

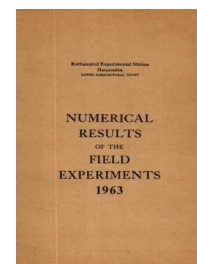
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Yields of the Field Experiments 1963

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63/R/HIA/B/1 and 63/R/FLA/B/1 Ley and Arable Rotations

Rothamsted Research

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63/B/1.1

LEY AND ARABLE ROTATIONS

(HIA and FIA)

Highfield and Fosters Field 1963, the 15th year.

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

Oats: The variety has now been changed from Sun II to Condor.

Permanent (Reseeded) grass: During the 3 years commencing in Autumn 1962 the plots in blocks coming into wheat are to be ploughed up. Subsequent cropping and treatments are the same as follow the 3 year crops. The plots not mentioned above are split lengthwise for the 'all-grass' and 'clover-grass' treatments already applied to the Permanent (Old) grass.

Note: The 2nd year all grass-ley on Highfield failed during the winter and was resown in spring 1963.

Cultivations, etc.:

HIGHFIELD

1st-year Treatment Crops

All-grass ley. Ploughed twice: Sept 7 and Dec 3, 1962. Basal PK compound applied: Apr 22, 1963. 'Nitro-Chalk' applied, seeds sown at 30 lb per acre: Apr 25. Cut 4 times: July 8, Aug 8, Sept 12, Oct 28. NK compound applied after first 3 cuts.

Clover-grass ley. Ploughed twice: Sept 7 and Dec 3, 1962. Basal PK compound applied: Apr 22, 1963. Seed sown at 33 lb per acre: Apr 25. Cut 4 times: July 8, Aug 8, Sept 20, Oct 28. Muriate of potash applied after first 3 cuts.

Lucerne. Ploughed twice: Sept 7 and Dec 3, 1962. Basal PK compound applied: Apr 22, 1963. Seed drilled at 20 lb per acre: Apr 26. Cut twice: July 25 and Sept 27.

Hay. Seeds undersown in barley: Apr 25, 1962. Basal NPK compound applied: Mar 6, 1963. Cut twice: June 17 and Aug 8. NK compound applied after first cut.

2nd-year Treatment Crops

All-grass ley. Basal PK compound applied: Nov 26, 1962. 'Nitro-Chalk' applied: Mar 15, 1963. Sprayed with paraquat at 2 lb in 40 gallons per acre: May 17 and June 5. Rotary cultivated, seed sown at 30 lb per acre: June 19. Sprayed with mecoprop/2,4-D at 6 pints in 40 gallons per acre: July 30. Cut twice: Sept 12 and Oct 28. NK compound applied after first cut.

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Clover-grass ley. Basal PK compound applied: Nov 26, 1962. Cut 5 times: May 29, June 24, July 24, Sept 20, Oct 28. Muriate of potash applied after first 4 cuts.

Lucerne. Basal PK compound applied: Nov 23, 1962. Cut 3 times: June 12, July 25, Sept 27, 1963.

Sugar beet. Ploughed twice: Aug 24 and Dec 3, 1962. Muriate of potash applied: Feb 14, 1963. Basal NPK compound (10% N, 10% P₂O₅, 10% K₂O) applied: Apr 16. Seed drilled at 5.25 lb per acre: Apr 19. Singled: May 30. Sprayed with DDT emulsion at 0.5 pints DDT in 16 gallons per acre: June 6. Sprayed with menazon at 0.53 pints in 16 gallons per acre: July 31. Lifted: Oct 24. Variety: Klein E.

3rd-year Treatment Crops

Cut grass. Basal PK compound applied: Nov 23, 1962. NK compound applied: Mar 15, 1963 and after every cut except the last. Cut 4 times: May 29, June 24, July 24, Sept 12.

Grazed ley. Basal PK compound applied: Nov 23, 1962. 'Nitro-Chalk' applied: May 18, 1963 and Aug 2, 1963. Grazed: 9 circuits, May 7 - Sept 4.

Lucerne. Basal PK compound applied: Nov 23, 1962. Cut 3 times: June 12, July 25, Sept 9.

Oats. Ploughed: Dec 3, 1962. Seed combine drilled at 4 bushels per acre: Apr 9, 1963. 'Nitro-Chalk' applied: Apr 11. Sprayed with methoxychlorobenzoic acid/MCPA (MBA/MCPA) at 4 pints in 40 gallons per acre: June 5. Combine harvested: Sept 7.

1st Test Crop, Wheat

Ploughed: Sept 26, 1962. Seed combine drilled at 2.75 bushels per acre: Oct 18. Plots following permanent (reseeded) grass sprayed with aldrin at 2.4 pints in 80 gallons per acre: Apr 9, 1963. 'Nitro-Chalk' applied: Apr 26. Sprayed with mecoprop/2,4-D at 7 pints in 40 gallons per acre: May 16. Combine harvested: Sept 9. Variety: Cappelle.

2nd Test Crop, Potatoes

Dung applied: Sept 13, 1962. Ploughed twice: Sept 14 and Dec 18. Fertilisers applied: May 9, 1963. Potatoes machine planted: May 10. Earthed up: June 22. Sprayed with maneb at 1.2 lb in 20 gallons per acre: July 19. Sprayed with copper oxychloride fungicide at 2.3 lb Cu plus 0.35 pints menazon in 20 gallons per acre: Aug 14. Sprayed with undiluted BOV at 16 gallons per acre: Sept 12. Lifted: Oct 10. Variety: Majestic (chitted seed).

3rd Test Crop, Barley

Ground chalk applied: Nov 15, 1962. Additional P and K applied: Nov 16. Ploughed: Nov 20. Seed combine drilled at 2 bushels per acre: Apr 8, 1963. 'Nitro-Chalk' applied: Apr 11. Sprayed with MCPB/MCPA at 5 pints in 40 gallons per acre: June 5. Combine harvested: Sept 7. Variety: Proctor.

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Permanent grasses. 13th, 14th and 15th experimental years permanent (old) grass, all blocks, 13th, 14th and 15th years reseeded grass, blocks 1, 4, 6, 7, 9 and 12. Ground chalk applied to blocks 1 and 4: Nov 15, 1962. Basal PK compound applied: Nov 26. 'Nitro-Chalk' applied to 'all-grass' half plots: Mar 15, 1963. Cut 5 times: May 29, June 26, July 24, Sept 13, Oct 28. Muriate of potash and NK compound applied to appropriate half plots after first 4 cuts.

14th year Reseeded grass, Blocks 5 and 8.

Block 5. Basal PK compound applied: Nov 20, 1962. 'Nitro-Chalk' applied: May 18 and Aug 2, 1963. Grazed: 12 circuits, May 7 - Oct 12.

Block 8. Basal PK compound applied: Nov 23, 1962. 'Nitro-Chalk' applied: Mar 15, 1963. Cut for silage: May 29. 2nd dressing of 'Nitro-Chalk' applied: May 31. Grazed: 8 circuits, June 18 - Oct 11.

15th year Reseeded grass, Blocks 2 and 3.

Block 2. Basal PK compound applied: Nov 20, 1962. 'Nitro-Chalk' applied: May 18 and Aug 2, 1963. Grazed: 10 circuits, May 7 - Sept 12.

Block 3. Basal PK compound applied: Nov 23, 1962. 'Nitro-Chalk' applied: Mar 15, 1963. Cut for silage: May 29. 2nd dressing of 'Nitro-Chalk' applied: May 31. Grazed: 6 circuits, June 18 - Sept 12.

FOSTERS

1st-year Treatment Crops

All-grass ley. Ploughed twice: Sept 7 and Dec 18, 1962. Basal PK compound applied: Apr 22, 1963. 'Nitro-Chalk' applied: Apr 24. Seed sown at 30 lb per acre: Apr 25. Cut 4 times: July 8, Aug 8, Sept 12, Oct 28. NK compound applied after first 3 cuts.

Clover-grass ley. Ploughed twice: Sept 7 and Dec 18, 1962.

Basal PK compound applied: Apr 22, 1963. Seed sown at 33 lb per acre: Apr 25. Cut 4 times: July 8, Aug 8, Sept 20, Oct 28. Muriate of potash applied after first 3 cuts.

Lucerne. Ploughed twice: Sept 7 and Dec 18, 1962. Basal PK compound applied: Apr 22, 1963. Seed drilled at 20 lb per acre: Apr 26. Cut twice: July 26 and Sept 27. Variety: Du Puits.

Hay. Seeds undersown in barley: Apr 25, 1962. Basal NPK compound applied: Mar 6, 1963. Cut twice: June 14 and Aug 8. NK compound applied after first cut.

2nd-year Treatment Crops

All-grass ley. Basal PK compound applied: Nov 26, 1962. 'Nitro-Chalk' applied: Mar 16, 1963. Cut 5 times: May 29, June 24, July 24, Sept 12, Oct 28. NK compound applied after first 4 cuts.

Clover-grass ley. Basal PK compound applied: Nov 26, 1962. Cut 5 times: May 29, June 24, July 24, Sept 20, Oct 28, 1963. Muriate of potash applied after first 4 cuts.

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Lucerne. Basal PK compound applied: Nov 20, 1962. Cut 3 times:
June 12, July 26, Sept 27, 1963.
Sugar Beet. Ploughed twice: Aug 24 and Dec 18, 1962. Muriate of potash
applied: Feb 14, 1963. Basal NPK (10% N, 10% P₂O₅, 10% K₂O) applied:
Apr 16. Seed drilled at 5.25 lb per acre: Apr 19. Singled: May 29.
Sprayed with DDT emulsion at 0.5 pints DDT in 16 gallons per acre:
June 6. Sprayed with menazon at 0.53 pints in 16 gallons per acre:
July 31. Lifted: Oct 24. Variety: Klein E.

3rd-year Treatment Crops

Cut grass. Basal PK compound applied: Nov 20, 1962. NK compound applied:
Mar 16, 1963 and after every cut except the last. Cut 4 times:
May 29, June 24, July 24, Sept 12.
Grazed ley. Basal PK compound applied: Nov 20, 1962. 'Nitro-Chalk'
applied: May 18 and Aug 2, 1963. Grazed: 9 circuits, May 7 - Sept 4.
Lucerne. Basal PK compound applied: Nov 20, 1962. Cut 3 times: June 12,
July 26, Sept 9, 1963.
Oats. Ploughed: Dec 3, 1962. Seed combine drilled at 4 bushels per acre,
'Nitro-Chalk' applied: Apr 8, 1963. Sprayed with methoxychlorobenzoic
acid/MCPA (MBA/MCPA) at 4 pints in 40 gallons per acre: June 5. Combine
harvested: Sept 7. Variety: Condor.

1st Test Crop, Wheat

Ploughed: Sept 20, 1962. Seed combine drilled at 2.75 bushels per acre:
Oct 18. Plots following permanent (reseeded) grass sprayed with aldrin
at 2.4 pints in 80 gallons per acre: Apr 19, 1963. 'Nitro-Chalk' applied:
Apr 26. Sprayed with mecoprop/2,4-D at 7 pints in 40 gallons per acre:
May 16. Combine harvested: Sept 9. Variety: Cappelle.

2nd Test Crop, Potatoes

Dung applied, plots ploughed: Sept 13, 1962. Ploughed second time:
Dec 18. Fertilisers applied, potatoes machine planted: May 9, 1963.
Replanted potatoes which were uncovered through grubbing: June 17.
Earthed up: June 22. Sprayed with maneb at 1.2 lb in 20 gallons per
acre: July 19. Sprayed with copper oxychloride fungicide at 2.3 lb
Cu plus 0.35 pints menazon in 20 gallons per acre: Aug 16. Sprayed
with undiluted BOV at 16 gallons per acre: Sept 12. Lifted: Oct 9.
Variety: Majestic (chitted seed).

3rd Test Crop, Barley

Additional P and K applied: Nov 16, 1962. Ploughed: Nov 19. Seed
combine drilled at 2 bushels per acre: Apr 8, 1963. 'Nitro-Chalk'
applied: Apr 9. Sprayed with MCPB/MCPA at 5 pints in 40 gallons per
acre: June 5. Combine harvested: Sept 6. Variety: Proctor.

Permanent grasses

13th, 14th and 15th years reseeded grass, Blocks 1, 3, 6, 8, 9 and 11.
Basal PK compound applied: Nov 26, 1962. 'Nitro-Chalk' applied to
'all-grass' half plots: Mar 16, 1963. Cut 5 times: May 29, June 27,

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July 24, Sept 13, Oct 28. Muriate of potash and NK compound applied to appropriate half plots after first 4 cuts.

14th year reseeded grass, Blocks 5 and 7. Basal PK compound applied: Nov 20, 1962.

Block 5. 'Nitro-Chalk' applied: Mar 16, 1963. Cut for silage: May 29. 2nd dressing of 'Nitro-Chalk' applied: May 31. Grazed: 8 circuits, June 18 - Oct 12.

Block 7. 'Nitro-Chalk' applied: May 18 and Aug 2, 1963. Grazed: 12 circuits, May 7 - Oct 12.

15th year reseeded grass, Blocks 2 and 4. Basal PK compound applied: Nov 20, 1962.

Block 2. 'Nitro-Chalk' applied: Mar 16, 1963. Cut for silage: May 29. 2nd dressing of 'Nitro-Chalk' applied: May 31. Grazed: 6 circuits, June 18 - Sept 14.

Block 4. 'Nitro-Chalk' applied: May 18 and Aug 2, 1963. Grazed: 10 circuits, May 7 - Sept 12.

Standard errors per sub plot. Test crops.

Wheat, grain (at 85% dry matter)	Highfield: 2.62 cwt per acre or 6.3% (55 d.f.) Fosters: 3.52 cwt per acre or 7.8% (55 d.f.)
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Barley, grain (at 85% dry matter)	Highfield: 4.49 cwt per acre or 11.4% (23 d.f.) Fosters: 2.67 cwt per acre or 6.5% (23 d.f.)
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63/B/1.6

Summary of Results

Wheat 1st test crop

N: cwt per acre	Treatment crops 1960 - 1962					Mean
	Lucerne	Ley	Cut grass	Arable with hay	Reseeded grass	

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

To test crop	<u>Highfield</u>					(±0.59)
	(±1.31)*					
None	44.3	40.1	33.7	23.1	40.8	36.4
0.3	48.4	43.4	40.9	35.1	44.7	42.5
0.6	44.6	44.1	43.8	39.6	47.9	44.0
0.9	44.0	44.7	43.5	45.3	45.5	44.6
Mean	45.3	43.1	40.5	35.8	44.7	41.9

To test crop	<u>Fosters</u>					(±0.79)
	(±1.76)*					
None	44.3	35.0	39.4	27.8	36.4	36.6
0.4	53.1	44.4	43.4	41.3	43.8	45.2
0.8	54.6	47.9	44.5	46.7	47.2	48.2
1.2	53.5	48.2	45.8	49.9	47.8	49.0
Mean	51.4	43.9	43.3	41.4	43.8	44.8

*For use only in vertical and interaction comparisons

63/B/1.7

Wheat 1st test crop

N: cwt per acre	Treatment crops 1960 - 1962					Mean
	Lucerne	Ley	Cut grass	Arable with hay	Reseeded grass	

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

Highfield

To test crop	Lucerne	Ley	Cut grass	Arable with hay	Reseeded grass	Mean
None	37.2	30.3	22.7	19.7	31.1	28.2
0.3	43.3	33.9	30.1	27.5	39.8	34.9
0.6	40.9	33.9	34.9	36.4	41.5	37.5
0.9	42.4	35.7	35.1	38.0	38.6	38.0
Mean	41.0	33.5	30.7	30.4	37.7	34.7

Fosters

To test crop	Lucerne	Ley	Cut grass	Arable with hay	Reseeded grass	Mean
None	31.0	26.8	23.3	18.5	30.0	25.9
0.4	40.3	36.6	32.5	30.3	38.7	35.7
0.8	39.7	39.0	36.0	38.8	45.1	39.7
1.2	39.7	41.6	39.5	39.1	38.1	39.6
Mean	37.7	36.0	32.8	31.7	38.0	35.2

63/B/1.8

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

	Treatment crops 1959 - 1961				Mean
	Lucerne	Ley	Cut grass	Arable with hay	
	<u>Highfield</u>				
Mean	14.64	13.89	13.73	14.74	14.25
N: cwt per acre to wheat 1962					
None	15.03	14.13	13.91	14.60	14.42
0.3	14.81	13.80	14.14	14.35	14.28
0.6	14.60	13.81	13.64	14.92	14.24
0.9	14.14	13.80	13.25	15.08	14.07
N: cwt per acre 1963*					
0.75	14.54	14.02	13.79	14.73	14.27
1.25	14.75	13.75	13.68	14.74	14.23
Difference	+0.21	-0.27	-0.11	+0.01	-0.04
FK	13.77	13.81	14.11	14.23	13.98
Dung	15.52	13.96	13.36	15.24	14.52
Difference	+1.75	+0.15	-0.75	+1.01	+0.54
P205: cwt per acre					
0.9	14.81	13.74	13.73	14.29	14.14
1.8	14.48	14.03	13.74	15.19	14.36
Difference	-0.33	+0.29	+0.01	+0.90	+0.22
K20: cwt per acre					
0.9	14.83	13.70	13.81	14.80	14.29
1.8	14.46	14.07	13.66	14.67	14.21
Difference	-0.37	+0.37	-0.15	-0.13	-0.08

*Including basal dressing

63/B/1.9

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

	N: cwt per acre to wheat 1962					
	None	0.3	0.6	0.9		
<u>Highfield</u>						
N: cwt per acre 1963*						
0.75	14.55	14.19	14.38	13.97		
1.25	14.29	14.36	14.10	14.17		
Difference	-0.26	+0.17	-0.28	+0.20		
PK	14.39	13.62	14.26	13.64		
Dung	14.45	14.93	14.22	14.50		
Difference	+0.06	+1.31	-0.04	+0.86		
P205: cwt per acre						
0.9	14.34	14.02	14.26	13.94		
1.8	14.50	14.53	14.22	14.20		
Difference	+0.16	+0.51	-0.04	+0.26		
K20: cwt per acre						
0.9	14.54	14.24	14.28	14.10		
1.8	14.30	14.31	14.21	14.03		
Difference	-0.24	+0.07	-0.07	-0.07		
	PK	Dung	P205: cwt per acre 0.9 1.8	K20: cwt per acre 0.9 1.8		
N: cwt per acre 1963*						
0.75	13.95	14.59	14.12	14.41	14.31	14.23
1.25	14.01	14.45	14.16	14.31	14.26	14.20
PK			13.87	14.08	13.95	14.00
Dung			14.41	14.64	14.62	14.42
P205: cwt per acre						
0.9					14.13	14.14
1.8					14.44	14.28

*Including basal dressing

63/B/1.10

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

	Treatment crops 1959 - 1961				Mean
	Lucerne	Ley	Cut grass	Arable with hay	
		<u>Fosters</u>			
Mean	14.76	13.89	13.61	14.90	14.29
N: cwt per acre to wheat 1962					
None	14.30	14.86	13.67	15.16	14.50
0.4	14.73	13.88	13.41	14.39	14.10
0.8	15.23	13.52	13.59	15.28	14.41
1.2	14.79	13.30	13.78	14.78	14.16
N: cwt per acre 1963*					
0.75	14.66	13.78	13.49	14.46	14.10
1.25	14.86	14.00	13.74	15.34	14.48
Difference	+0.20	+0.22	+0.25	+0.88	+0.38
PK	14.53	14.53	13.42	14.56	14.26
Dung	14.99	13.25	13.81	15.25	14.32
Difference	+0.46	-1.28	+0.39	+0.69	+0.06
F205: cwt per acre					
0.9	14.66	13.88	13.86	14.77	14.29
1.8	14.86	13.90	13.37	15.03	14.29
Difference	+0.20	+0.02	-0.49	+0.26	0.00
K20: cwt per acre					
0.9	14.66	13.98	13.58	15.18	14.35
1.8	14.86	13.80	13.64	14.62	14.23
Difference	+0.20	-0.18	+0.06	-0.56	-0.12

*Including basal dressing

63/B/1.12

Potatoes 2nd test crop. Percentage ware (1.5 inch riddle)

	Treatment crops 1959 - 1961				Mean
	Lucerne	Ley	Cut grass	Arable with hay	
	<u>Highfield</u>				
Mean	91.6	92.6	91.8	91.2	91.8
N: cwt per acre to wheat 1962					
None	91.6	92.0	91.4	91.4	91.6
0.3	92.3	92.3	92.4	90.4	91.8
0.6	91.4	93.2	92.1	91.6	92.1
0.9	91.2	92.9	91.3	91.5	91.7
N: cwt per acre 1963*					
0.75	91.9	92.6	92.0	91.4	92.0
1.25	91.4	92.6	91.6	91.0	91.6
Difference	-0.5	0.0	-0.4	-0.4	-0.4
PK	91.5	92.3	92.4	91.1	91.8
Dung	91.8	92.9	91.3	91.4	91.8
Difference	+0.3	+0.6	-1.1	+0.3	0.0
P205: cwt per acre					
0.9	91.9	92.7	91.8	91.7	92.0
1.8	91.4	92.5	91.9	90.8	91.6
Difference	-0.5	-0.2	+0.1	-0.9	-0.4
K20: cwt per acre					
0.9	91.7	92.6	91.6	91.3	91.8
1.8	91.6	92.6	92.0	91.2	91.8
Difference	-0.1	0.0	+0.4	-0.1	0.0

*Including basal dressing

63/B/1.13

Potatoes 2nd test crop. Percentage ware (1.5 inch riddle)

	N: cwt per acre to wheat 1962					
	None	0.3	0.6	0.9		
<u>Highfield</u>						
N: cwt per acre 1963*						
0.75	92.0	92.0	92.2	91.7		
1.25	91.2	91.7	92.0	91.7		
Difference	-0.8	-0.3	-0.2	0.0		
PK	91.8	91.2	92.4	91.9		
Dung	91.4	92.6	91.8	91.6		
Difference	-0.4	+1.4	-0.6	-0.3		
P205: cwt per acre						
0.9	91.9	92.2	92.1	91.8		
1.8	91.3	91.5	92.1	91.6		
Difference	-0.6	-0.7	0.0	-0.2		
K20: cwt per acre						
0.9	91.9	91.9	91.8	91.6		
1.8	91.4	91.8	92.4	91.8		
Difference	-0.5	-0.1	+0.6	+0.2		
	PK	Dung	P205: cwt per acre		K20: cwt per acre	
			0.9	1.8	0.9	1.8
N: cwt per acre 1963*						
0.75	91.9	92.1	92.4	91.6	92.0	92.0
1.25	91.7	91.6	91.6	91.7	91.6	91.7
PK			92.0	91.7	91.9	91.7
Dung			92.1	91.6	91.7	92.0
P205: cwt per acre						
0.9					91.9	92.1
1.8					91.7	91.6

*Including basal dressing

63/B/1.14

Potatoes 2nd test crop. Percentage ware (1.5 inch riddle)

	Treatment crops 1959 - 1961				Mean
	Lucerne	Ley	Cut grass	Arable with hay	
	<u>Fosters</u>				
Mean	93.4	92.8	92.8	93.1	93.0
N: cwt per acre to wheat 1962					
None	93.5	93.1	92.4	93.2	93.0
0.4	93.3	92.5	93.0	93.4	93.0
0.8	92.8	92.9	93.3	92.5	92.9
1.2	93.9	92.6	92.7	93.4	93.2
N: cwt per acre 1963*					
0.75	93.4	92.8	93.0	93.0	93.0
1.25	93.4	92.8	92.7	93.2	93.0
Difference	0.0	0.0	-0.3	+0.2	0.0
PK	93.0	93.5	93.5	93.4	93.4
Dung	93.7	92.1	92.2	92.8	92.7
Difference	+0.7	-1.4	-1.3	-0.6	-0.7
P205: cwt per acre					
0.9	93.2	92.7	93.3	93.2	93.1
1.8	93.6	92.9	92.4	93.0	93.0
Difference	+0.4	+0.2	-0.9	-0.2	-0.1
K20: cwt per acre					
0.9	93.6	93.0	92.7	92.9	93.1
1.8	93.1	92.6	93.0	93.3	93.0
Difference	-0.5	-0.4	+0.3	+0.4	-0.1

*Including basal dressing

63/B/1.15

Potatoes 2nd test crop. Percentage ware (1.5 inch riddle)

	N: cwt per acre to wheat 1962					
	None	0.4	0.8	1.2		
<u>Fosters</u>						
N: cwt per acre 1963*						
0.75	93.0	93.1	93.0	93.1		
1.25	93.1	92.9	92.7	93.2		
Difference	+0.1	-0.2	-0.3	+0.1		
PK	93.3	93.3	93.1	93.7		
Dung	92.9	92.8	92.6	92.6		
Difference	-0.4	-0.5	-0.5	-1.1		
P205: cwt per acre						
0.9	93.0	93.2	93.0	93.2		
1.8	93.1	92.9	92.8	93.1		
Difference	+0.1	-0.3	-0.2	-0.1		
K20: cwt per acre						
0.9	92.9	93.1	92.8	93.4		
1.8	93.2	92.9	92.9	92.9		
Difference	+0.3	-0.2	+0.1	-0.5		
	PK	Dung	P205: cwt per acre		K20: cwt per acre	
			0.9	1.8	0.9	1.8
N: cwt per acre 1963*						
0.75	93.4	92.7	93.0	93.1	93.1	93.0
1.25	93.2	92.8	93.2	92.9	93.0	93.0
PK			93.5	93.2	93.4	93.3
Dung			92.7	92.8	92.8	92.7
P205: cwt per acre						
0.9					93.1	93.0
1.8					93.0	92.9

*Including basal dressing

63/B/1.16

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

	Treatment crops 1958 - 1960				Mean
	Lucerne	Ley	Cut grass	Arable with hay	
	<u>Highfield</u>				
Mean	40.1	38.8	40.6	38.6	39.5
N: cwt per acre	(±2.24)*				(±1.12)
None	41.2	40.9	39.6	33.9	38.9
0.1	39.6	40.8	41.5	39.3	40.3
0.2	41.3	37.4	38.5	40.4	39.4
0.3	38.6	36.1	43.0	40.8	39.6
Dung to potatoes 1962: tons per acre					
None	38.9	36.6	40.6	37.1	38.3
12	41.4	40.9	40.6	40.0	40.8
Difference (±2.24)	+2.5	+4.3	0.0	+2.9	+2.5 (±1.12)
Dung to potatoes 1962: tons per acre	None	N: cwt per acre			
		0.1	0.2		0.3
		(±1.59)			
None	36.4	39.5	38.5		38.8
12	41.3	41.0	40.2		40.5
Difference (±2.24)	+4.9	+1.5	+1.7		+1.7

*For use in vertical and interaction comparisons

Mean dry matter % as harvested: 68.1

63/B/1.17

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

	Treatment crops 1958 - 1960				Mean
	Lucerne	Ley	Cut grass	Arable with hay	
	<u>Fosters</u>				
Mean	41.9	40.7	41.1	41.5	41.3
N: cwt per acre	(±1.34)*				(±0.67)
None	40.3	39.0	38.3	39.4	39.2
0.2	43.6	42.5	42.5	-	-
0.4	41.2	41.4	43.5	43.5	42.1
0.6	42.4	40.0	39.9	42.2	41.1
0.8	-	-	-	40.9	-
Dung to potatoes 1962: tons per acre					
None	41.8	40.1	40.3	40.4	40.6
12	41.9	41.3	41.8	42.6	41.9
Difference (±1.34)	+0.1	+1.2	+1.5	+2.2	+1.3 (±0.67)
	Excluding arable with hay				
Dung to potatoes 1962: tons per acre	N: cwt per acre				
	None	0.2	0.4	0.6	Mean
	(±1.09)				
None	38.2	40.9	42.1	41.8	40.7
12	40.3	44.9	42.0	39.7	41.7
Mean (±0.77)	39.2	42.9	42.0	40.8	41.2
Difference (±1.54)	+2.1	+4.0	-0.1	-2.1	+1.0 (±0.77)

*For use in vertical and interaction comparisons

Mean dry matter % as harvested: 69.8

63/B/1.18

Treatment crops Arable and Hay rotation

	<u>Hay (dry matter): cwt per acre</u>				Mean
	0	N to barley 1962		3	
		1	2		
	<u>Highfield</u>				
No dung	81.7	82.8	79.4	81.4	81.3
Dung in 1961	78.2	91.0	82.0	86.9	84.5
Mean	79.9	86.9	80.6	84.2	82.9
	<u>Fosters</u>				
No dung	81.6	84.0	78.8	74.6	79.8
Dung in 1961	81.4	75.8	84.0	75.8	79.3
Mean	81.5	79.9	81.4	75.2	79.5

63/B/1.19

Treatment crops Arable and Hay rotation

Highfield Mean	Fosters Mean
<u>Sugar beet</u>	
<u>Roots washed: tons per acre</u>	
16.66	14.49
<u>Sugar percentage</u>	
17.1	18.5
<u>Total sugar: cwt per acre</u>	
57.2	53.6
<u>Tops: tons per acre</u>	
17.38	12.70
<u>Plant no: thousands per acre</u>	
29.2	30.3
<u>Oats</u>	
<u>Grain (at 85% dry matter): cwt per acre</u>	
39.4	42.4

Oats, grain, mean dry matter % as harvested, Highfield: 76.5
 Fosters: 76.6

63/B/1.20

Cut grass. Dry matter: cwt per acre

	Highfield Mean	Fosters Mean
3rd year (4 cuts)	62.8	63.6

Lucerne. Dry matter: cwt per acre

	Highfield			Fosters		
	Dung to potatoes 1961: tons per acre			Dung to potatoes 1961: tons per acre		
	None	12	Mean	None	12	Mean
1st year (2 cuts)	44.5	49.7	47.1	44.0	46.4	45.2
2nd year (3 cuts)			61.3			76.8
3rd year (3 cuts)			39.0			46.3

63/B/1.21

Grazed ley. Dry matter: cwt per acre

	Highfield Mean	Fosters Mean
3rd year	35.4	31.0

All-grass ley. Dry matter: cwt per acre

	Highfield			Fosters		
	Dung to potatoes 1961: tons per acre		Mean	Dung to potatoes 1961: tons per acre		Mean
	None	12		None	12	
1st year (4 cuts)	63.8	63.3	63.6	61.5	65.8	63.7
2nd year (Highfield 2 cuts) (Fosters 5 cuts)			23.2			83.9

Clover-grass ley. Dry matter: cwt per acre

	Highfield			Fosters		
	Dung to potatoes 1961: None 12		Mean	Dung to potatoes 1961: None 12		Mean
1st year (4 cuts)	41.7	41.3		41.5	35.8	
2nd year (5 cuts)			66.6			71.0

63/B/1.22

Permanent grass, cut for silage

Dry matter: cwt per acre

	N: cwt per acre (per cut)		Mean
	None(1)	0.6(2)	
	<u>Highfield</u>		
13th exptl. year			
Blocks 9 and 12	47.6	81.9	64.8
Blocks 10 and 11	48.2	85.4	66.8
14th exptl. year			
Blocks 5 and 8	42.9	84.4	63.6
Blocks 6 and 7	45.9	87.6	66.7
15th exptl. year			
Blocks 1 and 4	53.1	86.2	69.6
Blocks 2 and 3	46.6	85.6	66.1

(1) 'Clover-grass' management

(2) 'All-grass' management

63/B/1.23

Reseeded grass. Dry matter: cwt per acre

	Highfield			Fosters		
	N: cwt per acre (per cut)		Mean	N: cwt per acre (per cut)		Mean
	None(1)	0.6(2)		None(1)	0.6(2)	
13th exptl year	47.0	95.9	71.5	43.5	87.8	65.7
14th exptl year	48.6	90.8	69.7	52.0	91.0	71.5
15th exptl year	52.9	91.1	72.0	55.0	90.8	72.9

	Cut for silage Mean	Grazed estimated from sampling cuts Mean
	<u>Highfield</u>	
14th exptl year		
Block 5		52.6
Block 8	30.7	20.2*
15th exptl year		
Block 2		36.6
Block 3	31.1	15.4*
	<u>Fosters</u>	
14th exptl year		
Block 7		37.1
Block 5	25.1	20.6*
15th exptl year		
Block 4		26.1
Block 2	31.6	18.9*

*Aftermath grazing.

(1) 'Clover-grass' management

(2) 'All-grass' management

