

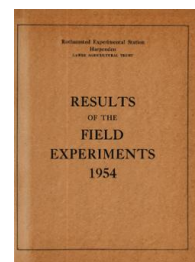
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# Yields of the Field Experiments 1954

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## Classical Experiments

### Rothamsted Research

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54/A/1

WHEAT - BROADBALK 1954

The 111th year

For history, details of treatments etc. see "Results of the Field Experiments 1939-47" Vol. I, Section A/1.

Cultivations, etc.:

Cropped sections. Dung applied, ploughed all plots: Sept 16, 1953.

Autumn fertilizers applied: Oct 21. Seed drilled at 3 bushels per acre: Oct 23. Spring fertilizers applied: Apr 22, 1954.

Second dressing of nitrate of soda applied to plot 16: May 11.

Harvested: Aug 30. Variety: Squareheads Master 13/4.

Fallow section. Ploughed: Sept 16, 1953, Dec 11 and June 17, 1954.

Summary of Results

Section Years after fallow	Grain (at 85% dry matter): cwt per acre					Straw (at 85% dry matter): cwt per acre				
	V	II	I	III	Mean	V	II	I	III	Mean
	1	2	3	4		1	2	3	4	
2A	27.6	22.7	15.7	19.0	21.3	62.3	49.0	42.9	42.3	49.1
2B	25.4	24.5	15.6	24.2	22.4	59.0	53.7	45.8	49.1	51.9
3	16.4	7.8	6.6	7.4	9.6	32.5	16.8	13.4	16.0	19.7
5	19.8	14.5	9.4	14.6	14.6	40.0	35.8	25.2	29.8	32.7
6	22.7	16.4	12.4	16.9	17.1	48.5	38.5	30.9	37.0	38.7
7	24.4	21.5	14.6	22.3	20.7	52.0	44.1	37.6	44.3	44.5
8	27.6	25.9	16.9	23.6	23.5	60.3	50.8	45.1	48.6	51.2
9	17.9	16.8	15.3	18.2	17.1	41.1	32.0	32.6	35.7	35.3
10	19.7	17.3	13.8	15.2	16.5	47.3	27.9	28.3	29.0	33.1
11	15.8	18.3	14.4	15.8	16.1	39.5	35.6	32.7	30.7	34.6
12	19.0	18.2	15.5	14.9	16.9	47.2	35.7	33.1	30.9	36.7
13	23.3	18.4	14.6	18.7	18.8	55.3	35.9	30.4	37.7	39.8
14	23.1	16.1	15.3	15.1	17.4	48.9	33.0	30.3	32.3	36.1
15	24.1	16.0	13.9	16.2	17.5	51.4	32.3	30.2	29.5	35.9
16	21.7	23.5	19.1	23.5	22.0	50.1	43.4	39.3	45.3	44.5
17	22.2	17.6	16.0	19.9	18.9	50.5	33.7	31.9	34.4	37.6
18	18.5	5.7	2.7	4.4	7.8	42.4	11.0	9.2	10.4	18.3
19	20.9	16.2	13.2	16.1	16.6	53.2	29.1	31.3	31.8	36.4
20	-	14.4	12.6	-	13.5	-	30.1	25.3	-	27.7

Mean dry matter % as harvested, Grain: 81.7  
Straw: 81.9

BARLEY - HOOSFIELD 1954

The 103rd year

For history, details of treatment, etc., see "Results of the Field Experiments 1939-47" Vol I, Section A/2.

Cultivations, etc.: Ploughed: Aug 11, 1953. Dung applied: Nov 24. Ploughed: Nov 25. Fertilizers applied, seed drilled at 3 bushels per acre: Apr 7, 1954. Sprayed with D.N.O.C.: June 3. Cut and discarded crop on plots 5A: July 23. Cut and discarded crop on parts of plots 1C, 2C, 1N, 2N: July 29. Cut and discarded parts of plots 3A and 4A: Aug 18. Harvested: Sept 16. Variety: Plumage Archer.

Note: Wild oats were hand pulled during July. Pre-harvest cuts were made to deal with wild oat infestations on parts of plots 1C, 2C, 1N, 2N, 5A and to remove before harvest areas of crop still green on plots 3A, 4A.

Summary of Results

Plot		Grain (at 85% dry matter) cwt per acre	Straw (at 85% dry matter) cwt per acre
1	O	10.8	10.5
2	O	12.6	10.0
3	O	8.8	8.2
4	O	11.8	11.3
5	O	8.2	7.2
1	A	10.4	11.8
2	A	17.5	16.3
3	A	15.9	16.6
4	A	18.5	18.1
5	A	. Not recorded	
1	AA	14.0	18.0
2	AA	20.4	22.6
3	AA	13.3	14.3
4	AA	18.5	19.8
1	AAS	14.2	18.1
2	AAS	21.8	27.1
3	AAS	18.3	21.0
4	AAS	22.2	20.8
1	C	17.3	18.6
2	C	18.0	18.7
3	C	18.8	17.5
4	C	18.4	18.9
7	- 1	13.9	14.0
7	- 2	28.6	29.9
6	- 1	9.1	8.3
6	- 2	10.8	12.1
1	N	15.4	18.8
2	N	15.8	17.2

Mean dry matter % as harvested: Grain: 81.0. Straw: 80.9

54/A/3

WHEAT AFTER FALLOW - HOOSFIELD 1954

Without manure 1851 and since

For history, details of treatments etc. see "Results of the Field Experiments 1939-47" Vol. I, Section A/3.

Cultivations, etc.:

Cropped plots. Ploughed: Sept 3, 1953. Seed drilled at 3 bushels per acre: Oct 22. Harvested: Sept 6, 1954. Variety: Squareheads Master 13/4.

Fallowed plots. Ploughed: Sept 3, 1953, Dec 3 and Sept 25, 1954.

Summary of Results

Mean yields (at 85% dry matter): cwt per acre

Plot No. of years of fallow	A1	A2	A3	Mean
	1	1	3	
Grain	10.7	10.6	12.0	11.1
Straw	18.5	17.9	20.2	18.9

Mean dry matter % as harvested, Grain: 81.1  
Straw: 82.0

BARLEY - AGDELL 1954

For history, details of treatments etc., of the original experiment which terminated in 1952, see "Results of the Field Experiments 1939-47" Vol. I, Section A/4. Since 1953 the field has been cropped with barley. In 1954 plots 1 and 2 and the south ends of plots 3 and 4 received applications of ground chalk in the winter and spring. Basal nitrogen was applied and no yields were recorded.

Cultivations, etc.:

Ploughed: Sept 29, 1953. Ground chalk applied to certain areas: Jan 6, 1954 and Mar 19. Basal dressing of 2 cwt sulphate of ammonia per acre applied: Mar 19. Seed drilled at 3 bushels per acre, basal dressing of 3 cwt sulphate of ammonia per acre applied: June 18. Harvested: Oct 3. Variety: Plumage Archer.

54/A/4.1

MANGOLDS AND SUGAR BEET - BARNFIELD 1954

The 79th and 9th years

For history, details of treatments etc, see "Results of the Field Experiments 1939-47" Vol.I, Section A/5.

Cultivations, etc.: Dung applied: Nov 16, 1953. Ploughed: Nov 21. Fertilizers applied: Apr 11, 1954. Seed drilled, Mangolds - 9 lb, Sugar beet - 18 lb per acre: Apr 15. Singled: June 19 - July 21. Sprayed with miscible D.D.T. 3 pints per acre: July 19. Top dressings applied: July 17. Lifted: Mangolds - Nov 5, Sugar beet - Nov 13. Varieties: Mangolds - Yellow Globe, Sugar beet - Klein E.

Summary of Results

Strip	Cross Dressing				
	O	N	A	AC	C
Mangolds, Roots: tons per acre					
1	8.63	20.52	21.50	19.41	20.09
2	10.06	23.17	21.43	20.06	19.38
4	1.73	(a) 12.56 (b) 10.45 <sup>‡</sup>	10.85	11.99	14.68
5	1.71	10.94	9.03	8.61	9.35
6	1.47	12.03	10.94	12.82	13.22
7	1.73	11.34	11.31	14.45	14.42
8	0.99	5.13	4.99	8.43	10.40
9	10.85				
Mangolds, Leaves: tons per acre					
1	2.93	5.96	8.23	7.23	7.08
2	3.66	6.99	6.30	7.82	6.59
4	0.99	(a) 4.25 (b) 3.98 <sup>‡</sup>	4.25	6.28	5.74
5	0.83	3.57	3.00	3.86	3.81
6	0.84	3.76	3.74	4.23	4.23
7	0.94	3.76	4.86	6.30	6.06
8	0.66	2.64	3.52	4.27	5.08
9	4.20				
Mangolds, Plant Number: thousands per acre					
1	18.1	22.0	20.7	19.3	21.4
2	22.0	22.8	22.2	20.9	21.9
4	20.3	(a) 21.9 (b) 23.2 <sup>‡</sup>	20.5	18.9	22.7
5	20.5	22.2	21.4	19.4	22.1
6	19.2	21.9	20.8	18.2	22.2
7	20.3	21.8	20.8	20.2	21.9
8	19.4	16.5	20.1	18.7	21.0
9	20.8				

<sup>‡</sup>No nitrate of soda. Nitrogen applied as calcium and potassium nitrates.

54/A/4.2

Strip	Cross Dressing				
	O	N	A	AC	C

Sugar Beet, Roots (washed): tons per acre

1	5.17	9.11	10.60	10.20	9.42
2	6.12	8.61	8.17	8.40	9.26
4	1.17	(b) 5.48 <sup>‡</sup>	5.91	8.81	7.23
5	1.60	5.09	5.21	6.88	5.95
6	1.00	5.09	5.75	8.82	6.88
7	1.38	5.61	5.08	7.28	6.63
8	1.22	3.38	3.96	6.13	5.73

Sugar Beet, Tops: tons per acre

1	5.62	13.68	19.05	14.95	13.63
2	6.94	15.39	13.34	13.38	11.38
4	1.34	(b) 8.99 <sup>‡</sup>	5.47	11.14	8.84
5	1.80	7.67	4.93	13.09	8.65
6	1.38	5.52	5.52	10.65	6.89
7	1.61	7.91	6.64	11.28	7.86
8	1.80	6.59	6.20	10.75	9.72

Sugar Beet, Plant Number: thousands per acre

1	20.4	20.1	21.5	21.5	22.4
2	22.8	22.3	22.0	19.9	21.9
4	23.5	(b) 23.6 <sup>‡</sup>	22.5	22.1	22.3
5	20.6	22.0	22.6	21.8	22.9
6	20.9	22.5	23.0	22.1	22.4
7	21.5	22.9	22.0	21.9	21.9
8	24.0	20.5	22.3	21.3	20.7

Sugar Beet, Sugar Percentage

1	16.4	16.0	15.5	16.2	16.9
2	16.5	16.1	16.2	15.0	16.0
4	16.1	(b) 15.4 <sup>‡</sup>	17.1	16.8	16.2
5	15.6	15.3	16.2	15.2	16.1
6	15.5	16.2	15.8	16.0	16.5
7	15.6	16.0	15.9	15.5	16.2
8	14.7	14.8	15.6	15.5	15.7

<sup>‡</sup>No nitrate of soda. Nitrogen applied as calcium and potassium nitrates.

54/A/5

HAY - THE PARK GRASS PLOTS 1954

The 99th year

For history, details of treatments etc. see "Results of the Field Experiments 1939-47" Vol.I, Section A/6.

Cultivations, etc.: Mineral fertilizers applied: Dec 15, 1953.  
Nitrogenous fertilizers applied: 1st dressing - Mar 10, 1954,  
2nd dressing - Apr 22. Cut: 1st - June 25, 2nd - Nov 13.

Summary of Results

Yield of Hay: cwt per acre

Plot	Not limed			Limed		
	1st Crop	2nd Crop	Total	1st Crop	2nd Crop	Total
1	5.4	14.4	19.8	18.2	9.4	27.6
2	10.4	7.2	17.6	16.5	5.2	21.7
3	10.0	5.8	15.8	14.7	4.9	19.6
4-1	15.4	8.2	23.6	18.6	9.6	28.2
4-2	9.1	11.6	20.7	30.3	9.0	39.3
5-1	6.9	5.4	12.3			
5-2	18.4	11.8	30.2			
6	25.2	16.8	42.0			
7	23.7	19.0	42.7	31.9	17.9	49.8
8	19.1	13.5	32.6	14.6	17.1	31.7
9	7.1	28.1	35.2	41.6	19.5	61.1
10	8.2	16.6	24.8	29.3	13.9	43.2
11-1	4.8	30.2	35.0	49.0	24.0	73.0
11-2	21.9	32.5	54.4	57.7	30.2	87.9
12	10.5	12.4	22.9			
13	31.1	24.4	55.5	26.2	22.9	49.1
14	45.4	22.5	67.9	44.7	27.9	72.6
15	18.8	15.9	34.7	35.3	22.5	57.8
16	28.1	16.6	44.7	29.5	19.4	48.9
17	17.1	16.2	33.3	19.2	15.2	34.4
18	10.3	21.8	32.1	25.5 <sup>*</sup>	11.5 <sup>*</sup>	37.0 <sup>*</sup>
				23.0 <sup>+</sup>	13.5 <sup>+</sup>	36.5 <sup>+</sup>
19	25.5	18.8	44.3	19.9 <sup>*</sup>	15.8 <sup>*</sup>	35.7 <sup>*</sup>
				25.8 <sup>+</sup>	19.2 <sup>+</sup>	45.0 <sup>+</sup>
20	30.1	23.9	54.0	28.7 <sup>*</sup>	19.6 <sup>*</sup>	48.3 <sup>*</sup>
				29.0 <sup>+</sup>	18.0 <sup>+</sup>	47.0 <sup>+</sup>

<sup>\*</sup>Heavy liming

<sup>+</sup>Light liming

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

54/A/6

BARLEY - EXHAUSTION LAND HOOSFIELD 1954

For history, details of treatments etc., see "Results of the Field Experiments 1952", Section A/6.

Cultivations, etc.: Ploughed: Sept 2, 1953 and again Oct 21. Seed drilled at 3 bushels per acre, sulphate of ammonia applied: Mar 16, 1954. Harvested: Aug 28. Variety: Plumage Archer.

Summary of Results

Manuring to Potatoes 1876-1901*	Yields (at 85% dry matter): cwt per acre	
	Grain	Straw
1 Unmanured	16.2	20.5
2 Unmanured after 6 years dung	19.0	28.3
3 Dung	29.9	32.1
4 Dung	28.7	32.9
5 Ammonium salts	20.5	22.1
6 Nitrate of soda	17.2	25.3
7 Ammonium salts and complete minerals	27.8	30.5
8 Nitrate of soda and complete minerals	27.0	34.7
9 Superphosphate	23.8	28.4
10 Complete minerals	26.6	31.0

\*For certain changes see history.

Mean dry matter % as harvested, Grain: 81.4  
Straw: 81.2



54/A/7

WHEAT - WOBURN STACKYARD 1954

For history, details of treatments etc., see "Results of the Field Experiments 1939-47" Vol. I, Section A/7.

Cultivations, etc.: Ploughed: Sept 17, 1953. Seed drilled at 3 bushels per acre: Oct 23. Sprayed with D.N.O.C. 6 lb per acre in 80 gals.: Apr 27, 1954. Nitrochalk applied: Apr 28. Sprayed with 2; 4-D, 2 pints per acre at low volume: May 14. Harvested: Sept 8. Variety: Squareheads Master 13/4.

Summary of Results

Plot	Nitrochalk dressing cwt per acre	Grain: cwt per acre	Straw: cwt per acre
7	2	5.7	24.4
3	4	6.6	8.9
1	6	7.5	14.1
4	2	8.8	8.3
6	4	12.4	10.0
9	6	15.8	13.7
11b(1)	2	15.3	23.6
11b(2)	4	16.6	24.6
11b(3)	6	18.9	31.0
10b	2	3.3	3.5
11a	4	8.0	8.1
10a	6	6.8	11.6

54/A/8

BARLEY - WOBURN STACKYARD 1954

For history, details of treatments etc., see "Results of the Field Experiments 1939-47" Vol. I, Section A/7 and Section A/8 of the 1953 "Results". In 1954 all plots were spring sown.

Cultivations, etc.: Ploughed: Sept 17, 1953. Seed drilled at 3 bushels per acre: Mar 17, 1954. Nitrochalk applied: Mar 19. Harvested: Sept 7. Variety: Plumage Archer.

Note: Due to an infestation of weeds, mainly Agrostis and Spurrey yields were not recorded on plots 7, 1, 10a, 10b, 11a. The yield of plot 3 is based on the  $\frac{1}{2}$  plot, 3aa + 3bb.

Summary of Results

Plot	Nitrochalk dressing cwt per acre	Grain: cwt per acre	Straw: cwt per acre
7	2	-	-
1	4	-	-
3	6	18.8	20.5
4	2	5.7	7.1
6	4	18.2	23.0
9	6	18.4	23.3
11b(2)	2	22.7	26.2
11b(3)	4	24.0	27.0
11b(1)	6	21.5	26.5
10a	2	-	-
10b	4	-	-
11a	6	-	-