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Memoranda of the Field Experiments at Rothamsted: May 1880



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Experiments on Oats; Geescroft Field

Rothamsted Research

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GEESCROFT FIELD.

EXPERIMENTS ON THE GROWTH OF OATS YEAR AFTER YEAR ON THE SAME LAND; WITHOUT MANURE, AND WITH DIFFERENT KINDS OF MANURE. Previous Cropping—1847 and 1848, Clover, Experimental Manures; 1849—1859, Beans, Experimental Manures; 1860, Fallow; 1861 and 1862, Wheat, Unmanured; 1863, Fallow; 1864, Beans, Dunged; 1865, Wheat, Unmanured; 1866, Beans, Unmanured; 1867 and 1868, Wheat, Unmanured. The first Experimental Oat Crop was in 1869; the last in 1878, since which time, owing to the wetness and the foulness of the land, it has been left fallow. (Area under Experiment, $\frac{2}{3}$ acre.)

PLOTS.	MANURES, PER ACRE, PER ANNUM.	PRODUCE PER ACRE.											
		1st SEASON, 1869.		2nd SEASON, 1870.		3rd SEASON, 1871.		4th SEASON, 1872.		5th SEASON, 1873.		AVERAGE PER ANNUM 5 YEARS, 1869-1873.	
		Dressed Corn.		Dressed Corn.		Dressed Corn.		Dressed Corn.		Dressed Corn.		Dressed Corn.	
		Quantity, Bushels.	Weight per Bushel, lbs.	Quantity, Bushels.	Weight per Bushel, lbs.	Quantity, Bushels.	Weight per Bushel, lbs.	Quantity, Bushels.	Weight per Bushel, lbs.	Quantity, Bushels.	Weight per Bushel, lbs.	Quantity, Bushels.	Weight per Bushel, lbs.
		Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.
1	Unmanured	36½	36	16½	9½	20½	33½	15	36½	10½	27½	18½	38½
2	{ 200 lbs. Sulphate Potass, 100 lbs. Sulphate Soda, 100 lbs. Sulphate Magnesia, and 3½ cwt. Superphosphate of Lime (1)	45	38½	19½	9½	22	35½	19½	37½	10½	28½	24½	35
3	{ 400 lbs. Ammonia-salts (2)	56½	37½	30	17½	57½	36½	55½	37½	30½	32½	47	35½
4	{ 400 lbs. Ammonia-salts, 200 lbs. Sulphate Potass, 100 lbs. Sulphate Soda, 100 lbs. Sulphate Magnesia, and 3½ cwt. Superphosphate	75½	39½	50½	28½	58½	35½	62½	39½	45½	34½	59	37
5	{ 550 lbs. Nitrate of Soda (3)	62½	38½	36½	23	55	36½	42½	36½	20½	30½	47½	35½
6	{ 550 lbs. Nitrate of Soda, 200 lbs. Sulphate Potass, 100 lbs. Sulphate Soda, 100 lbs. Sulphate Magnesia, and 3½ cwt. Superphosphate	69½	38½	50	28½	60½	33½	44½	37½	24	33½	57½	35
SECOND 5 YEARS; MINERAL MANURES AS BEFORE, AMMONIA-SALTS AND NITRATE OF SODA ONLY HALF AS MUCH AS PREVIOUSLY.													
		6th SEASON, 1874.		7th SEASON, 1875.		8th SEASON, 1876 (4).		9th SEASON, 1877 (5).		10th SEASON, 1878.		AVERAGE PER ANNUM 4 YEARS, 1874, 5, 6, and 8.	
		Dressed Corn.		Dressed Corn.		Dressed Corn.		Dressed Corn.		Dressed Corn.		Dressed Corn.	
		Quantity, Bushels.	Weight per Bushel, lbs.	Quantity, Bushels.	Weight per Bushel, lbs.	Quantity, Bushels.	Weight per Bushel, lbs.	Quantity, Bushels.	Weight per Bushel, lbs.	Quantity, Bushels.	Weight per Bushel, lbs.	Quantity, Bushels.	Weight per Bushel, lbs.
		Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.	Total Straw, cwt.
1	Unmanured	12	31½	12½	57½	8½	32	..	..	22½	32	13½	31½
2	{ 200 lbs. Sulphate Potass, 100 lbs. Sulphate Soda, 100 lbs. Sulphate Magnesia, and 3½ cwt. Superphosphate of Lime (1)	13½	31½	13½	67	7½	30	..	..	17½	35½	13½	31½
3	{ 200 lbs. Ammonia-salts (2)	37½	33½	30½	15½	17½	34½	..	..	30	32½	28½	33½
4	{ 200 lbs. Ammonia-salts, 200 lbs. Sulphate Potass, 100 lbs. Sulphate Soda, 100 lbs. Sulphate Magnesia, and 3½ cwt. Superphosphate	46½	34½	30½	20½	26½	35½	..	..	45½	37	38	35½
5	{ 275 lbs. Nitrate of Soda (3)	35½ (4)	30 (4)	23½ (4)	11½ (4)	12½	30½	..	..	34½	34½	26½	31½
6	{ 275 lbs. Nitrate of Soda, 200 lbs. Sulphate Potass, 100 lbs. Sulphate Soda, 100 lbs. Sulphate Magnesia, and 3½ cwt. Superphosphate	28½ (4)	33½ (4)	28½ (4)	14½ (4)	19½	33½	..	..	37	36½	28½	34½

(1) "Superphosphate of Lime"—in all cases, made from 200 lbs. Bonesash, 150 lbs. Sulphuric Acid sp. gr. 1.7 (and water).
 (2) "Ammonia-salts"—in each case, equal parts Sulphate and Muriate of Ammonia of Commerce.
 (3) 550 lbs. Nitrate of Soda is reckoned to contain the same amount of Nitrogen as 400 lbs. "Ammonia-salts."
 (4) On these plots, where large quantities of Nitrate of Soda had been applied year after year, the land, though more worked, was so wet that it could not be got into favourable condition for sowing, and the plant was very irregular.
 (5) Owing to the extremely wet condition of the land, especially on the Nitrate plots, it was not sown until April 6, and then with a very unfavourable seed bed; and there being a heavy fall of snow a week later, the plant came up very irregularly, and much of it perished from standing surface-water.
 (6) Owing to the very wet winter, 1876-7, the land could not be worked in time for sowing, and was therefore left fallow in 1877; no manures being applied.