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Yields of the Field Experiments 1958

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58/R/BB/1 Ley and Arable Rotations

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58/Bb/1.1

LEY AND ARABLE ROTATIONS

Highfield and Fosters Field 1958 - the 10th year.

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

Permanent and reseeded grass

The hay crops are now discontinued in favour of silage cuts, which are taken in alternate years not later than the end of May, the silage plots being grazed immediately afterwards.

Revised PK dressings

	P ₂ O ₅	K ₂ O	
Wheat, barley and oats	0.15	0.3	combine drilled
2nd and 3rd year leys, permanent and reseeded grass, all grazed	0.3	0.6	broadcast in winter
Permanent and reseeded grass (silage plots)	0.6	1.2	broadcast in winter
2nd and 3rd year cut grass	1.2	1.2	broadcast in winter as compound fertilizer (16% P ₂ O ₅ , 16% K ₂ O)
	0.15 v. 0.3		for every cut as compound fertilizer (16% N, 16% K ₂ O)
Treatment potatoes and 2nd and 3rd year lucerne	0.9	1.8	in ridges or broadcast in winter for lucerne.

Note: Unless otherwise stated all the above dressings are applied as compound fertilizer (10% P₂O₅, 20% K₂O). All other dressings remain unchanged, except as described below.

Revised N dressings

	N	
Permanent and reseeded grass (silage plots)	0.075 v. 0.15	as 'Nitro-Chalk' in early spring for silage cut; another equal dose in late July.

58/Bb/1.2

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

Crop	Year of cycle	Field etc.	Rate	
Wheat (following lucerne)	"1st test"	Highfield Fosters	1.8 2.4	} (3 years previous lucerne)
Wheat (following cut grass)	"1st test"	Highfield Fosters	3.6 3.0	
Cut grass	"1st treatment"		3.0	(3 years previous cutting)
	"2nd treatment"		2.4	(received supple- ment in 1957)
	"3rd treatment"	Highfield Fosters	3.6 3.0	} (received supple- ment in 1957)
Lucerne	"1st treatment"		3.0	
	"2nd treatment"		1.2	(received supple- ment in 1957)
	"3rd treatment"		1.2	(received supple- ment in 1957)
Permanent and reseeded grass	"1st treatment"	Highfield (blocks 1 & 4) Fosters (blocks 1 & 3)	2.4	(2 previous hay crops taken)
	"2nd treatment"	Highfield (blocks 9 & 12) Fosters (blocks 6 & 11)	1.2	(1 previous hay crop taken)

The following should be added to the list for 1957:

Wheat (following 3rd year lucerne)	"1st test"	Highfield Fosters	3.7 4.0	} (3 years previous lucerne)
Wheat (following 3rd year cut grass)	"1st test"		4.2	
				(3 years previous cutting)

58/Bb/1.3

Cultivations, etc.:

HIGHFIELD

1st year Treatment Crops

Cut grass. Ploughed twice: Aug 27, 1957 and Oct 24. 1st dressing of supplementary K applied: Dec 28. 'Nitro-Chalk' and basal PK applied: Apr 21, 1958. Seeds sown at 33 lb per acre: Apr 22. Sprayed with MCPB at 5 pints in 40 gallons per acre: May 31. 2nd and 3rd dressings of supplementary K applied: June 20 and Oct 7. Cut 5 times: June 20, July 16, Aug 8, Oct 3, Oct 31. 'Nitro-Chalk' applied after every cut, except the last.

Grazed ley. Ploughed twice: Aug 27, 1957 and Oct 24. 'Nitro-Chalk' and basal PK applied: Apr 21, 1958. Seed sown at 44 lb per acre: Apr 22. Sprayed with MCPB at 5 pints in 40 gallons per acre: May 31. 'Nitro-Chalk' applied: July 29. Grazed: 7 circuits, June 20 - Oct 24.

Lucerne. Ploughed twice: Aug 27, 1957 and Oct 24. 1st dressing of supplementary K applied: Dec 28. Basal PK applied: Apr 21, 1958. Seed drilled at 28 lb per acre: Apr 22. 2nd and 3rd dressings of supplementary K applied: Aug 2 and Nov 3. Cut twice: July 31 and Oct 31. Variety: Du Puits.

Hay. Seeds undersown in barley at 28 lb per acre: May 10, 1957. Basal PK applied: Feb 7, 1958. 'Nitro-Chalk' applied: Apr 10. Cut: June 11

2nd year Treatment Crops

Cut grass. Supplementary K applied: Dec 24, 1957. Basal PK applied: Feb 7, 1958. Nitrogen and potash applied as compound fertilizer (16% N, 16% K₂O): Apr 10 and after every cut, except the last. Cut 6 times: May 12, June 10, July 4, Aug 7, Oct 3, Oct 31.

Grazed ley. Basal PK applied: Feb 6, 1958. 'Nitro-Chalk' applied: May 23 and June 29. Grazed: 8 circuits, Apr 24 - Oct 10.

Lucerne. Supplementary K applied: Dec 24, 1957. Basal PK applied: Feb 6, 1958. Cut 3 times: June 20, Aug 7, Oct 31.

Potatoes. Ploughed 3 times: June 24, 1957, Oct 8 and Feb 7 - 17, 1958. 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. 1st dressing of supplementary K applied: Dec 24, 1957. Basal PK applied: Feb 7, 1958. Nitrogen and potash applied as compound fertilizer (16% N, 16% K₂O): Apr 10 and after every cut except the last. 2nd and 3rd dressings of supplementary K applied: June 11 and Oct 3. Cut 5 times: May 12, June 10, July 4, Aug 7, Oct 3.

Grazed ley. Basal PK applied: Feb 6, 1958. 'Nitro-Chalk' applied: May 20 and July 23. Grazed: 8 circuits, Apr 28 - Sept 26.

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Lucerne. Supplementary K applied: Dec 24, 1957. Sprayed with sodium trichloroacetate at 20 lb in 80 gallons per acre: Jan 15, 1958. Basal PK applied: Feb 6. Plots 85 and 86 cut owing to crop failure: June 11 and ploughed June 16. Remaining plots cut 3 times: June 20, Aug 7, Oct 3.

Oats. Ploughed twice: Oct 11, 1957, Feb 17, 1958. Seed drilled at $3\frac{1}{2}$ bushels per acre with basal PK, 'Nitro-Chalk' applied: Mar 20. Combine harvested: Sept 1. Variety: Sun II.

1st Test Crop, Wheat

Ploughed after oats: Aug 28, 1957 and Oct 15. Ploughed leys: Oct 15. Seed drilled at $2\frac{3}{4}$ bushels per acre with basal PK: Oct 26. Supplementary K applied after cut grass and lucerne: Dec 27. 'Nitro-Chalk' applied: Apr 17, 1958. Sprayed with CMFP at 6 pints in 40 gallons per acre: Apr 30. Combine harvested: Sept 1. Supplementary K applied to stubble: Sept 4. Variety: Yeoman.

2nd Test Crop, Potatoes

Ploughed 3 times: Aug 28, 1957, Oct 8, Feb 7 - 17, 1958. Supplementary K applied after cut grass and lucerne: Dec 28, 1957. Ridged, dung, sulphate of ammonia, basal PK and additional PK applied, potatoes planted: Apr 29, 1958. Earthed up: July 8. Sprayed 3 times with copper fungicide, at 5 lb in 40 gallons per acre: July 12, and at 3 lb and 1 pint of spreader in 40 gallons per acre: Aug 6 and Aug 16. Sprayed with sulphuric acid, 20% BOV, at 100 gallons per acre: Sept 10. Lifted: Sept 22. Variety: Majestic.

3rd Test Crop, Barley

Ploughed twice: Oct 11, 1957 and Feb 17, 1958. Ground chalk applied to blocks 6 and 7: Nov 21, 1957. Supplementary K and additional P and K applied: Feb 19, 1958. 'Nitro-Chalk' applied: Mar 20. Seed drilled at 2 bushels per acre with basal PK: Mar 21. Combine harvested: Sept 1. Variety: Proctor.

Permanent grasses. Basal PK applied to all plots: Feb 6, 1958. 8th year reseeded, 8th experimental year of permanent grass, Blocks 9 - 12. Blocks 10 and 12. Supplementary K applied: Dec 24, 1957. 'Nitro-Chalk' applied: May 23, 1958. 2nd dressing of 'Nitro-Chalk' applied to reseeded plots: July 25 and to permanent grass plots: Aug 5. Grazed: 8 circuits, May 2 - Oct 30.

Blocks 9 and 11. Supplementary K applied: Dec 24, 1957. 'Nitro-Chalk' applied: Apr 10, 1958. Cut for silage: May 22. 2nd dressing of 'Nitro-Chalk' applied to reseeded plots: July 23 and to permanent grass plots: July 25. Grazed: 5 circuits, June 19 - Oct 25.

9th year reseeded, 9th experimental year of permanent grass, Blocks 5 - 8. Blocks 7 and 8. Ground chalk applied to block 7: Nov 21, 1957. 'Nitro-Chalk' applied: May 20, 1958. 2nd dressing of 'Nitro-Chalk' applied to reseeded plots: July 23 and to permanent grass plots: Aug 2. Grazed: 8 circuits, Apr 28 - Oct 28.

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Blocks 5 and 6. Ground chalk applied to block 6: Nov 21, 1957.
'Nitro-Chalk' applied: Apr 10, 1958. Cut for silage: May 22.
2nd dressing of 'Nitro-Chalk' applied to reseeded plots: July 23
and to permanent grass plots: July 29. Grazed: 5 circuits,
June 18 - Oct 23.

10th year reseeded, 10th experimental year of permanent grass, Blocks 1-4.
Blocks 1 and 3. Supplementary K applied: Dec 24, 1957. 'Nitro-
Chalk' applied: May 16, 1958. 2nd dressing of 'Nitro-Chalk'
applied to reseeded plots: July 23 and to permanent grass plots:
Aug 2. Grazed: 8 circuits, Apr 24 - Oct 21.

Blocks 2 and 4. Supplementary K applied: Dec 24, 1957. 'Nitro-
Chalk' applied: Apr 10, 1958. Cut for silage: May 22. 2nd
dressing of 'Nitro-Chalk' applied: July 23. Grazed: Reseeded
plots 6 circuits, permanent grass plots 5 circuits, June 15 -
Nov 1.

FOSTERS

1st year Treatment Crops

Cut grass. Ploughed twice: Aug 27, 1957 and Oct 22. 1st dressing
of supplementary K applied: Dec 27. 'Nitro-Chalk' and basal
PK applied: Apr 21, 1958. Seeds sown at 33 lb per acre:
Apr 22. Sprayed with MCPB at 5 pints in 40 gallons per acre:
May 31. 2nd and 3rd dressing of supplementary K applied:
June 25 and Oct 7. Cut 5 times: June 24, July 17, Aug 8,
Oct 7, Oct 31. 'Nitro-Chalk' applied after each cut except the
last.

Grazed ley. Ploughed twice: Aug 27, 1957 and Oct 22. 'Nitro-
Chalk' and basal PK applied, seeds sown: Apr 22, 1958. Sprayed
with MCPB at 5 pints in 40 gallons per acre: May 31. 'Nitro-
Chalk' applied: July 23. Grazed: Plots 1 and 27, 6 circuits,
plots 2 and 28, 5 circuits, June 19 - Oct 16.

Lucerne. Ploughed twice: Aug 27, 1957 and Oct 22. 1st dressing
of supplementary K applied: Dec 27. Basal PK applied:
Apr 21, 1958. Seeds sown: Apr 22. 2nd and 3rd dressings of
supplementary K applied: Aug 1 and Nov 3. Cut twice: July 31,
Oct 31.

Hay. Seeds undersown in barley at 28 lb per acre: May 10, 1957.
Basal PK applied: Feb 7, 1958. 'Nitro-Chalk' applied: Apr 9.
Cut: June 9.

2nd year Treatment Crops

Cut grass. 1st dressing of supplementary K applied: Dec 27, 1957.
Basal PK applied: Feb 7, 1958. Nitrogen and potash applied as
compound fertilizer (16% N, 16% K₂O): Apr 9 and after all cuts
except the last. 2nd dressing of supplementary K applied:
June 9. Cut 6 times: May 12, June 9, July 3, Aug 8, Oct 7
and Oct 31.

Grazed ley. Basal PK applied: Feb 17, 1957. 'Nitro-Chalk'
applied: May 23, 1958 and July 23. Grazed: 8 circuits,
Apr 25 - Oct 15.

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Lucerne. Supplementary K applied: Dec 27, 1957. Basal PK applied: Feb 17, 1958. Cut 3 times: June 23, Aug 6, Oct 31.
Potatoes. Ploughed 3 times: June 13, 1957, Sept 23 and Jan 13 - Feb 6, 1958. Ridged, dung, sulphate of ammonia and basal PK applied, potatoes planted: Apr 28. For later cultivations see Potato Test Crop.

3rd year Treatment Crops

Cut grass. 1st dressing of supplementary K applied: Dec 27, 1957. Basal PK applied: Feb 7, 1958. Nitrogen and potash applied as compound fertilizer (16% N, 16% K₂O): Apr 9 and after each cut except the last. Cut 5 times: May 12, June 9, July 4, Aug 8, Oct 6. 2nd and 3rd dressing of supplementary K applied: June 9 and Oct 6.
Grazed ley. Basal PK applied: Feb 17, 1958. 'Nitro-Chalk' applied: May 20 and July 29. Grazed: 8 circuits, Apr 29 - Sept 25.
Lucerne. Supplementary K applied: Dec 27, 1957. Basal PK applied: Feb 17, 1958. Cut 3 times: June 23, Aug 6 and Oct 6.
Oats. Ploughed: Oct 10, 1957. 'Nitro-Chalk' applied, seed drilled at $3\frac{1}{2}$ bushels per acre with basal PK: Mar 20, 1958. Combine harvested: Aug 31. Variety: Sun II.

1st Test Crop, Wheat

Ploughed after oats: Aug 27, 1957 and Oct 14. Ploughed leys: Oct 14. Seed drilled at $2\frac{3}{4}$ bushels per acre with basal PK: Oct 26. Supplementary K to previous cut grass and lucerne plots: Dec 27. 'Nitro-Chalk' applied: Apr 16, 1958. Sprayed with CMPP at 6 pints in 40 gallons per acre: Apr 30. Combine harvested: Aug 27. Supplementary K applied: Sept 3. Variety: Yeoman.

2nd Test Crop, Potatoes

Ploughed 3 times: Aug 29, 1957, Oct 10 and Feb 6, 1958. Supplementary K applied: Dec 27, 1957. Ridged, dung, sulphate of ammonia, basal PK and additional P and K applied, potatoes planted: Apr 28, 1958. Earthed up: July 7. Sprayed 4 times with copper fungicide at 5 lbs in 40 gallons per acre: July 12, and at 3 lb and 1 pint of spreader in 40 gallons per acre: Aug 1, Aug 6, Aug 16. Sprayed with sulphuric acid, 20% BOV, at 100 gallons per acre: Sept 10. Lifted: Sept 18. Variety: Majestic.

3rd Test Crop, Barley

Ploughed: Oct 10, 1957. Supplementary K applied: Feb 13, 1958. 'Nitro-Chalk' applied: Mar 20. Seed drilled at 2 bushels per acre with basal PK: Mar 21. Combine harvested: Aug 26. Variety: Proctor.

58/Bb/1.7

Permanent grasses. Basal PK applied to all plots: Feb 17, 1958.

8th year reseeded grass, Blocks 6, 10, 11, 12.

Blocks 6 and 10. Supplementary K applied: Dec 27, 1957. 'Nitro-Chalk' applied: May 23, 1958 and Aug 1. Grazed: 8 circuits, May 3 - Oct 17.

Blocks 11 and 12. Supplementary K applied: Dec 27, 1957. 'Nitro-Chalk' applied: Apr 9, 1958 and July 29. Cut for silage: May 23. Grazed: 5 circuits, June 17 - Oct 9.

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

Blocks 5 and 9. 'Nitro-Chalk' applied: May 20, 1958 and July 30. Grazed: 8 circuits, Apr 29 - Oct 13.

Blocks 7 and 8. 'Nitro-Chalk' applied: Apr 9, 1958 and July 25. Cut for silage: May 23. Grazed: 5 circuits, June 21 - Oct 5.

10th year reseeded grass, Blocks 1 - 4.

Blocks 1 and 2. Supplementary K applied: Dec 27, 1957. 'Nitro-Chalk' applied: May 16, 1958 and July 23. Grazed: 8 circuits, Apr 25 - Oct 1.

Blocks 3 and 4. Supplementary K applied: Dec 27, 1957. 'Nitro-Chalk' applied: Apr 9, 1958 and July 23. Cut for silage: May 23. Grazed: 5 circuits, June 13 - Sept 27.

Standard errors per plot. Test Crops.

Wheat, grain	Highfield: 1.93 cwt per acre or 6.0% (14 d.f.)
(at 85% dry matter).	Fosters: 1.06 cwt per acre or 2.7% (14 d.f.)

Potatoes,	Highfield	$\frac{1}{4}$ plot:	1.347 tons per acre or 10.2% (14 d.f.)
total tubers.		$\frac{1}{8}$ plot:	0.961 tons per acre or 7.3% (20 d.f.)
	Fosters	$\frac{1}{4}$ plot:	1.239 tons per acre or 8.8% (14 d.f.)
		$\frac{1}{8}$ plot:	0.659 tons per acre or 4.7% (20 d.f.)

Barley, grain	Highfield: 2.27 cwt per acre or 6.2% (15 d.f.)
(at 85% dry matter).	Fosters: 1.57 cwt per acre or 3.9% (15 d.f.)

58/Bb/1.8

Summary of ResultsWheat 1st test crop

		Treatment crops 1955-1957				
N: cwt per acre		Lucerne	Ley	Cut Grass	Arable with hay	Mean
Grain (at 85% dry matter): cwt per acre						
<u>Highfield</u>						
Mean		34.6	26.4	32.6	36.2	32.4
To test crop						
0.3		36.1	27.0	33.1	38.3	33.6
0.6		33.2	25.8	32.1	34.1	31.3
Difference (± 1.37)		-2.9	-1.2	-1.0	-4.2	-2.3 (± 0.68)
To treatment crops						
Single rate			26.4	32.3	36.8	31.8
Double rate			26.4	32.9	35.6	31.6
Difference (± 1.37)			0.0	+0.6	-1.2	-0.2 (± 0.79)
<u>Fosters</u>						
Mean		41.0	36.4	38.1	39.3	38.7
To test crop						
0.3		39.8	35.4	36.6	36.7	37.1
0.6		42.2	37.4	39.5	41.8	40.2
Difference (± 0.75)		+2.4	+2.0	+2.9	+5.1	+3.1 (± 0.37)
To treatment crops						
Single rate			36.5	37.5	39.0	37.7
Double rate			36.3	38.6	39.6	38.1
Difference (± 0.75)			-0.2	+1.1	+0.6	+0.4 (± 0.43)

Note: Lodging was severe on the plots receiving the high rate of N.

58/Bb/1.9

Wheat 1st test crop

N: cwt per acre	Excluding Lucerne N to previous treatment crop			Arable with hay only Dung to potatoes 1956: tons per acre		
	Single rate	Double rate	Mean	None	12	Mean

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

Highfield

To test crop	(±0.79)		(±0.56)	(±1.37)		(±0.97)
0.3	32.8	32.8	32.8	39.1	37.4	38.3
0.6	30.9	30.4	30.6	35.0	33.2	34.1
Mean	31.8	31.6	31.7			
	(±0.56)					
To previous treatment crops				(±1.37)		(±0.97)
Single rate				37.4	36.3	36.8
Double rate				36.7	34.4	35.6
Mean				37.1	35.3	36.2
				(±0.97)		

Mean dry matter % as harvested: 82.1

Fosters

To test crop	(±0.43)		(±0.31)	(±0.75)		(±0.53)
0.3	35.8	36.6	36.2	35.5	38.0	36.7
0.6	39.5	39.6	39.6	40.6	43.1	41.8
Mean	37.7	38.1	37.9			
	(±0.31)					
To previous treatment crops				(±0.75)		(±0.53)
Single rate				38.5	39.6	39.0
Double rate				37.6	41.6	39.6
Mean				38.0	40.6	39.3
				(±0.53)		

Mean dry matter % as harvested: 75.6

58/Bb/1.10

Wheat 1st test crop

N: cwt per acre	Treatment crops 1955-1957				Mean
	Lucerne	Ley	Cut grass	Arable with hay	

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

	<u>Highfield</u>				
Mean	57.6	62.9	41.7	46.4	52.1
To test crop					
0.3	57.2	55.7	39.0	47.0	49.7
0.6	57.9	70.0	44.5	45.8	54.5
Difference	+0.7	+14.3	+5.5	-1.2	+4.8
To treatment crops					
Single rate		65.8	40.6	46.3	50.9
Double rate		59.9	42.9	46.5	49.8
Difference		-5.9	+2.3	+0.2	-1.1
	<u>Fosters</u>				
Mean	48.7	52.1	45.5	44.6	47.7
To test crop					
0.3	44.3	49.1	41.8	39.9	43.8
0.6	53.1	55.1	49.3	49.4	51.7
Difference	+8.8	+6.0	+7.5	+9.5	+7.9
To treatment crops					
Single rate		54.6	43.6	45.2	47.8
Double rate		49.6	47.5	44.1	47.1
Difference		-5.0	+3.9	-1.1	-0.7

58/Bb/1.11

Wheat 1st test crop

N: cwt per acre	Excluding Lucerne N to previous treatment crop			Arable with hay only Dung to potatoes 1956: 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	49.6	44.9	47.2	46.1	47.9	47.0
0.6	52.2	54.6	53.4	44.8	46.7	45.8
Mean	50.9	49.8	50.3			
To previous treatment crops						
Single rate				45.7	46.9	46.3
Double rate				45.2	47.7	46.5
Mean				45.5	47.3	46.4

Mean dry matter % as harvested: 82.6

Fosters

To test crop						
0.3	45.0	42.3	43.6	36.6	43.2	39.9
0.6	50.7	51.9	51.3	46.0	52.7	49.4
Mean	47.8	47.1	47.4			
To previous treatment crops						
Single rate				45.9	44.5	45.2
Double rate				36.7	51.5	44.1
Mean				41.3	48.0	44.6

Mean dry matter % as harvested: 87.9

58/Bb/1.12

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

	Treatment crops 1954-1956				
	Lucerne	Ley	Cut Grass	Arable with hay	Mean
<u>Highfield</u>					
Mean	12.78	13.98	13.32	12.62	13.17
N: cwt per acre					
0.5	11.78	13.43	12.88	12.44	12.63
1.0	13.78	14.54	13.76	12.80	13.72
Difference (± 0.952)	+2.00	+1.11	+0.88	+0.36	+1.09 (± 0.476)
Dung: tons per acre					
None	13.14	13.61	13.82	11.30	12.97
12	12.42	14.35	12.82	13.95	13.38
Difference (± 0.952)	-0.72	+0.74	-1.00	+2.65	+0.41 (± 0.476)
P ₂ O ₅ : cwt per acre*					
0.9	12.28	13.41	13.00	13.13	12.95
1.8	13.28	14.56	13.64	12.11	13.40
Difference (± 0.481)	+1.00	+1.15	+0.64	-1.02	+0.45 (± 0.240)
K ₂ O: cwt per acre*					
0.9	12.93	13.60	13.60	12.25	13.09
1.8	12.63	14.37	13.04	12.99	13.26
Difference (± 0.481)	-0.30	+0.77	-0.56	+0.74	+0.17 (± 0.240)
<u>Fosters</u>					
Mean	14.13	14.12	14.80	13.42	14.12
N: cwt per acre					
0.5	12.91	13.36	13.65	11.60	12.88
1.0	15.36	14.89	15.95	15.23	15.36
Difference (± 0.876)	+2.45	+1.53	+2.30	+3.63	+2.48 (± 0.438)
Dung: tons per acre					
None	13.12	12.78	13.93	12.69	13.13
12	15.15	15.47	15.68	14.14	15.11
Difference (± 0.876)	+2.03	+2.69	+1.75	+1.45	+1.98 (± 0.438)
P ₂ O ₅ : cwt per acre*					
0.9	13.95	13.76	14.61	12.96	13.82
1.8	14.31	14.49	15.00	13.87	14.42
Difference (± 0.330)	+0.36	+0.73	+0.39	+0.91	+0.60 (± 0.165)
K ₂ O: cwt per acre*					
0.9	14.12	13.74	15.02	13.59	14.12
1.8	14.15	14.51	14.59	13.24	14.12
Difference (± 0.330)	+0.03	+0.77	-0.43	-0.35	0.00 (± 0.165)

*Including basal dressing

58/Bb/1.13

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

Highfield

N: cwt per acre	(±0.476)	(1) and (2)	(1) and (2)
0.5	12.39 12.87	12.30 12.96	12.53 12.73
1.0	13.55 13.89	13.61 13.83	13.65 13.79
Dung: tons per acre		(1) and (2)	(1) and (2)
None		12.64 13.30	12.89 13.05
12		13.27 13.50	13.29 13.47

<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	12.38 12.18	12.28
1.8	13.47 13.08	13.28
Mean	12.93 12.63	12.78

	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	(±0.438)	(1) and (2)	(1) and (2)
0.5	11.64 14.12	12.60 13.16	13.02 12.74
1.0	14.62 16.09	15.04 15.68	15.21 15.50
Dung: tons per acre		(1) and (2)	(1) and (2)
None		12.83 13.43	13.02 13.24
12		14.81 15.41	15.21 15.00

<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	13.90 14.01	13.95
1.8	14.35 14.28	14.31
Mean	14.12 14.15	14.13

*Including basal dressing

Highfield Fosters

- (1) ±0.240 (1) ±0.165 for use in horizontal and interaction comparisons.
 (2) ±0.377 (2) ±0.331 for use in all others.
 (3) ±0.952 (3) ±0.876 for use only in testing the PK interaction.
 (4) ±0.754 (4) ±0.662 for use in all other comparisons.

58/Bb/1.14

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

	Treatment crops 1954-1956				
	Lucerne	Ley	Cut Grass	Arable with hay	Mean
<u>Highfield</u>					
Mean	89.5	89.4	89.8	87.7	89.1
N: cwt per acre					
0.5	88.1	88.8	88.8	86.1	87.9
1.0	90.8	90.0	90.7	89.3	90.2
Difference	+2.7	+1.2	+1.9	+3.2	+2.3
Dung: tons per acre					
None	90.5	90.0	89.7	86.9	89.3
12	88.5	88.7	89.9	88.4	88.9
Difference	-2.0	-1.3	+0.2	+1.5	-0.4
P ₂ O ₅ : cwt per acre *					
0.9	89.3	88.7	89.2	88.0	88.8
1.8	89.6	90.0	90.3	87.3	89.3
Difference	+0.3	+1.3	+1.1	-0.7	+0.5
K ₂ O: cwt per acre *					
0.9	89.7	88.6	89.2	87.0	88.6
1.8	89.2	90.1	90.4	88.4	89.5
Difference	-0.5	+1.5	+1.2	+1.4	+0.9
<u>Fosters</u>					
Mean	91.0	90.7	92.0	89.5	90.8
N: cwt per acre					
0.5	89.6	89.7	90.9	88.2	89.6
1.0	92.4	91.6	93.2	90.9	92.0
Difference	+2.8	+1.9	+2.3	+2.7	+2.4
Dung: tons per acre					
None	90.6	89.7	91.6	88.8	90.2
12	91.4	91.6	92.5	90.3	91.4
Difference	+0.8	+1.9	+0.9	+1.5	+1.2
P ₂ O ₅ : cwt per acre *					
0.9	91.5	90.9	92.1	89.8	91.1
1.8	90.5	90.4	92.0	89.3	90.5
Difference	-1.0	-0.5	-0.1	-0.5	-0.6
K ₂ O: cwt per acre *					
0.9	91.0	90.4	92.4	89.1	90.7
1.8	91.0	90.9	91.6	90.0	90.9
Difference	0.0	+0.5	-0.8	+0.9	+0.2

*Including basal dressing

58/Bb/1.15

Potatoes 2nd test crop. Percentage ware ($1\frac{1}{2}$ " 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	88.3	87.6	88.0	87.9	87.7	88.1
1.0	90.3	90.1	89.6	90.8	89.5	90.9
Dung: tons per acre						
None			89.3	89.2	88.8	89.7
12			88.3	89.5	88.4	89.3

Lucerne rotation only

	K ₂ O: cwt per acre*		
	0.9	1.8	Mean
P ₂ O ₅ : cwt per acre*			
0.9	90.1	88.5	89.3
1.8	89.4	89.9	89.6
Mean	89.7	89.2	89.5

	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	88.9	90.3	89.8	89.4	89.7	89.4
1.0	91.5	92.5	92.3	91.7	91.7	92.3
Dung: tons per acre						
None			90.7	89.6	90.0	90.3
12			91.4	91.4	91.4	91.4

Lucerne rotation only

	K ₂ O: cwt per acre*		
	0.9	1.8	Mean
P ₂ O ₅ : cwt per acre*			
0.9	90.8	92.2	91.5
1.8	91.2	89.7	90.5
Mean	91.0	91.0	91.0

*Including basal dressing

58/Bb/1.16

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

		Treatment crops 1953-1955				
		Lucerne	Ley	Cut Grass	Arable with hay	Mean
		<u>Highfield</u>				
Mean		34.0	37.1	37.2	39.2	36.9
N: cwt per acre						
None		39.0	39.7	39.4	41.0	39.7
0.2		29.1	34.5	35.1	37.4	34.0
Difference (± 1.61)		-9.9	-5.2	-4.3	-3.6	-5.7 (± 0.80)
Dung to potatoes 1957:						
tons per acre						
None		34.2	38.1	37.2	39.3	37.2
12		33.9	36.1	37.3	39.1	36.6
Difference (± 1.61)		-0.3	-2.0	+0.1	-0.2	-0.6 (± 0.80)
		<u>Fosters</u>				
Mean		41.5	40.2	39.8	38.9	40.1
N: cwt per acre						
None		41.9	42.1	40.8	36.2	40.3
0.2		41.1	38.2	38.8	41.5	39.9
Difference (± 1.11)		-0.8	-3.9	-2.0	+5.3	-0.4 (± 0.55)
Dung to potatoes 1957:						
tons per acre						
None		41.4	40.2	39.4	38.3	39.8
12		41.6	40.1	40.3	39.4	40.3
Difference (± 1.11)		+0.2	-0.1	+0.9	+1.1	+0.5 (± 0.55)
		<u>Highfield</u>		<u>Fosters</u>		
N: cwt per acre		N: cwt per acre		N: cwt per acre		
		None	0.2	0.2	0.4	
Dung to potatoes 1957:		(± 0.80)		(± 0.55)		
tons per acre						
None		40.4	33.9	40.0	39.6	
12		39.1	34.1	40.5	40.2	
Mean dry matter % as harvested:						
Highfield: 83.6						
Fosters: 73.7						

58/Bb/1.17

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

	Treatment crops 1953-1955				
	Lucerne	Ley	Cut Grass	Arable with hay	Mean
<u>Highfield</u>					
Mean	37.6	39.8	35.2	39.5	38.0
N: cwt per acre					
None	33.1	38.0	33.5	37.9	35.6
0.2	42.1	41.6	36.9	41.1	40.4
Difference	+9.0	+3.6	+3.4	+3.2	+4.8
Dung to potatoes 1957:					
tons per acre					
None	36.4	38.6	35.2	38.9	37.3
12	38.8	40.9	35.2	40.1	38.7
Difference	+2.4	+2.3	0.0	+1.2	+1.4
<u>Fosters</u>					
Mean	35.6	39.6	38.0	34.0	36.8
N: cwt per acre					
None	33.1	36.0	33.2	32.3	33.6
0.2	38.1	43.2	42.8	35.8	40.0
Difference	+5.0	+7.2	+9.6	+3.5	+6.4
Dung to potatoes 1957:					
tons per acre					
None	34.2	39.1	38.3	32.8	36.1
12	36.9	40.0	37.8	35.3	37.5
Difference	+2.7	+0.9	-0.5	+2.5	+1.4

	<u>Highfield</u>		<u>Fosters</u>	
	N: cwt per acre None	0.2	N: cwt per acre 0.2	0.4
Dung to potatoes 1957:				
tons per acre				
None	34.3	40.2	32.3	39.9
12	36.9	40.6	35.0	40.0
Mean dry matter % as harvested:				
Highfield:	79.3			
Fosters:	86.9			

58/Bb/1.18

Treatment crops Arable and Hay rotation

(values based on mean of 2 sub plots only)

	Highfield N: cwt per acre applied in 1958			Fosters N: cwt per acre applied in 1958		
	Single rate	Double rate	Mean	Single rate	Double rate	Mean
Hay (dry matter): cwt per acre						
No dung	73.4	72.1	72.8	61.5	63.3	62.4
Dung in 1956	70.6	79.1	74.9	70.1	73.8	72.0
Mean	72.0	75.6	73.8	65.8	68.5	67.2
Potatoes, total tubers: tons per acre						
No dung	13.55	12.59	13.07	10.12	12.78	11.45
Dung in 1958	13.11	14.26	13.69	12.66	14.47	13.56
Mean	13.33	13.43	13.38	11.39	13.62	12.51
Potatoes, percentage ware ($1\frac{1}{2}$ " riddle)						
No dung	89.9	91.4	90.7	87.0	92.4	89.7
Dung in 1958	88.6	86.4	87.5	93.1	92.2	92.6
Mean	89.2	88.9	89.1	90.0	92.3	91.2
Oats						
	None	0.2		0.2	0.4	
Grain (at 85% dry matter): cwt per acre						
No dung	23.5	19.7	21.6	35.2	35.9	35.5
Dung in 1957	26.3	17.1	21.7	32.9	34.9	33.9
Mean	24.9	18.4	21.6	34.0	35.4	34.7
Straw (at 85% dry matter): cwt per acre						
No dung	32.2	35.1	33.6	34.3	40.5	37.4
Dung in 1957	36.3	38.1	37.2	39.7	46.3	43.0
Mean	34.3	36.6	35.4	37.0	43.4	40.2

Highfield, Oats, Mean dry matter % as harvested Grain: 83.5 Straw: 67.8
 Fosters, Oats, Mean dry matter % as harvested Grain: 83.4 Straw: 82.9

58/Bb/1.19

Cut grass. Dry matter: cwt per acre									
	Corrective dressing of K ₂ O: cwt per acre 3.0	Highfield			Fosters				
		N: to previous 3 test crops Single rate	Dung to potatoes 1956: tons per acre None	12	N: to previous 3 test crops Single rate	Dung to potatoes 1956: tons per acre None	12	Mean	Mean
1st year									
N (1) to cut grass (5 cuts)									
Single rate		56.4	64.5	60.3	60.6	60.4		51.6	49.8
Double rate		74.0	70.3	71.7	72.6	72.1		65.0	64.4
N: to test crops									
Single rate				65.2	65.2	65.2		54.8	61.7
Double rate				66.8	67.9	67.4		55.2	58.9
Mean				66.0	66.6	66.3		55.0	60.3
									57.7
		Highfield			Fosters				
		N to cut grass (1) Single rate	Dung to potatoes 1956: tons per acre None	12	N to cut grass (1) Single rate	Dung to potatoes 1956: tons per acre None	12	Mean	Mean
2nd year (6 cuts)	2.4	75.1	96.7	85.9	81.4	90.1		85.8	
3rd year (5 cuts)	*	73.1	92.3	82.7	73.9	87.2		80.6	

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

* Highfield: 3.6
Fosters: 3.0

58/Bb/1.20

Lucerne. Dry matter: cwt per acre

1st year (2 cuts)	Corrective dressing of K ₂ O: cwt per acre 3.0	Highfield			Fosters		
		N to 3 previous test crops		Mean	N to 3 previous test crops		Mean
		Single rate	Double rate		Single rate	Double rate	
Dung to potatoes 1956							
None		36.5	42.2	39.4	41.2	40.5	40.9
12 tons		39.5	38.2	38.8	46.9	46.4	46.6
Mean		38.0	40.2	39.1	44.0	43.5	43.8
<u>2nd year</u> (3 cuts)	1.2			81.7			70.5
<u>3rd year</u> (3 cuts)	1.2			52.5			81.5

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

	Highfield			Fosters		
	N: cwt per acre (yearly)		Mean	N: cwt per acre (yearly)		Mean
	0.15	0.30		0.15	0.30	
1st year	31.2	33.9	32.5	19.8	21.6	20.7
2nd year	34.2	40.3	37.2	31.0	31.5	31.3
3rd year	31.4	36.2	33.8	31.3	35.6	33.5

58/Bb/1.21

Reseeded Grass. Dry matter: cwt per acre

	Cut for silage			Grazed Estimated from sampling cuts		
	N Single rate	Double rate	Mean	N Single rate	Double rate	Mean
<u>Highfield</u>						
8th exptl. year						
Blocks 10 and 12				32.7*	41.8*	37.2*
Blocks 9 and 11	17.2	20.4	18.8	23.2*	30.3*	26.7*
9th exptl. year						
Blocks 7 and 8				28.1*	36.8*	32.5*
Blocks 5 and 6	23.7	26.8	25.2	19.7*	18.0*	18.9*
10th exptl. year						
Blocks 1 and 3				31.6*	35.0*	33.3*
Blocks 2 and 4	23.2	28.3	25.7	27.1*	25.9*	26.5*

Fosters

8th exptl. year						
Blocks 6 and 10				50.6*	41.5*	46.0*
Blocks 11 and 12	14.8	14.2	14.5	38.3*	34.5*	36.4*
9th exptl. year						
Blocks 5 and 9				42.6*	35.3*	39.0*
Blocks 7 and 8	27.2	25.9	26.5	23.9*	23.5*	23.7*
10th exptl. year						
Blocks 1 and 2				34.2*	32.5*	33.4*
Blocks 3 and 4	27.4	27.2	27.3	29.0*	25.4*	27.2*

Permanent Grass. Dry matter: cwt per acreHighfield

8th exptl. year						
Blocks 10 and 12				42.1*	41.7*	41.9*
Blocks 9 and 11	25.2	26.1	25.6	29.3*	30.9*	30.1*
9th exptl. year						
Blocks 7 and 8				27.6*	40.3*	34.0*
Blocks 5 and 6	16.9	23.0	20.0	22.7*	25.5*	24.1*
10th exptl. year						
Blocks 1 and 3				34.5*	42.7*	38.6*
Blocks 2 and 4	20.9	21.3	21.1	23.0*	23.6*	23.3*

*Aftermath grazing.