

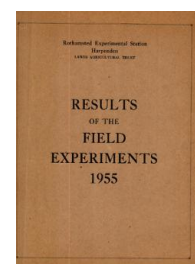
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# Yields of the Field Experiments 1955

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## 55/R/BC/1 Ley and Arable Rotations

### Rothamsted Research

Rothamsted Research (1956) *55/R/BC/1 Ley and Arable Rotations* ; Yields Of The Field Experiments 1955, pp 37 - 52 - DOI: <https://doi.org/10.23637/ERADOC-1-175>

LEY AND ARABLE ROTATIONS

Highfield and Fosters Field 1955 - the 7th year.

For details of treatments, rotations, etc., see "Results of the Field Experiments" 1952, Section Bc/1, with the exception that the following alterations to the original scheme were introduced in the 1955 season:-

1. The third treatment crop of the arable rotation is now spring oats instead of barley.
2. On Highfield only, the rates of application of "nitro-chalk" to barley and oats are now: nil; 0.2 cwt N per acre. On Fosters the manuring of barley is unaltered (0.2; 0.4 cwt N) and oats receive these levels also.
3. Reseeded and old permanent grass are now grazed for 5 years; one cut of hay (followed by grazing of the aftermath) is taken in the sixth. In 1956 and later years the hay cut will be taken from plots in the blocks that are in the 1st treatment year; in 1955 however (in order to avoid hay cuts in successive years on certain plots) the hay cut was taken from plots in blocks in the 3rd treatment year. Rates of application of fertilizers are at the higher level (given under "Reseeded and Old Permanent Grass 3rd year" in "Results" 1952, on page 52/Bc/1.2) in hay years only.
4. On blocks in 2 out of the 6 phases viz:- the 1st and 2nd treatment years corrective dressings of muriate of potash were applied in order to compensate for different rates of withdrawal of potash by previous crops. Further dressings will be applied in future years, commencing as each block enters the 1st treatment year.

Rates of Application of Corrective Potash ( $K_2O$ : cwt per acre)

Crop	Year of cycle	Rate
Cut grass	"1st treatment"	2.4 (3 years previous cutting)
	"2nd treatment"	1.2 (1 year previous cutting)
Grazed Ley and Arable	"1st and 2nd treatment"	Nil
	"1st treatment"	2.4 (3 years previous Lucerne)
Lucerne	"2nd treatment"	0.6 (1 year previous Lucerne)
	"1st treatment"	2.4 (2 previous hay crops taken)
Permanent and Reseeded	"1st test"	None
	"2nd treatment"	1.2 (1 previous hay crop taken)
	"2nd test"	None

5. Each sub-plot of test crop potatoes is split into two for the application (in addition to the basal dressing) of all combinations of:

Phosphate: None; 0.9 cwt  $P_2O_5$  per acre as superphosphate.

Potash: None; 0.9 cwt  $K_2O$  per acre as muriate of potash.

The PK interaction is confounded with block differences except on the Lucerne rotation where it is confounded with quarter plot differences.

For the succeeding barley crop similar dressings will be applied, but to different sub-plots, so that the totals of  $P_2O_5$  and  $K_2O$  for the 2 crops will be equal. The barley will be harvested as hitherto by quarter plots.

6. Lucerne is now sown in rows 18" apart instead of 12".



Cultivations, etc.:

HIGHFIELD

1st year Treatment Crops

Cut grass: Ploughed: Oct 15, 1954. 1st dressing of supplementary K and nitrochalk applied: Apr 22, 1955. Basal PK applied: Apr 23. Seed sown at 33 lb per acre: Apr 25. 2nd dressing of supplementary K applied: July 9. Cut 3 times: June 30, July 26, Nov 21. Nitrochalk applied after each cut except the last.

Grazed ley: Ploughed: Oct 15, 1954. Nitrochalk applied: Apr 22, 1955. Basal PK applied: Apr 23. Seed sown at 44 lb per acre: Apr 25. Nitrochalk applied: July 16. Grazed: 5 circuits, June 22-Oct 6.

Lucerne: Ploughed: Oct 15, 1954. 1st dressing of supplementary K: Apr 22, 1955. Basal PK applied: Apr 23. Seed drilled 18" drills at 28 lb per acre: Apr 25. 2nd dressing of supplementary K applied: July 28. Cut 3 times: July 26, Sept 1, Nov 21. Variety: Du Puits.

Hay: Seeds undersown in barley at 28 lb per acre: Apr 22, 1954. Basal PK applied: Dec 30. Nitrochalk applied: Apr 15, 1955. Cut: June 10.

2nd year Treatment Crops

Cut grass: Basal PK applied: Dec 21, 1954. Supplementary K applied: Mar 11, 1955. Nitrochalk applied: Apr 18 and after each cut except the last. Cut 5 times: May 10, June 6, June 30, July 26, Nov 21.

Grazed ley: Basal PK applied: Dec 21, 1954. Nitrochalk applied: Apr 18 and July 9, 1955. Grazed: 8 circuits, Apr 27-Oct 3.

Lucerne: Basal PK applied: Dec 21, 1954. Supplementary K applied: Mar 11, 1955. Cut 4 times: June 24, July 26, Sept 1, Nov 21.

Potatoes: Ploughed: June 29, Aug 17 and Nov 16, 1954. Ridged: Apr 26, 1955. Basal PK, sulphate of ammonia, and dung applied, potatoes planted: Apr 29. For later cultivations see Potato Test Crop.

3rd year Treatment Crops

Cut grass: Basal PK applied: Dec 21, 1954. Nitrochalk applied: Apr 18, 1955 and after each cut except the last. Cut 5 times: May 19, June 13, June 30, July 26, Oct 14.

Grazed ley: Basal PK applied: Dec 21, 1954. Nitrochalk applied: Apr 18, 1955 and July 9. Grazed: 8 circuits, May 1-Oct 8.

Lucerne: Basal PK applied: Dec 21, 1954. Cut 4 times: June 14, July 26, Sept 1, Oct 12, 1955.

Oats: Ploughed: Nov 18, 1954. Nitrochalk applied: Mar 28, 1955. Seed drilled at  $3\frac{1}{2}$  bushels per acre with basal PK: Mar 30. Combine harvested: Aug 12. Variety: Sun II.

1st Test Crop, Wheat

Ploughed leys: Oct 14, 1954. Ploughed after barley: Oct 15. Seed drilled at  $2\frac{3}{4}$  bushels per acre with basal PK: Oct 20. Nitrochalk applied: May 10, 1955. Combine harvested: Aug 16. Variety: Yeoman.



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2nd Test Crop, Potatoes

Ploughed: Oct 2, 1954. Ridged: Apr 26, 1955. Basal PK and additional P and K applied: Apr 28. Sulphate of ammonia and dung applied and potatoes planted: Apr 29. Earthed up: July 5. Sprayed with 20% sulphuric acid in 100 gallons per acre: Oct 4. Lifted: Oct 11. Variety: Majestic.

3rd Test Crop, Barley

Ploughed: Nov 18, 1954. Ground chalk applied to blocks 5 and 8: Dec 30. Nitrochalk applied: Mar 28, 1955. Seed drilled at 2 bushels per acre with basal PK: Mar 30. Combine harvested: Aug 12. Variety: Proctor.

Permanent Grasses. Basal PK applied to all plots: Dec 21, 1954. 5th year Reseeded, 5th experimental year of permanent grass, Blocks 9-12. Supplementary K applied to blocks 10 and 11: Mar 11, 1955. Nitrochalk applied: Apr 18 and July 9. Grazed: Permanent grass blocks 9 and 12 - 5 circuits, May 1-Oct 12; Remainder - 6 circuits Apr 27-Oct 15.

6th year Reseeded, 6th experimental year of permanent grass, Blocks 5-8. Blocks 5 and 8: Ground chalk applied: Dec 30, 1954. Nitrochalk applied: Apr 18 and July 16, 1955. Grazed: 5 circuits, May 5-Oct 7. Blocks 6 and 7: Nitrochalk applied: Apr 15, 1955. Cut for hay: June 27. Nitrochalk applied: June 28. Grazed: 2 circuits, July 19-Oct 7.

7th year Reseeded, 7th experimental year of permanent grass, Blocks 1-4. Nitrochalk applied: Apr 22 and July 2, 1955. Supplementary K applied to blocks 2 and 3: Mar 11 and July 20. Grazed: 5 circuits, May 9-Sept 29.

FOSTERS

1st year Treatment Crops

Cut grass: Ploughed: Oct 13, 1954. 1st dressing of supplementary K and nitrochalk applied: Apr 22, 1955. Basal PK applied and seed sown at 33 lb per acre: Apr 23. 2nd dressing of supplementary K applied: July 8. Cut 3 times: July 1, July 27, Nov 19. Nitrochalk applied after each cut except the last.

Grazed ley: Ploughed: Oct 13, 1954. Nitrochalk applied: Apr 22, 1955. Basal PK applied and seed sown at 44 lb per acre: Apr 23. Nitrochalk applied: July 22. Grazed: 2 circuits, July 17-Sept 26.

Lucerne: Ploughed: Oct 13, 1954. 1st dressing of supplementary K applied: Apr 22, 1955. Basal PK applied and seed sown at 28 lb per acre: Apr 23. 2nd dressing of supplementary K applied: July 28. Cut 3 times: July 27, Aug 31, Nov 19. Variety: Du Puits.

Hay: Seeds undersown in barley at 28 lb per acre: Apr 21, 1954. Basal PK applied: Dec 23. Nitrochalk applied: Apr 15, 1955. Cut: June 6.



55/Bc/1.4

2nd year Treatment Crops

Cut grass: Basal PK applied: Dec 22, 1954. Supplementary K applied: Mar 11, 1955. Nitrochalk applied: Apr 18 and after each cut except the last. Cut 5 times: May 10, June 6, July 1, July 27, Nov 19.

Grazed ley: Basal PK applied: Dec 22, 1954. Nitrochalk applied: Apr 18 and July 22, 1955. Grazed: 6 circuits, Apr 28-Oct 4.

Lucerne: Basal PK applied: Dec 22, 1954. Supplementary K applied: Mar 11, 1955. Cut 4 times: June 23, July 27, Aug 31, Nov 19.

Potatoes: Ploughed: June 28, Aug 17 and Nov 4, 1954. Basal PK applied: Apr 28, 1955. Sulphate of ammonia and dung applied: May 2. For later cultivations see Potato Test Crop.

3rd year Treatment Crops

Cut grass: Basal PK applied: Dec 22, 1954. Nitrochalk applied: Apr 19, 1955 and after each cut except the last. Cut 5 times: May 19, June 13, July 1, July 27, Oct 14.

Grazed ley: Basal PK applied: Dec 22, 1954. Nitrochalk applied: Apr 19 and July 22, 1955. Grazed: 6 circuits, May 2-Sept 30.

Lucerne: Basal PK applied: Dec 22, 1954. Cut 4 times: June 14, July 27, Aug 31, Oct 12.

Oats: Ploughed: Oct 18, 1954. Nitrochalk applied: Mar 28. Seed drilled at  $3\frac{1}{2}$  bushels per acre with basal PK: Mar 30. Combine harvested: Aug 9. Variety: Sun II.

1st Test Crop, Wheat

Ploughed: Oct 12, 1954. Seed drilled at  $2\frac{3}{4}$  bushels with basal PK: Oct 20, 1954. Nitrochalk applied: May 11, 1955. Combine harvested: Aug 16. Variety: Yeoman.

2nd Test Crop, Potatoes

Ploughed: Oct 1, 1954. Ridged: Apr 27, 1955. Basal PK applied: Apr 28. Additional P and K, dung and sulphate of ammonia: May 2. Potatoes planted: May 3. Earthed up: June 29. Sprayed with 20% sulphuric acid in 100 gallons: Sept 30. Lifted: Oct 11. Variety: Majestic.

3rd Test Crop, Barley

Ploughed: Oct 18, 1954. Nitrochalk applied: Mar 28, 1955. Seed drilled at 2 bushels per acre with basal PK: Mar 30. Sprayed with MCPA,  $2\frac{1}{2}$  pints in 40 gallons per acre: June 8. Combine harvested: Aug 9. Variety: Proctor.

Permanent grasses. Basal PK applied to all plots: Dec 22, 1954.

5th year reseeded grass, Blocks 6, 10, 11, 12.

Supplementary K applied to blocks 10 and 12: Mar 11, 1955. Nitrochalk applied: Apr 4 and July 15. Grazed: Blocks 6 and 10, 5 circuits, Apr 28-Oct 14; Blocks 11 and 12, 4 circuits, May 2-Oct 10.



55/Bc/1.5

6th year reseeded grass, Blocks 5,7,8,9.

Blocks 5 and 7: Nitrochalk applied: Apr 18 and July 7, 1955.

Grazed: 5 circuits, May 16-Oct 14.

Blocks 8 and 9: Nitrochalk applied: Apr 18 and June 27, 1955. Cut for hay: June 27. Aftermath grazed: 1 circuit, Oct 2-Oct 6.

7th year reseeded grass, Blocks 1, 2, 3, 4.

Supplementary K applied to blocks 2 and 4: Mar 11, 1955 and

July 15, 1955. Nitrochalk: Apr 18 and July 15. Grazed: 5 circuits, May 10-Sept 30.

Standard errors per  $\frac{1}{4}$  plot. Test crops.

Wheat, grain (at 85% dry matter). Highfield: 2.10 cwt per acre or 4.6% (13 d.f.)

Fosters: 2.70 cwt per acre or 7.7% (13 d.f.)

Potatoes, total tubers: Highfield  $\frac{1}{4}$  plot: 0.636 tons per acre or 6.2% (14 d.f.)

Highfield  $\frac{1}{8}$  plot: 0.702 tons per acre or 6.9% (20 d.f.)

Fosters  $\frac{1}{4}$  plot: 0.465 tons per acre or 5.8% (14 d.f.)

Fosters  $\frac{1}{8}$  plot: 0.594 tons per acre or 7.4% (20 d.f.)

Barley, grain (at 85% D.M.). Highfield: 2.55 cwt per acre or 5.2% (15 d.f.)

Fosters: 2.08 cwt per acre or 4.5% (15 d.f.)



55/Bc/1.6

Summary of Results

Wheat 1st test crop

N: cwt per acre	Treatment crops 1952-1954				Mean
	Lucerne	Ley	Cut Grass	Arable with hay	
Grain (at 85% Dry Matter): cwt per acre					
<u>Highfield</u>					
Mean	48.0	48.9	38.9	47.9	45.9
To test crop					
0.3	45.2	48.9	38.1	47.4	44.9
0.6	50.8	48.9	39.7	48.3	46.9
Difference ( $\pm 1.49$ )	+5.6	0.0	+1.6	+0.9	+2.0 ( $\pm 0.74$ )
To treatment crops					
Single rate		48.0	40.9	47.5	45.5
Double rate		49.9	36.9	48.2	45.0
Difference ( $\pm 1.49$ )		+1.9	-4.0	+0.7	-0.5 ( $\pm 0.86$ )
<u>Fosters</u>					
Mean	38.2	34.8	34.6	32.9	35.1
To test crop					
0.3	36.3	33.0	34.9	30.6	33.7
0.6	40.1	36.5	34.3	35.2	36.5
Difference ( $\pm 1.91$ )	+3.8	+3.5	-0.6	+4.6	+2.8 ( $\pm 0.95$ )
To treatment crops					
Single rate		35.6	35.2	33.1	34.6
Double rate		33.9	34.0	32.7	33.5
Difference ( $\pm 1.91$ )		-1.7	-1.2	-0.4	-1.1 ( $\pm 1.10$ )



55/Bc/1.7

Wheat 1st test crop

N: cwt per acre	Excluding Lucerne N to previous treatment crop			Arable with hay only Dung to potatoes 1953: tons per acre		
	Single rate	Double rate	Mean	None	12	Mean

Grain (at 85% Dry Matter): cwt per acre

Highfield

To test crop	( $\pm 0.86$ )		( $\pm 0.61$ )	( $\pm 1.49$ )		( $\pm 1.05$ )
0.3	45.5	44.1	44.8	45.3	49.5	47.4
0.6	45.5	45.9	45.7	49.0	47.7	48.3
Mean	45.5	45.0	45.2	47.1	48.6	47.9
	( $\pm 0.61$ )			( $\pm 1.05$ )		
To previous treatment crops				( $\pm 1.49$ )		( $\pm 1.05$ )
Single rate				45.8	49.3	47.5
Double rate				48.5	48.0	48.2
Mean				47.1	48.6	47.9
				( $\pm 1.05$ )		

Mean dry matter % as harvested: 83.7

Fosters

To test crop	( $\pm 1.10$ )		( $\pm 0.78$ )	( $\pm 1.91$ )		( $\pm 1.35$ )
0.3	32.8	32.9	32.8	29.0	32.2	30.6
0.6	36.5	34.2	35.4	35.2	35.2	35.2
Mean	34.6	33.5	34.1	32.1	33.7	32.9
	( $\pm 0.78$ )			( $\pm 1.35$ )		
To previous treatment crops				( $\pm 1.91$ )		( $\pm 1.35$ )
Single rate				31.4	34.9	33.1
Double rate				32.9	32.5	32.7
Mean				32.1	33.7	32.9
				( $\pm 1.35$ )		

Mean dry matter % as harvested: 81.9



55/Bc/1.8

Potatoes 2nd test crop. Total tubers: tons per acre

	Treatment crops 1951-1953				Mean
	Lucerne	Ley	Cut Grass	Arable with hay	
<u>Highfield</u>					
Mean	10.05	10.48	9.78	10.53	10.21
N: cwt per acre					
0.5	9.50	10.18	9.78	10.28	9.94
1.0	10.60	10.77	9.78	10.78	10.48
Difference ( $\pm 0.450$ )	+1.10	+0.59	0.00	+0.50	+0.54 ( $\pm 0.225$ )
Dung: tons per acre					
None	8.76	10.09	8.88	9.74	9.37
12	11.34	10.86	10.69	11.32	11.05
Difference ( $\pm 0.450$ )	+2.58	+0.77	+1.81	+1.58	+1.68 ( $\pm 0.225$ )
P <sub>2</sub> O <sub>5</sub> : cwt per acre <sup>‡</sup>					
0.9	9.77	10.53	9.72	10.40	10.11
1.8	10.33	10.42	9.85	10.66	10.31
Difference ( $\pm 0.351$ )	+0.56	-0.11	+0.13	+0.26	+0.20 ( $\pm 0.175$ )
K <sub>2</sub> O: cwt per acre <sup>‡</sup>					
0.9	9.38	9.94	8.95	10.12	9.60
1.8	10.72	11.01	10.62	10.94	10.82
Difference ( $\pm 0.351$ )	+1.34	+1.07	+1.67	+0.82	+1.22 ( $\pm 0.175$ )
<u>Fosters</u>					
Mean	8.62	8.29	7.35	7.65	7.97
N: cwt per acre					
0.5	8.73	8.13	7.64	7.58	8.02
1.0	8.50	8.44	7.05	7.71	7.93
Difference ( $\pm 0.329$ )	-0.23	+0.31	-0.59	+0.13	-0.09 ( $\pm 0.164$ )
Dung: tons per acre					
None	7.81	7.97	6.22	7.26	7.32
12	9.42	8.60	8.48	8.03	8.63
Difference ( $\pm 0.329$ )	+1.61	+0.63	+2.26	+0.77	+1.31 ( $\pm 0.164$ )
P <sub>2</sub> O <sub>5</sub> : cwt per acre <sup>‡</sup>					
0.9	8.39	8.04	7.08	7.59	7.78
1.8	8.84	8.53	7.62	7.71	8.17
Difference ( $\pm 0.297$ )	+0.45	+0.49	+0.54	+0.12	+0.39 ( $\pm 0.148$ )
K <sub>2</sub> O: cwt per acre <sup>‡</sup>					
0.9	8.29	8.12	6.87	7.52	7.70
1.8	8.94	8.46	7.82	7.77	8.25
Difference ( $\pm 0.297$ )	+0.65	+0.34	+0.95	+0.25	+0.55 ( $\pm 0.148$ )

<sup>‡</sup>Including basal dressing.



55/Bc/1.9

Potatoes 2nd test crop. Total tubers: tons per acre

	Dung: tons per acre		P <sub>2</sub> O <sub>5</sub> : cwt per acre <sup>‡</sup>		K <sub>2</sub> O: cwt per acre <sup>‡</sup>	
	None	12	0.9	1.8	0.9	1.8
<u>Highfield</u>						
	(±0.225)		(1) and (2)		(1) and (2)	
N: cwt per acre						
0.5	9.19	10.68	9.94	9.93	9.18	10.69
1.0	9.55	11.42	10.27	10.69	10.01	10.96
			(1) and (2)		(1) and (2)	
Dung: tons per acre						
None			9.37	9.37	8.49	10.25
12			10.84	11.26	10.71	11.40
<u>Lucerne rotation only</u>						
			K <sub>2</sub> O: cwt per acre <sup>‡</sup>			
			0.9	1.8	Mean	
<u>P<sub>2</sub>O<sub>5</sub>: cwt per acre<sup>‡</sup></u>						
			(3) and (4)			
0.9			9.12	10.42	9.77	
1.8			9.65	11.01	10.33	
Mean			9.38	10.72	10.05	
<u>Dung: tons per acre</u>						
None			0.9	1.8	0.9	1.8
12						
<u>Fosters</u>						
	(±0.164)		(1) and (2)		(1) and (2)	
N: cwt per acre						
0.5	7.20	8.84	7.86	8.18	7.83	8.21
1.0	7.43	8.43	7.69	8.16	7.57	8.28
			(1) and (2)		(1) and (2)	
Dung: tons per acre						
None			7.31	7.32	7.00	7.63
12			8.24	9.02	8.40	8.86
<u>Lucerne rotation only</u>						
			K <sub>2</sub> O: cwt per acre <sup>‡</sup>			
			0.9	1.8	Mean	
<u>P<sub>2</sub>O<sub>5</sub>: cwt per acre<sup>‡</sup></u>						
			(3) and (4)			
0.9			7.96	8.83	8.39	
1.8			8.63	9.05	8.84	
Mean			8.29	8.94	8.62	

<sup>‡</sup>Including basal dressing

Highfield

Fosters

- |            |            |   |
|------------|------------|---|
| (1) ±0.175 | (1) ±0.148 | for use in horizontal and interaction comparisons |
| (2) ±0.202 | (2) ±0.157 | for use in all others                             |
| (3) ±0.450 | (3) ±0.329 | for use only in testing the PK interaction        |
| (4) ±0.403 | (4) ±0.313 | for use in all other comparisons.                 |



Potatoes 2nd test crop. Percentage ware ( $1\frac{1}{2}$ " riddle)

	Treatment crops 1951-1953				Mean
	Lucerne	Ley	Cut Grass	Arable with hay	
<u>Highfield</u>					
Mean	82.5	82.7	81.0	82.3	82.1
N: cwt per acre					
0.5	82.2	80.8	81.2	82.3	81.6
1.0	82.8	84.6	80.7	82.4	82.6
Difference	+0.6	+3.8	-0.5	+0.1	+1.0
Dung: tons per acre					
None	81.4	81.3	79.1	81.4	80.8
12	83.5	84.1	82.8	83.2	83.4
Difference	+2.1	+2.8	+3.7	+1.8	+2.6
P <sub>2</sub> O <sub>5</sub> : cwt per acre <sup>*</sup>					
0.9	82.5	82.2	81.8	83.3	82.4
1.8	82.4	83.2	80.1	81.4	81.8
Difference	-0.1	+1.0	-1.7	-1.9	-0.6
K <sub>2</sub> O: cwt per acre <sup>*</sup>					
0.9	81.2	82.8	78.9	81.3	81.0
1.8	83.7	82.6	83.0	83.4	83.2
Difference	+2.5	-0.2	+4.1	+2.1	+2.2
<u>Fosters</u>					
Mean	83.0	84.7	83.6	83.2	83.6
N: cwt per acre					
0.5	84.9	84.5	84.9	84.2	84.6
1.0	81.0	85.0	82.2	82.1	82.6
Difference	-3.9	+0.5	-2.7	-2.1	-2.0
Dung: tons per acre					
None	82.5	85.1	80.9	82.7	82.8
12	83.4	84.4	86.2	83.7	84.4
Difference	+0.9	-0.7	+5.3	+1.0	+1.6
P <sub>2</sub> O <sub>5</sub> : cwt per acre <sup>*</sup>					
0.9	82.7	84.7	83.6	83.3	83.6
1.8	83.2	84.8	83.6	83.1	83.7
Difference	+0.5	+0.1	0.0	-0.2	+0.1
K <sub>2</sub> O: cwt per acre <sup>*</sup>					
0.9	83.6	85.0	82.6	82.4	83.4
1.8	82.3	84.5	84.6	84.0	83.8
Difference	-1.3	-0.5	+2.0	+1.6	+0.4

\*Including basal dressing.



55/Bc/1.11

Potatoes 2nd test crop. Percentage ware (1½" riddle)

Dung: tons per acre		P <sub>2</sub> O <sub>5</sub> : cwt per acre <sup>‡</sup>		K <sub>2</sub> O: cwt per acre <sup>‡</sup>	
None	12	0.9	1.8	0.9	1.8

Highfield

N: cwt per acre						
0.5	80.7	82.5	82.2	81.0	80.4	82.8
1.0	80.9	84.3	82.6	82.6	81.7	83.5
Dung: tons per acre						
None			81.6	80.0	79.2	82.4
12			83.2	83.6	82.8	84.0

<u>Lucerne rotation only</u>	K <sub>2</sub> O: cwt per acre <sup>‡</sup>		Mean
	0.9	1.8	
P <sub>2</sub> O <sub>5</sub> : cwt per acre <sup>‡</sup>			
0.9	81.4	83.6	82.5
1.8	81.1	83.8	82.4
Mean	81.2	83.7	82.5

Dung: tons per acre		P <sub>2</sub> O <sub>5</sub> : cwt per acre <sup>‡</sup>		K <sub>2</sub> O: cwt per acre <sup>‡</sup>	
None	12	0.9	1.8	0.9	1.8

Fosters

N: cwt per acre						
0.5	83.8	85.5	84.5	84.8	85.3	84.0
1.0	81.8	83.4	82.6	82.5	81.4	83.7
Dung: tons per acre						
None			83.1	82.5	82.5	83.1
12			84.0	84.8	84.3	84.6

<u>Lucerne rotation only</u>	K <sub>2</sub> O: cwt per acre <sup>‡</sup>		Mean
	0.9	1.8	
P <sub>2</sub> O <sub>5</sub> : cwt per acre <sup>‡</sup>			
0.9	81.8	83.6	82.7
1.8	85.4	81.0	83.2
Mean	83.6	82.3	83.0

<sup>‡</sup>Including basal dressing.



55/Bc/1.12

Barley 3rd test crop. Grain (at 85% Dry Matter): cwt per acre

	Treatment crops 1950-1952				Mean
	Lucerne	Ley	Cut Grass	Arable with hay	
<u>Highfield</u>					
Mean	50.6	48.6	48.6	49.0	49.2
N: cwt per acre					
None	49.7	48.5	50.6	46.8	48.9
0.2	51.5	48.7	46.6	51.2	49.5
Difference ( $\pm 1.80$ )	+1.8	+0.2	-4.0	+4.4	+0.6 ( $\pm 0.90$ )
Dung to potatoes 1954: tons per acre					
None	50.8	48.2	47.9	47.9	48.7
12	50.4	49.1	49.3	50.1	49.7
Difference ( $\pm 1.80$ )	-0.4	+0.9	+1.4	+2.2	+1.0 ( $\pm 0.90$ )

	N: cwt per acre	
	None	0.2
Dung to potatoes 1954: tons per acre		
None	48.4	49.0
12	49.5	50.0
	( $\pm 0.90$ )	

	Treatment crops 1950-1952				Mean
	Lucerne	Ley	Cut Grass	Arable with hay	
<u>Fosters</u>					
Mean	48.4	46.5	45.1	45.5	46.4
N: cwt per acre					
0.2	47.3	44.5	43.6	44.7	45.0
0.4	49.5	48.5	46.7	46.4	47.8
Difference ( $\pm 1.47$ )	+2.2	+4.0	+3.1	+1.7	+2.8 ( $\pm 0.73$ )
Dung to potatoes 1954: tons per acre					
None	48.5	45.9	44.8	44.9	46.0
12	48.3	47.1	45.5	46.2	46.8
Difference ( $\pm 1.47$ )	-0.2	+1.2	+0.7	+1.3	+0.8 ( $\pm 0.73$ )

	N: cwt per acre	
	0.2	0.4
Dung to potatoes 1954: tons per acre		
None	43.8	48.2
12	46.2	47.4
	( $\pm 0.73$ )	

Mean dry matter % as harvested: Highfield: 78.7, Fosters: 79.6



55/Bc/1.13

Treatment crops Arable and Hay rotation  
(values based on Mean of 2 sub plots only)

	Highfield			Fosters		
	N: cwt per acre applied in 1955			N: cwt per acre applied in 1955		
	Single rate	Double rate	Mean	Single rate	Double rate	Mean
Hay (dry matter): cwt per acre						
No dung	51.4	53.1	52.3	51.4	55.7	53.5
Dung in 1953	48.5	45.7	47.1	52.7	57.0	54.9
Mean	50.0	49.4	49.7	52.0	56.4	54.2
Potatoes, total tubers: tons per acre						
No dung	8.83	8.61	8.72	6.96	7.34	7.15
Dung in 1955	10.29	9.68	9.99	9.29	9.28	9.29
Mean	9.56	9.15	9.35	8.13	8.31	8.22
Potatoes, percentage ware (1½" riddle)						
No dung	81.2	78.4	79.8	79.3	80.8	80.0
Dung in 1955	83.9	83.5	83.7	87.2	86.0	86.6
Mean	82.6	81.0	81.8	83.2	83.4	83.3
Oats, grain: cwt per acre						
	None	0.2		0.2	0.4	
				(at 85% Dry Matter)		
No dung	50.6	52.9	51.8	39.7	45.9	42.8
Dung in 1954	50.2	49.7	49.9	40.6	45.1	42.9
Mean	50.4	51.3	50.8	40.2	45.5	42.8

Highfield, Oats, Mean dry matter % as harvested: 83.2  
Fosters, Oats, Mean dry matter % as harvested: 81.9



55/Bc/1.14

Cut grass. Dry Matter: cwt per acre

Corrective dressing of K <sub>2</sub> O: cwt per acre	2.4	Highfield					Fosters				
		N: to previous 3 test crops		Dung to potatoes 1953 tons per acre		Mean	N: to previous 3 test crops		Dung to potatoes 1953 tons per acre		Mean
		Single rate	Double rate	None	12		Single rate	Double rate	None	12	

N(1) to cut grass (3 cuts)											
Single rate		30.3	31.2	32.9	28.5	30.7	7.9	9.8	9.1	8.6	8.8
Double rate		38.0	36.9	38.7	36.2	37.4	13.8	10.4	13.2	11.0	12.1
N to test crops											
Single rate				37.4	30.8	34.1			11.8	9.9	10.8
Double rate				34.2	33.8	34.0			10.5	9.7	10.1
Mean				35.8	32.3	34.1			11.1	9.8	10.5

		Highfield			Fosters		
		N to cut grass (1)			N to cut grass (1)		
		Single rate	Double rate	Mean	Single rate	Double rate	Mean
<u>2nd year</u> (5 cuts)	1.2	46.8	60.7	53.7	37.8	42.6	40.2
<u>3rd year</u> (5 cuts)	None	32.2	45.7	39.0	31.9	36.5	34.2

(1) 0.15 v. 0.3 cwt N as Nitrochalk for every cut.

Lucerne. Dry Matter: cwt per acre

Corrective dressing of K <sub>2</sub> O: cwt per acre	2.4	Highfield			Fosters		
		N to 3 previous test crops			N to 3 previous test crops		
		Single rate	Double rate	Mean	Single rate	Double rate	Mean

Dung to potatoes 1953							
None		24.4	23.2	23.8	21.6	23.5	22.6
12 tons		25.9	24.4	25.2	24.4	23.7	24.0
Mean		25.2	23.8	24.5	23.0	23.6	23.3

<u>2nd year</u> (4 cuts)	0.6			109.8			111.9
<u>3rd year</u> (4 cuts)	None			79.6			106.9



55/Bc/1.15

Grazed Ley. Dry Matter: cwt per acre (estimated from sample cuts)

	Highfield			Fosters		
	N: cwt per acre (yearly)			N: cwt per acre (yearly)		
	0.15	0.30	Mean	0.15	0.30	Mean
1st year	26.9	27.2	27.1	10.4	10.3	10.4
2nd year	56.5	57.5	57.0	38.7	36.5	37.6
3rd year	55.8	66.5	61.2	40.7	42.3	41.5

Reseeded Grass. Dry Matter: cwt per acre

Corrective dressing of K <sub>2</sub> O: cwt per acre	Cut for hay			Grazed Estimated from sampling cuts		
	N			N		
	Single rate	Double rate	Mean	Single rate	Double rate	Mean

Highfield

5th year						
None				49.5	55.7	52.6
1.2				50.4	52.0	51.2
Mean				49.9	53.9	51.9
6th year						
Blocks 5 & 8				42.1	42.1	42.1
Blocks 6 & 7	64.5	65.6	65.0	23.7 <sup>‡</sup>	36.4 <sup>‡</sup>	30.1 <sup>‡</sup>
7th year						
None				27.1	38.1	32.6
2.4				34.0	33.9	33.9
Mean				30.6	36.0	33.3

Fosters

5th year						
None				40.9	34.9	37.9
1.2				38.2	44.0	41.1
Mean				39.5	39.4	39.5
6th year						
Blocks 5 & 7				27.7 <sup>‡</sup>	29.1 <sup>‡</sup>	28.4 <sup>‡</sup>
Blocks 8 & 9	66.7	68.5	67.6	21.7 <sup>‡</sup>	17.5 <sup>‡</sup>	19.6 <sup>‡</sup>
7th year						
None				30.3	35.1	32.7
2.4				38.2	30.4	34.3
Mean				34.3	32.7	33.5

<sup>‡</sup>Aftermath grazing.



55/Bc/1.16

Permanent Grass. Dry Matter: cwt per acre

Corrective dressing of K <sub>2</sub> O: cwt per acre	<u>Highfield</u>			Grazed		
	Cut for hay		Mean	Estimated from sample cuts:		
	Single rate	Double rate		Single rate	Double rate	Mean
5th experimental year Blocks 9-12						
None				36.6	39.3	38.0
1.2				42.7	45.1	43.9
Mean				39.7	42.2	40.9
6th experimental year Blocks 5&8				32.4	38.2	35.3
Blocks 6&7	51.0	60.7	55.9	25.3 <sup>*</sup>	25.2 <sup>*</sup>	25.2 <sup>*</sup>
7th experimental year Blocks 1-4				37.3	34.8	36.1
None				30.9	34.0	32.4
2.4						
Mean				34.1	34.4	34.3

<sup>\*</sup>Aftermath grazing.