	51	50		..	54	22	76	9
[3] 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. [5] Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphos., 400 lbs. Amm.-salts; av. prod. (14 yrs., 1862–75) 42¼ cwts.	52¾	39⅜	46⅛	40		..	43½	25	68½	10
11 (1)	300 lbs. Sulph. Potass, 100 lbs. [4] Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphosph., 800 lbs. [6] Ammonia-salts	61¾	53⅜	57⅝	57½		..	60¾	48⅜	109⅛	1) 11
11 (2)	300 lbs. Sulph. Potass, 100 lbs. [4] Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphosph., 800 lbs. [6] Ammonia-salts, and 400 lbs. Silicate Soda [7]	63¼	61⅜	62¼	64¾		..	76	34½	110¼	2)
12	Unmanured continuously	25	22⅞	24	14½		..	19½	25¾	44⅛	12
13	300 lbs. Sulphate Potass, 100 lbs. [4] Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwts. Superphosph., 400 lbs. Ammonia-salts, 2000 lbs. Cut Wheat-straw	55¼	59⅜	57½	66¼		..	56	29	85	13
14	550 lbs. Nitrate of Soda [8], 300 lbs. Sulphate Potass, 100 lbs. [4] Sulphate Soda, 100 lbs. Sulphate Magnesia, and 3½ cwts. Superphosphate	53⅛	60½	57 [10]	64¼		..	56	19	75	14
15	1858–75, 18 years, 550 lbs. Nitrate Soda 1876, and since, 300 lbs. Sulphate Potass, 100 lbs. Sulphate Soda, 100 lbs. Sulphate Magnesia, and 3½ cwts. Superphosphate	36⅛	35	35⅜ [10]	30⅓		..	33¾	18	51¾	15
16	275 lbs. Nitrate of Soda, 300 lbs. Sulphate Potass, 100 lbs. [4] Sulphate Soda, 100 lbs. Sulphate Magnesia, and 3½ cwts. Superphosphate	45¼	47⅜	46⅓ [10]	41⅛		..	54½	20½	75	16
17	275 lbs. Nitrate of Soda	34¼	33⅓	33⅞ [10]	25⅜		..	33½	16	49½	17
18	Mixture supplying the quantity of Potass, Soda, Lime, Magnesia, Phosphoric acid, Silica, and Nitrogen, contained in 1 ton of Hay (commencing 1865)	21	33¼	32⅛ [11]	31¾		..	40¼	19¾	60	18
19	275 lbs. Nitrate of Soda, 290 lbs. Sulphate of Potass, and 3½ cwts. Superphosphate (commencing 1872)	..	..	38⅜ [12]	37		..	42½	19½	61½	19
20	327 lbs. Nitrate of Potass, and 3½ cwts. Superphosphate (commencing 1872)	..	..	36½ [12]	38		..	46	16½	62½	20

(1) "Ammonia-salts"—in all cases equal parts Sulphate and Muriate 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; 9 years (1862–1870), 200 lbs. Silicate Lime, and 200 lbs. Silicate Soda; 1871, and since, 400 lbs. Silicate Soda.
(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 commmenced in 1865.
(12) Averages of 4 years only, 1872–75.
(13) 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.