

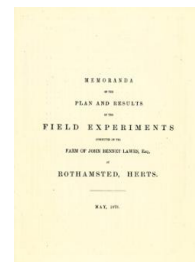
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Memoranda of the Field Experiments at Rothamsted, May 1873

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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 foot-notes, the same Manure has been applied year after year to the same Plot.

(Area under experiment, about 4½ acres.)

PLOTS.	Manures, per acre, per annum.	PRODUCE PER ACRE.				PLOTS.
		Average per Annum, over 20 Years, 1852-1871.		Twenty-first Season, 1872.		
		Quantity.	Weight per Bushel.	Quantity.	Weight per Bushel.	
1 O.	Unmanured continuously	20	52½	10½	53½	1 O.
2 O.	3½ cwt. Superphosphate of Lime (1)	25½	53½	13½	54½	2 O.
3 O.	200 lbs. (2) Sulphate Potass, 100 lbs. (3) Sulphate Soda, 100 lbs. Sulphate Magnesia	22½	53	10½	53½	3 O.
4 O.	200 lbs. (2) Sulphate Potass, 100 lbs. (3) Sulphate Soda, 100 lbs. Sulphate Magnesia, 3½ cwt. Superphosphate	27½	53½	14½	53½	4 O.
1 A.	200 lbs. Ammonia-salts (4)	32½	52½	18½	52½	1 A.
2 A.	200 lbs. Ammonia-salts, and 3½ cwt. Superphosphate	47	53½	27½	53½	2 A.
3 A.	200 lbs. Ammonia-salts, 200 lbs. (2) Sulph. Potass, 100 lbs. (3) Sulph. Soda, 100 lbs. Sulph. Magnesia	35	52½	20½	53½	3 A.
4 A.	200 lbs. Ammonia-salts, 200 lbs. (2) Sulph. Potass, 100 lbs. (3) Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwt. Superphosphate	46½	54	28½	54½	4 A.
(1) A.A.	275 lbs. Nitrate Soda	37	52	22½	52½	1 A.A.
(2) A.A.	275 lbs. Nitrate Soda, and 3½ cwt. Superphosphate	49½	53½	30½	53½	2 A.A.
(3) A.A.	275 lbs. Nitrate Soda, 200 lbs. (2) Sulph. Potass, 100 lbs. (3) Sulph. Soda, 100 lbs. Sulph. Magnesia	37½	52½	24½	52½	3 A.A.
(4) A.A.	275 lbs. Nitrate Soda, 200 lbs. (2) Sulph. Potass, 100 lbs. (3) Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwt. Superphosphate	49½	53½	32½	53½	4 A.A.
(1) A.A.S.	275 lbs. Nitrate Soda, 400 lbs. Silicate Soda (5)	37	51½	21½	51½	1 A.A.S.
(2) A.A.S.	275 lbs. Nitrate Soda, 400 lbs. Silicate Soda, and 3½ cwt. Superphosphate (1)	47½	53½	29	53½	2 A.A.S.
(3) A.A.S.	275 lbs. Nitrate Soda, 400 lbs. Silicate Soda, 200 lbs. (2) Sulph. Potass, 100 lbs. (3) Sulph. Soda, and 100 lbs. Sulph. Magnesia	43½	55	25½	55½	3 A.A.S.
(4) A.A.S.	275 lbs. Nitrate Soda, 400 lbs. Silicate Soda, 200 lbs. (2) Sulph. Potass, 100 lbs. (3) Sulph. Soda, 100 lbs. Sulph. Magnesia, and 3½ cwt. Superphosphate	50	57	31½	57½	4 A.A.S.
(1) C.	1000 lbs. Rape-cake	45½	53½	26½	53½	1 C.
(2) C.	1000 lbs. Rape-cake, and 3½ cwt. Superphosphate	46½	53½	26½	53½	2 C.
(3) C.	1000 lbs. Rape-cake, 200 lbs. (2) Sulph. Potass, 100 lbs. (3) Sulph. Soda, 100 lbs. Sulph. Magnesia	43½	53½	27½	53½	3 C.
(4) C.	1000 lbs. Rape-cake, 200 lbs. (2) Sulph. Potass, 100 lbs. (3) Sulph. Soda, 100 lbs. Sulph. Magnesia, 3½ cwt. Superphosphate	47½	53½	29½	53½	4 C.
(1) N.	275 lbs. Nitrate of Soda	37½	52½	22½	52½	1 N.
(2) N.	275 lbs. (2) Nitrate of Soda	41½	52½	26½	52½	2 N.
5 O.	200 lbs. (2) Sulphate of Potass, 3½ cwt. Superphosphate (1)	22½	52½	12½	52½	5 O.
5 A.	200 lbs. (2) Sulphate of Potass, 3½ cwt. Superphosphate, and 200 lbs. Ammonia-salts	44½	53½	28½	53½	5 A.
M.	100 lbs. Sulphate of Soda, 100 lbs. Sulphate of Magnesia, and 3½ cwt. Superphosphate	21½	53½	12½	53½	M.
6(1)	Unmanured continuously	22	52½	12½	52½	6(1)
(2)	Ashes (burnt soil and turf)	22	52½	12½	52½	6(2)
7(1)	Farmyard Manure 14 tons, 20 years, 1852-1871; unmanured since	48½	54½	28½	54½	7(1)
7(2)	Farmyard Manure 14 tons, every year	48½	54½	28½	54½	7(2)

(1) The "Superphosphate of Lime" is, in all cases, made from 200 lbs. Bone-ash, 150 lbs. Sulphuric acid (Sr. 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 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, 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 Silicates did not commence until 1864; in 1864-5-6 and 7, 200 lbs. Silicate of Soda and 200 lbs. Silicate of Lime were applied per acre, but in 1868, and since, 400 lbs. Silicate of Soda, and no Silicate of Lime. These plots ("A.A.S.") comprise, respectively, one half of the original "A.A." plots, and, excepting the addition of the Silicates, have been, and are, in other respects, manured in the same way as the "A.A." plots; and, for the sake of comparison with the latter, the average produce is given for the whole period of 20 years, 1852-1871.
 (7) 2000 lbs. Sulphate of Potass, and 3½ cwt. Superphosphate of Lime, without Nitrate of Soda, the first year (1852); Nitrate alone each year since.
 (8) 300 lbs. Sulphate of Potass, and 3½ cwt. Superphosphate of Lime, without Nitrate of Soda, the first year (1852); Nitrate alone each year since.
 (9) Ammonia-salts also the first year, but not since.
 (10) Average of 19 years only.
 (11) Average of 14 years only.