

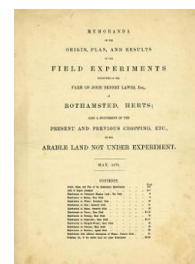
Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readable, or you suspect there are some problems, please let us know and we will correct that.



ROTHAMSTED  
RESEARCH

# Yields of the Field Experiments 1878

[Full Table of Content](#)



## Experiments on Wheat; Broadbalk Field

### Rothamsted Research

Rothamsted Research (1879) *Experiments on Wheat; Broadbalk Field* ; Yields Of The Field Experiments 1878, pp 10 - 10 - DOI: <https://doi.org/10.23637/ERADOC-1-242>

BROADBALK FIELD.

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

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 Manure on the same Plots each year—especially during the last 27 years (1852 and since). From the commencement of the experiments in 1843-4 up to 1876-7 inclusive, the mineral manures, the ammonia-salts, and rape-cake, &c., if any, were sown in the autumn, before the seed; excepting in 1845, when, owing to the wet autumn and winter, all the manures were spring-sown; and for the crops of 1873, 4, 5, 6, and 7, the ammonia-salts applied to Plot 15 were top-dressed in the spring. Nitrate of soda has, however, always been sown in the spring. But, in consequence of the ascertained great loss of the nitrogen of the ammonia-salts decided to apply only the mineral manures (and Farmyard-manure) in the autumn, and the ammonia-salts, as well as the nitrate, in the spring; excepting on Plot 15, where, for comparison, the ammonia-salts are to be sown in the autumn; and on Plot 19, where the ammonia-salts are mixed in, when the superphosphate is made. This plan is adopted for the first time for the present crop, 1877-8.

(Area under experiment, about 13 acres.)

Plots.	Manures, per acre, per annum.	PRODUCE PER ACRE.											Thirty-Fourth Season, 1877.		Plots.	
		Average per Annum.						Total Straw.					Quantity.	Weight Bushel.		Total Straw.
		Dressed Corn.		Wheat per Annum.		Total Straw.										
		Quantity.		Weight per Bushel.		Total Straw.					Quantity.	Weight Bushel.				
12 Years, 1832-43.	12 Years, 1862-75.	12 Years, 1862-75.	12 Years, 1862-75.	12 Years, 1862-75.	12 Years, 1862-75.	12 Years, 1862-75.	12 Years, 1862-75.	12 Years, 1862-75.	12 Years, 1862-75.	12 Years, 1862-75.	12 Years, 1862-75.	12 Years, 1862-75.	12 Years, 1862-75.	12 Years, 1862-75.		
0	Superphosphate of Lime (three times as much as on No. 5 and succeeding Plots)	18½	17½	58½	57½	16½	13	14½	14½	14½	14½	14½	12	59	0	
1	Sulphates of Potash, Soda, and Magnesia (twice as much as on No. 5 and succeeding Plots)	16½	14½	58½	57½	15½	10½	13	13	13	13	13	7½	59½	1	
2	Farmyard Manure (14 tons every year)	35½	35	57½	57	34½	35½	35½	35½	35½	35½	35½	24½	59½	2	
3	Unmanured continuously	15½	13	56½	55	14	12	13	13	13	13	13	8½	58½	3	
4	Unmanured for Crop of 1852, and since; previously Superphosphate (made with Muriatic Acid), and Sulphate of Ammonia	17	13	57½	57	14	10½	13	13	13	13	13	9½	57½	4	
5 (a and b)	200 lbs. ① Sulphate of Potash, 100 lbs. ② Sulphate of Soda, 100 lbs. Sulphate of Magnesia, 3½ cwt. Superphosphate of Lime ③	18½	16½	57½	57	14½	11½	14½	14½	14½	14½	14½	11½	57½	5	
6 (a and b)	200 lbs. ① Sulphate of Potash, 100 lbs. ② Sulphate of Soda, 100 lbs. Sulphate of Magnesia, 3½ cwt. Superphos., 200 lbs. Ammonia-salts ④	28½	25½	58	58	26½	20½	23	23	23	23	23	14½	58½	6	
7 (a and b)	200 lbs. ① Sulphate of Potash, 100 lbs. ② Sulphate of Soda, 100 lbs. Sulphate of Magnesia, 3½ cwt. Superphos., 400 lbs. Ammonia-salts	36½	32	58½	58	34½	34½	34½	34½	34½	34½	34½	19½	59½	7	
8 (a and b)	200 lbs. ① Sulphate of Potash, 100 lbs. ② Sulphate of Soda, 100 lbs. Sulphate of Magnesia, 3½ cwt. Superphos., 600 lbs. Ammonia-salts	38	37	57½	57	40½	40½	40½	40½	40½	40½	40½	24	59	8	
9 (a and b)	200 lbs. ① Sulphate of Potash, 100 lbs. ② Sulphate of Soda, 100 lbs. Sulphate of Magnesia, 3½ cwt. Superphos., 550 lbs. Nitrate of Soda ⑤	34½	33	57	57	38½	38½	38½	38½	38½	38½	38½	27	57	9	
9 (b)	550 lbs. Nitrate of Soda ⑤. (The Nitrate for both 9a and 9b always sown in the Spring)	25	24	55½	55	28½	28½	28½	28½	28½	28½	28½	27	58	9	
10 (a and b)	400 lbs. Ammonia-salts alone, for 1845, and each year since; Mineral Manure in 1844	27	23	57	57	27	25	27	27	27	27	27	17½	58½	10	
10 (b)	400 lbs. Ammonia-salts alone, for 1845, and each year since (except 1846 and 1850); Mineral Manure 1844, 48, 50	28	23	56½	56	27	25	28	28	28	28	28	17½	57	10	
11 (a and b)	400 lbs. Ammonia-salts, 3½ cwt. Superphosphate	35	31	58½	58	33½	33	35	35	35	35	35	17½	59	11	
11 (a and b)	400 lbs. Ammonia-salts, 3½ cwt. Superphosphate, and 366½ lbs. ⑥ Sulphate of Soda	35	31	58½	58	33½	33	35	35	35	35	35	17½	59	11	
12 (a and b)	400 lbs. Ammonia-salts, 3½ cwt. Superphosphate, and 200 lbs. ⑥ Sulphate of Potash	34½	31	58½	58	33½	33	35	35	35	35	35	18½	58½	12	
13 (a and b)	400 lbs. Ammonia-salts, 3½ cwt. Superphosphate, and 280 lbs. ⑥ Sulphate of Magnesia	35	31	58½	58	33½	33	35	35	35	35	35	18½	58½	13	
14 (a and b)	200 lbs. ① Sulph. Pot., 100 lbs. ② Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos., ⑦; 400 lbs. Amm.-salts, in Autm. ⑧	33½	31	58½	58	32½	32	34	34	34	34	34	18½	58½	14	
15 (a and b)	200 lbs. ① Sulph. Pot., 100 lbs. ② Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos., ⑦; 400 lbs. Amm.-salts, in Autm. ⑧	34½	32	58½	58	33½	33	35	35	35	35	35	18½	58½	15	
16 (a and b)	{ 1852-64, 15 years, 200 lbs. Sulph. Potash, 100 lbs. Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos., and 800 lbs. Ammonia-salts; average produce 39½ bush. Corn, 46½ cwt. Straw 1865 and since, unmanured; average produce (12 years, 1865-76) 16½ bushels Corn, 14½ cwt. Straw	38½	32	57	57	46	46	46	46	46	46	46	9½	58½	16	
17 (a and b)	400 lbs. Ammonia-salts .. .. .	32	28	58	58	30½	30	32	32	32	32	32	10	58	17	
18 (a and b)	400 lbs. Ammonia-salts .. .. .	18	14	58	58	17½	17	19	19	19	19	19	12	58	18	
19	3½ cwt. Superphosphate of Lime (1), 300 lbs. Sulphate of Ammonia, and 500 lbs. Rape-cake, in Autumn	31	28	58	58	31	31	31	31	31	31	31	19	58	19	
20	Unmanured continuously .. .. .	15	12	57	57	15	11	13	13	13	13	13	11	58	20	
21	200 lbs. ① Sulph. Potash, 100 lbs. ② Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos., 100 lbs. Muriate Ammonia	22	19	57	57	20	16	18	18	18	18	18	11	58	21	
22	200 lbs. ① Sulph. Potash, 100 lbs. ② Sulph. Soda, 100 lbs. Sulph. Mag., 3½ cwt. Superphos., 100 lbs. Sulphate Ammonia	21	19	57	57	20	16	18	18	18	18	18	11	58	22	

(1) 800 lbs. per annum for Crop of 1858, and previously.  
 (2) 200 lbs. per annum for Crop of 1858, and previously.  
 (3) a Superphosphate of Lime—in all cases, excepting for Plot 19, made from 200 lbs. Bone-ash, 150 lbs. Sulphuric acid sp. gr. 1.7 (and water).  
 (4) The Ammonia-salts, in all cases, equal parts Sulphate and Muriate of Ammonia of Commerce.  
 (5) 94, 47½ lbs. Nitrate of Soda in 1852, 97½ lbs. in 1853 and 1854, 50 lbs. each year since. No Sulphate of Potash, or Magnesia, or Superphosphate, in 1852, 1853, or 1854, 96, 47½ lbs. Nitrate in 1852, 550 lbs. each year since. Nitrate is reckoned to contain the same amount of Nitrogen as 400 lbs. "Ammonia-salts," for 1858, and previously—1½ time as much.  
 (6) For 1872 and previously, made with Muriate instead of Sulphuric Acid.  
 (7) For 1872 and previously, 400 lbs. Sulphate Ammonia, sown in the Autumn; for 1873, 4, 5, 6, and 7, 400 lbs. Ammonia-salts, sown in the Spring; for 1878, 400 lbs. Ammonia-salts, sown in the Autumn.  
 (8) For 1872 and previously, 300 lbs. Sulphate Ammonia and 500 lbs. Rape-cake, sown in the Autumn; for 1873, 4, 5, 6, and 7, 400 lbs. Ammonia-salts, sown in the Spring; for 1878, 400 lbs. Ammonia-salts, sown in the Autumn.  
 (9) For 1872 and previously, 300 lbs. Sulphate Ammonia and 500 lbs. Rape-cake, sown in the Autumn; for 1873, 4, 5, 6, and 7, 400 lbs. Ammonia-salts, sown in the Spring; for 1878, 400 lbs. Ammonia-salts, sown in the Autumn.