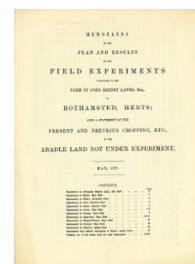


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Memoranda of the Field Experiments at Rothamsted: May 1877



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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 on the same Plot.

(Area under experiment, about 4½ acres.)

PLOTS.	Manures, per acre, per annum.	PRODUCE PER ACRE.												Plots.			
		Dressed Corn.						Total Straw.							Twenty-Fifth Season, 1856.		
		Average per Annum.						Average per Annum.							Quantity.	Weight per Bushel.	
		Quantity.		Weight per Bushel.		Quantity.		Weight per Bushel.		Quantity.		Weight per Bushel.					
		12 Years, 1852-63.	24 Years, 1852-76.	12 Years, 1862-63.	24 Years, 1864-76.	12 Years, 1862-63.	24 Years, 1864-76.	12 Years, 1862-63.	24 Years, 1864-76.	12 Years, 1862-63.	24 Years, 1864-76.	12 Years, 1862-63.	24 Years, 1864-76.	Quantity.	Weight per Bushel.	Total Straw.	
		Bushels.	Bushels.	lbs.	lbs.	Bushels.	Bushels.	lbs.	lbs.	Bushels.	Bushels.	lbs.	lbs.	Bushels.	lbs.	Cwts.	
		1862-63.	1864-76.	1862-63.	1864-76.	1862-63.	1864-76.	1862-63.	1864-76.	1862-63.	1864-76.	1862-63.	1864-76.	1862-63.	1864-76.	1862-63.	1864-76.
1 O.	Unmanured continuously	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
2 O.	3½ cwt. Superphosphate of Lime (1)	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
3 O.	100 lbs. Sulphate of Potash, 100 lbs. Sulphate of Soda, 100 lbs. Sulphate of Magnesia	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
4 O.	200 lbs. Sulphate of Potash, 100 lbs. Sulphate of Soda, 100 lbs. Sulphate of Magnesia, 3½ cwt. Superphosphate	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
1 A.	200 lbs. Ammonia-salts (2)	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
2 A.	200 lbs. Ammonia-salts and 81 cwt. Superphosphate	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
3 A.	200 lbs. Ammonia-salts, 200 lbs. Sulph. Potash, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
4 A.	200 lbs. Ammonia-salts, 200 lbs. Sulph. Potash, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos.	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
1 AA.	275 lbs. Nitrate Soda	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
2 AA.	275 lbs. Nitrate Soda, and 3½ cwt. Superphosphate	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
3 AA.	275 lbs. Nitrate Soda, 200 lbs. Sulph. Potash, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
4 AA.	275 lbs. Nitrate Soda, 200 lbs. Sulph. Potash, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos.	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
1 AAS.	275 lbs. Nitrate Soda, 400 lbs. Silicate Soda	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
2 AAS.	275 lbs. Nitrate Soda, 400 lbs. Silicate Soda, and 3½ cwt. Superphosphate (3)	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
3 AAS.	275 lbs. Nitrate Soda, 400 lbs. Silicate Soda, 200 lbs. Sulph. Potash, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag.	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
4 AAS.	275 lbs. Nitrate Soda, 400 lbs. Silicate Soda, 200 lbs. Sulph. Potash, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag., and 3½ cwt. Superphosphate	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
1 C.	1000 lbs. Rape-cake	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
2 C.	1000 lbs. Rape-cake and 3½ cwt. Superphosphate	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
3 C.	1000 lbs. Rape-cake, 200 lbs. Sulph. Potash, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Magnesia	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
4 C.	1000 lbs. Rape-cake, 200 lbs. Sulph. Potash, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos.	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
1 N.	275 lbs. Nitrate of Soda	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
2 N.	275 lbs. Nitrate of Soda	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
5 O.	200 lbs. Sulphate of Potash, 3½ cwt. Superphosphate (4)	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
5 A.	200 lbs. Sulphate of Potash, 3½ cwt. Superphosphate, and 200 lbs. Ammonia-salts	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
M.	100 lbs. Sulphate of Soda, 100 lbs. Sulphate of Magnesia, and 3½ cwt. Superphosphate	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
6 1	Unmanured continuously	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
6 2	Ashes (burnt soil and turf)	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
7 1	Fernyard Manure 14 tons, 20 years, 1852-1871; unmanured since	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½
7 2	Fernyard Manure 14 tons, every year: av. produce, 20 years, 1852-71, 48½ bush.; 4 years, 1872-5, 50½ bush.	27½	36	51½	52½	36	48	51	51½	36	48	51	51½	36	48	51	51½

(1) This "Superphosphate of Lime" is, in all cases, made from 200 lbs. Bone-ash, 150 lbs. Sulphuric acid sp. gr. 1.7 (cont. 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" are all equal parts Sulphate and Muriate of Ammonia of Commerce.
 (5) First 6 years, 1852-7, instead of Nitrate of Soda, 400 lbs. Ammonia-salts per annum; next 10 years, Nitrate of Soda is reckoned to contain the same amount of Nitrogen as 200 lbs. Ammonia-salts.
 (6) The application of Silicates did not commence until 1864.
 (7) 200 lbs. Silicate of Soda and 200 lbs. Silicate of Lime were applied per acre, but in 1868, 400 lbs. Silicate of Soda, and no Silicate of Lime. These plots ("AAS" (4) 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.
 (8) 2000 lbs. Rape-cake per annum for the first six years, and 1000 lbs. only, each year since.
 (9) 300 lbs. Sulphate of Potash, and 3½ cwt. Superphosphate of Lime, without Nitrate of Soda, the first year (1852); Nitrate alone each year since.
 (10) 550 lbs. Nitrate of Soda for 1853-4-5-6, and 7; and 275 lbs. only, each year since.
 (11) Ammonia-salts also the first year, but not since.
 (12) Averages of 11 years, 12 years, and 23 years.
 (13) Averages of 6 years, 12 years, and 18 years.
 (14) Averages of 20 years (with dung), 4 years (unmanured), and 24 years.