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Memoranda of the Field Experiments at Rothamsted: May 1880



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Experiments on Barley; Hoos Field

Rothamsted Research

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HOOS FIELD.

EXPERIMENTS ON THE GROWTH OF **BARLEY** YEAR AFTER YEAR ON THE SAME LAND, WITHOUT MANURE, AND WITH DIFFERENT KINDS OF MANURE. Previous Cropping—1847, Swedish Turnips, with Dung and Superphosphate of Lime, the Roots carted off; 1848, Barley; 1849, Clover; 1850, Wheat; 1851, Barley manured with Ammonia-salts. First Experimental Barley Crop in 1852. Barley every year since; and, unless stated to the contrary in the Table, or in the foot-notes, the same Manure has been applied year after year to the same Plot.

(Area under experiment, about 4½ acres.)

Plots.	PRODUCES PER ACRE.												Plots.	
	Average per Annum.						Total Straw.							
	Dressed Corn.			Weight per Bushel.			18 Years, 1852-71.			26 Years, 1852-77.				
	Quantity.	Bushels.	Lbs.	13 Years, 1852-71.	Bushels.	Lbs.	13 Years, 1852-71.	Bushels.	Lbs.	26 Years, 1852-77.	Bushels.	Lbs.		
1 O.	Unmanured continuously	22	53	26	53	26	53	26	53	26	53	26	53	1 O.
2 O.	34 cwt. Superphosphate of Lime (1)	28	52	28	52	28	52	28	52	28	52	28	52	2 O.
3 O.	200 lbs. Sulphate of Potass, 100 lbs. Sulphate of Soda, 100 lbs. Sulphate of Magnesia	24	52	24	52	24	52	24	52	24	52	24	52	3 O.
4 O.	200 lbs. Sulphate of Potass, 100 lbs. Sulphate of Soda, 100 lbs. Sulphate of Magnesia, 3½ cwt. Superphosphate	30	52	30	52	30	52	30	52	30	52	30	52	4 O.
1 A.	200 lbs. Ammonia-salts (2)	34	51	34	51	34	51	34	51	34	51	34	51	1 A.
2 A.	200 lbs. Ammonia-salts, and 3½ cwt. Superphosphate	48	51	48	51	48	51	48	51	48	51	48	51	2 A.
3 A.	200 lbs. Ammonia-salts, 200 lbs. Sulph. Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos.	36	51	36	51	36	51	36	51	36	51	36	51	3 A.
4 A.	200 lbs. Ammonia-salts, 200 lbs. Sulph. Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos.	47	51	47	51	47	51	47	51	47	51	47	51	4 A.
1 AA.	275 lbs. Nitrate Soda	40	51	40	51	40	51	40	51	40	51	40	51	1 AA.
2 AA.	275 lbs. Nitrate Soda, and 3½ cwt. Superphosphate	50	51	50	51	50	51	50	51	50	51	50	51	2 AA.
3 AA.	275 lbs. Nitrate Soda, 200 lbs. Sulph. Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos.	40	51	40	51	40	51	40	51	40	51	40	51	3 AA.
4 AA.	275 lbs. Nitrate Soda, 200 lbs. Sulph. Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos.	51	51	51	51	51	51	51	51	51	51	51	51	4 AA.
1 AAS.	275 lbs. Nitrate Soda, 400 lbs. Silicate Soda (3)	36	54	36	54	36	54	36	54	36	54	36	54	1 AAS.
2 AAS.	275 lbs. Nitrate Soda, 400 lbs. Silicate Soda, and 3½ cwt. Superphosphate (4)	40	54	40	54	40	54	40	54	40	54	40	54	2 AAS.
3 AAS.	275 lbs. Nitrate Soda, 400 lbs. Silicate Soda, 200 lbs. Sulph. Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos.	40	54	40	54	40	54	40	54	40	54	40	54	3 AAS.
4 AAS.	275 lbs. Nitrate Soda, 400 lbs. Silicate Soda, 200 lbs. Sulph. Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos. and 3½ cwt. Superphosphate	47	54	47	54	47	54	47	54	47	54	47	54	4 AAS.
1 C.	1000 lbs. Rape-cake	47	55	47	55	47	55	47	55	47	55	47	55	1 C.
2 C.	1000 lbs. Rape-cake, and 3½ cwt. Superphosphate	48	55	48	55	48	55	48	55	48	55	48	55	2 C.
3 C.	1000 lbs. Rape-cake, 200 lbs. Sulph. Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos.	44	55	44	55	44	55	44	55	44	55	44	55	3 C.
4 C.	1000 lbs. Rape-cake, 200 lbs. Sulph. Potass, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos.	48	55	48	55	48	55	48	55	48	55	48	55	4 C.
1 N.	275 lbs. Nitrate of Soda	38	53	38	53	38	53	38	53	38	53	38	53	1 N.
2 N.	275 lbs. Nitrate of Soda, and 3½ cwt. Superphosphate	38	53	38	53	38	53	38	53	38	53	38	53	2 N.
5 O.	200 lbs. Sulphate of Potass, 3½ cwt. Superphosphate (5)	24	52	24	52	24	52	24	52	24	52	24	52	5 O.
5 A.	200 lbs. Sulphate of Potass, 3½ cwt. Superphosphate, and 200 lbs. Ammonia-salts (6)	45	52	45	52	45	52	45	52	45	52	45	52	5 A.
M.	100 lbs. Sulphate of Soda, 100 lbs. Sulphate of Magnesia, and 3½ cwt. Superphosphate	23	53	23	53	23	53	23	53	23	53	23	53	M.
6(1)	Unmanured continuously	15	52	15	52	15	52	15	52	15	52	15	52	6(1)
6(2)	Asbes (burnt soil and turf)	17	52	17	52	17	52	17	52	17	52	17	52	6(2)
7(1)	Farmyard Manure 14 tons, 20 yrs, 1852-71, av. prod. 48½ bush.; unmanured since, av. prod., 7 yrs, 1879-8, 36½ bush.	48	51	48	51	48	51	48	51	48	51	48	51	7(1)
7(2)	Farmyard Manure 14 tons, every year; av. prod., 20 years, 1852-71, 48½ bush.; 7 years, 1872-8, 49½ bush.	47	51	47	51	47	51	47	51	47	51	47	51	7(2)

(1) The "Superphosphate of Lime" is, in all cases, made from 200 lbs. Bone-ash, 150 lbs. Sulphuric acid sp. gr. 1.7 (and water).
 (2) 300 lbs. per annum for the first six years, 1852-7.
 (3) 200 lbs. per annum for the first six years, 1852-7.
 (4) The "Ammonia-salts"—in all cases equal parts Sulphate and Nitrate of Ammonia of Commerce.
 (5) First 6 years, 1852-7, instead of Nitrate of Soda, 450 lbs. Ammonia-salts per annum; next 10 years, 1858-67, 200 lbs. Ammonia-salts per annum; 1868, and since, 275 lbs. Nitrate of Soda per annum, 275 lbs. Nitrate of Soda is reckoned to contain the same amount of Nitrogen as 200 lbs. "Ammonia-salts."
 (6) The application of Sulphate did not commence until 1864; in 1864-5-6 and 7, 200 lbs. Silicate of Soda and 200 lbs. Sulphate of Soda were applied per acre, but in 1868, and since, 400 lbs. Silicate of Soda, and no Silicate of Lime. These plots ("AAS") comprise, respectively, one half of the original "AA" plots, and, excepting the addition of the Silicates, have been, and are, in other respects, manured in the same way as the "AA" plots.
 (7) 300 lbs. Rape-cake per annum for the first six years, and 1000 lbs. only, each year since.
 (8) 200 lbs. Sulphate of Potass, and 3½ cwt. Superphosphate of Lime, without Nitrate of Soda, the first year (1852); Nitrate alone each year since.
 (9) 550 lbs. Nitrate of Soda for 1853-4-5-6, and 7; and 275 lbs. only, each year since.
 (10) Ammonia-salts also the first year, but not since.
 (11) Averages of 12 years, 13 years, and 25 years.
 (12) Averages of 7 years, 13 years, 13 years, and 20 years.
 (13) Averages of 20 years (with dung), 6 years (unmanured), and 26 years.
 (14) Produce not weighed, owing to the foulness from the wet season.
 (15) By mistake 400 lbs. in 1880.