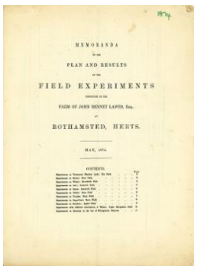
Memoranda of the Field Experiments at Rothamsted May 1874



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Rothamsted Research

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EXPERIMENTS ON **SUGAR BEET**—BARN FIELD.

GROWN YEAR AFTER YEAR ON THE SAME LAND, WITHOUT MANURE, AND WITH DIFFERENT DESCRIPTIONS OF MANURE, COMMENCING 1871.

Previous Cropping:—1843–'48 (6 Seasons), experiments on Norfolk White Turnips, with different descriptions of Manure.
1849–'52 (4 Seasons), experiments on Swede Turnips, with different descriptions of Manure.
1853–'55 (3 Seasons), Barley without Manure (with a view as far as possible to equalise the condition of the Plots).
1856–'70 (15 Seasons), experiments on Swede Turnips, with different descriptions of Manure, in which the arrangement of the Plots was the same, and that of the Manures very similar—in fact, exactly the same during the last 10 years—as in the first year of Sugar Beet, excepting that, during those 10 years, the Alkalies were omitted for the Swedes. For the second and subsequent years of Sugar Beet slight alterations in theManures were made, as will be seen below.

Area under experiment about 8 acres. The experiments are arranged as under, in 5 Series, each of which comprises 8 Plots.

PLOTS.	Manures, per Acre, per Annum. SERIES 1.	SERIES 2. Each Plot as Series 1, and Cross-dressed with 550 lbs. Nitrate Soda.	SERIES 3. Each Plot as Series 1, and Cross-dressed with 400 lbs. "Ammonia-salts."	SERIES 4. Each Plot as Series 1, and Cross-dressed with 2000 lbs. Rape-cake, and 400 lbs. "Ammonia-salts."	SERIES 5. Each Plot as Series 1, and Cross-dressed with 2000 lbs. Rape-cake.

FIRST SEASON, 1871.

	PRODUCE PER ACRE (Roots trimmed as for feeding, not as for Sugar-making).	Roots.	Leaves.	Roots.	Leaves.	Roots.	Leaves.	Roots.	Leaves.	Roots.	Leaves.
		Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.
1	Farmyard Manure (14 tons)	18 3	3 5	27 13	6 19	22 1	5 6	26 4	6 14	28 18	5 14
2	Farmyard Manure (14 tons), and 3½ cwts. Superphosphate of Lime (1).	14 13	2 14	25 16	5 15	21 15	4 6	25 2	6 7	25 4	5 5
3	Without Manure (for 30 years)	7 11	2 0	22 3	5 12	15 6	4 16	19 18	7 0	20 16	4 12
4	3½ cwts. Superphosphate, 300 lbs. Sulphate Potass, 200 lbs. Sulphate Soda, and 100 lbs. Sulphate Magnesia	7 11	1 5	22 15	4 8	17 10	3 5	22 15	6 3	21 7	3 19
5	3½ cwts. Superphosphate	5 12	1 8	20 19	3 14	15 4	3 19	19 18	7 12	18 19	4 5
6	3½ cwts. Superphosphate, and 300 lbs. Sulph. Potass	5 1	1 4	21 5	3 13	17 4	3 4	23 11	6 11	21 0	3 11
7	3½ cwts. Superphosphate, and 300 lbs. Sulph. Potass, and 36½ lbs. Ammonia-salts (2)	5 18	1 5	20 19	3 18	18 8	4 3	21 0	5 0	21 7	3 17
8	Without Manure 1853 and since; previously part Unmanured, and part Superphosphate	7 10	1 14	21 13	3 16	16 2	4 15	17 19	7 11	20 7	4 9

SECOND SEASON, 1872.

	PRODUCE PER ACRE (Roots trimmed as for feeding, not as for Sugar-making).	Roots.	Leaves.	Roots.	Leaves.	Roots.	Leaves.	Roots.	Leaves.	Roots.	Leaves.
		Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.
1	Farmyard Manure (14 tons)	15 13	4 2	23 9	7 19	22 14	9 0	26 8	9 11	22 5	6 1
2	Farmyard Manure (14 tons), and 3½ cwts. Superphosphate of Lime (1)	16 0	3 18	24 6	8 16	22 0	7 16	25 9	9 14	20 15	5 11
3	Without Manure (for 30 years)	7 17	1 13	21 7	6 6	15 3	4 13	20 8	10 1	16 3	3 11
4	3½ cwts. Superphosphate, 500 lbs. Sulphate Potass, 200 lbs. Chloride Sodium (common salt), and 200 lbs. Sulphate Magnesia	6 14	1 10	20 2	5 19	15 10	3 7	23 8	7 13	17 18	3 15
5	3½ cwts. Superphosphate	6 17	1 8	19 6	6 4	14 5	4 13	18 11	10 4	15 18	3 16
6	3½ cwts. Superphosphate, and 500 lbs. Sulph. Potass	6 6	1 5	16 16	5 14	14 7	3 19	22 16	9 9	15 17	3 14
7	3½ cwts. Superphosphate, and 500 lbs. Sulph. Potass, and 36½ lbs. Ammonia-salts (2)	6 15	1 8	17 0	6 1	15 9	3 19	23 9	9 10	15 10	3 15
8	Without Manure 1853 and since; previously part Unmanured, and part Superphosphate	5 4	1 5	15 6	5 19	13 10	4 1	19 12	9 17	15 0	4 6

THIRD SEASON, 1873.

	PRODUCE PER ACRE (Roots trimmed as for feeding, not as for Sugar-making).	Roots.	Leaves.	Roots.	Leaves.	Roots.	Leaves.	Roots.	Leaves.	Roots.	Leaves.
		Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.	Tons. cwts.
1	Farmyard Manure (14 tons)	15 2	5 12	20 5	10 9	22 2	9 18	22 15	12 10	23 10	7 8
2	Farmyard Manure (14 tons) and 3½ cwts. Superphosphate of lime (1)	14 6	5 2	21 10	11 0	19 4	8 9	23 7	13 6	21 18	6 18
3	Without Manure (for 30 years)	5 1	1 11	14 5	6 11	9 3	3 16	15 12	9 11	14 13	4 1
4	3½ cwts. Superphosphate, 500 lbs. Sulphate Potass, 200 lbs. Chloride Sodium (common salt), and 200 lbs. Sulphate Magnesia	5 2	1 13	16 9	6 11	12 10	3 10	20 3	8 0	16 1	3 8
5	3½ cwts. Superphosphate	5 5	1 11	18 8	5 13	10 19	5 0	14 15	9 8	13 19	4 9
6	3½ cwts. Superphosphate, and 500 lbs. Sulph. Potass	4 12	1 5	15 17	4 4	12 18	3 12	20 2	9 5	14 14	3 11
7	3½ cwts. Superphosphate, and 500 lbs. Sulph. Potass, and 36½ lbs. Ammonia-salts (2)	5 19	1 12	16 14	5 3	13 0	4 15	19 16	9 0	15 17	4 4
8	Without Manure 1853 and since; previously part Unmanured, and part Superphosphate	4 11	1 7	12 9	5 18	8 8	2 19	15 2	9 8	12 2	3 16

FOURTH SEASON, 1874.

For the Crop of 1874 Superphosphate of Lime, Sulphate of Potass, Chloride of Sodium, and Sulphate of Magnesia, applied as in 1872 and 1873; but no farmyard manure, or cross-dressings of Nitrate of Soda, Ammonia-salts, or Rape-cake.

(1) "Superphosphate of Lime"—in all cases made from 200 lbs. Bone-ash, 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.