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Yields of the Field Experiments 1952

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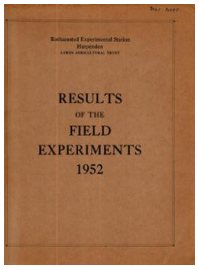

52/BC/1 Ley and Arable Rotations - Rothamsted

Rothamsted Research

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LEY AND ARABLE ROTATIONS

Highfield and Fosters Field 1952 - the 4th year.

This experiment was started in autumn 1948 for cropping in 1949 on two fields, Highfield previously old grassland, and Fosters previously old arable. The cropping treatments tested are:

1. Three year ley grazed by sheep.
2. Three year cut grass, as for drying.
3. Three year lucerne, cut as for hay.
4. Three year arable rotation of hay, potatoes, barley.

The three test crops which follow all the above four cropping treatments are. Wheat in the first year, potatoes in the second and barley in the third. Outside this sequence of treatment and test crops there are permanent grass treatments of old grass and of reseeded grass on Highfield and of reseeded grass only on Fosters. All the permanent grass plots are grazed with sheep for two years and hayed on the third. The experiment on Highfield is set out in blocks of 6 plots and on Fosters in blocks of 5 plots each. The cropping in the 6 plot blocks on Highfield for the first six year cycle is illustrated by the following table.

Phase		Plots					
A	B	(1)	(2)	(3)	(4)	(5)	(6)
1949	1952	L	Lu	CG	H	G	R
1950	1953	L	Lu	CG	P	G	R
1951	1954	L	Lu	CG	B	G	R
1952	1949	W	W	W	W	G	R
1953	1950	P	P	P	P	G	R
1954	1951	B	B	B	B	G	R

L = 3 year ley Lu = Lucerne CG = Cut grass
G = Old permanent grass R = Reseeded grass B = Barley
H = 1 year arable hay. P = Potatoes W = Wheat

Hay = 1 cut then fallow. Lucerne: cut for hay.
Cut grass: Several cuts. Ley: Grazed with sheep.
Reseeded and old grass: Grazed 2 years with sheep, hay with aftermath grazing in the 3rd year.

In the first year (1949) two blocks were started in phase A (treatment crops followed by test crops) and a further two blocks in phase B which is 3 years behind phase A, starting with the three test crops before the treatment crops. The arrangement is the same for Fosters except that there is no treatment G.

In 1950 an exactly similar set of four blocks were started on each field, and again in 1951, when all six stages of all the rotations were represented in duplicate.

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In 1952 the fertility effects built up by the leys, lucerne and other treatment crops, can be measured for the first time on the test crops of wheat on two blocks on each field.

Treatment and basal dressings: Tests are made on nitrogen and dung as follows:

Nitrogen: 2 levels appropriate to the crop (none to lucerne) are applied to the treatment crops, and the effects of the treatment crop grown at each level is measured at two levels of nitrogen in the subsequent test crops. Nitrogen is applied as sulphate of ammonia to potatoes and as nitrochalk to the other crops according to the following schedule, which also shows the basal dressing applied.

Dung: None: 12 tons per acre applied in the ridges to potatoes both in the arable rotation and to the test crop. It is applied to quarter plots to test all combinations of (0 v.D) x (N_1 v.N_2).

Crop	Crop Symbol	Treatments cwt. N per acre as Nitrochalk N_1		N_2	Basal dressing per acre
1st year Lucerne	Lu_1	-		-	
1st year Cut Grass	Cg_1	0.15	(a)	0.3	0.6 cwt.P_2O_5 0.6 cwt.K_2O in seedbed
1st year Grazed Ley	L_1	0.075	(b)	0.15	
2nd year Lucerne	Lu_2	-		-	
3rd year Lucerne	Lu_3	-		-	
2nd year Cut Grass	Cg_2	0.15	(a)	0.3	
3rd year Cut Grass	Cg_3	0.15	(a)	0.3	
2nd year Grazed Ley	L_2	0.075	(b)	0.15	0.3 cwt.P_2O_5 0.3 cwt.K_2O in winter
3rd year Grazed Ley	L_3	0.075	(b)	0.15	
Reseeded and Old Permanent Grass 1st and 2nd years	R G	0.075	(b)	0.15	
Reseeded and Old Permanent Grass 3rd year	R G	0.15	(b)	0.30	0.6 cwt.P_2O_5 0.6 cwt.K_2O in winter
Wheat	W	0.3		0.6	0.15 cwt.P_2O_5 0.15 cwt.K_2O Combine drilled with the seed
Barley	B	0.2		0.4	0.15 cwt.P_2O_5 0.15 cwt.K_2O Combine drilled with the seed
1 year Seeds Hay	H	0.3		0.6	0.15 cwt.P_2O_5 0.15 cwt.K_2O in winter
Potatoes	P	0.5	(c)	1.0	0.9 cwt.P_2O_5 0.9 cwt.K_2O in ridges
		0vD (12 tons dung per acre)			

For footnote of (a), (b) and (c) see next page.

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A suitable dressing of calcium carbonate will be applied every 6 years before the Test Barley crop.

(a) 1st dressing of N_1 and N_2 in spring. Repeated dressings of N_1 and N_2 at the same rates after the 1st, 2nd, 3rd, 4th etc.cuts (not the last).
(b) 1st dressing of N_1 and N_2 in spring. A second dressing at the same rates later in the summer (in third year after hay is cut).
(c) N as sulphate of ammonia to Potatoes only.

The basal dressing is applied as a Granulated Compound containing 13% P_2O_5, 13% K_2O.

Sheep Grazing Technique. This has been modified since the experiment started, the present scheme being as follows:

The grazing unit is a half plot of about 1/25 acre. This is presented to the sheep as two or more folds, the team being of such a size that it will graze a single fold to about the level of the sample cut (2") in one day. The intention is to provide fresh untainted grazing every day, leaving the grazed area as a run back. To equalize conditions between the folds within one sub plot, the order of grazing the folds is reversed at every cycle, i.e. the fold which was grazed first on one cycle is grazed last on the next.

Quarter plot area: 0.0220 acre.

Areas harvested (acres): Wheat: 0.0187. Potatoes: 0.0174. Barley: Highfield - 0.0198, Fosters:- 0.0187. Hay, Cut Grass: 0.0199. Grazed ley, Permanent grass, Reseeded: ½ plot - 0.0398. Cut grass 0.000979. Lucerne: ½ plot - 0.0398.

Cultivations, etc:

Highfield

Wheat (Blocks 2 and 3). Ploughed: Oct 4, 1951. Seed drilled at 3 bushels per acre with basal fertilizers: Oct 20. Nitrochalk applied: Apr 30, 1952. Harvested: Aug 1. Variety: Yeoman.

Potatoes (Blocks 9-12). Ploughed: Sept 7, 1951 and again Feb 7, 1952. Ridged, dung, sulphate of ammonia and basal fertilizers applied, potatoes planted: Apr 30. Earthed up: July 9. Sprayed with copper sulphate solution 5 lb per acre, medium volume: Aug 12 and Sept 6. Sprayed with 20% sulphuric acid: Oct 8. Lifted: Oct 16. Variety: Majestic.

Barley (Blocks 5-8). Ploughed: Jan 22, 1952. Ground chalk applied to Blocks 6 and 7: Feb 28. Seed drilled at 3 bushels per acre with basal fertilizers: Feb 29. Nitrochalk applied: Mar 1. Harvested: July 29. Variety: Plumage Archer.

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Cut Grass, Grazed Ley, Lucerne and all 1st year (Blocks 1 and 4). Ploughed: Oct 4, 1951. Basal fertilizers applied: Apr 5, 1952. Nitrochalk applied (none to Lucerne): Apr 18.

Cut Grass. Seeds sown at 38 lb per acre: Apr 19. Cut: 3 times - July 21, Sept 3 and Sept 27. Nitrochalk applied after each cut except the last.
Grazed Ley. Nitrochalk applied: June 28. Grazed: 6 circuits plots 11-12, 5 circuits 45 and 46.
Lucerne. Seed drilled at 33 lb per acre: Apr 19. Cut twice: July 21 and Sept 11. Variety: Du Puits.

Hay 1st year (Blocks 1 and 4). Seeds sown at 38 lb per acre: Apr 18, 1951. Basal fertilizers applied: Dec 20. Nitrochalk applied: Mar 27, 1952. Cut: June 8.

Reseeded grass 4th year (Blocks 1-4). Basal fertilizers applied: Dec 20, 1951. Nitrochalk applied: Mar 27, 1952. Cut: May 15. Nitrochalk applied: June 18. Grazed: 4 circuits, May 29 - Sept 22.

Permanent grass (Blocks 1-4). Basal fertilizers applied: Dec 20,1951. Nitrochalk applied: Mar 27, 1952. Pre-grazing cut: May 15. Nitrochalk applied: June 18. Grazed: 3 circuits, May 29-Sept 26.

Cut Grass, Grazed Ley, Lucerne, Reseeded Grass all 2nd year. Permanent Grass (Blocks 9 and 12, Reseeded and Permanent Grass 9-12). Basal fertilizers applied: Dec 20. Nitrochalk applied (none to Lucerne): Mar 27.

Cut Grass. Cut: 5 times - May 16, June 16, July 21, Sept 3 and Sept 26. Nitrochalk applied after each cut except the last.
Grazed Ley. Pre-grazing cut: May 13. Nitrochalk applied: June 18. Grazed: 4 circuits, May 21-Sept 14.
Lucerne. Cut: 3 times - June 11, July 21, Sept 10.
Reseeded Grass. Pre-grazing cut: May 13. Nitrochalk applied: June 17 and 28. Grazed:4 circuits, May 21-Oct 8.
Permanent Grass. Cut: May 14. Nitrochalk applied: June 28. Grazed: 4 circuits, May 21-Oct 12.

Cut Grass 3rd year (Blocks 5 and 8). Basal fertilizers applied: Dec 20, 1951. Nitrochalk applied: Mar 27, 1952. Cut: 5 times May 16, June 16, July 21, Sept 3, Sept 26. Nitrochalk applied after each cut except the last.

Grazed Ley. 3rd year (Blocks 5 and 8). Basal fertilizers applied: Dec 20, 1951. Nitrochalk applied: Mar 27, 1952. Pre-grazing cut: May 15. Nitrochalk applied: June 28. Grazed: 4 circuits, May 25-Sept 12.

Lucerne 3rd year (Blocks 5 and 8). Basal fertilizers applied: Dec 20, 1951. Cut: 3 times, June 11, July 21, Sept 10.

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Reseeded grass. 3rd year (Blocks 5-8). Basal fertilizers applied: Dec 20, 1951. Ground chalk applied to Blocks 6 and 7: Feb 28,1952. Nitrochalk applied: Mar 27. Cut: June 13. Nitrochalk applied: June 17. Grazed: 2 circuits, Aug 29-Sept 30.

Permanent grass. 3rd year (Blocks 5-8). Basal fertilizers applied: Dec 20, 1951. Ground chalk applied to Blocks 6 and 7: Feb 28, 1952. Nitrochalk applied: Mar 27. Cut: June 13. Nitrochalk applied: June 17. Grazed: 2 circuits, Aug 31-Oct 4.

Fosters

Wheat (Blocks 2 and 4). Ploughed: Oct 13, 1951. Seed drilled at 3 bushels per acre with basal fertilizer: Oct 20. Nitrochalk applied: Apr 29, 1952. Harvested: July 25. Variety: Yeoman.

Potatoes (Blocks 6, 10, 11, 12). Ploughed: Aug 28, 1951 and again Jan 22, 1952. Ridged, dung and artificials applied, potatoes planted: Apr 29. Earthed up: June 19. Sprayed with copper sulphate solution, 5 lb per acre: Aug 12 and again Sept 4. Sprayed with 20% sulphuric acid: Sept 23. Lifted: Oct 18. Variety: Majestic.

Barley (Blocks 5, 7, 8, 9). Ploughed: Jan 18, 1952. Seed drilled at 3 bushels per acre with basal fertilizers, nitrochalk applied: Feb 29. Sprayed with MCPA low volume, 5 pints per acre: May 10. Harvested: July 25. Variety: Plumage Archer.

Cut Grass, Grazed Ley, Lucerne, all 1st year (Blocks 1 and 3). Ploughed: Oct 3 , 1951 and again Jan 19, 1952. Basal fertilizer applied: Apr 5. Nitrochalk applied (none to Lucerne): Apr 17.

Cut grass. Seeds sown at 38 lb per acre: Apr 17. Topped: twice July 10 and 18. Cut twice: Sept 5 and 27. Nitrochalk applied: Sept 5.
Grazed Ley. Seeds sown at 55 lb per acre. Topped twice: July 10 and 18. Grazed: 3 circuits, June 3-Sept 14.
Lucerne. Seed drilled at 33 lb per acre: Apr 17. Cut: twice July 18 and Sept 11. Variety: Du Puits.

Hay 1st year (Blocks 1 and 3). Seeds sown at 38 lb per acre: Apr 18, 1951. Basal fertilizers applied: Dec 20. Cut: June 12, 1952.

Reseeded Grass 4th year (Blocks 1-4). Basal fertilizers applied: Dec 20, 1951. Cut: May 10, 1952. Nitrochalk applied: June 21. Grazed: 4 circuits, May 30-Sept 30.

Cut Grass 2nd year (Blocks 6 and 11). Basal fertilizers applied: Dec 20, 1951. Nitrochalk applied: Mar 26, 1952. Cut: 5 times May 19, June 16, July 18, Sept 4 and Sept 26. Nitrochalk applied after each cut except the last.

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Grazed Ley 2nd year (Blocks 6 and 11). Basal fertilizers applied: Dec 20, 1951. Nitrochalk applied: Mar 26, 1952. Pre-grazing cut: May 9. Nitrochalk applied: June 19. Grazed: 4 circuits, May 22-Sept 12.

Lucerne 2nd year (Blocks 6 and 11). Basal fertilizers applied: Dec 20, 1951. Cut: 3 times June 12, July 18 and Sept 9, 1952.

Reseeded grass 2nd year (Blocks 6, 10, 11, 12). Basal fertilizers applied: Dec 20. Nitrochalk applied: Mar 26. Pre-grazing cut: May 9. Nitrochalk applied: June 17. Grazed: 4 circuits, May 22-Oct 4.

Cut Grass 3rd year (Blocks 5 and 7). Basal fertilizers applied: Dec 20, 1951. Nitrochalk applied: Mar 26, 1952. Cut: 5 times May 19, June 16, July 18, Sept 4 and Sept 26. Nitrochalk applied after each cut except the last.

Grazed Ley 3rd year (Blocks 5 and 7). Basal fertilizers applied: Dec 20, 1951. Nitrochalk applied: Mar 26, 1952. Pre-grazing cut: May 10. Nitrochalk applied: June 27. Grazed: 4 circuits, May 26 to Sept 10.

Lucerne 3rd year (Blocks 5 and 7). Basal fertilizers applied: Dec 20, 1951. Cut: 3 times June 12, July 18 and Sept 9, 1952.

Reseeded grass 3rd year (Blocks 5, 7, 8, 9). Basal fertilizers applied: Dec 20, 1951. Nitrochalk applied: Mar 26, 1952. Pre-grazing cut: June 12. Nitrochalk applied: June 17. Grazed: 2 circuits, Aug 26-Sept 26.

Standard errors per $\frac{1}{4}$ plot

Wheat, grain.	Highfield:	2.49 cwt per acre or 6.5%	(13 d.f.)
	Fosters:	0.83 cwt per acre or 2.3%	(13 d.f.)
Potatoes, total tubers.			
	Highfield:	1.61 tons per acre or 12.8%	(21 d.f.)
	Fosters:	1.35 tons per acre or 10.7%	(21 d.f.)
Barley, grain.	Highfield:	2.34 cwt per acre or 8.3%	(21 d.f.)
	Fosters:	1.53 cwt per acre or 4.3%	(21 d.f.)

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Summary of Results

Wheat (1st Test Crop)

Grain: cwt per acre

cwt N per acre	Treatment crops for previous 3 years: Lucerne	Ley	Cut Grass	Arable with hay	Mean
		Highfield			
Mean (±0.88)	40.7	36.1	34.1	43.1	38.5
To Test Crop					
0.3 (±1.24)	42.6	37.0	37.0	44.0	40.1
0.6	38.9	35.2	31.1	42.3	36.9
Diff. (±1.76)	-3.7	-1.8	-5.9	-1.7	-3.2 (±0.88)
To Treatment Crops					
Single rate (±1.24)		35.7	34.4	43.2	37.8
Double rate		36.4	33.8	43.1	37.8
Diff. (±1.76)		+0.7	-0.6	-0.1	0.0 (±0.88)
		Fosters			
Mean (±0.29)	40.5	34.7	36.2	35.3	36.7
To Test Crop					
0.3 (±0.42)	40.1	33.5	35.8	33.6	35.8
0.6	41.0	35.8	36.5	37.1	37.6
Diff. (±0.59)	+0.9	+2.3	+0.7	+3.5	+1.8 (±0.29)
To Treatment Crops					
Single rate (±0.42)		34.8	36.5	35.1	35.5
Double rate		34.6	35.8	35.6	35.3
Diff. (±0.59)		-0.2	-0.7	+0.5	-0.2 (±0.29)

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Wheat (1st Test Crop)

Straw: cwt per acre

cwt N per acre	Treatment crops for previous 3 years: Lucerne	Ley	Cut grass	Arable with hay	Mean
		Highfield			
Mean	83.5	79.0	72.6	88.0	80.8
To Test Crop					
0.3	85.1	78.9	74.5	86.9	81.3
0.6	82.0	79.2	70.7	89.2	80.3
Diff.	-3.1	+0.3	-3.8	+2.3	-1.0
To Treatment Crops					
Single rate		77.8	72.2	87.3	79.1
Double rate		80.3	73.0	88.8	80.7
Diff.		+2.5	+0.8	+1.5	+1.6
		Fosters			
Mean	74.7	68.7	65.4	61.7	67.6
To Test Crop					
0.3	73.5	67.0	62.8	58.7	65.5
0.6	75.8	70.4	68.0	64.7	69.7
Diff.	+2.3	+3.4	+5.2	+6.0	+4.2
To Treatment Crops					
Single rate		69.1	65.4	61.5	65.3
Double rate		68.3	65.4	61.9	65.2
Diff.		-0.8	0.0	+0.4	-0.1

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Wheat (1st Test Crop)

Grain: cwt per acre

cwt N per acre	N: To previous treatment crop, Single rate	Double rate	Mean	Dung: tons per acre: To previous potato crop, None	12	Mean
Highfield						
To Test Crop	(±1.02)			(±1.76)		
0.3	39.2	39.4	39.3	44.9	43.1	44.0
0.6	36.3	36.1	36.2	42.1	42.5	42.3
Mean	37.8	37.8	37.8	43.5	42.8	43.1
	(±0.72)			(±1.24)		
To previous treatment crop				(±1.76)		
Single rate				43.0	43.4	43.2
Double rate				44.0	42.2	43.1
Mean				43.5	42.8	43.1
				(±1.24)		
Fosters						
To Test Crop	(±0.34)			(±0.59)		
0.3	35.0	33.6	34.3	35.4	31.9	33.6
0.6	35.9	37.1	36.5	36.6	37.5	37.1
Mean	35.5	35.3	35.4	36.0	34.7	35.3
	(±0.24)			(±0.42)		
To Previous treatment crop				(±0.59)		
Single rate				35.8	34.3	35.1
Double rate				36.2	35.1	35.6
Mean				36.0	34.7	35.3
				(±0.42)		

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Wheat (1st Test Crop)

Straw: cwt per acre

cwt N per acre	N: To previous treatment crop: Single rate	Double rate	Mean	Dung: tons per acre: To previous potato crop: None	12	Mean
Highfield						
To Test Crop						
0.3	79.9	80.2	80.1	88.0	85.8	86.9
0.6	78.2	81.2	79.7	83.7	94.7	89.2
Mean	79.1	80.7	79.9	85.8	90.3	88.0
To previous treatment crop						
Single rate				85.1	89.4	87.3
Double rate				86.6	91.1	88.8
Mean				85.8	90.3	88.0
Fosters						
To Test Crop						
0.3	63.9	61.7	62.8	63.3	54.1	58.7
0.6	66.7	68.7	67.7	59.6	69.9	64.7
Mean	65.3	65.2	65.3	61.4	62.0	61.7
To previous treatment crop						
Single rate				62.1	60.9	61.5
Double rate				60.7	63.0	61.9
Mean				61.4	62.0	61.7

N.B. There are no pages numbered 52/Bc/1.11 and 12.

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Potatoes (2nd Test Crop)

Dung: tons per acre	Highfield cwt N per acre 0.5	Highfield cwt N per acre 1.0	Highfield Mean	Fosters cwt N per acre 0.5	Fosters cwt N per acre 1.0	Fosters Mean
	Total tubers: tons per acre					
			(±0.402)			(±0.337)
None	11.32	12.31	11.81	11.51	11.91	11.71
	(±0.568)			(±0.447)		
12	12.60	13.88	13.24	13.48	13.66	13.57
Mean	11.96	13.09	12.53	12.49	12.79	12.64
	(±0.402)			(±0.337)		
	Percentage ware					
None	73.3	78.0	75.7	79.2	78.8	79.0
12	73.0	77.9	75.5	82.9	83.6	83.2
Mean	73.2	78.0	75.6	81.1	81.2	81.1

Barley (3rd Test Crop)

Dung to potatoes: tons per acre	Highfield cwt N per acre 0.2	Highfield cwt N per acre 0.4	Highfield Mean	Fosters cwt N per acre 0.2	Fosters cwt N per acre 0.4	Fosters Mean
	Grain: cwt per acre					
			(±0.58)			(±0.38)
None	27.2	26.4	26.8	34.5	35.6	35.1
	(±0.83)			(±0.54)		
12	30.5	29.0	29.8	35.4	36.5	35.9
Mean	28.9	27.7	28.3	34.9	36.1	35.5
	(±0.58)			(±0.38)		
	Straw: cwt per acre					
None	61.2	60.9	61.0	42.7	49.9	46.3
12	66.5	64.8	65.6	44.8	52.5	48.6
Mean	63.8	62.8	63.3	43.8	51.2	47.5

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One Year Hay

Dry Matter: cwt per acre

	Nitrogen to 3 previous test crops		Dung to Potatoes 1950 tons per acre		
	Single rate	Double rate	0	12	Mean
Highfield					
Nitrogen to Hay					
0.3 cwt	66.0	65.3	67.3	64.0	65.6
0.6 cwt	68.4	64.4	63.7	69.1	66.4
N to test crop					
Single rate			65.8	68.6	67.2
Double rate			65.2	64.5	64.8
Mean			65.5	66.6	66.0
Fosters					
Nitrogen to Hay					
0.3 cwt	62.5	62.4	60.4	64.5	62.5
0.6 cwt	67.3	60.5	61.7	66.1	63.9
N to test crop					
Single rate			63.9	66.0	64.9
Double rate			58.3	64.7	61.5
Mean			61.1	65.3	63.2

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Cut Grass

Dry Matter: cwt per acre

Nitrogen (1) to cut grass	Nitrogen to previous 3 test crops: Single rate	Nitrogen to previous 3 test crops: Double rate	Dung to potatoes 1950 tons per acre: 0	Dung to potatoes 1950 tons per acre: 12	Mean
1st year		Highfield			
Single rate	46.5	44.9	43.3	48.1	45.7
Double rate	44.5	47.9	46.0	46.4	46.2
N to test crops					
Single rate			43.6	47.5	45.5
Double rate			45.8	47.0	46.4
Mean			44.7	47.2	46.0

	N to cut grass (1) Single rate	N to cut grass (1) Double rate	Mean
2nd year (5 cuts)	56.4	63.1	59.8
3rd year (5 cuts)	49.2	57.4	53.3

Nitrogen (1) to cut grass	Nitrogen to previous 3 test crops: Single rate	Nitrogen to previous 3 test crops: Double rate	Dung to potatoes 1950: 0	Dung to potatoes 1950: 12	Mean
1st year		Fosters			
Single rate	11.7	10.0	11.0	10.7	10.8
Double rate	11.3	12.5	12.3	11.5	11.9
N to test crops					
Single rate			11.1	11.9	11.5
Double rate			12.2	10.3	11.2
Mean			11.7	11.1	11.4

	N to cut grass (1) Single rate	N to cut grass (1) Double rate	Mean
2nd year (5 cuts)	59.4	68.0	63.7
3rd year (5 cuts)	47.7	51.3	49.5

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

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Ley

Dry Matter: cwt per acre

	Cutting (1) Nitrogen (2) Single rate	Double rate	Mean	Grazing from sampling cuts Nitrogen (2) Single rate	Double rate	Mean
Highfield						
1st year				34.2	37.2	35.7
2nd year	27.3	27.2	27.3	25.2	27.1	26.1
3rd year	26.1	28.9	27.5	19.9	21.5	20.7
Fosters						
1st year				18.2	18.6	18.4
2nd year	19.6	19.7	19.7	21.0	21.6	21.3
3rd year	16.4	18.2	17.3	22.6	23.4	23.0

(1) Preliminary before grazing
(2) The nitrogen applied is 0.15 v. 0.3 cwt per acre in all for the preliminary cut and the grazing

Reseeded Grass

Dry Matter: cwt per acre

	Cutting Nitrogen (3) Single rate	Double rate	Mean	Grazing from sampling cuts Nitrogen (3) Single rate	Double rate	Mean
Highfield						
4th year grazing (1)	30.4	34.0	32.2	21.8	21.8	21.8
2nd year grazing (1)	22.3	26.1	24.2	27.1	27.6	27.3
3rd year hay	65.4	68.8	67.1	15.9 (2)	18.2 (2)	17.0
Fosters						
4th year grazing (1)	18.2	19.7	18.9	22.3	25.0	23.6
2nd year grazing (1)	14.2	17.3	15.8	25.1	24.8	25.0
3rd year hay	47.4	52.3	49.8	12.1 (2)	14.5 (2)	13.3

(1) Preliminary cut before grazing
(2) Aftermath grazing
(3) N for preliminary cut and grazing 0.15 v. 0.3 cwt in all
N for preliminary cut and hay 0.15 v. 0.3 cwt
N for preliminary cut and aftermath 0.15 v. 0.3 cwt.

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Permanent Grass

Dry Matter: cwt per acre

	Blocks	Cutting Nitrogen (3) Single rate	Double rate	Mean	Grazing from sampling cuts Nitrogen (3) Single rate	Double rate	Mean
		Highfield					
Grazing (1)	1-4	28.2	29.9	29.0	17.8	18.0	17.9
Grazing	9-12	11.2	12.6	11.9	25.7	27.7	26.7
Hay	5-8	50.1	54.6	52.4	13.2 (2)	14.5 (2)	13.9

(1) Preliminary cut before grazing (2) Aftermath grazing.
(3) N for preliminary cut and grazing 0.15 v. 0.3 cwt in all
N for preliminary cut and hay 0.15 v. 0.3 cwt
N for preliminary cut and aftermath 0.15 v. 0.3 cwt.

Lucerne

Dry Matter: cwt per acre

		Nitrogen to 3 previous test crops Single rate	Double rate	Mean	Nitrogen to 3 previous test crops Single rate	Double rate	Mean
1st Year (2 cuts)		Highfield			Fosters		
Dung to potatoes 1950	0	44.0	42.1	43.1	29.6	33.8	31.7
	12 tons	46.9	45.0	45.9	35.5	20.4	27.9
Mean		45.4	43.5	44.5	32.5	27.1	29.8
2nd year (3 cuts)		Mean = 81.5			Mean = 93.0		
3rd year (3 cuts)		Mean = 68.7			Mean = 102.9		