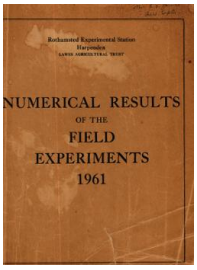
ROTHAMSTED RESEARCH

Yields of the Field Experiments 1961

Full Table of Content



61/R/B/1 Ley and Arable Rotations

Rothamsted Research

Rothamsted Research (1962) *61/R/B/1 Ley and Arable Rotations ;* Yields Of The Field Experiments 1961, pp 25 - 44 **- DOI: https://doi.org/10.23637/ERADOC-1-182**

61/B/1.1

LEY AND ARABLE ROTATIONS

Highfield and Fosters Field 1961 - the 13th year.

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

Treatment crops, reseeded and permanent grasses: Each crop is manured uniformly, the sub plot tests of N and dung being discontinued.

Test crops: For new sub plot treatments see below.

Arable rotation: 2 cuts are now taken from the hay crop. The treatment potato crop is replaced by sugar beet.

Corrective K: 3 cwt per acre K_2O as sulphate of potash was applied to all phases of the arable rotation.

Revised basal fertiliser applications:

Basal dressings in cwt per acre

Crop	N	P_2O_5	K_2O	Fertiliser*	Time of application
Cut grass:					
1st year	0.225	0.5625	0.5625	6/15/15	in seedbed.
	0.225			'Nitro-Chalk'	after each cut, except the last.
2nd and 3rd years		1.2	1.2	0/20/20	winter.
	0.225		0.225	16/0/16	for each cut.
Grazed ley:					
1st year		0.6	0.6	0/20/20	in seedbed.
	0.1125			'Nitro-Chalk'	in seedbed.
	0.1125			'Nitro-Chalk'	mid season.
2nd and 3rd years		0.6	1.2	0/14/28	winter
	0.1125			'Nitro-Chalk'	spring.
	0.1125			'Nitro-Chalk'	mid season.
Lucerne:					
1st year		0.6	0.6	0/20/20	in seedbed.
2nd and 3rd years		0.9	1.8	0/14/28	winter.
Arable rotation:					
Hay	0.6	0.6	0.6	8/8/8	winter.
	0.6		0.6	16/0/16	after 1st cut.
Sugar beet			1.4	Muriate of potash	on plough furrow.
	1.0	1.0	1.0	8/8/8	in seedbed.
Oats		0.3	0.6	0/14/28	combine drilled.
(Highfield)	0.2			'Nitro-Chalk'	in seedbed.
(Fosters)	0.4			'Nitro-Chalk'	in seedbed.

https://doi.org/10.23637/ERADOC-1-182

Basal dressings in cwt per acre

Crop	N	P_2O_5	K_2O	Fertiliser*	Time of application
Reseeded and permanent Grass "Silage" years		0.6	1.2	0/14/28	winter.
	0.3			'Nitro-Chalk'	spring.
	0.3			'Nitro-Chalk'	after silage cut.
"All-grazing" years		0.3	0.6	0/14/28	winter.
	0.1125			'Nitro-Chalk'	spring.
	0.1125			'Nitro-Chalk'	mid season.
Wheat		0.3	0.6	0/14/28	combine drilled.
Potatoes (Highfield)	0.75			Sulphate of ammonia	in ridges.
(Fosters)	1.00			Sulphate of ammonia	in ridges.
Barley		0.3	0.6	0/14/28	combine drilled.

Sub plot treatments to Test Crops (cwt per acre, except where stated):-

Wheat: (treatments applied to $\frac{1}{8}$th plots as 'Nitro-Chalk' in spring):

Highfield: 0.0; 0.3; 0.6; 0.9N.

Fosters: 0.0; 0.4; 0.8; 1.2N

Potatoes:

PK v Dung (treatments applied to $\frac{1}{4}$ plots):

0.6 P_2O_5 and 0.9 K_2O applied as superphosphate and muriate of potash before ridging; dung at 12 tons per acre applied in the bouts.

Nitrogen (treatments applied to $\frac{1}{8}$th plots):

0.0; 0.5 N as sulphate of ammonia, broadcast before ridging.

P and K (applied in the ridges to 1/16th plots): All combinations of:-

Phosphate: 0.9; 1.8 P_2O_5 as superphosphate.

Potash: 0.9; 1.8 K_2O as muriate of potash.

Barley:

Nitrogen (applied to $\frac{1}{4}$ plots as 'Nitro-Chalk' in seedbed):

Highfield: 0.0; 0.2 N (all rotations)

Fosters: 0.2; 0.4N (after cut grass, grazed ley, lucerne)

0.3; 0.6N (arable rotation)

P and K in winter to $\frac{1}{8}$th plots to balance dressings to potatoes:

Phosphate: 0.9; 0.0 P_2O_5 as superphosphate.

Potash: 0.9; 0.0 K_2O as muriate of potash.

*Granular compound fertilisers are described thus - 8/8/8; 0/14/28; 6/15/15; 16/0/16; etc. to show percentages of N, P_2O_5 and K_2O in order.

https://doi.org/10.23637/ERADOC-1-182

Cultivations, etc.:

HIGHFIELD

1st year Treatment Crops

Cut grass. Ploughed twice: Aug 23 and Dec 14, 1960. Basal NPK compound applied: Apr 6, 1961. Seed sown at 33 lb per acre: Apr 19. Sprayed with MCPB at 4 pints in 40 gallons per acre: May 23. Cut twice: Aug 29 and Oct 30. 'Nitro-Chalk' applied after first cut.

Grazed ley. Ploughed twice: Aug 23 and Dec 14, 1960. 'Nitro-Chalk' and basal PK compound applied: Apr 6, 1961. Seed sown at 44 lb per acre: Apr 19. Sprayed with MCPB at 4 pints in 40 gallons per acre: May 23. 'Nitro-Chalk' applied: Aug 4. Grazed: 5 circuits, June 27 - Oct 18.

Lucerne. Ploughed twice: Aug 23 and Dec 14, 1960. Basal PK compound applied: Apr 6, 1961. Seed drilled at 20 lb per acre: Apr 19. Cut twice: Aug 3 and Sept 26. Variety: Du Puits.

Hay. Seeds undersown in barley: Apr 22, 1960. Corrective sulphate of potash applied: Jan 24, 1961. Basal PK compound applied: Feb 21. 'Nitro-Chalk' applied: Apr 17. Cut twice: May 26 and Aug 4. Nitrogen and potash applied as compound fertiliser (16% N, 16% K_2O) after 1st cut.

2nd year Treatment Crops

Cut grass. Basal PK compound applied: Feb 21, 1961. Nitrogen and potash applied as compound fertiliser (16% N, 16% K_2O): Apr 5 and after every cut except the last. Cut 4 times: May 17, July 3, Aug 28, Oct 30.

Grazed ley. Basal PK compound applied: Feb 18, 1961. Nitrogen and potash as for cut grass applied in error to plots 127 and 128 as compound fertiliser (16% N, 16% K_2O): Apr 5. 'Nitro-Chalk' applied: Apr 9 (plots 115 and 116 only) and Aug 4. Grazed: 7 circuits, Apr 26 - Oct 22.

Lucerne. Basal PK compound applied: Feb 17, 1961. Cut 4 times: May 30, July 5, Sept 14, Nov 21.

Sugar beet. Ploughed 3 times: June 30, Aug 26 and Dec 15, 1960. Corrective sulphate of potash applied: Jan 24, 1961. Muriate of potash applied: Mar 18. Basal NPK compound (8% N, 8% P_2O_5, 8% K_2O) applied: Mar 21. Seed drilled at $8\frac{1}{2}$ lb per acre: Mar 22. Singled: May 17. Sprayed with demeton methyl at 12 fluid oz in 60 gallons per acre: June 14. Lifted: Nov 3. Variety: Klein E (rubbed and graded seed).

3rd year Treatment Crops

Cut grass. Basal PK compound applied: Feb 21, 1961. Nitrogen and potash applied as compound fertiliser (16% N, 16% K_2O): Apr 5 and after every cut except the last. Cut 4 times: May 17, July 3, Aug 28, Oct 3.

Grazed ley. Basal PK compound applied: Feb 18. 'Nitro-Chalk' applied: May 9 and Aug 4. Grazed: 6 circuits, Apr 30 - Oct 2.

Lucerne. Basal PK compound applied: Feb 17, 1961. Cut 4 times: May 30, July 5, Sept 14, Oct 3.

https://doi.org/10.23637/ERADOC-1-182

Oats. Ploughed: Dec 13, 1960. Corrective sulphate of potash applied: Jan 24, 1961. Seed combine drilled at 3½ bushels per acre with basal PK compound, 'Nitro-Chalk' applied: Mar 13. Sprayed with CMPP at 6 pints in 40 gallons per acre: May 10. Combine harvested: Aug 18. Variety: Sun II.

1st Test Crop, Wheat

Plots following arable rotation ploughed twice: Aug 23 and Oct 7, 1960. Remaining plots ploughed: Oct 7. Seed combine drilled at 3 bushels per acre with basal PK compound: Jan 19, 1961. Corrective sulphate of potash applied to plots of arable rotation: Jan 24. 'Nitro-Chalk' applied: Apr 14. Sprayed with CMPP at 6 pints in 40 gallons per acre: May 10. Combine harvested: Aug 30. Variety: Cappelle.

2nd Test Crop, Potatoes

Ploughed twice: Aug 26 and Dec 15, 1960. Corrective sulphate of potash applied to plots of arable rotation: Jan 24, 1961. Sulphate of ammonia and PK applied on the flat: May 1. Ridged: May 8. Basal sulphate of ammonia, PK dressings and dung applied in the bouts: May 10. Potatoes planted: May 11. Earthed up: July 12. Lifted: Sept 20. Variety: Majestic.

3rd Test Crop, Barley

Ground chalk applied to blocks 5 and 8: Dec 8, 1960. Ploughed: Dec 13. Additional P and K applied: Jan 5, 1961. Corrective sulphate of potash applied to plots of arable rotation: Jan 24. Seed combine drilled at 2 bushels per acre with basal PK compound, 'Nitro-Chalk' applied: Mar 8. Sprayed with CMPP at 6 pints in 40 gallons per acre (except undersown plots): May 10. Undersown plots sprayed with MCPB at 4 pints in 40 gallons per acre: May 23. Combine harvested: Aug 18. Variety: Proctor.

Permanent and reseeded grasses. Basal PK compound applied to all plots: Feb 18, 1961.

11th year reseeded, 11th experimental year of permanent grass, Blocks 9 - 12.

Blocks 10 and 12. 'Nitro-Chalk' applied: Apr 5, 1961. Cut for silage: May 25. 2nd dressing of 'Nitro-Chalk' applied: May 29. Grazed: 3 circuits, June 23 - Oct 26.

Blocks 9 and 11. 'Nitro-Chalk' applied twice: May 23 and Aug 4, 1961. Grazed: 5 circuits, May 4 to Oct 26.

12th year reseeded, 12th experimental year of permanent grass, Blocks 5 - 8.

Blocks 7 and 8. Ground chalk applied to block 8: Dec 8, 1960. 'Nitro-Chalk' applied: Apr 5, 1961. Cut for silage: May 25. 2nd dressing of 'Nitro-Chalk' applied: May 29. Grazed: 3 circuits, June 19 - Oct 15.

Blocks 5 and 6. Ground chalk applied to block 5: Dec 8, 1960. 'Nitro-Chalk' applied twice: May 16 and Aug 4, 1961. Grazed: Permanent grass 5 circuits, reseeded 6 circuits, Apr 30 - Oct 19.

https://doi.org/10.23637/ERADOC-1-182

13th year reseeded, 13th experimental year of permanent grass, Blocks 1 - 4.

Blocks 1 and 3. 'Nitro-Chalk' applied: Apr 5, 1961. Cut for silage: May 25. 2nd dressing of 'Nitro-Chalk' applied: May 29. Grazed: 3 circuits, June 19 - Oct 11.

Blocks 2 and 4. 'Nitro-Chalk' applied twice: May 9 and Aug 4, 1961. Grazed: 6 circuits, Apr 26 - Oct 7.

FOSTERS

1st year Treatment Crops

Cut grass. Ploughed twice: Aug 22 and Oct 18, 1960. Basal NPK compound applied: Apr 6, 1961. Seeds sown at 33 lb per acre: Apr 18. Sprayed with MCPB at 4 pints in 40 gallons per acre: May 23. Cut twice: Aug 28 and Oct 30. 'Nitro-Chalk' applied after 1st cut.

Grazed ley. Ploughed twice: Aug 22 and Oct 18, 1960. Basal PK compound and 'Nitro-Chalk' applied: Apr 6, 1961. Seeds sown at 44 lb per acre: Apr 18. Sprayed with MCPB at 4 pints in 40 gallons per acre: May 23. 2nd dressing of 'Nitro-Chalk' applied: Aug 3. Grazed: 4 circuits, June 22 - Oct 21.

Lucerne. Ploughed twice: Aug 22 and Oct 18, 1960. Basal PK compound applied: Apr 6, 1961. Seeds sown at 20 lb per acre: Apr 19. Cut twice: Aug 3 and Sept 26. Variety: Du Puits.

Hay. Seeds undersown in barley: Apr 22, 1960. Corrective sulphate of potash applied: Jan 24, 1961. Basal PK compound applied: Feb 21. 'Nitro-Chalk' applied: Apr 17. Cut twice: May 26 and Aug 4. Nitrogen and potash applied as compound fertiliser (16% N, 16% K_2O) after 1st cut.

2nd year Treatment Crops

Cut grass. Basal PK compound applied: Feb 21, 1961. Nitrogen and potash applied as compound fertiliser (16% N, 16% K_2O): Apr 5 and after every cut except the last. Cut 4 times: May 17, July 3, Aug 28, Oct 30.

Grazed ley. Basal PK compound applied: Feb 17, 1961. 'Nitro-Chalk' applied: May 9 and Aug 3. Grazed: 6 circuits, Apr 25 - Oct 10.

Lucerne. Basal PK compound applied: Feb 17, 1961. Cut 4 times: May 29, July 4, Sept 14, Nov 21.

Sugar beet. Ploughed: June 30 and Oct 18, 1960. Corrective sulphate of potash applied: Jan 24, 1961. Ploughed 3rd time: Feb 20. Muriate of potash applied: Mar 18. Basal NPK compound (8% N, 8% P_2O_5, 8% K_2O) applied: Mar 21. Seed drilled at $8\frac{1}{2}$ lb per acre: Mar 22. Singled: May 19. Sprayed with demeton methyl at 12 fluid oz in 60 gallons per acre: June 14. Lifted: Nov 3. Variety: Klein E (rubbed and graded seed).

3rd year Treatment Crops

Cut grass. Basal PK compound applied: Feb 21, 1961. Nitrogen and potash applied as compound fertiliser (16% N, 16% K_2O): Apr 5 and after every cut except the last. Cut 4 times: May 17, July 3, Aug 28, Oct 3.

https://doi.org/10.23637/ERADOC-1-182

Grazed ley. Basal PK compound applied: Feb 17, 1961. 'Nitro-Chalk' applied twice: May 8 and Aug 3. Grazed: 6 circuits, Apr 29 - Oct 2.

Lucerne. Basal PK compound applied: Feb 17, 1961. Cut 4 times: May 29, July 4, Sept 14, Oct 3.

Oats. Ploughed: Dec 12, 1960. Corrective sulphate of potash applied: Jan 24, 1961. Seed drilled at 3½ bushels per acre with basal PK compound, 'Nitro-Chalk' applied: Mar 13. Sprayed with CMPP at 6 pints in 40 gallons per acre: May 12. Combine harvested: Aug 18. Variety: Sun II.

1st Test Crop, Wheat

Ploughed - Plots of arable roation: Aug 22, 1960; plots following grazed ley: Sept 20; plots following lucerne: Oct 8; plots following cut grass: Oct 17; plots of arable rotation (second time): Oct 17. Seed drilled at 3 bushels per acre with basal PK compound: Jan 19, 1961. Corrective sulphate of potash applied to plots of arable rotation: Jan 24. 'Nitro-Chalk' applied: Apr 14. Sprayed with MCPA/TBA at 4 pints in 40 gallons per acre: May 11. Combine harvested: Aug 30. Variety: Cappelle.

2nd Test Crop, Potatoes

Ploughed twice: Aug 31 and Oct 18, 1960. Corrective sulphate of potash applied to plots of arable rotation: Jan 24, 1961. Sulphate of ammonia and PK applied on the flat: May 1. Ridged: May 8. Basal sulphate of ammonia and PK dressings applied in the bouts: May 10. Dung applied: May 11. Potatoes planted: May 12. Earthed up: July 11. Lifted: Sept 18. Variety: Majestic.

3rd Test Crop, Barley

Ploughed: Dec 12, 1960. Part of additional P and K applied: Dec 29, remainder: Jan 5, 1961. Corrective sulphate of potash applied to plots following arable rotation: Jan 24. Seed combine drilled at 2 bushels per acre with basal PK compound, 'Nitro-Chalk' applied: Mar 5. Sprayed with CMPP at 6 pints in 40 gallons per acre (except undersown plots): May 12. Undersown plots sprayed with MCPB at 4 pints in 40 gallons per acre: May 23. Combine harvested: Aug 17. Variety: Proctor.

Permanent grasses Basal PK compound applied to all plots: Feb 17, 1960.

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

Blocks 6 and 10. 'Nitro-Chalk' applied: Apr 6, 1961. Cut for silage: May 25. 2nd dressing of 'Nitro-Chalk' applied: May 29. Grazed: 3 circuits, June 24 - Oct 18.

Blocks 11 and 12. 'Nitro-Chalk' applied: May 19 and Aug 3, 1961. Grazed: 5 circuits, Apr 29 - Oct 14.

https://doi.org/10.23637/ERADOC-1-182

12th year reseeded grass, Blocks 5, 7, 8, 9.
Blocks 5 and 9. 'Nitro-Chalk' applied: Apr 6, 1961. Cut for silage: May 25. 2nd dressing of 'Nitro-Chalk' applied: May 29. Grazed: 3 circuits, June 24 - Oct 6.
Blocks 7 and 8. 'Nitro-Chalk' applied: May 11 and Aug 3, 1961. Grazed: 6 circuits, Apr 25 - Oct 14.

13th year reseeded grass, Blocks 1 - 4.
Blocks 1 and 2. 'Nitro-Chalk' applied: Apr 6, 1961. Cut for silage: May 25. 2nd dressing of 'Nitro-Chalk' applied: May 29. Grazed: 3 circuits, June 28 - Oct 18.
Blocks 3 and 4. 'Nitro-Chalk applied: May 16 and Aug 3, 1961. Grazed: 5 circuits, May 3 - Oct 10.

Standard errors per plot.		Test crops.	
Wheat, grain (at 85% dry matter).		Highfield:	5.78 cwt per acre or 14.2% (36 d.f.)
		Fosters:	2.28 cwt per acre or 5.9% (36 d.f.)
Potatoes, total tubers.	Highfield	$\frac{1}{4}$ plot:	0.915 tons per acre or 6.6% (4 d.f.)
		$\frac{1}{16}$ plot:	1.294 tons per acre or 9.3% (23 d.f.)
	Fosters	$\frac{1}{4}$ plot:	0.371 tons per acre or 3.5% (4 d.f.)
		$\frac{1}{8}$ plot:	0.526 tons per acre or 4.9% (8 d.f.)
		$\frac{1}{16}$ plot:	1.063 tons per acre or 9.9% (48d.f.)
Barley, grain (at 85% dry matter).	Highfield:		1.86 cwt per acre or 4.4% (13 d.f.)*
	Fosters:		1.39 cwt per acre or 3.1% (15 d.f.)

*2 missing values.

https://doi.org/10.23637/ERADOC-1-182

Summary of Results

Wheat 1st test crop

N: cwt per acre	Treatment crops 1958 - 1960				Mean
	Lucerne	Ley	Cut grass	Arable with hay	
Grain (at 85% dry matter): cwt per acre					
Highfield					
Mean	40.0	41.1 (±2.89)*	38.9	42.8	40.7
To test crop					
None	39.0	29.2	28.7	33.2	32.5
0.3	38.8	42.9	38.9	36.5	39.3
0.6	42.5	47.2	42.1	50.9	45.7
0.9	39.7	44.9	46.0	50.7	45.3
To treatment crops					
Single rate		41.2	37.4	42.7	40.4
Double rate		41.0	40.5	42.9	41.4
Difference (±2.89)		-0.2	+3.1	+0.2	+1.0 (±1.67)
Fosters					
Mean	48.5	31.0 (±1.14)*	34.0	40.0	38.4
To test crop					
None	43.1	22.0	24.0	28.6	29.4
0.4	51.7	30.2	34.7	37.7	38.6
0.8	50.8	34.0	37.5	46.8	42.3
1.2	48.2	37.6	40.0	47.0	43.2
To treatment crops					
Single rate		32.5	32.7	39.5	34.9
Double rate		29.5	35.4	40.5	35.1
Difference (±1.14)		-3.0	+2.7	+1.0	+0.2 (±0.66)

*For use in vertical and interaction comparisons only.

https://doi.org/10.23637/ERADOC-1-182

Wheat 1st test crop

N: cwt per acre	Excluding Lucerne: N to previous treatment crop: Single rate	Excluding Lucerne: N to previous treatment crop: Double rate	Excluding Lucerne: Mean	Arable with hay only: Dung to potatoes 1959: tons per acre: None	Arable with hay only: Dung to potatoes 1959: tons per acre: 12	Arable with hay only: Mean
Grain (at 85% dry matter): cwt per acre						
Highfield						
To test crop	(±2.36)		(±1.67)	(±4.09)		(±2.89)
None	30.7	30.0	30.4	31.2	35.2	33.2
0.3	38.4	40.5	39.4	33.0	40.0	36.5
0.6	45.2	48.3	46.7	50.3	51.4	50.8
0.9	47.4	47.0	47.2	51.6	49.8	50.7
Mean	40.4	41.4	40.9			
	(±1.18)					
To previous treatment crops				(±2.89)		(±2.04)
Single rate				42.8	42.7	42.7
Double rate				40.3	45.4	42.9
Mean				41.5	44.1	42.8
				(±2.04)		
Mean dry matter % as harvested: 85.7						
Fosters						
To test crop	(±0.93)		(±0.66)	(±1.61)		(±1.14)
None	25.3	24.4	24.9	27.7	29.4	28.6
0.4	33.8	34.5	34.2	36.0	39.4	37.7
0.8	39.9	39.0	39.4	46.6	47.0	46.8
1.2	40.5	42.5	41.5	47.8	46.2	47.0
Mean	34.9	35.1	35.0			
	(±0.46)					
To previous treatment crops				(±1.14)		(±0.80)
Single rate				38.5	40.6	39.5
Double rate				40.5	40.4	40.5
Mean				39.5	40.5	40.0
				(±0.80)		
Mean dry matter % as harvested: 85.9						

https://doi.org/10.23637/ERADOC-1-182

Wheat 1st test crop

N: cwt per acre	Treatment crops 1958 - 1960 Lucerne	Ley	Cut grass	Arable with hay	Mean
Straw (at 85% dry matter): cwt per acre					
Highfield					
Mean	49.1	47.9	36.9	41.9	44.0
To test crop					
None	39.4	32.4	22.1	27.2	30.3
0.3	50.1	47.2	34.6	35.8	41.9
0.6	52.2	57.9	44.3	50.8	51.3
0.9	54.9	54.2	46.7	53.9	52.4
To treatment crop					
Single rate		46.4	35.8	41.5	41.3
Double rate		49.4	38.0	42.3	43.2
Difference		+3.0	+2.2	+0.8	+1.9
Fosters					
Mean	48.1	28.8	31.3	36.6	36.2
To test crop					
None	37.8	13.0	10.3	14.2	18.8
0.4	49.4	29.1	33.6	35.9	37.0
0.8	52.3	34.4	38.7	46.4	42.9
1.2	52.9	38.5	42.5	49.8	45.9
To treatment crop					
Single rate		29.6	30.7	37.3	32.5
Double rate		27.9	31.8	35.8	31.9
Difference		-1.7	+1.1	-1.5	-0.6

https://doi.org/10.23637/ERADOC-1-182

Wheat 1st test crop

N: cwt per acre	Excluding Lucerne: N to previous treatment crop: Single rate	Excluding Lucerne: N to previous treatment crop: Double rate	Excluding Lucerne: Mean	Arable with hay only: Dung to potatoes 1959: tons per acre: None	Arable with hay only: Dung to potatoes 1959: tons per acre: 12	Arable with hay only: Mean
Straw (at 85% dry matter): cwt per acre						
Highfield						
To test crop						
None	26.2	28.2	27.2	26.4	28.0	27.2
0.3	39.0	39.4	39.2	34.0	37.7	35.8
0.6	48.4	53.6	51.0	49.2	52.4	50.8
0.9	51.5	51.7	51.6	53.4	54.4	53.9
Mean	41.3	43.2	42.2			
To previous treatment crop						
Single rate				41.1	42.0	41.5
Double rate				40.4	44.3	42.3
Mean				40.7	43.1	41.9

Mean dry matter % as harvested: 82.1

Fosters

To test crop						
None	12.4	12.6	12.5	15.0	13.4	14.2
0.4	33.5	32.3	32.9	34.3	37.6	35.9
0.8	41.2	38.4	39.8	46.4	46.4	46.4
1.2	43.1	44.1	43.6	48.8	50.7	49.8
Mean	32.5	31.9	32.2			
To previous treatment crop						
Single rate				35.6	39.1	37.3
Double rate				36.7	35.0	35.8
Mean				36.1	37.0	36.6

Mean dry matter % as harvested: 80.3

https://doi.org/10.23637/ERADOC-1-182

61/B/1.12

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

	Treatment crops 1957-1959				
	Lucerne	Ley	Cut Grass	Arable with hay	Mean
Highfield (no dung plots only)					
Mean	13.67	14.30	13.83	13.89	13.93
N: cwt per acre					
0.5	13.69	15.16	13.85	13.72	14.10
1.0	13.66	13.45	13.81	14.07	13.75
Difference (±0.915)	-0.03	-1.71	-0.04	+0.35	-0.35 (±0.458)
P_2O_5: cwt per acre*					
0.9	12.97	14.14	13.87	14.13	13.78
1.8	14.38	14.46	13.79	13.66	14.07
Difference (±0.647)	+1.41	+0.32	-0.08	-0.47	+0.29 (±0.323)
K_2O: cwt per acre*					
0.9	13.82	14.29	13.55	13.68	13.84
1.8	13.53	14.32	14.11	14.11	14.01
Difference (±0.647)	-0.29	+0.03	+0.56	+0.43	+0.17 (±0.323)
Fosters					
Mean	10.86	10.13	10.88	10.89	10.69
N: cwt per acre					
0.5	11.14	10.57	10.86	11.06	10.90
1.0	10.57	9.69	10.91	10.73	10.48
Difference (±0.372)	-0.57	-0.88	+0.05	-0.33	-0.42 (±0.186)
PK	10.93	10.35	10.67	11.05	10.75
Dung	10.78	9.90	11.10	10.74	10.63
Difference (±0.371)	-0.15	-0.45	+0.43	-0.31	-0.12 (±0.185)
P_2O_5: cwt per acre*					
0.9	11.00	10.82	10.65	10.86	10.83
1.8	10.71	9.44	11.12	10.93	10.55
Difference (±0.376)	-0.29	-1.38	+0.47	+0.07	-0.28 (±0.188)
K_2O: cwt per acre*					
0.9	10.76	10.41	11.07	10.90	10.79
1.8	10.96	9.84	10.70	10.88	10.59
Difference (±0.376)	+0.20	-0.57	-0.37	-0.02	-0.20 (±0.188)

*Including basal dressing

https://doi.org/10.23637/ERADOC-1-182

61/B/1.13

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

Highfield (no dung plots only)

N: cwt per acre	P_2O_5: cwt per acre* 0.9	P_2O_5: cwt per acre* 1.8	K_2O: cwt per acre* 0.9	K_2O: cwt per acre* 1.8
0.5	14.16	14.05	13.81	14.39
1.0	13.40	14.09	13.86	13.63
	(3) and (4)		(3) and (4)	
			(±0.323)	
P_2O_5: cwt per acre*				
0.9			13.86	13.70
1.8			13.81	14.33

Fosters

N: cwt per acre	PK	Dung	P_2O_5: cwt per acre* 0.9	P_2O_5: cwt per acre* 1.8	K_2O: cwt per acre* 0.9	K_2O: cwt per acre* 1.8
0.5	(1) and (2)		(5) and (6)		(5) and (6)	
1.0	10.97	10.84	10.95	10.85	10.94	10.87
	10.53	10.42	10.71	10.24	10.63	10.32
			(3) and (4)		(3) and (4)	
PK			10.98	10.52	10.81	10.69
Dung			10.68	10.57	10.76	10.50
					(±0.188)	
P_2O_5: cwt per acre*						
0.9					10.91	10.75
1.8					10.66	10.43

*Including basal dressing

Highfield	Fosters	
	(1)	±0.186 For use in vertical and interaction comparisons.
	(2)	±0.186 For use in horizontal and diagonal comparisons.
(3) ±0.323	(3)	±0.188 For use in horizontal and diagonal comparisons.
(4) ±0.396	(4)	±0.187 For use in vertical and interaction comparisons.
	(5)	±0.188 For use in vertical and interaction comparisons.
	(6)	±0.187 For use in horizontal and diagonal comparisons.

https://doi.org/10.23637/ERADOC-1-182

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

	Treatment crops 1957-1959				
	Lucerne	Ley	Cut Grass	Arable with hay	Mean
Highfield (no dung plots only)					
Mean	96.4	96.6	96.7	96.5	96.5
N: cwt per acre					
0.5	96.5	97.1	96.6	96.3	96.6
1.0	96.3	96.1	96.7	96.7	96.5
Difference	-0.2	-1.0	+0.1	+0.4	-0.1
P_2O_5: cwt per acre*					
0.9	96.2	96.7	96.4	96.5	96.5
1.8	96.6	96.5	96.9	96.4	96.6
Difference	+0.4	-0.2	+0.5	-0.1	+0.1
K_2O: cwt per acre*					
0.9	96.7	96.5	97.0	96.2	96.6
1.8	96.1	96.7	96.4	96.8	96.5
Difference	-0.6	+0.2	-0.6	+0.6	-0.1
Fosters					
Mean	94,5	93.2	94.0	94.2	94.0
N: cwt per acre					
0.5	94.6	93.8	94.4	94.5	94.3
1.0	94.3	92.5	93.7	93.9	93.6
Difference	-0.3	-1.3	-0.7	-0.6	-0.7
PK	95.5	95.2	95.8	95.9	95.6
Dung	93.5	91.2	92.3	92.5	92.4
Difference	-2.0	-4.0	-3.5	-3.4	-3.2
P_2O_5: cwt per acre*					
0.9	95.4	93.6	93.7	94.2	94.2
1.8	93.6	92.8	94.4	94.2	93.7
Difference	-1.8	-0.8	+0.7	0.0	-0.5
K_2O: cwt per acre*					
0.9	94.7	93.6	93.9	94.1	94.1
1.8	94.3	92.8	94.2	94.3	93.9
Difference	-0.4	-0.8	+0.3	+0.2	-0.2

*Including basal dressing.

https://doi.org/10.23637/ERADOC-1-182

61/B/1.15

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

	P_2O_5: cwt per acre*		K_2O: cwt per acre*	
	0.9	1.8	0.9	1.8
Highfield (no dung plots only)				
N: cwt per acre				
0.5	96.8	96.5	96.8	96.5
1.0	96.2	96.7	96.5	96.5
P_2O_5: cwt per acre*				
0.9			96.6	96.3
1.8			96.6	96.7

	PK	Dung	P_2O_5: cwt per acre*		K_2O: cwt per acre*	
			0.9	1.8	0.9	1.8
Fosters						
N: cwt per acre						
0.5	95.8	92.8	94.5	94.1	94.4	94.3
1.0	95.3	91.9	93.9	93.4	93.7	93.5
PK			95.7	95.4	95.8	95.4
Dung			92.7	92.1	92.3	92.4
P_2O_5: cwt per acre*						
0.9					94.1	94.3
1.8					94.0	93.5

*Including basal dressing

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

	Treatment crops 1956–1958				
	Lucerne	Ley	Cut Grass	Arable with hay	Mean
Highfield					
Mean	41.7	42.2	42.8	42.0	42.2
N: cwt per acre					
None	38.7	40.3	40.0	38.8	39.4
0.2	44.8	44.0	45.6	45.3	44.9
Difference (±1.32)	+6.1	+3.7	+5.6	+6.5	+5.5 (±0.65)
Dung to potatoes 1960: tons per acre					
None	41.1	41.2	42.8	40.3	41.3
12	42.4	43.1	42.9	43.8	43.0
Difference (±1.32)	+1.3	+1.9	+0.1	+3.5	+1.7 (±0.65)
Fosters					
Mean	46.6	47.1	45.5	42.5	45.4
N: cwt per acre					
0.2	43.9	45.3	44.0	38.9	43.0
0.4	49.3	48.8	47.1	46.2	47.8
Difference (±0.98)	+5.4	+3.5	+3.1	+7.3	+4.8 (±0.49)
Dung to potatoes 1960: tons per acre					
None	46.0	45.9	44.7	41.5	44.5
12	47.1	48.3	46.3	43.6	46.3
Difference (±0.98)	+1.1	+2.4	+1.6	+2.1	+1.8 (±0.49)

	Highfield		Fosters	
	N: cwt per acre		N: cwt per acre	
	None	0.2	0.2	0.4
Dung to potatoes 1960: tons per acre	(±0.65)		(±0.49)	
None	37.8	44.8	41.8	47.3
12	41.0	45.1	44.2	48.4

Mean dry matter % as harvested:
Highfield: 82.7
Fosters: 83.2

https://doi.org/10.23637/ERADOC-1-182

61/B/1.17

Treatment crops Arable and Hay rotation

	Highfield Mean	Fosters Mean
Hay (dry matter): cwt per acre		
No dung	46.5	46.0
Dung in 1959	48.2	45.1
Mean	47.3	45.5
Sugar beet		
Roots washed: tons per acre		
	23.14	18.10
Sugar percentage		
	16.6	17.2
Total sugar: cwt per acre		
	77.0	62.3
Tops: tons per acre		
	20.62	12.89
Oats		
Grain (at 85% dry matter): cwt per acre		
No dung	29.4	26.6
Dung in 1960	28.6	26.8
Mean	29.0	26.7

Highfield, oats, mean dry matter % as harvested, Grain: 83.6
Fosters, oats, mean dry matter % as harvested, Grain: 83.7

https://doi.org/10.23637/ERADOC-1-182

Cut grass. Dry matter: cwt per acre

1st year (2 cuts)	Highfield: Dung to potatoes 1959: tons per acre			Fosters: Dung to potatoes 1959: tons per acre		
	None	12	Mean	None	12	Mean
N to test crops						
Single rate	37.8	37.7	37.7	31.2	30.8	31.0
Double rate	37.4	37.1	37.3	30.3	30.5	30.4
Mean	37.6	37.4	37.5	30.8	30.6	30.7
2nd year (4 cuts)			72.6			69.2
3rd year (4 cuts)			57.3			48.6

Lucerne. Dry matter: cwt per acre

1st year (2 cuts)	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 1959						
None	19.2	19.4	19.3	23.2	28.8	26.0
12 tons	18.5	21.5	20.0	25.5	29.2	27.3
Mean	18.9	20.5	19.7	24.3	29.0	26.7
2nd year (4 cuts)			63.1			93.4
3rd year (4 cuts)			61.2			84.7

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

	Highfield Mean	Fosters Mean
1st year	29.9	20.1
2nd year	41.7	30.4
3rd year	30.8	27.2

Permanent grass. Dry matter: cwt per acre

	Cut for silage Mean	Grazed. Estimated from sampling cuts Mean
	Highfield	
11th exptl. year		
Blocks 2 and 4		25.0*
Blocks 1 and 3	46.2	16.8*
12th exptl. year		
Blocks 9 and 11		27.6*
Blocks 10 and 12	47.2	17.5*
13th exptl. year		
Blocks 5 and 6		27.9*
Blocks 7 and 8	43.2	20.5*

*Aftermath grazing

Reseeded grass. Dry matter: cwt per acre

	Cut for silage Mean	Grazed. Estimated from sampling cuts Mean
Highfield		
11th exptl. year		
Blocks 2 and 4		31.4*
Blocks 1 and 3	47.8	16.7*
12th exptl. year		
Blocks 9 and 11		28.4*
Blocks 10 and 12	40.1	20.0*
13th exptl. year		
Blocks 5 and 6		27.0*
Blocks 7 and 8	48.4	17.2*
Fosters		
11th exptl. year		
Blocks 3 and 4		28.0*
Blocks 1 and 2	39.7	17.1*
12th exptl. year		
Blocks 11 and 12		34.8*
Blocks 6 and 10	32.1	22.5*
13th exptl. year		
Blocks 7 and 8		27.6*
Blocks 5 and 9	41.6	16.5*

*Aftermath grazing