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# Yields of the Field Experiments 1961

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## Classical Experiments

### Rothamsted Research

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61/A/1.1

WHEAT - BROADBALK 1961

The 118th year

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

Cultivations, etc.:

Gropped sections. Ground chalk applied: Oct 1, 1960. Ploughed: Oct 4. Dung applied and ploughed in: Oct 10. Autumn fertilisers applied: Jan 17, 1961. Seed drilled at 3 bushels per acre: Jan 18. Spring fertilisers applied: Apr 17. Second dressing of nitrate of soda applied to plot 16: May 3. Section IA sprayed with MCPA/TBA at 4 pints in 40 gallons per acre: May 5. Combined: Sept 1. Variety: Squarehead's Master 13/4.

Fallow section. (Ib) Ploughed: Oct 4, 1960; June 12, 1961; July 17.

Broadbalk Wilderness. N.

Cultivations, etc.: Shrubs grubbed out: Nov 18 - Dec 6, 1960. Part grazed: Dec 30 - Jan 2, 1961; Apr 12 - May 1; May 23 - 30; June 20 - 23; Aug 10 - 15; Sept 24 - 28. The grass was topped after each grazing except the first and the last.

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	10	
2A	27.7	21.6	19.0	14.8	17.9	15.8	20.6
2B	28.2	22.1	7.6	17.0	21.8	17.0	20.7
3	15.8	10.1	11.5	11.1	12.7	11.4	12.4
5	20.2	13.5	11.6	10.8	14.0	11.8	14.5
6	24.4	16.1	10.1	11.6	16.3	15.1	16.8
7	22.8	16.4	9.6	11.1	18.6	17.6	17.0
8	19.9	13.4	6.8	11.8	23.7	14.9	16.4
9	19.2	15.3	12.7	11.6	17.2	13.1	15.8
10	13.6	19.1	17.8	19.9	20.8	15.9	18.0
11	16.5	16.4	11.6	10.2	16.5	11.6	14.8
12	16.7	15.5	10.5	9.9	16.4	15.7	14.7
13	21.9	10.7	6.8	8.7	19.5	16.5	15.0
14	20.2	10.9	9.0	10.8	14.2	16.8	13.9
15	29.0	11.9	6.8	11.9	16.0	17.2	16.5
16	23.5	15.8	14.6	15.0	21.3	13.7	18.5
17	17.4	9.6	9.0	7.9	10.0	8.9	11.2
18	20.8	18.4	15.8	14.3	21.0	12.7	18.4
19	14.0	6.5	8.5	11.6	14.6	13.3	11.4
20					13.9	13.0	13.6

Mean dry matter % as harvested: 84.4



61/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	10	
2A	37.4	21.4	25.3	24.3	22.7	21.1	26.1
2B	39.1	26.0	26.6	28.7	29.1	19.6	29.7
3	20.2	8.1	9.5	10.9	10.5	9.6	12.1
5	25.4	13.7	15.8	16.4	18.1	12.7	18.0
6	31.0	19.5	17.5	19.5	19.6	20.7	22.0
7	32.9	24.4	20.6	24.0	26.3	23.4	26.3
8	42.9	29.6	27.8	33.1	37.3	29.3	34.7
9	29.3	21.1	20.7	20.7	19.4	23.2	22.6
10	19.8	21.0	18.8	23.3	21.8	16.9	20.7
11	25.3	20.2	17.8	16.4	18.0	16.7	19.9
12	25.5	23.1	18.6	17.5	20.9	18.9	21.7
13	37.0	20.7	18.0	25.3	29.4	26.6	27.1
14	31.1	21.0	17.3	17.0	19.5	22.8	22.2
15	40.8	17.0	12.8	23.0	23.1	25.0	24.6
16	40.6	29.6	32.9	32.7	32.9	27.1	33.6
17	22.0	9.6	14.6	16.1	12.2	10.3	14.5
18	33.5	26.3	29.4	29.2	28.9	25.2	29.2
19	23.5	10.0	36.3	22.1	17.8	21.5	20.3
20					18.3	19.1	18.5

Mean dry matter % as harvested: 81.5



61/A/2.1

BARLEY - HOOSFIELD 1961

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

In 1961 all strips drilled for combining were taken for grain yields, except on plots 1N, 2N, 5-0 and 5A where one of the inner two strips only was taken.

For straw yields one of the inner two strips was taken on each plot, except on plots 6-1 and 6-2 where the centre strip of the three, and on plots 7-1 and 7-2 where the northern one of the two, was taken.

Cultivations, etc.: Sprayed with dalapon at 10 lb in 40 gallons per acre: Sept 24, 1960; and again at 5 lb in 40 gallons per acre: Oct 11. Dung applied: Dec 12. Ploughed: Dec 13. Minerals applied: Mar 28, 1961. Nitrogen fertilisers applied: Apr 4. Seed drilled at  $2\frac{3}{4}$  bushels per acre: Apr 12. Strips 1, 2 and 3 sprayed with MCPA at  $6\frac{1}{2}$  pints in 40 gallons per acre; and strips 4, 6 and 7 sprayed with CMPP at 6 pints in 40 gallons per acre: May 19. Combined: Aug 28. Variety: Plumage Archer.



61/A/2.2

Summary of Results

Plot		Grain (at 85% dry matter): cwt per acre	Straw (at 85% dry matter): cwt per acre
1	O	10.4	5.6
2	O	13.6	6.6
3	O	9.9	4.6
4	O	14.0	7.3
5	O	10.8	4.4
1	A	12.2	8.3
2	A	20.2	12.9
3	A	14.6	10.1
4	A	24.3	16.0
5	A	18.4	15.9
1	AA	13.7	10.5
2	AA	24.1	15.1
3	AA	14.7	9.5
4	AA	24.6	16.5
1	AAS	20.1	11.9
2	AAS	25.9	15.0
3	AAS	19.4	12.3
4	AAS	26.3	15.1
1	C	21.9	12.2
2	C	25.0	14.0
3	C	21.5	13.9
4	C	27.3	16.2
7	- 1	12.8	6.3
7	- 2	26.4	15.8
6	- 1	9.2	5.1
6	- 2	11.1	5.9
1	N	11.6	8.1
2	N	17.6	10.8
Mean dry matter % as harvested:		85.2	87.2

61/A/3

WHEAT AFTER FALLOW - HOOSFIELD 1961

Without manure 1851 and since

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

Area harvested: 0.0331 acres.

Cultivations, etc.:

Cropped plots. Ploughed: Sept 21, 1960. Seed sown at 3 bushels per acre: Jan 17, 1961. Combine harvested: Sept 1. Variety: Squarehead's Master 13/4.

Fallowed plots. Ploughed three times: Sept 21, 1960; June 14, 1961; July 18.

Note: Counts of straw number and estimates of Eyespot (Cercospora herpotrichoides) and Take-all (Ophiobolus graminis) were made.

Summary of Results

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

Plot No. of years of fallow	B <sub>2</sub>	B <sub>3</sub>	B <sub>4</sub>	Mean
	1	1	3	
	10.0	8.9	10.0	9.6

Mean dry matter % as harvested: 82.7



61/A/4.1

## GRASS AND MULTIPLE CROPPING AND DIRECT AND RESIDUAL P

AGDELL 1961

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

### Multiple cropping 1961

In order to investigate further the residues of past treatments by testing methods of incorporating P fertiliser in the soil, the crop strips on 3 of the old rotation plots (numbers 1, 3 and 5) were split lengthways to give two sub plots for each of the three 1959 treatments. The new sub plots carry the treatments described below. The areas carrying strip crops in 1960 on plots numbers 2, 4 and 6 were bare fallowed. Yields were taken from the cocksfoot ley sown in 1960.

Rotation (commencing 1959): barley, potatoes, sugar beet.

Area of each sub plot (acres): 0.0050. Area harvested: 0.0035.

Treatments per acre: None; 0.75; 1.50 cwt  $P_{2}O_{5}$  either ploughed in or applied in seedbed; also 0.75 cwt  $P_{2}O_{5}$  ploughed in plus 0.75 cwt  $P_{2}O_{5}$  in seedbed; 1.5 cwt  $P_{2}O_{5}$  ploughed in plus 1.5 cwt  $P_{2}O_{5}$  in seedbed.  $P_{2}O_{5}$  as superphosphate; for potatoes "seedbed"  $P$  was applied in bouts.

Basal dressings per acre. To grass: as 1959.

To barley: 0.3 cwt  $K_{2}O$  ploughed in, and 0.6 cwt N, 0.6 cwt  $K_{2}O$  broadcast in seedbed as compound fertiliser, 16% N, 16%  $K_{2}O$ .

To potatoes: 0.6 cwt  $K_{2}O$  ploughed in, 0.6 cwt  $K_{2}O$  after ploughing, 1.2 cwt N and 1.2 cwt  $K_{2}O$  as compound fertiliser, 16% N, 16%  $K_{2}O$  applied to ridged land before planting.

To sugar beet: 1.0 cwt  $K_{2}O$  ploughed in, 1.0 cwt  $K_{2}O$  after ploughing, 1.0 cwt N and 1.0 cwt  $K_{2}O$  as compound fertiliser, 16% N, 16%  $K_{2}O$  broadcast in seedbed.

Note: Apart from the NK compound fertiliser,  $K_{2}O$  was applied as sulphate of potash.

Cultivations, etc.:

Grass. 'Nitro-Chalk' applied: Mar 9, 1961. Cut 3 times: May 17, July 18, Sept 15. 'Nitro-Chalk' applied after 2nd cut.

Fallow areas. Ploughed: Jan 17, 1961. Rotary cultivated: May 11, June 3.

Microplots. Fertilisers applied for ploughing in: Dec 5, 1960. Ploughed: Jan 17, 1961.

Barley: Seedbed fertilisers applied, seed drilled at 3 bushels per acre: Mar 16, 1961. Harvested: Aug 9. Variety: Proctor.

Potatoes: K applied after ploughing: Mar 7, 1961. Rotary cultivated and ridged, fertilisers applied in the bouts: Apr 25. Potatoes planted: May 1.



61/A/4.2

Sprayed 3 times with demeton methyl at 12 fluid oz in 40 gallons per acre: June 7 and 16, July 11. Sprayed twice with copper fungicide at 5 lb in 40 gallons per acre: Aug 15, Sept 1. Lifted: Sept 25. Variety: Majestic (chitted).  
 Sugar beet. K applied after ploughing: Mar 7, 1961. Seedbed fertilisers applied, seed drilled at 20 lb per acre: Mar 23. Singled: May 29. Sprayed 3 times with demeton methyl at 12 fluid oz in 40 gallons per acre: June 7 and 16, July 11. Lifted: Oct 10. Variety: Klein E.

Summary of Results

Manure to turnips until 1948 Plot Rotation	Mineral manure*				Mineral* and nitrogenous manure <sup>+</sup>		Mean
	None since 1848	6	3	4	Fallow	Clover	
	Fallow	Clover	Fallow	Clover	Fallow	Clover	

Grass dry matter: cwt per acre

1st cut	17.2	13.2	31.5	31.4	34.3	26.9	25.8
2nd cut	11.3	12.5	16.7	17.8	19.1	17.8	15.9
3rd cut	9.1	7.8	14.6	13.4	17.8	14.9	13.0
Total of 3 cuts	37.7	33.6	62.8	62.6	71.3	59.6	54.6

Mean dry matter % as cut: 1st cut 22.8  
 2nd cut 27.0  
 3rd cut 25.2  
 Total of 3 cuts 25.0

\*P, K, Na, Mg.

<sup>+</sup>Rape dust (or castor meal + ammonium sulphate).



Manure to turnips until 1948 Plot	Fallow rotation only			61/A/4.3
	None since 1848 5	Mineral* manure no nitrogen 3	Mineral* and nitrogen <sup>+</sup> manure <sup>+</sup> 1	Mean

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

<u>P<sub>2</sub>O<sub>5</sub> cwt per acre</u>				
None	19.0	27.7	13.7	20.1
Ploughed in				
0.75	16.4	30.9	7.8	18.4
1.50	24.1	23.4	32.4	26.6
Broadcast				
0.75	25.5	32.5	27.9	28.6
1.50	18.7	32.6	22.6	24.6
$\frac{1}{2}$ Ploughed in $\frac{1}{2}$ Broadcast				
1.50	22.5	31.8	24.5	26.3
3.00	31.2	29.6	31.8	30.9
Mean	22.0	29.5	21.8	24.5

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

<u>P<sub>2</sub>O<sub>5</sub> cwt per acre</u>				
None	33.8	46.5	32.8	37.7
Ploughed in				
0.75	31.8	55.7	28.8	38.8
1.50	40.1	49.6	57.3	49.0
Broadcast				
0.75	42.7	62.7	48.6	51.3
1.50	38.4	57.7	42.3	46.1
$\frac{1}{2}$ Ploughed in $\frac{1}{2}$ Broadcast				
1.50	44.5	54.2	45.8	48.2
3.00	51.4	53.5	56.9	53.9
Mean	39.6	53.3	43.2	45.3

Mean dry matter % as harvested: Grain 78.7  
Straw 52.9

\*P, K, Na, Mg.

<sup>+</sup>Rape dust (or castor meal + ammonium sulphate).



61/A/4.4

Fallow rotation only

Manure to turnips until 1948 Plot.	None since 1848 5	Mineral* manure no nitrogen 3	Mineral* and nitrogenous manure 1	Mean
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Potatoes, total tubers: tons per acre

<u>P<sub>2</sub>O<sub>5</sub></u> cwt per acre				
None	8.26	12.04	8.76	9.69
Ploughed in				
0.75	9.71	11.05	11.03	10.60
1.50	9.23	12.58	11.79	11.20
Broadcast				
0.75	9.54	11.36	11.79	10.90
1.50	9.47	11.86	12.21	11.18
$\frac{1}{2}$ Ploughed in $\frac{1}{2}$ Broadcast				
1.50	9.93	12.96	10.48	11.12
3.00	9.90	12.02	12.48	11.47
Mean	9.29	11.99	10.91	10.73

Sugar beet, Roots (washed): tons per acre

<u>P<sub>2</sub>O<sub>5</sub></u> cwt per acre				
None	15.14	19.64	17.06	17.28
Ploughed in				
0.75	17.32	25.03	15.43	19.26
1.50	15.46	20.47	15.66	17.20
Broadcast				
0.75	15.19	17.91	16.24	16.45
1.50	17.53	20.32	18.47	18.78
$\frac{1}{2}$ Ploughed in $\frac{1}{2}$ Broadcast				
1.50	18.17	21.80	20.08	20.02
3.00	17.66	24.63	20.72	21.00
Mean	16.45	21.18	17.59	18.41

Sugar beet, Sugar percentage

<u>P<sub>2</sub>O<sub>5</sub></u> cwt per acre				
None	15.7	15.9	15.9	15.8
Ploughed in				
0.75	16.4	15.4	15.8	15.9
1.50	16.1	16.0	16.2	16.1
Broadcast				
0.75	15.7	16.2	15.7	15.9
1.50	15.3	16.4	15.7	15.8
$\frac{1}{2}$ Ploughed in $\frac{1}{2}$ Broadcast				
1.50	15.8	16.4	16.0	16.1
3.00	16.2	16.5	16.1	16.3
Mean	15.9	16.1	15.9	16.0

\*P, K, Na, Mg.

†Rape dust (or castor meal + ammonium sulphate).



61/A/4.5

Fallow rotation only

Manure to turnips until 1948 Plot	None since 1848 5	Mineral* manure no nitrogen 3	Mineral* and nitrogenous manure 1	Mean
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Sugar beet, Total sugar: cwt per acre

<u>P<sub>2</sub>O<sub>5</sub></u> cwt per acre				
None	46.9	62.0	53.8	54.2
Ploughed in				
0.75	56.0	76.4	48.0	60.1
1.50	49.4	64.2	49.5	54.4
Broadcast				
0.75	46.8	57.5	49.9	51.4
1.50	53.6	66.0	57.0	58.9
$\frac{1}{2}$ Ploughed in $\frac{1}{2}$ Broadcast				
1.50	57.1	70.7	63.2	63.7
3.00	56.5	80.7	65.7	67.7
Mean	51.7	67.5	55.1	58.1

Sugar beet, Tops: tons per acre

<u>P<sub>2</sub>O<sub>5</sub></u> cwt per acre				
None	11.48	12.72	12.64	12.28
Ploughed in				
0.75	11.35	16.74	10.66	12.92
1.50	10.55	12.28	11.05	11.29
Broadcast				
0.75	10.80	11.23	14.11	12.05
1.50	13.70	15.43	14.17	14.44
$\frac{1}{2}$ Ploughed in $\frac{1}{2}$ Broadcast				
1.50	13.29	11.99	13.06	12.78
3.00	13.16	16.68	14.47	14.77
Mean	11.98	13.73	12.85	12.85

\*P, K, Na, Mg.

†Rape dust (or castor meal + ammonium sulphate).



61/A/5

HAY - THE PARK GRASS PLOTS 1961

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

Cultivations, etc.: Mineral fertilisers applied: Dec 9, 1960. Dung applied to appropriate plots: Dec 12. Nitrogenous fertilisers applied: 1st dressing - Mar 28, 1961; 2nd dressing - Apr 26. Cut twice: June 20 and Sept 21.

Summary of Results

Dry matter: cwt per acre

Plot	Not limed			Limed		
	1st crop	2nd crop	Total	1st crop	2nd crop	Total
1	9.2	3.5	12.7	25.4	6.4	31.8
2	14.1	5.0	19.1	23.6	6.4	30.0
3	11.1	3.5	14.6	22.6	5.2	27.8
4-1	20.0	5.4	25.4	23.3	5.3	28.6
4-2	20.9	5.9	26.8	30.0	5.9	35.9
5-1	11.0	4.5	15.5			
5-2	21.1	9.4	30.5			
6	28.0	8.9	36.9			
7	29.9	7.3	37.2	48.4	16.9	65.3
8	21.2	5.2	26.4	24.5	7.0	31.5
9	43.4	7.3	50.7	50.4	7.4	57.8
10	27.8	7.8	35.6	38.1	6.6	44.7
11-1	55.9	14.5	70.4	53.4	14.1	67.5
11-2	57.1	17.9	75.0	57.1	19.3	76.4
12	14.5	6.2	20.7			
13	42.0	11.5	53.5	44.1	19.2	63.3
14	43.5	10.1	53.6	50.0	8.5	58.5
15	31.4	7.5	38.9	42.4	11.6	54.0
16	35.8	7.4	43.2	45.5	12.0	57.5
17	23.8	4.1	27.9	30.2*	4.7*	34.9*
18	16.5	3.1	19.6	26.4 <sup>+</sup>	4.1*	30.5 <sup>+</sup>
				26.1 <sup>+</sup>	4.3*	30.4*
19	41.3	9.6	50.9	49.0*	11.7 <sup>+</sup>	60.7 <sup>+</sup>
				43.7 <sup>+</sup>	12.5*	56.2*
20	46.2	12.1	58.3	48.8*	12.2*	61.0*
				41.1 <sup>+</sup>	13.5 <sup>+</sup>	54.6 <sup>+</sup>

\*Heavy liming.      <sup>+</sup>Light liming.

Mean dry matter % as cut: 1st crop 27.7; 2nd crop 28.4



61/A/6

BARLEY - EXHAUSTION LAND HOOSFIELD 1961

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

Basal dressing: 0.5 cwt N per acre as 'Nitro-Chalk'.

Cultivations, etc.: Sprayed with dalapon at 10 lb in 40 gallons per acre: Oct 12, 1960; and again at 5 lb in 40 gallons per acre: Nov 14. Ploughed: Dec 16. 'Nitro-Chalk' applied: Mar 29, 1961. Seed drilled at  $2\frac{3}{4}$  bushels per acre: Apr 12. Sprayed with CMPP at 6 pints in 40 gallons per acre: May 19. Combine harvested: Aug 29. Variety: Plumage Archer.

Summary of Results

Barley

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

Plots not cross cropped in 1957 and 1958

Plot. Manuring to potatoes 1876 - 1901*	Grain	Straw
2 Unmanured after dung 1876 - 81	15.8	10.0
4 Dung	25.5	15.4
6 Nitrate of soda	15.6	10.0
8 Nitrate of soda and complete minerals	21.8	12.8
10 Complete minerals	23.6	12.2

Plots cross cropped in 1957 and 1958

Plot. Manuring to potatoes 1876 - 1901*	Grain	Straw
1 Unmanured	17.5	11.0
3 Dung	23.9	14.7
5 Ammonium salts	17.0	10.2
7 Ammonium salts and complete minerals	21.5	13.4
9 Superphosphate	22.4	13.2
Mean dry matter % as harvested (all plots):	86.3	89.9

\*For certain changes see history.

Erratum: "Results of the Field Experiments" 1960 p. 60/A/6. In the Summary of Results delete the words 'and combine harvested in 1959' from both headings.



61/A/7

CLOVER - ROTHAMSTED GARDEN 1961

The 108th year

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

Molybdenum test 1961: The two plots were sub-divided as in 1960 for a test of molybdenum:-

None; 1 lb sodium molybdate per acre, applied by adding the appropriate quantity in solution in water to dry sand, broadcasting and raking in.

Cultivations, etc.: Muriate of potash applied at 2 cwt per acre: Nov 16, 1960. Ground chalk applied at 30 cwt per acre, plots dug and old clover plants removed: Mar 16, 1961. Second dressing of muriate of potash at 2 cwt per acre and ground chalk at 30 cwt per acre applied: Mar 17. Sodium molybdate applied and seed sown at 40 lb per acre: Apr 13. Cut twice: Sept 4 and Nov 1. Variety: Late Flowering Red S123.

Note: Germination on the perimeter of the area of the plots was poor. This was still noticeable at the time of the 1st cut; but the plant had evened out at the time of the second cut.

Summary of Results

Dry matter: cwt per acre

Muriate of potash: cwt per acre	Spray		Mean
	None	Sodium molybdate	
	<u>1st cut</u>		
None	6.7	1.4	4.0
4	21.2	12.9	17.0
Mean	14.0	7.2	10.6
	<u>2nd cut</u>		
None	2.4	0.4	1.4
4	7.4	8.2	7.8
Mean	4.9	4.3	4.6
	<u>Total of 2 cuts</u>		
None	9.1	1.8	5.4
4	28.6	21.1	24.8
Mean	18.8	11.4	15.2

Mean dry matter % as harvested: 1st cut 17.2  
 2nd cut 17.0  
 Total of 2 cuts 17.1



61/A/8.1

WHEAT AND BARLEY, AND BARLEY, POTATO AND SUGAR BEET MICROPLOTS -

WOBURN STACKYARD 1961

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

Strip cropping and microplots 1961: Wheat and barley were sown in strips as in 1960. The microplots were continued with crops interchanged, and were extended to include a strip of sugar beet along their south eastern edge, following wheat in 1960. Plots 7, 8 and 9 of the Continuous Wheat experiment were bare fallowed.

Area of each main plot (acres):		Area harvested (acres):	
10a - 11b	0.0274	10	0.0200
		11 Wheat -	0.0100,
		Barley -	0.0200
Remainder	0.0411	Variable	0.0070 - 0.0240

Area of each microplot (acres):		Area harvested (acres):	
11a and 11b	0.0034	Barley	0.0019
		Potatoes	0.0014
		Sugar beet	0.0017
Remainder	0.0026	Barley	0.0013
		Potatoes	0.0010
		Sugar beet	0.0012

Treatments to microplots only, either ploughed in or applied in seedbed (on flat before planting potatoes):

P test. None; 0.25 ( $P_1$ ); 1.0 ( $P_4$ ) cwt  $P_{25}$  per acre (barley, potatoes and sugar beet).<sup>4</sup> Basal dressing: K at highest rate tested on each crop, ploughed in.

K test. None; 0.15 ( $K_1$ ); 0.60 ( $K_4$ ) cwt  $K_{20}$  per acre (barley).  
 None; 0.45 ( $K_7$ ); 1.80 ( $K_{12}$ ) cwt  $K_{20}$  per acre (potatoes).  
 None; 0.9 ( $K_6$ ); 3.6 ( $K_{24}$ )<sup>12</sup> cwt  $K_{20}$  per acre (sugar beet).  
 Basal dressing: 1.0 cwt  $P_{25}$  per acre ploughed in.  
 P as superphosphate, K as sulphate of potash.

Note: A measurement of the residues of 1960 treatments  $P_4$ ,  $K_4$  and  $K_8$  was made and the plots concerned received basal N and  $P^4$  or K at appropriate rates.

Basal dressings per acre (N as 'Nitro-Chalk'):-

To wheat and barley: 0.9 cwt N.

To microplots (P test and K test):-

Potatoes: 1.2 cwt N.

Barley: 0.6 cwt N.

Sugar beet: 1.0 cwt N.



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Cultivations, etc.:

Wheat: Ploughed: Sept 26, 1960. Seed drilled at 3 bushels per acre: Jan 17, 1961. Winter wheat ploughed in owing to bird damage: Mar 21. 'Nitro-Chalk' applied, seed drilled at 3 bushels per acre: Mar 22. Sprayed with MCPA/TBA at 4 pints in 40 gallons per acre: May 9. Combine harvested: Aug 28. Variety: Jufy I.

Barley: Ploughed twice: Sept 27, 1960 and Feb 10, 1961. 'Nitro-Chalk' applied, seed drilled at 3 bushels per acre: Mar 9. Sprayed with MCPA/TBA at 4 pints in 40 gallons per acre: May 9. Combine harvested: Aug 28. Variety: Plumage Archer.

Microplots. Basal PK and ploughed in treatment fertilisers applied: Jan 24, 1961. Plots ploughed: Jan 25.

Potatoes: Basal N and broadcast treatment fertilisers applied on the flat, chitted seed planted by machine: Mar 22, 1961. Sprayed twice with demeton methyl at 12 fluid oz in 40 gallons per acre: June 6 and July 11. Sprayed twice with copper fungicide at 5 lb in 40 gallons per acre: Aug 18 and Aug 31. Lifted: Sept 21. Variety: Majestic.

Barley: Basal N and broadcast treatment fertilisers applied, seed drilled at  $2\frac{3}{4}$  bushels per acre: Mar 9, 1961. Harvested: Aug 10. Variety: Plumage Archer.

Sugar beet: Basal N and broadcast treatment fertilisers applied, seed drilled at 12 lb per acre: Apr 12, 1961. Lifted: Oct 16. Variety: Klein E.

Erratum to "Results of the Field Experiments" 1960.

Page 60/A/8.1 the 4th line should read "strips as in 1959 ... "



61/A/8.3

Summary of Results

Main plots

Crop in 1961 Crop in old scheme	Spring wheat		Barley	
	Continuous wheat	Continuous barley	Continuous wheat	Continuous barley
<u>Grain (at 85% dry matter): cwt per acre</u>				
Plot 1	4.1	8.8	14.9	8.9
2	5.6	8.6	10.1	12.3
3	10.0	10.5	12.7	10.8
4	5.5	10.7	21.7	15.7
5	9.3	15.3	18.9	15.3
6	16.2	20.9	21.5	19.6
7	13.0	11.7		
8	11.2	12.7		
9	16.3	14.9		
10 ax	14.1	12.8	13.6	14.5
10 bx	15.0	15.0	14.1	9.7
10 ay	14.2	14.7		
10 by	18.4	20.2		
11 ay			20.0	18.0
11 by			23.3	19.1
11 az	15.2	9.8		
11 bz	14.2	12.5		

<u>Straw (at 85% dry matter): cwt per acre</u>				
Plot 1	10.4	12.3	9.1	5.1
2	7.1	7.9	5.5	4.5
3	10.0	9.2	5.6	5.5
4	14.8	11.0	13.2	7.1
5	9.7	11.4	8.7	7.0
6	11.5	18.8	11.1	10.5
7	11.9	11.4		
8	13.2	21.5		
9	15.4	21.9		
10 ax	9.3	12.0	4.7	6.3
10 bx	10.6	11.4	5.3	4.8
10 ay	9.1	14.6		
10 by	11.1	13.3		
11 ay			8.1	6.5
11 by			12.7	9.8
11 az	17.6	13.9		
11 bz	26.5	19.4		

Mean dry matter % as harvested: Grain 84.4      85.2  
 Straw 89.7      90.8



61/A/8.4

Crop in old scheme Treatment	Continuous wheat 11a & 11b	Microplots			
		Barley		Continuous barley	
		11a 11b	9	8	7
P K	<u>Grain (at 85% dry matter): cwt per acre</u>				
0 4		20.9	25.3	25.1	22.2
1 4		21.9	25.7	24.4	23.7
4 4		25.8	24.9	27.2	25.5
(4)4		24.7	25.4	24.1	19.2
0*4		26.1	25.4	23.4	17.9
1*4		27.2	26.6	26.4	20.6
4 4		24.7	27.9	23.8	21.2
(4)4		28.1	23.6	23.9	17.9
4 0	26.0		22.1	22.8	25.6
4 1	26.5		25.4	25.9	27.6
4 4	24.5		26.3	24.6	27.0
4(8)	25.1		25.7	27.4	27.9
4 0*	23.5		28.1	25.4	25.9
4 1*	24.5		27.2	27.9	25.6
4 4	26.0		25.7	25.7	26.2
4(8)	23.4		28.4	24.2	25.8

Mean dry matter % as harvested: 84.3

P K	<u>Straw (at 85% dry matter): cwt per acre</u>				
0 4		24.8	32.2	22.8	25.4
1 4		29.4	27.1	29.5	25.3
4 4		35.2	36.4	30.2	31.9
(4)4		32.3	33.1	27.9	23.7
0*4		31.7	32.5	30.2	20.8
1*4		32.1	32.5	30.2	22.8
4 4		36.4	36.7	35.2	24.0
(4)4		25.3	25.8	29.5	21.0
4 0	36.0		34.9	26.7	29.2
4 1	30.4		32.0	30.9	31.0
4 4	39.4		32.7	27.9	31.7
4(8)	35.4		30.9	31.1	32.1
4 0*	32.6		33.1	33.3	30.1
4 1*	34.9		30.4	31.4	29.1
4 4	33.8		29.6	33.5	31.8
4(8)	25.6		32.7	30.7	32.2

Mean dry matter % as harvested: 82.4

( ) Indicates applied in 1960. \*Indicates applied to seedbed, remainder ploughed in.

All values based on 1 microplot only.



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Crop in old scheme	Microplots				
	Continuous wheat	Potatoes		Continuous barley	
Treatment	11a & 11b	11a & 11b	9	8	7
P K	<u>Total tubers: tons per acre</u>				
0 4		14.43	12.27	13.66	11.58
1 4		15.06	15.28	14.58	12.50
4 4		13.78	14.12	13.20	12.96
(4)4		16.51	14.12	13.66	13.20
0 4		13.78	13.66	12.73	10.88
1* 4		15.06	12.50	11.81	11.34
4 4		16.19	14.12	13.43	12.73
(4)4		16.03	13.66	14.12	11.11
4 0	9.62		12.96	12.04	8.33
4 3	8.81		12.50	13.20	11.11
4 12	9.78		14.58	15.51	12.73
4(4)	10.10		13.66	12.04	8.33
4 0*	10.90		12.04	13.89	8.57
4 3*	11.54		11.81	11.58	10.42
4 12*	12.82		15.05	13.43	10.65
4(4)	11.22		12.04	10.88	10.42
P K	<u>Percentage ware (<math>\frac{5}{8}</math> inch riddle)</u>				
0 4		100.0	96.2	93.2	96.0
1 4		95.7	97.0	96.8	96.3
4 4		94.2	98.4	94.7	94.6
(4)4		93.2	95.1	94.9	94.7
0 4		96.5	94.9	94.5	91.5
1* 4		94.7	98.1	98.0	95.9
4 4		94.1	93.4	94.8	92.7
(4)4		96.0	93.2	93.4	95.8
4 0	91.7		94.6	92.3	94.4
4 3	90.9		94.4	94.7	91.7
4 12	91.8		95.2	94.0	94.5
4(4)	92.1		93.2	90.4	91.7
4 0*	95.6		94.2	91.7	94.6
4 3*	95.8		96.1	90.0	91.1
4 12*	95.0		96.9	93.1	95.7
4(4)	92.9		94.2	93.6	95.6

( ) Indicates applied in 1960. \* Indicates applied to seedbed, remainder ploughed in.

All values based on 1 microplot only.



61/A/8.6

Crop in old scheme Treatment	Microplots				
	Continuous wheat 11a & 11b	Sugar beet 11a & 11b	Continuous barley 9                      8                      7		
P K	<u>Roots (washed): tons per acre</u>				
0 24	15.52		12.56	11.58	11.42
1 24	16.00		14.56	11.90	13.28
4 24	15.06		13.41	12.16	12.33
0* 24	13.94		13.60	12.86	10.84
1* 24	13.92		11.37	10.72	11.64
4* 24	13.57		13.87	10.32	11.11
4 0		12.81	9.16	11.91	6.11
4 6		13.11	13.46	10.90	11.16
4 12		15.51	11.32	11.92	10.90
4 24		15.34	14.27	12.44	11.00
4 0*		14.07	10.45	9.75	8.61
4 6*		14.46	11.22	9.72	9.59
4 12*		12.76	12.56	14.23	12.98
4 24*		14.29	13.30	13.10	13.97
P K	<u>Sugar percentage</u>				
0 24	16.2		15.8	15.4	15.0
1 24	16.0		15.8	14.9	15.6
4 24	16.4		15.5	15.5	15.2
0* 24	15.8		15.8	15.0	14.8
1* 24	14.9		15.2	15.6	14.9
4* 24	16.2		15.7	15.3	15.6
4 0		16.0	15.9	14.9	14.9
4 6		15.9	15.6	15.4	15.3
4 12		15.9	16.2	15.4	15.2
4 24		15.5	15.3	15.1	15.0
4 0*		16.2	15.0	15.1	14.8
4 6*		16.2	15.7	15.1	15.5
4 12*		16.2	15.8	15.6	15.2
4 24*		16.2	16.4	15.6	15.0

All values based on 1 microplot only except P K 0 24 which are based on 2.

\*Indicates applied to seedbed, remainder ploughed in.



61/A/8.7

Crop in old scheme	Continuous wheat 11a & 11b	Microplots			
		Sugar beet		Continuous barley	
Treatment		11a & 11b	9	8	7
P K	<u>Total sugar: cwt per acre</u>				
0 24	50.3		39.6	35.6	34.2
1 24	51.0		46.1	35.4	41.4
4 24	49.5		41.6	37.7	37.5
0* 24	44.0		43.0	38.5	32.1
1* 24	41.5		34.5	33.5	34.7
4* 24	43.9		43.6	31.6	34.6
4 0		40.9	29.1	35.6	18.2
4 6		41.6	42.0	33.5	34.1
4 12		49.2	36.6	36.8	33.1
4 24		47.4	43.6	37.5	33.0
4 0*		45.6	31.3	29.4	25.5
4 6*		46.9	35.2	29.3	29.7
4 12*		41.3	39.6	44.4	39.3
4 24*		46.2	43.7	40.9	41.8

All values based on 1 microplot only except <sup>P K</sup> 0 24 which are based on 2.

\*Indicates applied to seedbed, remainder ploughed in.