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Yields of the Field Experiments 1957

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57/R/BC/1 Ley and Arable Rotations

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LEY AND ARABLE ROTATIONS

Highfield and Fosters Field 1957 - the 9th year.

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

Rates of application of supplementary (corrective) potash
(K₂O: cwt per acre)

Crop	Year of cycle	Rate
Cut grass	"1st treatment"	3.0 (3 years previous cutting)
	"2nd treatment"	1.5 (received supplement in 1956)
	"3rd treatment"	1.5 (received supplement in 1956)
Lucerne	"1st treatment"	3.0 (3 years previous lucerne)
	"2nd treatment"	1.0 (received supplement in 1956)
	"3rd treatment"	1.0 (received supplement in 1956)
Permanent and reseeded grass	"1st treatment"	1.0 (1 previous hay crop taken)
Remaining plot		None
Cultivations, etc.:		

HIGHFIELD

*1957
NB PK plots on
potash equivalent
1958.*

1st year Treatment Crops

Cut grass. Ploughed: Oct 29, 1956. 1st dressing of supplementary K applied: Mar 28, 1957. Basal PK applied: Apr 2. 'Nitro-Chalk' applied: Apr 3. Seed sown at 33 lb per acre: Apr 4. 2nd dressing of supplementary K applied: July 12. Cut 3 times: July 11, Aug 19, Oct 25. 'Nitro-Chalk' applied after each cut except the last.

Grazed ley. Ploughed: Oct 29, 1956. Basal PK applied: Apr 2, 1957. 'Nitro-Chalk' applied: Apr 3. Seed sown at 44 lb per acre: Apr 4. 'Nitro-Chalk' applied: July 3. Grazed: 6 circuits, June 25 - Sept 28.

Lucerne. Ploughed: Oct 29, 1956. 1st dressing of supplementary K applied: Mar 28, 1957. Basal PK applied: Apr 2. Seed drilled at 28 lb per acre: Apr 3. 2nd dressing of supplementary K applied: July 12. Cut 3 times: July 11, Sept 13, Oct 25. Variety: Du Fuits.

Hay. Ploughed after failure of undersown seeds: Oct 31, 1956. Basal PK and 'Nitro-Chalk' applied, seed sown at 28 lb per acre: Mar 28, 1957. Cut: June 20.

2nd year Treatment Crops

Cut grass. Basal PK applied: Dec 5, 1956. Supplementary K applied: Apr 1, 1957. 'Nitro-Chalk' applied: Apr 1 and after each cut except the last. Cut 6 times: Apr 18, May 24, June 20, July 22, Aug 20, Oct 25.

Grazed ley. Basal PK applied: Dec 5, 1956. 'Nitro-Chalk' applied: May 6, 1957 and July 3. Grazed: 8 circuits, Apr 12 - Sept 30.

Lucerne. Basal PK applied: Dec 5, 1956. Supplementary K applied: Apr 1, 1957. Cut 4 times: May 29, July 2, Aug 10, Oct 24.

57/Bc/1.2

Potatoes. Ploughed 3 times: July 5, 1956, Oct 16, Jan 28, 1957.
Ridged: May 2. Basal PK, sulphate of ammonia and dung applied,
potatoes planted: May 3. For later cultivations see Potato
Test Crop.

3rd year Treatment Crops

Cut grass. Basal PK applied: Dec 5, 1956. Supplementary K
applied: Apr 1, 1957. 'Nitro-Chalk' applied: Apr 1 and after
each cut except the last. Cut 6 times: Apr 26, May 29, July 2,
July 22, Aug 19, Oct 11.

Grazed ley. Basal PK applied: Dec 5, 1956. 'Nitro-Chalk'
applied: May 6, 1957 and July 3. Grazed: 6 circuits, Apr 16 -
Sept 6.

Lucerne. Basal PK applied: Dec 5, 1956. Sprayed with TCA
(Sodium trichloracetate), 20 lb in 90 gallons per acre:
Jan 11, 1957. Supplementary K applied: Apr 1. Cut 4 times:
May 29, July 2, Aug 10, Oct 11.

Oats. Ploughed twice: Oct 16, 1956 and Jan 29, 1957. Seed
drilled at $3\frac{1}{2}$ bushels per acre with basal PK, 'Nitro-Chalk'
applied: Mar 13. Combine harvested: Aug 7. Variety: Sun II.

1st Test Crop, Wheat

Ploughed after oats: Oct 4, 1956. Ploughed leys: Oct 26. Seed
drilled at $2\frac{3}{4}$ bushels per acre with basal PK: Nov 2.
Supplementary K applied to previous cut grass and lucerne plots:
Apr 1, 1957. 'Nitro-Chalk' applied: Apr 26. Sprayed with
MCPA, 3 pints in 40 gallons per acre: May 7. Combine harvested:
Aug 26. Variety: Yeoman.

2nd Test Crop, Potatoes

Ploughed twice: Oct 16, 1956 and Jan 28, 1957. Ridged: May 2.
Dung, sulphate of ammonia, basal PK and additional P and K
applied, potatoes planted: May 3. Earthed up: July 6.
Sprayed with copper fungicide, 5 lb in 40 gallons per acre:
Aug 1 and again Aug 21. Sprayed with sulphuric acid, 25% BOV
at 100 gallons per acre: Sept 23. Lifted: Oct 4. Variety:
Majestic.

3rd Test Crop, Barley

Ploughed twice: Oct 16, 1956 and Jan 29, 1957. Ground chalk
applied to blocks 1 and 4: Dec 3, 1956. 'Nitro-Chalk' applied,
seed drilled at 2 bushels per acre with basal PK: Mar 14, 1957.
Combine harvested: Aug 19.

Permanent grasses. Basal PK applied to all plots: Dec 5, 1956.

7th year reseeded, 7th experimental year of permanent grass, Blocks 9-12.

Blocks 9 and 12. Supplementary K applied: Apr 1, 1957. 'Nitro-
Chalk' applied: Apr 1 and June 7. Cut for hay: June 6.
Grazed aftermath: 3¹/₂ circuits, Aug 5 - Sept 25.

Blocks 10 and 11. 'Nitro-Chalk' applied: May 6 and July 3, 1957.
Grazed: 5 circuits, Apr 28 - Sept 22.

8th year reseeded, 8th experimental year of permanent grass, Blocks 5-8.

Blocks 5 and 8. Supplementary K applied: Apr 1, 1957.

Blocks 5-8. 'Nitro-Chalk' applied: May 6, 1957 and July 3.

Grazed: 5 circuits, Apr 20 - Sept 18.

57/Bc/1.3

9th year reseeded, 9th experimental year of permanent grass, Blocks 1-4.
Blocks 1 and 4. Ground chalk applied: Dec 3, 1956.
Blocks 1-4. 'Nitro-Chalk' applied: May 6, 1957 and July 3.
Grazed: 6 circuits, Apr 12 - Sept 29.

FOSTERS

1st year Treatment Crops

Cut grass. Ploughed twice: Oct 2, 1956 and Jan 23, 1957. 1st dressing of supplementary K applied: Mar 29. 'Nitro-Chalk' and basal PK applied: Apr 2. Seed sown at 33 lb per acre: Apr 3. 2nd dressing of supplementary K applied: July 19. Cut 3 times: July 19, Aug 24, Oct 24. 'Nitro-Chalk' applied after each cut except the last.

Grazed ley. Ploughed twice: Oct 2, 1956 and Jan 23, 1957. 'Nitro-Chalk' and basal PK applied: Apr 2. Seed sown at 44 lb per acre: Apr 3. 'Nitro-Chalk' applied: July 3. Grazed: 3 circuits, July 25 - Sept 28.

Lucerne. Ploughed twice: Oct 2, 1956 and Jan 23, 1957. 1st dressing of supplementary K applied: Mar 29. Basal PK applied: Apr 2. Seed drilled at 28 lb per acre: Apr 3. 2nd dressing of supplementary K applied: July 12. Cut 3 times: July 12, Sept 12, Oct 24.

Hay. Seeds undersown in barley at 28 lb per acre: Apr 24, 1956. Basal PK applied: Dec 4. 'Nitro-Chalk' applied: Mar 29, 1957. Cut: June 5.

2nd year Treatment Crops

Cut grass. Basal PK applied: Dec 4, 1956. Supplementary K applied: Mar 30, 1957. 'Nitro-Chalk' applied: Mar 30 and after each cut except the last. Cut 6 times: Apr 18, May 24, June 20, July 23, Sept 12, Oct 24.

Grazed ley. Basal PK applied: Dec 4, 1956. 'Nitro-Chalk' applied: May 4, 1957 and July 3. Grazed: 6 circuits, Apr 13 - Oct 2.

Lucerne. Basal PK applied: Dec 4, 1956. Supplementary K applied: Mar 30, 1957. Cut 4 times: May 30, July 5, Aug 8, Oct 24.

Potatoes. Ploughed 3 times: July 5, 1956, Sept 28 and Jan 24, 1957. Ridged, dung, sulphate of ammonia and basal PK applied, potatoes planted: May 2. For later cultivations see Potato Test Crop.

3rd year Treatment Crops

Cut grass. Basal PK applied: Dec 4, 1956. Supplementary K applied: Mar 30, 1957. 'Nitro-Chalk' applied: Mar 30 and after each cut except the last. Cut 6 times: Apr 26, May 30, July 1, July 23, Sept 12, Oct 11.

Grazed ley. Basal PK applied: Dec 4, 1956. 'Nitro-Chalk' applied: May 4, 1957 and July 3. Grazed: 6 circuits, Apr 17 - Oct 6.

Lucerne. Basal PK applied: Dec 4, 1956. Supplementary K applied: May 30, 1957. Cut 4 times: May 30, July 5, Aug 8, Oct 11.

Oats. Ploughed twice: Oct 17, 1956 and Feb 20, 1957. 'Nitro-Chalk' applied, seed drilled at $3\frac{1}{2}$ bushels per acre with basal PK: Mar 13. Combine harvested: Aug 7. Variety: Sun II.

57/Bc/1.4

1st Test Crop, Wheat

Ploughed after oats: Sept 29, 1956. Ploughed leys: Oct 26. Seed drilled at $2\frac{3}{4}$ bushels per acre with basal PK: Nov 1. Supplementary K to previous cut grass and lucerne plots: Mar 30, 1957. 'Nitro-Chalk' applied: Apr 25. Sprayed with MCPA, 3 pints in 40 gallons per acre: May 7. Combine harvested: Aug 24. Variety: Yeoman.

2nd Test Crop, Potatoes

Ploughed twice: Sept 29, 1956 and Jan 24, 1957. Ridged, dung, sulphate of ammonia, basal PK and additional P and K applied, potatoes planted: May 2. Earthed up: July 6. Sprayed with copper fungicide, 5 lb in 40 gallons per acre: Aug 1 and again Aug 21. Sprayed with sulphuric acid, 20% BOV at 100 gallons per acre: Sept 19. Lifted: Oct 2. Variety: Majestic.

3rd Test Crop, Barley

Ploughed twice: Oct 17, 1956 and Jan 29, 1957. 'Nitro-Chalk' applied, seed drilled at 2 bushels per acre with basal PK: Mar 14. Combine harvested: Aug 19. Variety: Proctor.

Permanent grasses. Basal PK applied to all plots: Dec 4, 1956.

7th year reseeded grass, Blocks 6, 10, 11, 12.

Blocks 6 and 11. Supplementary K and 'Nitro-Chalk' applied: Mar 30, 1957. Cut for hay: June 5. 'Nitro-Chalk' applied: June 7. Grazed aftermath: 3 circuits, Aug 2 - Sept 18.

Blocks 10 and 12. 'Nitro-Chalk' applied: May 4, 1957 and July 3. Grazed: 5 circuits, Apr 29 - Sept 20.

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

Blocks 5 and 7. Supplementary K applied: Mar 30, 1957.

Blocks 5, 7, 8, 9. 'Nitro-Chalk' applied: May 4 and July 3. Grazed: 5 circuits, Apr 21 - Sept 16.

9th year reseeded grass. Blocks 1-4.

'Nitro-Chalk' applied: May 4, 1957 and July 3. Grazed: 6 circuits, Apr 13 - Oct 6.

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

Wheat, grain	Highfield:	2.70 cwt per acre or 7.7% (14 d.f.)
(at 85% dry matter).	Fosters:	1.58 cwt per acre or 4.4% (14 d.f.)
Potatoes,	Highfield $\frac{1}{4}$ plot:	0.964 tons per acre or 7.5% (14 d.f.)
total tubers.	$\frac{1}{8}$ plot:	0.710 tons per acre or 5.5% (20 d.f.)
	Fosters $\frac{1}{4}$ plot:	0.712 tons per acre or 5.9% (14 d.f.)
	$\frac{1}{8}$ plot:	0.917 tons per acre or 7.7% (20 d.f.)

Barley, grain	Highfield:	3.08 cwt per acre or 6.8% (15 d.f.)
(at 85% dry matter).	Fosters:	1.48 cwt per acre or 3.5% (15 d.f.)

57/Bc/1.5

Summary of Results

Wheat 1st test crop

N: cwt per acre	Treatment crops 1954-1956				Mean
	Lucerne	Ley	Cut Grass	Arable with hay	
Grain (at 85% dry matter): cwt per acre					
<u>Highfield</u>					
Mean	35.3	30.9	35.9	38.2	35.1
To test crop					
0.3	32.9	30.4	34.8	37.8	34.0
0.6	37.7	31.4	36.9	38.6	36.1
Difference (± 1.91)	+4.8	+1.0	+2.1	+0.8	+2.1 (± 0.96)
To treatment crops					
Single rate		30.4	35.9	37.1	34.5
Double rate		31.4	35.8	39.3	35.5
Difference (± 1.91)		+1.0	-0.1	+2.2	+1.0 (± 1.10)
<u>Fosters</u>					
Mean	40.6	33.4	33.2	35.4	35.6
To test crop					
0.3	39.3	31.9	31.2	32.9	33.8
0.6	41.9	34.9	35.2	37.9	37.5
Difference (± 1.12)	+2.6	+3.0	+4.0	+5.0	+3.7 (± 0.56)
To treatment crops					
Single rate		32.9	33.2	35.0	33.7
Double rate		33.9	33.2	35.8	34.3
Difference (± 1.12)		+1.0	0.0	+0.8	+0.6 (± 0.65)

57/Bc/1.6

Wheat 1st test crop

N: cwt per acre	Excluding Lucerne N to previous treatment crop			Arable with hay only Dung to potatoes 1955: tons per acre		
	Single rate	Double rate	Mean	None	12	Mean

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

Highfield

To test crop	(±1.10)		(±0.78)	(±1.91)		(±1.35)
0.3	33.2	35.5	34.3	38.1	37.5	37.8
0.6	35.7	35.5	35.6	38.9	38.3	38.6
Mean	34.5	35.5	35.0			
	(±0.78)					
To previous treatment crops				(±1.91)		(±1.35)
Single rate				37.0	37.3	37.1
Double rate				40.0	38.5	39.3
Mean				38.5	37.9	38.2
				(±1.35)		

Mean dry matter % as harvested: 83.0

Fosters

To test crop	(±0.65)		(±0.46)	(±1.12)		(±0.79)
0.3	31.5	32.5	32.0	37.2	36.3	36.8
0.6	35.9	36.1	36.0	42.2	41.3	41.8
Mean	33.7	34.3	34.0			
	(±0.46)					
To previous treatment crops				(±1.12)		(±0.79)
Single rate				39.6	38.2	38.9
Double rate				39.9	39.5	39.7
Mean				39.7	38.8	39.3
				(±0.79)		

Mean dry matter % as harvested: 83.7

57/Bc/1.7

Wheat 1st test crop

N: cwt per acre	Treatment crops 1954-1956				Mean
	Lucerne	Ley	Cut Grass	Arable with hay	
Straw (at 85% dry matter): cwt per acre					
	<u>Highfield</u>				
Mean	41.5	40.6	34.0	42.6	39.7
To test crop					
0.3	38.5	41.9	34.5	42.8	39.4
0.6	44.5	39.4	33.5	42.3	39.9
Difference	+6.0	-2.5	-1.0	-0.5	+0.5
To treatment crops					
Single rate		42.1	33.0	39.9	38.3
Double rate		39.2	35.0	45.3	39.8
Difference		-2.9	+2.0	+5.4	+1.5
	<u>Fosters</u>				
Mean	37.4	31.9	33.7	31.4	33.6
To test crop					
0.3	36.4	32.0	31.3	31.5	32.8
0.6	38.5	31.8	36.2	31.4	34.5
Difference	+2.1	-0.2	+4.9	-0.1	+1.7
To treatment crops					
Single rate		30.3	32.6	32.3	31.7
Double rate		33.5	34.8	30.6	33.0
Difference		+3.2	+2.2	-1.7	+1.3

57/Bc/1.8

Wheat 1st test crop

N: cwt per acre	Excluding Lucerne N to previous treatment crop			Arable with hay only Dung to potatoes 1955: tons per acre		
	Single rate	Double rate	Mean	None	12	Mean

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

Highfield

To test crop						
0.3	38.1	41.4	39.7	40.7	44.9	42.8
0.6	38.5	38.2	38.4	40.2	44.4	42.3
Mean	38.3	39.8	39.1			
To previous treatment crops						
Single rate				37.8	42.0	39.9
Double rate				43.1	47.4	45.3
Mean				40.4	44.7	42.6

Mean dry matter % as harvested: 85.1

Fosters

To test crop						
0.3	30.0	33.2	31.6	28.8	34.2	31.5
0.6	33.5	32.7	33.1	28.6	34.1	31.4
Mean	31.7	33.0	32.3			
To previous treatment crops						
Single rate				29.4	35.3	32.3
Double rate				28.1	33.0	30.6
Mean				28.7	34.2	31.4

Mean dry matter % as harvested: 85.0

57/Bc/1.9

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

	Treatment crops 1953-1955				Mean
	Lucerne	Ley	Cut Grass	Arable with hay	
<u>Highfield</u>					
Mean	13.18	14.24	12.25	11.98	12.91
N: cwt per acre					
0.5	13.22	14.20	11.91	11.49	12.70
1.0	13.14	14.28	12.60	12.47	13.12
Difference (± 0.682)	-0.08	+0.08	+0.69	+0.98	+0.42 (± 0.341)
Dung: tons per acre					
None	12.45	14.17	11.48	11.14	12.31
12	13.92	14.31	13.02	12.83	13.52
Difference (± 0.682)	+1.47	+0.14	+1.54	+1.69	+1.21 (± 0.341)
P ₂₅ ⁰ : cwt per acre*					
0.9	13.18	14.22	12.22	12.18	12.95
1.8	13.18	14.26	12.28	11.78	12.87
Difference (± 0.355)	0.00	+0.04	+0.06	-0.40	-0.08 (± 0.178)
K ₂₀ : cwt per acre*					
0.9	12.26	13.94	11.36	11.36	12.23
1.8	14.10	14.54	13.14	12.60	13.60
Difference (± 0.355)	+1.84	+0.60	+1.78	+1.24	+1.37 (± 0.178)
<u>Fosters</u>					
Mean	12.39	11.66	11.15	12.67	11.97
N: cwt per acre					
0.5	12.85	12.28	11.29	12.38	12.20
1.0	11.93	11.04	11.02	12.95	11.74
Difference (± 0.503)	-0.92	-1.24	-0.27	+0.57	-0.46 (± 0.252)
Dung: tons per acre					
None	11.72	11.35	10.87	12.23	11.54
12	13.06	11.97	11.44	13.10	12.39
Difference (± 0.503)	+1.34	+0.62	+0.57	+0.87	+0.85 (± 0.252)
P ₂₅ ⁰ : cwt per acre*					
0.9	11.91	11.61	11.13	12.90	11.89
1.8	12.87	11.71	11.17	12.43	12.05
Difference (± 0.459)	+0.96	+0.10	+0.04	-0.47	+0.16 (± 0.229)
K ₂₀ : cwt per acre*					
0.9	11.76	11.42	11.01	12.61	11.70
1.8	13.02	11.90	11.30	12.72	12.24
Difference (± 0.459)	+1.26	+0.48	+0.29	+0.11	+0.54 (± 0.229)

*Including basal dressing

57/Bc/1.10

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

	Dung: tons per acre	P ₂ O ₅ : cwt per acre*	K ₂ O: cwt per acre*
	None 12	0.9 1.8	0.9 1.8

	<u>Highfield</u>			
	(±0.308)	(1) and (2)		(1) and (2)
N: cwt per acre				
0.5	10.84	11.98	11.27 11.55	10.65 12.17
1.0	11.36	12.33	12.06 11.63	11.32 12.37
Dung: tons per acre			(1) and (2)	(1) and (2)
None			11.15 11.05	10.09 12.11
12			12.18 12.13	11.89 12.42

<u>Lucerne rotation only</u>	K ₂ O: cwt per acre*		
	0.9	1.8	Mean
P ₂ O ₅ : cwt per acre*	(3) and (4)		
0.9	11.14	12.76	11.95
1.8	10.98	12.74	11.86
Mean	11.06	12.75	11.90

	Dung: tons per acre	P ₂ O ₅ : cwt per acre*	K ₂ O: cwt per acre*
	None 12	0.9 1.8	0.9 1.8

	<u>Fosters</u>			
	(±0.242)	(1) and (2)		(1) and (2)
N: cwt per acre				
0.5	10.63	11.43	11.06 11.01	10.87 11.19
1.0	10.15	10.95	10.38 10.72	10.20 10.89
Dung: tons per acre			(1) and (2)	(1) and (2)
None			10.19 10.59	10.15 10.63
12			11.25 11.14	10.92 11.46

<u>Lucerne rotation only</u>	K ₂ O: cwt per acre*		
	0.9	1.8	Mean
P ₂ O ₅ : cwt per acre*	(3) and (4)		
0.9	9.62	11.79	10.70
1.8	11.47	11.68	11.57
Mean	10.55	11.73	11.14

*Including basal dressing

<u>Highfield</u>	<u>Fosters</u>
(1) ±0.181	(1)±0.226 for use in horizontal and interaction comparisons.
(2) ±0.253	(2)±0.234 for use in all others.
(3) ±0.617	(3)±0.484 for use only in testing the PK interaction.
(4) ±0.506	(4)±0.468 for use in all other comparisons.

57/Bc/1.11

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

	Treatment crops 1953-1955				Mean
	Lucerne	Ley	Cut Grass	Arable with hay	
<u>Highfield</u>					
Mean	78.1	76.8	76.2	74.6	76.4
N: cwt per acre					
0.5	79.8	77.6	77.6	74.4	77.4
1.0	76.4	76.0	74.8	74.8	75.5
Difference	-3.4	-1.6	-2.8	+0.4	-1.9
Dung: tons per acre					
None	79.2	76.7	74.5	72.3	75.6
12	77.0	77.0	77.9	76.9	77.2
Difference	-2.2	+0.3	+3.4	+4.6	+1.6
P ₂ O ₅ : cwt per acre *					
0.9	79.8	77.8	76.7	72.7	76.8
1.8	76.4	75.8	75.6	76.6	76.1
Difference	-3.4	-2.0	-1.1	+3.9	-0.7
K ₂ O: cwt per acre *					
0.9	77.6	76.2	78.0	75.5	76.8
1.8	78.6	77.5	74.4	73.8	76.0
Difference	+1.0	+1.3	-3.6	-1.7	-0.8
<u>Fosters</u>					
Mean	88.9	85.2	88.6	91.1	88.5
N: cwt per acre					
0.5	89.5	86.9	88.2	92.0	89.2
1.0	88.4	83.5	89.0	90.3	87.8
Difference	-1.1	-3.4	+0.8	-1.7	-1.4
Dung: tons per acre					
None	89.6	84.1	88.2	90.5	88.1
12	88.2	86.3	89.1	91.8	88.8
Difference	-1.4	+2.2	+0.9	+1.3	+0.7
P ₂ O ₅ : cwt per acre *					
0.9	89.6	85.8	89.3	92.2	89.2
1.8	88.2	84.6	87.9	90.1	87.7
Difference	-1.4	-1.2	-1.4	-2.1	-1.5
K ₂ O: cwt per acre *					
0.9	87.8	84.1	88.6	91.3	87.9
1.8	90.0	86.3	88.6	91.0	89.0
Difference	+2.2	+2.2	0.0	-0.3	+1.1

*Including basal dressing

57/Bc/1.12

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

	Dung: tons per acre	P ₂ O ₅ : cwt per acre*	K ₂ O: cwt per acre*
None	12	0.9 1.8	0.9 1.8

Highfield

N: cwt per acre						
0.5	74.2	75.3	74.3	75.3	76.7	72.9
1.0	71.7	74.0	74.0	71.7	71.6	74.1
Dung: tons per acre						
None			73.8	72.1	73.9	72.0
12			74.5	74.9	74.4	75.0

<u>Lucerne rotation only</u>	K ₂ O: cwt per acre*		Mean
	0.9	1.8	
P ₂ O ₅ : cwt per acre*			
0.9	76.9	78.6	77.8
1.8	73.4	74.2	73.8
Mean	75.2	76.4	75.8

	Dung: tons per acre	P ₂ O ₅ : cwt per acre*	K ₂ O: cwt per acre*
None	12	0.9 1.8	0.9 1.8

Fosters

N: cwt per acre						
0.5	87.4	88.6	89.5	86.5	87.6	88.4
1.0	86.1	86.7	86.5	86.2	85.6	87.2
Dung: tons per acre						
None			87.2	86.2	85.8	87.7
12			88.8	86.5	87.4	87.8

<u>Lucerne rotation only</u>	K ₂ O: cwt per acre*		Mean
	0.9	1.8	
P ₂ O ₅ : cwt per acre*			
0.9	86.9	90.0	88.4
1.8	85.9	87.9	86.9
Mean	86.4	88.9	87.7

*Including basal dressing

57/Bc/1.13

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

	Treatment crops 1952-1954				Mean
	Lucerne	Ley	Cut Grass	Arable with hay	
<u>Highfield</u>					
Mean	45.3	44.4	46.3	45.4	45.3
N: cwt per acre					
None	45.6	46.3	46.4	45.3	45.9
0.2	44.9	42.5	46.1	45.6	44.8
Difference (± 2.18)	-0.7	-3.8	-0.3	+0.3	-1.1 (± 1.09)
Dung to potatoes 1956: tons per acre					
None	47.1	43.2	47.0	44.2	45.4
12	43.5	45.6	45.6	46.6	45.3
Difference (± 2.18)	-3.6	+2.4	-1.4	+2.4	-0.1 (± 1.09)
<u>Fosters</u>					
Mean	43.7	42.4	42.8	41.2	42.5
N: cwt per acre					
0.2	44.2	42.1	42.9	40.2	42.3
0.4	43.3	42.8	42.8	42.3	42.8
Difference (± 1.05)	-0.9	+0.7	-0.1	+2.1	+0.5 (± 0.52)
Dung to potatoes 1956: tons per acre					
None	42.6	42.4	41.8	40.7	41.8
12	44.8	42.5	43.9	41.8	43.2
Difference (± 1.05)	+2.2	+0.1	+2.1	+1.1	+1.4 (± 0.52)
<u>Highfield</u> <u>Fosters</u>					
N: cwt per acre					
None 0.2 0.2 0.4					
Dung to potatoes 1956: tons per acre	(± 1.09)		(± 0.52)		
None	44.9	45.8	41.7	42.0	
12	46.9	43.8	42.9	43.5	
Mean dry matter % as harvested:					
Highfield: 81.4					
Fosters: 82.0					

57/Bc/1.14

Barley 3rd test crop. Straw (at 85% dry matter): cwt per acre

	Treatment crops 1952-1954				Mean
	Lucerne	Ley	Cut Grass	Arable with hay	
<u>Highfield</u>					
Mean	34.9	36.3	30.7	27.3	32.3
N: cwt per acre					
None	32.2	34.5	30.4	26.8	31.0
0.2	37.6	38.2	31.0	27.9	33.7
Difference	+5.4	+3.7	+0.6	+1.1	+2.7
Dung to potatoes 1956: tons per acre					
None	34.0	34.3	28.0	25.7	30.5
12	35.8	38.3	33.5	28.9	34.1
Difference	+1.8	+4.0	+5.5	+3.2	+3.6
<u>Fosters</u>					
Mean	23.9	24.3	22.2	20.5	22.7
N: cwt per acre					
0.2	24.1	23.7	22.6	19.7	22.5
0.4	23.8	24.9	21.8	21.4	23.0
Difference	-0.3	+1.2	-0.8	+1.7	+0.5
Dung to potatoes 1956: tons per acre					
None	22.7	22.7	21.4	19.7	21.6
12	25.2	26.0	23.0	21.4	23.9
Difference	+2.5	+3.3	+1.6	+1.7	+2.3

	<u>Highfield</u>		<u>Fosters</u>	
	N: cwt per acre		N: cwt per acre	
	None	0.2	0.2	0.4
Dung to potatoes 1956: tons per acre				
None	28.9	32.1	21.3	21.9
12	33.1	35.2	23.7	24.1

Mean dry matter % as harvested:
 Highfield: 86.9
 Fosters: 83.1

57/Bc/1.15

Treatment crops Arable and Hay rotation

(values based on mean of 2 sub plots only)

	Highfield			Fosters		
	N: cwt per acre applied in 1957			N: cwt per acre applied in 1957		
	Single rate	Double rate	Mean	Single rate	Double rate	Mean
Hay (dry matter): cwt per acre						
No dung	23.8	23.8	23.8	39.3	46.8	43.0
Dung in 1955	23.3	27.8	25.5	42.1	48.9	45.5
Mean	23.5	25.8	24.7	40.7	47.8	44.3
Potatoes, total tubers: tons per acre						
No dung	9.94	10.11	10.03	11.15	11.36	11.25
Dung in 1957	12.24	12.57	12.40	13.81	12.80	13.31
Mean	11.09	11.34	11.22	12.48	12.08	12.28
Potatoes, percentage ware (1½" riddle)						
No dung	74.8	79.3	77.0	88.8	91.2	90.0
Dung in 1957	78.2	76.1	77.1	92.6	90.6	91.6
Mean	76.5	77.7	77.1	90.7	90.9	90.8
Oats						
	None	0.2		0.2	0.4	
Grain (at 85% dry matter): cwt per acre						
No dung	35.6	36.4	36.0	34.5	33.1	33.8
Dung in 1956	34.0	36.5	35.3	34.0	36.1	35.0
Mean	34.8	36.4	35.6	34.3	34.6	34.4
Straw (at 85% dry matter): cwt per acre						
No dung	21.9	24.0	22.9	15.9	14.9	15.4
Dung in 1956	24.0	22.5	23.2	14.2	18.2	16.2
Mean	22.9	23.3	23.1	15.1	16.6	15.8

Highfield, Oats, Mean dry matter % as harvested Grain: 82.8 Straw: 84.2
 Fosters, Oats, Mean dry matter % as harvested Grain: 83.0 Straw: 83.3

57/Bc/1.16

Cut grass. Dry Matter: cwt per acre

	Corrective dressing of K ₂ O: cwt per acre 3.0	Highfield		Fosters		Mean
		N: to previous 3 test crops Single Double rate	Dung to potatoes 1955: tons per acre None 12	N: to previous 3 test crops Single Double rate	Dung to potatoes 1955: tons per acre None 12	
1st year						
N (1) to cut grass (3 cuts)						
Single rate		42.7	41.6	28.5	29.6	28.9
Double rate		50.5	47.1	39.7	37.3	39.1
			45.1		28.2	
			52.2		41.0	
N to test crops						
Single rate			43.8		34.2	34.1
Double rate			44.9		32.7	33.9
			49.3		34.1	
			48.0		35.1	
Mean			44.3		33.4	34.0
			48.6		34.6	

	Corrective dressing of K ₂ O: cwt per acre 1.5	Highfield		Fosters		Mean
		N to cut grass (1) Single Double rate	Mean	N to cut grass (1) Single Double rate	Mean	
2nd year (6 cuts)	1.5	63.3	85.5	49.9	62.9	56.4
3rd year (6 cuts)	1.5	43.6	66.0	39.2	53.1	46.1
			74.4			
			54.8			

(1) 0.15 v. 0.3 cwt N as 'Nitro-Chalk' for every cut.

57/Bc/1.17

Lucerne. Dry matter: cwt per acre

1st year (3 cuts)	Corrective dressing of K ₂ O: cwt per acre 3.0	Highfield N to 3 previous test crops			Fosters N to 3 previous test crops		
		Single rate	Double rate	Mean	Single rate	Double rate	Mean
Dung to potatoes 1955							
None		29.8	33.7	31.7	24.1	24.1	24.1
12 tons		33.5	33.5	33.5	25.3	25.3	25.3
Mean		31.7	33.6	32.6	24.7	24.7	24.7
<u>2nd year</u> (4 cuts)	1.0			92.6			92.6
<u>3rd year</u> (4 cuts)	1.0			63.0			98.4

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

	Highfield N: cwt per acre (yearly)			Fosters N: cwt per acre (yearly)		
	0.15	0.30	Mean	0.15	0.30	Mean
1st year	27.9	32.5	30.2	17.7	18.7	18.2
2nd year	34.5	42.8	38.7	39.6	36.7	38.2
3rd year	20.1	22.5	21.3	18.3	23.9	21.1

57/Bc/1.18

Reseeded Grass. Dry matter: cwt per acre

	Corrective dressing of K ₂ O: cwt per acre	Cut for hay		Mean	Grazed Estimated from sampling cuts		
		Single rate	Double rate		Single rate	Double rate	Mean
<u>Highfield</u>							
7th exptl. year Blocks 10 and 11	1.0				39.8*	42.1*	40.9*
Blocks 9 and 12		39.0	41.8	40.4	18.0*	21.4*	19.7*
8th exptl. year Blocks 5-8	None				25.4	31.7	28.6
9th exptl. year Blocks 1-4	None				29.4	32.6	31.0
<u>Fosters</u>							
7th exptl. year Blocks 10 and 12	1.0				25.6*	22.8*	24.2*
Blocks 6 and 11		17.5	21.1	19.3	20.4*	23.1*	21.7*
8th exptl. year Blocks 5,7,8 and 9	None				21.8	21.1	21.4
9th exptl. year Blocks 1-4	None				28.7	25.9	27.3

Permanent Grass. Dry matter: cwt per acre

<u>Highfield</u>							
7th exptl. year Blocks 10 and 11	1.0				28.5*	36.4*	32.4*
Blocks 9 and 12		65.5	78.8	72.2	17.9*	23.1*	20.5*
8th exptl. year Blocks 5-8	None				23.4	29.8	26.6
9th exptl. year Blocks 1-4	None				26.9	34.2	30.6

*Aftermath grazing.