

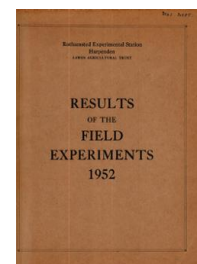
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Yields of the Field Experiments 1952

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Classical Experiments

Rothamsted Research

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52/A/1

WHEAT - BROADBALK 1952

The 109th year

For history, details of treatments etc. see "Results of the Field Experiments 1939-1947".

Cultivations, etc.:

Crop sections. Dung applied, ploughed all plots: Sept 7.

Autumn fertilizers applied: Oct 22. Seed drilled at $3\frac{1}{4}$ bushels per acre: Nov 5. Spring fertilizers applied: Apr 21. Second dressing of nitrate of soda applied to plot 16: May 13.

Harvested: Aug 22. Variety: Squareheads Master 13/4.

Fallow section. Ploughed: Sept 6, Apr 22, June 26 and Aug 27.

Summary of Results

Section Years after Fallow	Grain: cwt per acre					Straw: cwt per acre				
	I	III	IV	V	Mean	I	III	IV	V	Mean
	1	2	3	4		1	2	3	4	
2A	22.7	20.8	26.0	24.2	23.4	40.8	38.2	44.8	43.4	41.8
2B	23.8	21.8	26.3	25.1	24.2	45.4	42.4	44.6	42.5	43.7
3	18.2	9.7	10.1	9.8	12.0	36.7	13.5	14.1	13.9	19.6
5	22.1	10.4	11.4	10.8	13.7	39.4	16.0	18.9	20.5	23.7
6	21.2	17.2	16.9	16.8	18.0	40.9	27.0	31.2	30.9	32.5
7	25.7	21.7	20.8	18.8	21.8	44.4	41.8	43.9	41.2	42.8
8	23.1	25.3	24.4	23.8	24.2	44.8	48.4	51.0	47.6	48.0
9	22.3	17.8	18.6	18.2	19.2	40.5	34.5	39.6	36.8	37.8
10	16.7	20.2	21.3	17.9	19.0	30.3	35.1	37.1	31.6	33.5
11	19.3	18.7	21.9	18.5	19.6	32.6	30.2	35.8	33.1	32.9
12	22.8	22.4	20.0	19.6	21.2	38.8	36.2	36.2	34.4	36.4
13	23.0	23.9	21.5	16.1	21.1	43.9	42.1	36.9	33.5	39.1
14	20.6	23.4	22.7	17.6	21.1	39.0	37.5	38.0	31.7	36.6
15	23.0	18.1	17.6	15.4	18.5	38.6	34.0	31.9	32.2	34.2
16	22.0	24.3	23.9	21.1	22.8	44.5	44.2	45.2	41.2	43.8
17	22.0	21.0	22.1	20.6	21.4	40.1	38.3	40.7	41.7	40.2
18	16.9	9.8	9.4	8.0	11.0	26.3	14.2	13.7	13.2	16.8
19	21.6	17.8	14.8	16.9	17.8	38.4	30.7	25.0	31.1	31.3
20	16.9	-	-	-	16.9	30.1	-	-	-	30.1

52/A/2

BARLEY - HOOSFIELD 1952

The 101st year

For history, details of treatments etc. see "Results of Field Experiments 1939-47".

Cultivations, etc.: Ploughed: Sept 21, 1951. Dung applied: Dec 18, Ploughed: Dec 19, Fertilizers applied: Feb 27, 1952. Seed drilled at 3 bushels per acre: Feb 29. Sprayed with D.N.O.C. 1 gallon per acre: May 9. Harvested: Aug 1. Variety: Plumage Archer.

Note: Owing to a very heavy infestation by Wild Oats (*Avena Fatua*): the major part of each plot was cut and carted green before the oats ripened. The remainder (generally 1/25 - 1/50 acre) was left to ripen, and the yields shown are measured from these small areas.

Summary of Results

Plot	Grain: cwt per acre	Straw: cwt per acre
1 C	6.8	9.1
2 O	12.2	8.7
3 O	6.7	10.7
4 O	11.9	12.3
5 O	3.0	5.8
1 A	13.5	18.5
2 A	19.3	28.2
3 A	13.1	19.5
4 A	12.2	17.6
5 A	16.1	28.2
1 AA	13.0	20.5
2 AA	15.6	35.9
3 AA	11.9	25.3
4 AA	16.2	22.8
1 AAS	14.9	25.7
2 AAS	21.5	37.0
3 AAS	9.9	27.1
4 AAS	19.6	23.9
1 C	11.9	27.5
2 C	16.8	20.8
3 C	8.5	10.5
4 C	17.0	20.3
7 - 1	6.3	11.2
7 - 2	18.0	20.1
6 - 1	5.2	5.7
6 - 2	6.9	7.5
1 N	10.3	24.5
2 N	15.8	25.0

52/A/3

WHEAT AFTER FALLOW - HOOSFIELD 1952

Without manure 1851 and since

For history, details of treatments etc., see "Results of Field Experiments 1939-47".

Cultivations, etc.:

Cropped plots. Ploughed: Sept 18, 1951. Seed drilled at 3 bushels per acre: Oct 19. Harvested: July 31, 1952.

Variety: Squareheads Master 13/4.

Fallow plots. Ploughed: Sept 18, 1951, Feb 8 and Sept 6, 1952.

Summary of Results

Mean yields: cwt per acre.

Plot No. of years of fallow	A ₁	A ₄	A ₂	Mean
	1	1	3	
Grain	10.5	8.9	8.9	9.4
Straw	19.4	15.3	14.8	16.5

CROPS IN ROTATION - AGDELL 1952

Turnips - 1st crop of 27th course 1952-55

Owing to the repeated failures of the turnip crops of this experiment through club root disease, it was decided not to drill turnips, and the field was fallowed.

Cultivations, etc.: Ploughed: Sept 4, 1951, Feb 13, and Sept 5, 1952.

52/A/4.1

MANGOLDS AND SUGAR BEET - BARNFIELD 1952

The 77th and 7th years

For history, details of treatments etc, see "Results of the Field Experiments 1939-47".

Cultivations, etc.: Dung applied: Dec 13, 1951. Ploughed: Feb 13, 1952. Fertilizers applied: Apr 23. Seed drilled, mangolds - 9 lb per acre, sugar beet - 18 lb per acre: Apr 28. Sprayed with DDT emulsion: May 19 and again May 23. Singling commenced: June 18. Top dressings applied: July 8. Mangolds lifted: Nov 11 - Dec 20. Sugar beet lifted: Dec 22-30. Varieties: Mangolds - Yellow Globe, sugar beet - Klein E.

Summary of Results

Strip	Cross Dressings				
	O	N	A	AC	G
Mangolds, Roots: tons per acre					
1	4.89	19.69	17.42	18.10	17.89
2	10.10	24.97	19.33	24.15	21.02
4	2.29	(a) 15.23 (b) 18.54	9.45	14.56	16.94
5	1.72	15.15	6.21	8.06	10.96
6	1.51	13.65	8.91	15.46	15.07
7	1.26	14.66	11.92	18.98	15.90
8	0.87	6.75	4.75	2.41	4.60
9	10.19				
Mangolds, Leaves: tons per acre					
1	1.47	6.41	5.72	4.82	5.43
2	3.23	7.39	6.09	6.36	4.45
4	0.98	(a) 4.65 (b) 6.16	3.03	5.92	5.36
5	0.42	4.84	2.84	3.94	5.04
6	0.37	3.47	3.45	6.75	5.38
7	0.42	2.48	3.16	7.49	4.16
8	0.71	2.08	2.03	1.27	2.98
9	3.18				

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Strip	Cross-Dressings				
	O	N	A	AC	C

Sugar Beet, Roots: tons per acre

1	7.44	15.31	13.02	13.41	15.02
2	6.17	13.65	8.42	10.76	14.43
4	1.81	(b) 11.60	8.37	13.31	11.94
5	1.22	9.64	3.91	5.38	7.05
6	1.17	8.12	6.90	11.35	9.20
7	0.87	10.42	9.20	13.26	9.54
8	1.27	5.87	5.28	6.07	5.38

Sugar Beet, Tops: tons per acre

1	4.11	11.01	15.17	15.76	7.19
2	3.57	12.87	8.61	12.48	10.23
4	0.98	(b) 9.83	5.68	11.06	8.71
5	1.17	6.75	3.96	7.83	6.61
6	1.17	7.83	5.43	13.90	6.46
7	1.03	9.74	6.21	17.57	9.30
8	1.47	6.85	6.65	9.64	8.51

HAY - THE PARK GRASS PLOTS 1952

The 97th year

For history, details of treatments etc., see "Results of Field Experiments 1939-47."

Cultivations, etc.: Lime applied: Dec 17. Mineral fertilizers applied: Jan 11. Nitrogenous fertilizers applied: 1st dressing - Mar 10, 2nd dressing - Apr 15. 1st cut: June 19. 2nd cut: Sept 22.

Summary of Results

Plot	Yield of Hay: cwt per acre					
	Not limed			Limed		
	1st Crop	2nd Crop	Total	1st Crop	2nd Crop	Total
1	9.0	0.6	9.6	22.2	2.0	24.2
2	16.1	4.2	20.3	21.4	2.1	23.5
3	15.4	3.6	19.0	20.3	1.5	21.8
4-1	23.3	8.6	31.9	21.5	4.0	25.5
4-2	15.3	0.8	16.1	32.0	4.4	36.4
5-1	10.2	1.1	11.3			
5-2	21.2	4.6	25.8			
6	32.0	9.4	41.4			
7	28.5	10.1	38.6	40.8	12.9	53.7
8	28.4	6.4	34.8	22.0	3.0	25.0
9	44.1	2.9	47.0	50.4	6.6	57.0
10	15.7	2.0	17.7	38.8	6.0	44.8
11-1	43.6	10.9	54.5	59.1	10.4	69.5
11-2	61.3	11.4	72.7	68.3	15.8	84.1
12	18.5	5.2	23.7			
13	35.5	8.0	43.5	36.5	8.8	45.3
14	56.1	17.2	73.3	49.1	5.1	54.2
15	21.3	7.9	29.2	28.8	11.8	40.6
16	37.9	9.4	47.3	40.5	7.9	48.4
17	19.8	6.1	25.9	22.1	5.8	27.9
18	5.6	1.1	6.7	33.6*	5.1*	38.7*
				33.6†	5.5†	39.1†
19	34.4	5.2	39.6	28.8*	5.1*	33.9*
				31.2†	5.2†	36.4†
20	44.2	6.9	51.1	44.2*	4.6*	48.8*
				43.3†	5.6†	48.9†

* Heavy liming.

† Light liming.

Note: The second crop was carted green; hay yields were estimated from the dry matter.

BARLEY - EXHAUSTION LAND HOOSFIELD 1952

History: From 1852 - 1875 wheat was grown on this field under fertilizer treatments similar to those on some of the Broadbalk plots, on strips $\frac{1}{5}$ acre in area. From 1876 - 1901 potatoes were grown continuously, several of the strips retaining their original treatments.

The field received no fertilizers whatsoever from 1902 - 1939 during which period cereals were grown. In 1940 and thereafter, a top dressing of nitrogen, at present $2\frac{1}{2}$ cwt sulphate of ammonia per acre, has been applied each year, the intention being to study further the residual effects of the fertilizers applied to the potatoes. No yields were taken between 1922 and 1948 except in 1935.

The fertilizers (per acre) applied to potatoes from 1876-1901 as follows:-

- Plot 1 Unmanured
- 2 Previously unmanured
1876-1881 6 years of F.Y.M. at 14 tons
1882-1901 unmanured.
- 3 Previously unmanured
1876-1882 7 years superphosphate at 350 lb. (200 lb. bone ash, 150 lb. sulphuric acid)
1876-1901 26 years F.Y.M. at 14 tons
- 4 Previously unmanured
1876-1882 7 years superphosphate at 350 lb.
1876-1881 6 years nitrate of soda at 550 lb.
1876-1901 26 years F.Y.M. at 14 tons
- 5 Previously 400 lb. ammonium salts
1876-1901 26 years ammonium salts at 400 lb.
- 6 Previously 400 lb. ammonium salts
1876-1901 26 years nitrate of soda at 550 lb.
- 7 Previously 400 lb. ammonium salts and minerals
1876-1901 26 years ammonium salts at 400 lb.
1877-1887 11 years superphosphate (200 lb. bone ash, 150 lb. sulphuric acid)
1888-1896 9 years super at 392 lb. (made from mineral phosphate)
1897-1901 5 years basic slag at 400 lb.
1877-1901 25 years sulphate of potash at 300 lb.
1877-1901 25 years sulphate of magnesia at 100 lb.
1877-1901 25 years sulphate of soda at 100 lb.
- 8 Previously 400 lb. ammonium salts and minerals
1876-1901 26 years nitrate of soda at 550 lb.
1876-1901 minerals as applied to plot 7
- 9 Previously complete minerals
1877-1901 25 years phosphate as applied on plot 7
- 10 Previously complete minerals
1877-1901 minerals as applied to plot 7

52/A/6.2

Cultivations, etc.: Ploughed: Sept 14 and again Dec 17, 1951. Seed drilled at 3 bushels per acre, sulphate of ammonia applied: Feb 28. Harvested: July 31. Variety: Plumage Archer.

Summary of Results

Manuring to Potatoes 1876 - 1901 [*]	Grain: cwt per acre	Straw: cwt per acre
1 Unmanured	12.9	16.7
2 Unmanured after 6 years dung	10.1	13.0
3 Dung	23.2	27.2
4 Dung	22.8	29.4
5 Ammonium salts	16.5	19.8
6 Nitrate of soda	13.1	15.5
7 Ammonium salts and complete minerals	21.3	27.0
8 Nitrate of soda and complete minerals	21.4	24.3
9 Superphosphate	19.7	22.2
10 Complete minerals	21.8	23.9

^{*}For certain changes see list of treatments.

52/A/7

WHEAT - WOBURN STACKYARD 1952

For history, details of treatments etc., see "Results of the Field Experiments 1939-47".

Cultivations, etc.: Ploughed: Sept 4, 1951. Seed drilled at 3 bushels per acre: Oct 20. Nitrochalk applied: Apr 23, 1952. Sprayed with D.N.O.C. 2/3 gallon per acre: May 19 and again May 23. Harvested: July 29. Variety: Squareheads Master (13/4).

Summary of Results

Plot	Nitrochalk dressing cwt per acre	Grain: cwt per acre	Straw: cwt per acre
3	2	3.2	8.5
1	4	7.0	22.7
7	6	4.8	13.9
6	2	4.2	11.3
9	4	7.7	18.6
4	6	8.6	25.3
11b (2)	2	6.1	13.5
11b (3)	4	9.3	21.4
11b (1)	6	13.6	25.2
11a	2	3.9	13.0
10a	4	6.5	18.4
10b	6	7.0	16.8

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BARLEY - WOBURN STACKYARD, 1952

For history, details of treatments etc., see "Results of the Field Experiments 1939-47", with the exception that in 1952 it was decided to divide each plot into two, and sow one half with a Winter variety, and the other, as before with a Spring variety.

Cultivations, etc.: Ploughed: Sept 28, 1951. Seed drilled at 3 bushels per acre on "Winter" plots: Dec 3. Seed drilled at 3 bushels per acre on "Spring" plots, nitrochalk applied to all plots: Mar 17, 1952. Sprayed with D.N.O.C.: May 19. Harvested: Winter barley - July 29, Spring barley - Aug 15. Varieties: Winter barley - Pioneer, Spring barley - Plumage Archer.

Summary of Results

Plot	Nitrochalk dressing cwt per acre	Grain: cwt per acre		Straw: cwt per acre	
		Winter sown	Spring sown	Winter sown	Spring sown
1	2	21.9	13.0	22.0	19.9
3	4	21.7	12.4	25.3	16.4
7	6	23.5	8.1	27.8	8.6
6	2	22.3	9.7	21.1	14.5
9	4	26.6	9.5	27.7	14.0
4	6	20.3	11.3	23.4	15.9
11b (3)	2	28.7	9.6	28.2	20.7
11b (1)	4	37.3	6.6	40.7	10.2
11b (2)	6	33.7	6.5	40.5	14.9
10b	2	28.4	11.3	- ⁺	18.4
11a	4	24.2	12.7	24.3	15.4
10a	6	11.1	- [*]	26.2	- [*]

^{*} No yields taken owing to bird damage.

⁺ Recorded yield obviously incorrect.