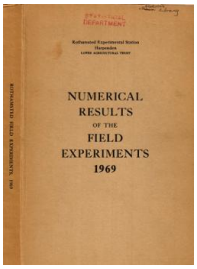
ROTHAMSTED RESEARCH

Numerical Results of the Field Experiments 1969

Full Table of Content



Rotation Experiments -

Rothamsted Research

Rothamsted Research (1970) *Rotation Experiments - ;* Numerical Results Of The Field Experiments 1969, pp 47 - 125 **- DOI: https://doi.org/10.23637/ERADOC-1-96**

LEY AND ARABLE ROTATIONS

(69/R/RN/1 and 69/R/RN/2)

Highfield and Fosters Field 1969, the 21st year.

For details of treatments, rotations, etc. see 'Details' 1967 and 'Results' 68/B/1.

Revised NPK dressings to wheat (2nd, 4th and 5th test crops):
Basal dressings: 0.4 cwt P2O5, 0.4 cwt K2O broadcast by drill before ploughing and 0.5 cwt P2O5, 0.5 cwt K2O combine drilled. Both dressings as (0:20:20).
Nitrogen: 2nd test crop: 0.0 (N0), 0.4 (N1), 0.8 (N2), 1.2 (N3) cwt N as 'Nitro-Chalk' to 1/8th plots in spring.
4th and 5th test crops: 0.6 (N1), 1.0 (N2), 1.4 (N3), 1.8 (N4) cwt N as 'Nitro-Chalk' to 1/4 plots in spring.

All-grass leys, reseeded (RN) and permanent (GN) grass: The NK dressings for each cut are now applied as (25:0:16) plus muriate of potash, since (16:0:16) is unobtainable. The amounts of N and K applied remain the same.

3rd year lucerne: This crop was poor and weedy and was destroyed after the second cut. The plots were then fallowed.

Corrective K dressings, as muriate of potash, to 1st test crop potatoes were ploughed in in autumn 1968 as follows (in cwt K2O):-

Rotation	Highfield	Fosters
AH	7.4	4.7
LU	4.3	4.6
LC	0.2	None
LN	5.4	4.9
R (AH since 1963)	7.0	6.1
GC	Not corrected	
GN	3.4	

Varieties: Potatoes, 1st test crop: King Edward.
Barley, 3rd test crop: Maris Badger.
Winter wheat, all wheat test crops: Joss Cambier.
Oats, 3rd treatment crop: Manod.

https://doi.org/10.23637/ERADOC-1-96

NOTE: Rat-damage on Highfield made it necessary to resow wheat as follows: all plots of the 4th test crop, one block of the 5th test crop and plots 61 and 62 (following all-grass ley) of the 2nd test crop. (Yields from plots 61 and 62 were calculated using a 'missing plot' technique).

HIGHFIELD

3rd year Treatment Crops:

All-grass ley: Basal PK compound applied: 13 Nov, 1968. NK compound and muriate of potash applied: 5 Mar, 1969. Cut three times: 2 June, 16 July, 19 Sept. NK compound and muriate of potash applied after first two cuts.

Clover-grass ley: Basal PK compound applied: 13 Nov, 1968. Muriate of potash applied: 5 Mar, 1969. Cut three times: 2 June, 16 July, 19 Sept. Muriate of potash applied after first two cuts.

Lucerne: Basal PK compound applied: 13 Nov, 1968. Sprayed with paraquat at 2 lb ion in 32 gals: 13 Dec. Cut once for yield: 6 June, 1969. Cut: 8 July. Sprayed with paraquat at 0.75 lb ion in 50 gals. Rotary cultivated: 15 July, 9 Sept.

Oats: Ploughed: 6 Feb, 1969. 'Nitro-Chalk' applied, seed combine drilled at 160 lb: 26 Mar. Sprayed with ioxynil at 7.5 oz and mecoprop at 22.5 oz in 20 gals: 20 May. Combine harvested: 19 Aug.

1st Test Crop. Potatoes:-

Corrective K applied: 29 Oct, 1968. Ploughed: 19 Nov. All fertilisers applied: 22 - 28 Apr, 1969. FYM applied, all plots rotary cultivated, potatoes machine planted: 30 Apr. Sprayed with paraquat at 0.375 lb ion plus linuron at 0.75 lb in 37 gals: 20 May. Grubbed: 18 June. Earthed up: 26 June. Sprayed with mancozeb three times at 1.2 lb in 37 gals, the second time including demeton-s-methyl at 3.5 oz: 15 July, 4 Aug, 21 Aug. Sprayed with undiluted BOV at 15 gals: 26 Sept. Haulm destroyed mechanically: 2 Oct. Lifted: 9 Oct.

2nd Test Crop. Wheat:-

Basal PK compound applied, deep-tine cultivated: 14 Oct, 1968. Seed combine drilled at 170 lb: 15 Oct. Plots 61 and 62 (following all-grass ley) resown at

https://doi.org/10.23637/ERADOC-1-96

170 lb: 14 Nov. 'Nitro-Chalk' applied: 18 Apr, 1969. Sprayed with mecoprop at 42 oz and 2,4-D at 10.5 oz in 20 gals: 1 May. Combine harvested: 28 Aug.

3rd Test Crop. Barley:-
Ground chalk applied: 4 Nov, 1968. Ploughed: 22 Nov. Seed combine drilled at 140 lb: 10 Mar, 1969. 'Nitro-Chalk' applied: 1 Apr. Sprayed with mecoprop at 36 oz and 2,4-D at 9 oz in 20 gals: 13 May. Combine harvested: 21 Aug.

4th Test Crop. Wheat:-
Basal PK compound applied: 6 Sept, 1968. Ploughed: 14 Sept. Seed combine drilled at 170 lb: 14 Oct. All plots resown at 170 lb: 13 Nov. 'Nitro-Chalk' applied: 18 Apr, 1969. Sprayed with mecoprop at 42 oz and 2,4-D at 10.5 oz in 20 gals: 1 May. Combine harvested: 28 Aug.

5th Test Crop. Wheat:-
Basal PK compound applied: 6 Sept, 1968. Ploughed: 19 Sept. Seed combine drilled at 170 lb: 14 Oct. Plots 049 - 060 (the whole of block 5) resown at 170 lb: 13 Nov. 'Nitro-Chalk' applied: 18 Apr, 1969. Sprayed with mecoprop at 42 oz and 2,4-D at 10.5 oz in 20 gals: 1 May. Combine harvested: 28 Aug.

Permanent grasses:-
The 21st experimental year permanent (old) grass, blocks 1, 2 and 4, the 21st year reseeded grass, blocks 1 and 4.
Ground chalk applied to blocks 1 and 4: 4 Nov, 1968.
Basal PK compound applied: 13 Nov. NK compound and muriate of potash applied to 'all grass' half plots, muriate of potash to 'clover grass' half plots: 5 Mar, 1969. Cut three times: 2 June, 16 July, 19 Sept. NK compound and muriate of potash applied to 'all grass' half plots and muriate of potash to 'clover grass' half plots after each cut except the last.

FOSTERS

3rd year Treatment Crops:-
All-grass ley: Basal PK compound applied: 13 Nov, 1968. NK compound and muriate of potash applied: 5 Mar, 1969. Cut three times: 2 June, 16 July, 19 Sept. NK compound and muriate of potash applied after first two cuts.

https://doi.org/10.23637/ERADOC-1-96

Clover-grass ley: Basal PK compound applied: 13 Nov, 1968. Muriate of potash applied: 5 Mar, 1969. Cut three times: 2 June, 16 July, 19 Sept. Muriate of potash applied after first two cuts.
Lucerne: Basal PK compound applied: 13 Nov, 1968. Sprayed with paraquat at 2 lb ion in 32 gals: 13 Dec. Cut twice for yield: 6 June, 8 July. Sprayed with paraquat at 0.75 lb ion in 50 gals: 9 July. Rotary cultivated: 15 July, 9 Sept.
Oats: Ploughed: 30 Jan, 1969. 'Nitro-Chalk' applied, seed combine drilled at 160 lb: 26 Mar, 1969. Sprayed with ioxynil at 7.5 oz and mecoprop at 22.5 oz in 20 gals: 20 May. Combine harvested: 19 Aug.

1st Test Crop. Potatoes:-
Corrective K applied: 29 Oct, 1968. Ploughed: 19 Nov. All fertilisers applied: 21 - 28 Apr, 1969. FYM applied, all plots rotary cultivated, potatoes machine planted: 30 Apr. Sprayed with paraquat at 0.375 lb ion plus linuron at 0.75 lb in 37 gals: 20 May. Grubbed: 18 June. Earthed up: 26 June. Sprayed with mancozeb three times at 1.2 lb in 37 gals, the second time including demeton-s-methyl at 3.5 oz: 15 July, 4 Aug, 21 Aug. Sprayed with undiluted BCV at 15 gals: 26 Sept. Haulm destroyed mechanically: 2 Oct. Lifted: 9 Oct.

2nd Test Crop. Wheat:-
Basal PK compound applied, plots deep-tine cultivated: 14 Oct, 1968. Seed combine drilled at 170 lb: 15 Oct. 'Nitro-Chalk' applied: 17 Apr, 1969. Sprayed with mecoprop at 42 oz and 2,4-D at 10.5 oz in 20 gals: 3 May. Combine harvested: 25 Aug.

3rd Test Crop. Barley:-
Ploughed: 22 Nov, 1968. Seed combine drilled at 140 lb: 10 Mar, 1969. 'Nitro-Chalk' applied: 1 Apr. Sprayed with mecoprop at 36 oz and 2,4-D at 9 oz in 20 gals: 13 May. Combine harvested: 21 Aug.

4th Test Crop. Wheat:-
Basal PK compound applied: 6 Sept, 1968. Ploughed: 13 Sept. Seed combine drilled at 170 lb: 14 Oct. 'Nitro-Chalk' applied: 17 Apr, 1969. Sprayed with mecoprop at 42 oz and 2,4-D at 10.5 oz in 20 gals: 3 May. Combine harvested: 25 Aug.

https://doi.org/10.23637/ERADOC-1-96

5th Test Crop. Wheat:-
Basal PK compound applied: 6 Sept, 1968. Ploughed: 19 Sept. Seed combine drilled at 170 lb: 14 Oct. 'Nitro-Chalk' applied: 17 Apr, 1969. Sprayed with mecoprop at 42 oz and 2,4-D at 10.5 oz in 20 gals: 3 May. Combine harvested: 25 Aug.

Permanent grasses:-
The 21st year reseeded grass, blocks 1 and 3. Basal PK compound applied: 13 Nov, 1968. NK compound and muriate of potash applied to 'all grass' half plots, and muriate of potash to 'clover grass' half plots: 5 Mar, 1969. Cut three times: 2 June, 16 July, 19 Sept. NK compound and muriate of potash applied to 'all grass' half plots and muriate of potash to 'clover grass' half plots after each cut except the last.

https://doi.org/10.23637/ERADOC-1-96

POTATOES 1ST TEST CROP

TOTAL TUBERS: TONS

HIGHFIELD

	1966 - 68						1950 - 68		
	LU	LC	LN	AH	R*	Mean	GC	GN	Mean
Mean	19.23	19.25	17.57	16.23	19.21	18.30	17.24	18.37	17.80
F	18.98	18.81	17.41	15.26	18.94	17.88			
D	19.48	19.69	17.73	17.20	19.48	18.71			
N0	17.54	16.90	14.87	12.05	16.93	15.66	12.45	15.57	14.01
N1	19.46	19.25	17.25	16.57	18.53	18.21	17.45	18.30	17.88
N2	19.78	21.24	18.99	17.18	20.92	19.62	18.23	18.72	18.47
N3	20.14	19.60	19.18	19.12	20.46	19.70	20.82	20.87	20.84
P0	19.24	19.22	17.44	15.86	19.25	18.20	17.26	18.72	17.99
P1	19.22	19.28	17.71	16.60	19.18	18.40	17.22	18.01	17.61
K0	19.25	19.54	17.43	16.19	19.12	18.31	17.44	17.90	17.67
K1	19.21	18.96	17.71	16.27	19.30	18.29	17.03	18.83	17.93

* R 1952 - 61 then AH

https://doi.org/10.23637/ERADOC-1-96

POTATOES 1ST TEST CROP

% WARE

HIGHFIELD

	1966 - 68						1950 - 68		
	LU	LC	LN	AH	R*	Mean	GC	GN	Mean
Mean	94.1	95.5	94.5	93.4	93.6	94.2	94.6	94.6	94.6
F	94.2	95.7	94.5	93.1	93.6	94.2			
D	94.0	95.3	94.4	93.8	93.6	94.2			
N0	93.9	95.2	93.8	91.2	93.1	93.4	94.5	94.1	94.3
N1	94.8	95.7	94.4	93.6	93.6	94.4	94.3	94.5	94.4
N2	93.6	96.4	95.0	94.1	93.4	94.5	95.0	95.9	95.5
N3	94.0	94.9	94.7	94.8	94.1	94.5	94.5	93.9	94.2
P0	94.2	95.6	94.8	93.4	93.9	94.4	94.8	94.7	94.7
P1	93.9	95.5	94.2	93.5	93.2	94.1	94.4	94.5	94.4
K0	93.9	95.5	94.9	93.7	93.9	94.4	95.2	94.7	94.9
K1	94.2	95.5	94.1	93.1	93.2	94.0	93.9	94.5	94.2

* R 1952 - 61 then AH

https://doi.org/10.23637/ERADOC-1-96

POTATOES 1ST TEST CROP

TOTAL TUBERS: TONS

FOSTERS

1966 - 68

	LU	LC	LN	AH	R*	Mean
Mean	16.56	16.39	16.16	14.46	16.37	15.99
F	16.16	15.70	15.75	13.89	16.31	15.56
D	16.96	17.07	16.58	15.03	16.43	16.41
N0	14.20	14.45	13.83	10.37	13.40	13.25
N1	16.89	16.39	16.04	14.31	16.25	15.98
N2	17.35	17.75	17.25	16.21	17.28	17.17
N3	17.80	16.95	17.53	16.96	18.55	17.56
P0	16.41	16.07	15.74	14.42	16.16	15.76
P1	16.71	16.70	16.59	14.50	16.58	16.22
K0	16.73	16.30	16.32	14.32	16.31	15.99
K1	16.39	16.48	16.00	14.61	16.43	15.98

* R 1952 - 61 then AH

https://doi.org/10.23637/ERADOC-1-96

POTATOES 1ST TEST CROP

% WARE

FOSTERS

1966 - 68

	LU	LC	LN	AH	R*	Mean
Mean	92.8	93.0	93.1	92.8	93.3	93.0
F	92.9	92.6	93.5	92.5	93.2	93.0
D	92.6	93.4	92.7	93.0	93.5	93.0
N0	92.8	93.5	93.6	92.0	92.5	92.9
N1	93.0	92.9	93.3	91.9	93.9	93.0
N2	92.6	93.1	92.7	93.4	94.0	93.1
N3	92.6	92.7	92.8	93.7	93.0	93.0
P0	93.1	92.7	93.1	92.4	93.3	92.9
P1	92.4	93.4	93.2	93.2	93.4	93.1
K0	92.9	93.4	93.2	92.3	93.4	93.0
K1	92.6	92.7	93.0	93.2	93.2	93.0

* R 1952 - 61 then AH

https://doi.org/10.23637/ERADOC-1-96

SUMMARY OF RESULTS

WHEAT 2ND TEST CROP

GRAIN: CWT

HIGHFIELD

	1965 - 67					1950 - 67				
	LU	LC	LN	AH	Mean	RC	RN	GC	GN	Mean
Mean	58.7	58.8	59.4	56.6	58.4	64.7	64.2	62.5	62.2	63.4
1969										
N0	47.8	51.3	47.8	42.2	47.3	56.5	56.7	52.7	57.5	55.9
N1	60.5	57.6	58.4	54.5	57.8	68.2	67.7	65.3	63.3	66.1
N2	64.5	63.1	65.3	63.1	64.0	68.0	67.4	67.5	62.3	66.3
N3	62.0	63.3	65.9	66.5	64.4	65.9	65.0	64.5	65.6	65.3
1968										
F	59.0	58.2	57.3	55.0	57.4					
D	58.4	59.4	61.4	58.2	59.4					
1968										
N0	55.1	55.3	54.6	52.8	54.5	67.4	57.0	54.5	61.8	60.2
N1	55.5	60.5	58.8	56.1	57.7	63.1	66.8	67.6	59.4	64.2
N2	60.7	58.8	61.4	57.8	59.7	59.4	68.4	65.2	63.8	64.2
N3	63.5	60.7	62.7	59.7	61.7	68.8	64.7	62.7	63.8	65.0

Mean D.M. % (All plots): 80.8

https://doi.org/10.23637/ERADOC-1-96 pp 11

WHEAT 2ND TEST CROP

GRAIN: CWT

POSTERS

	1965 - 67					1950 - 67		
	LU	LC	LN	AH	Mean	RC	RN	Mean
Mean	67.6	63.7	63.3	60.3	63.7	64.3	68.9	66.6
1969								
NO	58.0	53.6	51.5	43.1	51.6	58.1	60.3	59.2
N1	70.9	66.6	62.5	57.7	64.4	63.6	72.4	68.0
N2	71.3	67.5	70.5	68.1	69.4	67.7	74.1	70.9
N3	70.0	66.8	68.6	72.4	69.5	67.7	68.7	68.2
1968								
F	66.1	63.5	62.4	59.3	62.8			
D	69.0	63.8	64.2	61.4	64.6			
1968								
NO	67.2	62.4	63.0	60.3	63.2	62.1	61.8	62.0
N1	67.1	64.1	60.3	58.3	62.4	61.3	73.4	67.3
N2	67.4	63.3	64.9	61.8	64.3	64.5	73.1	68.8
N3	68.5	64.9	65.0	61.0	64.8	69.3	67.2	68.3

Mean D.M. % (All plots): 81.8

https://doi.org/10.23637/ERADOC-1-96

BARLEY 3RD TEST CROP

GRAIN: CWT

1964 - 1966

	LU	LC	LN	AH	Mean
			HIGHFIELD		
Mean	46.9	44.5	42.5	39.9	43.5
1969					
N0	44.5	40.9	39.7	34.9	40.0
N1	46.5	46.0	42.2	36.5	42.8
N2	48.5	43.9	44.9	43.1	45.1
N3	48.2	47.3	43.3	45.0	46.0
1968					
F	45.5	42.7	40.8	38.4	41.8
D	48.4	46.4	44.3	41.3	45.1

Excluding AH

1969

1968	N0	N1	N2	N3	Mean
F	39.7	42.0	43.9	46.3	43.0
D	43.8	47.8	47.6	46.3	46.4

Mean D.M. %: 79.6

https://doi.org/10.23637/ERADOC-1-96

BARLEY 3RD TEST CROP

GRAIN: CWT

1964 - 1966

	LU	LC	LN	AH	Mean
			FOSTERS		
Mean	47.6	45.9	45.2	45.5	46.1
1969					
NO	41.6	40.7	37.4	36.0	38.9
N1	47.9	45.3	45.4	-	-
N2	50.0	48.6	49.4	48.8	49.2
N3	51.0	49.1	48.5	49.2	49.4
N4	-	-	-	48.0	-
1968					
F	47.0	44.5	45.0	46.1	45.6
D	48.3	47.4	45.4	44.9	46.5

Excluding AH
1969

1968	NO	N1	N2	N3	Mean
F	37.7	45.2	48.8	50.2	45.5
D	42.2	47.3	49.9	48.9	47.1

Mean D.M. %: 79.3

https://doi.org/10.23637/ERADOC-1-96

WHEAT 4TH TEST CROP

GRAIN: CWT

HIGHFIELD

	1963 - 65					1951 - 68				
	LU	LC	LN	AH	Mean	RC	RN	GC	GN	Mean
N1	22.0	44.5	38.5	37.3	35.5	51.0	41.6	45.1	49.7	46.8
N2	36.0	47.8	39.8	39.7	40.8	35.6	51.0	46.8	41.2	43.7
N3	33.0	44.7	41.9	38.9	39.6	44.8	49.1	29.8	46.7	42.6
N4	34.3	43.7	40.0	40.0	39.5	42.4	49.4	47.0	33.3	43.0
Mean	31.3	45.2	40.0	39.0	38.9	43.4	47.8	42.2	42.7	44.0

Mean D.M. %: 82.1

https://doi.org/10.23637/ERADOC-1-96 pp 15

WHEAT 4TH TEST CROP

GRAIN: CWT

FOSTERS

	1963 - 65					1951 - 68		
	LU	LC	LN	AH	Mean	RC	RN	Mean
N1	57.7	56.8	58.2	55.4	57.0	53.5	56.9	55.2
N2	61.0	57.7	64.2	63.8	61.7	54.5	54.0	54.2
N3	60.9	59.5	64.4	63.2	62.0	53.2	58.3	55.7
N4	59.2	59.0	63.0	62.8	61.0	56.6	50.3	53.5
Mean	59.7	58.2	62.4	61.3	60.4	54.5	54.9	54.7

Mean D.M. %: 83.2

https://doi.org/10.23637/ERADOC-1-96

WHEAT 5TH TEST CROP

GRAIN: CWT

HIGHFIELD

	1962-64			1950-64			1950-67		
	LU	LC	LN	AH	R	Mean	GC	GN	Mean
Mean	41.5	45.6	42.8	46.5	51.3	45.5	49.2	53.0	51.1
N1	41.9	46.3	41.9	43.5	51.7	45.1	56.7	54.6	55.7
N2	41.2	45.5	43.7	48.2	51.1	45.9	49.1	56.2	52.7
N3	42.7	47.1	40.8	48.5	52.3	46.3	46.8	49.0	47.9
N4	40.1	43.5	44.6	45.7	50.2	44.8	44.0	52.2	48.1
F	40.7	45.6	44.2	45.4	50.9	45.4			
D	42.2	45.7	41.3	47.6	51.8	45.7			

Mean D.M. % (all plots): 81.9

https://doi.org/10.23637/ERADOC-1-96

WHEAT 5TH TEST CROP

GRAIN: CWT

FOSTERS

	1962 - 64				1950 - 64	
	LU	LC	LN	AH	R	Mean
Mean	64.7	64.1	64.5	62.7	61.4	63.5
N1	64.9	64.2	61.2	59.3	59.7	61.9
N2	64.1	67.1	68.2	62.4	63.0	65.0
N3	66.0	63.1	64.8	64.2	62.3	64.1
N4	63.9	61.7	63.7	65.0	60.4	63.0
F	64.3	63.8	64.7	61.1	61.8	63.2
D	65.1	64.3	64.3	64.3	60.9	63.8

Mean D.M. %: 83.1

https://doi.org/10.23637/ERADOC-1-96

RESEEDED GRASS, DRY MATTER: CWT

	HIGHFIELD			FOSTERS		
	Blocks	RC	RN	Blocks	RC	RN
21st Exptl year	1 & 4	39.9	71.2	1 & 3	38.7	65.6

PERMANENT GRASS, DRY MATTER: CWT

	GC	GN
	HIGHFIELD	
21st Exptl year		
Blocks 1 and 4	30.2	68.3
Block 2	31.4	70.5

(C) Clover-grass management
(N) All-grass management

Errata to 'Results' 1967 page 67/B/1.15

Left-hand columns
For 17th exptl year read 19th exptl year Blocks 1 & 4
18th exptl year read 17th exptl year Blocks 9 & 12
19th exptl year read 18th exptl year Blocks 6 & 7

https://doi.org/10.23637/ERADOC-1-96

LEY AND ARABLE ROTATIONS

(69/W/RN/3)

Woburn Stackyard, 1969 - 32nd year.

For history, treatments, etc., see 'Details' 1967 and 'Results' 68/B/2.

Corrective K dressings (in cwt K2O) as muriate of potash applied to first test-crop barley.

	No FYM	FYM
Continuous rotations	half plots	half plots
Ley	1.5	0
Sainfoin	3.5	2.5
Arable with hay	4	3.5
Arable	3	3
Alternating rotations (last two rotations, in order).		
Arable/ley	2	2
Arable with hay/sainfoin	3	2
Lucerne/Arable with hay	4	4
Ley/Arable	3	3

Treatments to potatoes:

1. Fumigant on quarter plots: None (O), 400 lb (F) Chloropicrin.
2. Nitrogen on twelfth plots: 1.0 (N2), 1.5(N3), 2.0 (N4) cwt N as 'Nitro-Chalk'.
3. Fumigant on twenty fourth plots: None (O) 10 lb (T) Temik.

Treatments to rye:

Residues of fumigant applied to potatoes in 1968 on quarter plots: None (O), 400 lb (F) chloropicrin.

Management of ley:

The 1st and 2nd years leys are no longer grazed but are cut and carted off. The 3rd year ley is still grazed.

Cultivations,etc.:

Treatment crops.

Ley 1st year: Ploughed: 15 Oct, 1968. Mg applied: 25 Mar, 1969. NPK applied: 14 Apr. Seed sown at 40 lb: 16 Apr. NK applied: 1 Aug. Cut twice: 1 Aug, 4 Sept.

https://doi.org/10.23637/ERADOC-1-96

OATS

GRAIN: CWT

HIGHFIELD

AH	R	Mean
36.8	43.1	40.0

Mean D.M. %: 81.4

FOSTERS

45.7	48.0	46.9

Mean D.M. %: 81.7

https://doi.org/10.23637/ERADOC-1-96

LUCERNE, DRY MATTER: CWT

	HIGHFIELD			FOSTERS		
	F	D	Mean	F	D	Mean
3rd year (Highfield 1 cut) (Fosters 2 cuts)	8.7	8.2	8.4	34.6	33.6	34.1

ALL-GRASS LEY, DRY MATTER: CWT

	HIGHFIELD			FOSTERS		
	F	D	Mean	F	D	Mean
3rd year (3 cuts)	72.9	73.9	73.4	63.0	65.4	64.2

CLOVER-GRASS LEY, DRY MATTER: CWT

	HIGHFIELD			FOSTERS		
	F	D	Mean	F	D	Mean
3rd year (3 cuts)	49.1	51.1	50.1	46.4	47.9	47.2

NOTE: F and D to potatoes 1965.

https://doi.org/10.23637/ERADOC-1-96

Ley 2nd year: NK applied: 9 Apr, 17 July. Cut twice: 9 June, 4 Sept.
Ley 3rd year: NK applied: 9 Apr, 17 July, 1 Aug. Grazed 7 circuits: 8 May-9 Sept.
Sainfoin 1st year: Ploughed: 15 Oct, 1968. Mg applied: 25 Mar, 1968. Seed drilled at 40 lb: 16 Apr. Cut once: 1 Aug.
Sainfoin 2nd year: Sprayed with paraquat at 0.5 lb ion in 16 gals: 10 Jan. N and K applied: 9 Apr. Cut once: 6 June. Sprayed with paraquat at 0.75 lb ion in 25 gals to kill: 9 June. Rotary cultivated: 17 June. Seed drilled at 40 lb: 27 June.
Sainfoin 3rd year: Sprayed with paraquat at 0.5 lb ion in 16 gals: 10 Jan. N and K applied: 9 Apr. Cut: 6 June. Sprayed with paraquat at 0.5 lb ion in 25 gals: 12 June. Cut: 4 Sept.

Potatoes: Ploughed: 15 Oct, 1968. Rotary cultivated: 16 Oct. Chloropicrin applied: 23 Oct. Mg applied: 25 Mar, 1969. N and PK applied: 14 Apr. Temik applied, potatoes planted: 17 Apr. Sprayed with paraquat at 0.37 lb ion plus linuron at 0.5 lb im 25 gals: 15 May. Sprayed with mancozeb at 1.2 lb plus demeton-s-methyl at 3.5 oz in 37 gals: 18 July. Sprayed with manocozeb at 1.2 lb in 37 gals (twice): 7 Aug, 27 Aug. Sprayed with undiluted BOV at 16 gals: 24 Sept. Lifted: 7 Oct.
Rye: Spring-tine cultivated twice: 14 Oct, 1968, 16 Oct. Seed combine drilled at 175 lb: 17 Oct. 'Nitro-Chalk' applied: 15 Apr, 1969. Seeds hay undersown at 30 lb (AH plots): 16 Apr. Combine harvested: 25 Aug.
Seeds hay: seeds undersown in rye at 30 lb: 29 Mar, 1968. N and PK applied: 14 Mar, 1969. NK applied: 17 June. Cut twice: 9 June, 4 Sept.
Carrots: Ploughed: 25 Nov, 1968. NPK applied: 15 Apr, 1969. Seed drilled at 3 lb: 16 Apr. Sprayed with linuron at 0.5 lb in 50 gals: 2 June. Sprayed with demeton-s-methyl at 3.5 oz in 30 gals: 26 June. Lifted: 19 Sept.

Test crops.
Barley, 1st test crop: Half corrective K applied: 2 Dec, 1968. Ploughed: 7 Dec. Remaining corrective K applied: 6 Mar, 1969. Seed combine drilled at 140 lb: 24 Mar. 'Nitro-Chalk' applied: 3 Apr. Sprayed with ioxynil octanoate, bromoxynil octanoate, and iso-octyl ester of dichlorprop ('Oxytril P' at 1 pt. in 25 gals): 22 May. Combine harvested: 14 Aug.

https://doi.org/10.23637/ERADOC-1-96

Barley 2nd test crop: Magnesian limestone applied at 40 cwt: 4 Nov, 1968. Ploughed: 18 Nov. Seed combine drilled at 140 lb: 24 Mar, 1969. Sprayed with ioxynil octanoate, bromoxynil octanoate, and iso-octyl ester of dichlorprop ('Oxytril P' at 1 pt in 25 gals): 22 May. Combine harvested: 14 Aug.

NOTE: Soil samples were taken from potato plots monthly from May - Sept for counts of free-living nematodes.

https://doi.org/10.23637/ERADOC-1-96

SUMMARY OF RESULTS

1ST TEST CROP

BARLEY

GRAIN: CWT

	N0	N1	N2	N3	N4
D0 LE	39.1	37.1	34.9	34.9	
SA	38.7	38.2	37.8	21.8	
AH		31.3	35.0	32.7	30.5
AR		33.2	39.6	37.9	37.9
D1 LE	39.7	36.4	33.9	35.6	
SA	42.1	39.3	36.7	24.7	
AH		32.9	33.7	34.8	33.0
AR		38.3	41.7	34.8	35.9

Mean: 35.4
Mean D.M. %: 84.4

https://doi.org/10.23637/ERADOC-1-96

1ST TEST CROP

BARLEY

STRAW: CWT

	N0	N1	N2	N3	N4
DO LE	43.0	41.5	40.7	31.2	
SA	34.5	40.4	37.8	14.8	
AH		25.7	33.6	34.4	29.3
AR		30.1	40.1	39.4	38.4
D1 LE	43.6	43.0	40.8	34.8	
SA	36.8	39.1	39.1	18.2	
AH		27.2	38.1	32.9	37.0
AR		31.1	37.9	35.5	41.0

Mean: 35.3
Mean D.M. %: 79.4

https://doi.org/10.23637/ERADOC-1-96

RYE

GRAIN: CWT

	LE	SA	AH	AR	Mean
D0	35.2	35.5	30.3	26.9	32.0
D4	35.7	39.2	32.3	32.6	35.0
0	33.4	37.1	30.0	25.7	31.5
F	37.6	37.6	32.6	33.8	35.4
Mean	35.5	37.4	31.3	29.7	33.5

Mean D.M.%: 81.1

POTATOES

TOTAL TUBERS: TONS

	LE	SA	AH	AR	Mean
D0	20.05	20.23	19.01	15.70	18.75
D3*	19.96	22.43	17.88	17.58	19.46
0	19.31	19.48	15.40	15.12	17.32
F	20.70	23.19	21.49	18.16	20.89
N2	19.52	21.30	18.37	16.99	19.04
N3	19.32	21.59	17.72	16.27	18.73
N4	21.18	21.11	19.24	16.65	19.54
0	18.45	20.67	17.37	15.66	18.04
T	21.56	22.00	19.52	17.62	20.17
Mean	20.01	21.33	18.44	16.64	19.10

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

https://doi.org/10.23637/ERADOC-1-96

POTATOES

% WARE

	LE	SA	AH	AR	Mean
D0	95.8	96.6	95.3	95.7	95.9
D3*	95.9	96.6	96.2	95.4	96.0
0	96.1	96.8	95.3	95.3	95.9
F	95.6	96.4	96.2	95.8	96.0
N2	96.4	96.9	95.5	95.2	96.0
N3	95.5	96.6	95.4	95.7	95.8
N4	95.6	96.2	96.4	95.8	96.0
0	95.9	97.2	95.8	95.9	96.2
T	95.8	95.9	95.8	95.2	95.7
Mean	95.9	96.6	95.8	95.6	95.9

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

https://doi.org/10.23637/ERADOC-1-96

MARKET GARDEN SOIL

(69/W/RN/4)

Residues of organic manures, P and K - Lansome I 1969, second year, beans.

For history, past treatments, etc., see 'Details 1967' and 'Results' 68/B/4.

Area of each sub-plot: 0.0055. Area harvested: 0.0041.

Basal applications: Weedkillers: Paraquat at 0.75 lb in 25 gals. Simazine at 0.75 lb in 25 gals. Insecticide: Demeton-s-methyl at 3.5 oz in 30 gals.

Cultivations, etc.:-
Paraquat applied: 16 Oct, 1968. Ploughed: 20 Nov. Seed drilled at 200 lb: 31 Mar, 1969. Simazine applied: 4 Apr. Insecticide applied: 19 June. Combine harvested: 5 Sept. Variety: Tarvin.

https://doi.org/10.23637/ERADOC-1-96

SUMMARY OF RESULTS

GRAIN: CWT

SERIES A

Organic 1942-61*	Organic 1962-67	P0K0	P1K1	P2K2	Mean
0	0		15.2	16.8	16.0
S1	0			19.5**	
S2	0			22.2**	
T1	0			18.8**	
T2	0			20.5**	
D1	D1	18.8	16.8		17.8
D2	D2	21.1	19.1		20.1
C1	D1	18.4	15.3		16.9
C2	D2	24.7	21.6		23.1

General mean: 19.1
Mean D.M. %: 84.4

* Last applied to Leeks 1961/62
** P1K1 1962-65

GRAIN: CWT

SERIES B

Organic 1942-61	1962-64	1966-67	P0K0	P1K1	P2K2	Mean
0	0	0		14.3	19.1	16.7
0	0	PT		17.8	21.0	19.4
S1	0	0	20.9*			
S2	0	0	21.6*			
T1	0	0	21.2*			
T2	0	0	22.7*			
D1	D1	D1	16.0	18.0		
D1	D1	0	19.1	21.0		
D2	D2	D2	19.3	21.1		
D2	D2	0	21.2	23.2		
C1	D1	D1	23.1	25.1		
C2	D2	D2	22.2	24.2		

General mean: 20.9
Mean D.M. %: 83.4

* P1K1 1962-64

ARABLE REFERENCE PLOTS

(69/R/RN/5)

Rothamsted Great Field IV 1969.

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, 67/B/2, 68/B/3.

NOTE: The barley seed used was dressed with the fungicide ethirimol (Trade names - 'PP 149' or 'Milstem').

Cultivations, etc.:-

Winter wheat: Balancing Mg applied to half plots, plots dug by hand, P, K, Mg, Ca and S applied: 2 Oct, 1968. Seed drilled: 4 Oct. First N dressing applied (excluding additional plots): 8 Apr, 1969. Second half: 25 Apr. All N applied to additional plots: 28 Apr. Trace element spray applied: 12 May. Harvested: 11 Aug.

Kale: FYM applied, plots dug by hand: 4 Nov, 1968. P, K, Mg, Ca and S applied: 4 Mar, 1969. First half N applied to additional plots, all N to remainder, plots rotary cultivated, seed drilled: 8 Apr. Second N dressing applied to additional plots: 10 June. Trace element spray applied: 27 June. Sprayed with dimethoate ('Rogor 20 W' at 1.5 lb in 40 gals): 2 July. Sprayed with dimethoate ('Rogor E' at 15 fl oz in 40 gals): 16 July. Sprayed with DDT at 5 oz in 40 gals: 19 Sept. Harvested: 27 Oct.

Barley: Dug by hand: 5 Nov, 1968. P, K, Mg, Ca and S applied: 4 Mar, 1969. N applied, plots rotary cultivated, seed drilled: 28 Mar. Trace element spray applied: 22 May. Harvested: Additional plots - 11 Aug, remainder - 19 Aug.

Grass - clover ley: Undersown in barley: 4 Apr, 1968. P, K, Mg, Ca and S applied: 4 Mar, 1969. N applied: 11 Mar. Trace element spray applied: 25 Apr. Cut four times: 25 Oct, 1968, 5 June, 1969, 25 July, 25 Sept.

Potatoes: FYM applied, plots dug by hand: 6 Nov, 1968. P, K, Mg, Ca and S applied: 4 Mar, 1969. First N dressing applied to additional plots, all N to remaining plots, all plots rotary cultivated, Mg applied to half plots, potatoes planted: 17 Apr. Second N dressing applied to additional plots: 10 June. Earthed up: 10 June, additional plots: 13 June. Original plots sprayed with malathion at 12 oz in 50 gals, additional plots with dimethoate plus fentin hydroxide and maneb ('Rogor 20 W' at 1.5 lb

https://doi.org/10.23637/ERADOC-1-96

plus 'Fennite' at 1 lb in 40 gals): 12 June. Trace element spray applied: 27 June. Original plots sprayed with dimethoate plus fentin hydroxide and maneb ('Rogor 20 W' at 1.5 lb plus 'Fennite' at 1 lb in 40 gals): 2 July. All plots sprayed with dimethoate plus fentin hydroxide and maneb ('Rogor 20 W' at 1.5 lb plus 'Fennite' at 1 lb in 40 gals): 16 July. All plots sprayed with fentin hydroxide and maneb ('Fennite' at 1.5 lb in 40 gals): 21 Aug. Lifted: Plots of main experiment with neither K nor FYM and no fertiliser plots of additional plots: 3 Sept, remainder: 19 Sept.

Permanent grass: FYM, P and K applied: 4 Mar, 1969. N applied: 11 Mar, 21 May, 8 Aug. Cut three times: 21 May, 8 Aug, 23 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.
(4) The percentage of K in potato leaves was measured.

https://doi.org/10.23637/ERADOC-1-96

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
0	33.9	42.4	8.34	28.9	24.8	3.7	22.1	13.1	12.1	51.0	4.35	8.6	14.9	3.5	27.0
N1	36.1	53.8	9.55	33.1	25.6	3.9	31.3	9.9	5.2	50.3	6.16	10.6	16.9	7.5	35.0
P	33.4	46.1	14.76	36.4	30.5	4.4	25.4	14.2	6.7	50.7	9.30	10.2	12.5	4.0	26.7
N1P	26.2	44.5	14.76	44.7	41.6	4.7	28.6	7.9	2.2	43.4	5.35	24.1	20.9	6.3	51.3
K	31.2	49.4	6.94	37.9	29.1	7.7	16.7	23.6	7.3	55.3	10.42	13.5	15.1	4.7	33.3
N1K	39.2	54.5	9.38	39.8	36.8	6.4	25.3	22.9	8.0	62.6	14.32	21.0	22.5	8.2	51.7
PK	35.6	57.8	11.11	39.8	32.9	10.3	16.9	39.6	14.1	80.9	13.45	13.0	19.9	3.5	36.4
N1PK	46.4	78.6	14.93	51.8	46.9	6.0	42.1	27.3	20.4	95.8	17.00	23.5	24.1	6.8	54.4
N2PK	51.3	81.5	21.18	60.7	57.8	3.8	52.6	21.5	19.5	97.4	20.72	30.8	31.5	9.6	71.9
D	41.2	62.1	13.54	46.6	41.2	11.5	32.3	46.9	21.2	111.9	16.85	32.2	19.0	4.0	55.2
N1PKD	52.8	87.4	17.88	61.2	62.5	4.6	43.8	20.2	21.6	90.2	21.72	35.3	27.5	8.2	71.0
N2PKD	58.4	87.9	24.31	57.4	62.1	2.9	53.7	18.9	14.7	90.2	22.92	36.8	36.4	11.5	84.7
Mean D.M. %:	85.7	77.7		80.6	59.2	14.9	21.3	28.0	22.6	21.7		19.5	30.1	35.9	28.5

https://doi.org/10.23637/ERADOC-1-96 pp 35

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	42.4	48.8	10.24	22.9	18.2	5.9	28.4	14.5	9.5	58.3	5.17
N2PK	61.6	81.6	21.70	63.9	63.5	3.2	45.0	18.1	14.7	81.0	17.02
N2 PK Mg Ca	54.0	74.8	21.18	57.6	54.9	2.6	49.8	16.5	12.3	81.2	15.19
N2 PK Mg S	59.8	76.2	24.31	60.4	58.6	2.6	47.8	16.5	11.9	78.8	16.24
N2 PK Ca S	57.6	78.5	22.22	56.1	53.9	2.0	50.2	18.3	22.1	92.6	16.32
N2 PK Mg Ca S	53.6	76.9	21.18	61.4	58.8	3.4	52.6	16.9	16.5	89.4	16.50
N2 PK Mg Ca S TE	55.4	70.8	21.53	59.1	59.3	3.0	47.4	21.7	18.9	91.0	14.93
Mean D.M. %:	86.0	82.6		84.5	74.0	14.8	21.3	27.0	21.8	21.2	

ARABLE REFERENCE PLOTS

(69/W/RN/6)

Woburn Stackyard Series C 1969.

For details of previous years' results and for rates of fertilisers, etc., see 'Results' 60/B/3, 61/B/2, 62/B/2, 63/B/2, 64/B/2, 65/B/2, 66/B/2, 67/B/2, 68/B/3.

NOTE: The barley seed used was dressed with the fungicide ethirimol (Trade names - 'PP 149' or 'Milstem').

Cultivations, etc.:-

Winter oats: Balancing Mg applied to half plots, plots dug by hand: 30 Sept, 1968. P and K applied: 1 Oct. Seed drilled: 21 Oct. First N dressing applied: 26 Mar, 1969. Second N dressing applied: 2 May. Harvested: 7 Aug.

Sugar beet: FYM applied, plots dug by hand: 25 Nov, 1968. P and K applied: 3 Mar, 1969. First N dressing applied, plots rotary cultivated, Mg applied to half plots, seed drilled: 11 Apr. Singled, second N dressing applied: 29 May. Sprayed with malathion at 12 oz in 50 gals: 12 June. Sprayed twice with dimethoate ('Rogor 20 W' at 1.5 lb in 50 gals): 2 July, 16 July. Harvested: 2 Oct.

Barley: Balancing Mg applied to half plots: 10 Oct, 1968. Plots dug by hand: 25 Nov. P and K applied: 3 Mar, 1969. First N dressing applied, plots rotary cultivated, seed drilled: 26 Mar. Second N dressing applied: 9 May. Harvested: 19 Aug.

Grass-clover ley: Undersown in barley: 12 Mar, 1968. P and K applied: 3 Mar, 1969. N applied: 26 Mar. Cut four times: 1 Nov, 1968, 11 June, 1969, 30 July, 6 Oct.

Potatoes: FYM applied, plots dug by hand: 26 Nov, 1968. P and K applied: 3 Mar, 1969. First N dressing applied, plots rotary cultivated, Mg applied to half plots, potatoes planted: 16 Apr. Second N dressing applied: 29 May. Earthed up: 11 June. Sprayed with malathion at 12 oz in 50 gals: 12 June. Sprayed twice with dimethoate plus fentin hydroxide and maneb ('Rogor 20 W' at 1.5 lb and 'Fennite' at 1 lb in 40 gals): 2 July, 16 July. Lifted plots with neither K nor FYM, remaining plots sprayed with fentin hydroxide and maneb ('Fennite' at 1.5 lb in 40 gals): 21 Aug. Remaining plots harvested: 29 Sept.

https://doi.org/10.23637/ERADOC-1-96

Permanent grass: FYM, P and K applied: 3 Mar, 1969. N dressings applied: 26 Mar, 22 May, 30 July. Cut three times: 22 May, 30 July, 23 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 sugar in the sugar beet roots was determined.
(3) The percentage of Mg in sugar beet tops and in potato tubers was determined.
(4) Surface soil samples were taken from each block for determination of soil pH.

https://doi.org/10.23637/ERADOC-1-96

SUMMARY OF RESULTS

STACKYARD SERIES C (W)

Treatment	OATS		SUGAR BEET		BARLEY	
	GRAIN	STRAW	ROOTS	TOPS	GRAIN	STRAW
None	16.8	13.6	6.48	4.55	15.9	12.2
N1	33.1	31.3	8.02	7.33	23.4	27.5
P	14.4	13.3	6.94	4.01	15.5	15.5
N1P	34.4	34.8	6.18	6.71	18.4	21.5
K	13.3	16.5	7.87	4.24	15.2	19.9
N1K	34.1	36.7	10.34	7.64	31.3	40.6
PK	14.0	14.9	8.80	5.09	18.4	17.6
N1PK	30.9	34.8	13.74	8.95	34.2	42.9
N2PK	42.1	53.4	13.43	10.80	36.5	44.5
D	19.8	20.0	11.88	7.87	23.9	27.4
N1PKD	39.6	52.7	15.12	9.57	38.7	44.0
N2PKD	42.5	61.5	15.59	13.20	38.5	56.5
Mean D.M. %:	84.3	62.2			79.8	71.0

https://doi.org/10.23637/ERADOC-1-96

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	6.4	18.9	8.6	4.6	38.5	3.81	11.4	5.3	5.8	22.5
N1	5.4	34.9	6.0	4.4	50.7	4.03	15.1	15.8	12.2	43.1
P	7.2	21.8	5.5	3.7	38.2	3.15	10.1	5.5	4.6	20.2
N1P	5.1	31.0	4.1	3.4	43.6	3.88	15.8	14.6	12.3	42.7
K	11.9	14.6	10.7	5.6	42.8	10.11	12.7	7.1	4.8	24.6
N1K	10.1	25.5	11.0	6.3	52.9	13.50	22.4	18.3	13.7	54.4
PK	10.0	14.7	7.3	5.0	37.0	9.57	13.2	5.8	5.3	24.3
N1PK	9.3	29.6	7.6	4.2	50.7	13.04	26.7	18.0	15.6	60.3
N2PK	9.9	36.7	8.4	5.1	60.1	15.46	26.4	18.9	18.1	63.4
D	11.0	17.6	10.3	5.0	43.9	15.44	18.8	10.0	6.7	35.5
N1PKD	12.9	27.5	8.9	5.9	55.2	19.14	30.5	16.3	17.5	64.3
N2PKD	11.2	48.9	9.4	6.1	75.6	23.54	36.2	18.1	17.8	72.1
Mean D.M. %:	13.2	25.6	29.1	38.3	26.6		21.3	35.5	23.3	26.7

https://doi.org/10.23637/ERADOC-1-96

RESIDUAL PHOSPHATE ROTATION

(69/R/RN/7)

The long term and residual effects of phosphate fertilisers - Great Field IV and Sawyers I, the 10th year. For treatments and previous years' results see 'Details' 1967 and 'Results' 67/B/6 and 68/B/5.

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.

Standard applications: Manures as previously. Weedkillers: Potatoes: Paraquat at 0.375 lb ion plus linuron at 0.75 lb ion in 37 gals. Fungicide: Mancozeb at 1.2 lb in 37 gals on 3 occasions. Insecticide: Demeton-s-methyl at 3.5 oz applied with second spraying with mancozeb. Haulm destroyer: Undiluted BOV at 15 gals. Barley: Weedkiller: 2,4-D at 8 oz and dichlorprop at 32 oz in 20 gals.

Cultivations, etc. (both fields): Ploughed: 21 Nov, 1968.
Potatoes: Fertilisers applied: 14 Apr, 1969. Plots rotary cultivated, potatoes planted: 16 Apr. Paraquat and linuron applied: 13 May. Grubbed: 19 June. Rotary ridged: 25 June. Mancozeb applied: 15 July, 4 Aug, 21 Aug. Insecticide applied: 4 Aug. BOV applied: 4 Sept. Lifted: 23 Sept.
Barley: Ground chalk applied at 23 cwt: 12 Nov, 1968. Fertilisers applied: 11 Mar, 1969. Seed drilled at 140 lb: 25 Mar. Weedkiller applied: 20 May. Combine harvested: 22 Aug.
Swedes: Fertilisers applied: 29 Apr, 1969. Seed drilled at 1.25 lb: 14 May. Singled: 25 June. Lifted: 21 Oct.

Standard errors per plot.

Sawyers I:

Potatoes, total tubers, tons:	0.425 or 3.6% (11 d.f.)
Barley, grain, cwt:	2.17 or 5.2% (11 d.f.)
Swedes, fresh weight, tons:	1.059 or 10.2% (11 d.f.)

SUMMARY OF RESULTS

POTATOES

Treatment	TOTAL TUBERS: TONS Great Field IV Mean	Sawyers I Mean	% WARE Great Field IV Mean	Sawyers I Mean
		(±0.301)		
0	12.84	9.28	97.2	95.3
A1	14.68	11.03	96.6	94.9
A2	15.10	11.96	97.0	95.7
A3	16.28	12.50	96.8	95.2
A4	15.75	12.74	94.9	94.3
T1	15.79	12.08	96.4	95.2
T2	16.25	12.60	95.0	94.8
R2	14.82	11.51	97.1	96.5
R3	15.59	12.49	97.1	95.1
R4	15.74	12.76	95.1	94.7
G1	14.24	10.38	97.8	95.5
S1	13.71	10.81	96.6	95.1
Mean	15.07	11.68	96.5	95.2

BARLEY

	GRAIN: CWT		STRAW: CWT	
		(±1.53)		
0	30.1	39.1	27.3	28.5
A1	37.2	42.2	31.9	35.0
A2	31.4	44.7	33.9	34.7
A3	33.8	42.9	30.8	38.2
A4	34.9	42.3	28.0	34.3
T1	32.8	43.3	35.3	35.8
T2	40.1	43.0	35.0	34.8
R2	36.5	41.9	36.4	36.3
R3	33.5	44.3	46.0	37.3
R4	35.9	42.7	34.3	37.4
G1	31.7	40.1	28.3	30.5
S1	31.8	39.0	29.0	27.9
Mean	34.1	42.1	33.0	34.2
Mean D.M. %:	80.4	83.8	88.6	91.6

https://doi.org/10.23637/ERADOC-1-96

SWEDES, ROOTS: TONS

Treatment	Great Field IV Mean	Sawyers I Mean
		(±0.749)
0	5.70	2.78
A1	10.93	8.97
A2	16.67	12.06
A3	17.64	13.72
A4	15.56	14.44
T1	14.72	11.98
T2	16.48	11.83
R2	15.46	10.99
R3	16.58	12.00
R4	16.07	13.26
G1	10.00	5.24
S1	10.37	7.26
Mean	13.85	10.38

https://doi.org/10.23637/ERADOC-1-96

CULTIVATION - WEEDKILLER ROTATION

(69/R/RN/8)

Great Harpenden I 1969 - the 9th year

A comparison of methods of primary cultivation and the effects of weedkillers. For previous history, rotations, treatments etc., see 'Details' 1967 and 'Results' 68/B/6.

Treatment C (hitherto reserve) is now used for the following 'standard cultivations' treatment, where the primary cultivation considered best for a crop is applied for it:-
For potatoes: plough in autumn, rotary cultivate in spring, weedkiller and rotor ridging as SY plots.
For barley: deep-tine cultivate, treated with same weedkiller as H sub-plots.
For beans: plough, weedkiller as S plots.
For wheat: plough or deep-tine cultivate, treated with same weedkiller as H sub-plots.

The paraquat treatment (G) is applied to stubbles on half plots.

Treatment B (minimum cultivations): The cereal straw is now burnt on these plots. For 1969 the wheat straw was not burnt and the bean straw was raked off, as there was insufficient to burn.

The pre-emergence weedkiller to potatoes is now paraquat at 0.375 lb ion plus linuron at 0.75 lb in 37 gals.

Area harvested: Spring beans: 0.0100. Winter wheat and barley: 0.0107. Potatoes: 0.0054.

Cultivations, etc.:-
Spring beans: Straw burned on B plots: 3 Sept, 1968. Paraquat applied to G sub-plots: 10 Sept. T and B plots deep-tine cultivated: 18 Oct. T plots deep-tine cultivated second time: 19 Oct. P and C plots ploughed: 21 Oct. R plots rotary cultivated (depth 6 ins): 23 Oct. P,T,B and C plots power-harrowed, R and A plots rotary cultivated: 25 Mar, 1969. Seed drilled at 200 lb: 26 Mar. S plots sprayed: 27 Mar. M and C plots tractor-hoed twice: 14 May, 5 June. Sprayed with demeton-s-methyl at 3.5 oz in 37 gals: 26 June. Combine harvested: 8 Sept.

https://doi.org/10.23637/ERADOC-1-96

Winter wheat: Straw raked off B plots: 23 Sept, 1968. Paraquat applied to G sub-plots: 28 Sept. T plots deep-tine cultivated twice, B plots once: 17 Oct. P,C and A plots ploughed: 18 Oct. P,T,A,B and C plots spring-tine cultivated, P,T,A and C plots power harrowed: 21 Oct. R plots and no paraquat half plots of B, rotary cultivated, seed drilled at 180 lb: 22 Oct. All plots harrowed and rolled: 14 Apr, 1969. 'Nitro-Chalk' applied: 16 Apr. H sub-plots and B plots sprayed with mecoprop at 42 oz and 2,4-D at 10.5 oz in 20 gals: 1 May. Combine harvested: 30 Aug.

Potatoes: Paraquat applied to G sub-plots: 10 Sept, 1968. T plots deep-tine cultivated twice: 18 Oct, 19 Oct. P and C plots ploughed: 21 Oct. R plots rotary cultivated: 23 Oct. Unsprayed half of B plots sprayed with paraquat at normal rate: 24 Oct. Basal compound fertiliser applied, P and T plots spring-tine cultivated: 11 Apr, 1969. P and T plots spring-tine cultivated second time, R,A,B and C plots rotary cultivated, potatoes machine planted: 15 Apr. S plots sprayed: 13 May. M and C plots chain harrowed and grubbed: 14 May. M and C plots grubbed second time: 6 June. M and C plots grubbed third time, Y plots grubbed: 18 June. M,C and Y plots rotary ridged: 23 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): 16 July, 4 Aug, 22 Aug. Sprayed with undiluted BOV at 15 gals: 5 Sept. Haulm destroyed mechanically: 9 Sept. Lifted: 22 Oct.

Barley: All plots spring-tine cultivated and sprayed with sodium trichloroacetate at 18 lb in 25 gals: 30 Oct, 1968. All plots spring-tine cultivated: 14 Nov. All plots spring-tine cultivated and sprayed with sodium trichloroacetate at 18 lb in 25 gals: 25 Nov. All plots spring-tine cultivated: 9 Dec. T and C plots deep-tine cultivated twice: 11 Dec. P plots ploughed, R plots rotary cultivated (depth 6 ins): 12 Dec. P,T,B and C plots power harrowed, R and A plots rotary cultivated, seed drilled at 140 lb: 25 Mar, 1969. All plots rolled: 3 Apr. H sub-plots and B plots sprayed with mecoprop at 36 oz and 2,4-D at 9 oz in 20 gals: 20 May. Combine harvested: 22 Aug.

Standard errors per plot.

Spring beans: Grain, cwt,	whole plot:	1.52 or 6.2%	(8 d.f.)
	sub plot:	1.29 or 5.3%	(8 d.f.)
Winter wheat: Grain, cwt,	whole plot:	1.57 or 2.8%	(8 d.f.)
	sub plot:	0.63 or 1.1%	(8 d.f.)
Potatoes: Total tubers, tons,	whole plot:	0.763 or 6.4%	(8 d.f.)
	sub plot:	0.773 or 6.5%	(8 d.f.)
Barley: Grain, cwt,	whole plot:	0.82 or 1.9%	(8 d.f.)
	sub plot:	1.23 or 2.8%	(8 d.f.)

https://doi.org/10.23637/ERADOC-1-96

SUMMARY OF RESULTS

SPRING BEANS

GRAIN: CWT

	P	R	T	Mean
Mean (±0.62)	24.6	24.7	24.4	24.6
M (±1.07)	25.4	24.9	26.9	25.7 (±0.62)
S (±0.76)	24.1	24.6	23.2	24.0 (±0.44)
C	24.6	25.1	23.4	24.4
G	24.5	24.3	25.4	24.7

A	AG	B	BG	C	CG
22.6	24.0	23.0	23.1	25.4	25.2

General mean: 24.4

Mean D.M. %: 82.4

WINTER WHEAT

GRAIN: CWT

	P	R	T	Mean
Mean (±0.64)	57.0	55.9	56.9	56.6
M* (±1.11)	55.8	54.6	57.4	55.9 (±0.64)
S* (±0.78)	57.5	56.5	56.7	56.9 (±0.45)
O	57.4	55.7	57.1	56.7
G	56.6	56.0	56.7	56.4
O	57.8	56.5	56.9	57.0
H	56.1	55.2	57.0	56.1

A	AG	AH	AGH	B	BG	C	CG
60.9	54.6	56.3	59.5	55.3	57.1	56.6	56.3

General mean: 56.6

Mean D.M. %: 82.3

* Applied 1968.

POTATOES

TOTAL TUBERS: TONS

	P	R	T	Mean
Mean (±0.312)	11.39	12.03	12.40	11.94
		(±0.540)		(±0.312)
M	9.30	10.12	11.61	10.35
S	13.11	12.77	13.13	13.00
SY	11.74	13.20	12.47	12.47
		(1) and (2)		(±0.182)
O	11.37	12.16	12.21	11.91
G	11.40	11.90	12.60	11.96

(1) (±0.383) For use in vertical and interaction comparisons only
(2) (±0.315) For use in horizontal and diagonal comparisons only

A	AG	B	C	CG
11.75	11.34	12.38	10.70	10.28

General mean: 11.8

https://doi.org/10.23637/ERADOC-1-96

POTATOES

% WARE

	P	R	T	Mean
Mean	95.8	96.6	96.6	96.3
M	95.1	96.5	96.8	96.1
S	96.2	96.4	96.6	96.4
SY	96.1	96.9	96.4	96.5
O	95.9	96.7	96.4	96.3
G	95.7	96.5	96.8	96.3

A	AG	B	C	CG
96.2	95.6	95.9	96.0	95.3

General mean: 96.2

BARLEY

GRAIN: CWT

	P	R	T	Mean
Mean (±0.34)	43.6	44.0	44.0	43.8
		(±0.58)		(±0.34)
M*	43.9	43.9	43.6	43.8
S*	43.2	43.9	43.9	43.7
SY*	43.6	44.2	44.5	44.1
		(1) and (2)		(±0.29)
O	43.6	43.1	44.3	43.7
H	43.6	44.8	43.7	44.0

(1) (±0.49) For use in vertical and interaction comparisons only
(2) (±0.50) For use in horizontal and diagonal comparisons only

A	AG	AH	AGH	B	BG	C	CG
42.8	47.5	45.5	42.3	43.8	45.5	46.0	44.1

General mean: 44.1

Mean D.M. %: 80.8

* Applied 1968.

https://doi.org/10.23637/ERADOC-1-96

CEREAL DISEASE REFERENCE PLOTS

(69/R/RN/9)

Pennells Piece 1969, the seventh year

For treatments etc., see 'Results' 63/C/10 (WW = Winter wheat, SW = Spring wheat, O = Oats, Be = Spring beans).

Area of each plot: 0.0180. Area harvested: 0.0116.

Varieties in 1969 were:-
Winter wheat: Cappelle
Spring wheat: Kolibri
Oats: Manod
Spring beans: Maris Bead.

Cultivations, etc.: Sprayed with paraquat at 0.75 lb ion in 20 gals: 10 Sept, 1968. Ploughed: 23 Sept.
Winter wheat: Seed combine drilled at 160 lb: 15 Oct, 1968. Sprayed with terbutryne and related triazines (Prebane at 4 lb in 25 gals): 18 Oct. 'Nitro-Chalk' applied: 9 Apr, 1969. Sprayed with ioxynil octanoate, bromoxynil octanoate and the iso-octylester of dichlorprop ('Oxytril P' at 1 pint in 20 gals): 1 May. Combine harvested: 29 Aug.
Spring wheat: Seed combine drilled at 180 lb: 2 Apr, 1969. 'Nitro-Chalk' applied: 9 Apr. Sprayed with ioxynil at 7.5 oz and mecoprop at 22.5 oz in 20 gals: 20 May. Combine harvested: 29 Aug.
Oats: Seed combine drilled at 160 lb: 26 Mar, 1969. 'Nitro-Chalk' applied: 9 Apr. Sprayed with ioxynil at 7.5 oz and mecoprop at 22.5 oz in 20 gals: 20 May. Combine harvested: 14 Aug.
Spring beans: Seed placement drilled at 200 lb: 24 Mar, 1969. Sprayed with demeton-s-methyl at 3.5 oz in 37 gals: 19 June. Combine harvested: 10 Sept.

NOTES: (1) Yields were taken for winter and spring wheat only (Crop sequences 1, 2, 5 and 6).
(2) Estimates were made in spring and summer of the incidence of take-all (Ophiobolus graminis) and eyespot (Cercosporella herpotrichoides).
(3) For previous years' results see 'Results' 63/C/10, 64/C/9, 65/C/9, 66/C/7, 67/C/5 and 68/C/5.

https://doi.org/10.23637/ERADOC-1-96

SUMMARY OF RESULTS

GRAIN: CWT

Crop in	C1	C2	C5	C6	Mean
1963	W	W	O	W	
1964	W	W	W	W	
1965	W	BE	W	W	
1966	BE	O	W	W	
1967	O	W	BE	W	
1968	W	W	O	W	
WINTER WHEAT					
	44.2	44.0	50.3	42.5	45.3
SPRING WHEAT					
	30.9	34.3	38.2	32.3	33.9

Mean D.M. %: Winter wheat: 81.5
Spring wheat: 81.7

IRRIGATION

(69/R/RN/11)

The effect of irrigation on potatoes and barley, Great Field I and II 1969.

Design:
Potatoes: 2 randomised blocks of 4 plots.
Barley: 2 randomised blocks of 4 plots split into 3.

Area of each plot:
Potatoes: 0.2456. Area harvested: 0.0048.
Barley (sub plot): 0.0386. Area harvested: 0.0225.

Treatments:-
Potatoes: Irrigation: None (O), early (A), late (B), full (C).
Barley: All combinations of:-
Whole plots: 1. Irrigation: None (O), early (A), late (B), full (C).
Sub plots: 2. Nitrogen: 0.2 (N1) supplied in basal NPK, 0.4 (N2) and 0.6 (N3) cwt as basal NPK plus 'Nitro-Chalk'.

Basal applications:
Potatoes: 10 cwt (13:13:20). Weedkiller: Paraquat at 0.375 lb ion and linuron at 0.75 lb in 37 gals. Fungicide: Mancozeb at 1.2 lb in 37 gals on 3 occasions. Insecticide: Demeton-s-methyl at 3.5 oz applied with first spraying with mancozeb.
Barley: 2.5 cwt (8:20:16) combine drilled. Weedkiller: Mecoprop at 36 oz and 2,4-D at 9 oz in 20 gals.

Cultivations, etc.:
Potatoes: Ploughed: 19 Nov, 1968. Basal NPK applied: 14 Apr, 1969. All plots rotary cultivated, potatoes machine planted: 16 Apr. Weedkiller applied: 13 May. Grubbed and rotary ridged: 21 June. Insecticide applied: 16 July. Fungicide applied: 16 July, 5 Aug and 22 Aug. Sprayed with undiluted BCV at 15 gals: 4 Sept. Haulm destroyed mechanically: 18 Sept. Lifted: 19 Sept. Variety: King Edward.
Barley: Ploughed: 6 Feb, 1969. 'Nitro-Chalk' applied, seed drilled at 140 lb: 29 Mar. Weedkiller applied: 14 May. Combine harvested: 14 Aug. Variety: Zephyr.

https://doi.org/10.23637/ERADOC-1-96

RAINFALL AND IRRIGATION: INCHES

Week-ending	Rainfall	IRRIGATION Potatoes A	Potatoes B	Potatoes C	Barley A	Barley B	Barley C
May 6	0.66						
May 13	0.30						
May 20	0.88						
May 27	0.58						
June 3	0.88						
June 10	TR						
June 17	0.45	1.00	-	1.00	1.00	-	1.00
June 24	0.79						
July 1	0.01	-	1.00	1.00	-	1.00	1.00
July 8	0.88						
July 15	0.12	-	1.00	1.00	-	0.75	0.75
July 22	TR						
July 29	1.00	-	1.00	1.00			
Aug 5	0.64						
Aug 12	0.18	-	1.00	1.00			
Aug 19	0.50						
Aug 26	0.39						
Sept 2	0.01						
Sept 9	0.00						
Sept 16	0.29						
Sept 23	0.07						
Sept 30	0.03						
Total	8.66	1.00	4.00	5.00	1.00	1.75	2.75

Standard error per sub plot.
Grain, cwt: 2.41 or 5.8% (8 d.f.)

https://doi.org/10.23637/ERADOC-1-96

SUMMARY OF RESULTS

	O	A	B	C	Mean
POTATOES					
TOTAL TUBERS, TONS	15.81	16.63	18.08	18.70	17.31
% WARE	95.4	95.0	97.2	95.8	95.8
BARLEY. GRAIN, CWT					
		(±1.70)*			(±0.85)
N1	45.4	42.3	43.2	37.7	42.2
N2	41.7	42.9	44.5	42.2	42.8
N3	37.7	39.0	38.8	41.3	39.2
Mean (±0.79)	41.6	41.4	42.2	40.4	41.4

* For use in vertical and interaction comparisons only

Mean D.M. %: Barley: 81.1

ORGANIC MANURING EXPERIMENT

(69/W/RN/12)

The cumulative effects of organic matter on light land - Woburn Stackyard B 1969, 5th year.

For previous history, rotation, treatments etc., see 'Results' 66/C/31, 67/C/24 and 68/C/18. All plots except those under leys (LC and LN) carried sugar beet.

Area of each sub plot: 0.0156. Area harvested: Leys: 0.0129. Sugar beet: 0.0034.

Fertilisers applied Autumn 1968 (cwt)

Treatment	P2O5	K2O	MgO
DG	-	-	-
ST	0.4	-	0.15
PT	0.5	1.0	-
GM	0.5	1.0	0.2
FD	1.0	3.0	0.8
FS	0.5	1.0	0.2
LC	0.8	1.0	0.2
LN	0.8	1.0	0.2

Fertilisers applied Spring 1969 (cwt)

Treatment	P2O5	K2O
DG	-	-
ST	0.5	1.5
PT	0.5	1.0
GM	0.7	1.1
FD	-	1.6
FS	0.5	1.0
LC	0.4	1.2
LN	0.4	1.0

No magnesium was required in the Spring.

Nitrogen to sugar beet:
N1, N3, N5, N7. 0.2, 0.6, 1.0, 1.4 cwt N as 'Nitro-Chalk'.

Basal and standard applications: Ground chalk to whole area at 4.5 tons.
Insecticide to sugar beet: Demeton-s-methyl at 3.5 oz in 30 gals.

Cultivations, etc.:
LC and LN plots: P,K, and Mg applied: 8 Nov, 1968. Ground chalk applied: 10, 14 Feb, 1969. P,K applied: 3 Mar. N applied to LN plots: 14 Mar, 3 July. Cut: 25 June, 3 Sept.

https://doi.org/10.23637/ERADOC-1-96

Sugar beet: P,K, and Mg applied: 19, 20 Nov, 1968. Peat, straw, FYM applied: 28 - 29 Nov. Ploughed: 29 Nov. Ground chalk applied: 10, 14 Feb. NPK applied: 10 - 11 Apr. Power harrowed, seed drilled at 5 lb: 11 Apr. Singled: 29 May - 3 June. Insecticide applied: 23 June. Lifted: 29 - 30 Oct. Variety: Klein E.

Standard errors per plot. Sugar beet:		
Roots (washed), tons:	Whole plot:	1.183 or 8.9% (15 d.f.)
	Sub plot:	1.342 or 10.1% (54 d.f.)
Total sugar, cwt:	Whole plot:	5.31 or 10.2% (15 d.f.)
	Sub plot:	5.50 or 10.6% (54 d.f.)
Tops, tons:	Whole plot:	0.759 or 13.0% (15 d.f.)
	Sub plot:	1.161 or 10.8% (54 d.f.)

https://doi.org/10.23637/ERADOC-1-96

SUMMARY OF RESULTS

SUGAR BEET

	N1	N3	N5	N7	Mean
	ROOTS (WASHED): TONS				
	(1) and (2)				(±0.592)
DG	14.68	15.97	16.70	16.47	15.96
ST	9.80	12.37	13.77	14.45	12.60
PT	9.67	11.56	14.57	15.11	12.73
GM	13.34	14.11	14.70	14.44	14.15
FD	9.12	12.34	13.25	13.74	12.11
FS	9.63	12.34	13.51	13.64	12.28
Mean (±0.274)	11.04	13.11	14.42	14.64	13.30

(1) (±0.829) For use in vertical and diagonal comparisons only
(2) (±0.671) For use in horizontal and interaction comparisons only

	SUGAR %				
DG	20.1	20.0	19.5	19.2	19.7
ST	19.8	20.0	20.0	19.3	19.8
PT	19.9	20.2	19.3	19.5	19.7
GM	19.7	19.7	19.0	18.6	19.3
FD	19.9	19.7	19.3	18.7	19.4
FS	19.6	19.6	19.9	19.0	19.6
Mean	19.9	19.8	19.5	19.0	19.6

https://doi.org/10.23637/ERADOC-1-96

SUGAR BEET

	N1	N3	N5	N7	Mean
	TOTAL SUGAR: CWT				
		(1) and (2)			(±2.65)
DG	59.0	63.7	65.1	63.2	62.8
ST	38.9	49.5	55.4	55.9	49.9
PT	38.4	46.6	56.4	58.9	50.1
GM	52.7	55.5	56.1	53.7	54.5
FD	36.4	48.9	51.9	52.3	47.4
FS	37.8	48.6	54.2	52.5	48.3
Mean (±1.12)	43.9	52.1	56.5	56.1	52.2

(1) (±3.57) For use in vertical and diagonal comparisons only
(2) (±2.75) For use in horizontal and interaction comparisons only

TOPS: TONS

		(1) and (2)			(±0.380)
DG	4.89	6.55	7.87	8.47	6.95
ST	2.74	4.10	5.69	7.14	4.92
PT	3.04	4.30	6.88	7.61	5.46
GM	5.75	6.88	8.53	9.66	7.71
FD	3.17	4.40	5.72	6.81	5.03
FS	2.94	4.76	5.29	7.08	5.02
Mean (±0.237)	3.76	5.16	6.66	7.79	5.85

(1) (±0.630) For use in vertical and diagonal comparisons only
(2) (±0.580) For use in horizontal and interaction comparisons only

https://doi.org/10.23637/ERADOC-1-96

LEY: DRY MATTER

LC	LN
1ST CUT	
26.0	36.0
2ND CUT	
4.1	8.5
TOTAL OF 2 CUTS	
30.1	44.5

Mean D.M. %: 1st cut: 29.2
2nd cut: 33.3
Total of 2 cuts: 31.2

https://doi.org/10.23637/ERADOC-1-96

INTENSIVE CEREALS

(69/W/RN/13)

Woburn Stackyard I 1969 - the fourth year.

For treatments etc., and previous years' results, see 'Results' 66/B/9, 67/B/9 and 68/B/7.

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

NOTE: The magnesium test on eighth plots of wheat blocks continued and was cumulative with 1968 and a similar test was introduced on eighth plots on the barley blocks: None (0), 162 lb MgO as Epsom salts (Mg).

Basal and standard applications:

All crops: 1.0 cwt P_2O_5, 2.0 cwt K_2O as (0:14:28), half ploughed in, half applied to the plough furrow.

Ley: 0.4 cwt N as 'Nitro-Chalk'.

Potatoes: 1.2 cwt N as 'Nitro-Chalk'. Weedkiller: Paraquat at 0.37 lb ion plus linuron at 0.5 lb in 25 gals. Fungicide: Mancozeb at 1.2 lb in 37 gals applied on 2 occasions. Insecticide: Demeton-s-methyl at 3.5 oz applied once with fungicide.

Wheat: Weedkiller: Ioxynil at 9 oz plus mecoprop at 27 oz in 25 gals.

Barley: Weedkiller: Ioxynil octanoate, bromoxynil octanoate and iso-octyl ester of dichlorprop ('Oxytril P' at 1 pt in 25 gals).

Cultivations, etc.:

All plots: Half PK applied: 1 Oct, 1968. Ploughed: 4 Oct. Remaining PK and Mg applied: 7 Oct.

Ley: Seeds sown at 29 lb: 14 Oct. 'Nitro-Chalk' applied: 27 Mar, 1969. Cut twice: 28 June, 3 Sept.

Potatoes: 'Nitro-Chalk' applied: 17 Apr. Rotary cultivated, potatoes planted: 18 Apr. Weedkiller applied: 15 May. Rotary ridged: 17 June. Fungicide plus insecticide applied: 18 July. Fungicide applied: 7 Aug, 27 Aug. Haulm mechanically destroyed: 16 Sept. Lifted: 23 Sept.

Wheat: Seed drilled at 175 lb: 17 Oct, 1968. 'Nitro-Chalk' applied: 15 Apr, 1969. Weedkiller applied: 2 May. Combine harvested: 29 Aug.

https://doi.org/10.23637/ERADOC-1-96

Barley: Seed drilled at 140 lb: 11 Mar resown 16 Apr. 'Nitro-Chalk' applied: 3 Apr. Weedkiller applied: 22 May. Combine harvested: 29 Aug.

NOTE: 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, cwt:		
Wheat blocks 1/4 plot:	1st cut:	5.89 or 19.2% (4 d.f.)
	2nd cut:	0.21 or 4.7% (4 d.f.)
	Total of 2 cuts:	5.81 or 16.5% (4 d.f.)
Barley blocks 1/4 plot:	1st cut:	7.31 or 18.7% (4 d.f.)
	2nd cut:	0.52 or 9.3% (4 d.f.)
	Total of 2 cuts:	7.66 or 17.1% (4 d.f.)
Wheat, grain, cwt: 1/4 plot:		2.14 or 7.4% (12 d.f.)
1/8 plot:		1.99 or 6.9% (16 d.f.)
Barley, grain, cwt: 1/4 plot:		1.45 or 4.9% (12 d.f.)
1/8 plot:		1.52 or 5.1% (16 d.f.)
Potatoes, total tubers, tons:		
Wheat blocks 1/4 plot:		0.882 or 6.3% (4 d.f.)
Barley blocks 1/4 plot:		0.766 or 4.6% (4 d.f.)

https://doi.org/10.23637/ERADOC-1-96

SUMMARY OF RESULTS

LEY

PERMANENT WHEAT BLOCKS

1968

	N1	N2	N3	N4	Mean
		1ST CUT			
		(±4.17)*			(±2.08)
0	32.5	28.7	30.0	32.4	30.9
Mg	28.1	29.2	33.5	31.4	30.5
Mean	30.3	28.9	31.8	31.9	30.7

* For use in vertical and interaction comparisons only

		2ND CUT			
		(±0.15)*			(±0.08)
0	4.3	5.0	4.4	4.7	4.6
Mg	4.0	5.1	4.4	4.4	4.5
Mean	4.2	5.1	4.4	4.5	4.5

* For use in vertical and interaction comparisons only

Mean D.M. %: 1st cut: 29.3
2nd cut: 35.6

https://doi.org/10.23637/ERADOC-1-96

LEY

PERMANENT WHEAT BLOCKS

1968

	N1	N2	N3	N4	Mean
	TOTAL OF 2 CUTS				
		(±4.11)*			(±2.05)
O	36.8	33.7	34.4	37.1	35.5
Mg	32.1	34.3	37.9	35.8	35.0
Mean	34.4	34.0	36.2	36.5	35.3

* For use in vertical and interaction comparisons only

Mean D.M. %: 32.4

https://doi.org/10.23637/ERADOC-1-96

LEY

PERMANENT BARLEY BLOCKS

1968

	N1	N2	N3	N4	Mean
		1ST CUT			
		(±5.17)*			(±2.58)
0	43.1	36.5	36.9	34.4	37.8
Mg	46.4	40.7	36.7	38.2	40.5
Mean	44.8	38.6	36.8	36.3	39.1

* For use in vertical and interaction comparisons only

		2ND CUT			
		(±0.37)*			(±0.18)
0	4.8	5.5	5.1	5.4	5.2
Mg	5.1	5.7	6.4	6.5	5.9
Mean	5.0	5.6	5.8	6.0	5.6

* For use in vertical and interaction comparisons only

Mean D.M. %: 1st cut: 30.4
2nd cut: 36.8

https://doi.org/10.23637/ERADOC-1-96

LEY

PERMANENT BARLEY BLOCKS

1968

	N1	N2	N3	N4	Mean
	TOTAL OF 2 CUTS				
		(±5.41)*			(±2.71)
O	48.0	42.1	42.1	39.9	43.0
Mg	51.5	46.4	43.1	44.7	46.4
Mean	49.7	44.2	42.6	42.3	44.7

* For use in vertical and interaction comparisons only

Mean D.M. %: 33.6

https://doi.org/10.23637/ERADOC-1-96

WINTER WHEAT

GRAIN: CWT

Crop in 1966	1967	1968	N1	N2	N3	N4	0	Mg	Mean
				(1) and (2)			(3) and (4)		(±1.51)
L	P	W	23.3	28.6	24.6	26.6	24.2	27.3	25.8
P	W	W	17.0	24.8	23.4	25.0	21.6	23.6	22.6
W	L	P	33.0	41.6	43.6	39.6	38.9	40.0	39.4
W	W	W	23.3	28.1	31.8	29.6	27.1	29.3	28.2
							(5) and (6)		(±0.76)
					N1		24.3	24.0	24.1
					N2		29.5	32.0	30.8
					N3		29.3	32.4	30.9
					N4		28.6	31.8	30.2
					Mean (±0.35)		27.9	30.0	29.0

(1) (±2.00) (3) (±1.59) (5) (±0.91) For use in vertical and diagonal comparisons only

(2) (±1.51) (4) (±0.70) (6) (±0.70) For use in horizontal and interaction comparisons only

Mean D.M. %: 82.1

WINTER WHEAT

STRAW: CWT

Crop in 1966	1967	1968	N1	N2	N3	N4	O	Mg	Mean
L	P	W	25.7	30.8	30.3	32.1	29.3	30.2	29.7
P	W	W	18.9	29.3	28.8	30.3	26.6	27.0	26.8
W	L	P	33.0	45.0	48.1	47.4	43.3	43.4	43.4
W	W	W	25.7	32.3	35.1	34.3	31.2	32.5	31.8
					N1		26.2	25.4	25.8
					N2		34.6	34.1	34.4
					N3		35.3	35.8	35.6
					N4		34.3	37.8	36.0
					Mean		32.6	33.3	32.9

Mean D.M. %: 87.4

https://doi.org/10.23637/ERADOC-1-96

BARLEY

GRAIN: CWT

Crop in 1966	1967	1968	N1	N2	N3	N4	O	Mg	Mean
				(1) and (2)			(3) and (4)		(±0.58)
L	P	B	25.1	33.1	32.4	31.3	30.8	30.2	30.5
P	B	B	19.5	31.9	32.1	29.1	28.4	27.9	28.2
B	L	P	28.7	35.6	34.9	30.8	32.7	32.2	32.5
B	B	B	20.4	28.0	31.0	30.5	27.1	27.9	27.5
							(5) and (6)		(±0.51)
					N1		23.0	23.8	23.4
					N2		32.2	32.2	32.2
					N3		32.9	32.3	32.6
					N4		30.8	30.0	30.4
					Mean (±0.27)		29.7	29.6	29.7

(1) (±1.06) (3) (±0.69) (5) (±0.64) For use in vertical and diagonal comparisons only

(2) (±1.03) (4) (±0.54) (6) (±0.54) For use in horizontal and interaction comparisons only

Mean D.M. %: 82.4

https://doi.org/10.23637/ERADOC-1-96

BARLEY

STRAW: CWT

Crop in 1966	1967	1968	N1	N2	N3	N4	0	Mg	Mean
L	P	B	23.0	32.2	32.3	32.1	29.0	30.8	29.9
P	B	B	20.0	29.9	33.3	32.0	28.3	29.3	28.8
B	L	P	26.2	35.7	35.2	34.7	33.0	32.8	32.9
B	B	B	20.6	29.8	32.2	32.5	27.9	29.7	28.8
					N1		21.6	23.3	22.5
					N2		30.7	33.1	31.9
					N3		32.5	34.0	33.2
					N4		33.5	32.2	32.8
					Mean		29.6	30.6	30.1

Mean D.M. %: 88.3

https://doi.org/10.23637/ERADOC-1-96

POTATOES

PERMANENT WHEAT BLOCKS

1967

	N1	N2	N3	N4	Mean
	TOTAL TUBERS				
		(±0.624)*			(±0.312)
0	14.69	13.95	13.00	12.90	13.64
Mg	14.93	13.24	14.77	13.99	14.23
Mean	14.81	13.60	13.89	13.45	13.93

* For use in vertical and interaction comparisons only

% WARE

0	95.9	95.4	95.3	95.9	95.6
Mg	96.3	95.6	94.9	95.8	95.6
Mean	96.1	95.5	95.1	95.9	95.6

https://doi.org/10.23637/ERADOC-1-96

POTATOES

PERMANENT BARLEY BLOCKS

1967

	N1	N2	N3	N4	Mean
	TOTAL TUBERS				
	(±0.542)*				(±0.271)
0	14.98	16.61	15.86	15.81	15.82
Mg	17.23	16.85	16.98	17.56	17.15
Mean	16.11	16.73	16.42	16.68	16.48

* For use in vertical and interaction comparisons only

	% WARE				
0	95.8	94.7	94.7	96.0	95.3
Mg	95.3	96.0	95.7	96.7	95.9
Mean	95.6	95.4	95.2	96.4	95.6

https://doi.org/10.23637/ERADOC-1-96

LONG TERM PHOSPHATE

(69/W/RN/14)

Residual and cumulative effects of superphosphate - Woburn Stackyard III 1969, 2nd year.

For design, treatments, etc., and for previous year's results see 'Results' 68/B/8. In 1969 residual effects only were measured.

Area of each sub-plot: 0.0167. Area harvested: Barley: 0.0111.
Potatoes: 0.0111.

Basal applications:

Potatoes: 2.0 cwt N as 'Nitro-Chalk' and 1.5 cwt K20 as sulphate of potash in spring. Weedkiller: Paraquat at 0.37 lb ion plus linuron at 0.5 lb in 25 gals. Fungicide: Mancozeb at 1.2 lb in 37 gals applied on 2 occasions. Insecticide: Demeton-s-methyl at 3.5 oz applied once with fungicide.

Barley: 17 cwt ground chalk, 1.2 cwt N as 'Nitro-Chalk', and 0.5 cwt K20 as muriate of potash. Weedkiller: Ioxynil octanoate, bromoxynil octanoate, iso-octyl-ester of dichlorprop ('Oxytril P' at 1 pint in 25 gals).

Cultivations, etc.: Both crops, ploughed: 25 Nov, 1968.

Potatoes: 'Nitro-Chalk', sulphate of potash applied: 10 Apr, 1969. Rotary cultivated, potatoes planted: 18 Apr. Weedkiller applied: 15 May. Rotary ridged: 16 June. Fungicide and insecticide applied together: 18 July. Fungicide applied: 7 Aug, 27 Aug. Sprayed with undiluted BOV at 16 gals: 25 Sept. Lifted: 20 Oct. Variety: Majestic.

Barley: Ground chalk applied: 21 Oct, 1968. 'Nitro-Chalk', muriate of potash applied: 25 Mar, 1969. Seed drilled at 140 lb: 29 Mar. Weedkiller applied: 22 May. Combine harvested: 25 Aug. Variety: Maris Badger.

Standard errors per plot.

Potatoes, Total Tubers, tons:	Whole plot:	1.591	or 10.6%	(10 d.f.)
	Sub plot:	1.434	or 9.5%	(18 d.f.)
Barley, Grain, cwt:	Whole plot:	1.64	or 5.5%	(10 d.f.)
	Sub plot:	2.44	or 8.1%	(18 d.f.)

https://doi.org/10.23637/ERADOC-1-96

SUMMARY OF RESULTS

BARLEY

R0	R1	R2	R4	R6	Mean
		GRAIN:CWT			
(±0.67)		(±0.95)			
27.8	29.9	30.2	32.5	32.5	30.1
		STRAW:CWT			
23.1	24.8	26.4	31.1	26.9	25.9

Mean D.M.%: Grain: 82.5
Straw: 85.3

https://doi.org/10.23637/ERADOC-1-96

POTATOES

R0	R1	R2	R4	R6	Mean
		TOTAL TUBERS:TONS			
(±0.649)		(±0.918)			
14.16	15.14	15.70	15.89	15.14	15.03
		% WARE			
96.9	97.0	96.1	96.5	95.0	96.4

https://doi.org/10.23637/ERADOC-1-96

ROTATION AND FUMIGATION

(69/W/RN/15)

The effects of a soil fumigant on a rotation of crops - Woburn Butt Close 1969, 1st year - Barley, potatoes and sugar beet.

Design: 3 series each of 2 blocks of 3 plots split into 7.

Area of each sub plot: 0.0048. Area harvested: Barley, potatoes - 0.0013, sugar beet - 0.0014.

Treatments: All combinations of:-
Whole plots: 1. Nitrogen to barley: 0.3 (N1), 0.6 (N2), 0.9 (N3) cwt N as 'Nitro-Chalk'.
or Nitrogen to potatoes and sugar beet: 0.6 (N1), 1.2 (N2), 1.8 (N3) cwt N as 'Nitro-Chalk'.
Sub plots: 2. Fumigant: None (0), 400 lb DD applied before potatoes (P), sugar beet (S), barley (B), all crops (A), 2 untreated reserve plots (R).

Basal applications:-
Barley: 280 lb (0:20:20). Weedkiller: Ioxynil at 7.5 oz plus mecoprop at 22.5 oz in 25 gals.
Potatoes: 940 lb (0:14:28). Weedkiller: Paraquat at 0.37 lb ion plus linuron at 0.5 lb in 25 gals. Fungicide: Mancozeb at 1.2 lb in 37 gals applied on 3 occasions. Insecticide: Demeton-s-methyl at 3.5 oz in 37 gals applied once with fungicide.
Sugar beet: 940 lb (0:14:28). Weedkiller: Phenmedipham ('Betanal' at 5 pts in 20 gals). Insecticide: Demeton-s-methyl at 3.5 oz in 30 gals.

Cultivations, etc.:
All crops: Ploughed: 30 Sept, 1968. Fumigant injected: 30 Oct. Ploughed: 3 Feb, 1969. Previous crops: Barley 1967, 1968.
Barley: N applied: 25 Mar. Seed combine drilled at 140 lb: 26 Mar. Weedkiller applied: 14 May. Combine harvested: 7 Aug. Variety: Zephyr.
Potatoes: PK applied: 26 Mar. N applied: 8 Apr. Rotary cultivated, potatoes planted: 18 Apr. Weedkiller applied: 14 May. Grubbed, rotary ridged: 17 June. Fungicide plus insecticide applied: 18 July. Fungicide applied: 6 Aug, 27 Aug. Lifted: 24 Sept. Variety: King Edward.

https://doi.org/10.23637/ERADOC-1-96

Sugar beet: PK applied: 26 Mar. N applied, power harrowed: 8 Apr. Seed drilled at 5 lb: 10 Apr. Weedkiller applied: 14 May. Singled: 23 May. Insecticide applied: 26 June. Lifted: 28 Oct. Variety: Klein E.

NOTE: Soil samples were taken for eelworm counts, (Heterodera rostochiensis, H.avenae) in April. Soil samples for counts of other nematodes were taken in May. Further soil samples were taken from the barley area in August and potatoes and sugar beet areas in November for nematode counts.

Standard errors per sub plot.

Barley, grain, cwt:	4.67 or 16.2% (18 d.f.)
Sugar beet, roots (washed), tons:	1.191 or 6.7% (18 d.f.)
Total sugar, cwt:	4.21 or 6.8% (18 d.f.)
Potatoes, total tubers, tons:	1.508 or 9.7% (18 d.f.)

https://doi.org/10.23637/ERADOC-1-96

SUMMARY OF RESULTS

BARLEY

DD, LB/AC

	0	400	Mean
	GRAIN: CWT		
	(±1.48)*	(±2.34)*	
N1	18.7	18.1	18.5
N2	34.8	36.0	35.1
N3	33.0	32.6	32.9
Mean	28.8 (±0.85)	28.9 (±1.35)	28.9

* For use in horizontal and interaction comparisons only

	STRAW: CWT		
N1	16.0	16.0	16.0
N2	27.6	28.7	27.9
N3	34.3	32.2	33.7
Mean	26.0	25.6	25.9

https://doi.org/10.23637/ERADOC-1-96

SUGAR BEET

DD, LB/AC

	0	400	Mean
	ROOTS (WASHED): TONS		
	(±0.377)*	(±0.595)*	
N1	16.67	15.70	16.39
N2	18.44	18.40	18.43
N3	18.61	19.06	18.74
Mean	17.91 (±0.217)	17.72 (±0.344)	17.86
	SUGAR %		
N1	17.8	17.6	17.7
N2	17.2	17.4	17.3
N3	16.9	16.8	16.9
Mean	17.3	17.3	17.3
	TOTAL SUGAR: CWT		
	(±1.33)*	(±2.10)*	
N1	59.4	55.1	58.2
N2	63.5	64.1	63.7
N3	62.9	63.9	63.2
Mean	61.9 (±0.77)	61.0 (±1.22)	61.7

* For use in horizontal and interaction comparisons only

POTATOES

DD, LB/AC

	0	400	Mean
	TOTAL TUBERS: TONS		
	(±0.477)*	(±0.754)*	
N1	11.08	14.41	12.03
N2	14.77	17.18	15.45
N3	18.91	20.30	19.30
Mean	14.92 (±0.275)	17.30 (±0.435)	15.60
	% WARE		
N1	85.7	85.7	85.7
N2	86.5	86.1	86.4
N3	90.4	86.2	89.2
Mean	87.5	86.0	87.1

* For use in horizontal and interaction comparisons only