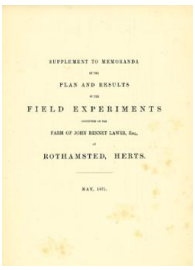
Supplement to Memoranda of the Plans and Results of the the Field Experiments at Rothamsted May 1871



Full Table of Content

Memoranda of the Plans and Results of the Field Experiments at Rothamsted May 1871

Rothamsted Research

Rothamsted Research (1872) *Memoranda of the Plans and Results of the Field Experiments at Rothamsted May 1871 ;* Supplement To Memoranda Of The Plans And Results Of The The Field Experiments At Rothamsted May 1871, pp 1 - 4 **- DOI: https://doi.org/10.23637/ERADOC-1-235**

SUPPLEMENT TO MEMORANDA

OF THE

PLAN AND RESULTS

OF THE

FIELD EXPERIMENTS

CONDUCTED ON THE

FARM OF JOHN BENNET LAWES, Esq.,

AT

ROTHAMSTED, HERTS.

MAY, 1871.

https://doi.org/10.23637/ERADOC-1-235

BARN FIELD.

Experiments on SUGAR BEET,

To be 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 Sugar Beet experiments, excepting that, during that period, the Alkalies were omitted for the Swedes.

First Season 1871.

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

Series 1.		Series 2.		Series 3.		Series 4.		Series 5.	
Plots.		Plots.		Plots.		Plots.		Plots.	
1	Farmyard Manure (14 tons).	1		1		1		1	
2	Ditto ditto ; and Superphosphate of Lime (1).	2		2		2	Each Plot	2	
3	Without Manure (for 30 years).	3	Each Plot	3	Each Plot	3	as in Series 1,	3	Each Plot
4	"Superphosphate of Lime"; and Mixed Alkalies (2).	4	as in Series 1,	4	as in Series 1,	4	and	4	as in Series 1,
5	"Superphosphate of Lime".	5	and	5	and	5	Cross-dressed	5	and
6	Ditto ; and 300 lbs. Sulphate of Potass.	6	Cross-dressed	6	Cross-dressed	6	with	6	Cross-dressed
7	Ditto ; ditto ; and 36½ lbs. Ammonia-salts (3).	7	with 550 lbs. Nitrate Soda.	7	with 400 lbs. "Ammonia-salts."	7	2000 lbs. Rape-cake, and 400 lbs. "Ammonia-salts."	7	with 2000 lbs. Rape-cake.
8	Without Manure 1853 and since; previously part Unmanured, and part Superphosphate.	8		8		8		8	

(1) 200 lbs. Bone-ash, 150 lbs. Sulphuric Acid (sp. gr. 1·7). (2) 300 lbs. Sulphate of Potass, 200 lbs. Sulphate Soda, and 100 lbs. Sulphate Magnesia. (3) Equal parts Sulphate and Muriate of Ammonia of Commerce.

Explanation, for Conversion into Foreign Weights and Measures.

1 acre	= (about)	0·40	Hectare	or	1·59	Prussian Morgen.
1 lb. (pound avoir.) ..	= (about)	0·45	Kilogramme	or	0·91	Zollverein Pfund.
1 cwt. (hundredweight)	= (about)	51·0	Kilogrammes	or	1·02	Centner.
1 ton	= (about)	1016·0	Kilogrammes	or	20·33	Centner.
1 lb. per acre	= (about)	1·12	Kilogrammes per Hectare	or	0·57	Zollv. Pfd. per Pr. Morgen.
1 cwt. per acre	= (about)	125·5	Kilogrammes per Hectare	or	0·64	Centner per Pr. Morgen.
1 ton per acre	= (about)	2510·0	Kilogrammes per Hectare	or	12·82	Centner per Pr. Morgen.

Experiments with Different Descriptions of **WHEAT**, in 1871;

and

Summary of Results obtained in previous Years.

Season 1871. Sawpit Field. 3 Cwts. Guano per Acre, after Mangolds.	Dressed Corn per Acre.				Weight per Bushel.			
	1868; Sawpit Field; 1 cwt. Guano, 1 cwt. Wheat Manure; after Clover.	**1869;** Thirty Acres Field; 2 cwts. Guano; after Clover.	**1870;** Sawyer's Field; 4 cwts. Guano; after Fallow.	Average.	**1868;** Sawpit Field; 1 cwt. Guano, 1 cwt. Wheat Manure; after Clover.	**1869;** Thirty Acres Field; 2 cwts. Guano; after Clover.	**1870;** Sawyer's Field; 4 cwts. Guano; after Fallow.	Average.
	Bushels.	Bushels.	Bushels.	Bushels.	lbs.	lbs.	lbs.	lbs.
1. Red Wonder	51⅜	54¾	51	52⅜	63	60½	64¾	62¾
2. Burwell (Old Red Lammas)	41⅞	48⅛	48⅜	46⅛	64	63	65¾	64¼
3. Bristol Red	.. ..	54¾	50	52⅜	.. ..	61	65¼	63⅛
4. Red Nursery	41⅞	49¼	45	45⅜	66	65	66⅞	66
5. Red Langham	.. ..	53	49¼	51⅛	.. ..	61	65¼	63⅛
6. Woolly Ear (White)	44¼	52⅜	47⅝	48	64	61½	64⅝	63½
7. Golden Drop (Red)	.. ..	50½	50½	50½	.. ..	62½	66	64¼
8. Golden Drop (Red), Hallett's	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
9. Hunter's White, Hallett's	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
10. Victoria White, Hallett's	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
11. Original Red, Hallett's	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
12. White Chiddam	49	49⅜	45⅝	48	64½	60½	66⅜	63¾
13. Red Rostock	46⅝	51¼	.. ..	49	63½	61¼	.. ..	62⅜
14. Casey's White	.. ..	.. ..	50½	50½	.. ..	.. ..	64¾	64¾
15. Golden Rough-chaff (Red)	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
16. Bole's Prolific (Red)	.. ..	.. ..	53¼	53¼	.. ..	.. ..	65⅛	65⅛
17. Club Wheat	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
18. Browick (Red)	.. ..	.. ..	50¼	50¼	.. ..	.. ..	64⅛	64⅛
19. Red-chaff (White)	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
20. Maynard's	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
21. Niagara (Red)	.. ..	43⅛	48½	45⅞	.. ..	60½	65	62¾
22. Clover's Suffolk Red	41¼	.. ..	.. ..	41¼	64	.. ..	.. ..	64
Mean	45⅛	50⅝	49⅛	48⅞	64⅛	61⅝	65⅜	63⅞

EXPERIMENTS WITH A VIEW TO ECONOMY IN THE USE OF EXPENSIVE NITROGENOUS MANURES.

It is found that generally less than half the nitrogen supplied in such manures as guano, ammonia-salts, or nitrate of soda, is recovered in the increase of crop obtained by their use; that a considerable quantity may remain in the soil in a comparatively inactive state, and that a considerable quantity may be carried away by drainage and lost. It seemed desirable, therefore, to commence a series of experiments to determine whether any saving can be effected by applying comparatively small quantities near to the seed, instead of larger amounts as evenly as possible over and throughout the surface soil as in the usual mode of broadcast sowing and harrowing-in. The following experiments were therefore arranged for the present season, 1871.

It is also intended to make experiments with a view to ascertain the best periods of the year for the application of such manures to different crops.

Experiments upon Wheat; First Season, 1871. Little Hoos' Field.

4 Plots, about ¼ acre each.

Plot 1.—Unmanured. Seed, 1 bushel per acre, dibbled, 6 inches apart in the rows.

Plot 2.—Sulphate of ammonia, 146 lbs. per acre (containing about the same quantity of nitrogen as 15 bushels of grain, with its average proportion of straw). Seed, 1 bushel per acre.

Holes dibbled 6 inches apart in the rows (as for Plot 1); the ammonia-salt, previously ground with an equal weight of fine ashes, put, according to calculated measure, into the holes, and the seed, according to calculated number, put in above the manure.

Plot 3.—Sulphate of ammonia, 292 lbs. per acre (double the quantity of Plot 2). Seed, 1 bushel per acre.

The ammonia-salt mixed with fine ashes and sown broadcast. Seed dibbled 6 inches apart in the rows.

Plot 4.—Sulphate of ammonia, 146 lbs. per acre. Seed, 1 bushel per acre.

The ammonia-salt mixed with as little water as would dissolve it, the seed put into the solution, the whole dried up by admixture with dry ashes, and sown broadcast.

Experiments upon Barley; First Season, 1871. Thirty-acres' Field.

6 Plots, about ½ acre each.

Plot 1.—Unmanured. Seed, 3 bushels per acre, drilled.

Plot 2.—1 cwt. superphosphate, 1 cwt. nitrate of soda, per acre. Seed, 3 bushels per acre.

Manures sown broadcast; seed drilled.

Plot 3.—1 cwt. superphosphate, 1 cwt. nitrate of soda, per acre. Seed, 3 bushels per acre.

Manures mixed with fine ashes and drilled; seed drilled above the manure.

Plot 4.—1 cwt. superposphate, 1 cwt. nitrate of soda, per acre. Seed, 3 bushels per acre.

The manures well mixed with fine ashes, then the seed well mixed with the manure, and the whole drilled together.

Plot 5.—1 cwt. superphosphate, 1 cwt. nitrate of soda, per acre. Seed, 1½ bushel per acre.

Holes dibbled 6 inches apart in the rows; the manures well mixed with an equal weight of fine ashes, and put, according to calculated measure, into the holes, and the seed, according to calculated number, put in above the manure.

Plot 6.—2 cwts. superphosphate, 2 cwts. nitrate of soda, per acre. Seed 3 bushels per acre.

The manures mixed with ashes and sown broadcast. The seed drilled.

https://doi.org/10.23637/ERADOC-1-235