

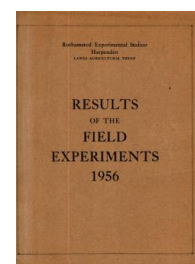
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Yields of the Field Experiments 1956

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Classical Experiments

Rothamsted Research

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56/A/1.1

WHEAT - BROADBALK 1956

The 113th year

For history, treatments etc., see "Details of the Classical and Long Term Experiments" 1956.

Cultivations, etc.:

Cropped sections. Ground chalk and dung applied: Sept 6, 1955.

Ploughed: Sept 7 - 14. Autumn fertilizers applied: Sept 29.

Seed drilled at $2\frac{3}{4}$ bushels per acre: Nov 2. Spring fertilizers applied: May 9 - 10, 1956. Second dressing of nitrate of soda applied to plot 16: May 24. Harvested: Sept 1 - 4. Variety: Squareheads Master 13/4.

Fallow section . (IB) Ploughed: Sept 7 - 14, 1955, May 12 - 15, 1956 and July 17 - 18.

Summary of Results

Grain (at 85% dry matter): cwt per acre

Section Years after fallow	III	IV	VA	VB	II	IA	Mean
	1	2	Unlimed 3	Limed 3	4	5	
2A	27.3	22.3	22.7	19.5	22.6	18.1	23.0
2B	27.4	24.4	23.3	21.5	20.2	19.7	23.4
3	17.1	8.4	8.1	6.9	8.6	11.6	10.4
5	20.9	10.3	10.0	8.4	13.1	14.9	13.4
6	24.0	16.7	13.2	11.8	15.8	15.3	17.1
7	22.3	22.2	18.1	14.2	18.0	19.1	19.6
8	21.4	23.6	21.2	17.2	19.2	20.8	20.8
9	21.1	15.0	13.1	15.2	12.2	11.7	15.4
10	14.9	14.4	9.5	9.2	8.1	13.7	11.8
11	13.0	13.4	9.4	7.3	10.6	13.2	11.4
12	15.4	17.4	10.1	10.6	12.1	17.5	14.0
13	22.4	20.5	17.7	11.8	16.2	17.3	18.3
14	15.5	18.4	15.6	8.8	10.4	15.7	14.2
15	22.2	19.0	14.2	9.9	15.6	15.5	17.1
16	21.2	18.6	14.1	12.9	15.4	14.5	17.0
17	22.5	16.4	11.8	13.2	13.9	16.8	16.3
18	16.1	8.9	6.6	7.2	6.0	6.3	9.3
19	19.3	15.6	12.6	10.2	13.7	15.9	15.0
20	-	-	-	-	8.6	14.7	10.2

Mean dry matter % as threshed: 80.7

56/A/1.2

Straw (at 85% dry matter): cwt per acre

Section Years after fallow	III	IV	VA	VB	II	IA	Mean
	1	2	Unlimed 3	Limed 3	4	5	
2A	56.6	43.2	42.9	41.2	43.9	33.8	45.7
2B	51.2	45.3	40.7	41.0	38.7	35.9	43.5
3	27.5	14.1	14.6	12.6	13.0	13.3	16.8
5	30.0	19.4	21.9	19.4	20.4	20.2	22.5
6	36.6	28.8	26.1	22.7	22.4	21.2	27.6
7	38.7	37.9	33.6	28.9	29.5	27.0	33.9
8	34.4	42.0	38.2	32.7	29.1	33.1	35.1
9	32.7	25.8	22.2	24.2	19.2	16.0	24.7
10	25.0	21.9	18.8	17.1	15.6	20.2	20.1
11	25.6	23.8	23.2	20.2	18.2	21.2	22.3
12	27.1	28.4	26.6	20.2	19.7	28.0	24.8
13	37.1	32.5	31.0	25.3	26.5	27.4	30.8
14	26.0	29.8	23.9	21.8	16.3	25.1	23.8
15	38.7	32.7	31.1	28.0	27.9	27.2	31.9
16	39.1	31.4	27.1	26.0	25.5	24.4	30.2
17	36.0	27.5	25.4	25.9	21.4	22.2	27.3
18	30.9	16.3	15.3	20.5	10.2	10.5	18.3
19	33.4	29.0	27.5	23.2	22.6	23.7	27.4
20	-	-	-	-	16.6	19.8	17.4

Mean dry matter % as threshed: 80.6

56/A/2

BARLEY - HOOSFIELD 1956

The 105th year

For history, treatments etc., see "Details of the Classical and Long Term Experiments", 1956.

Cultivations, etc.: Dung applied, all plots ploughed:
 Oct 16 - 19, 1955. Fertilizers applied: Mar 24 - 26, 1956.
 Seed drilled at 3 bushels per acre: Apr 3. Sprayed with 3 lb
 DNOC in 80 gallons per acre: May 28. Harvested: Sept 8.
 Variety: Plumage Archer.

Summary of Results

Plot		Grain (at 85% dry matter): cwt per acre	Straw (at 85% dry matter): cwt per acre
1	O	6.0	5.3
2	O	7.8	6.7
3	O	8.0	6.8
4	O	9.9	9.1
5	O	10.2	9.6
1	A	11.6	11.1
2	A	12.5	13.1
3	A	15.5	15.0
4	A	21.6	19.7
5	A	24.7	22.9
1	AA	14.4	14.1
2	AA	17.4	18.9
3	AA	19.4	18.9
4	AA	20.1	20.7
1	AAS	18.2	19.8
2	AAS	18.6	19.6
3	AAS	22.0	21.3
4	AAS	21.8	25.2
1	C	15.4	15.6
2	C	19.0	16.1
3	C	19.1	16.9
4	C	19.3	16.6
7	- 1	12.9	11.3
7	- 2	26.2	28.9
6	- 1	5.8	6.4
6	- 2	8.3	7.3
1	N	14.6	15.8
2	N	16.0	12.8

Mean dry matter % as threshed: 81.5

81.1

56/A/3

WHEAT AFTER FALLOW - HOOSFIELD 1956

Without manure 1851 and since

For history, treatments etc. see "Details of the Classical and Long Term Experiments" 1956.

Cultivations, etc.:

Cropped plots. Ploughed: Sept 28, 1955. Seed drilled at 3 bushels per acre: Nov 2. Harvested: Sept 1, 1956. Variety: Squareheads Master 13/4.

Fallowed plots. Ploughed: Sept 28, 1955, May 15, 1956 and Aug 23.

Summary of Results

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

Plot	A2	A3	A4	
No. of years of fallow	1	1	3	Mean
Grain	10.2	11.3	10.7	10.7
Straw	15.3	17.1	16.0	16.1

Mean dry matter % as threshed, Grain: 80.5
Straw: 81.9

WINTER BEANS - AGDELL 1956

For history, treatments etc. see "Details of the Classical and Long Term Experiments" 1956. In 1956 a crop of winter sown beans was grown without manure.

Area of plot harvested: 0.0458 acres.

Cultivations, etc.:

Ploughed: Oct 8 - 10, 1955. Seed drilled at 275 lbs per acre: Oct 29. Combine harvested: Oct 4 - 6. Variety: S.Q.Giant.

Summary of Results

Grain (at 85% dry matter): cwt per acre

Manure to turnips 1948	Mineral manure				Complete mineral and nitrogenous manure		Mean
	None since 1848		No nitrogen				
	5	6	3	4	1	2	
Plot rotation	Fallow	Clover	Fallow	Clover	Fallow	Clover	
	8.8	5.2	26.2	20.0	18.2	19.2	16.3

Mean dry matter % as harvested; 73.7

56/A/4.1

MANGOLDS AND SUGAR BEET - BARNFIELD

The 81st and 11th years

For history, treatments etc., see "Details of the Classical and Long Term Experiments" 1956.

A corrective chalk dressing was applied to Series A and AC (excluding plot 9) at 5 tons of CaCO_3 per acre under the new liming scheme introduced in spring 1956.

The following areas were sprayed with trichloroacetic acid:

First application to S half of plot 1N, S half of series O.
1st and 2nd applications: to N half of plot 1N, N half of series O.
3rd application to plot 9.

In June the plant was very irregular and backward on certain plots owing to the spring drought. It was decided to abandon these plots (no yields were recorded) and keep the land free of weeds by surface cultivations.

Cultivations, etc.: Dung applied: Nov 15 - 17, 1955. Ploughed: Nov 29 - Dec 1. Sprayed with TCA, sodium salt, at 20 lb in 90 gallons per acre: Mar 8 and again Mar 24, 1956. Ground chalk applied: Mar 29 and Apr 7. Fertilizers applied: Apr 11 - 17. Sugar beet seed drilled at 16 - 20 lb per acre: Apr 18. Mangolds seed drilled at 8 lb per acre: Apr 19. Singled: June 5 - 19. Abandoned crop on part of field: June 26. Top dressed remaining plots: June 29. 3rd application of TCA, sodium salt, at 20 lb in 80 gallons per acre: July 16. Lifted: Mangolds, Nov 22 - 26. Sugar beet, Nov 26 - 29. Varieties: Mangolds - Yellow Globe, Sugar beet - Klein E.

Cultivations to discarded areas after June 26:-

Thistle bar: June 26 - 28, July 6 - 7, July 13, Aug 9, Aug 22.
Springtime: Sept 25.

56/A/4.2

Summary of Results

Strip	O	N	Cross Dressing A	AC	C
Mangolds, roots: tons per acre					
1	19.75	32.23	30.78	30.69	25.22
2	19.89	34.54	30.26	31.40	26.27
4		(a) 21.39			
		(b) 22.28*			
5		19.05			
6		17.44			
7		20.18			
8					
9					
Mangolds, leaves: tons per acre					
1	2.88	4.32	6.03	5.59	3.93
2	3.74	4.89	4.64	5.59	3.66
4		(a) 2.76			
		(b) 3.52*			
5		2.39			
6		1.98			
7		2.49			
8					
9					
Mangolds, plant number: thousands per acre					
1	18.0	19.8	18.2	17.4	16.4
2	21.4	19.8	18.9	17.6	19.2
4		(a) 20.9			
		(b) 20.9*			
5		21.2			
6		20.9			
7		21.2			
8					
9					

*No nitrate of soda. Nitrogen applied as calcium and potassium nitrates.

56/A/4.3

Strip	Cross Dressing				
	O	N	A	AC	C
Sugar Beet, roots (washed): tons per acre					
1	9.50	12.18	12.80	12.57	12.96
2	10.25	13.48	13.36	14.64	13.47
4		(b) 8.02*			
5		7.58			
6		5.84			
7		8.46			
8					
9					
Sugar Beet, tops: tons per acre					
1	7.43	12.11	13.14	14.80	9.09
2	8.60	13.92*	12.16	14.95	10.36
4		(b) 8.16			
5		7.23			
6		6.40			
7		6.79			
8					
9					
Sugar Beet, plant number: thousands per acre					
1	21.1	21.6	22.3	20.7	22.1
2	25.8	23.2*	22.5	20.5	22.2
4		(b) 22.5			
5		24.5			
6		23.3			
7		23.1			
8					
9					
Sugar Beet, sugar percentage					
1	18.7	18.3	18.3	17.5	18.7
2	18.0	18.0*	17.7	16.7	18.4
4		(b) 18.6			
5		17.9			
6		18.4			
7		18.3			
8					
9					

*No nitrate of soda. Nitrogen applied as calcium and potassium nitrates.

56/A/5

HAY - THE PARK GRASS PLOTS 1956

The 101st year

For history, treatments etc. see "Details of the Classical and Long Term Experiments" 1956.

Cultivations, etc.: Lime applied: Nov 29, 1955. Mineral fertilizers applied: Dec 16. Supplementary ground chalk applied: Jan 4, 1956. Nitrogenous fertilizers applied: 1st dressing - Mar 22, 2nd dressing - Apr 16. Cut twice: July 12 and Nov 19 - 24.

Note: Because of the low CaO content of the lime used at the normal treatment rates, additional dressings of ground chalk were later applied to make up the deficiencies.

Summary of Results

Yield of Hay: cwt per acre

Plot	Not limed			Limed		
	1st Crop	2nd Crop	Total	1st Crop	2nd Crop	Total
1	1.5	4.6	6.1	7.9	5.5	13.4
2	7.7	6.1	13.8	7.1	4.4	11.5
3	7.3	6.0	13.3	7.7	3.0	10.7
4-1	15.5	9.2	24.7	15.7	10.4	26.1
4-2	5.7	10.4	16.1	22.3	9.6	31.9
5-1	7.0	4.5	11.5			
5-2	15.0	8.8	23.8			
6	20.6	12.4	33.0			
7	21.5	14.5	36.0	27.9	14.1	42.0
8	21.0	10.6	31.6	17.0	11.0	28.0
9	34.2	18.1	52.3	34.2	11.6	45.8
10	21.6	14.5	36.1	25.5	11.1	36.6
11-1	37.8	31.5	69.3	36.5	21.1	57.6
11-2	45.0	28.0	73.0	47.1	26.5	73.6
12	12.6	6.0	18.6			
13	23.2	13.2	36.4	18.7	12.0	30.7
14	41.7	22.9	64.6	34.5	17.5	52.0
15	15.2	10.2	25.4	27.0	19.6	46.6
16	24.7	16.9	41.6	28.7	19.1	47.8
17	23.2	16.0	39.2	19.6	13.6	33.2
18	0.8	9.4	10.2	15.7*	4.4*	20.1*
				17.4+	7.5+	24.9+
19	19.7	17.0	36.7	20.6*	14.0*	34.6*
				23.3+	16.6+	39.9*
20	27.0	17.2	44.2	24.4*	12.4*	36.8*
				27.9+	17.0+	44.9+

*Heavy liming

+Light liming

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

56/A/6

BARLEY - EXHAUSTION LAND HOOSFIELD 1956

For history, treatments etc., see "Details of the Classical and Long Term Experiments" 1956.

Cultivations, etc.: Ploughed: Sept 12 - 23, 1955 and again Nov 21. 'Nitro-Chalk' applied at $3\frac{1}{2}$ cwt per acre: Mar 26, 1956. Seed drilled at 3 bushels per acre: Apr 3. Sprayed with MCPA, at 3 pints in 40 gallons per acre: May 17. Harvested: Aug 30. Variety: Plumage Archer.

Note. The NE halves of plots 1 and 2 (by the side land) were fallowed to reduce the weed infestation. (Ploughed: Sept 23, 1955, Nov 22, May 15, 1956, Aug 23.)

Summary of Results

Manuring to potatoes 1876 - 1901*	Yields (at 85% dry matter): cwt per acre	
	Grain	Straw
1 Unmanured	8.7	11.1
2 Unmanured after dung 1876 - 81	11.5	12.8
3 Dung	20.7	21.3
4 Dung	20.8	20.7
5 Ammonium salts	9.4	11.8
6 Nitrate of soda	9.8	12.4
7 Ammonium salts and complete minerals	22.1	22.1
8 Nitrate of soda and complete minerals	21.1	19.3
9 Superphosphate	22.4	22.4
10 Complete minerals	23.9	25.7
*For certain changes see history.		
Mean dry matter % as threshed:	80.4	79.2

56/A/7

CLOVER - ROTHAMSTED GARDEN 1956

The 103rd year

For history, etc. see "Details of the Classical and Long Term Experiments" 1956. Starting in 1956, muriate of potash at 2 cwt per acre was applied to one half of the plot.

Cultivations, etc.:

Resowed all blank patches: Sept 7, 1955 and again Apr 21, 1956.
Muriate of potash applied: May 24. Cut twice: July 19 (only a few old plants surviving) and Sept 27 (almost all new plants).

Summary of Results

Dry matter: cwt per acre

Muriate of potash: cwt per acre	Cuts		Total
	1st	2nd	
None	0.4	0.8	1.2
2	0.4	3.8	4.2

56/A/8

WHEAT AND BARLEY - WOBURN STACKYARD 1956

For history, treatments etc., for both experiments see "Details of the Classical and Long Term Experiments" 1956.

The land was bare fallowed in 1956 and sprayed with TCA (trichloroacetic acid) to control grasses (Holcus mollis & Agrostis gigantea). The two halves of each plot were sprayed separately at different times. Ground chalk was applied to certain areas at 7.5 and 15 cwt CaCO_3 per acre.

A soil survey of the experimental area was made.

Cultivations etc.:

Wheat

Ploughed: Sept 26, 1955. Half of each plot sprayed with TCA, 20 lb in 40 gallons per acre: Nov 30, 1955 and again Mar 28, 1956. Ploughed across plots: June 18 - 20. Remaining half plots sprayed with TCA at 20 lb in 40 gallons per acre: July 26 and again Sept 26. Ground chalk applied: Aug 15.

Barley

Ploughed: Sept 7 - 25, 1955. Half of each plot sprayed with TCA, 20 lb in 40 gallons per acre: Dec 1, 1955 and again on Mar 28, 1956. Ploughed across plots: June 18 - 20. Remaining half plots sprayed with TCA at 20 lb in 40 gallons per acre: July 25 and again Sept 26. Ground chalk applied: Aug 15.