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ROTHAMSTED
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Memoranda of the Field Experiments at Rothamsted: May 1881



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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. The crop of the present year, 1881, is, therefore, the 30th Barley crop in succession. 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.	Manures, per acre, per annum.	PRODUCTS PER ACRE.												PLOTS.				
		Average per Annum.						Total Straw.							Twenty-ninth Season, 1880.			
		Dressed Corn.			Weight per Bushel.			14 Years, 1862-79.			14 Years, 1862-79.				Quantity.	Weight Bushel.		
		14 Years, 1862-79.	28 Years, 1862-79.	14 Years, 1862-79.	14 Years, 1862-79.	28 Years, 1862-79.	14 Years, 1862-79.	14 Years, 1862-79.	28 Years, 1862-79.	14 Years, 1862-79.	14 Years, 1862-79.	28 Years, 1862-79.	14 Years, 1862-79.					
1 O.	Unmanured continuously	21½	21½	51½	51½	22½	22½	17½	17½	17½	17½	17½	17½	17½	17½	17½	17½	1 O.
2 O.	3½ cwt. Superphosphate of Lime (1)	24½	24½	52½	52½	23½	23½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	2 O.
3 O.	200 lbs. Sulphate of Potash, 100 lbs. Sulphate of Soda, 100 lbs. Sulphate of Magnesia	24½	24½	52½	52½	23½	23½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	3 O.
4 O.	200 lbs. Sulphate of Potash, 100 lbs. Sulphate of Soda, 100 lbs. Sulphate of Magnesia, 3½ cwt. Superphosphate	30½	30½	58½	58½	25½	25½	22½	22½	22½	22½	22½	22½	22½	22½	22½	22½	4 O.
1 A.	200 lbs. Ammonia-salts (2)	34½	34½	62½	62½	27½	27½	24½	24½	24½	24½	24½	24½	24½	24½	24½	24½	1 A.
2 A.	200 lbs. Ammonia-salts, and 3½ cwt. Superphosphate	48½	48½	76½	76½	31½	31½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	2 A.
3 A.	200 lbs. Ammonia-salts, 200 lbs. Sulph. Potash, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag.	36½	36½	64½	64½	29½	29½	26½	26½	26½	26½	26½	26½	26½	26½	26½	26½	3 A.
4 A.	200 lbs. Ammonia-salts, 200 lbs. Sulph. Potash, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos.	47½	47½	75½	75½	30½	30½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	4 A.
1 AA.	275 lbs. Nitrate Soda	39½	39½	67½	67½	32½	32½	29½	29½	29½	29½	29½	29½	29½	29½	29½	29½	1 AA.
2 AA.	275 lbs. Nitrate Soda, and 3½ cwt. Superphosphate	53½	53½	81½	81½	36½	36½	33½	33½	33½	33½	33½	33½	33½	33½	33½	33½	2 AA.
3 AA.	275 lbs. Nitrate Soda, 200 lbs. Sulph. Potash, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag.	59½	59½	87½	87½	42½	42½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	3 AA.
4 AA.	275 lbs. Nitrate Soda, 200 lbs. Sulph. Potash, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos.	50½	50½	78½	78½	41½	41½	38½	38½	38½	38½	38½	38½	38½	38½	38½	38½	4 AA.
1 AAS.	275 lbs. Nitrate Soda, 400 lbs. Silicate Soda (3)	39½	39½	67½	67½	32½	32½	29½	29½	29½	29½	29½	29½	29½	29½	29½	29½	1 AAS.
2 AAS.	275 lbs. Nitrate Soda, 400 lbs. Silicate Soda, and 3½ cwt. Superphosphate (4)	51½	51½	79½	79½	34½	34½	31½	31½	31½	31½	31½	31½	31½	31½	31½	31½	2 AAS.
3 AAS.	275 lbs. Nitrate Soda, 400 lbs. Silicate Soda, 200 lbs. Sulph. Potash, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag.	45½	45½	73½	73½	38½	38½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	3 AAS.
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	54½	54½	82½	82½	43½	43½	40½	40½	40½	40½	40½	40½	40½	40½	40½	40½	4 AAS.
1 C.	1000 lbs. Rape-cake	46½	46½	74½	74½	37½	37½	34½	34½	34½	34½	34½	34½	34½	34½	34½	34½	1 C.
2 C.	1000 lbs. Rape-cake, and 3½ cwt. Superphosphate	49½	49½	77½	77½	40½	40½	37½	37½	37½	37½	37½	37½	37½	37½	37½	37½	2 C.
3 C.	1000 lbs. Rape-cake, 200 lbs. Sulph. Potash, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag.	44½	44½	72½	72½	39½	39½	36½	36½	36½	36½	36½	36½	36½	36½	36½	36½	3 C.
4 C.	1000 lbs. Rape-cake, 200 lbs. Sulph. Potash, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos.	48½	48½	76½	76½	42½	42½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	4 C.
1 N.	275 lbs. Nitrate of Soda	31½	31½	59½	59½	24½	24½	21½	21½	21½	21½	21½	21½	21½	21½	21½	21½	1 N.
2 N.	275 lbs. Nitrate of Soda, and 3½ cwt. Superphosphate	43½	43½	71½	71½	36½	36½	33½	33½	33½	33½	33½	33½	33½	33½	33½	33½	2 N.
3 N.	275 lbs. Nitrate of Soda, 200 lbs. Sulph. Potash, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag.	44½	44½	72½	72½	37½	37½	34½	34½	34½	34½	34½	34½	34½	34½	34½	34½	3 N.
4 N.	275 lbs. Nitrate of Soda, 200 lbs. Sulph. Potash, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos.	48½	48½	76½	76½	41½	41½	38½	38½	38½	38½	38½	38½	38½	38½	38½	38½	4 N.
5 O.	200 lbs. Sulphate of Potash, 3½ cwt. Superphosphate (5)	24½	24½	52½	52½	19½	19½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	5 O.
5 A.	200 lbs. Sulphate of Potash, 3½ cwt. Superphosphate, and 200 lbs. Ammonia-salts (6)	45½	45½	73½	73½	38½	38½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	5 A.
M.	100 lbs. Sulphate of Soda, 100 lbs. Sulphate of Magnesia, and 3½ cwt. Superphosphate	22½	22½	50½	50½	17½	17½	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½	M.
6(1)	Unmanured continuously	24½	24½	52½	52½	19½	19½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	6(1)
7(2)	Ashes (burnt soil and turf)	23½	23½	51½	51½	18½	18½	15½	15½	15½	15½	15½	15½	15½	15½	15½	15½	7(2)
	Farmyard Manure 14 tons, 20 years, 1852-71, av. prod. 48½ bush.; unmanured since, av. prod., 9 yrs., 1872-80, 34½ bush.	48½	48½	76½	76½	41½	41½	38½	38½	38½	38½	38½	38½	38½	38½	38½	38½	
	Farmyard Manure 14 tons, every year; av. produce, 20 years, 1852-71, 48½ bush.; 9 years, 1872-80, 49½ bush.	48½	48½	76½	76½	41½	41½	38½	38½	38½	38½	38½	38½	38½	38½	38½	38½	

(1) The "Superphosphate of Lime" is, in all cases, made from 200 lbs. Bone-ash, 150 lbs. Sulphuric acid, 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) 200 lbs. per annum for the first six years, 1852-7.
 (5) First 6 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, 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 200 lbs. Silicate of Lime.