Numerical Results of the Field Experiments 1968

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Rotation Experiments

Rothamsted Research

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68/B/1.1

LEY AND ARABLE ROTATIONS

(HLA and FLA)

Highfield and Fosters Field 1968, the 20th year.

For details of treatments, rotations, etc. see 'Details' and 'Results' 63/B/1, 64/B/1, 65/B/1, 66/B/1 and 67/B/1.

Revised cropping: From 1968 the sequence of test crops has been changed to potatoes, winter wheat, barley. This new sequence started on blocks 6 and 7 (Highfield) and blocks 8 and 9 (Fosters). Apart from blocks 1 - 4 on each field, which are retained in the three year cycles of treatment and test crops, no further treatment sequences will be started. After three test crops, blocks will be sown to winter wheat each year. This scheme started on blocks 5 and 8 (Highfield) and blocks 5 and 7 (Fosters). Apart from blocks 1 - 4 on each field, old and reseeded grass is now ploughed up for test cropping as blocks enter either 1st or 4th test crop phase.

Manures to 1st test crop, potatoes:-

N to 1/8th plots: None (N0), 0.6 (N1), 1.2 (N2), 1.8 (N3) cwt as 'Nitro-Chalk' shortly before planting.

P2O5 to 1/16th plots (in cwt):

Sub plots without FYM (F): 1.95 (P0) v 2.85 (P1)

Sub plots with FYM (D): 1.50 (P0) v 2.40 (P1)

NOTE: In 1968 because of an excess application to Fosters Field the rates were revised for both fields as follows:

F sub plots: 2.85 (P0) v 3.75 (P1)

D sub plots: 2.40 (P0) v 3.30 (P1)

K2O to 1/16th plots (in cwt):

Sub plots without FYM (F): 1.80 (K0) v 2.70 (K1)

Sub plots with FYM (D): 0.90 (K0) v 1.80 (K1)

FYM to 1/4 plots: None (F) v 12 tons (D) applied on the plough furow and rotary cultivated in. No FYM is applied to the R and G plots coming into potatoes in 1968 and 1969, these plots being treated as F plots.

P and K are applied as superphosphate and muriate of potash except the 'dung equivalent' P and K (0.45 cwt P2O5 and 0.90 K2O) which is compound fertiliser (0:14:28). All are applied on the plough furrow and rotary cultivated in.

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Corrective K dressings to 1st test crop potatoes designed to bring the K levels on both fields to that of the Fosters LC plots, were ploughed in as muriate of potash in autumn 1967 as follows (in cwt):-

Rotation	Fosters	Highfield
AH	5.5	6.7
Lu	3.8	4.8
LC	None	0.6
LN	2.9	4.4
RC	None	None
RN	3.5	3.5
GC	None	None
GN	None	3.5

NPK dressings to 4th test crop, winter wheat:-

Basal dressing: 0.9 cwt P2O5, 0.9 cwt K2O as compound fertiliser (0:20:20) half combine drilled, half by hand.

Test nitrogen to 1/8th plots:

Highfield (all rotations): 0.3 (N1), 0.6 (N2), 0.9 (N3), 1.2 (N4) cwt N as 'Nitro-Chalk' in spring.

Fosters (all rotations): 0.4 (N1), 0.8 (N2), 1.2 (N3), 1.6 (N4) cwt N as 'Nitro-Chalk' in spring.

Varieties:

Potatoes, 1st Test Crop: King Edward
2nd Test Crop: Majestic
Barley, 3rd Test Crop: Maris Badger
Winter wheat, 4th Test Crop: Cappelle
Sugar Beet, 2nd Treatment Crop: Klein E
Oats, 3rd Treatment Crop: Manod

NOTE: Highfield: The fourth test crop wheat was severely attacked by take-all (Ophiobolus graminis) on both blocks, especially wheat after lucerne and arable rotations. The wheat on the 2 plots ploughed in autumn 1967 from old grass was badly damaged by wireworms (Agriotes spp.), wheat flea beetle larvae (genus Phyllotreta), and unidentified stem boring larvae.

HIGHFIELD

2nd year Treatment Crops:

All-grass ley: Basal PK compound applied: 20 Nov, 1967. NK compound applied: 28 Mar, 1968. Cut four times: 23 May, 26 June, 12 Aug, 25 Oct. NK compound applied after first three cuts.

Clover-grass ley: Basal PK compound applied: 20 Nov, 1967. Muriate of potash applied: 29 Mar, 1968. Cut four times: 24 May, 26 June, 12 Aug, 25 Oct. Muriate of potash applied after first three cuts.

Lucerne: Basal PK compound applied: 20 Nov, 1967. Sprayed with paraquat at 2 lb ion in 37 gals: 22 Jan, 1968. Cut four times: 30 May, 4 July, 29 Aug, 28 Oct.

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Sugar beet: Ploughed: 25 July, 1967. Ploughed second time: 18 Sept. Muriate of potash applied: 4 Jan, 1968. Basal NPK compound applied: 11 Mar. 'Nitro-Chalk' applied: 27 Mar. Seed drilled at 8 lb: 29 Mar. Singled: 21 May. Sprayed with demeton-s-metyl at 7 oz in 37 gals: 12 June, Lifted: 12 Dec.

3rd year Treatment Crops:

All-grass ley: Basal PK compound applied: 20 Nov, 1967. NK compound applied: 28 Mar, 1968. Cut four times: 23 May, 26 June, 12 Aug, 25 Oct. NK compound applied after first three cuts.

Clover-grass ley: Basal PK compound applied: 20 Nov, 1967. Muriate of potash applied: 29 Mar, 1968. Cut four times: 23 May, 26 June, 12 Aug, 25 Oct. Muriate of potash applied after first three cuts.

Lucerne: Basal PK compound applied: 20 Nov, 1967. Sprayed with paraquat at 2 lb ion in 37 gals: 22 Jan, 1968, at 0.9 lb ion in 37 gals: 12 July, at 0.75 lb ion in 20 gals: 10 Sept. Cut three times: 30 May, 4 July, 29 Aug.

Oats: Ploughed: 22 Nov, 1967. Seed combine drilled at 160 lb: 8 Mar, 1968. 'Nitro-Chalk' applied: 14 Mar. Combine harvested: 23 Aug.

1st Test Crop, Potatoes:-

Corrective K applied: 14 Nov, 1967. Ploughed: 20 Nov. All fertilizers applied: 1 - 10 Apr, 1968. FYM applied: 16 Apr. All plots following reseeded and permanent grass sprayed with aldrin at 3 lb in 37 gals, all plots rotary cultivated, potatoes machine planted: 17 Apr. Sprayed with paraquat at 0.5 lb ion plus linuron at 0.75 lb in 40 gals: 6 May. Grubbed: 6 June. Rotary ridged: 7 June. Sprayed with mancozeb three times at 1.2 lb in 37 gals, the second time including demeton-s-methyl at 3.5 oz: 3 July, 19 July, 5 Aug. Sprayed with undiluted BOV at 15 gals: 30 Aug. Lifted: 24 Sept.

2nd Test Crop, Potatoes:-

FYM applied: 30 Oct, 1967. Ploughed: 31 Oct. NPK fertilisers applied: 4 - 9 Apr, 1968. Rotary cultivated, potatoes machine planted: 10 Apr. Sprayed with paraquat at 0.38 lb ion plus linuron at 0.75 lb in 33 gals: 3 May. Grubbed: 6 June. Rotary ridged: 12 June. Sprayed with mancozeb three times at 1.2 lb in 37 gals, the second time including demeton-s-methyl at 3.5 oz: 3 July, 19 July, 5 Aug. Sprayed with undiluted BOV at 15 gals: 30 Aug. Lifted: 25 Sept.

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3rd Test Crop, Barley:-
Ground chalk applied, plots ploughed: 29 Sept, 1967. Seed combine drilled at 140 lb: 27 Feb, 1968. 'Nitro-Chalk' applied: 14 Mar. Sprayed with mecoprop at 42 oz and 2,4-D at 10.5 oz in 40 gals: 2 May. Combine harvested: 21 Aug.

4th Test Crop, Wheat:-
Ploughed: 30 Sept, 1967. Seed combine drilled at 180 lb: 23 Oct. Remaining half of basal PK compound applied by hand: 4 Dec. 'Nitro-Chalk' applied: 17 - 23 Apr, 1968. Sprayed with mecoprop at 42 oz and 2,4-D at 10.5 oz in 40 gals: 2 May. Combine harvested: 24 Aug.

Permanent grasses: 18th and 20th experimental years permanent (old) grass, blocks 1, 2, 4, 9, 10, 11, 12, 18th and 20th years reseeded grass, blocks 1, 4, 9 and 12. Ground chalk applied to blocks 9 and 12: 29 Sept, 1967. Basal PK compound applied: 20 Nov. NK compound applied to 'all grass' half plots, muriate of potash to 'clover grass' half plots: 28 Mar, 1968. Cut five times (except blocks 9 and 12 four times): 23 May, 26 June, 12 Aug, 5 Sept and (except blocks 9 and 12) 25 Oct. NK oompound and muriate of potash applied to appropriate half plots after each cut except the last (4 and 3 applications respectively).

FOSTERS

2nd year Treatment Crops:-
All-grass ley: Basal PK compound applied: 20 Nov, 1967. NK oompound applied: 28 Mar, 1968. Cut four times: 23 May, 1 July, 12 Aug, 25 Oct. NK compound applied after first three cuts.
Clover-grass ley: Basal PK compound applied: 20 Nov, 1967. Muriate of potash applied: 28 Mar, 1968. Cut four times: 23 May, 1 July, 12 Aug, 25 Oct. Muriate of potash applied after first three cuts.
Lucerne: Basal PK compound applied: 20 Nov, 1967. Sprayed with paraquat at 2 lb ion in 37 gals: 22 Jan, 1968. Cut four times: 30 May, 4 July, 30 Aug, 28 Oct.
Sugar beet: Ploughed: 25 July, 1967. Ploughed second time: 18 Sept. Muriate of potash applied: 4 Jan, 1968. Basal NPK compound applied: 11 Mar. 'Nitro-Chalk' applied: 27 Mar. Seed drilled at 8 lb: 29 Mar. Singled: 23 May - 4 June. Sprayed with demeton-s-methyl at 7 oz in 37 gals: 12 June. Lifted: 12 Dec.

3rd year Treatment Crops:-
All-grass ley: Basal PK compound applied: 20 Nov, 1967. NK compound applied: 28 Mar, 1968. Cut four times: 23 May, 1 July, 12 Aug, 25 Oct. NK compound applied after first three cuts.

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Clover-grass ley: Basal PK compound applied: 20 Nov, 1967. Muriate of potash applied: 28 Mar, 1968. Cut four times: 23 May, 1 July, 12 Aug, 25 Oct. Muriate of potash applied after first three cuts.

Lucerne: Basal PK compound applied: 20 Nov, 1967. Sprayed with paraquat at 2 lb ion in 37 gals: 22 Jan, 1968, at 0.9 lb ion in 37 gals: 9 July, at 0.75 lb ion in 20 gals: 30 Aug. Cut three times: 30 May, 4 July, 30 Aug.

Oats: Ploughed: 22 Nov, 1967. Seed combine drilled at 160 lb: 8 Mar, 1968. 'Nitro-Chalk' applied: 14 Mar. Combine harvested: 24 Aug.

1st Test Crop, Potatoes:-

Corrective K applied: 14 Nov, 1967. Ploughed: 17 Nov. Superphosphate and muriate of potash applied: 1 Apr, 1968. Superphosphate applied: 4 Apr. Dung equivalent PK compound, 'Nitro-Chalk', superphosphate and muriate of potash applied: 10 Apr. FYM applied, rotary cultivated, potatoes machine planted: 16 Apr. Sprayed with paraquat at 0.5 lb ion plus linuron at 0.75 lb in 40 gals: 6 May. Grubbed: 6 June. Rotary ridged: 7 June. Sprayed with mancozeb three times at 1.2 lb in 37 gals, the second time including demeton-s-methyl at 3.5 oz: 3 July, 19 July, 5 Aug. Sprayed with undiluted BOV at 15 gals: 30 Aug. Lifted: 24 Sept.

NOTE: Aldrin was not applied on Fosters.

2nd Test Crop, Potatoes:-

FYM applied, plots ploughed: 30 Oct, 1967. NPK fertilisers applied: 4 - 9 Apr, 1968. Rotary cultivated, potatoes machine planted: 10 Apr. Sprayed with paraquat at 0.38 lb ion plus linuron at 0.75 lb in 33 gals: 3 May. Grubbed: 6 June. Rotary ridged: 12 June. Sprayed with mancozeb three times at 1.2 lb in 37 gals, the second time including demeton-s-methyl at 3.5 oz: 3 July, 19 July, 5 Aug. Sprayed with undiluted BOV at 15 gals: 30 Aug. Lifted: 27 Sept.

3rd Test Crop, Barley:-

Ploughed: 25 Sept, 1967. Seed combine drilled at 140 lb: 27 Feb, 1968. 'Nitro-Chalk' applied: 14 Mar. Sprayed with mecoprop at 42 oz and 2,4-D at 10.5 oz in 40 gals: 2 May. Combine harvested: 21 Aug.

4th Test Crop, Wheat:-

Ploughed: 18 Sept, 1967. Seed combine drilled at 180 Lb: 19 Oct. Remaining half of basal PK compound applied by hand: 4 Dec. 'Nitro-Chalk' applied: 17 Apr. Sprayed with mecoprop at 42 oz and 2,4-D at 10.5 oz in 40 gals: 2 May. Combine harvested: 24 Aug.

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Permanent grasses:-

18th and 20th year reseeded grass, blocks 1, 3, 6 and 11. Basal PK compound applied: 20 Nov, 1967. NK compound applied to 'all-grass' half plots and muriate of potash to 'clover-grass' half plots: 28 Mar, 1968. Cut five times: 23 May, 26 June, 12 Aug, 5 Sept, 25 Oct. NK compound and muriate of potash applied to appropriate half plots after each cut except the last. (N.B. Plots on blocks 6 and 11 were ploughed up before the fifth cut was taken).

Standard errors per plot.

Potatoes: 2nd Test Crop. Total tubers:

Highfield: Sub plot: 1.137 or 6.9% (12 d.f.)

Fosters: Sub plot: 0.853 or 5.6% (12 d.f.)

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SUMMARY OF RESULTS

WHEAT 4TH TEST CROP

1962 - 1964

	Lu	LC	LN	AH	R	Mean	G
			GRAIN				
			HIGHFIELD				
Mean	24.6	34.0	33.8	28.6	35.6	31.3	25.2
1968							
NO	21.1	36.6	34.8	25.0	37.4	31.0	24.3
N1	24.2	33.4	34.3	28.8	36.7	31.5	27.4
N2	26.5	32.9	33.0	29.8	34.5	31.3	23.2
N3	26.5	33.0	33.1	30.9	33.7	31.5	25.8
1966							
F	25.6	32.6	34.6	30.2	35.3	31.7	
D	23.6	35.3	33.0	27.0	35.8	31.0	

General mean: 30.5
General mean D.M. %: 84.3

		FOSTERS				
Mean	40.4	39.7	40.0	37.9	40.3	39.7
1968						
NO	38.9	42.3	41.0	37.9	43.1	40.6
N1	42.4	40.3	43.3	39.5	41.7	41.4
N2	41.1	40.6	37.0	38.0	38.7	39.1
N3	39.2	35.5	38.8	36.0	37.8	37.5
1966						
F	39.8	40.7	39.6	38.5	40.3	39.8
D	41.1	38.7	40.4	37.2	40.3	39.5

Mean D.M. %: 82.9

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POTATOES 1ST TEST CROP. TOTAL TUBERS

1965 - 1967

HIGHFIELD

	Lu	LC	LN	AH	Mean	RC	RN	GC	GN	Mean
Mean	18.83	18.50	18.85	19.72	18.98	20.28	20.65	20.64	19.21	20.20
F	18.93	18.79	19.02	18.88	18.90					
D	18.72	18.21	18.69	20.57	19.05					
N0	19.89	19.65	19.72	16.43	18.92	21.93	22.19	20.92	22.73	21.94
N1	20.16	18.90	18.88	20.27	19.55	21.41	21.11	21.46	17.76	20.44
N2	17.72	18.06	18.53	20.91	18.81	19.45	21.65	21.46	19.12	20.42
N3	17.54	17.41	18.28	21.28	18.63	18.32	17.66	18.73	17.24	17.99
P0*	19.00	18.93	18.78	19.87	19.14	20.01	21.22	20.67	18.84	20.18
P1*	18.65	18.07	18.93	19.58	18.81	20.54	20.09	20.62	19.59	20.21
K0*	18.61	18.82	19.10	19.72	19.06	20.17	20.91	20.89	19.19	20.29
K1*	19.04	18.18	18.61	19.72	18.89	20.38	20.39	20.40	19.24	20.10

* In addition to basal

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POTATOES 1ST TEST CROP. % WARE

1965 - 1967

HIGHFIELD

	Lu	LC	LN	AH	Mean	RC	RN	GC	GN	Mean
Mean	92.8	93.7	92.7	92.1	92.8	92.4	91.9	91.8	92.2	92.1
F	93.0	93.8	93.0	92.2	93.0					
D	92.6	93.6	92.4	91.9	92.6					
N0	92.9	94.0	92.3	88.7	92.0	92.1	92.7	90.9	93.4	92.3
N1	93.3	93.8	92.7	92.6	93.1	92.9	92.4	92.4	92.4	92.5
N2	92.8	93.8	92.9	93.7	93.3	92.4	91.0	92.2	92.4	92.0
N3	92.1	93.2	92.8	93.3	92.9	92.2	91.6	91.6	90.6	91.5
P0*	92.8	93.9	92.8	92.1	92.9	92.4	92.4	92.0	92.6	92.4
P1*	92.8	93.5	92.5	92.0	92.7	92.4	91.3	91.6	91.7	91.8
K0*	92.6	94.1	92.5	92.6	93.0	93.1	91.9	91.9	92.3	92.3
K1*	93.0	93.3	92.8	91.6	92.7	91.7	91.9	91.6	92.1	91.8

* In addition to basal

68/B/1.10

POTATOES 1ST TEST CROP. TOTAL TUBERS

1965 - 1967

FOSTERS

	Lu	LC	LN	AH	Mean	RC	RN	Mean
Mean	18.74	19.44	20.31	18.13	19.15	19.22	20.21	19.71
F	18.98	18.37	19.92	17.21	18.62			
D	18.49	20.50	20.71	19.04	19.69			
N0	18.06	19.36	19.78	14.03	17.81	21.03	22.09	21.56
N1	19.91	19.95	20.82	18.35	19.76	19.53	20.23	19.88
N2	18.60	20.28	20.53	20.03	19.86	18.89	20.33	19.61
N3	18.38	18.16	20.12	20.11	19.19	17.41	18.18	17.80
P0*	18.54	19.49	20.51	18.12	19.16	19.23	20.12	19.68
P1*	18.93	19.39	20.12	18.13	19.14	19.20	20.29	19.75
K0*	18.65	19.50	20.56	18.44	19.29	19.89	20.26	20.08
K1*	18.82	19.37	20.07	17.81	19.02	18.54	20.15	19.35

* In addition to basal

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POTATOES 1ST TEST CROP. % WARE

1965 - 1967

FOSTERS

	Lu	LC	LN	AH	Mean	RC	RN	Mean
Mean	93.0	94.3	93.3	92.2	93.2	92.5	93.0	92.8
F	93.2	94.6	93.4	91.8	93.3			
D	92.8	94.0	93.2	92.6	93.2			
NO	93.5	94.6	93.4	88.2	92.4	93.5	93.3	93.4
N1	93.1	94.1	93.2	92.8	93.3	93.6	93.7	93.6
N2	93.3	94.9	93.1	93.7	93.7	92.1	93.2	92.6
N3	92.2	93.8	93.6	94.2	93.4	91.0	92.1	91.5
PO*	92.9	93.9	93.2	92.4	93.1	92.1	92.7	92.4
P1*	93.1	94.8	93.5	92.0	93.3	92.9	93.3	93.1
KO*	93.0	94.4	93.6	92.4	93.3	92.2	93.1	92.6
K1*	93.0	94.3	93.0	92.0	93.1	92.9	93.0	92.9

* In addition to basal

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POTATOES 2ND TEST CROP. TOTAL TUBERS

1964 - 1966

	Lu	LC	LN	AH	Mean
		HIGHFIELD			
Mean	16.68	16.11	16.78	16.16	16.43
		(±0.568)			(±0.284)
F	16.87	15.92	15.96	15.92	16.17
D	16.49	16.31	17.60	16.40	16.70
To wheat 1967					
		(±0.568)*			(±0.284)
N02	15.89	15.81	16.65	15.82	16.04
N13	17.47	16.42	16.91	16.49	16.82
		FOSTERS			
Mean	15.47	14.63	15.66	14.85	15.15
		(±0.426)*			(±0.213)
F	15.19	15.15	15.49	14.19	15.01
D	15.76	14.12	15.83	15.50	15.30
To wheat 1967					
		(±0.426)*			(±0.213)
N02	15.14	14.45	15.79	15.05	15.11
N13	15.81	14.81	15.52	14.64	15.20

* For use in vertical and interaction comparisons

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68/B/1.13

POTATOES 2ND TEST CROP. % WARE

1964 - 1966

	Lu	LC	LN	AH	Mean
			HIGHFIELD		
Mean	95.5	95.6	95.2	96.0	95.6
F	95.8	95.8	94.9	96.8	95.8
D	95.2	95.5	95.4	95.3	95.4
To wheat 1967					
N02	95.3	95.8	95.0	96.6	95.7
N13	95.6	95.5	95.3	95.5	95.5
			FOSTERS		
Mean	96.3	96.8	96.7	97.1	96.7
F	96.1	96.8	97.2	97.2	96.9
D	96.4	96.7	96.2	96.9	96.5
To wheat 1967					
N02	96.2	96.4	96.7	97.4	96.7
N13	96.3	97.1	96.7	96.7	96.7

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BARLEY 3RD TEST CROP

GRAIN

1963 - 1965

	Lu	LC	LN	AH	Mean
			HIGHFIELD		
Mean	40.3	41.9	41.0	38.4	40.4
1968					
N0	37.2	41.2	40.8	34.1	38.3
N1	40.8	42.0	39.6	37.0	39.8
N2	41.5	43.4	41.4	41.1	41.9
N3	41.8	41.0	42.4	41.5	41.7
1967					
F	39.0	41.5	41.0	38.4	40.0
D	41.7	42.3	41.1	38.4	40.9

Excluding AH

1968

1967	N0	N1	N2	N3	Mean
F	38.4	39.8	41.1	42.6	40.5
D	41.0	41.8	43.1	40.9	41.7

Mean D.M. %: 83.2

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68/B/1.15

BARLEY 3RD TEST CROP

GRAIN

1963 - 1965

	Lu	LC	LN	AH	Mean
		FOSTERS			
Mean	38.4	37.1	37.8	35.9	37.3
1968					
N0	32.7	34.4	33.3	28.9	32.3
N1	39.0	36.4	38.6	-	-
N2	41.1	40.0	39.4	37.4	39.5
N3	40.7	37.7	39.9	39.1	39.4
N4	-	-	-	38.1	-
1967					
F	37.8	36.9	36.8	35.3	36.7
D	39.0	37.4	38.7	36.4	37.9

Excluding AH

1968

1967	N0	N1	N2	N3	Mean
F	31.7	37.1	39.9	39.9	37.2
D	35.2	38.8	40.5	39.0	38.4

Mean D.M. %: 80.1

68/B/1.16

TREATMENT CROPS ARABLE AND HAY ROTATION

HIGHFIELD			FOSTERS		
AH	R	Mean	AH	R	Mean
		SUGAR BEET			
		ROOTS			
22.62	23.95	23.28	21.99	22.16	22.08
		SUGAR %			
15.3	14.8	15.0	15.8	15.3	15.5
		TOTAL SUGAR			
69.1	70.8	69.9	69.5	67.8	68.6
		TOPS			
17.85	22.05	19.95	18.21	22.69	20.45
		OATS			
		GRAIN			
31.5	37.0	34.2	39.2	40.2	39.7

Mean D.M. %: Oats, grain: Highfield: 82.5
Fosters: 81.4

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LUCERNE: DRY MATTER

	HIGHFIELD			FOSTERS		
	F	D	Mean	F	D	Mean
2nd year (4 cuts)	63.9	68.2	66.0	83.5	87.3	85.4
3rd year (3 cuts)	30.1	26.4	28.2	40.5	40.6	40.5

ALL-GRASS LEY: DRY MATTER

	HIGHFIELD			FOSTERS		
	F	D	Mean	F	D	Mean
2nd year (4 cuts)	100.9	99.0	99.9	101.5	100.3	100.9
3rd year (4 cuts)	94.9	97.0	96.0	103.2	109.7	106.4

CLOVER-GRASS LEY: DRY MATTER

	HIGHFIELD			FOSTERS		
	F	D	Mean	F	D	Mean
2nd year (4 cuts)	69.8	72.0	70.9	74.9	77.5	76.2
3rd year (4 cuts)	50.6	53.4	52.0	57.6	57.3	57.5

https://doi.org/10.23637/ERADOC-1-58

PERMANENT GRASS: DRY MATTER

	GC	GN	Mean
	HIGHFIELD		
18th Exptl year			
Blocks 9 and 12	35.5	95.2	65.4
Blocks 10 and 11	38.8	109.3	74.0
20th Exptl year			
Blocks 1 and 4	41.2	102.6	71.9
Block 2	39.3	107.7	73.5

RESEEDED GRASS: DRY MATTER

	HIGHFIELD				FOSTERS			
	RC	RN	Mean		RC	RN	Mean
18th Exptl year Blocks 9 and 12	39.4	97.0	68.2	18th Exptl year Blocks 6 and 11	51.7	85.8	68.8
20th Exptl year Blocks 1 and 4	51.4	99.4	75.4	20th Exptl year Blocks 1 and 3	56.6	100.3	78.5

(GC, RC) Clover-grass management
(GN, RN) All-grass management

https://doi.org/10.23637/ERADOC-1-58

LEY AND ARABLE ROTATIONS

(WLA)

Woburn Stackyard 1968 - the 31st year.

For history, treatments etc., see 'Details' 1967 and 'Results' 63/B/4, 64/B/4, 65/B/4, 66/B/4 and 67/B/4.

First test crop: Barley replaced sugar beet and received a basal application of 280 lb (0:20:20) combine drilled.

Corrective K dressings (in cwt K2O) as muriate of potash

	No FYM half plots	FYM half plots
Continuous rotations		
Ley	0	1
Sainfoin	3	3
Arable with hay	5	4
Arable	2	2
Alternating rotations		
Arable with hay/ley	0	0.5
Arable/sainfoin	5	3
Ley/arable with hay	5	3
Lucerne/arable	5	3

Nitrogen test on eighth plots: After arable rotations:
0.4 (N1), 0.8 (N2), 1.2 (N3), 1.6 (N4) cwt N as 'Nitro-Chalk' 21.
After ley and sainfoin:
None (N0), 0.4 (N1), 0.8(N2), 1.2 (N3) cwt N as 'Nitro-Chalk' 21.

First treatment crops: All plots received a basal application of 92 lb MgO as Epsom salts.

Potatoes: 1. Fumigant on quarter plots: None (0), 400 lb (F) chloropicrin.
2. Nitrogen on twelfth plots: 1.0 (N1), 1.5 (N2), 2.0 (N3).
3. Fungicide seed dressing on strips of 6 twenty-fourth plots: None (0), thiram (T) (about 15 lb per acre of dust (50% a.i.) applied to tubers before planting).

NOTE: The thiram dressed seed was chitted and the undressed seed was not chitted because of an error.

Cultivations, etc.:

Treatment crops.

Ley 1st year: Ploughed: 18 Sept, 1967. NPK applied: 29 Mar, 1968. Mg applied: 3 Apr. Seed sown at 40 lb: 11 Apr. NK applied: 9 July. Grazed 7 circuits: 17 June - 15 Oct.

https://doi.org/10.23637/ERADOC-1-58

Ley 2nd year: NK applied: 26 Mar, 1968, 26 June. Grazed 9 circuits: 28 Apr - 15 Oct.
Ley 3rd year: NK applied: 26 Mar, 1968, 17 June. Grazed 10 circuits: 19 Apr - 23 Oct.

Sainfoin 1st year: Ploughed: 18 Sept, 1967. N and K applied: 28 Mar, 1968. P applied: 29 Mar. Mg applied: 3 Apr. Seed drilled at 70 lb: 11 Apr. Cut once: 6 Aug.
Sainfoin 2nd year: N and K applied: 26 Mar, 1968. First cut: 6 June. Sprayed with paraquat at 0.38 lb ion in 30 gals: 10 June. Second cut: 12 Aug. Sprayed with paraquat at 0.38 lb ion in 30 gals: 14 Aug.
Sainfoin 3rd year: N and K applied: 26 Mar, 1968. First cut: 6 June. Sprayed with paraquat at 0.38 lb ion in 30 gals: 10 June. Rotary cultivated to kill having failed after first cut: 19 July. Sprayed with paraquat at 0.38 lb ion in 30 gals: Aug 14,

Potatoes: Ploughed: 18 Sept, 1967. Fumigant applied: 10 Nov. Mg applied: 3 Apr, 1968. PK applied: 4 Apr. Test nitrogen applied: 8 Apr. Rotary cultivated, potatoes planted: 10 Apr. Sprayed with linuron at 0.5 lb plus paraquat at 0.38 lb in 50 gals: 3 May. Grubbed: 1 June. Ridged: 14 June. Sprayed with mancozeb at 1.2 lb plus demeton-s-methyl at 3.5 oz in 38 gals: 12 July. Sprayed with mancozeb at 1.2 lb in 38 gals: 30 July, 6 Aug. Sprayed with undiluted BOV at 15 gals: 4 Sept. Lifted: 2 Oct.
Rye: Ploughed: 18 Sept, 1967. Seed combine drilled at 150 lb: 13 Oct. Seeds undersown (AH plots): 29 Mar, 1968. 'Nitro-Chalk' applied: 8 Apr. Combine harvested: 23 Aug.
Seeds hay: Seeds undersown in rye at 30 lb: 24 Apr, 1967. NPK applied: 26 Mar, 1968. NK applied: 18 June. Cut twice: 6 June, 12 Aug.
Carrots: Ploughed: 12 Oct, 1967. NPK applied: 5 Apr, 1968. Seed drilled at 3.5 lb: 11 Apr. Sprayed with linuron at 0.5 lb in 50 gals: 28 May. Sprayed with DDT at 0.5 pints in 20 gals: 30 May. Sprayed with menazon at 0.25 lb in 50 gals: 18 June. Lifted: 12 - 13 Nov.

Test crops.
Barley, 1st test crop: Half corrective K applied: 25 Oct, 1967. Ploughed: 13 Nov. Remaining corrective K applied: 13 Feb, 1968. Seed combine drilled at 140 lb: 6 Mar. Test 'Nitro-Chalk'

https://doi.org/10.23637/ERADOC-1-58

applied: 14 Mar. Sprayed with ioxynil/mecoprop (Actril C at 5 pints in 25 gals): 26 Apr. Combine harvested: 21 Aug.

Barley, 2nd test crop: Magnesian limestone applied at 45 cwt. Ploughed: 17 Nov, 1967. Seed combine drilled at 140 lb: 9 Mar, 1968. 'Nitro-Chalk' applied: 11 Mar. Sprayed with ioxynil/mecoprop (Actril C at 5 pints in 25 gals): 26 Apr. Combine harvested: 20 Aug.

Standard errors per plot.

Barley, 2nd test crop, grain:

Whole plot: 1.86 or 6.4% (4 d.f.)

Sub plot: 1.32 or 4.5% (4 d.f.)

https://doi.org/10.23637/ERADOC-1-58

68/B/2.4

SUMMARY OF RESULTS

TREATMENT CROPS

SAINFOIN, DRY MATTER

	1st cut	2nd cut	Total
	1ST YEAR		
D0	22.8		
D1	20.0		
LU*	22.6		
AH	20.2		
Mean	21.4		
Mean D.M. %:	15.3		
	2ND YEAR		
D0	45.3	16.8	62.1
D1	46.0	14.7	60.7
LU	42.6	13.7	56.3
AR	48.7	17.8	66.5
Mean	45.6	15.8	61.4
Mean D.M. %:	14.0	25.8	19.9
	3RD YEAR		
D0	46.8		
D1	44.8		
LU	44.6		
AH	46.9		
Mean	45.8		
Mean D.M. %:	14.0		

* Lucerne 1963 - 64, sainfoin 1965.

https://doi.org/10.23637/ERADOC-1-58

TREATMENT CROPS

POTATOES

	LE	LU**	AH	AR	Mean
			TOTAL TUBERS		
D0	19.76	20.16	12.97	14.83	16.93
D1*	19.05	19.99	14.74	15.55	17.33
0	17.78	18.12	8.53	9.05	13.37
F	21.02	22.02	19.18	21.33	20.89
N2	18.87	18.60	13.64	15.20	16.58
N3	18.98	20.99	14.40	15.46	17.46
N4	20.35	20.63	13.53	14.90	17.35
0	19.10	20.75	14.33	14.13	17.08
T	19.70	19.40	13.37	16.25	17.18
Mean	19.40	20.07	13.85	15.19	17.13
			% WARE		
D0	96.8	97.0	95.8	95.3	96.2
D1*	96.4	96.8	96.8	96.0	96.5
0	96.7	97.2	95.0	94.2	95.8
F	96.6	96.6	97.6	97.1	97.0
N2	96.6	96.5	96.0	95.7	96.2
N3	96.4	96.8	96.4	95.8	96.4
N4	96.9	97.3	96.4	95.6	96.5
0	96.7	97.2	96.7	95.0	96.4
T	96.6	96.6	95.8	96.3	96.3
Mean	96.6	96.9	96.3	95.7	96.4

https://doi.org/10.23637/ERADOC-1-58

TREATMENT CROPS

RYE

	GRAIN
D0	29.7
D1*	33.0
Ley	32.2
LU**	26.9
AH	36.0
AR	30.4
Mean	31.4

HAY

DRY MATTER

	1st cut	2nd cut	Total
1964			
D0	64.1	37.7	101.8
D1*	63.4	39.1	102.5
AH	64.3	37.8	102.1
LU	63.2	39.0	102.2
Mean	63.7	38.4	102.1

Mean D.M. %: Rye, Grain: 84.1

* FYM applied: Potatoes - for test crop sugar beet in 1966
Rye - for test crop sugar beet in 1965
Hay - for test crop sugar beet in 1963

** Lucerne 1963 - 64, sainfoin 1965.

68/B/2.7

CARROTS

	ROOTS	TOPS
1964		
D0	33.97	4.69
D1*	34.57	5.04
AR	34.06	4.09
Ley	34.48	5.64
Mean	34.27	4.86

* FYM applied for test crop sugar beet in 1964

https://doi.org/10.23637/ERADOC-1-58

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1ST TEST CROP

BARLEY

GRAIN

	N0	N1	N2	N3	N4
D0 Ley	31.7	28.0	25.8	23.1	-
SA	30.7	30.1	28.0	23.0	-
AH	-	31.5	27.3	22.9	24.2
AR	-	32.9	31.0	30.0	23.1
D1 Ley	34.4	29.1	20.8	22.8	-
SA	32.7	27.1	26.6	23.1	-
AH	-	32.0	27.6	22.7	23.9
AR	-	33.7	31.5	27.9	23.1

	Ley	SA	AH	AR	Mean
CON	26.4	28.0	26.8	29.4	27.7
ALT	27.5	27.4	26.2	28.9	27.5
Mean	27.0	27.7	26.5	29.2	27.6

Mean D.M. %: 80.4

68/B/2.9

1ST TEST CROP

BARLEY

STRAW

	N0	N1	N2	N3	N4
D0 Ley	37.5	36.5	31.5	38.5	-
SA	39.1	37.6	43.0	30.4	-
AH	-	33.0	36.6	38.2	31.5
AR	-	30.9	39.4	39.5	35.7
D1 Ley	30.8	39.7	42.0	25.0	-
SA	31.5	36.0	36.8	32.7	-
AH	-	40.5	40.5	27.4	31.4
AR	-	32.3	43.7	38.4	28.4

	Ley	SA	AH	AR	Mean
CON	36.1	36.4	35.1	34.9	35.6
ALT	34.2	35.4	34.7	37.2	35.4
Mean	35.2	35.9	34.9	36.0	35.5

Mean D.M. %: 79.5

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2ND TEST CROP

BARLEY

GRAIN

	Ley	SA	AH	AR	Mean
		(1) and (2)			(±0.47)
1967					
D0	29.1	28.8	31.1	30.4	29.9
D1	27.9	27.7	30.3	27.7	28.4
Mean (±1.32)	28.5	28.3	30.7	29.0	29.1

Mean D.M. %: 79.2

(1) (±1.47) For use in horizontal and diagonal comparisons only
(2) (±0.93) For use in vertical and interaction comparisons only

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REFERENCE PLOTS

ROTHAMSTED (R) GREAT FIELD IV AND HIGHFIELD IX

AND

WOBURN (W) STACKYARD SERIES C, 1968

(ERA, ERG, WERA and WERF)

For details of previous years' results and for rates of fertilisers, etc., see 'Results' 58/Bc/1, 59/Bc/1, 60/B/3, 61/B/2, 62/B/2, 63/B/2, 64/B/2, 65/B/2, 66/B/2 and 67/B/2. For conifer seedbeds and transplants see 63/B/2, 64/B/2, 65/B/2, 66/B/2, 67/B/2.

Great Field IV (R): A test of none v 44 lb Mg as magnesium sulphate is applied to half plots on potatoes (excluding additional plots).

Stackyard Series C (W): The test of manganese sulphate and magnesium sulphate to oats is discontinued. A test of none v 44 lb Mg as magnesium sulphate is applied to half plots on potatoes and sugar beet. Balancing dressings are applied to untreated half plots after harvest. The variety of oats is now Pendrwm.

Conifer seedbeds and transplants. Bed 2. Grand Fir (Abies grandis) replaced Norway Spruce (Picea abies) in both the transplants and seedbeds.

Cultivations, etc.:-

Great Field IV (R):-

Winter wheat: Plots dug by hand, P, K, Mg, Ca and S applied: 27 Sept, 1967. Seed drilled: 6 Oct. First N dressing applied (excluding additional plots): 1 Mar, 1968. Second N dressing applied, all N applied to additional plots: 24 Apr. Trace element spray applied: 26 Apr. Harvested: 29 Aug.

Kale: FYM applied, plots dug by hand: 13 Nov, 1967. P, K, Mg, Ca and S applied: 23 Feb, 1968. Plots rotary cultivated, seed drilled, first N dressing applied to additional plots: 27 Mar. N applied (excluding additional plots): 24 Apr. Second N dressing applied to additional plots: 23 May. Sprayed with dimethoate at 4 oz in 50 gals: 31 May. Trace element spray applied: 11 June. Sprayed with malathion, dimethoate and DDT (Pestex at 10 fluid oz in 50 gals): 11 July. Harvested: 18 Oct.

Barley: Dug by hand: 10 Nov, 1967. P, K, Ca, Mg and S applied: 23 Feb, 1968. Plots rotary cultivated, seed drilled: 8 Mar. N applied: 4 Apr. Trace element spray applied: 14 May. Harvested: 21 Aug.

Grass-clover ley: Undersown in barley: 14 Apr, 1967. P, K, Ca, Mg and S applied: 23 Feb, 1968. N applied: 1 Mar. Trace element spray applied: 18 Apr. Cut four times: 23 Oct, 1967, 31 May, 1968, 19 July, 3 Oct.

Potatoes: FYM applied, plots dug by hand: 15 Nov, 1967. P, K, Ca, Mg and S applied: 23 Feb, 1968. First N dressings applied to additional plots, all N applied to remaining plots, plots rotary cultivated, Mg applied to half plots, potatoes planted: 27 Mar. Second N dressing applied to additional plots: 23 May. Earthed up: 24 May. Sprayed with dimethoate at 4 oz in 50 gals: 31 May. Trace element spray applied: 11 June. Sprayed with malathion, dimethoate and DDT (Pestex at 10 fluid oz in 50 gals): 11 July. Sprayed twice with dimethoate, fentin acetate and maneb (Rogor 20W at 1.5 lb and Fennite at 1.5 lb in 80 gals): 15 July and 12 Aug. Lifted: Plots of main experiment with neither K nor FYM and no fertiliser plots of additional plots: 30 Aug, remainder: 24 Sept.

Permanent grass: FYM, P and K applied: 23 Feb, 1968. N applied, first dressing: 1 Mar, second: 20 May, third: 19 July. Cut three times: 20 May, 19 July, 3 Oct.

NOTES: (1) Yields of dry matter were obtained for each crop.
(2) The percentages of N, P and K, and on additional plots of N, P, K, Mg, Ca and S, were measured for each crop.
(3) The percentage of Mg was measured in potato tubers on the main experiment.

Stackyard Series C (W):-

Winter oats: Plots dug by hand: 20 Sept, 1967. P and K applied: 28 Sept. Seed drilled: 18 Oct. First N dressing applied: 12 Mar, 1968. Second N dressing applied: 30 Apr. Sprayed with ioxynil at 9 oz and mecoprop at 27 oz in 50 gals: 3 May. Harvested: 12 Aug.

Sugar beet: Balancing Mg applied to half plots: 5 Oct, 1967. FYM applied, plots dug by hand: 4 Dec. P and K applied: 22 Mar, 1968. First N dressing applied, plots rotary cultivated, Mg applied to half plots, seed drilled: 26 Mar. Singled, second N dressing applied: 5 June. Sprayed twice with malathion, dimethoate and DDT (Pestex at 10 fluid oz in 50 gals): 12 June and 3 July. Sprayed with dimethoate (Rogor 20W at 1.5 lb in 50 gals): 18 July. Harvested: 10 Oct.

Barley: Plots dug by hand: 5 Dec, 1967. P and K and first N dressing applied, plots rotary cultivated, seed drilled: 12 Mar, 1968. Second N dressing applied: 30 Apr. Harvested: 21 Aug.

Grass-clover ley: Undersown in barley: 16 Mar, 1967. N, P and K applied: 12 Mar, 1968. Cut four times: 18 Oct, 1967, 28 May, 1968, 18 July, 10 Oct.

Potatoes: FYM applied: 4 Dec, 1967. Plots dug by hand: 5 Dec. P and K applied: 22 Mar, 1968. First N dressing applied, plots rotary cultivated, potatoes planted, Mg applied to half plots: 28 Mar. Second N dressing applied, plots earthed up: 5 June. Sprayed with malathion, dimethoate and DDT (Pestex at 10 fluid oz in 50 gals): 12 June. Sprayed twice with dimethoate, fentin acetate and maneb (Rogor 20W at 1.5 lb and Fennite at 1 lb in 50 gals): 18 July and 12 Aug. Lifted plots with neither K nor FYM: 10 Sept, remainder: 23 Sept.

Permanent grass: FYM, first N dressing and P and K applied: 12 Mar, 1968. Second N dressing applied: 28 May. Third N dressing applied: 23 July. Cut three times: 28 May, 18 July, 10 Oct.

NOTES: (1) Samples were taken for determination of dry matter for each crop, and the percentage of N, P and K.
(2) The percentage of Mg in the leaves of sugar beet and in potato tubers was determined.
(3) Surface soil samples were taken from each block for a determination of soil pH.

Grazed Reference Plots (Highfield IX (R)):-

Cultivations, etc.: P and K fertilisers applied, ground chalk applied to appropriate plots: 6 Dec, 1967. First N dressings applied: 13 Mar, 1968. Sample cuts taken four times: 6 May, 27 June from 2 blocks, 1 July from remaining 2 blocks, 3 Sept, 28 Oct. Sampling cages moved after each cut. N dressing applied after each cut except the last.

NOTES: (1) The percentages of N, P and K in the dry grass were measured.
(2) Visual estimates were made of the percentage surface area covered by clover leaves.

Conifer seedbeds and transplants:

Bed 1: Formalin (250 ml. in 4 l. water per sq. yd.) applied: 18 Jan, 1968. All manures (other than N) dug in: 19 Mar. Seed sown: 28 - 29 Mar. T.V.O. pre-emergence spray: 22 Apr. N top dressed: 14 June, 12 July, 2 Aug, 13 Sept.

Bed 2: Seedbeds as for Bed 1. Transplants plots lined out: 28 - 29 Mar, 1968. All manures (other than N) as for seedbeds. N top dressed on transplants: 6 May, 14 June, 12 July, 2 Aug.

NOTES: (1) Height assessments and samples for analyses as in 1967.
(2) Plots lacking N, P, K and Mg had typical deficiency symptoms.

https://doi.org/10.23637/ERADOC-1-58

Standard errors per plot.

Highfield IX (R), Grass Dry matter:

1st cut:	3.51 or 20.3% (39 d.f.)
2nd cut:	4.14 or 9.8% (39 d.f.)
3rd cut:	3.81 or 10.8% (39 d.f.)
4th cut:	3.64 or 17.4% (39 d.f.)
Total of 4 cuts:	8.25 or 7.1% (39 d.f.)

Stackyard Series (C) W, Sitka Spruce Bed 1:

Mean height:	0.189 or 8.8% (11 d.f.)
Plant number:	92.7 or 10.6% (11 d.f.)

NOTE: In 1968 (and previous years) the sub plot tests of Mg and Mn are ignored in the tables. The figures presented are means over sub plot treatment.

https://doi.org/10.23637/ERADOC-1-58

SUMMARY OF RESULTS

GREAT FIELD IV (R): ORIGINAL PLOTS

Treatment	WINTER WHEAT: GRAIN	STRAW	KALE: TOTAL WEIGHT	BARLEY: GRAIN	STRAW	LEY: DRY MATTER 1st cut	2nd cut	3rd cut	4th cut	Total of 4 cuts	POTATOES: TOTAL TUBERS	PERMANENT GRASS: DRY MATTER 1st cut	2nd cut	3rd cut	Total of 3 cuts
None	23.8	31.5	9.38	20.9	17.3	0.7	16.3	7.3	4.4	28.7	4.24	8.3	15.6	14.5	38.4
N1	22.2	33.2	10.07	17.6	15.8	0.6	30.3	10.9	6.9	48.7	3.46	12.2	14.3	21.6	48.1
P	16.0	26.7	14.41	23.8	18.1	2.3	28.5	17.3	7.8	55.9	3.03	8.0	12.4	16.0	36.4
N1P	12.4	23.5	20.84	18.0	15.8	1.8	30.6	9.3	6.2	47.9	3.22	15.9	16.7	23.9	56.5
K	30.2	40.5	12.16	18.0	14.8	5.4	30.6	22.0	9.5	67.5	15.20	9.6	13.6	21.1	44.3
N1K	34.2	54.8	11.46	27.8	24.6	7.0	40.2	23.3	11.3	81.8	16.73	22.7	21.7	24.0	68.4
PK	33.6	48.7	12.50	25.5	19.3	7.9	39.8	23.3	10.7	81.7	16.88	12.9	18.6	19.9	51.4
N1PK	38.7	54.4	24.14	43.4	38.7	4.6	38.8	16.3	10.0	69.7	19.25	22.2	21.6	26.7	70.5
N2PK	42.2	65.4	31.42	42.8	45.9	4.2	50.6	13.8	14.4	83.0	23.39	35.6	24.4	21.0	81.0
D	38.7	53.6	20.32	29.8	22.8	9.2	38.8	31.1	16.1	95.2	23.73	28.7	19.6	27.5	75.8
N1PKD	44.7	69.8	34.20	42.2	42.1	3.6	45.0	18.9	15.7	83.2	26.87	40.1	24.0	31.4	95.5
N2PKD	41.5	72.6	39.58	43.5	54.0	2.3	52.0	18.0	14.7	87.0	31.04	45.3	26.1	27.2	98.6
Mean D.M. %:	83.1	77.2		83.3	76.6	19.3	20.8	20.9	19.4	20.1		23.2	24.8	21.7	23.2

68/B/3.5

GREAT FIELD IV (R): ADDITIONAL PLOTS

Treatment	WINTER WHEAT: GRAIN	WINTER WHEAT: STRAW	KALE: TOTAL WEIGHT	BARLEY: GRAIN	BARLEY: STRAW	LEY: DRY MATTER 1st cut	2nd cut	3rd cut	4th cut	Total of 4 cuts	POTATOES: TOTAL TUBERS
None	30.2	39.5	9.72	15.2	11.3	2.2	22.2	9.2	6.4	40.0	6.01
N2PK	49.6	73.4	37.33	43.3	40.1	6.2	52.8	16.3	17.4	92.7	22.54
N2 PK Mg Ca	45.2	69.5	36.46	44.9	45.3	7.6	44.2	20.7	15.9	88.4	18.84
N2 PK Mg S	50.6	65.4	36.46	46.6	47.1	6.3	48.2	17.3	18.6	90.4	17.50
N2 PK Ca S	49.6	71.2	28.82	45.6	45.4	4.7	53.6	20.4	18.1	96.8	19.29
N2 PK Mg Ca S	46.4	72.4	36.12	46.7	47.8	8.8	48.0	19.2	17.4	93.4	18.60
N2 PK Mg Ca S TE	48.7	67.4	37.16	48.9	43.8	6.3	48.4	18.6	16.3	89.6	20.10
Mean D.M. %:	83.8	81.4		84.1	82.2	17.0	22.3	21.6	18.4	19.8	

68/B/3.6

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68/B/3.7

STACKYARD SERIES C (W)

Treatment	OATS GRAIN	OATS STRAW	SUGAR BEET ROOTS	SUGAR %	TOTAL SUGAR	BARLEY GRAIN	BARLEY STRAW
None	17.5	15.8	4.78	14.2	13.6	11.9	12.1
N1	34.5	35.3	6.33	13.3	16.8	26.6	29.2
P	16.7	15.5	5.56	13.7	15.2	14.8	13.1
N1P	35.6	35.4	6.18	13.4	16.6	23.4	26.4
K	16.2	15.6	8.49	15.5	26.3	13.5	11.6
N1K	34.0	43.4	11.88	15.7	37.3	26.5	30.8
PK	16.8	16.6	8.64	15.5	26.8	13.3	11.5
N1PK	30.2	47.8	12.50	15.3	38.2	27.4	32.2
N2PK	38.7	59.6	13.43	14.8	39.8	28.4	44.6
D	21.6	18.6	14.66	15.8	46.3	20.7	18.8
N1PKD	34.5	50.1	14.82	15.4	45.6	25.4	40.6
N2PKD	34.2	72.2	19.91	15.4	61.3	26.5	37.6
Mean D.M. %:	78.1	53.2				82.2	68.5

https://doi.org/10.23637/ERADOC-1-58

68/B/3.8

STACKYARD SERIES C (W)

Treatment	LEY: DRY MATTER 1st cut	2nd cut	3rd cut	4th cut	Total of 4 cuts	POTATOES TOTAL TUBERS	PERMANENT GRASS: DRY MATTER 1st cut	2nd cut	3rd cut	Total of 3 cuts
None	3.3	14.6	15.6	10.5	44.0	4.16	14.9	7.7	13.0	35.6
N1	2.4	27.4	13.5	9.2	52.5	4.07	20.8	15.6	20.8	57.2
P	3.4	15.1	13.2	10.1	41.8	3.82	14.2	8.3	12.6	35.1
N1P	3.8	27.6	12.0	7.9	51.3	4.10	21.4	16.1	19.7	57.2
K	10.9	21.3	26.9	15.2	74.3	5.10	18.6	9.0	13.7	41.3
N1K	8.5	30.6	25.6	14.1	78.8	9.80	31.2	18.6	27.5	77.3
PK	12.0	14.7	23.3	16.6	66.6	7.96	21.1	9.9	14.3	45.3
N1PK	9.8	34.6	23.4	16.8	84.6	10.68	32.2	19.6	25.0	76.8
N2PK	6.3	43.2	15.7	14.9	80.1	15.31	36.2	21.1	28.4	85.7
D	10.9	19.9	23.5	15.5	69.8	16.20	29.7	9.9	16.6	56.2
N1PKD	10.1	38.2	24.5	15.9	88.7	22.73	38.8	17.8	30.8	87.4
N2PKD	7.4	45.8	21.2	15.4	89.8	27.76	45.7	25.5	33.0	104.2
Mean D.M. %:	17.5	19.4	22.5	19.1	19.6		19.0	24.1	20.9	21.3

https://doi.org/10.23637/ERADOC-1-58

68/B/3.9

STACKYARD C (W). Bed 1

SITKA SPRUCE

Treatment	MEAN HEIGHT: INCHES	PLANT NUMBER: PER SQ YARD
	(±0.134)	(±65.5)
None	1.68 (1)	890 (2)
PK Mg	1.34	870
NK Mg	1.43	867
NP Mg	1.81	927
NPK	1.82	828
NPK Mg	2.53 (1)	807 (2)
NPK Mg F	2.99	825
C	2.24	858
C NPK Mg	2.99	1008
L NPK Mg	2.73	951
Mean	2.15	877

(1) (±0.094) (2) (±46.4)

Bed 2 plots 1 - 6 (Transplant)

	O	A	B	Mean
	MEAN HEIGHT: INCHES			
SS	8.59	14.43	15.13	12.71
GF	6.55	7.66	8.93	7.72

https://doi.org/10.23637/ERADOC-1-58

68/B/3.10

Bed 2 Plots 7 - 12 Seed bed

	O	A	B	Mean
	MEAN HEIGHT: INCHES			
SS	1.10	2.63	2.78	2.17
GF	1.11	1.71	1.77	1.53
	PLANT NUMBERS: PER SQ YD			
SS	954	948	1146	1016
GF	588	690	726	668

https://doi.org/10.23637/ERADOC-1-58

68/B/3.11

HIGHFIELD IX (R)

GRASS: DRY MATTER

PK	1st cut (±1.75)	2nd cut (±2.07)	3rd cut (±1.90)	4th cut (±1.82)	Total of 4 cuts (±4.12)
NO 00	8.5	30.5	32.8	17.9	89.7
N1 00	13.7	40.3	36.7	20.8	111.5
A1 00	14.4	44.0	34.1	21.8	114.4
NO 10	11.5	33.5	31.5	18.4	95.0
N1 10	17.5	42.1	36.1	26.1	121.7
A1 10	22.7	44.2	34.1	23.3	124.3
NO 01	10.4	33.9	31.1	13.4	88.8
N1 01	20.3	46.3	35.0	20.1	121.7
A1 01	21.5	46.0	32.2	25.6	125.3
NO 11	8.2	33.0	35.3	16.7	93.3
N1 11	25.9	47.6	37.1	21.5	132.1
A1 11	24.1	46.4	39.1	23.9	133.4
N2 11	21.5	50.6	36.5	20.8	129.3
A2 11	21.9	52.7	40.0	22.4	136.9
Mean	17.3	42.2	35.1	20.9	115.5

Mean D.M. %: 1st cut: 17.4
2nd cut: 18.1
3rd cut: 16.8
4th cut: 13.6
Total of 4 cuts: 16.5

https://doi.org/10.23637/ERADOC-1-58

WOBURN MARKET GARDEN

(WMG)

Residues of organic manures, P and K on spring beans - Lansome I 1968.

For history (treatments) etc. see 'Details 1967' and 'Results' 63/B/5, 64/B/5, 65/B/5, 66/B/5 and 67/B/5.

Area of each plot: 0.0109. Area harvested: 0.0041.

Treatment symbols: (No manures applied 1968).

Farmyard manure:	10 (D1), 20 (D2) tons.
Sewage sludge:	10 (S1), 20 (S2) tons.
Sewage sludge/ straw compost:	10 (T1), 20 (T2) tons.
Vegetable compost:	10 (C1), 20 (C2) tons.
Peat:	12.5 (PT) tons.
PK fertiliser:	None (P0K0), 1.5 cwt P_2O_5, 1.5 cwt K_2O until 1967 (P1K1). 1.5 cwt P_2O_5, 3.0 cwt K_2O until 1964 on Series B and 1965 on Series A, then 3.0 cwt P_2O_5, 3.0 cwt K_2O on both until 1967 (P2K2).

Basal applications: Manures: None. Weedkiller: Simazine at 0.75 lb in 33 gals. Insecticide: Demeton-s-methyl at 3.5 oz in 37 gals.

Cultivations, etc.: Ploughed: 25 Nov, 1967. Seed drilled at 200 lb: 28 Feb, 1968. Weedkiller applied: 1 Mar. Insecticide applied: 17 June. Series B combine harvested: 20 Sept, Series A: 23 Sept. Variety: Tarvin.

https://doi.org/10.23637/ERADOC-1-58

68/B/4.2

SUMMARY OF RESULTS

GRAIN

SERIES A

Organic 1942-61*	Organic 1963-67	P0K0	P1K1	P2K2	Mean
0	0		35.1	32.2	33.6
S1	0		34.3**		
S2	0		35.7**		
T1	0		35.2**		
T2	0		35.1**		
D1	D1	34.0	32.5		33.3
D2	D2	34.9	32.6		33.7
C1	D1	33.2	36.0		34.6
C2	D2	32.1	35.5		33.8

General mean: 34.3
Mean D.M. %: 74.9

* Last applied to leeks 1961/62
** P1K1 until 1965

68/B/4.3

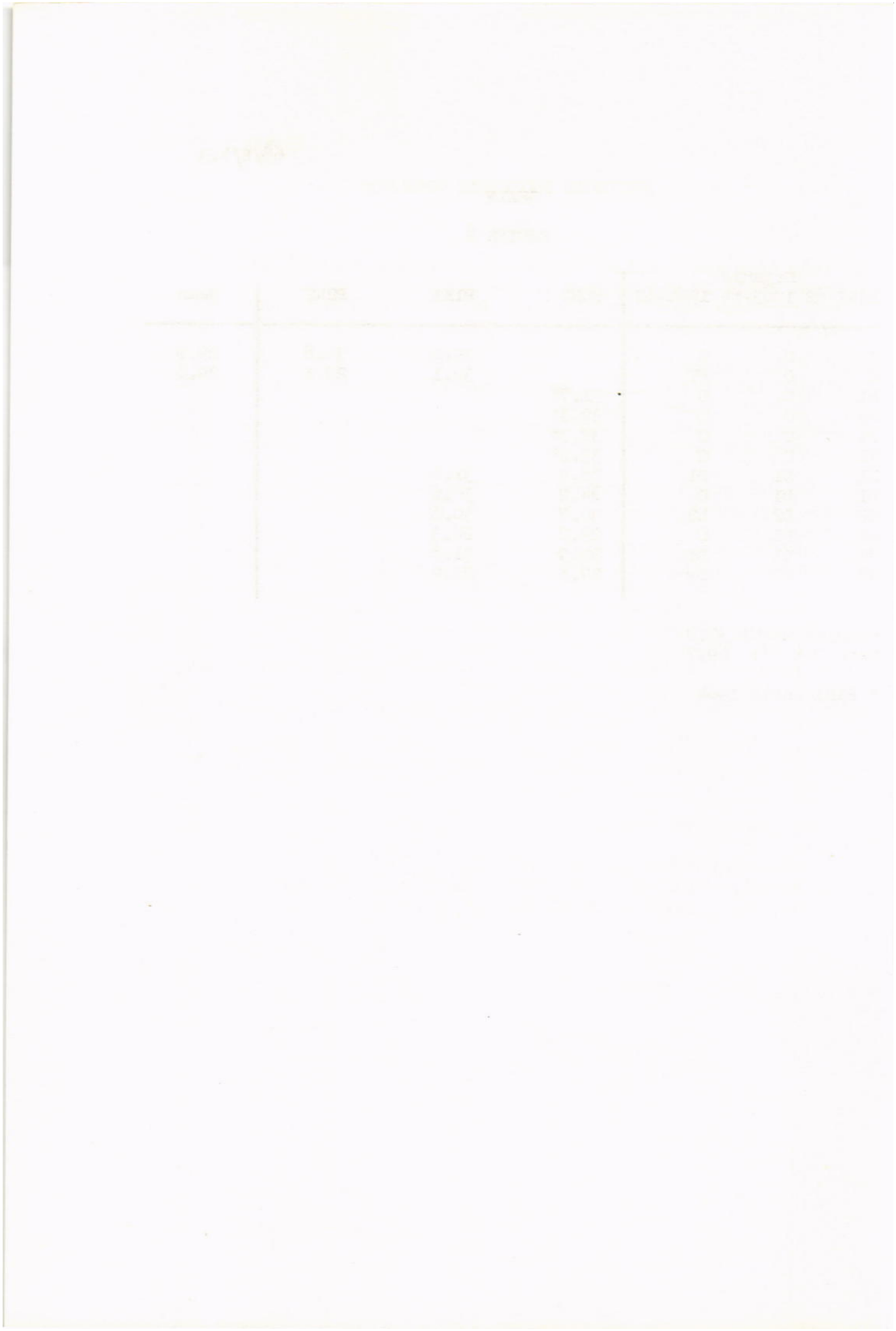
GRAIN

SERIES B

Organic 1942-62	1963-64	1966-67	P0K0	P1K1	P2K2	Mean
0	0	0		29.0	30.8	29.9
0	0	PT		30.1	29.1	29.6
S1	0	0	31.7*			
S2	0	0	32.3*			
T1	0	0	32.3*			
T2	0	0	33.2*			
D1	D1	D1	28.9	31.0		
D1	D1	0	34.2	30.6		
D2	D2	D2	30.7	30.6		
D2	D2	0	29.8	28.3		
C1	D1	D1	29.9	31.6		
C2	D2	D2	27.5	29.2		

General mean: 30.9
Mean D.M. %: 69.7

* P1K1 until 1964



68/B/5.1

RESIDUAL PHOSPHATE ROTATION

(RP)

The long term and residual effects of phosphate fertilisers - Great Field IV and Sawyers I, the 9th year. For treatments and previous years' results see 'Details' 1967 and 'Results' 67/B/6.

Area of each plot:
Great Field IV: 0.0193. Area harvested: Potatoes and barley - 0.0129, swedes - 0.0096.
Sawyers I: 0.0212. Area harvested: Potatoes and barley - 0.0141, swedes - 0.0106.

The basal nitrogen for barley is now 0.8 cwt N on Sawyers and 0.4 cwt N on Great Field IV, applied as 'Nitro-Chalk'.

Cultivations, etc. (both fields):- Ploughed: 20 Nov, 1967.
Potatoes: Fertilisers applied: 28 Mar, 1968. Plots rotary cultivated, potatoes planted: 28 Mar. Sprayed with paraquat at 0.38 lb ion and linuron at 0.75 lb in 36 gals: 3 May. Sprayed 3 times with mancozeb at 1.2 lb in 37 gals: 3 July, 19 July, 5 Aug. The spraying on 19 July included demeton-s-methyl at 3.5 oz. Sprayed with undiluted BOV at 15 gals: 30 Aug. Lifted: 2 Oct.
Barley: Fertilisers applied, seed drilled at 140 lb: 29 Feb, 1968. Combine harvested: 20 Aug.
Swedes: Fertilisers applied: 21 May, 1968. Seed drilled at 1.25 lb: 22 May. Singled: 26 June - 10 July. Lifted: 19 Nov.

Standard errors per plot.
Sawyers I:
Potatoes: 0.899 or 7.0% (11 d.f.)
Barley: 2.29 or 7.5% (11 d.f.)
Swedes: 1.586 or 12.9% (11 d.f.)

https://doi.org/10.23637/ERADOC-1-58

68/B/5.2

SUMMARY OF RESULTS

POTATOES

Treat-ment	TOTAL TUBERS Great Field IV Mean	TOTAL TUBERS Sawyers I Mean	PERCENTAGE WARE Great Field IV Mean	PERCENTAGE WARE Sawyers I Mean
		(±0.636)		
0	11.87	12.27	97.8	97.7
A1	12.91	13.30	97.2	97.8
A2	12.32	13.48	96.2	97.3
A3	13.41	14.46	97.5	96.7
A4	14.25	14.89	96.1	97.2
T1	10.26	9.97	95.4	96.5
T2	13.16	12.20	97.3	98.2
R2	12.12	12.90	96.7	97.5
R3	13.89	13.79	97.0	97.0
R4	15.23	14.81	97.4	97.0
G1	11.42	10.79	96.6	96.6
S1	12.39	11.76	96.6	97.8
Mean	12.77	12.88	96.8	97.3

BARLEY

	GRAIN		STRAW	
		(±1.62)		
0	25.4	27.6	31.4	35.3
A1	26.1	31.7	33.0	40.8
A2	25.8	33.5	33.6	50.1
A3	23.1	30.8	43.0	48.4
A4	24.9	31.0	32.5	45.0
T1	25.6	32.0	29.3	37.0
T2	26.8	31.4	32.1	38.2
R2	22.2	27.4	39.8	48.0
R3	26.6	33.4	44.8	44.4
R4	22.4	25.1	59.5	45.0
G1	27.6	32.2	27.5	37.2
S1	25.3	29.8	30.1	39.0
Mean	25.2	30.5	36.4	42.4
Mean D.M. %:	82.0	82.4	86.1	91.7

https://doi.org/10.23637/ERADOC-1-58

SWEDES, ROOTS

Treat -ment	Great Field IV Mean	Sawyers I Mean
		(±1.122)
0	8.20	3.05
A1	20.09	13.20
A2	21.30	15.15
A3	23.71	15.81
A4	19.77	15.36
T1	14.31	7.32
T2	18.34	10.57
R2	21.21	14.06
R3	22.04	17.76
R4	22.83	17.47
G1	15.37	7.93
S1	11.71	9.70
Mean	18.24	12.28

https://doi.org/10.23637/ERADOC-1-58

CULTIVATION - WEEDKILLER ROTATION

(CW)

Great Harpenden I 1968 - the 8th year

A comparison of weed-control by various cultivation methods and by pre-emergence weedkillers.

For previous history, rotations, treatments etc., see 'Results' 61/B/10, 62/B/10, 63/B/10, 64/B/9, 65/B/8, 66/B/7 and 'Details' 1967.

A comparison is now made of none v paraquat (G) applied to stubbles after beans, wheat and barley. This is made on half-plots, in all combinations with the test of O v H (post-emergence weedkiller to wheat and barley). The interaction (O v G) x (O v H) is confounded with blocks. Both tests are cumulative, except that in certain years H has been applied to all sub-plots. The first application of paraquat was in autumn 1967, at 0.75 lb ion in 32 gals.

NOTE: As in 1967 A and B plots after potatoes before barley received spring-tine cultivation and no other cultivations.

Area harvested: Beans - 0.0121, wheat, potatoes and barley - 0.0107.

Basal dressing to winter wheat: 2.5 cwt (6:15:15) combine drilled and 3 cwt 'Nitro-Chalk' in spring. All other crops as 1967.

Ground chalk: Spring beans - 23 cwt, winter wheat and potatoes - 46 cwt, barley - 92 cwt.

Cultivations, etc.:-

Spring beans: Paraquat applied to G sub-plots: 12 Oct, 1967. Ground chalk applied: 23 Nov. T plots deep-tine cultivated twice and B plots once: 24 Nov. P and C plots ploughed: 27 Nov. R plots rotary cultivated, depth 6 ins: 6 Dec. P,R,T, B and C plots spring-tine cultivated: 1 Mar, 1968. P,R, T and C plots spring-tine cultivated: 4 Mar. A plots rotary cultivated, seed drilled at 200 lb: 5 Mar. S plots sprayed: 8 Mar. M and C plots tractor-hoed three times: 26 Apr, 20 May and 31 May. Combine harvested: 11 Sept. Variety: Maris Bead.

Winter wheat: Paraquat applied to G sub-plots: 12 Oct, 1967. Ground chalk applied: 23 Nov. T plots deep-tine cultivated twice: 24 Nov. P, C and A plots ploughed: 27 Nov. P,T,A, B and C plots spring-tine cultivated twice, R plots rotary

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cultivated, seed drilled at 190 lb: 5 Dec. All plots harrowed: 25 Mar, 1968. 'Nitro-Chalk' applied: 12 Apr. H sub-plots and B plots sprayed with mecoprop at 42 oz and 2,4-D at 10.5 oz in 33 gals: 4 May. Combine harvested: 25 Aug. Variety: Cappelle.

Potatoes: Paraquat applied to G sub-plots: 12 Oct, 1967. Ground chalk applied: 23 Nov. T plots deep-tine cultivated twice: 24 Nov. P and C plots ploughed: 27 Nov. R plots rotary cultivated, depth 6 ins: 5 Dec. Basal compound fertiliser applied: 13 Mar, 1968. T plots deep-tine cultivated, P,C and R plots spring-tine cultivated (R plots in error), R plots rotary cultivated, P,C and T plots spring-tine cultivated. A and B plots rotary cultivated, potatoes machine planted: 29 Mar. M and C plots chain harrowed: 26 Apr. S plots sprayed: 3 May. M and C plots grubbed: 20 May, mechanically weeded: 24 May, rotary ridged: 28 May. M, C and Y plots grubbed: 7 June. M, C and Y plots rotary ridged: 12 June. All plots sprayed 3 times with mancozeb at 1.2 lb in 37 gals (the second time including demeton-s-methyl at 3.5 oz): 4 July, 19 July, 5 Aug. Sprayed with undiluted BOV at 15 gals: 30 Aug. Haulm destroyed mechanically 13 Sept. Lifted: 1 Oct.

Barley: All plots spring-tine cultivated twice and sprayed twice with sodium trichloroacetate at 18 lb in 32 gals: 28 Sept and 25 Oct, 1967. All plots spring-tine cultivated: 17 Nov. T plots deep-tine cultivated twice: 24 Nov. Ground chalk applied: 7 Dec. P and C plots ploughed, R plots rotary cultivated, depth 4 - 5 ins: 20 Dec. All plots spring-tine cultivated, seed drilled at 140 lb: 1 Mar, 1968. All plots rolled: 13 Mar. H sub-plots and B plots sprayed with mecoprop at 36 oz and 2,4-D at 9 oz in 33 gals: 4 May. Combine harvested: 21 Aug.

Standard errors per plot.

Spring beans:	Grain,	whole plot:	1.43 or 6.9% (8 d.f.)
		sub plot:	0.91 or 4.4% (8 d.f.)
Winter wheat:	Grain,	whole plot:	2.40 or 6.5% (8 d.f.)
		sub plot:	1.65 or 4.5% (8 d.f.)
Potatoes:	Total tubers,	Whole plot:	1.472 or 8.7% (8 d.f.)
		Sub plot:	0.887 or 5.3% (8 d.f.)
Barley:	Grain,	Whole plot:	2.80 or 7.9% (8 d.f.)
		Sub plot:	2.88 or 8.1% (9 d.f.)

68/B/6.3

SUMMARY OF RESULTS

SPRING BEANS

GRAIN

	P	R	T	Mean
Mean (±0.58)	22.3	21.2	19.9	21.1
M (±1.01)	22.9	20.4	21.1	21.5 (±0.58)
S (±0.71)	22.0	21.6	19.3	21.0 (±0.41)
		(1) and (2)		
O	22.4	20.4	20.4	21.1
G	22.2	22.0	19.4	21.2

(1) (±0.64) For use in horizontal and diagonal comparisons only
(2) (±0.37) For use in vertical and interaction comparisons only

A	AG	B	BG	C	CG
20.4	18.4	16.9	17.2	22.7	22.6

General mean: 20.8

Mean D.M. %: 76.9

https://doi.org/10.23637/ERADOC-1-58

68/B/6.4

WHEAT

GRAIN

	P	R	T	Mean
Mean (±0.98)	35.2	38.1	38.2	37.2
M (±1.70)	38.0	37.5	38.9	38.1 (±0.98)
S (±1.20)	33.9	38.5	37.9	36.7 (±0.69)
		(1) and (2)		
O	35.2	38.1	38.0	37.1
G	35.2	38.2	38.5	37.3
		(1) and (2)		
O	34.9	38.6	39.1	37.5
H	35.6	37.7	37.3	36.9

(1) (±1.09) For use in horizontal and diagonal comparisons only
(2) (±0.67) For use in vertical and interaction comparisons only

A	AG	AH	AGH	BH	BGH	C	CG
32.9	38.0	34.0	30.4	30.9	35.3	39.8	39.9

General mean: 36.8

Mean D.M. %: 83.2

68/B/6.5

POTATOES: TOTAL TUBERS

	P	R	T	Mean
Mean (±0.425)	18.19	15.72	16.59	16.84
		(±0.736)		(±0.425)
M	17.42	14.91	15.81	16.05
S	18.31	15.71	16.42	16.81
SY	18.83	16.55	17.55	17.65
		(1) and (2)		(±0.209)
O	18.12	15.47	16.24	16.61
G	18.25	15.98	16.95	17.06

A	AG	B	BG	C	CG
15.70	17.37	14.86	15.01	19.66	19.01

(1) (±0.496) For use in horizontal and diagonal comparisons only
(2) (±0.362) For use in vertical and interaction comparisons only

General mean: 16.86

https://doi.org/10.23637/ERADOC-1-58

68/B/6.6

POTATOES: % WARE

	P	R	T	Mean
Mean	98.9	98.9	98.9	98.9
M	98.9	98.7	98.8	98.8
S	98.8	98.8	98.9	98.8
SY	99.0	99.0	99.1	99.1
O	98.9	99.0	98.8	98.9
G	98.9	98.7	99.0	98.9

A	AG	B	BG	C	CG
99.0	99.2	98.8	99.2	98.8	99.1

General Mean: 98.9

https://doi.org/10.23637/ERADOC-1-58

68/B/6.7

BARLEY

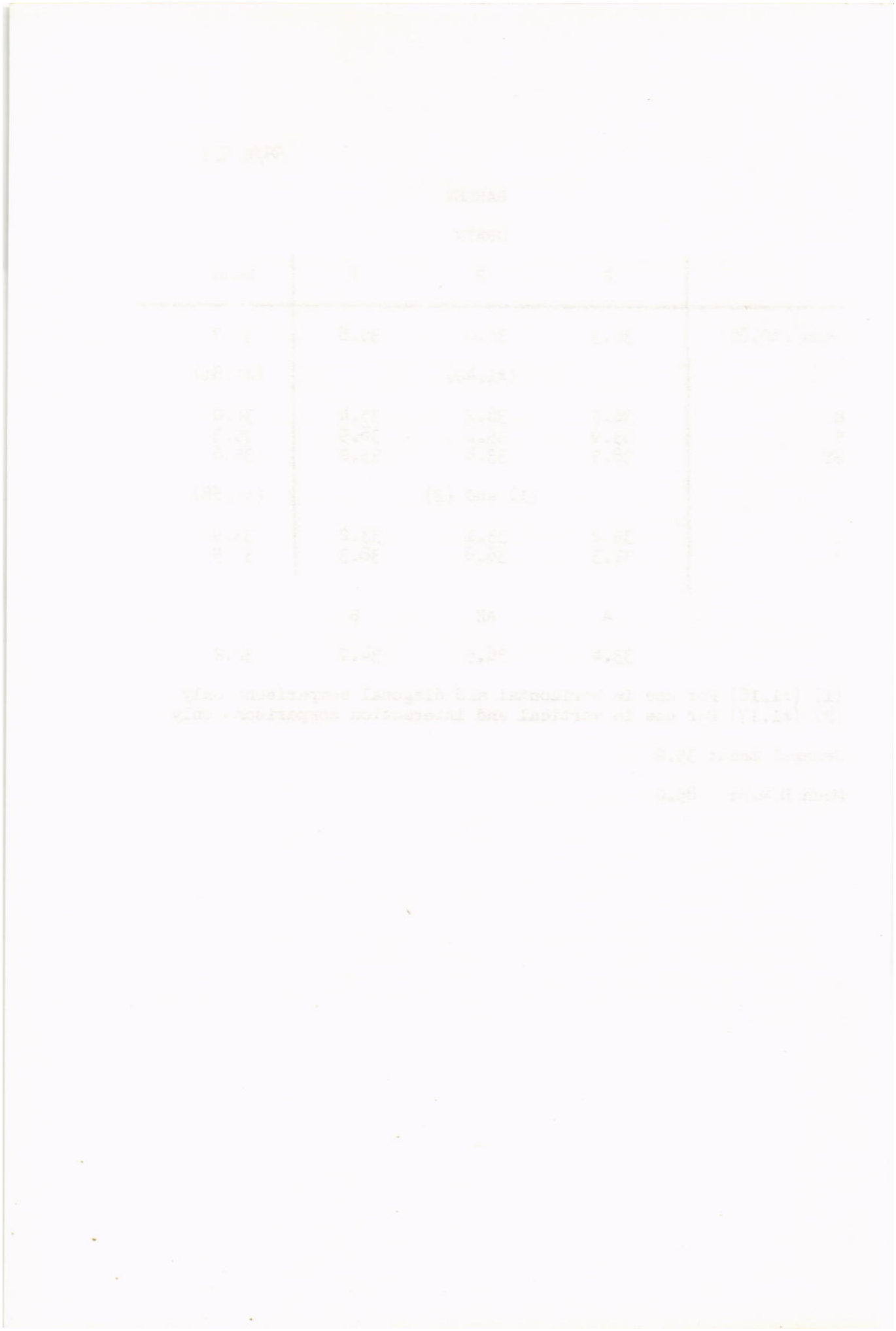
GRAIN

	P	R	T	Mean
Mean (±0.81)	36.3	35.0	35.8	35.7
		(±1.40)		(±0.81)
M	36.5	36.2	35.4	36.0
S	33.9	35.2	36.9	35.3
SY	38.5	33.4	35.0	35.6
		(1) and (2)		(±0.68)
O	35.2	33.1	33.2	33.9
H	37.3	36.8	38.3	37.5
	A	AH	B	C
	33.4	36.5	34.7	32.2

(1) (±1.16) For use in horizontal and diagonal comparisons only
(2) (±1.17) For use in vertical and interaction comparisons only

General mean: 35.2

Mean D.M.%: 85.0



INTENSIVE CEREALS

(WIC)

Woburn Stackyard Classical Site 1968 - the third year

For treatments, and previous years' results, see 'Results' 66/B/9 and 67/B/9.

Area of each sub-plot: 0.0103. Area harvested: Ley - 0.0022, wheat - 0.0033, barley - 0.0066, potatoes - 0.0034.

Wheat blocks only: A test of magnesium was introduced on eighth plots: None (0), 162 lb MgO as Epsom salts (MG).

Basal applications:

All crops: 1.0 cwt P_2O_5, 2.0 cwt K_2O, half ploughed in, half worked into the seedbed.
Potatoes: 1.2 cwt N as 'Nitro-Chalk'.
Ley: 0.4 cwt N as 'Nitro-Chalk'.

Cultivations, etc.:

All plots: Half PK applied: 14 Sept, 1967. Ploughed: 15 - 16 Sept.
Ley: Mg and remaining PK applied, seeds sown at 29 lb: 20 Sept. 'Nitro-Chalk' applied: 27 Mar, 1968. Cut twice: 5 June, 6 Aug.
Potatoes: Sprayed with paraquat at 0.5 lb in 33 gals on the permanent barley blocks: 2 Mar. Remaining PK, 'Nitro-Chalk', and Mg applied: 26 Mar. Rotary cultivated, potatoes planted: 27 Mar. Earthed up: 22 May. Grubbed, rotary ridged: 13 June. Sprayed with mancozeb at 1.2 lb plus demeton-s-methyl at 3.5 oz in 38 gals on the permanent wheat blocks only: 12 July. Sprayed with mancozeb at 1.2 lb in 38 gals: 18 July, 30 July. Sprayed with undiluted BOV at 15 gals: 4 Sept. Lifted: 24 Sept.
Wheat: Remaining PK and Mg applied, seed drilled at 170 lb: 13 Oct, 1967. 'Nitro-Chalk' applied: 9 Apr, 1968. Sprayed with ioxynil/mecoprop (Actril C at 6 pints in 25 gals): 25 Apr. Combine harvested: 22 Aug.
Barley: Sprayed with paraquat at 0.5 lb in 33 gals: 2 Mar. Remaining PK applied: 4 Mar. Seed drilled at 140 lb: 6 Mar. 'Nitro-chalk' applied 15 Mar. Sprayed with ioxynil/mecoprop (Actril C at 5 pints in 25 gals): 26 Apr. Combine harvested: 20 Aug.

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NOTE: (1) Estimates of eyespot (Cercosporella herpotrichoides) and take-all (Ophiobolus graminis) were made in May and June on barley and in April and July on wheat.

Standard errors per plot:

Ley, dry matter:	Wheat blocks 1/4 plot	
1st cut:	4.56	or 11.1% (4 d.f.)
2nd cut:	1.06	or 8.6% (4 d.f.)
Total of 2 cuts:	4.28	or 8.0% (4 d.f.)
Wheat, grain:		
1/4 plot:	2.02	or 8.4% (12 d.f.)
1/8 plot:	1.63	or 6.8% (16 d.f.)
Barley, grain:		
1/4 plot:	2.16	or 7.7% (12 d.f.)
Potatoes, total tubers:	Wheat blocks	
1/4 plot:	1.528	or 14.3% (4 d.f.)

68/B/7.3

SUMMARY OF RESULTS

LEY (C4)

PERMANENT WHEAT BLOCK

N in 1966

	N1	N2	N3	N4	Mean
		1ST CUT			
		(±3.22)*			(±1.61)
O	35.2	42.4	43.1	42.2	40.7
MG	39.5	40.3	41.7	44.5	41.5
Mean	37.3	41.4	42.4	43.4	41.1
		2ND CUT			
		(±0.75)*			(±0.38)
O	9.0	9.8	9.9	12.4	10.3
MG	14.3	14.2	14.1	14.4	14.3
Mean	11.7	12.0	12.0	13.4	12.3
		TOTAL OF 2 CUTS			
		(±3.02)*			(±1.51)
O	44.2	52.3	53.0	54.6	51.0
MG	53.8	54.5	55.8	58.9	55.8
Mean	49.0	53.4	54.4	56.8	53.4

Mean D.M. %: 1st cut: 22.7
2nd cut: 22.4
Total of 2 cuts: 22.5

* For use in vertical and interaction comparisons only

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68/B/7.4

LEY (C4)

PERMANENT BARLEY BLOCK

N in 1966

N1	N2	N3	N4	Mean
		1ST CUT		
49.7	46.0	46.6	46.9	47.3
		2ND CUT		
14.8	14.6	16.0	17.1	15.6
		TOTAL OF 2 CUTS		
64.4	60.6	62.6	64.0	62.9

Mean D.M. %: 1st cut: 22.7
2nd cut: 20.4
Total of 2 cuts: 21.6

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68/B/7.5

WHEAT (C1, C2, C3, C6)

GRAIN

Crop in 1966	Crop in 1967	N1	N2	N3	N4	O	MG	Mean
			(±1.43)*			(±0.58)*		(±1.48)
L	P	28.2	34.5	32.6	29.0	31.2	31.0	31.1
P	W	21.8	27.2	28.4	28.9	25.7	27.4	26.6
W	W	13.2	18.5	24.5	22.1	19.2	19.9	19.6
W	W	17.2	17.7	20.3	20.7	18.0	19.9	19.0
						(1) and (2)		(±0.71)
				N1		20.3	19.9	20.1
				N2		23.7	25.2	24.4
				N3		25.8	27.1	26.4
				N4		24.5	25.9	25.2
				Mean (±0.29)		23.5	24.6	24.0

(1) (±0.82) For use in vertical and diagonal comparisons only
(2) (±0.58) For use in horizontal and interaction comparisons only

* For use in horizontal and interaction comparisons only

Mean D.M. %: 85.0

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68/B/7.6

WHEAT (C1, C2, C3, C6)

STRAW

Crop in 1966	Crop in 1967	N1	N2	N3	N4	O	MG	Mean
L	P	31.9	40.0	39.0	36.6	36.5	37.2	36.9
P	W	26.4	36.6	36.0	37.6	33.2	35.1	34.1
W	W	19.3	27.0	32.6	31.0	27.3	27.7	27.5
W	W	20.5	24.8	28.3	26.7	24.3	25.8	25.1
				N1		23.9	25.1	24.5
				N2		31.6	32.6	32.1
				N3		33.6	34.4	34.0
				N4		32.2	33.7	33.0
				Mean		30.3	31.5	30.9

Mean D.M. %: 80.2

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68/B/7.7

BARLEY (C1, C2, C3, C6)

PERMANENT BARLEY BLOCKS

GRAIN

Crop in 1966	1967	N1	N2	N3	N4	Mean
			(±1.53)*			(±1.56)
L	P	30.2	34.3	29.1	26.8	30.1
P	B	25.5	31.6	29.3	25.5	27.9
B	B	21.8	28.8	27.0	25.9	25.9
B	B	24.4	31.2	28.9	27.8	28.1
Mean (±0.76)		25.5	31.5	28.6	26.5	28.0

* For use in horizontal and interaction comparisons only

Mean D.M. %: 81.0

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68/B/7.8

POTATOES (C5)

PERMANENT WHEAT BLOCKS

N in 1967

	N1	N2	N3	N4	Mean
	TOTAL TUBERS				
		(±1.080)*			(±0.540)
O	11.17	9.51	12.02	9.23	10.48
MG	11.72	9.79	11.94	10.08	10.88
Mean	11.45	9.65	11.98	9.66	10.68
	% WARE				
O	94.9	96.4	95.2	94.9	95.4
MG	96.2	96.2	96.9	96.1	96.3
Mean	95.6	96.3	96.0	95.5	95.9

68/B/7.9

POTATOES (C5)

PERMANENT BARLEY BLOCKS

N in 1967

N1	N2	N3	N4	Mean
		TOTAL TUBERS		
12.91	13.91	13.95	13.88	13.66
		% WARE		
97.4	96.6	96.5	96.5	96.8

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LONG TERM PHOSPHATE

(WLP)

To assess the residual and cumulative effects of superphosphate - Woburn Stackyard III 1968, 1st year.

Design: 6 blocks of 6 plots, split into two. Half plots received uniform treatment in 1968 but later there will be a test of phosphate.

Area of each sub plot: 0.0167. Area harvested: 0.0111.

Treatments: Superphosphate: None (R0) (2 plots per block), 1.5 (R1), 3.0 (R2), 6.0 (R4), 9.0 (R6) cwt P_2O_5 as superphosphate.

Basal applications: Both crops: 5 cwt K_2O as sulphate of potash, 2.0 cwt MgO as Epsom salts in August 1967.
Potatoes: 2.0 cwt N as 'Nitro-Chalk' and 1.5 cwt K_2O as sulphate of potash in spring. Weedkiller: Linuron at 0.5 lb plus paraquat at 0.37 lb ion in 50 gals. Fungicide: Mancozeb at 1.2 lb in 38 gals. Insecticide: Demeton-s-methyl at 3.5 oz in 38 gals.
Barley: 23 cwt ground chalk. 1.2 cwt N as 'Nitro-Chalk' and 0.5 cwt K_2O as muriate of potash in spring. Weedkiller: Ioxynil/mecoprop (Actril C at 5 pints in 25 gals).

Cultivations, etc.: Both crops: Rotary cultivated: 13 June, 1967. Subsoiled: 20 - 21 June, 30 June - 3 July, 3 - 4 July (3 directions). Deep-tine cultivated: 6 July. Basal K and Mg applied: 9 Aug. Phosphate treatments applied: 15 - 16 Aug. Fallow since 1963 (the site was part of the site of the Woburn Classical Experiments).
Potatoes: 'Nitro-Chalk' applied: 18 Mar, 1968. Sulphate of potash applied: 19 Mar. Rotary cultivated, potatoes planted: 27 Mar. Weedkiller applied: 3 May. Rotary ridged: 13 June. Fungicide and insecticide applied: 12 July, 24 July. Fungicide applied: 30 July. Sprayed with undiluted BOV at 15 gals: 4 Sept. Lifted: 25 Sept. Variety: Majestic.

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Barley: Ground chalk applied: 11 Dec, 1967. 'Nitro-Chalk' applied, spring-tine cultivated: 4 Mar, 1968. Muriate of potash applied, seed drilled at 140 lb: 6 Mar. Weedkiller applied: 3 May. Combine harvested: 20 Aug. Variety: Maris Badger.

Standard errors per plot.

Potatoes:	Total tubers:	Whole plot:	0.478 or 3.8% (10 d.f.)
Barley:	Grain:	Whole plot:	0.49 or 1.5% (10 d.f.)

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68/B/8.3

SUMMARY OF RESULTS

R0	R1	R2	R4	R6	Mean
		POTATOES			
		TOTAL TUBERS			
(±0.195) 10.65	12.22	(±0.276) 12.29	14.76	13.81	12.40
		% WARE			
95.8	96.3	96.3	97.0	96.6	96.3
		BARLEY			
		GRAIN			
(±0.20) 32.6	33.9	(±0.29) 34.1	34.7	34.2	33.7
		STRAW			
31.3	35.7	35.8	36.8	36.5	34.5

Mean D.M. %: Grain: 81.6
Straw: 85.4

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