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# Memoranda of the Plan and Results of the Rothamsted Field Experiments - Supplement - June 1864



[Full Table of Content](#)

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## Experiments on Wheat: Broadbalk Field

### Rothamsted Research

Rothamsted Research (1865) *Experiments on Wheat: Broadbalk Field* ; Memoranda Of The Plan And Results Of The Rothamsted Field Experiments - Supplement - June 1864, pp 2 - 2 - **DOI:** <https://doi.org/10.23637/ERADOC-1-231>

EXPERIMENTS ON THE GROWTH OF WHEAT YEAR AFTER YEAR ON THE SAME LAND; WITHOUT MANURE, AND WITH DIFFERENT KINDS OF MANURE. BROADBALK FIELD.

Previous Cropping—1839, Turnips, with Farmyard Manure; 1840, Barley; 1841, Peas; 1842, Wheat; 1843, Oats. The last four Crops Unmanured. First Experimental Wheat Crop in 1844. Wheat every year since; and with some exceptions, nearly the same description of Manures on the same Plots each year—especially during the last 12 years.

(Area under experiment about 13 acres.)

PLOTS.	Manures, per acre, for the growing (21st) Wheat-crop—1864. 1 acre .. .. = (about) 0.40 Hectare. 1 bushel .. .. = (about) 0.36 Hectolitre. 1 lb. (pound, avoird.) = (about) 0.45 Kilogramme. 1 cwt. (hundredweight) = (nearly) 51.0 Hectolitre per Hectare. 1 bushel per acre .. = (nearly) 0.9 Hectolitre per Hectare. 1 cwt. per acre .. .. = (about) 125.5 Kilogrammes per Hectare.	PRODUCE PER ACRE.									
		Average per Annum, over 12 Years, 1852-1863.					Twenty-first Season, 1863.				
		Dressed Corn.					Dressed Corn.				
		Quantity.	Weight per Bushel.	Total Straw.	Quantity.	Weight per Bushel.	Total Straw.	Quantity.	Weight per Bushel.	Total Straw.	Quantity.
0	Superphosphate of Lime (three times as much as on No. 5 and succeeding Plots)	18 1	57 1/2	16 1/2	57 1/2	22 0 3/4	62 1/2	16 1/2	57 1/2	16 1/2	
1	Mixed Alkalies (twice as much as on No. 5 and succeeding Plots)	16 1/2	57 1/2	15 1/2	57 1/2	20 3	62 1/2	15 1/2	57 1/2	15 1/2	
2	Farm-yard dung (14 tons every year)	35 1 1/2	59 1/2	34 1/2	59 1/2	44 0	63 1/2	34 1/2	59 1/2	34 1/2	
3	Unmanured, continuously	15 2	56 1/2	14 1/2	56 1/2	17 1	62 1/2	14 1/2	56 1/2	14 1/2	
4	Unmanured for Crop of 1852, and since (previously Superphosphate and Ammonia-salts)	16 3/4	57 1/2	15 1/2	57 1/2	20 1	62 1/2	14 1/2	56 1/2	14 1/2	
5 (a-b)	Mixed Alkalies <sup>(1)</sup> ; and Superphosphate of Lime <sup>(2)</sup>	18 1 1/2	58	17	58	19 2 3/4	63	15 1/2	58	15 1/2	
6 (a-b)	ditto	28 1 1/2	58 1/2	27	58 1/2	39 2 1/2	62 1/2	27 1/2	58 1/2	27 1/2	
7 (a-b)	ditto	36 1 1/2	58 1/2	37 1/2	58 1/2	53 2 1/2	62 1/2	37 1/2	58 1/2	37 1/2	
8 (a-b)	ditto	38 0	57 1/2	42	57 1/2	55 2 1/2	62 1/2	42	57 1/2	42	
9 { a } b	ditto	34 2	57	39 1/2	57	55 2 1/2	62 1/2	39 1/2	57	39 1/2	
10 { a } b	none since 1844	25 3 1/2	55 1/2	28 1 1/2	55 1/2	39 0 1/2	62 1/2	28 1 1/2	55 1/2	28 1 1/2	
	none (except 1844, '48, & '50);	22 2 1/2	57	23 1/2	57	39 0 1/2	62 1/2	23 1/2	57	23 1/2	
	400 lbs. "Ammonia-salts"	26 3 1/2	57	27 1/2	57	43 2 1/2	62 1/2	27 1/2	57	27 1/2	
	and 500 lbs. Nitrate of Soda	29 2 1/2	56 1/2	28 1/2	56 1/2	45 3	62 1/2	28 1/2	56 1/2	28 1/2	
11 (a-b)	none	35 0 1/2	58 1/2	35 0 1/2	58 1/2	54 0	62 1/2	35 0 1/2	58 1/2	35 0 1/2	
12 (a-b)	366 1/2 lbs. (3) Sulphate of Soda	34 2 1/2	58 1/2	34 2 1/2	58 1/2	53 1 1/2	62 1/2	34 2 1/2	58 1/2	34 2 1/2	
13 (a-b)	200 lbs. (3) Sulphate of Potass	35 0	58 1/2	35 0	58 1/2	53 3 1/2	62 1/2	35 0	58 1/2	35 0	
14 (a-b)	280 lbs. (3) Sulphate of Magnesia	33 0 1/2	58 1/2	34	58 1/2	48 1 1/2	62 1/2	34	58 1/2	34	
15 { a } b	"Mixed Alkalies"	34 3 1/2	58 1/2	36	58 1/2	48 0	62 1/2	36	58 1/2	36	
16 (a-b)	ditto	38 2	57 1/2	46	57 1/2	55 3 1/2	62 1/2	46	57 1/2	46	
17 (a-b)	none	32 2 1/2	58 1/2	32 2 1/2	58 1/2	46 0	62 1/2	32 2 1/2	58 1/2	32 2 1/2	
18 (a-b)	"Superphosphate of Lime"	18 3 1/2	58 1/2	17 3/4	58 1/2	21 1 1/2	62 1/2	17 3/4	58 1/2	17 3/4	
19	ditto	31 2 1/2	58	31 1/2	58	46 2 1/2	62 1/2	31 1/2	58	31 1/2	
20	Unmanured continuously	15 2 1/2	57	15 1/2	57	17 2 1/2	62 1/2	15 1/2	57	15 1/2	
21	"Mixed Alkalies"	22 0 1/2	58	21	58	27 2 1/2	62 1/2	21	58	21	
22	ditto	21 2 1/2	57 1/2	20 1/2	57 1/2	29 3	62 1/2	20 1/2	57 1/2	20 1/2	

(1) Since 1858, 200 lbs. Sulphate of Potass, 100 lbs. Sulphate of Soda, and 100 lbs. Sulphate of Magnesia; for Crop of 1857-8, and previously, 300 lbs., 200 lbs., and 100 lbs., respectively.  
 (2) 200 lbs. Bone-ash, 150 lbs. Sulphuric acid (Sp. gr. 1.7).  
 (3) Equal parts Sulphate and Muriate of Commerce.  
 (4) For 1858, and previously 1 1/2 time as much.  
 (5) The Manures of 17 and 18 alternate.  
 (6) With Hydrochloric instead of Sulphuric Acid.  
 (7) Average of 12 years' Ammonia-salts alternated with Mineral Manures.  
 (8) Average of 12 years' Mineral Manures for the Crop of 1863.  
 (9) Plots 17 had the Mineral Manures for the Crop of 1863.  
 (10) Plots 18 had the Ammonia-salts for the Crop of 1863.  
 (11) Plots 17 had the Ammonia-salts for the Crop of 1863.  
 (12) Plots 18 had the Ammonia-salts for the Crop of 1863.