ROTHAMSTED RESEARCH

Numerical Results of the Field Experiments 1969

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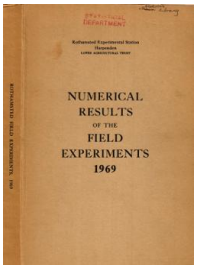

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Rothamsted Research

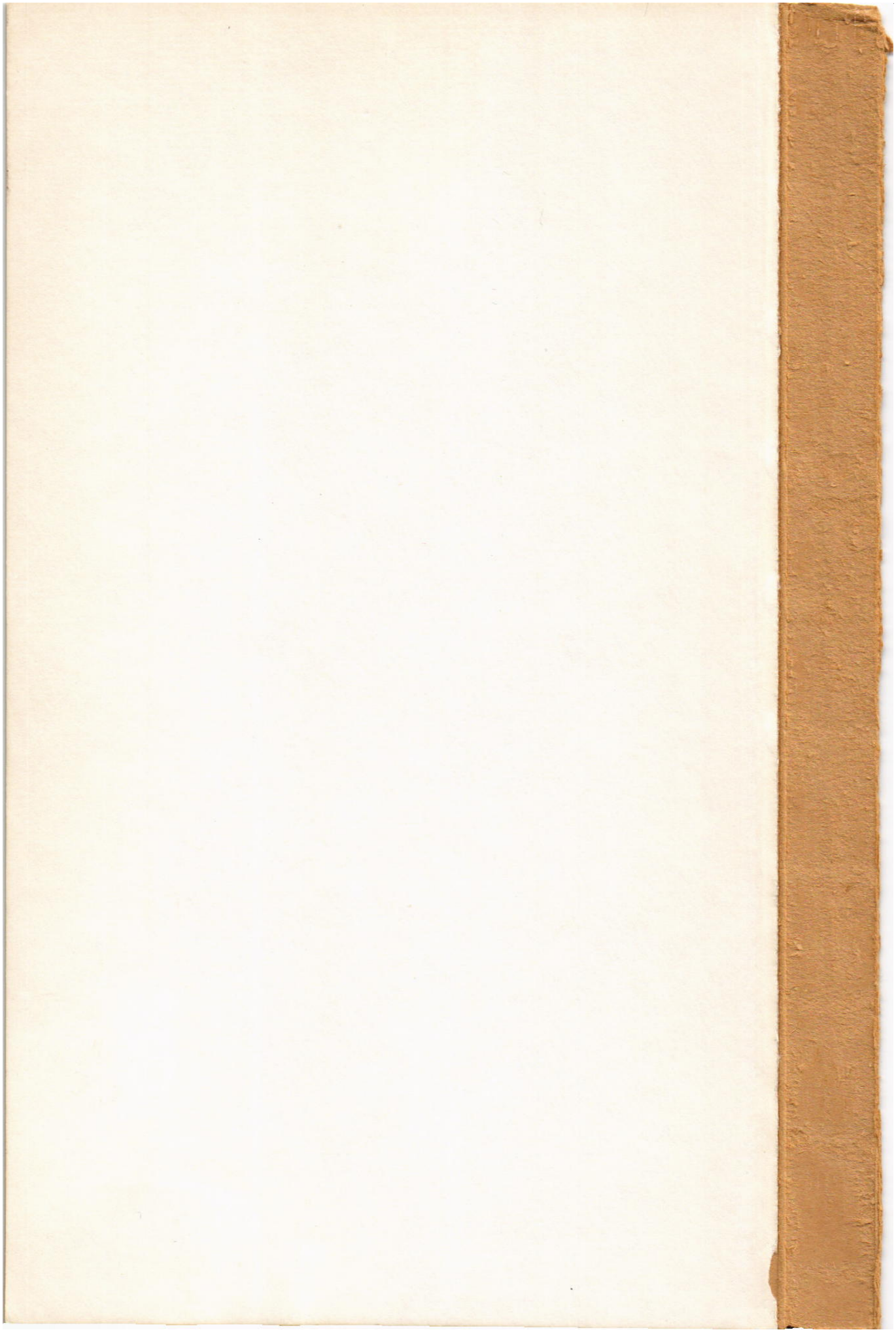
Rothamsted Research (1970) *Default Title ;* Numerical Results Of The Field Experiments 1969, pp -2 - 337 **- DOI: https://doi.org/10.23637/ERADOC-1-96**

Rothamsted Experimental Station
Harpenden
LAWES AGRICULTURAL TRUST

NUMERICAL RESULTS OF THE FIELD EXPERIMENTS 1969

ROTHAMSTED FIELD EXPERIMENTS, 1969

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



Rothamsted Experimental Station

Harpenden

Lawes Agricultural Trust

NUMERICAL RESULTS

of the

FIELD

EXPERIMENTS

1969

This report includes only experiments conducted at Rothamsted, Woburn and Saxmundham. The design and supervision of these experiments are the responsibility of the Field Plots Committee (present members: D.J. Watson (Chairman), G.V. Dyke (Secretary), J. McEwen (Deputy Secretary), F.C. Bawden, G.W. Cooke, J.M. Hirst, F.G.W. Jones, J.R. Moffatt, R. Moffitt, J.A. Nelder).

Price: 10/-

Published 1970

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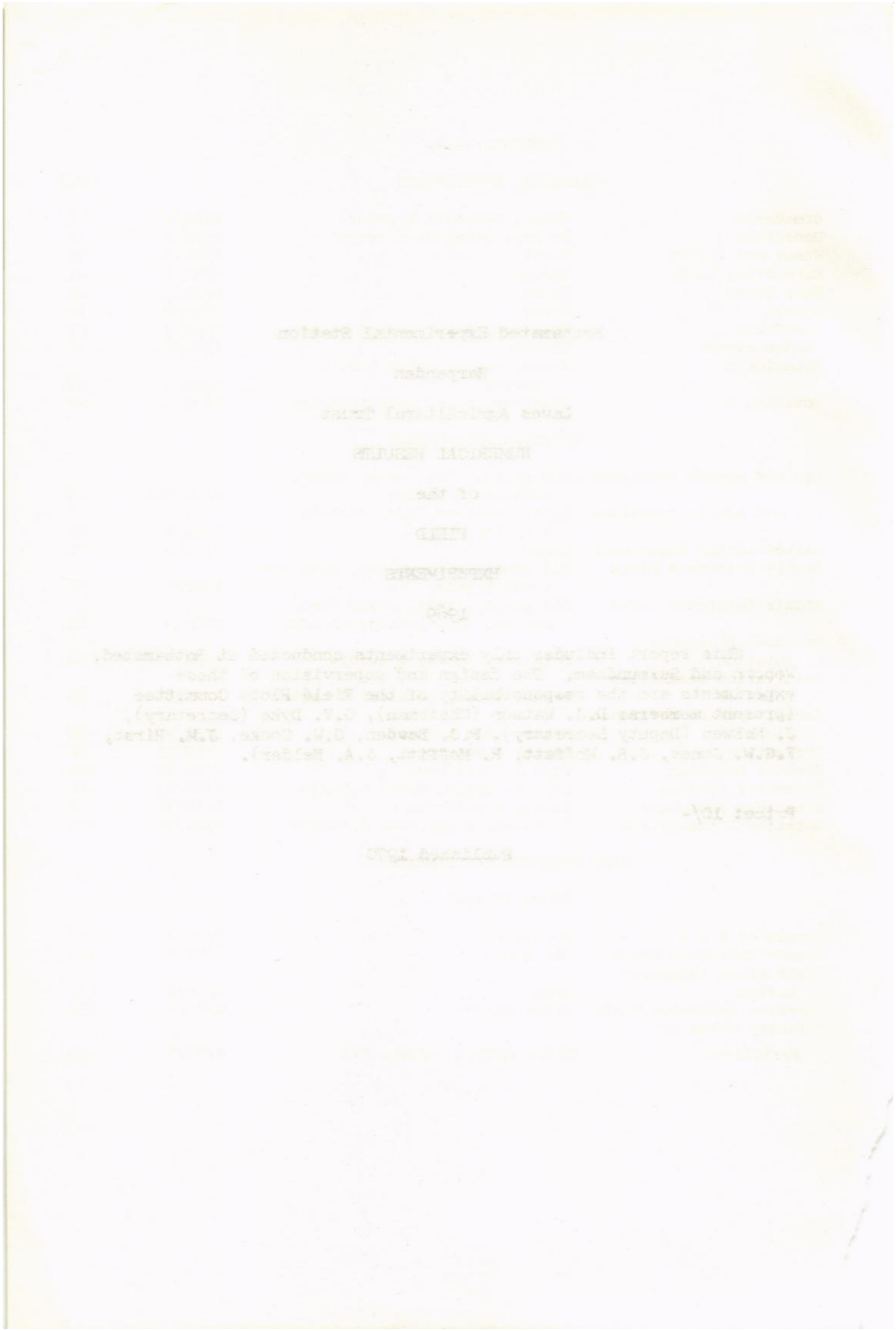

CONTENTS 1969

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CONTENTS 1969 (CONTD.)

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CONTENTS 1969 (CONTD.)

ANNUAL EXPERIMENTS

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CONTENTS 1969 (CONTD.)

ANNUAL EXPERIMENTS (continued)

R = Rothamsted, W = Woburn, S = Saxmundham

Errata to Results 68/De/4.1. Delete last line of NOTE and add:-

'burning off and prior to lifting, counts were made of stem and plant number.

Standard errors per plot. Total tubers:
Whole plot: 0.376 or 2.1% (5 d.f.)
Sub plot: 1.012 or 5.7% (30 d.f.)'

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

NUMERICAL RESULTS OF THE FIELD EXPERIMENTS, 1969

In this report the following conventions are observed unless otherwise stated.

All areas are in acres.

All seed rates, rates of application of fertilisers, sprays etc. are per acre.

All yields and plant numbers are per acre.

The following conventions are used in variate headings:

Wheat, barley, oats, rye, beans etc.

Grain:	Grain (at 85% dry matter)
Straw:	Straw (at 85% dry matter)

Potatoes

% ware:	Percentage ware (1.5 inch riddle)

Sugar beet

Roots:	Roots (washed)
Sugar %:	Sugar percentage

Oilseed rape

Grain:	Grain (at 90% dry matter)
% fixed oil:	Percentage fixed oil

All crops

Mean D.M. %:	Mean dry matter % as harvested

For any other crop, details of abbreviations are given as necessary.

The following abbreviated forms of reference are used:

'Results'	(Numerical) Results of the Field Experiments, with year of harvest given.
'Details'	Details of the Classical and Long Term Experiments up to 1967.

Compound fertilisers indicated thus - (20:10:10) = compound fertiliser (20% N, 10% P_2O_5, 10% K_2O), granular unless otherwise stated.

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

Treatment symbols are used in all summaries of results, and for annual experiments the key is given with the treatment descriptions.

For the classical and long term experiments the full description of the treatments is given in the 'Details': where necessary the key to the symbols is given in the 1968 'Results'.

For crop sequence experiments in progress in 1969 the key is given in the first year of the experiment with modifications as they arise.

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

WHEAT AND THREE-COURSE ROTATION BROADBALK 1969

(69/R/BK/1)

The 126th year, 2nd year of revised scheme

For history, treatments etc. see 'Details' 1967, Station Report for 1966, pp.229-231, Station Report for 1968, Part II and 'Results' 68/A/1.

Areas harvested:

		Area harvested
Wheat:	Section 0	0.0107
	Section 1	0.0197
	Sections 2, 3 and 6	0.0162
	Sections 8 and 9	0.0171
Potatoes:	Section 4	0.0163
Beans:	Section 7	0.0153

Standard applications:-

Winter wheat: Weedkillers: Paraquat at 0.75 lb ion in 20 gals to all sections except 6 (following fallow) and 8 (no weedkillers). Terbutryne and related triazines, ('Prebane' at 4 lb in 25 gals) to all sections except 8. MCPA, mecoprop and dicamba ('Banlene Plus' at 4 pints in 20 gals) to all sections except 8.

Potatoes: Weedkillers: Paraquat at 0.75 lb ion in 20 gals. Paraquat at 0.375 lb ion plus 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 second application of mancozeb.

Spring beans: Insecticide: Demeton-s-methyl at 3.5 oz in 37 gals (no weedkiller).

Fallow: Weedkiller: Paraquat at 0.75 lb ion in 20 gals.

Section 00: Methyl bromide sub-plots:- No further soil fumigation was carried out for 1969, residual effects of the application in autumn 1967 being tested.

Cultivations, etc.:-

ALL SECTIONS: Autumn fertiliser applied: 25 Sept, 1968. FYM applied: 4 Oct. Ploughed: 1 - 5 Oct.

CROPPED SECTIONS:

Winter wheat: Paraquat applied: 5 - 10 Sept, 1968. Seed drilled at 180 lb: 17 Oct. 'Prebane' applied: 18 Oct. 'Nitro-Chalk' applied: 17 Apr, 1969. MCPA/mecoprop/dicamba applied:

1 May. Combine harvested: 29 Aug.

Cultivations to Section 00: As above except harvested by small combine: 21 Aug.

Potatoes: Paraquat applied: 5 Sept, 1968. 'Nitro-Chalk' applied: 9 Apr, 1969. Potatoes machine planted: 10 Apr. Paraquat plus linuron applied: 12 May. Grubbed: 18 June. Rotary ridged: 23 June. Fungicide applied: 15 July, 4 Aug, 22 Aug. Insecticide applied: 4 Aug. Haulm destroyed mechanically (except treatments N2, N2P, N2PNa and R, where haulm died early): 20 Sept. Lifted: 25 Sept.

Spring beans: Seed drilled at 200 lb: 24 Mar, 1969. 'Nitro-Chalk' applied: 9 Apr. Insecticide applied: 19 June. Combine harvested: 10 Sept.

FALLOW SECTION: Weedkiller applied: 5 Sept, 1968. Ploughed second time: 13 May, 1969, third time: 8 July.

BROADBALK WILDERNESS: Cultivations, etc.:-

Ungrazed meadow (north): Topped with rotary grass cutter: 24 Dec, 1968.

Grazed meadow (centre): Grazed by sheep: 17 - 25 Apr, 1969, 13 - 20 May, 5 - 10 June, 27 June - 4 July, 5 - 12 Aug, 5 - 29 Sept, 27 - 31 Oct. Grass topped: 25 Apr, 21 May, 9 June, 4 July, 12 Aug, 31 Sept.

NOTE: Plots 1, 2A, 2B, 3, 5, 6, 7, 8 and 9 have been re-numbered as Plots 01, 21, 22, 03, 05, 06, 07, 08 and 09 respectively.

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

SUMMARY OF RESULTS

WHEAT

GRAIN

Section	6	3	2	1	8	9	0	
Years after fallow	1	2	**	3	6*	11	18	Mean
Plot								
01	54.1	49.4	48.6					50.7
21	48.6	55.5	54.3	53.9	38.3	48.1	45.7	49.2
22	47.7	41.6	59.4	40.7	32.1	45.0	37.8	43.5
03	24.1	14.0	26.8	14.7	14.6	14.0	16.9	17.9
05	28.4	15.5	34.9	15.7	14.4	17.9	18.6	20.8
06	41.3	32.5	46.2	30.3	22.2	33.7	33.7	34.3
07	51.2	45.1	51.4	43.2	23.4	43.2	43.6	43.0
08	46.5	47.2	47.2	44.9	37.9	49.4	47.3	45.8
09	46.2	45.8	42.6	46.4	40.0	47.9	42.3	44.4
10	23.1	30.9	35.8	26.4	22.5	26.4	22.3	26.8
11	35.2	36.2	39.8	35.0	22.8	27.2	33.1	32.7
12	37.7	36.7	38.8	36.3	24.5	31.9	38.3	34.9
13	41.7	43.2	44.1	40.9	25.3	46.3	43.0	40.7
14	41.0	44.0	46.4	41.4	31.5	46.1	41.0	41.6
15	46.6	46.7	47.9	46.1	33.0	45.6	40.3	43.7
16	40.9	42.0	46.9	38.8	28.6	41.9	32.1	38.7
17	43.1	40.7	46.6	34.4	29.9	42.4	35.3	38.9
18	41.1	41.5	47.8	35.7	33.4	43.5	33.8	39.5
19	40.4	27.2	36.8	23.4	23.1	25.9	22.9	28.5
20				29.5			29.0	29.2

Mean D.M. %: 82.4

* No herbicide
** After beans

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

WHEAT

STRAW

Section Years after fallow	6 1	3 2	2 **	1 3	8 6*	9 11	0 18	Mean
Plot								
01	30.8	29.0	28.4					29.4
21	57.2	57.3	65.8	65.2	49.4	58.6	53.8	58.2
22	43.6	37.5	54.6	35.4	42.7	46.1	34.2	42.0
03	15.8	13.2	21.3	14.2	15.4	11.4	14.5	15.1
05	21.4	12.4	28.3	14.8	23.6	15.9	15.5	18.8
06	33.1	33.0	45.8	28.4	36.1	33.8	33.3	34.8
07	47.9	45.4	53.3	43.5	42.3	44.6	44.6	45.9
08	47.1	53.7	52.9	45.4	51.2	54.4	51.7	50.9
09	53.0	48.8	53.4	43.7	55.8	51.8	42.5	49.8
10	15.7	23.7	29.9	25.2	31.3	26.7	24.8	25.3
11	24.7	28.2	32.8	28.3	36.7	24.3	24.1	28.4
12	30.1	29.3	31.7	30.7	38.8	29.2	31.6	31.6
13	38.3	44.4	48.6	41.0	47.0	50.2	43.2	44.7
14	38.6	44.5	43.3	38.6	44.7	45.6	40.9	42.3
15	45.3	48.9	51.5	43.7	50.9	48.6	42.7	47.4
16	37.9	46.4	47.7	33.5	46.8	47.8	45.4	43.6
17	44.8	42.2	48.3	30.9	52.1	45.3	36.2	42.8
18	45.8	40.2	46.7	33.8	52.6	52.1	29.9	43.0
19	35.7	21.9	31.6	19.8	35.6	24.5	25.5	27.8
20				26.3			27.7	27.0

Mean D.M. %: 88.9

* No herbicide
** After beans

WHEAT

GRAIN

SECTION 00. RESIDUAL METHYL BROMIDE TEST

Plot	0	MB	Mean
21	43.2	49.2	46.2
22	36.5	46.6	41.5
03	17.8	20.5	19.1
05	19.8	21.6	20.7
06	34.5	32.9	33.7
07	43.7	42.7	43.2
08	49.9	41.7	45.8
09	38.8	38.0	38.4
10	31.7	26.8	29.3
11	36.8	37.7	37.2
12	39.2	36.8	38.0
13	37.0	37.0	37.0
14	36.5	38.3	37.4
15	37.6	37.3	37.5
16	25.4	37.8	31.6
17	35.6	35.7	35.7
18	34.3	39.4	36.9
19	22.9	29.0	26.0
20	35.5	39.2	37.3
Mean	34.6	36.2	35.4

Mean D.M. %: 78.0

Section	7		4	
	SPRING BEANS		POTATOES	
Plot	GRAIN	STRAW	TOTAL TUBERS	% WARE
01	*	*	14.55	94.4
21	*	*	19.16	92.8
22	*	*	16.00	90.6
03	*	*	5.17	86.0
05	*	*	7.78	82.8
06	22.8	24.5	11.92	90.7
07	25.9	29.1	14.59	94.4
08	25.7	27.9	16.22	93.4
09	28.8	24.2	17.86	93.3
10	16.0	8.8	3.02	75.5
11	11.3	6.0	2.44	61.0
12	8.4	6.7	2.73	61.2
13	27.2	24.7	10.14	93.1
14	21.4	22.3	9.60	89.5
15	24.3	28.1	15.22	94.9
16	27.1	31.9	14.19	92.2
17	27.4	28.4	12.42	93.4
18	28.0	27.7	13.03	92.6
19	21.4	20.1	8.30	86.8
Mean D.M. %: (All plots)	80.0	71.5		

* Yields taken but not printed as the plant population on these plots was affected by drill malfunction.

HOOSFIELD

(69/R/HB/2)

The 118th year, 2nd year of revised scheme

For history, treatments, etc., see 'Details' 1967, Station Report for 1966 and 'Results' 68/A/2.

The four sub plots of the FYM plot (721 to 724) now receive 'Nitro-Chalk' at the 4 rates tested elsewhere on the experiment.

Standard applications:
Barley: Weedkillers: Paraquat at 0.75 lb ion in 20 gals in autumn 1968 to all non-rotational barley. MCPA, mecoprop and dicamba ('Banlene Plus' at 4 pints in 20 gals) to all barley.
Spring beans: Insecticide: Demeton-s-methyl at 3.5 oz in 37 gals.
Potatoes: Weedkiller: Paraquat at 0.75 lb ion in 20 gals in autumn 1968. Paraquat at 0.375 lb ion plus 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 second spray of mancozeb.

Cultivations, etc.: Fertilisers applied: 4 Dec, 1968. FYM applied: 6 Dec. Ploughed: 5 - 6 Dec.
Barley: Paraquat applied: 5 Sept, 1968. Seed drilled at 140 lb: 24 Mar, 1969. 'Nitro-Chalk' applied: 1 Apr. MCPA/mecoprop/dicamba applied: 20 May. Combine harvested large combine plots: 22 Aug, small combine plots: 23 Aug.
Spring beans: Seed drilled at 200 lb: 24 Mar, 1969. Insecticide applied: 19 May. Combine harvested: 10 Sept.
Potatoes: Paraquat applied: 5 Sept, 1968. 'Nitro-Chalk' applied 9 Apr, 1969. Plots rotary cultivated, potatoes machine planted: 10 Apr. Paraquat and linuron applied: 12 May. Grubbed: 18 June. Rotary ridged: 23 June. Mancozeb applied: 15 July, 4 Aug, 22 Aug, Insecticide applied: 4 Aug. Haulm destroyed mechanically: 2 Oct. Lifted: 3 Oct.

NOTE: In autumn 1968 all plots of Strip 3 received extra fertiliser in error - 12 lb K, 2 lb Na, 1.5 lb Mg.

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

SUMMARY OF RESULTS

BARLEY

Treatment**		N 0	1	2	3	Mean
GRAIN: CWT						
1852-1969	1852-1966					
-	-	9.3	19.3	24.9	30.1	20.9
-	N	12.3	17.9	20.5	25.3	19.0
P	-	13.5	23.8	31.6	35.5	26.1
P	N	15.6	25.2	31.7	31.1	25.9
K Na Mg	-	5.4	19.5	30.7	38.6	23.6
K Na Mg	N	12.4	21.9	26.1	30.5	22.7
P K Na Mg	-	9.0	23.2	36.0	45.3	28.4
P K Na Mg	N	14.4	27.6	39.4	41.6	30.8
	D	17.6	33.5	43.2	39.4	33.4
	(D)	8.8	14.1	39.3	38.3	25.1
	(Ashes)	10.0	22.3	29.0	34.7	24.0
	-	3.0	17.6	21.4	31.3	18.3
STRAW: CWT						
-	-	3.6	9.9	13.1	18.8	11.4
-	N	3.6	8.2	10.8	15.1	9.4
P	-	7.3	10.8	20.1	20.2	14.6
P	N	7.3	13.2	18.6	20.9	15.0
K Na Mg	-	2.4	9.9	18.9	21.9	13.3
K Na Mg	N	4.9	10.6	18.0	20.6	13.5
P K Na Mg	-	2.3	15.1	25.2	33.8	19.1
P K Na Mg	N	5.8	17.1	28.5	29.1	20.1
	D	13.8	23.4	36.6	32.8	26.6
	(D)	3.2	9.4	24.7	27.9	16.3
	(Ashes)	4.8	11.5	17.7	19.1	13.3
	-	2.1	8.6	11.4	19.1	10.3

** For explanation of symbols see 'Details 1967'

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

BARLEY

Treatment**		N 0	1	2	3	Mean
GRAIN: CWT						
1852-1969	1852-1966					
-	N*	13.7	17.3	21.7	22.8	18.9
Si	N*	12.3	26.8	37.5	36.6	28.3
P	N*	15.6	28.2	35.1	38.5	29.4
P Si	N*	16.1	29.0	37.6	36.2	29.7
K Na Mg	N*	8.1	21.0	25.5	24.7	19.8
K Na Mg Si	N*	14.1	26.1	37.8	43.6	30.4
P K Na Mg	N*	10.7	27.6	38.5	38.2	28.8
P K Na Mg Si	N*	13.1	29.8	37.6	50.0	32.6
-	R(c)	14.9	33.1	43.4	45.9	34.3
-	R(r)	27.3	37.5	42.4	45.9	38.3
P	R(c)	20.6	31.6	41.2	48.6	35.5
P	R(r)	21.2	30.4	40.1	44.1	34.0
K Na Mg	R(c)	15.9	30.4	39.0	47.1	33.1
K Na Mg	R(r)	15.5	28.0	36.9	32.2	28.2
P K Na Mg	R(c)	21.9	33.0	43.4	43.1	35.3
P K Na Mg	R(r)	20.0	39.1	43.5	42.2	36.2
STRAW: CWT						
-	N*	11.4	15.8	19.6	23.6	17.6
Si	N*	7.6	19.7	32.2	27.6	21.8
P	N*	11.6	27.2	32.7	41.4	28.2
P Si	N*	10.9	19.0	27.5	36.3	23.4
K Na Mg	N*	3.5	19.1	22.9	22.6	17.0
K Na Mg Si	N*	10.6	18.5	27.4	35.7	23.0
P K Na Mg	N*	7.1	24.0	36.6	49.3	29.2
P K Na Mg Si	N*	7.1	27.0	36.1	50.3	30.1
-	R(c)	3.5	23.5	28.6	37.3	23.2
-	R(r)	17.6	31.6	36.7	36.0	30.5
P	R(c)	6.9	19.3	31.8	36.2	23.5
P	R(r)	12.5	14.9	23.7	32.4	20.9
K Na Mg	R(c)	10.1	22.6	27.0	37.8	24.4
K Na Mg	R(r)	6.2	21.6	22.9	37.4	22.0
P K Na Mg	R(c)	8.0	29.7	34.7	35.7	27.0
P K Na Mg	R(r)	9.1	34.8	38.7	36.6	29.8

** For explanation of symbols see 'Details 1967'

NOTE: (c) = continuous (i.e. barley after barley)
(r) = rotational (i.e. barley after beans)

* Estimated value. The recorded yield was very small and because the appearance of the crop had been normal this was treated as an erroneous record and an estimated value substituted.

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

BARLEY

Plots	Treatment**			GRAIN:CWT	STRAW:CWT
	1852-1969		1852-1966		
551	N2	PK	N	19.1	30.1
561		PK	-	7.7	4.4
571	N2	-	N*	28.3	12.9
581	N2	-	N*	28.6	13.8

** For explanation of symbols see 'Details 1967'

Mean D.M. %: Grain: 80.8
Straw: 88.0

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

BEANS

Treatments**			GRAIN:CWT	STRAW:CWT
1852-1969	1852-1966			
-		N*	8.1	2.5
	Si	N*	8.1	4.0
P		N*	4.2	3.3
P	Si	N*	3.7	2.6
K Na Mg		N*	15.8	6.7
K Na Mg Si		N*	16.3	7.6
P K Na Mg		N*	24.0	14.7
P K Na Mg Si		N*	20.6	11.9
-		R	15.2	7.6
P		R	12.8	6.6
K Na Mg		R	20.0	10.8
P K Na Mg		R	29.9	17.7

Mean D.M. %: Grain: 72.0
Straw: 64.1

** For explanation of symbols see 'Details 1967'

POTATOES

1968

Treatment**		N0	N1	N2	N3	Mean
		TOTAL TUBERS: TONS				
1852-1969	1852-1966					
-	R	10.54	9.83	9.94	10.23	10.13
P	R	4.36	4.52	6.08	5.54	5.13
K Na Mg	R	14.64	14.99	15.43	16.19	15.31
P K Na Mg	R	18.96	17.88	18.68	19.09	18.65
		% WARE				
1852-1969	1852-1966					
-	R	90.3	91.1	88.8	90.3	90.1
P	R	67.4	67.5	78.2	71.8	71.2
K Na Mg	R	93.3	91.2	92.7	93.1	92.6
P K Na Mg	R	90.9	92.0	92.7	90.4	91.5

** For explanation of symbols see 'Details 1967'

WHEAT AFTER FALLOW - HOOSFIELD 1969

(69/R/WF/3)

For history, treatments, etc. see 'Details' 1967.

Area of each plot: 0.1237. Area harvested: 0.0366.

Cultivations, etc.:

Cropped plots: Ploughed: 6 Sept, 1968. Seed drilled at 180 lb: 16 Oct. Sprayed with ioxynil at 9 oz and mecoprop at 27 oz in 20 gals: 13 May, 1969. Combine harvested: 29 Aug.

Fallow plots: Ploughed 3 times: 6 Sept 1968, 13 May, 1969, 8 July.

SUMMARY OF RESULTS

Plot	04	06	08
No. of Years of fallow	1	1	3
	GRAIN:CWT		
	15.1	16.4	18.7
	STRAW:CWT		
	12.7	13.5	14.6

Mean D.M.%: Grain: 81.1
Straw: 87.7

BARLEY EXHAUSTION LAND

HOOSFIELD 1969

(69/R/EX/4)

For history, treatments etc, see 'Details' 1967.

Area harvested: 0.0741.

Cultivations, etc.: Rotary cultivated: 28 Aug, 1968.
Sprayed with paraquat at 0.5 lb ion in 25 gals: 14 Oct.
Ploughed: 28 Oct. Seed combine drilled at 140 lb: 10 Mar, 1969.
Sprayed with MCPA, mecoprop and dicamba ('Banlene Plus' at 4 pints in 20 gals): 23 May. Combine harvested: 22 Aug.
Variety: Maris Badger.

SUMMARY OF RESULTS

Plot		GRAIN: CWT	STRAW: CWT
1	-	21.9	7.6
2	-	21.4	8.0
3	D	40.6	18.8
4	D	39.4	19.0
5	N2	24.2	7.7
6	N*2	18.0	6.8
7	N2 PKNa Mg	35.7	16.4
8	N*2 PKNa Mg	35.2	12.1
9	P	36.4	16.7
10	PKNaMg	32.5	14.2
Mean		30.5	12.7
Mean D.M.%:		82.0	91.5

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

HAY - THE PARK GRASS PLOTS

(69/R/PG/5)

For history treatments etc. see 'Details' 1967 and 'Results' 65/A/6.

Cultivations, etc.: FYM applied to plot 13, mineral fertilisers applied: 9 Dec, 1968. FYM applied to plots 19 and 20: 10 Dec. Nitrogenous fertilisers applied: 1st dressing - 6 Mar, 1969, 2nd dressing - 8 Apr. Cut twice: 9 June, 13 Oct.

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

SUMMARY OF RESULTS

DRY MATTER: CWT PER ACRE

Plot No	1st cut a	b	c	d	Mean	2nd cut a	b	c	d	Mean	Total of 2 cuts a	b	c	d	Mean
1	14.3	12.4	8.0	2.9	9.4	13.5	14.2	6.6	5.6	10.0	27.8	26.6	14.6	8.5	19.4
2	10.3	14.9	7.2	5.4	9.4	13.9	15.8	15.5	19.1	16.1	24.2	30.6	22.7	24.5	25.5
3	12.4	14.3	7.0	5.7	9.8	14.5	15.7	14.6	17.2	15.5	26.9	30.0	21.6	22.9	25.4
4-1	12.8	13.8	12.3	12.5	12.9	15.2	14.2	16.4	18.8	16.2	28.1	28.1	28.7	31.3	29.0
4-2	26.4	27.7	21.5	8.4	21.0	13.8	14.0	9.9	15.8	13.4	40.2	41.7	31.5	24.2	34.4
7	38.3	37.3	22.2	26.5	31.1	22.5	23.7	21.1	19.8	21.8	60.8	61.1	43.3	46.4	52.9
8	16.0	13.8	17.5	17.4	16.2	16.3	13.7	18.4	18.0	16.6	32.2	27.4	36.0	35.4	32.8
9	51.8	52.8	37.2	17.0	39.7	19.7	22.0	16.4	23.8	20.5	71.5	74.8	53.6	40.8	60.2
10	35.5	52.3	35.9	9.8	33.3	12.6	12.6	18.0	15.9	14.8	48.0	64.8	53.9	25.6	48.1
11-1	54.5	56.2	37.2	7.7	38.9	26.5	24.4	41.2	37.3	32.3	80.9	80.6	78.3	45.0	71.2
11-2	52.7	56.1	35.4	12.4	39.1	37.6	34.0	42.9	36.6	37.8	90.3	90.1	78.2	49.0	76.9
12	15.8		14.9		15.3	21.2		20.2		20.7	37.0		35.1		36.0
13	37.5	39.9	42.3	37.1	39.2	31.7	29.9	27.0	27.9	29.1	69.1	69.9	69.3	65.0	68.3
14	43.0	46.2	46.5	45.3	45.3	15.8	24.1	24.3	27.0	22.8	58.8	70.3	70.8	72.3	68.0
15	30.9		21.1		26.0	28.5		20.0		24.2	59.4		41.1		50.2
16	37.1	41.3	30.8	32.7	35.5	23.4	24.8	24.3	24.9	24.4	60.5	66.1	55.1	57.6	59.8
17	11.5	17.5	15.1	10.9	13.8	14.4	12.4	24.4	22.6	18.5	25.9	29.9	39.6	33.5	32.2
18-1			13.4	9.7	11.6			12.2	5.3	8.8			25.7	15.0	20.3
18-2					17.4					15.7					33.1
18-3	19.4	21.6			20.5	11.5	14.8			13.1	30.8	36.4			33.6
19-1					32.2					24.3					56.5
19-2					36.7					26.7					63.4
19-3					43.0					30.4					73.4
20-1					37.0					26.0					63.1
20-2					42.6					28.5					71.1
20-3					52.2					30.2					82.4

Mean D.M. %: 1st cut: 23.5 2nd cut: 36.9 Total of 2 cuts: 30.2

GRASS - AGDELL 1969

(69/R/AG/6)

For history, treatments, etc. see 'Results' 63/A/4, 64/A/4, 65/A/4, 66/A/4, 67/A/4, 68/A/4 and 'Details' 1967.

Area of each microplot: Plots 1, 2, 3, 4, - 0.0180. Plots 5, 6 - 0.0162.
Area harvested: 0.0023.

P (as triple superphosphate) and K (as muriate of potash) were applied on 10 Dec, 1968 to balance removals by grass in 1968 to all sub plots except P0, which continues to receive no P, and K0, which continues to receive no K.

Rates in cwt P_2O_5

	Sub plots testing P:-				Sub plots testing K:-			
Plot no.	P0	P1	P2	P4	K0	K1	K2	K4
1	0	0.48	0.45	0.57	0.41	0.52	0.56	0.55
2	0	0.44	0.52	0.54	0.41	0.56	0.55	0.52
3	0	0.45	0.49	0.52	0.47	0.46	0.49	0.46
4	0	0.44	0.44	0.48	0.49	0.57	0.52	0.59
5	0	0.30	0.37	0.43	0.34	0.43	0.46	0.49
6	0	0.36	0.35	0.46	0.43	0.50	0.52	0.48

Rates in cwt K_2O

	Sub plots testing P:-				Sub plots testing K:-			
Plot no.	P0	P1	P2	P4	K0	K1	K2	K4
1	3.64	5.40	4.45	5.28	0	4.30	4.93	4.99
2	2.29	4.65	5.31	5.03	0	4.35	4.71	4.70
3	2.15	4.34	4.52	4.85	0	4.14	3.89	4.44
4	1.46	4.70	4.34	4.36	0	4.65	4.50	5.05
5	1.06	3.70	4.01	4.36	0	3.57	4.16	4.56
6	1.10	3.96	4.18	4.26	0	3.96	4.12	4.06

Basal dressing: 'Nitro-Chalk' applied at 0.8 cwt N on 7 Mar, 1969 and then after each cut except the last.

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

Cultivations, etc.:
Grass: Cut 3 times for silage: 5 June, 1969, 4 Aug and 14 Oct.
Fallow: Ploughed: 28 Oct, 1968. Rotary cultivated: 19 June.

SUMMARY OF RESULTS

DRY MATTER: CWT

P K	Plot 5	6	3	4	1	2	Mean
			1ST CUT				
0 4	17.8	12.6	28.2	16.9	36.4	35.5	24.6
1 4	37.8	37.3	36.7	40.0	39.1	36.2	37.9
2 4	36.5	31.6	36.0	33.2	42.2	44.8	37.4
4 4	37.2	36.2	35.6	42.9	37.3	43.0	38.7
4 0	34.0	20.4	31.1	33.4	26.5	24.9	28.4
4 1	36.7	39.6	35.5	39.6	41.1	39.9	38.7
4 2	37.8	40.9	32.9	37.7	39.2	44.1	38.8
4 4	36.0	36.4	38.5	40.1	47.0	39.7	39.6
Mean	34.2	31.9	34.3	35.5	38.6	38.5	35.5
			2ND CUT				
0 4	12.9	10.6	22.3	16.5	25.4	25.1	18.8
1 4	22.5	20.1	22.6	31.3	30.2	28.5	25.9
2 4	25.3	26.5	27.3	24.8	34.2	25.3	27.2
4 4	26.3	24.5	21.6	31.0	30.2	30.2	27.3
4 0	13.8	16.5	18.5	29.2	27.0	19.6	20.7
4 1	22.3	26.1	25.5	26.4	23.1	26.3	25.0
4 2	21.3	23.1	21.6	19.0	29.3	28.4	23.8
4 4	23.2	27.5	24.8	30.8	32.5	30.7	28.3
Mean	20.9	21.9	23.0	26.1	29.0	26.8	24.6

Mean D.M. %: 1st cut: 19.6
2nd cut: 20.7

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

DRY MATTER: CWT

P K	Plot 5	6	3	4	1	2	Mean
			3RD CUT				
0 4	5.5	5.0	10.6	8.4	13.2	12.2	9.2
1 4	9.7	8.6	12.9	14.1	13.4	13.7	12.1
2 4	9.5	10.7	13.9	10.6	13.9	13.3	12.0
4 4	10.6	8.7	12.4	14.2	13.6	15.0	12.4
4 0	6.5	3.7	8.8	10.4	11.9	8.7	8.3
4 1	11.6	12.5	11.4	14.0	11.7	11.4	12.1
4 2	9.0	10.2	11.5	11.2	10.9	14.5	11.2
4 4	9.4	12.0	10.8	12.3	11.4	14.8	11.8
Mean	9.0	8.9	11.5	11.9	12.5	12.9	11.1
			TOTAL OF 3 CUTS				
0 4	36.3	28.2	61.2	41.8	75.0	72.7	52.5
1 4	70.1	66.0	72.2	85.5	82.7	78.4	75.8
2 4	71.2	68.8	77.1	68.6	90.2	83.4	76.6
4 4	74.0	69.5	69.7	88.1	81.0	88.2	78.4
4 0	54.2	40.5	58.4	72.9	65.4	53.2	57.4
4 1	70.6	78.3	72.4	80.0	75.8	77.6	75.8
4 2	68.1	74.2	66.0	67.9	79.4	87.0	73.8
4 4	68.5	75.9	74.1	83.3	91.0	85.2	79.7
Mean	64.1	62.7	68.9	73.5	80.1	78.2	71.2

Mean D.M. %: 3rd cut: 36.6
Total of 3 cuts: 25.6

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BARNFIELD

(69/R/BN/7)

Second year of new scheme, 1969.

For history, treatments, etc., see 'Details' 1967 and 'Results' 68/A/5.

Varieties in 1969: Potatoes: King Edward, sugar beet: Klein E, spring beans: Maris Bead.

Plot areas:
Potatoes and sugar beet (quarter plot):
0.0289 (Strip 1: Potatoes: 0.0193, sugar beet: 0.0217).
Area harvested: Potatoes, 0.0096, sugar beet: 0.0032.
Beans, Section 1 (half plot): 0.0723.
(Strips 1 and 8: 0.0475). Area harvested: 0.0362.
Section 2 (half plot): 0.0241.
(Strips 1 and 8: 0.0158). Area harvested: 0.0129.

Standard applications:
Potatoes: Weedkiller: Paraquat at 0.375 lb ion plus linuron at 0.75 lb in 37 gals. Fungicide: Mancozeb at 1.2 lb in 37 gals on three occasions. Insecticide: Demeton-s-methyl at 3.5 oz applied with second mancozeb spray.
Sugar beet: Weedkiller: Phenmedipham ('Betanal' at 5 pints in 20 gals) to strips 1 and 2 only. Insecticide: Demeton-s-methyl at 3.5 oz in 37 gals.
Beans: Weedkiller: Diquat ('Reglone' at 3 pints in 25 gals). Insecticide: Demeton-s-methyl at 3.5 oz in 37 gals.

Cultivations, etc.: P, K, Na and Mg applied: 5 Dec, 1968. FYM applied: 6 Dec. All plots ploughed: 9 Dec.
Potatoes: 'Nitro-Chalk' applied: 8 Apr, 1969. Plots rotary cultivated, potatoes machine planted: 9 Apr. Weedkiller applied: 13 May. Grubbed: 18 June. Rotary ridged: 23 June. Fungicide applied: 15 July, 4 Aug, 21 Aug. Insecticide applied: 4 Aug. Haulm destroyed mechanically: 22 Sept. Lifted: 2 Oct.
Sugar beet: Seed drilled at 8 lb: 3 Apr, 1969. 'Nitro-Chalk' applied: 8 Apr. Weedkiller applied: 22 May. Singled: 27 May. Insecticide applied: 19 June. Lifted: 24 Oct.

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Spring beans: Diquat applied: 24 Oct, 1968. Seed drilled at 200 lb: 24 Mar, 1969. Simazine applied to half plots at 1 lb in 20 gals: 27 Mar. Insecticide applied: 19 June. Combine harvested: 10 Sept.

NOTE: Duplicate samples were taken for yield from all quarter plots of sugar beet to obtain an estimate of within plot variance.

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

SUMMARY OF RESULTS

POTATOES

TOTAL TUBERS: TONS

SERIES

Strip	N	N	A	AC	C
1	0	-	10.72	9.70	-
	1	13.63	-	-	15.73
	2	-	22.42	17.75	-
	3	20.23	-	-	19.76
2	0	10.38	-	-	8.94
	1	-	16.85	14.41	-
	2	17.96	-	-	16.64
	3	-	18.37	18.27	-
4	0	-	4.20	4.04	-
	1	10.41	-	-	8.90
	2	-	14.73	13.95	-
	3	16.42	-	-	17.17
5	0	-	3.33	4.35	-
	1	8.86	-	-	9.58
	2	-	13.12	13.34	-
	3	14.97	-	-	15.11
6	0	4.45	-	-	4.36
	1	-	6.64	8.05	-
	2	11.48	-	-	12.96
	3	-	14.09	14.83	-
7	0	4.17	-	-	5.38
	1	-	7.92	9.73	-
	2	13.61	-	-	12.36
	3	-	13.62	13.92	-
8	0	3.65	-	-	4.40
	1	-	5.73	6.18	-
	2	6.62	-	-	8.05
	3	-	6.61	8.15	-

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

POTATOES

% WARE

SERIES

Strip	N	N	A	AC	C
1	0	-	83.2	85.4	-
	1	88.8	-	-	89.8
	2	-	93.1	91.1	-
	3	95.5	-	-	91.7
2	0	81.0	-	-	81.4
	1	-	90.8	87.4	-
	2	93.3	-	-	90.5
	3	-	93.0	93.1	-
4	0	-	74.7	73.9	-
	1	90.1	-	-	84.4
	2	-	90.1	87.4	-
	3	93.3	-	-	91.5
5	0	-	76.0	76.2	-
	1	86.6	-	-	88.2
	2	-	91.7	90.3	-
	3	96.1	-	-	93.1
6	0	72.7	-	-	79.8
	1	-	86.1	85.7	-
	2	92.3	-	-	91.2
	3	-	91.5	91.8	-
7	0	78.3	-	-	77.8
	1	-	93.0	87.6	-
	2	90.6	-	-	92.3
	3	-	92.6	93.3	-
8	0	70.5	-	-	74.2
	1	-	84.3	84.1	-
	2	84.1	-	-	87.5
	3	-	86.1	90.0	-

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SUGAR BEET

ROOTS (WASHED): TONS

SERIES

Strip	N	N	A	AC	C
1	0	8.16	-	-	7.26
	1	-	19.27	15.49	-
	2	19.17	-	-	18.34
	3	-	18.86	17.47	-
2	0	-	5.90	6.98	-
	1	18.06	-	-	12.05
	2	-	18.79	15.94	-
	3	18.82	-	-	17.57
4	0	4.98	-	-	6.23
	1	-	9.86	12.43	-
	2	14.06	-	-	16.43
	3	-	16.84	17.64	-
5	0	4.70	-	-	5.00
	1	-	9.24	11.88	-
	2	13.06	-	-	13.72
	3	-	12.47	13.93	-
6	0	-	3.06	4.35	-
	1	7.81	-	-	11.15
	2	-	12.92	16.53	-
	3	13.65	-	-	16.84
7	0	-	3.02	5.02	-
	1	8.44	-	-	11.29
	2	-	13.68	15.52	-
	3	14.06	-	-	13.68
8	0	-	3.16	5.49	-
	1	6.53	-	-	9.83
	2	-	9.27	13.68	-
	3	10.80	-	-	12.08
9	0			3.87	
	1			9.69	
	2			11.63	
	3			14.38	

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SUGAR BEET

SUGAR %

SERIES

Strip	N	N	A	AC	C
1	0	18.5	-	-	18.2
	1	-	19.2	19.4	-
	2	19.4	-	-	19.1
	3	-	19.5	19.8	-
2	0	-	18.8	18.4	-
	1	19.2	-	-	19.0
	2	-	19.7	19.7	-
	3	19.6	-	-	19.7
4	0	19.0	-	-	19.0
	1	-	19.6	19.6	-
	2	20.0	-	-	19.8
	3	-	20.8	20.1	-
5	0	19.0	-	-	18.1
	1	-	18.9	18.9	-
	2	19.7	-	-	19.4
	3	-	18.9	18.4	-
6	0	-	18.8	18.4	-
	1	19.0	-	-	19.6
	2	-	20.9	19.7	-
	3	19.5	-	-	20.0
7	0	-	18.8	18.7	-
	1	19.5	-	-	19.3
	2	-	19.5	19.5	-
	3	19.2	-	-	19.3
8	0	-	17.9	18.6	-
	1	19.6	-	-	19.1
	2	-	19.5	19.1	-
	3	18.9	-	-	19.0
9	0			17.7	
	1			19.6	
	2			20.3	
	3			20.1	

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SUGAR BEET

TOTAL SUGAR: CWT

SERIES

Strip	N	N	A	AC	C
1	0	30.2	-	-	26.4
	1	-	73.9	59.7	-
	2	74.3	-	-	69.8
	3	-	73.4	69.1	-
2	0	-	22.1	25.8	-
	1	69.4	-	-	46.0
	2	-	74.0	62.8	-
	3	73.6	-	-	69.4
4	0	18.9	-	-	23.6
	1	-	38.7	48.8	-
	2	56.2	-	-	65.0
	3	-	69.9	71.0	-
5	0	17.8	-	-	18.1
	1	-	34.8	44.8	-
	2	51.4	-	-	53.3
	3	-	47.0	51.2	-
6	0	-	11.5	16.0	-
	1	29.6	-	-	43.7
	2	-	53.8	65.0	-
	3	53.3	-	-	67.3
7	0	-	11.3	18.7	-
	1	33.0	-	-	43.6
	2	-	53.4	60.5	-
	3	54.2	-	-	52.9
8	0	-	11.3	20.4	-
	1	25.6	-	-	37.6
	2	-	36.1	52.3	-
	3	40.9	-	-	45.9
9	0		13.7		
	1		38.0		
	2		47.2		
	3		57.7		

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

SUGAR BEET

TOPS: TONS

SERIES

Strip	N	N	A	AC	C
1	0	3.19	-	-	2.64
	1	-	9.03	5.97	-
	2	9.58	-	-	9.31
	3	-	9.45	9.45	-
2	0	-	2.22	2.64	-
	1	7.64	-	-	3.89
	2	-	10.00	5.97	-
	3	9.17	-	-	6.53
4	0	1.94	-	-	1.94
	1	-	2.64	4.03	-
	2	4.86	-	-	5.97
	3	-	6.39	8.20	-
5	0	1.57	-	-	1.76
	1	-	2.78	4.44	-
	2	4.86	-	-	5.97
	3	-	6.39	7.78	-
6	0	-	1.04	1.57	-
	1	2.64	-	-	3.47
	2	-	4.44	6.25	-
	3	5.14	-	-	7.22
7	0	-	1.46	2.22	-
	1	3.19	-	-	4.58
	2	-	5.70	7.64	-
	3	8.06	-	-	7.78
8	0	-	1.32	2.13	-
	1	2.32	-	-	3.75
	2	-	4.44	6.67	-
	3	7.36	-	-	6.39
9	0			1.39	
	1			2.92	
	2			5.00	
	3			6.39	

BEANS

Strip	O	H	Mean
	GRAIN: CWT		
1	18.0	17.2	17.6
2	22.1	21.0	21.6
4	23.7	12.8	18.2
5	23.9	12.4	18.2
6	22.8	14.3	18.5
7	21.7	10.9	16.3
8	19.2	6.5	12.8
Mean	21.6	13.6	17.6
	STRAW: CWT		
1	9.8	7.6	8.7
2	9.9	10.4	10.2
4	11.1	6.2	8.7
5	10.7	4.1	7.4
6	9.3	5.2	7.3
7	8.8	4.8	6.8
8	6.5	2.1	4.3
Mean	9.5	5.8	7.6

Mean D.M. %: Grain: 82.8
Straw: 73.0

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

CLOVER - ROTHAMSTED GARDEN

(69/R/GC/8)

The 116th year

(Revised 1968)

For history etc., see 'Details' 1967 and 'Results' 68/A/8.

Variety: English Broad Red.

Cultivations, etc.: All plants removed and carted, area hand dug, basal PK and test Mg applied: 27 Mar, 1969. Area raked down to rough seedbed: 14 Apr. Area raked down to fine seedbed, seed sown at 30 lb, 'Nitro-Chalk' applied: 16 Apr. Area hand weeded twice: 5 June, 27 June. Cut, area hand weeded, basal K, test Mg and 'Nitro-Chalk' applied: 31 July. Cut second time, area hand weeded, basal K and test 'Nitro-Chalk' applied: 3 Sept. Cut third time: 14 Oct.

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

SUMMARY OF RESULTS

DRY MATTER: CWT

	N0Mg0	N1Mg0	N0Mg1	N1Mg1	Mean
1st cut	10.3	10.5	6.8	9.3	9.2
2nd cut	10.1	10.1	8.1	10.9	9.8
3rd cut	4.6	4.5	4.0	3.7	4.2
Total of 3 cuts	25.0	25.2	19.0	23.9	23.3

Mean D.M. %: 1st cut: 21.2
2nd cut: 17.3
3rd cut: 20.2
Total of 3 cuts: 19.6

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SAXMUNDHAM

ROTATION I 1969

(69/S/RN/1)

For history, treatments, rotations and results etc. see 'Details' 1967 and 68/A/9.

Area harvested:

New treatments		
Grain: Barley, wheat and beans:		0.0230
Straw: Barley and wheat:		0.0069
Sugar beet:		0.0096
Old treatments		
Barley, wheat and beans:		0.0014
Sugar beet:		0.0021

The nitrogen to sugar beet, wheat and barley continues to be applied at 1.0 cwt N in spring to all plots receiving N (except the FYM plots - 0.5 cwt N), but the second dressing of 0.5 cwt N to N2 plots is top-dressed in summer at a time decided after considering periodical tissue analyses. For sugar beet, plots previously receiving treatments N2P2 and N2P1K now receive treatment N3P2 and N3P1K - a further top-dressing of 0.5 cwt N is given later in the year.

Cultivations, etc.:-

Sugar beet: FYM applied: 17 Oct, 1968. Ploughed: 18 Oct. P, K and bonemeal applied: 20 Mar, 1969. 'Nitro-Chalk' applied: 29 Mar. Seed drilled: 10 Apr. Sprayed with pyrazon ('Pyramin' at 3 lb in 20 gals): 11 Apr. Singled: 28 May - 3 June. Sprayed with demeton-s-methyl at 7 oz in 25 gals: 21 June and 24 July. Second dressing of 'Nitro-Chalk' applied to N2 and N3 plots: 3 July. Third dressing of 'Nitro-Chalk' applied to N3 plots: 20 Aug. Lifted: 7 Oct. Variety: Klein E.

Barley: FYM applied: 17 Oct, 1968. Ploughed: 18 - 24 Oct. Bonemeal applied: 10 Mar, 1969. P and K applied: 11 Mar. Seed drilled at 150 lb: 25 Mar. 'Nitro-Chalk' applied: 29 Mar. Sprayed with mecoprop at 36 oz and 2,4-D at 9 oz in 25 gals: 23 May. Second dressing of 'Nitro-Chalk' applied to N2 plots: 3 June. Combine harvested: 21 Aug. Variety: Sultan.

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Spring beans: FYM applied: 17 Oct, 1968. Ploughed: 23 Oct. Bonemeal applied: 10 Mar, 1969. P and K applied: 11 Mar. Seed drilled at 240 lb: 24 Mar. Sprayed with simazine at 1 lb in 23 gals: 27 Mar. 'Nitro-Chalk' applied: 29 Mar. Sprayed with demeton-s-methyl at 7 oz in 25 gals: 21 June. Combine harvested: 13 Sept. Variety: Maris Bead.

Winter wheat: FYM applied: 23 Sept, 1968. Ploughed: 26 Sept - 5 Oct. P, K and bonemeal applied: 16 Oct. Seed drilled: 22 Oct. 'Nitro-Chalk' applied: 29 Mar, 1969. Sprayed with mecoprop at 42 oz and 2,4-D at 10.5 oz in 25 gals: 12 May. Second dressing of 'Nitro-Chalk' applied to N2 plots: 28 May. Combine harvested: 21 Aug. Variety: Cappelle.

Erratum to 'Results 68' A/9.

68/A/9.1 **Area harvested New Treatments**
Barley should read 0.0230 not 0.0257.

68/A/9.3 **Amend Barley grain yields to read in order,**

	34.3
	11.8
	35.1
	38.4
	35.7
	32.2
	30.9
	29.7
	42.6
	37.5
Mean	32.8

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SUMMARY OF RESULTS

NEW TREATMENTS

Treatment 1899 - 1965	Treatment from 1966	SUGAR BEET Roots	Sugar %	Total sugar	Tops	BARLEY Grain	Straw	SPRING BEANS Grain	WINTER WHEAT Grain	Straw
D	DN1	15.49	19.1	58.9	6.67	23.2	12.2	13.8	28.6	26.1
B	B	4.83	19.1	18.5	2.55	6.4	1.8	8.1	10.0	5.0
N	N2P2*	17.39	18.1	62.7	14.63	30.4	16.1	13.2	32.1	17.3
P	N1P1	15.47	19.3	59.7	7.04	20.5	8.9	12.0	27.0	18.1
K	N1P2K	12.89	19.9	51.4	6.27	17.6	9.5	14.0	28.8	21.6
-	N1P2	15.51	19.1	59.2	9.14	23.3	10.5	13.7	25.3	17.9
PK	N1P1K	15.86	19.9	63.1	7.85	20.9	8.7	15.2	28.4	25.1
NK	N2P2K	17.46	19.2	67.2	13.43	28.6	14.0	15.3	35.1	19.7
NP	N2P1	18.66	18.8	70.3	15.86	28.5	13.6	14.9	29.6	14.1
NPK	N2P1K*	18.68	18.3	68.4	17.80	29.6	9.0	17.8	30.8	19.9
Mean		15.22	19.1	57.9	10.12	22.9	10.4	13.8	27.6	18.5
Mean D.M. %:						78.0	85.2	79.6	78.9	86.4

* For sugar beet N3 not N2.

OLD TREATMENTS

Plot No	Treatment 1899-1969	SUGAR BEET		BARLEY		SPRING BEANS	WINTER WHEAT	
		Roots	Tops	Grain	Straw	Grain	Grain	Straw
1	D	11.83	5.62	19.0	14.6	18.9	10.6	17.3
2	B	5.56	3.73	9.7	9.5	7.0	9.8	13.5
3	N	1.52	2.02	8.5	9.0	12.5	9.9	14.3
4	P	5.39	1.89	8.7	8.7	15.2	8.7	12.1
5	K	0.84	0.61	6.2	6.2	10.1	5.9	8.9
6	-	0.57	0.43	6.6	5.6	16.4	3.9	6.2
7	PK	4.46	1.72	9.1	8.6	16.1	6.5	10.1
8	NK	0.42	0.49	8.8	8.3	19.5	7.4	11.9
9	NP	6.37	2.43	13.4	12.5	13.7	11.9	17.9
10	NPK	4.59	3.13	10.8	10.4	14.3	16.7	24.6
Mean		4.16	2.21	10.1	9.3	14.4	9.1	13.7
Mean D.M. %:				83.7	81.5	85.4	84.5	86.4

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SAXMUNDHAM

ROTATION II 1969

(69/S/RN/2)

For history, treatments, rotations and results see 'Details' 1967 and 68/A/10.

Area of each sub plot:		Area harvested:
Potatoes:	0.0048	0.0019
Sugar beet:	0.0050	0.0025
Barley:	0.0273	0.0123.

The plots are now divided into 2 to test a rotation of potatoes, barley, sugar beet, barley as shown below:

		1969	1970	1971	1972
North,block,	north:	P	B	SB	B
	south:	SB	B	P	B
South block,	north:	B	P	B	SB
	south:	B	SB	B	P

P = potatoes, B = barley, SB = sugar beet.

Each half plot is further sub-divided into 5 sub plots for the application of the following phosphate treatments:- None - 2 sub plots per half plot (P0), 0.5 (P1), 1.0 (P2), 1.5 (P3) cwt P205 as superphosphate. The above treatments are applied to the root crops only of the rotation and are cumulative.

Basal applications: Manuring:-

Potatoes:	2.0 cwt N and 2.0 cwt K20 as (25:0:16) plus muriate of potash.
Sugar beet:	1.5 cwt N and 2.5 cwt K20 as (25:0:16) plus muriate of potash.
Barley:	1.0 cwt N and 0.64 cwt K20 as (25:0:16).

Sprays:

Potatoes:	Weedkiller: Paraquat at 0.375 lb ion plus linuron at 0.75 lb in 40 gals. Fungicide and insecticides: (1) Fentin hydroxide plus dimethoate ('Fennite' at 1 lb plus 'Rogor 20 W'

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at 1.5 lb in 40 gals). (2) Fentin hydroxide plus dimethoate ('Fennite' at 1 lb plus 'Rogor E' at 12 fluid oz in 40 gals). (3) Fentin hydroxide ('Fennite' at 2 lb in 40 gals).

Barley: Weedkiller: Mecoprop at 36 oz and 2,4-D at 9 oz in 25 gals.

Sugar beet: Weedkiller: Pyrazon ('Pyramin' at 3 lb in 20 gals). Insecticides: Demeton-s-methyl at 7 oz in 25 gals. Dimethoate ('Rogor E' at 12 fluid oz in 40 gals).

Cultivations, etc.: Ploughed: 31 Oct-14 Nov, 1968.

Potatoes: Fertilisers applied, potatoes planted: 9 Apr, 1969. Weedkiller applied: 14 May. Fungicide and insecticides applied: (1) 10 July, (2) 22 July, (3) 20 Aug. Lifted: 16 Sept. Variety: King Edward.

Barley: Fertilisers applied: 11 Mar, 1969. Seed drilled: 25 Mar. Weedkiller applied: 23 May. Combine harvested: 21 Aug. Variety: Sultan.

Sugar beet: Fertilisers applied, seed drilled: 9 Apr, 1969. Weedkiller applied: 11 Apr. Singled: 20 May. Demeton-s-methyl applied: 21 June. Dimethoate applied: 22 July. Lifted: 7 Oct. Variety: Klein E.

ERRATUM to 'Results' 67/A/10.1: Basal manuring should be 1.2 cwt N and 1.2 cwt K20 as (16:0:16) and not as stated.

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SUMMARY OF RESULTS

POTATOES

TOTAL TUBERS: TONS

Plot	Treatment 1966 and 1967	1969 P0	P1	P2	P3	Mean
1	P0	9.20	12.39	16.90	14.58	12.45
2	P0	14.35	15.86	17.02	17.83	15.88
3	P0	16.38	16.32	18.75	19.21	17.41
4	D	14.93	17.48	19.10	19.21	17.13
5	DP1	16.03	15.63	14.58	18.52	16.16
6	P1	15.05	17.94	15.40	14.58	15.60
7	P2	16.96	17.59	17.25	17.02	17.15
8	P0	15.22	18.29	16.44	16.21	16.27
Mean		14.77	16.44	16.93	17.15	16.01

SUGAR BEET

ROOTS (WASHED): TONS

1	P0	2.97	12.96	17.56	17.83	10.86
2	P0	10.22	15.03	14.31	15.94	13.14
3	P0	16.88	18.73	18.19	17.65	17.66
4	D	17.06	18.73	17.47	19.63	17.99
5	DP1	18.55	18.55	17.74	18.91	18.46
6	P1	20.17	19.54	19.00	21.16	20.00
7	P2	18.59	19.63	19.81	17.83	18.89
8	P0	19.49	14.13	19.09	19.90	18.42
Mean		15.49	17.16	17.89	18.60	16.93

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SUGAR BEET

Plot	Treatment 1966 and 1967	1969 P0	P1	P2	P3	Mean
		SUGAR %				
1	P0	18.3	19.5	19.1	19.6	18.9
2	P0	19.9	19.6	19.9	19.9	19.8
3	P0	19.4	18.8	19.5	19.4	19.3
4	D	19.8	19.1	19.0	19.3	19.4
5	DP1	19.2	19.1	19.3	19.0	19.1
6	P1	18.6	19.0	18.7	19.0	18.8
7	P2	19.2	19.1	18.8	19.2	19.1
8	P0	18.6	18.8	18.7	18.6	18.7
Mean		19.1	19.1	19.1	19.2	19.1

TOTAL SUGAR: CWT

1	P0	10.9	50.5	66.9	69.9	41.8
2	P0	40.7	58.8	56.9	63.3	52.1
3	P0	65.3	70.5	71.1	68.4	68.1
4	D	67.4	71.5	66.3	75.6	69.6
5	DP1	71.3	70.7	68.3	71.7	70.7
6	P1	74.9	74.2	70.9	80.3	75.0
7	P2	71.4	74.9	74.6	68.5	72.2
8	P0	72.7	53.2	71.2	73.9	68.7
Mean		59.3	65.5	68.3	71.5	64.8

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SUGAR BEET

TOPS: TONS

Plot	Treatment 1966 and 1967	1969 P0	P1	P2	P3	Mean
1	P0	3.69	12.33	13.95	14.04	9.54
2	P0	7.92	11.97	11.07	12.51	10.28
3	P0	14.04	13.95	12.60	12.78	13.49
4	D	12.69	14.31	13.86	16.39	13.99
5	DP1	12.92	14.85	15.94	15.58	14.44
6	P1	15.49	13.05	10.80	12.69	13.50
7	P2	13.14	12.15	11.61	12.06	12.42
8	P0	14.85	7.38	17.29	14.49	13.77
Mean		11.84	12.50	13.39	13.82	12.68

BARLEY: CWT

Plot	Treatment 1966 and 1967	GRAIN	STRAW
1	P0	9.4	4.5
2	P0	24.0	11.9
3	P0	33.1	15.9
4	D	34.2	18.4
5	DP1	35.4	19.7
6	P1	34.5	19.8
7	P2	35.7	19.8
8	P0	29.8	15.3
Mean		29.5	15.6

Mean D.M. %: Grain: 76.6
Straw: 83.7

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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.

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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

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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.

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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.

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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.

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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

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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

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

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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

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
D0 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*	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

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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.

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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

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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	

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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.

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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.

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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

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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

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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.)

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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

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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

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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.

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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.)

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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

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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.

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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

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

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

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

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

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

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

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

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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

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

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

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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

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

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

LEVELS OF N AND K

(69/R/CS/1)

Residues of N,P and K to grass Harwoods Piece 1969 - the 12th year, potatoes.

For treatments etc. see 'Results' 63/C/7.1 and 65/C/6.2 and for previous years' results see 58/Cg/2, 59/Cg/2, 60/Ci/1, 61/Dg/1, 62/C/11, 63/C/7, 64/C/6, 65/C/6, 66/C/5, 67/C/4 and 68/C/4.

Plots were split for a test of none (KO) v 1.0 (KK) cwt K20 as granular muriate of potash. Otherwise no treatment or basal P and K were applied in 1969.

Basal applications: 1.0 cwt N as 'Nitro-Chalk' broadcast by hand. Weedkiller: Paraquat at 0.375 lb ion plus linuron at 0.75 lb in 37 gals. Fungicide: Mancozeb at 1.2 lb in 37 gals on three occasions. Insecticide: Demeton-s-methyl at 3.5 oz applied with second mancozeb spray.

Area of each sub plot: 0.0043. Area harvested: 0.0024.

Cultivations, etc.: Ploughed: 6 Feb, 1969. Rotary cultivated, basal 'Nitro-Chalk' and muriate of potash applied, potatoes machine planted: 14 Apr. Weedkiller applied: 13 May. Grubbed: 19 June. Earthed up: 26 June. Fungicide applied: 15 July, 4 Aug, 21 Aug. Insecticide applied: 4 Aug. Lifted: 25 Sept. Variety: Pentland Dell.

NOTE: Leaf samples were taken in July for determination of percentage K. % N, % P and % K in tubers was determined. After harvest soil samples were taken to determine available P and K.

Standard errors per plot. Total tubers, tons:
Whole plot: 1.206 or 10.8% (33 d.f.)
Sub plot: 1.790 or 16.1% (36 d.f.)

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

SUMMARY OF RESULTS

TOTAL TUBERS: TONS

N P K	KD	KK	Mean
	(1) and (2)		(±0.603)
0 1 0	9.94	14.73	12.34
1 1 0	8.42	12.19	10.31
1 1 1	9.62	13.97	11.80
1 1 2	14.79	16.46	15.62
2 1 0	5.58	12.18	8.88
2 1 1	8.49	11.70	10.09
2 1 2	11.42	13.29	12.36
3 1 0	4.98	11.85	8.42
3 1 1	7.21	11.35	9.28
3 1 2	8.81	13.90	11.35
3 0 2	9.45	13.26	11.35
3 2 2	11.06	12.93	11.99
Mean (±0.258)	9.15	13.15	11.15

(1) (±0.874) For use in vertical and diagonal comparisons only.
(2) (±0.895) For use in horizontal and interaction comparisons only.

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

% WARE

N P K	KD	KK	Mean
0 1 0	92.3	97.2	94.8
1 1 0	90.0	96.4	93.2
1 1 1	95.4	97.0	96.2
1 1 2	97.0	97.8	97.4
2 1 0	88.0	96.7	92.3
2 1 1	92.1	96.5	94.3
2 1 2	95.8	96.7	96.3
3 1 0	84.7	95.8	90.3
3 1 1	93.0	96.7	94.9
3 1 2	95.2	97.2	96.2
3 0 2	94.0	97.7	95.8
3 2 2	96.1	96.9	96.5
Mean	92.8	96.9	94.8

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

GRAZED REFERENCE PLOTS

(69/R/CS/2)

Highfield IX.

For details of previous years' results see 'Results' 65/B/2, 66/B/2, 67/B/2, 68/B/3.

Cultivations, etc.: P and K applied, ground chalk applied to appropriate plots: 20 Nov, 1968. First N dressing applied: 4 Mar, 1969. Sample cuts taken: 5 May, 26 June, 4 Sept, 29 Oct. Sampling cages moved after each cut. N dressings applied to all blocks after each cut except the last.

NOTES: (1) Only two blocks were cut on each occasion the other two being grazed.
(2) The percentage of N, P and K in the dry grass were measured.
(3) Visual estimates were made of the percentage surface area covered by clover leaves.
(4) Soil samples were taken for determination of P, K and pH.

Standard errors per plot. Grass dry matter, cwt:
1st cut: 2.60 or 26.6% (13 d.f.)
2nd cut: 4.05 or 9.7% (13 d.f.)
3rd cut: 2.68 or 7.0% (13 d.f.)
4th cut: 2.72 or 26.7% (13 d.f.)

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

SUMMARY OF RESULTS

GRASS: DRY MATTER: CWT

	1st cut	2nd cut	3rd cut	4th cut	Total of 4 cuts
PK	(±1.84)	(±2.86)	(±1.89)	(+1.92)	
N0 00	7.5	32.5	34.8	9.7	84.5
N1 00	6.5	38.5	41.9	7.3	94.2
A1 00	9.2	42.4	36.9	7.9	96.4
N0 10	8.4	33.6	34.4	11.8	88.2
N1 10	9.5	46.8	38.0	13.6	107.9
A1 10	10.9	45.6	33.5	12.1	102.1
N0 01	6.7	32.2	31.1	9.7	79.7
N1 01	13.1	42.8	42.3	8.5	106.7
A1 01	8.5	35.7	41.4	7.5	93.1
N0 11	11.6	29.7	33.2	9.5	84.0
N1 11	12.0	52.4	41.2	16.2	121.8
A1 11	13.7	49.8	35.2	11.7	110.4
N2 11	8.9	56.0	47.7	9.7	122.3
A2 11	10.7	48.9	44.5	7.3	111.4
Mean	9.8	41.9	38.3	10.2	100.2

Mean D.M. %: 1st cut: 16.3
2nd cut: 20.0
3rd cut: 25.5
4th cut: 24.4
Total of 4 cuts: 21.6

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WINTER WHEAT AFTER INTENSIVE BARLEY

(69/R/CS/6)

Little Knott I 1969

The ninth year of the 'Intensive Barley Growing Experiment'. For design, treatments etc. see 'Results' 61/C/8.

Area of each plot: 0.0212. Area harvested: 0.0138.

Cropping: Winter wheat was grown over the whole experiment, with the exception of sequence 10 (non-continuous cropping), which was fallowed.

Nitrogen treatments (in cwt N as 'Nitro-Chalk'):

From 1969		Before 1969	
0.6	(N3)	None	(N0)
1.0	(N5)	0.3	(N1)
1.4	(N7)	0.6	(N2)
1.8	(N9)	0.9	(N3)

Basal applications: 900 lb (0:14:28) ploughed in, 170 lb (0:20:20) combine drilled. Weedkillers: Paraquat at 0.75 lb ion in 20 gals. Ioxynil octanoate, bromoxynil octanoate and the iso-octyl ester of dichlorprop ('Oxytril P' at 1 pint in 20 gals).

Cultivations, etc.: Paraquat applied: 5 Sept, 1968. First basal PK applied: 12 Sept. Ploughed: 20 Sept. Seed drilled at 160 lb: 15 Oct. Plots 28 (sequence 4,N7) and 68 (sequence 6,N5) drilled at 160 lb (omitted on 15 Oct by error): 21 Nov. 'Nitro-Chalk' applied: 10 Apr, 1969. Fallow plots rotary cultivated: 21 Apr. 'Oxytril P' applied: 1 May. Combine harvested: 30 Aug. Variety: Cappelle.

NOTES: (1) Yields were taken for all sequences except 10 (fallow).
(2) Estimates of take-all (Ophiobolus graminis) were made throughout the season.
(3) For previous years' results see 'Results' 61/C/8, 62/C/7, 63/C/2, 65/C/2, 66/C/2, 67/C/2, 68/C/2.
(4) Two plots C4N7 and C6N5 were sown about a month after the remainder. Estimated values were used in the analysis.

Standard error per plot.
Grain, cwt: 3.50 or 7.1% (33 d.f.)

SUMMARY OF RESULTS

GRAIN:CWT

Crop Sequences

Crop in 1961	1	2	3	4	5	6	7	8	9	
	O	WS	O	BE	WS	WS	B	WS	WS	
2	BE	O	WS	O	BE	WS	B	WS	WW	
3	B	BE	O	WS	O	BE	B	WS	WW	
4	B	B	BE	O	WS	O	B	WS	WW	
5	B	B	B	BE	O	WS	B	WS	WW	
6	B	B	B	B	BE	O	B	WS	WW	
7	B	B	B	B	B	BE	B	WS	WW	
8	B	B	B	B	B	B	B	WS	F	Mean
					(±2.49)					(±0.83)
N3	39.4	43.9	42.1	38.7	37.2	42.3	42.6	38.5	53.9	42.1
N5	52.8	50.7	48.0	46.9	43.1	55.7	51.2	49.1	55.4	50.3
N7	56.2	52.1	53.1	44.9	44.9	52.9	56.1	53.7	50.5	51.6
N9	54.4	54.0	52.2	48.3	47.9	56.0	53.1	52.7	55.0	52.6
Mean (±1.25)	50.7	50.2	48.9	44.7	43.3	51.7	50.7	48.5	53.7	49.2

Mean D.M. %: 83.3

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FORESTRY REFERENCE PLOTS

(69/W/CS/8)

Woburn Stackyard Series C 1969 - Bed 1.

For details of previous years' results and treatments etc., see 'Results' 63/B/2, 64/B/2, 65/B/2, 66/B/2, 67/B/2, 68/B/3.

Cultivations, etc.:-
Formalin (250 ml. in 4 l. water per sq.yd.) applied: 6 Jan, 1969.
All manures (other than N) dug in: 11 Mar. Seed sown: 24 Mar.
T.V.O. pre-emergence spray: 22 Apr. N top dressed: 28 May, 9 July, 8 Aug, 9 Sept.

NOTES: (1) Height assessments and samples for analysis as in 1968.
(2) Plots lacking N, P, K and Mg had typical deficiency symptoms.

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SUMMARY OF RESULTS

STACKYARD C (W). Bed 1

SITKA SPRUCE

Treatment	MEAN HEIGHT: INCHES	PLANT NUMBER: PER SQ YARD
None	1.68	915
PK Mg	1.94	1008
NK Mg	0.92	930
NP Mg	1.88	1014
NPK	1.69	852
NPK Mg	1.74	759
NPK Mg F	2.41	1056
C	2.20	918
C NPK Mg	2.44	888
L NPK Mg	2.28	654
Mean	1.88	889

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FORESTRY FORMS OF FERTILISER

(69/W/CS/9)

Woburn Stackyard Series C 1969 - Bed 2.

For details of previous years' results and treatments see 'Results' 63/B/2, 64/B/2, 65/B/2, 66/B/2, 67/B/2, 68/B/3.

Cultivations, etc.:-

Seedbeds: Formalin (250 ml. in 4 l. water per sq. yd.) applied: 6 Jan, 1969. All manures (other than N) dug in : 11 Mar. Seed sown: 24 Mar. T.V.O. pre-emergence spray: 22 Apr. N top dressed: 28 May, 9 July, 8 Aug, 9 Sept.

Transplant plots lined out: 26 Mar, 1969. All manures (other than N) as for seedbeds applied: 11 Mar. N top dressed: 22 Apr, 28 May, 9 July, 8 Aug.

NOTES: (1) Height assessments and samples for analysis as in 1968.
(2) Plots lacking N, P, K and Mg had typical deficiency symptoms.

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

SUMMARY OF RESULTS

PLOTS 1 - 6 (Transplants)

	O	A	B	Mean
	MEAN HEIGHT: INCHES			
SS	9.45	12.66	12.61	11.57
GF	7.77	9.14	9.39	8.77

PLOTS 7 - 12 (Seedlings)

	MEAN HEIGHT: INCHES			
SS	1.57	2.29	2.60	2.15
GF	1.29	2.12	2.26	1.89
	PLANT NUMBER/SQUARE YARD			
SS	1002	1002	1056	1020
GF	540	546	438	508

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

LONG TERM LIMING EXPERIMENT

FALLOW 1969

(69/R/CS/10 and 69/W/CS/10)

Rothamsted Sawyers I (R) and Woburn Stackyard Series C (W) - the eighth year.

For treatments etc. see 'Results' 63/C/3 and for previous years' results see 62/C/8, 63/C/3, 64/C/3, 65/C/3, 66/C/3, 67/C/3 and 68/C/3.

Cultivations, etc.:-

Sawyers I (R): Ploughed: 31 Jan, 1969. Rotary cultivated: 16 - 26 Apr, 23 May, 3 July. Subsoiled 28 inches apart 20 inches deep: 5 Aug. Deep-tine cultivated: 8 Aug.

Stackyard Series C (W): Deep-tine cultivated: 18 Oct, 1968. Ploughed: 7 Feb, 1969, 8 Mar. Rotary cultivated: 17 Apr, 1 May, 22 May, 17 June. Deep-tine cultivated: 28 June. Subsoiled 56 inches apart 20-22 inches deep: 1 July.

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SOIL STRUCTURE 2

(69/W/CS/11)

Effect of peat (annual applications 1963-1968) Woburn, Stackyard II, plot 6 of the Continuous Barley Site, spring beans 1969 the seventh year.

Design: 4 randomised blocks of 5 plots with weedkiller treatments to blocks.

Area of each plot: 0.0016. Area harvested: 0.0016.

Treatments: All combinations of:-

Blocks: 1. Weedkiller: No spray (S0), simazine at 0.42 lb in 50 gals (S1), 0.84 lb in 100 gals (S2), 1.68 lb in 200 gals (S4).

Whole plots: 2. Residues of Peat: None (0), peat at 62.5 cwt dry matter applied in 1965 only (Sb 65). Annual dressings of peat repeated 1963-1968 at 62.5 (DG 1), 125 (DG 2), 187.5 cwt dry matter (DG 3) dug in to a depth of 8 inches.

NOTE: The 1968 sub plot test of wheel-marks was ignored in 1969 yields being taken from whole plots.

Basal applications: 20 cwt ground chalk. Triple superphosphate, potassium bicarbonate, and magnesium sulphate to supply 75 lb P, 250 lb K, 50 lb Mg applied to the seedbed before drilling.

Cultivations, etc.: Ground chalk, P,K,Mg applied: 3 Feb, 1969. Plots dug: 6 Feb. Seed drilled at 200 lb: 11 Feb. Weedkiller treatments applied: 16 Feb. Harvested by hand: 29 Aug. Variety: Tarvin.

NOTES: (1) For previous years' results see 'Results' 64/C/20, 65/C/19, 66/C/11, 67/C/8 and 68/C/31.
(2) Crop samples were taken on 3 occasions in June for growth studies.
(3) Soil samples for PK analysis were taken in September.

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

SUMMARY OF RESULTS

	0	Sb 65	DG1	DG2	DG3	Mean
			GRAIN:CWT			
S0	19.7	18.9	21.0	22.5	24.8	21.4
S1	17.6	20.2	23.7	22.6	23.9	21.6
S2	12.7	12.9	19.3	22.2	22.9	18.0
S4	11.8	15.0	19.2	20.0	23.1	17.8
Mean	15.4	16.7	20.8	21.9	23.7	19.7

Mean D.M.%: 76.9

			STRAW:CWT			
S0	34.3	37.9	32.5	30.7	33.1	33.7
S1	30.3	36.9	32.5	29.6	40.6	34.0
S2	37.1	35.0	29.8	34.1	36.2	34.5
S4	29.0	31.7	30.6	28.4	29.6	29.9
Mean	32.7	35.4	31.4	30.7	34.9	33.0

Mean D.M.%: 58.1

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WINTER WHEAT

(69/R/CS/12)

Effects of formalin and nitrogen, Pastures (pathogen free 1965) and Little Knott I (pathogen infected 1965) 1969, the fifth year. For design, treatments etc., and previous years' results see 'Results' 65/C/29, 66/C/22, 67/C/18 and 68/C/14.

Area of each plot: 0.0032. Area harvested: Little Knott I: 0.0021.
Pastures: 0.0010.

No formalin treatment was applied in 1969, residual effects only being measured. Nitrogen was applied as calcium nitrate as in 1968 and at the same rates.

Basal applications: Compound (0:20:20) at 280 lb on Pastures and at 168 lb on Little Knott I, combine drilled. Weedkiller: Ioxynil octanoate, bromoxynil octanoate and the iso-octyl ester of dichlorprop ('Oxytril P' at 1 pint in 20 gals).

Cultivations, etc.:

Pastures: Ploughed: 14 Oct, 1968. Seed drilled at 180 lb: 17 Oct. Calcium nitrate applied: 16 Apr, 1969. Weedkiller applied: 1 May. Combine harvested: 1 Sept. Variety: Cappelle.

Little Knott I: Ploughed: 20 Sept, 1968. Seed drilled at 180 lb: 15 Oct. Calcium nitrate applied: 16 Apr, 1969. Weedkiller applied: 1 May. combine harvested: 1 Sept. Variety: Cappelle.

NOTE: Samples were taken for estimation of take-all (Ophiobolus graminis and eyespot (Cercosporella herpotrichoides) in spring and early and late summer.

Standard errors per plot.

Grain, cwt:	Little Knott I:		4.36 or 15.2% (6 d.f.)
	Pastures:	Whole plot:	1.74 or 5.0% (5 d.f.)
		Sub plot:	4.24 or 12.2% (3 d.f.)
		Pooled:*	3.24 or 9.3% (8 d.f.)

* Used in calculating S.E.'s of means in Summary.

SUMMARY OF RESULTS

PASTURES (R)

GRAIN: CWT

	N0	N1	N2	N3	Mean
Mean (±1.15)	18.0	37.2	42.8	41.4	34.9
		(±1.62)			(±0.81)
68 O	19.0	38.7	41.3	40.9	35.0
68 F	17.0	35.8	44.2	41.9	34.7
		(±1.62)			(±0.81)
67 O	16.8	38.0	42.8	42.9	35.1
67 F	19.2	36.5	42.7	40.0	34.6
		(±1.62)			(±0.81)
66 O	17.8	37.0	41.1	41.2	34.3
66 F	18.2	37.5	44.5	41.6	35.4
		(±1.62)			(±0.81)
65 O	16.6	35.9	40.1	43.1	33.9
65 F	19.4	38.6	45.5	39.8	35.8

Mean D.M. %: 82.8

LITTLE KNOTT I

GRAIN: CWT

	N0	N1	N2	N3	Mean
Mean (±1.54)	14.4	30.7	32.8	36.8	28.7
		(±2.18)			(±1.09)
68 O	14.4	32.4	37.5	38.9	30.8
68 F	14.5	29.0	28.1	34.7	26.6
		(±2.18)			(±1.09)
67 O	13.9	29.8	31.3	33.5	27.1
67 F	15.0	31.6	34.3	40.1	30.3
		(±2.18)			(±1.09)
66 O	15.0	27.6	32.3	39.8	28.7
66 F	13.9	33.8	33.3	33.8	28.7
		(±2.18)			(±1.09)
65 O	13.3	31.1	33.0	32.6	27.5
65 F	15.6	30.3	32.6	41.0	29.9

Mean D.M. %: 81.6

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

N LEVELS TO OLD GRASS

(69/R/CS/13)

Park Grass Plot 6, 1969, the fifth year

For details of treatments etc., and for previous years' results see 'Results' 65/C/33, 66/C/14, 67/C/10 and 68/C/8.

Area of each plot: 0.0045. Area harvested: Cuts 1 - 5, 0.0021.
Cut 6, 0.0012.

In 1969 all plots were cut six times, the N rates being applied to C6 plots in 6 equal amounts and to C3 plots in 3 equal amounts. The total rates, which are cumulative with previous applications, remain the same.

Cultivations, etc.: P, K, Na and Mg fertilisers applied: 21 Nov, 1968. 'Nitro-Chalk' applied: 7 Mar, 1969. S plots sprayed with mecoprop at 45 oz a.e. in 50 gals: 26 June. Cut six times: 12 May, 9 June, 8 July, 6 Aug, 9 Sept, 11 Nov. 'Nitro-Chalk' applied to C6 plots after first 5 cuts and to C3 plots on 9 June and 6 Aug.

Standard error per plot. Dry matter, cwt:
Total of all 6 cuts: 5.93 or 10.5% (27 d.f.)

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

SUMMARY OF RESULTS

DRY MATTER, CWT: TOTAL OF ALL CUTS

	N0	SN0	N1	N2	N3	Mean
			(±2.96)			(±1.33)
C3	51.1	21.2	60.4	74.7	77.9	57.1
C6	46.6	20.1	58.2	76.6	79.8	56.3
Mean (±2.10)	48.9	20.7	59.3	75.7	78.9	56.7

Mean D.M. %: 20.8

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

NPK TO OLD GRASS

(69/R/CS/14)

Park Grass Old Plots 5/1 and 5/2, 1969, the fifth year

For details of treatments etc., and for previous years' results see 'Results' 65/C/22, 66/C/13, 67/C/9 and 68/C/7.

Area of each plot: 0.0045. Area harvested: 0.0021.

Treatments K1P2 and K6P2 were applied in 1965 only. In each season these plots received N at current rates.

Cultivations, etc.: P and K applied: 22 Nov, 1968. 'Nitro-Chalk' applied: 7 Mar, 1969. Cut 3 times: Plot 5/2: 19 May, 8 July, 13 Oct, plot 5/1: 30 May, 24 July, 13 Oct. 'Nitro-Chalk' applied after first 2 cuts.

Standard errors per plot. Dry matter, cwt:

Plot 5/1:	1st cut:	3.33 or 17.9% (11 d.f.)
	2nd cut:	3.08 or 18.6% (11 d.f.)
	3rd cut:	2.29 or 18.0% (11 d.f.)
	Total of 3 cuts:	5.08 or 10.6% (11 d.f.)
Plot 5/2:	1st cut:	1.92 or 8.4% (11 d.f.)
	2nd cut:	4.02 or 15.3% (11 d.f.)
	3rd cut:	2.78 or 13.2% (11 d.f.)
	Total of 3 cuts:	4.29 or 6.1% (11 d.f.)

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

SUMMARY OF RESULTS

PLOT 5/1: DRY MATTER, CWT

1ST CUT

Excluding K1 and K6 plots

	P0	P1	P2	P4	Mean
Mean (±1.18)	12.6	20.1	25.5	24.4	20.6
		(±2.35)			(±1.18)
K0	8.2	13.5	16.6	15.5	13.5
K2	15.9	27.6	29.2	26.0	24.7
K4	14.9	13.9	28.6	27.9	21.3
K8	11.4	25.3	27.7	28.1	23.1
		(±1.66)			(±0.83)
N1	12.2	22.3	20.6	19.7	18.7
N2	13.0	17.8	30.4	29.1	22.6

	K0	K2	K4	K8
		(±1.66)		
N1	14.4	21.8	19.6	19.0
N2	12.5	27.5	23.1	27.3

K1 and K6 plots

	K1P2*	K6P2*	Mean
	(±2.35)		(±1.66)
N1	10.8	10.9	10.8
N2	10.0	9.8	9.9
Mean (±1.66)	10.4	10.3	10.4

* Applied 1965

General mean: 18.6
Mean D.M. %: 17.1

PLOT 5/1: DRY MATTER, CWT

2ND CUT

Excluding K1 and K6 plots

	P0	P1	P2	P4	Mean
Mean (±1.09)	19.4	16.7	17.8	18.6	18.1
		(±2.18)			(±1.09)
K0	12.6	13.2	12.4	13.7	13.0
K2	19.8	17.5	19.6	17.0	18.5
K4	22.9	19.3	19.7	20.2	20.5
K8	22.1	16.7	19.4	23.7	20.5
		(±1.54)			(±0.77)
N1	17.7	14.5	14.7	16.6	15.9
N2	21.0	18.8	20.9	20.6	20.3

	K0	K2	K4	K8
		(±1.54)		
N1	13.1	16.3	17.5	16.7
N2	12.9	20.7	23.6	24.3

K1 and K6 plots

	K1P2*	K6P2*	Mean
	(±2.18)		(±1.54)
N1	11.3	9.5	10.4
N2	10.0	11.2	10.6
Mean (±1.54)	10.6	10.4	10.5

* Applied 1965

General mean: 16.6
Mean D.M. %: 25.9

PLOT 5/1: DRY MATTER, CWT

3RD CUT

Excluding K1 and K6 plots

	P0	P1	P2	P4	Mean
Mean (±0.81)	10.3	12.5	14.8	16.9	13.6
		(±1.62)			(±0.81)
K0	7.5	10.8	10.5	11.8	10.1
K2	10.9	13.1	15.3	15.8	13.8
K4	12.3	14.0	16.4	20.8	15.9
K8	10.4	12.3	16.9	19.1	14.7
		(±1.15)			(±0.57)
N1	8.8	11.5	12.2	15.8	12.1
N2	11.8	13.6	17.4	17.9	15.2

	K0	K2	K4	K8
		(±1.15)		
N1	9.7	11.9	13.6	12.9
N2	10.5	15.6	18.2	16.4

K1 and K6 plots

	K1P2*	K6P2*	Mean
	(±1.62)		(±1.15)
N1	7.5	8.5	8.0
N2	10.4	9.1	9.7
Mean (±1.15)	8.9	8.8	8.9

* Applied 1965

General mean: 12.7

Mean D.M. %: 32.0

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

PLOT 5/1: DRY MATTER, CWT

TOTAL OF 3 CUTS

Excluding K1 and K6 plots

	P0	P1	P2	P4	Mean
Mean (±1.80)	42.2	49.3	58.1	59.9	52.4
		(±3.59)			(±1.80)
K0	28.3	37.5	39.5	41.1	36.6
K2	46.6	58.2	64.0	58.7	56.9
K4	50.1	47.2	64.8	68.9	57.8
K8	44.0	54.3	64.0	70.9	58.3
		(±2.54)			(±1.27)
N1	38.7	48.3	47.5	52.1	46.6
N2	45.8	50.3	68.7	67.7	58.1

	K0	K2	K4	K8
		(±2.54)		
N1	37.2	50.0	50.7	48.7
N2	36.0	63.7	64.8	67.9

K1 and K6 plots

	K1P2*	K6P2*	Mean
	(±3.59)		(±2.54)
N1	29.6	28.9	29.2
N2	30.4	30.2	30.3
Mean (±2.54)	30.0	29.6	29.8

* Applied 1965

General mean: 47.9
Mean D.M. %: 25.0

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

PLOT 5/2: DRY MATTER, CWT

1ST CUT

Excluding K1 and K6 plots

	P0	P1	P2	P4	Mean
Mean (±0.68)	23.9	24.1	23.2	21.3	23.1
		(±1.35)			(±0.68)
K0	21.1	22.2	21.7	19.6	21.1
K2	25.0	26.1	24.8	22.3	24.5
K4	24.3	24.3	24.2	21.5	23.6
K8	25.2	23.7	22.1	21.7	23.2
		(±0.96)			
N1	16.2	16.3	16.3	14.1	15.7
N2	31.6	31.9	30.1	28.4	30.5

	K0	K2	K4	K8
		(±0.96)		
N1	15.2	16.8	15.9	15.0
N2	27.1	32.2	31.2	31.4

K1 and K6 plots

	K1P2*	K6P2*	Mean
	(±1.35)		(±0.96)
N1	15.7	14.9	15.3
N2	27.9	28.5	28.2
Mean (±0.96)	21.8	21.7	21.7

* Applied 1965

General mean: 22.8
Mean D.M. %: 15.8

PLOT 5/2: DRY MATTER, CWT

2ND CUT

Excluding K1 and K6 plots

	P0	P1	P2	P4	Mean
Mean (±1.42)	27.3	25.4	24.4	26.4	25.9
			(±2.84)		(±1.42)
K0	24.9	25.0	27.4	22.5	25.0
K2	29.9	22.7	22.5	27.7	25.7
K4	26.2	25.3	24.4	28.6	26.1
K8	28.3	28.7	23.5	26.9	26.8
			(±2.01)		
N1	25.0	20.6	21.6	21.5	22.2
N2	29.7	30.3	27.2	31.3	29.6

	K0	K2	K4	K8
			(±2.01)	
N1	20.6	21.3	23.2	23.6
N2	29.3	30.1	29.1	30.1

K1 and K6 plots

	K1P2*	K6P2*	Mean
	(±2.84)		(±2.01)
N1	22.3	23.8	23.0
N2	35.2	29.3	32.2
Mean (±2.01)	28.8	26.5	27.6

* Applied 1965

General mean: 26.3
Mean D.M. %: 20.2

PLOT 5/2: DRY MATTER, CWT

3RD CUT

Excluding K1 and K6 plots

	P0	P1	P2	P4	Mean
Mean (±0.98)	21.1	19.8	21.3	20.3	20.6
			(±1.97)		(±0.98)
K0	21.1	21.2	22.4	19.3	21.0
K2	20.3	20.3	21.5	20.3	20.6
K4	22.0	19.4	22.0	19.8	20.8
K8	20.9	18.5	19.5	21.8	20.2
			(±1.39)		(±0.70)
N1	19.3	17.1	18.1	15.1	17.4
N2	22.9	22.6	24.6	25.5	23.9

	K0	K2	K4	K8
			(±1.39)	
N1	17.2	19.1	17.2	16.1
N2	24.8	22.1	24.4	24.3

K1 and K6 plots

	K1P2*	K6P2*	Mean
	(±1.97)		(±1.39)
N1	20.1	20.8	20.5
N2	25.0	23.7	24.3
Mean (±1.39)	22.5	22.3	22.4

* Applied 1965

General mean:21.0

Mean D.M. %: 35.7

PLOT 5/2: DRY MATTER, CWT

TOTAL OF 3 CUTS

Excluding K1 and K6 plots

	P0	P1	P2	P4	Mean
Mean (±1.52)	72.3	69.4	69.0	68.0	69.7
			(±3.03)		(±1.52)
K0	67.1	68.5	71.5	61.4	67.1
K2	75.2	69.1	68.7	70.3	70.8
K4	72.5	69.0	70.5	69.9	70.5
K8	74.4	70.9	65.1	70.5	70.2
			(±2.14)		(±1.07)
N1	60.4	54.0	56.0	50.8	55.3
N2	84.2	84.8	81.9	85.2	84.0

	K0	K2	K4	K8
			(±2.14)	
N1	52.9	57.3	56.2	54.7
N2	81.3	84.4	84.8	85.7

K1 and K6 plots

	K1P2*	K6P2*	Mean
	(±3.03)		(±2.14)
N1	58.1	59.4	58.8
N2	88.1	81.4	84.8
Mean (±2.14)	73.1	70.4	71.8

* Applied 1965

General mean: 70.1

Mean D.M. %: 23.9

DIRECT SEEDING

(69/W/CS/15)

Direct seeding, Woburn White Horse Field 1969, the fourth year - Winter Wheat.

Design: 4 randomised blocks of 4 plots, split into 2.

Area of each sub plot: 0.0149. Area harvested: 0.0070.

Treatments: All combinations of:-

Whole plots:
1. Seedbed preparation: Direct seeding after paraquat at 0.75 lb ion in 25 gals, 24 Sept, 1968 (SP), normal cultivations (M).
2. Seed dressing: No insecticide, fungicide only (SO), combined insecticide fungicide (SI).

Sub plots:
3. Insecticide: None (DO), phorate at 10 lb, chlordane at 10 lb a.i. in April, (DD).

NOTE: Treatments in 1966, 1967, 1968 and 1969 are cumulative.

Basal applications: 530 lb (0:14:28) combine drilled. 0.8 cwt N as 'Nitro-Chalk' top dressed. Weedkiller: Ioxynil at 9 oz plus mecoprop at 27 oz in 25 gals.

Cultivations, etc: Paraquat applied to SP plots: 24 Sept, 1968. M plots ploughed: 30 Sept. Insecticide applied, seed combine drilled at 190 lb: 18 Oct. SP plots rolled: 21 Oct. M plots harrowed: 22 Oct. 'Nitro-Chalk' applied: 15 Apr, 1969. Weedkiller applied: 1 May. Combine harvested: 22 Aug.

NOTES:
1. For the previous years' results see 'Results' 66/C/33, 67/C/26 and 68/C/20.
2. Counts of soil fauna were made in February and September, and plant samples were taken in July for counts of damage to tillers. Soil samples for earthworm counts were taken in September.

Standard errors per plot. Grain, cwt:

Whole plot:	2.46 or 9.1%	(9 d.f.)
Sub plot:	4.39 or 16.3%	(12 d.f.)

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

SUMMARY OF RESULTS

GRAIN:CWT

	SO	SI	DO	DD	Mean
	(±1.23)		(1) and (2)		(±0.87)
SP	29.1	25.2	24.6	29.7	27.2
M	26.6	27.0	26.6	27.1	26.8

			(1) and (2)	(±0.87)
	SO	27.5	28.2	27.9
	SI	23.6	28.6	26.1
Mean (±1.10)		25.6	28.4	27.0

Mean D.M.%: 78.5

(1) (±1.40) For use in vertical and diagonal comparisons only.
(2) (±1.55) For use in horizontal and interaction comparisons only.

IRRIGATION AND EELWORMS

(69/W/CS/16)

Butt Close Woburn, the fourth year - potatoes, 1969

Effects on yield and cyst nematode of soil fumigant, irrigation and sequences of resistant and susceptible varieties of potatoes.

For details of treatments etc. and previous years' results see 'Results' 66/C/32, 67/C/25 and 68/C/19. Irrigation and fumigant treatments are cumulative.

NOTE: The fumigant was changed to dazomet and applied at 150 lb in rows by machine.

Area of each sub plot: 0.0114. Area harvested: 0.0046.

Irrigation to C plots 1969 (inches water).

	Series I		Series IV
18 June	0.5	17 June	0.5
1 July	0.5	3 July	0.5
16 July	0.5	17 July	0.5
28 July	0.5	25 July	0.5
8 Aug	0.5	9 Aug	0.5
Total	2.5		2.5

Basal applications: 9 cwt (13:13:20). 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, on two occasions. Insecticide: Demeton-s-methyl at 3.5 oz applied once with fungicide.

Cultivations, etc.: F plots rotary cultivated, fumigated (Series I): 14 Oct, 1968, (Series IV): 15 Oct. Remaining plots rotary cultivated: 16 Oct. All plots rotary cultivated second time: 17 Oct. Ploughed (Series I): 7 Feb, 1969, (Series IV): 6 Mar. Fertiliser applied: 9 Apr. Rotary cultivated: 18 Apr. Potatoes planted: 19 Apr. Weedkiller applied: 14 May. Grubbed and earthed up: 13 June. Fungicide with insecticide applied: 18 July. Fungicide applied: 6 Aug. Haulm mechanically destroyed: 12 Sept. Lifted: 22 Sept.

NOTE: Soil samples were taken from each plot after fumigation and before cropping. Cyst and egg counts were made.

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

Standard errors per plot. Total tubers, tons:

Series I

Strip:	1.138	or 10.0% (6 d.f.)
1/2 plots:	0.860	or 7.6% (8 d.f.)
1/4 plots:	1.024	or 9.0% (16 d.f.)
Pooled (used for calculation of standard errors in the summary):	1.008	or 8.8% (30 d.f.)

Series IV

Strip:	2.044	or 16.0% (6 d.f.)
1/2 plots:	1.514	or 11.8% (8 d.f.)
1/4 plots:	1.570	or 12.3% (16 d.f.)
Pooled (used for calculation of standard errors in the summary):	1.662	or 13.0% (30 d.f.)

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

SUMMARY OF RESULTS

SERIES I

1966 1967 1968 1969	MP MP MP MP	PD MP PD MP	PD PD PD PD	MP PD MP PD	Mean
		TOTAL TUBERS: TONS			
		(±0.411)			(±0.206)
O	13.78	12.19	7.77	8.59	10.59
C	15.77	13.84	8.36	10.85	12.20
O	11.93	7.01	1.89	3.96	6.20
F	17.62	19.02	14.24	15.48	16.59
Mean (±0.291)	14.78	13.02	8.07	9.72	11.40
		% WARE			
O	93.1	95.4	74.2	82.3	86.2
C	94.9	96.5	82.7	87.7	90.4
O	92.1	95.4	63.6	75.1	81.5
F	95.8	96.5	93.4	94.8	95.1
Mean	94.0	95.9	78.5	85.0	88.3

Varieties MP = Maris Piper
PD = Pentland Dell

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

SERIES IV

1966 1967 1968 1969	MP MP MP MP	PD MP PD MP	PD PD PD PD	MP PD MP PD	Mean
	TOTAL TUBERS: TONS				
	(±0.678)				(±0.339)
O	14.90	12.26	8.80	10.50	11.61
C	17.72	14.42	10.07	13.68	13.97
O	14.81	7.87	1.68	7.25	7.90
F	17.80	18.81	17.18	16.93	17.68
Mean (±0.480)	16.31	13.34	9.43	12.09	12.79
	% WARE				
O	96.1	94.3	79.9	90.9	90.3
C	96.6	96.5	87.4	94.6	93.8
O	95.5	94.7	71.4	90.1	87.9
F	97.2	96.1	95.8	95.4	96.1
Mean	96.4	95.4	83.6	92.7	92.0

Varieties MP = Maris Piper
PD = Pentland Dell

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

CEREAL CYST-NEMATODE

(69/W/CS/17)

The effect of cereal cyst-nematode (Heterodera avenae) on the yield of resistant barley - Butt Close 1969, fourth year. For treatments, previous years' results etc., see 'Results' 67/C/41 and 68/C/36.

Design: 6 blocks of 5 plots split into 3.

Area of each sub plot: 0.0031. Area harvested: 0.0020.

Treatments: All combinations of:-

Blocks: 1. Crop in 1968: Spring wheat, spring barley in three pairs of blocks.

Whole plots: 2. Oats 1966: Under oats till harvest (O), oats rotary cultivated 26 May, and then bare fallowed (A), oats rotary cultivated 26 May, bare fallowed, injected with D-D at 400 lb, 19 Dec, 1966 (B).

Sub plots: 3. Cumulative nitrogen to wheat 1967, 1968: 0.6 (N1), 1.2 (N2), 1.8 (N3) cwt N as 'Nitro-Chalk'.

or

Cumulative nitrogen to barley 1967, 1968: 0.4 (N1), 0.8 (N2), 1.2 (N3) cwt N as 'Nitro-Chalk'.

NOTE: In 1968 because of a severe invasion of grain aphid Sitobion avenae a test of O v. 0.4 lb dimethoate (S) in 30 gals was made on spring wheat, two of the three O plots in each block and the A and B plots were sprayed.

Basal applications: 350 lb (20:10:10) combine drilled. Weedkiller: Ioxynil at 7.5 oz and mecoprop at 22.5 oz in 25 gals.

Cultivations, etc.:- Ploughed: 3 Feb, 1969. Seed combine drilled at 154 lbs: 26 Mar. Weedkiller applied: 14 May. Combine harvested: 7 Aug. Variety: Resistant Barley.

NOTES: 1. Plant samples were taken for nematode cyst counts on roots 2 June.

2. Soil samples were taken for nematode counts after harvest.

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

Standard errors per plot. Grain, cwt:		
After Spring wheat:	Whole plot:	1.52 or 4.1% (8 d.f.)
	Sub plot:	3.31 or 9.0% (20 d.f.)
After Barley:	Whole plot:	1.86 or 5.6% (8 d.f.)
	Sub plot:	4.32 or 12.9% (20 d.f.)
Pooled*	Whole plot:	1.70 or 4.8% (16 d.f.)
	Sub plot:	3.85 or 11.0% (40 d.f.)

* Used in calculation of SE's of means in Summary.

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

SUMMARY OF RESULTS

BARLEY, GRAIN

AFTER SPRING WHEAT

	OS	O	AS	BS	Mean
	(1) & (2)		(3) & (4)		(±0.99)
N1	35.8	37.6	37.5	41.7	37.7
N2	33.4	35.2	36.2	37.3	35.1
N3	36.4	36.9	36.5	40.6	37.4
Mean (±0.98)	35.2 (±0.69)	36.5	36.7	39.9	36.7

(1) (±1.46) (3) (±2.06) For use in horizontal and diagonal comparisons only.

(2) (±1.57) (4) (±2.22) For use in vertical and interaction comparisons only.

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

BARLEY, GRAIN

AFTER BARLEY

	0	A	B	Mean
	(1) & (2)	(3) & (4)		(±0.99)
N1	31.0	35.3	39.0	33.5
N2	33.8	32.9	33.5	33.5
N3	31.7	29.9	41.4	33.3
Mean (±0.98)	32.2 (±0.69)	32.7	37.9	33.4

(1) (±1.46) (3) (±2.06) For use in horizontal and diagonal comparisons only.

(2) (±1.57) (4) (±2.22) For use in vertical and interaction comparisons only.

Pooled mean: 35.1
Pooled mean D.M.%: 85.8

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

LUCERNE

(69/R/CS/18)

Virus control - Long Hoos VI 1969, the fourth year. For design, treatments etc. and for previous years' results see 'Results' 66/C/26, 67/C/20 and 68/C/15.

Area of each plot: 0.0661. Area harvested: 0.0046.

Only one cut was taken in 1969, the last year of the experiment, and no insecticide treatment was applied. No fertilisers other than basal PK were applied.

Cultivations, etc.: Basal PK compound applied: 13 Nov, 1968.
N applied: 3 Mar, 1969. Cut once: 5 June.

NOTE: Aphid counts were made once in spring.

Standard error per plot. Dry matter:
1st and only cut: 2.26 or 7.2% (6 d.f.)

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

SUMMARY OF RESULTS

1ST AND ONLY CUT:DRY MATTER

RESIDUAL

	O	S	Mean
	(±1.13)		(±0.80)
L	22.9	25.6	24.2
M	37.9	39.6	38.7
Mean (±0.80)	30.4	32.6	31.5

Mean D.M.%: 20.7

PLACEMENT OF FUMIGANT FOR POTATOES

(69/W/CS/20)

Economic row fumigation for control of potato cyst-nematode - Woburn Butt Furlong 1969 third year.

For treatments etc., see 'Results' 68/C/27 and for previous years' results see 'Results' 67/C/34 and 68/C/27. In 1969 the treatments were repeated exactly as in 1968.

Area of each plot 0.0024. Area harvested: 0.0024.

Basal applications: 10 cwt (13:13:20). Weedkiller: Paraquat at 0.37 lb ion plus linuron 0.5 lb in 25 gals. Fungicide: Mancozeb at 1.2 lb in 37 gals on three occasions. Insecticide: Demeton-s-methyl at 3.5 oz in 37 gals on one occasion with fungicide.

Cultivations, etc.: Ploughed: 14 Oct, 1968. Basal NPK applied, rotary cultivated, ridged: 1 Apr, 1969. DD applied, reridged: 2 Apr. Potatoes planted: 5 May. Weedkiller applied: 16 May. Fungicide applied: 18 July, 7 Aug, 27 Aug. Insecticide applied: 18 July. Lifted: 18 Sept. Variety: Majestic.

NOTE: Soil samples were taken in April before DD was applied and again in May for cyst counts.

Standard error per plot.
Total tubers, tons: 1.068 or 12.0% (8 d.f.)

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

SUMMARY OF RESULTS

D0	D1	D2	D4	D8	Mean
		TOTAL TUBERS: TONS			
		(±0.617)			
6.98	7.25	7.87	10.25	12.16	8.90
		% WARE			
64.7	64.3	70.7	74.2	75.3	69.8

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

RESIDUES OF NEMATICIDES (FORMERLY PLOUGHSOLE D-D.)

(69/W/CS/21)

The residual effect of nematicides on barley after sugar beet - Woburn Butt Furlong, 1969, the third year.

For treatments, previous years' results, etc., see 'Results' 67/C/40 and 68/C/33.

Design: 2 blocks of 3 plots split into 16.

Area of each sub plot: 0.0045. Area harvested: 0.0015.

Treatments: All combinations of:-

Whole plots: 1. Residues of Nitrogen 1968: None (N0), 1.0 (N1) 2.0 cwt N (N2) as 'Nitro-Chalk'.

Strips of Quarter plots: 2. Residues of D-D. 1967: None (D0) 65 (D1) 140 (D2), 250 lb D-D. (D3).

Strips of four quarter plots at right angles to quarter plots of factor 2:

3. Residues of fumigants 1968 (F): None (0), 82 lb Telone (D) 22.2 lb of 5% granules Lannate (L), 10.6 lb of 10% granules Temik (T).

Basal applications: 400 lb (20:10:10) Weedkiller: Ioxynil octanoate, bromoxynil octanoate, iso-octyl ester of dichlorprop ('Oxytril P' at 1 pint in 25 gals).

Cultivations, etc: Ploughed: 17 Jan, 1969. Seed drilled at 140 lb: 11 Mar. Weedkiller applied: 14 May. Combine harvested: 7 Aug. Variety: Zephyr.

Standard errors per plot. Grain, cwt:

For D & ND	7.89 or 13.3% (9 d.f.)
For F & NF	7.59 or 7.1% (9 d.f.)
For DF & NDF	3.59 or 8.1% (27 d.f.)

https://doi.org/10.23637/ERADOC-1-96 *pp 172*

SUMMARY OF RESULTS

GRAIN: CWT

	D0	D1	D2	D3	Q	D	L	T	Mean
	(±2.08)*				(±2.68)*				
N0	42.3	44.0	42.8	42.4	45.2	41.3	44.2	40.6	42.8
N1	44.8	47.6	41.7	40.2	46.4	36.8	45.9	45.1	43.6
N2	44.1	43.3	50.6	48.0	49.2	45.7	45.3	45.8	46.5
					(±1.47)				(±1.20)
				D0	45.4	41.3	45.4	42.9	43.7
				D1	47.1	41.2	46.1	45.3	44.9
				D2	46.7	42.5	46.4	44.5	45.0
				D3	48.7	40.0	42.6	42.8	43.5
Mean (±1.55)					47.0	41.3	45.1	43.9	44.3

Mean D.M.%: 84.9

* For use in horizontal and interaction comparisons only.

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

WINTER WHEAT

(69/R/CS/22)

Soil sterilants, residual effects 1969, Claycroft, the third year. For previous years' results see 'Results' 67/C/29 and 68/C/22.

Design: 2 replicates of 10 x 2 in 4 blocks of 10 plots.

Area of each plot: 0.0030. Area harvested: 0.0016.

Treatments: All combinations of:-

1. Treatment sequences (soil sterilants):- As 1968. Residual effects only were tested in 1969, no further soil sterilants or rotary cultivations were applied.

2. Nitrogen: 0.5(N1), 1.0(N2) cwt N as 'Nitro-Chalk', N1 on plots that received N0 in 1967 and 1968, N2 after N1.

Basal applications: 2.5 cwt (0:20:20) combine drilled. Mecoprop at 42 oz and 2,4-D at 10.5 oz in 20 gals.

Cultivations, etc.: Ploughed: 5 Oct, 1968. Seed drilled at 180 lb: 17 Oct. 'Nitro-Chalk' applied: 19 Apr, 1969. Weedkiller applied: 5 May. Combine harvested: 30 Aug. Variety: Cappelle.

NOTES: (1) Plant samples were taken for disease counts.
(2) Plots treated with D-D in 1968 had no plants with deformed ears in 1969.

Standard error per plot.
Grain, cwt: 2.45 or 4.4% (18 d.f.)

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

SUMMARY OF RESULTS

GRAIN:CWT

Treatment 1967 1968	O O	O F	F O	F F	R R	R Z	Z R	Z Z	D O	D D	Mean
					(±1.73)						(±0.55)
NO	49.8	48.6	48.8	52.6	51.0	51.8	50.6	53.4	53.6	51.6	51.2
N1	58.1	60.0	58.5	59.4	59.0	59.0	59.9	59.0	58.7	59.8	59.1
Mean (±1.23)	53.9	54.3	53.6	56.0	55.0	55.4	55.3	56.2	56.2	55.7	55.2

Mean D.M.%: 82.0

SIMULATED GRAZING EXPERIMENT

(69/R/CS/23)

Comparison of yields from cages, 1 yard square (as used on the Grazed Reference Plots), and from cuts by motor scythe, Plot 6, Park Grass 1969, the third year. For treatments etc., and the previous years' results see 'Results' 67/C/38 and 68/C/29.

Cultivations etc.: Basal P, K, Na and Mg applied: 21 Nov, 1968.

The following treatments were cut on the dates shown:-

21 Apr 1969:	G+H,	G-H.			
7 May:	G+H,	G-H,	HG+,	HG-,	H.
16 May:			HG+,	HG-.	
27 May:			HG+,	HG-.	
9 June:			HG+,	HG-.	
23 June:	G+H,	G-H,	HG+,	HG-,	H.
14 July:	G+H,	G-H.			
31 July:	G+H,	G-H.			
20 Aug:	G+H,	G-H.			
8 Sept:	G+H,	G-H,	HG+,	HG-,	H.
3 Oct:			HG+,	HG-.	
10 Nov:	G+H,	G-H,	HG+,	HG-,	H.

Calcium nitrate applied on 4 Mar, 8 May, 24 June and 9 Sept.

NOTE: The percentages of N, P and K in the dry grass were measured.

Standard errors per plot. Grass, dry matter, cwt:

Motor Scythe	
1st Period (cuts 1-2):	3.37 or 25.2% (28 d.f.)
2nd Period (cuts 3-6):	3.14 or 10.6% (28 d.f.)
3rd Period (cuts 7-10):	2.64 or 9.6% (28 d.f.)
4th Period (cuts 11-12):	0.48 or 20.0% (28 d.f.)
Total all 4 Periods (cuts 1-12):	3.94 or 5.4% (28 d.f.)

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

SUMMARY OF RESULTS

DRY MATTER: CWT

1ST PERIOD

Treatment	H	H(G-)	G-(H)	H(G+)	H(G+)	G+(H)	G(+H)	Mean*
Cut with	M	M	R	M	SC	R	SC	
				(±1.95)				(±0.87)
N0	7.5	6.6	8.0	8.5	16.4	8.5	15.3	7.8
N1	15.3	18.8	11.2	16.4	23.1	10.4	15.4	14.4
N2	18.2	24.7	13.7	19.4	25.9	13.5	13.7	17.9
Mean (±1.12)	13.7	16.7	11.0	14.8	21.8	10.8	14.8	13.4

R plots cut twice.

2ND PERIOD

Treatment	H	(H)G-	(G-)H	(H)G+	(H)G+	(G+)H	(G+)H	Mean*
Cut with	M	R	M	R	SC	M	SC	
				(±1.81)				(±0.81)
N0	31.4	12.3	30.7	14.7	38.9	34.3	42.5	24.7
N1	37.3	14.1	40.1	19.1	50.0	39.4	52.8	30.0
N2	43.5	17.3	44.3	20.0	57.3	45.3	48.7	34.1
Mean (±1.05)	37.4	14.6	38.4	17.9	48.8	39.7	48.0	29.6

R plots cut four times.

* Excluding SC

M = Motor scythe
R = Rotary mower
SC= Shears in cages
()= Not applied in this period

NOTE: Standard errors do not apply to SC means

DRY MATTER: CWT

3RD PERIOD

Treatment	H	H(G-)	G-(H)	H(G+)	H(G+)	G+(H)	G+(H)	Mean*
Cut with	M	M	R	M	SC	R	SC	
				(±1.53)				(±0.68)
N0	25.4	26.7	18.6	27.6	34.7	16.7	28.4	23.0
N1	27.3	31.3	17.1	41.4	42.1	21.6	30.6	27.8
N2	31.4	40.7	21.8	45.6	44.8	19.0	29.2	31.7
Mean (±0.88)	28.0	32.9	19.2	38.2	40.5	19.1	29.4	27.5

R plots cut four times.

4TH PERIOD

Treatment	H	(H)G-	(G-)H	(H)G+	(H)G+	(G+)H	(G+)H	Mean*
Cut with	M	R	M	R	SC	M	SC	
				(±0.28)				(±0.12)
N0	1.1	3.7	0.7	2.5	4.4	1.3	5.3	1.9
N1	1.9	4.5	2.3	4.1	8.0	2.7	10.7	3.1
N2	1.6	2.9	1.8	3.0	7.6	1.9	10.5	2.2
Mean (±0.16)	1.5	3.7	1.6	3.2	6.7	1.9	8.9	2.4

R plots cut twice.

* Excluding SC

NOTE: Standard errors do not apply to SC means

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

DRY MATTER: CWT

TOTAL OVER ALL PERIODS

Treatment	H	HG-	G-H	HG+	HG+	G+H	G+H	Mean*
Cut with	M	M&R	M&R	M&R	SC	M&R	SC	
				(±2.27)				(±1.02)
N0	65.4	49.4	58.0	53.4	94.3	60.7	91.5	57.4
N1	81.7	68.7	70.8	81.0	123.3	74.1	109.6	75.3
N2	94.6	85.5	81.6	88.0	135.6	79.8	102.2	85.9
Mean (±1.31)	80.6	67.9	70.1	74.1	117.7	71.5	101.1	72.8

*Excluding SC

NOTE: Standard errors do not apply to SC means.

DRY MATTER: CWT

TOTALS FOR ALL PERIODS UNDER SAME MANAGEMENT

Treatment	H	H(G-)	G-(H)	H(G+)	H(G+)	G+(H)	G+(H)
Cut with	M	M	R	M	SC	R	SC
N0	65.4	64.7	42.6	71.7	98.9	42.4	87.0
N1	81.7	92.5	46.9	99.9	128.7	55.2	104.0
N2	94.6	111.5	55.7	112.2	129.9	55.5	107.8
Mean	80.6	89.6	48.5	94.6	119.2	51.0	99.7

R plots cut twelve times.

SUMMARY OF RESULTS

DRY MATTER: CWT

1ST PERIOD

Treatment	H	H(G-)	G-(H)	H(G+)	H(G+)	H(G+)	G+(H)	G+(H)	G+(H)	Mean*
Cut with	M	M	R	M	SC	SF	R	SC	F	
					(±0.92)					(±0.41)
N0	6.5	7.8	3.0	6.0	12.1	9.3	1.6	17.3	17.4	5.0
N1	15.5	16.2	4.6	14.5	21.9	23.5	4.8	23.4	22.1	11.1
N2	18.6	22.8	9.6	19.8	29.2	26.1	8.0	29.4	29.0	15.8
Mean (±0.53)	13.5	15.6	5.8	13.4	21.1	19.6	4.8	23.4	22.8	10.6

R plots cut 3 times

* Excluding SC and SF

M = Motor scythe
R = Rotary mower
SC = Shears in cages
SF = Shears in frames
() = Not applied in this period

NOTE: Standard errors do not apply to SC and SF means

Replacements for pages 67/C/38.3 - 38.7

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DRY MATTER: CWT

2ND PERIOD

Treatment	H	(H)G-	(G-)H	(H)G+	(H)G+	(H)G+	(G+)H	(G+)H	(G+)H	Mean*
Cut with	M	R	M	R	SC	SF	M	SC	SF	
					(±1.61)					(±0.72)
N0	25.1	11.8	27.0	11.1	28.2	27.3	27.7	34.2	34.4	20.5
N1	41.5	18.4	40.8	23.2	45.3	45.7	42.3	49.1	48.8	33.2
N2	49.9	23.9	51.6	27.6	53.3	57.2	55.3	53.6	53.1	41.6
Mean (±0.93)	38.8	18.0	39.8	20.6	42.2	43.4	41.8	45.6	45.4	31.8

R plots cut 4 times

* Excluding SC and SF

NOTE: Standard errors do not apply to SC and SF means

Replacements for pages 67/C/38.3 - 38.7

DRY MATTER: CWT

3RD PERIOD

Treatment	H	H(G-)	G-(H)	H(G+)	H(G+)	H(G+)	G+(H)	G+(H)	G+(H)	Mean*
Cut with	M	M	R	M	SC	SF	R	SC	SF	
					(±1.71)					(±0.76)
N0	21.2	21.9	14.0	22.2	29.0	28.1	12.8	28.8	25.3	18.4
N1	30.1	30.7	16.5	34.0	39.2	42.2	18.6	37.2	38.2	26.0
N2	36.6	40.8	22.6	43.5	44.7	46.7	24.0	39.6	41.3	33.5
Mean (±0.99)	29.3	31.1	17.7	33.3	37.6	39.0	18.5	35.2	34.9	26.0

R plots cut 4 times

* Excluding SC and SF

NOTE: Standard errors do not apply to SC and SF means

Replacements for pages 67/c/38.3 - 38.7

DRY MATTER: CWT

4TH PERIOD

Treatment	H	(H)G-	(G-)H	(H)G+	(H)G+	(H)G+	(G+)H	(G+)H	(G+)H	Mean*
Cut with	M	R	M	R	SC	SF	M	SC	SF	
					(±0.99)					(±0.44)
N0	3.7	4.6	6.8	3.6	12.0	9.7	8.8	19.1	17.4	5.5
N1	13.1	7.6	12.9	6.1	15.3	13.0	17.9	21.6	21.3	11.5
N2	17.9	9.0	23.8	8.5	23.6	21.8	22.0	24.3	24.9	16.3
Mean (±0.57)	11.6	7.1	14.5	6.1	17.0	14.9	16.2	21.7	21.2	11.1

R plots cut 3 times

* Excluding SC and SF

NOTE: Standard errors do not apply to SC and SF means

Replacements for pages 67/C/38.3 - 38.7

DRY MATTER: CWT

TOTAL OVER ALL PERIODS

Treatment	H	HG-	G-H	HG+	HG+	HG+	G+H	G+H	G+H	Mean*
Cut with	M	M&R	M&R	M&R	SC	SF	M&R	SC	SF	
					(±3.13)					(±1.40)
N0	56.4	46.0	50.8	42.9	81.3	74.4	50.9	99.3	94.5	49.4
N1	100.2	72.9	74.8	77.8	121.6	124.4	83.6	131.3	130.4	81.9
N2	123.0	96.5	107.7	99.4	150.7	151.8	109.3	146.9	148.2	107.2
Mean (±1.81)	93.2	71.8	77.8	73.4	117.9	116.9	81.3	125.8	124.4	79.5

R plots cut 14 times

* Excluding SC and SF

NOTE: Standard errors do not apply to SC and SF means

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Replacements for pages 67/C/38.3 - 38.7

Replacements for pages
67/c/38.3 - 38.7

DRY MATTER: CWT

TOTALS FOR ALL PERIODS UNDER SAME MANAGEMENT

Treatment	H	H(G-)	G-(H)	H(G+)	H(G+)	H(G+)	G+(H)	G+(H)	G+(H)
Cut with	M	M	R	M	SC	SF	R	SC	SF
N0	56.4	63.5	33.4	64.7	94.4	89.2	29.1	86.3	79.7
N1	100.2	100.6	47.1	108.7	131.8	135.8	52.7	121.2	119.0
N2	123.0	139.0	65.1	140.6	151.8	150.8	68.1	145.9	149.3
Mean	93.2	101.0	48.6	104.7	126.0	125.3	50.0	117.8	116.0

R plots cut 14 times

Replacement for pages 68/C/29.3 - 29.7

SUMMARY OF RESULTS

DRY MATTER: CWT.

1ST PERIOD

Treatment	H	H(G-)	G-(H)	H(G+)	H(G+)	G+(H)	G+(H)	Mean*
Cut with	M	M	R	M	SC	R	SC	
			(±1.25)					(±0.56)
N0	6.5	7.6	6.4	7.5	12.3	5.6	14.2	6.7
N1	15.0	17.3	8.3	19.3	28.4	11.5	23.6	14.3
N2	29.9	28.5	16.1	30.8	32.4	20.4	30.0	25.1
Mean (±0.72)	17.1	17.8	10.2	19.2	24.4	12.5	22.6	15.4

R plots cut 3 times

2ND PERIOD

Treatment	H	(H)G-	(G-)H	(H)G+	(H)G+	(G+)H	(G+)H	Mean*
Cut with	M	R	M	R	SC	M	SC	
				(±1.35)				(±0.61)
N0	27.9	15.4	31.4	17.3	27.7	32.0	35.0	24.8
N1	32.5	16.6	33.0	19.2	35.3	38.8	40.7	28.0
N2	33.1	19.8	40.1	19.5	33.1	37.0	43.7	29.9
Mean (±0.78)	31.2	17.2	34.8	18.6	32.1	35.9	39.8	27.6

R plots cut 3 times

* Excluding SC

M = Motor scythe
R = Rotary mower
SC= Shears in cages
()= Not applied in this period

NOTE: Standard errors do not apply to SC means

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

Replacement for pages 68/C/29.3 - 29.7

DRY MATTER: CWT

3RD PERIOD

Treatment	H	H(G-)	G-(H)	H(G+)	H(G+)	G+(H)	G+(H)	Mean*
Cut with	M	M	R	M	SC	R	SC	
				(±1.39)				(±0.62)
N0	26.3	28.7	18.9	29.8	34.2	19.2	36.0	24.6
N1	31.9	35.9	18.3	34.8	40.1	25.9	38.5	29.3
N2	35.4	39.4	26.7	40.9	45.7	26.4	39.6	33.7
Mean (±0.80)	31.2	34.7	21.3	35.1	40.0	23.8	38.0	29.2

R plots cut 4 times

4TH PERIOD

Treatment	H	(H)G-	(G-)H	(H)G+	(H)G+	(G+)H	(G+)H	Mean*
Cut with	M	R	M	R	SC	M	SC	
				(±0.93)				(±0.42)
N0	7.2	6.6	12.9	6.1	12.0	14.1	22.0	9.4
N1	13.1	10.9	16.7	9.7	15.0	24.2	26.1	14.9
N2	17.0	9.3	26.0	7.4	13.4	19.5	19.5	15.8
Mean (±0.54)	12.4	8.9	18.5	7.7	13.5	19.3	22.5	13.4

R plots cut 3 times

* Excluding SC

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

Replacement for pages 68/C/29.3 - 29.7

DRY MATTER: CWT

TOTAL OVER ALL PERIODS

Treatment	H	HG-	G-H	HG+	HG+	G+H	G+H	Mean*
Cut with	M	M&R	M&R	M&R	SC	M&R	SC	
				(±2.39)				(±1.07)
N0	67.9	58.3	69.6	60.6	86.3	70.9	107.2	65.5
N1	92.5	80.6	76.3	82.9	118.9	100.4	128.9	86.6
N2	115.3	97.0	108.9	98.5	124.6	103.3	132.7	104.6
Mean (±1.38)	91.9	78.6	84.9	80.7	109.9	91.5	122.9	85.5

* Excluding SC

NOTE: Standard errors do not apply to SC means.

TOTALS FOR ALL PERIODS UNDER SAME MANAGEMENT

Treatment	H	H(G-)	G-(H)	H(G+)	H(G+)	G+(H)	G+(H)
Cut with	M	M	R	M	SC	R	SC
N0	67.9	80.6	47.3	83.4	103.5	48.2	89.9
N1	92.5	102.9	54.1	117.1	135.3	66.3	112.4
N2	115.3	134.0	71.9	128.2	141.3	73.7	116.1
Mean	91.9	105.8	57.6	109.5	126.7	62.6	106.2

R plots cut 13 times

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

BARLEY

(69/R/CS/24)

P, K and take-all (Ophiobolus graminis), West Barnfield II 1969, the second year. For treatments etc. and for the previous year's results see 'Results' 68/C/16.

Area of each plot: 0.0265. Area harvested: 0.0140.

Basal applications: 0.8 cwt N as 'Nitro-Chalk' combine drilled. Ground chalk at 23 cwt. Weedkillers: Paraquat at 0.75 lb ion in 20 gals, 2,4-D at 8 oz and dichlorprop at 32 oz in 20 gals.

Cultivations, etc.: Paraquat applied: 1 Oct, 1968. Ground chalk applied: 1 Nov. Ploughed: 19 Nov. P and K applied: 11 Mar, 1969. Seed combine drilled at 140 lb: 24 Mar. 2,4-D/dichlorprop applied: 20 May. Combine harvested: 22 Aug.

NOTE: Estimates of eyespot (Cercosporella herpotrichoides) and take-all (Ophiobolus graminis) were made in spring and summer.

Standard error per plot.
Grain, cwt: 1.61 or 3.9% (27 d.f.)

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

SUMMARY OF RESULTS

	P0	P1	P4	P6*	P24*	Mean
			GRAIN:CWT			
			(±0.81)			(±0.36)
K1	33.1	42.0	43.4	43.0	42.8	40.9
K4	35.8	42.0	42.4	43.2	42.3	41.1
Mean (±0.57)	34.5	42.0	42.9	43.1	42.5	41.0

Mean D.M.%: 82.3

			STRAW:CWT			
K1	25.2	32.6	40.7	35.0	42.2	35.1
K4	25.3	35.8	42.9	38.2	42.2	36.9
Mean	25.3	34.2	41.8	36.6	42.2	36.0

Mean D.M.%: 92.0

* Residual

INSECTICIDES AND MOLLUSCICIDES

(69/R/CS/25)

Old Grass, Road Piece 1969, the second year. For previous year's results see 'Results' 68/C/17.

Design: 4 randomised blocks of 7 plots.

Area of each plot: 0.0209. Area harvested: 0.0054.

Treatments:
- Untreated, no sampling (O)
- Untreated, sampled (S)
- BHC spray at 6 lb in 200 gals applied in 1968 only none in 1969 (B)
- Chlorbenside spray at 19 oz in 200 gals (applied 5 times, starting after the first cut) (C)
- Metaldehyde bait at 1 lb a.i. (applied 6 times, starting after the first cut) (M)
- Menazon spray at 6 oz in 200 gals (applied 5 times, starting after the first cut) (P)
- Combined treatments (BCMP)

Basal applications: 4 cwt (0:14:28) in winter, 3.5 cwt (25:0:16) in spring and 200 lb after each cut except the last.

Cultivations, etc.: Basal PK applied: 14 Nov, 1968. Basal NK applied: 5 Mar, 1969. Cut 3 times: 4 June, 17 July, 18 Sept. NK compound applied after first 2 cuts. Insecticides and molluscicides applied:
BHC: 6 June, 1968.
Chlorbenside: 12 June, 1969, 15 July, 11 Aug, 11 Sept, 12 Oct.
Metaldehyde: 13 June, 15 July, 11 Aug, 11 Sept, 12 Oct, 19 Nov.
Menazon: 11 June, 24 July, 11 Aug, 11 Sept, 12 Oct.

NOTE: Samples were taken for botanical analysis. Samples for fauna were taken throughout the year. All plots except treatment (O) were sampled as treatment (S).

Standard errors per plot. Dry matter, cwt:

1st cut:	2.31 or 6.0% (18 d.f.)
2nd cut:	1.58 or 10.2% (18 d.f.)
3rd cut:	1.25 or 8.9% (18 d.f.)
Total of 3 cuts:	2.81 or 4.1% (18 d.f.)

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

SUMMARY OF RESULTS

DRY MATTER, CWT

O	S	B	C	M	P	BCMP	Mean
			1ST CUT				
			(±1.16)				
38.1	36.2	41.4	38.1	39.1	39.4	38.5	38.7
			2ND CUT				
			(±0.79)				
13.7	15.4	14.8	14.2	16.2	15.4	17.9	15.4
			3RD CUT				
			(±0.62)				
13.7	14.8	14.5	13.9	13.3	14.1	13.7	14.0
			TOTAL OF 3 CUTS				
			(±1.40)				
65.5	66.3	70.7	66.2	68.6	69.0	70.1	68.0

Mean D.M. %: 1st cut: 17.0
2nd cut: 20.3
3rd cut: 19.2
Total of 3 cuts: 18.8

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

N FIXATION

(69/R/CS/27 and 69/W/CS/31)

Nitrogen fixation by lucerne - Rothamsted (R) Pastures and Woburn (W) Stackyard B, 1969, the second year. For treatments and the previous year's results see 'Results' 68/C/26.

Area of each sub plot: 0.0011. Area harvested: 0.0006.

The M treatment did not receive ground chalk on either field in 1969.

NOTE: (1) It was decided to discontinue both experiments after the second cut, since yields from lucerne plots were very largely of annual grass.

On Pastures (R), hot dry weather then discouraged all weeds and lucerne grew vigorously. To obtain an estimate of maximum yields from this field a third and fourth cut were therefore taken, using a selection of the best sub-plots - all of the effectively inoculated treatments (E) and the four uninoculated treatments (O) in Block 2 only.

Cultivations, etc.:-

Pastures (R): PK and 'Nitro-Chalk' applied: 25 Mar, 1969. Cut twice: 22 May, 3 July. 'Nitro-Chalk' applied after first cut. Selected sub-plots cut twice 13 Aug, 6 Oct. 'Nitro-Chalk' applied on 13 Aug.

Stackyard B (W): PK and 'Nitro-Chalk' applied: 26 Mar, 1969. Cut twice: 20 May, 1 July. 'Nitro-Chalk' applied after first cut.

NOTE: (2) The dry matter samples were used for N analyses.

Standard errors per plot. Dry matter, cwt:

Rothamsted (Pastures) (R):

1st cut:	Whole plot:	2.65 or 17.6% (6 d.f.)
	Sub plot:	2.68 or 17.8% (24 d.f.)
2nd cut:	Whole plot:	1.15 or 5.7% (6 d.f.)
	Sub plot:	2.52 or 12.6% (24 d.f.)
Total of 2 cuts:	Whole plots:	3.39 or 9.7% (6 d.f.)
	Sub plots:	4.31 or 12.3% (24 d.f.)

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

'E' Plots only

3rd cut:	Whole plot:	2.45 or 16.8%	(6 d.f.)
4th cut:	Whole plot:	1.18 or 15.1%	(6 d.f.)
Total of 4 cuts:		6.87 or 12.4%	(6 d.f.)

Woburn (Stackyard B) (W):

1st cut:	Whole plot:	2.12 or 11.9%	(6 d.f.)
	Sub plot:	3.39 or 19.1%	(24 d.f.)
2nd cut:	Whole plot:	1.57 or 18.5%	(6 d.f.)
	Sub plot:	2.23 or 26.3%	(24 d.f.)
Total of 2 cuts:	Whole plot:	2.75 or 10.5%	(6 d.f.)
	Sub plot:	4.37 or 16.6%	(24 d.f.)

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

SUMMARY OF RESULTS

PASTURES (R)

DRY MATTER: CWT

	O	I	E	G	Mean
		1ST CUT			
		(1) and (2)			(±0.47)
U	11.3	10.2	12.4	20.8	13.7
M	14.2	12.7	16.0	23.1	16.5
		(3) and (4)			(±0.67)
N0	7.4	6.7	9.6	11.0	8.7
N1	11.0	9.2	14.3	21.8	14.1
N2	15.7	14.5	15.7	27.8	18.4
N3	16.8	15.3	17.3	27.0	19.1
Mean (±1.32)	12.7	11.4	14.2	21.9	15.1

(1) (±1.48) (3) (±1.76) For use in horizontal and diagonal comparisons only.

(2) (±0.95) (4) (±1.34) For use in vertical and interaction comparisons only.

Mean D.M. %: 18.5

PASTURES (R)

DRY MATTER: CWT

	O	I	E	G	Mean
		2ND CUT			
		(1) and (2)			(±0.45)
U	16.2	16.8	15.8	23.1	18.0
M	22.9	19.0	21.5	24.9	22.0
		(3) and (4)			(±0.63)
NO	15.1	14.5	14.3	9.8	13.4
N1	16.8	15.4	18.2	21.1	17.9
N2	22.2	22.1	22.1	30.5	24.2
N3	24.1	19.6	19.9	34.5	24.5
Mean (±0.57)	19.6	17.9	18.6	24.0	20.0

(1) (±0.85) (3) (±1.23) For use in horizontal and diagonal comparisons only.

(2) (±0.89) (4) (±1.26) For use in vertical and interaction comparisons only.

Mean D.M.%: 24.7

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

PASTURES (R)

DRY MATTER: CWT

	O	I	E	G	Mean
		TOTAL OF TWO CUTS			
		(1) and (2)			(±0.76)
U	27.5	27.0	28.2	43.9	31.7
M	37.1	31.7	37.5	48.0	38.5
		(3) and (4)			(±1.08)
NO	22.6	21.2	23.9	20.9	22.1
N1	27.8	24.6	32.5	42.9	32.0
N2	37.8	36.6	37.8	58.3	42.6
N3	41.0	35.0	37.2	61.6	43.7
Mean (±1.70)	32.3	29.3	32.9	45.9	35.1

(1) (±2.01) (3) (±2.52) For use in horizontal and diagonal comparisons only.
(2) (±1.52) (4) (±2.15) For use in vertical and interaction comparisons only.

Mean D.M.%: 21.6

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

STACKYARD B (W)

DRY MATTER: CWT

	O	I	E	G	Mean
			1ST CUT		
			(1) and (2)		(±0.60)
U	16.0	12.4	14.4	31.5	18.6
M	11.1	11.2	14.0	31.8	17.0
			(3) and (4)		(±0.85)
N0	4.5	6.2	9.9	7.8	7.1
N1	15.5	8.2	12.4	32.3	17.1
N2	16.6	14.8	15.9	43.4	22.7
N3	17.5	18.0	18.5	43.0	24.3
Mean (±1.06)	13.5	11.8	14.2	31.6	17.8

(1) (±1.36) (3) (±1.81) For use in horizontal and diagonal comparisons only

(2) (±1.20) (4) (±1.70) For use in vertical and interation comparisons only

Mean D.M. %: 19.3

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

STACKYARD B (W)

DRY MATTER: CWT

	O	I	E	G	Mean
		2ND CUT			
			(1) and (2)		(±0.39)
U	4.1	4.4	5.3	15.9	7.4
M	6.0	6.2	6.5	19.4	9.5
			(3) and (4)		(±0.56)
N0	4.2	5.2	6.4	5.1	5.2
N1	5.6	6.2	5.7	18.1	8.9
N2	5.3	5.0	6.4	25.1	10.5
N3	5.0	4.8	5.0	22.5	9.3
Mean (±0.79)	5.0	5.3	5.9	17.7	8.5

(1) (±0.96) (3) (±1.24) For use in horizontal and diagonal comparisons only

(2) (±0.79) (4) (±1.12) For use in vertical and interaction comparisons only

Mean D.M. %: 28.8

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

STACKYARD B (W)

DRY MATTER: CWT

	O	I	E	G	Mean
	TOTAL OF TWO CUTS				
		(1) and (2)			(±0.77)
U	20.1	16.9	19.7	47.4	26.0
M	17.1	17.4	20.4	51.2	26.5
		(3) and (4)			(±1.09)
N0	8.7	11.4	16.3	12.9	12.3
N1	21.2	14.5	18.1	50.3	26.0
N2	21.9	19.8	22.3	68.5	33.1
N3	22.5	22.8	23.5	65.5	33.6
Mean (±1.38)	18.6	17.1	20.1	49.3	26.3

(1) (±1.76) (3) (±2.34) For use in horizontal and diagonal comparisons only

(2) (±1.55) (4) (±2.19) For use in vertical and interaction comparisons only

Mean D.M. %: 24.0

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

PASTURES (R)

DRY MATTER: CWT

E PLOTS

	N0	N1	N2	N3	Mean
		3RD CUT			
		(±1.73)			(±0.87)
U	15.6	11.7	6.7	8.5	10.6
M	20.6	19.3	17.6	16.8	18.6
Mean (±1.23)	18.1	15.5	12.2	12.7	14.6

Mean D.M. %: 19.6

O PLOTS

Mean 16.0

https://doi.org/10.23637/ERADOC-1-96 *pp 202*

PASTURES (R)

DRY MATTER: CWT

E PLOTS

	N0	N1	N2	N3	Mean
		4TH CUT			
		(±0.83)			(±0.42)
U	6.9	6.2	4.6	5.3	5.8
M	9.6	10.6	10.0	9.0	9.8
Mean (±0.59)	8.3	8.4	7.3	7.2	7.8

Mean D.M. %: 21.8

O PLOTS

Mean 8.7

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

PASTURES (R)

DRY MATTER: CWT

E PLOTS

	N0	N1	N2	N3	Mean
	TOTAL OF FOUR CUTS				
		(±4.85)			(±2.43)
U	42.4	46.1	43.9	46.1	44.6
M	58.1	66.8	70.7	68.0	65.9
Mean (±3.43)	50.2	56.5	57.3	57.0	55.3

Mean D.M. %: 20.7

O PLOTS

Mean 57.0

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FUMIGANTS AND IRRIGATION

(69/W/CS/28)

The residual effects of fumigants for the control of *Pratylenchus* spp. in barley - Woburn Butt Close Series III, 2nd year. For design, treatments etc. and previous year's results see 'Results' 68/C/34.

Area of each sub plot: 0.0545. Area harvested: 0.0020.

Treatments: All combinations of:-
- Whole plots: 1. Irrigation: None (O), full irrigation (I).
- Quarter plots: 2. Residues of fumigants 1968: None (O), chloropicrin (C), D-D (D), Temik (T).
- Eighth plots: 3. Nitrogen in 1967 and 1968: None (N0), 0.4 (N1), 0.8 (N2), 1.2(N3) cwt N as 'Nitro-Chalk'.

Basal applications: 280 lb (0:20:20). Weedkiller: Ioxynil at 7.5 oz and mecoprop at 22.5 oz in 25 gals.

Cultivations, etc.: Ploughed: 12 Nov, 1968. Seed combine drilled at 140 lb: 11 Mar, 1969. 'Nitro-Chalk' applied: 4 Apr. Weedkiller applied: 14 May. Irrigation applied at 0.5 inches: June 13, and 0.5 inches: July 4. Combine harvested: 11 Aug. Variety: Maris Badger.

NOTE: Crop and soil samples were taken at intervals through the growing season for nematode counts.

Standard errors per plot. Grain, cwt.
- Whole plot: 1.62 or 5.2% (6 d.f.)
- Quarter plot: 2.21 or 7.0% (24 d.f.)
- Eighth plot: 3.14 or 10.0% (32 d.f.)

https://doi.org/10.23637/ERADOC-1-96 *pp 205*

SUMMARY OF RESULTS

GRAIN:CWT

	O	C	D	T	Mean
		(1) and (2)			(±0.66)
O	27.8	32.5	34.0	28.3	30.6
I	30.2	32.1	35.4	31.5	32.3

	NO	N1	N2	N3
	(1) and (2)			
O	14.9	34.7	39.4	33.5
I	15.2	36.4	40.7	37.0

		(3) and (4)			(±0.64)
O	13.0	32.5	37.8	32.7	29.0
C	15.4	33.3	43.1	37.6	32.3
D	18.3	41.4	42.0	37.2	34.7
T	13.6	35.0	37.4	33.5	29.9
Mean (±0.64)	15.1	35.6	40.1	35.2	31.5

Mean D.M.%: 84.8

(1) (±1.03) (3) (±1.28) For use in vertical and diagonal comparisons only.

(2) (±0.90) (4) (±1.28) For use in horizontal and interaction comparisons only.

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

FORMS OF MAGNESIUM

(69/W/CS/29)

Effect of forms of magnesium fertiliser on potatoes - Woburn Stackyard C, 2nd year.

For details of treatments etc. and previous year's results see 'Results' 68/C/35. Mg and limestone treatments are cumulative.

Area of each plot: 0.0067. Area harvested: 0.0030.

Basal applications: 1120 lb (13:13:20). Weedkiller: Linuron at 0.5 lb plus paraquat at 0.37 lb in 25 gals. Fungicide: Mancozeb at 1.2 lb in 37 gals, on three occasions. Insecticide: Demeton-s-methyl at 3.5 oz applied once with fungicide.

Cultivations, etc.: Ploughed: 7 Feb, 1969. Mg and limestone treatments applied: 5 Mar. NPK applied: 11 Apr. Rotary cultivated, potatoes planted: 17 Apr. Weedkiller applied: 15 May. Rotary ridged: 16 June. Fungicide plus insecticide applied: 18 July. Fungicide applied: 6 Aug, 26 Aug. Lifted: 23 Sept. Variety: King Edward.

Standard error per plot.
Total tubers, tons: 1.310 or 11.8% (21 d.f.)

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

SUMMARY OF RESULTS

O	D2	E	C1	C2	DL	I2	EL	Mean
			TOTAL TUBERS: TONS					
			(±0.655)					
9.73	11.84	10.51	10.17	10.36	12.50	11.25	12.08	11.06
			% WARE					
76.1	79.8	74.8	77.8	75.0	80.1	80.9	80.0	78.1

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

GRASS

(69/W/CS/32)

The effect of granule size on the rate of realease of N from IBDU (Iso-butylidene di-urea), Woburn Stackyard B, second year 1969.

For treatments and previous year's results see 'Results' 68/C/24.

Area of each plot: 0.0014. Area harvested: 0.0008.

Basal applications: 4 cwt (0:14:28).

Cultivations, etc.: Basal PK compound applied: 6 Mar, 1969. Cut twice: 20 May, 1 July.

NOTE: % N in grass was determined and N uptake calculated.

Standard errors per plot. Dry matter, cwt:

1st cut:	1.28 or 13.2% (34 d.f.)
2nd cut:	0.41 or 8.1% (34 d.f.)
Total of 2 cuts:	1.46 or 9.9% (34 d.f.

SUMMARY OF RESULTS

DRY MATTER: CWT

	O	A	P	S	M	L	Mean
1ST CUT							
			(±0.74)				(±0.33)
N1		6.6	6.9	6.6	7.0	9.0	7.2
N2		7.2	8.2	7.6	10.3	16.0	9.8
N3		10.4	11.7	12.0	13.3	25.6	14.6
Mean (±0.43)	5.5	8.0	8.9	8.8	10.2	16.8	9.7*
2ND CUT							
			(±0.24)				(±0.11)
N1		4.9	4.6	5.1	5.1	5.1	4.9
N2		4.7	5.0	4.9	5.4	4.9	5.0
N3		5.2	5.3	5.4	5.2	6.3	5.5
Mean (±0.14)	4.6	4.9	5.0	5.1	5.2	5.4	5.0*
TOTAL OF 2 CUTS							
			(±0.84)				(±0.38)
N1		11.5	11.5	11.7	12.1	14.1	12.2
N2		11.8	13.2	12.5	15.6	20.9	14.8
N3		15.5	17.0	17.4	18.5	31.9	20.1
Mean (±0.49)	10.1	13.0	13.9	13.9	15.4	22.3	14.8*

* General mean

Mean D.M. %: 1st cut: 28.2
2nd cut: 36.0
Total of 2 cuts: 32.1

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

RATES OF NEMATICIDES DOSAGE

(69/W/CS/33)

The effect of different rates of nematicides on a sequence of crops - Woburn Butt Close, 1969. First year, potatoes.

Design: 3 blocks of 14 plots. Plots will be split for residual and cumulative nematicides in 1970.

Area of each sub plot: 0.0032. Area harvested: 0.0016.

Treatments:
Nematicides: None (0), 780 lb methyl bromide (M) applied under a gas tight sheet, 80 (D1), 160 (D2), 320 lb (D3) DD injected at the base of ridges in spring, 400 lb (D4) DD injected by tines and rotary cultivated in autumn, 60 (T1), 120 (T2), 240 lb (T3) 'Telone' applied in spring as for DD, 220 lb (T4) 'Telone' applied in autumn as for DD, 100 (Z1), 200 (Z2), 300 lb (Z3) dazomet applied in rows in spring, 400 lb (Z4) dazomet applied broadcast in autumn.

Basal applications: 10 cwt (13:13:20). Weedkiller: Paraquat at 0.37 lb ion plus linuron at 0.5 lb. Fungicide: Mancozeb at 1.2 lb in 37 gals on three occasions. Insecticide: Demeton-s-methyl at 3.5 oz in 37 gals on one occasion with fungicide.

Cultivations, etc.: Deep-tine cultivated: 18 Oct, 1968. Rotary cultivated: 22 Oct. DD and 'Telone' applied, rotary cultivated once, dazomet applied, rotary cultivated twice: 25 Oct. Ploughed: 3 Feb, 1969. Dazomet applied, rotary cultivated: 6 Mar. Methyl bromide applied: 7 Mar. Gas tight sheet removed, basal NPK applied, rotary cultivated: 28 Mar. DD and 'Telone' applied: 1 Apr. Potatoes planted: 5 May. Weedkiller applied: 16 May. Fungicide applied: 18 July, 6 Aug, 26 Aug. Insecticide applied: 18 July. Sprayed with undiluted BOV at 16 gals: 25 Sept. Lifted: 6 Oct. Variety: Majestic. Previous crops: Barley 1967, potatoes 1968.

NOTE: Soil samples were taken before treatment applications, at planting and after harvest for larva invasion tests, and cyst counts.

Standard error per plot. Total tubers, tons:
Whole plot: 2.079 or 19.0% (25 d.f.)

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

SUMMARY OF RESULTS

POTATOES

	TOTAL TUBERS: TONS	% WARE
	(±1.200)	
O	5.37	73.0
M	16.21	85.7
D1	9.72	74.5
D2	8.61	73.2
D3	10.03	76.4
D4	9.40	74.7
T1	7.32	69.1
T2	7.22	73.3
T3	9.70	78.4
T4	7.64	69.1
Z1	12.20	86.0
Z2	14.10	87.7
Z3	18.15	87.9
Z4	17.43	87.6
Mean	10.94	78.3

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

GRASS

(69/R/CS/41)

Cultivations and soil invertebrates, Road Piece 1969, the first year.

Design: 4 blocks of 8 plots, randomisation restricted.

Area of each plot: 0.0116. Area harvested: 0.0018.

Treatments: All combinations of:-

1. Cultivations: None (O) duplicate plots unploughed, fewest (F), most (M) cultivations necessary to produce seedbed for sowing new ley.
2. Annual treatment: Treatments repeated (R), treatments not repeated (O), annually.

NOTE: (1) The experiment was sited on land which had been in grass (mainly grazed) since 1945. Grazing has now ceased.

Basal applications: 4 cwt (0:14:28) and 3.5 cwt (25:0:16). 200 lb (25:0:16) after each cut except the last.

Cultivations, etc.: Basal PK applied: 4 Mar, 1969. Basal NK applied, F and M plots ploughed: 5 Mar. All plots rolled: 6 Mar. M plots disced four times, F plots twice: 11 Apr. F and M plots disced and harrowed: 15 Apr. F and M plots rolled, seed sown at 20 lb and covered in with weeder: 16 Apr. All plots rolled: 18 Apr. Cut F and M plots once: 18 Sept, other plots 3 times: 5 June, 17 July, 18 Sept. NK applied to all plots except F and M: 6 June, 22 July, F and M plots: 22 July only. Seeds mixture: 6 lb Meadow Fescue S215, 4 lb Meadow Fescue S53, 4 lb Timothy S48, 1.5 lb white clover S100, 0.5 lb wild white clover English old pasture.

NOTE: (2) Soil cores were taken from each plot on the following dates:- 7 Mar, 1969 for leatherjackets (Tipulidae spp) and wireworms (Agriotes spp). 22 May, 7 July, 8 Aug, 11 Sept and 4 Dec for soil fauna.
Quadrats (2 feet square) were sampled on each plot for earthworms on 16 Apr.

Standard error per plot. Dry matter, cwt:
3rd cut: 3.08 or 18.0% (21 d.f.)

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

SUMMARY OF RESULTS

DRY MATTER: CWT

1st cut*	0	29.6	
2nd cut*	0	18.4	
3rd cut	0	14.3	(±0.77)
	F	19.0	
	M	20.4	(±1.09)
	Mean	17.0	
Total of 3 cuts	0	62.4	

* F and M plots not harvested

Mean D.M. %: 1st cut: 17.2
2nd cut: 21.6
3rd cut: 20.9

NOTE: For 1969 the repeated treatments are not applicable.

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

GRASS

(69/R/CS/42)

Effect of invertebrates on yield, Road Piece 1969, the first year.

Design: 4 randomised blocks of 12 plots.

Area of each plot: 0.0043. Area harvested: 0.0016.

Treatments: Chemical control of foliar (F) and soil (S) invertebrates:-

Untreated, no sampling	(O)
Untreated, sampled	(B)
Chlorbenside spray at 19 oz in 200 gals (against mites)	(FCB)
Menazon spray at 6 oz in 200 gals (against aphids)	(FMZ)
Dimethoate spray at 12 oz in 200 gals, plus CB and MZ (against all foliar invertebrates)	(F3)
+Formalin 2-3 times (against earthworms)	(SFO)
Parathion/bran bait - parathion at 8 oz (against leatherjackets)	(SL)
C 14421 at 40 lb, once (against nematodes)	(SN)
Metaldehyde bait (once a month) at 2.25 lb a.i. plus metaldehyde spray at 2.5 lb in 200 gals on three occasions (against slugs and snails)	(SMT)
Aldrin at 20 lb in 200 gals and treatment N once, plus MT monthly (against all invertebrates except earthworms)	(S3)
Chlordane at 20 lb in 200 gals once only, plus S3 (against all soil animals)	(S4)
F3 plus S4 (against all foliar invertebrates and all soil animals)	(F3 + S4)

All treatments once a month, except where otherwise stated.

\+ Not applied in 1969, because of dry conditions and the risk of plant damage.

Basal applications: 4 cwt (0:14:28) and 3.5 cwt (25:0:16) in spring. 200 lb (25:0:16) after each cut except the last.

Cultivations, etc.: Basal PK and NK compounds applied: 4 Mar, 1969. Cut three times: 5 June, 17 July, 18 Sept. NK compound applied after first two cuts. Chemical treatments applied:
Chlorbenside: 17 June, 10 July, 11 Aug, 11 Sept, 14 Oct, 11 Nov.
Menazon: 25 July, 11 Aug, 11 Sept, 15 Oct, 10 Nov.
Dimethoate: 9 July, 11 Aug, 11 Sept, 14 Oct, 11 Nov.
Parathion: 10 July, 12 Aug, 12 Sept, 14 Oct, 14 Nov.
C 14421: 13 June.

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

Metaldehyde bait: 8 July, 11 Aug, 12 Sept, 14 Oct, 13 Nov.
Metaldehyde spray: 13 June, 14 Oct, 13 Nov.
Aldrin: 13 June.
Chlordane: 13 June.

Previous crops: Grass since 1945 (mainly grazed).

NOTE: Samples of fauna were taken throughout the year. Samples were also taken for botanical analysis. All plots except treatment O were sampled as treatment B.

Standard errors per plot. Dry matter, cwt:

2nd cut:	1.77 or 10.8% (33 d.f.)
3rd cut:	1.95 or 15.6% (33 d.f.)
Total of 2nd and 3rd cuts:	3.16 or 10.9% (33 d.f.)

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

SUMMARY OF RESULTS

DRY MATTER: CWT

1ST CUT

Mean: 31.5

	2ND CUT	3RD CUT	TOTAL OF 2ND AND 3RD CUTS
O	15.8	10.7	26.5
B	16.6	10.5	27.1
FCB	16.6	11.1	27.6
FMZ	16.9	12.5	29.4
F3	15.3	12.3	27.6
SFO+	14.6	10.5	25.1
SL	17.1 (±0.89)	11.7 (±0.97)	28.9 (±1.58)
SN	16.2	11.5	27.7
SMT	17.7	11.7	29.3
S3	17.7	16.3	34.0
S4	17.9	16.3	34.2
F3 S4	15.0	14.4	29.4
Mean	16.4	12.5	28.9

Mean D.M. %: 1st cut: 17.4
2nd cut: 22.1
3rd cut: 21.6
Total of 2nd and 3rd cuts: 21.9

+ Not applied 1969 (=B)

GRAZED GRASS

(69/R/CS/43)

Aqua ammonia, Highfield IX 1969, the first year.

Design: 4 randomised blocks of 9 plots.

Area of each plot: 0.0161. Area harvested: 0.0002.

Treatments: None (N0) and all combinations of:-

1. Nitrogen: Injected aqueous ammonia in a single annual dressing. (I)
   Broadcast 'Nitro-Chalk' in 6 equal dressings between March and September. (B)

2. Total annual rates of N: 1.0 (N1), 2.0 (N2), 3.0 (N3), 4.0 (N4) cwt.

NOTE: (1) Yields are calculated from sample cuts taken by rotary mower from under a wire netting cage (1 yard square), placed on each plot at the beginning of the grazing season. After each cut the cage is moved to a new area trimmed with the rotary mower.

Basal applications: 10 cwt (0:20:20).

Cultivations, etc.: Basal PK applied: 5 Mar, 1969. Aqueous ammonia injected: 12 Mar. 'Nitro-Chalk' applied, sample cages placed: 21 Mar. Sample cuts taken: 5 May, 2 June, 25 June, 5 Aug, 4 Sept, 29 Oct. 'Nitro-Chalk' applied after first 5 cuts.

NOTES: (2) Visual estimates were made of the percentage surface area within each cage covered by clover leaves immediately before cutting.
(3) The percentage of N in the dry grass was calculated.

Standard errors per plot. Dry matter, cwt:

1st cut:	3.21 or 18.0% (21 d.f.)
2nd cut:	1.99 or 7.5% (21 d.f.)
3rd cut:	2.40 or 11.7% (21 d.f.)
4th cut:	2.56 or 9.1% (21 d.f.)
5th cut:	1.99 or 13.0% (21 d.f.)
6th cut:	1.70 or 16.4% (21 d.f.)
Total of 6 cuts:	6.21 or 5.2% (21 d.f.)

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SUMMARY OF RESULTS

DRY MATTER: CWT

	N1	N2	N3	N4	Mean
1ST CUT					
		(±1.61)			(±0.80)
I	17.8	17.8	16.9	17.9	17.6
B	14.9	18.4	17.9	21.4	18.1
Mean (±1.14)	16.3	18.1	17.4	19.7	17.9

General mean: 17.4
NO: 13.8

2ND CUT					
		(±1.00)			(±0.50)
I	24.0	26.9	27.4	27.6	26.5
B	25.5	25.9	27.7	28.7	26.9
Mean (±0.70)	24.8	26.4	27.5	28.1	26.7

General mean: 25.7
NO: 17.7

3RD CUT					
		(±1.20)			(±0.60)
I	19.2	20.8	23.3	22.7	21.5
B	14.8	19.4	21.7	21.7	19.4
Mean (±0.85)	17.0	20.1	22.5	22.2	20.4

General mean: 19.7
NO: 13.6

Mean D.M. %: 1st cut: 20.2
2nd cut: 14.7
3rd cut: 16.3

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

DRY MATTER: CWT

	N1	N2	N3	N4	Mean
		4TH CUT			
		(±1.28)			(±0.64)
I	23.5	26.5	28.5	31.9	27.6
B	25.9	28.8	29.8	29.4	28.5
Mean (±0.90)	24.7	27.6	29.1	30.6	28.0

General mean: 27.4
NO: 22.2

		5TH CUT			
		(±0.99)			(±0.50)
I	12.9	11.7	15.2	16.3	14.0
B	15.9	17.4	17.4	15.2	16.5
Mean (±0.70)	14.4	14.5	16.3	15.8	15.2

General mean: 14.8
NO: 10.8

		6TH CUT			
		(±0.85)			(±0.43)
I	8.8	9.0	10.2	10.7	9.7
B	8.6	11.2	12.9	11.6	11.1
Mean (±0.60)	8.7	10.1	11.6	11.2	10.4

General mean: 9.9
NO: 6.4

Mean D.M. %: 4th cut: 17.7
5th cut: 22.4
6th cut: 32.6

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

DRY MATTER: CWT

	N1	N2	N3	N4	Mean
	TOTAL OF 6 CUTS				
		(±3.10)			(±1.55)
I	106.1	112.6	121.5	127.1	116.8
B	105.6	121.0	127.4	128.0	120.5
Mean (±2.20)	105.9	116.8	124.4	127.6	118.7

General mean: 114.9
NO: 84.6

Mean D.M. %: 20.7

BREAK CROPS AND WHEAT

(69/R/CS/44)

Cereals and legumes, Long Hoos III 1969, the first year.

Design: 3 randomised blocks of 12 plots.

Area of each plot: 0.0415. Area harvested: Barley - 0.0275, Oats - 0.0276. Beans - 0.0259, Clover - 0.0099.

Treatments: Break crops:- Spring beans (2 plots per block), clover (2 plots per block) and all combinations of:-
1. Break crops: Barley (B), oats (O).
2. Undersown: None (O), Trefoil (T).
3. Nitrogen: 0.4 (N1), 0.8 (N2) cwt as 'Nitro-Chalk' in the seedbed.

Basal and other applications: 450 lb (0:20:20) across the plough furrow. Weedkillers: Paraquat at 0.75 lb ion in 20 gals. MCPB at 2 lb a.e. in 30 gals to undersown plots of barley and oats and to clover. MCPA at 38 oz and dicamba at 1.28 oz in 20 gals to barley and oats. Insecticide: Phorate at 28 oz in granules to beans.

Cultivations, etc.: Paraquat applied: 28 Sept, 1968. Ploughed: 8 Nov. PK basal compound applied: 26 Mar, 1969.
Barley: Seed drilled at 140 lb: 26 Mar, 1969. Trefoil undersown at 30 lb: 28 Mar. 'Nitro-Chalk' applied: 2 Apr. MCPB applied: 22 May. MCPA/dicamba applied: 23 May. Combine harvested: 13 Aug. Variety: Zephyr.
Oats: Seed drilled at 160 lb: 26 Mar, 1969. Trefoil undersown at 30 lb: 28 Mar. 'Nitro-Chalk' applied: 2 Apr. MCPB applied: 22 May. MCPA/dicamba applied: 23 May. Combine harvested: 20 Aug. Variety: Manod.
Spring beans: Seed drilled at 200 lb: 26 Mar, 1969. Insecticide applied: 18 June. Combine harvested: 10 Sept. Variety: Maris Bead.
Clover: Seed sown at 30 lb: 28 Mar, 1969. MCPB applied: 22 May. Cut once: 14 Aug. Variety: Broad Red (inoculated seed).
Previous crops: Spring beans 1967, winter wheat 1968. Variety of trefoil: English.

NOTE: Barley plots were sampled in summer for eyespot (Cercosporella herpotrichoides) and take-all (Ophiobolus graminis). Trefoil and clover were sampled before ploughing in and estimates made of the dry matter and N per acre.

Standard errors per plot.
Barley, Grain, cwt: 3.51 or 8.2% (6 d.f.)
Oats, Grain, cwt: 0.65 or 1.6% (6 d.f.)

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

SUMMARY OF RESULTS

	O	T	Mean
	BARLEY, GRAIN: CWT		
	(±2.03)		(±1.43)
N1	40.3	40.6	40.4
N2	45.5	44.5	45.0
Mean (±1.43)	42.9	42.5	42.7
	OATS, GRAIN: CWT		
	(±0.38)		(±0.27)
N1	41.0	39.8	40.4
N2	43.8	43.9	43.9
Mean (±0.27)	42.4	41.8	42.1

SPRING BEANS, GRAIN: CWT

Mean 24.5

RED CLOVER, DRY MATTER: CWT

1ST AND ONLY CUT

Mean 46.2

Mean D.M. %:	Barley:	82.5
	Oats:	81.2
	Spring beans:	80.1
	Red clover:	21.7

NEMATICIDES IN ROWS

(69/W/CS/45)

Effects of nematicides in rows and irrigation - Woburn Butt Close II 1969, sugar beet, first year.

Design: 3 blocks of 2 plots, split into strips of 4 sub plots for nematicides, and eighth plots for residues of nitrogen in 1968.

Area of each sub plot: 0.0025. Area harvested: 0.0008.

Treatments: All combinations of:-

1. Whole plots: Irrigation (I): None (O), full (C).
2. Strips of 4 sub plots: Nematicides (N): None (O), 56 (D2), 84 (D3), 112 lb (D4) 'D-D' placed in rows before drilling, 56 lb (T) 'Telone' placed in row before drilling, 1.5 (K1), 3.0 (K2), 4.0 lb (K3) 'Temik' placed in the row at drilling.
3. Eighth plots: Residues of N to beans 1968 (R): None (O), 1.5 cwt N in the seedbed (E), 1.5 cwt N in late May (L), 1.5 cwt N in the seedbed, 1.5 cwt N in late May (EL), N as 'Nitro-Chalk'.

Basal applications: 745 lb (15:15:15). Weedkillers: 3 amino-1,2,4 triazole at 4 lb plus ammonium thiocyanate at 3.7 lb 'Weedazol T-L' in 25 gals, Phenmedipham ('Betanal' at 5 pts in 20 gals). Insecticide: Demeton-s-methyl at 3.5 fl oz in 30 gals.

Cultivations, etc.: 'Weedazol T-L' applied: 14 Oct, 1968. Ploughed: 13 Nov. NPK applied: 8 Apr, 1969. 'D-D' and 'Telone' applied: 10 Apr. Seed drilled at 2 lb, 'Temik' applied: 16 Apr. 'Betanal' applied: 14 May. Singled: 29 May. Insecticide applied: 26 June. Irrigation applied at 0.5 inches on 5 occasions: 13 June, 4 July, 16 July, 28 July, 7 Aug. Lifted: 11 Nov. Variety: Hilleshog monotri. Previous crops: Spring wheat 1967, spring beans 1968.

NOTE: Soil samples were taken for counts of free living nematodes on 9 Apr and 23 May.

Standard errors per plot.

Roots (washed), tons:	N&IN:	2.498 or 15.4% (28 d.f.)
	R&IR:	2.257 or 13.9% (12 d.f.)
	NR&INR:	1.447 or 8.9% (84 d.f.)
Pooled used for calculation of S.E.s in the summary:		1.822 or 11.2% (124 d.f.)
Total sugar, cwt:	N&IN:	9.96 or 16.1% (28 d.f.)
	R&IR:	8.30 or 13.4% (12 d.f.)
	NR&INR:	5.46 or 8.8% (84 d.f.)
Pooled used for calculation of S.E.s in the summary:		7.02 or 11.4% (124 d.f,)

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

SUMMARY OF RESULTS

ROOTS (WASHED): TONS

	O	D2	D3	D4	T	K1	K2	K3	Mean
				(±0.526)*					
O	15.21	16.73	15.08	16.29	15.96	15.43	16.07	15.28	15.76
C	15.39	16.82	15.72	17.59	15.90	17.86	17.22	17.42	16.74
				(±0.744)					(±0.263)
O	15.35	16.40	14.82	16.54	15.79	16.36	16.84	16.14	16.03
E	15.43	17.02	15.04	17.37	16.10	17.15	16.89	15.70	16.34
L	14.73	17.55	16.05	17.15	15.57	16.49	16.23	16.89	16.33
EL	15.70	16.14	15.70	16.71	16.27	16.58	16.62	16.67	16.30
Mean (±0.372)	15.30	16.78	15.40	16.94	15.93	16.65	16.65	16.35	16.25

	O	E	L	EL
		(±0.372)		
O	15.10	15.72	16.41	15.80
C	16.95	16.95	16.25	16.80

* For use in horizontal and interaction comparisons only

SUGAR %

	O	D2	D3	D4	T	K1	K2	K3	Mean
O	18.9	19.1	19.0	19.0	18.9	19.0	19.2	18.9	19.0
C	19.2	19.0	19.0	18.9	19.1	19.0	19.0	18.8	19.0
O	19.0	19.1	19.2	19.2	18.4	18.9	19.1	19.0	19.0
E	19.0	19.2	19.1	19.0	19.3	19.0	19.1	19.0	19.1
L	19.0	18.9	18.9	18.7	19.1	18.9	19.2	18.8	18.9
EL	19.1	18.9	19.0	18.8	19.2	19.2	19.0	18.9	19.0
Mean	19.0	19.0	19.0	18.9	19.0	19.0	19.1	18.9	19.0

	O	E	L	EL
O	18.9	19.2	19.0	19.0
C	19.1	19.0	18.9	19.0

TOTAL SUGAR: CWT

	O	D2	D3	D4	T	K1	K2	K3	Mean
				(±2.03)*					
O	57.3	63.8	57.4	61.7	60.0	58.9	61.8	57.9	59.8
C	59.3	63.8	59.9	66.4	60.9	67.8	65.2	65.6	63.6
				(±2.87)					(±1.01)
O	58.4	62.7	56.9	63.3	57.8	61.9	64.2	61.2	60.8
E	58.7	65.4	57.5	66.0	62.2	65.3	64.5	59.6	62.4
L	56.1	66.2	60.7	64.1	59.4	62.6	62.1	63.4	61.8
EL	60.1	61.0	59.5	62.8	62.3	63.5	63.2	62.9	61.9
Mean (±1.43)	58.3	63.8	58.6	64.0	60.4	63.3	63.5	61.8	61.7

	O	E	L	EL
		(±1.43)		
O	56.8	60.2	62.4	60.0
C	64.8	64.6	61.3	63.8

SPRING WHEAT

(69/R/CS/47)

Thiourea as a source of nitrogen and as a nitrification inhibitor to decrease loss of N from sulphate of ammonia, Fosters O and E I, 1969 the first year.

Design: 4 randomised blocks of 15 plots.

Area of each plot: 0.0014. Area harvested: 0.0001.

Treatments: The two factors below in all combinations which do not exceed 200 lb N:-

1. Levels of N as thiourea: 0 (U0), 50 (U1), 100 (U2), 150 (U3), 200 (U4) lb.
2. Levels of N as sulphate of ammonia: 0 (A0), 50 (A1), 100 (A2), 150 (A3), 200 (A4) lb.

Basal applications: 250 lb (0:14:28). Weedkiller: Paraquat at 0.5 lb ion in 25 gals.

Cultivations etc.: Ploughed: 6 Aug, 1968. Weedkiller applied: 18 Oct. Ploughed second time: 21 Oct. Basal PK broadcast, N treatments applied, seed drilled: 10 Apr, 1969. Harvested: 3 Sept. Variety: Kolibri. Previous crops: Grass 1967 and 1968.

NOTE: Crop samples were taken 5 times during the growing season for estimation of yield and N uptakes.

Standard error per plot.
Grain, cwt: 3.55 or 8.9% (42 d.f.)

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SUMMARY OF RESULTS

SPRING WHEAT

	GRAIN: CWT	STRAW: CWT
	(±1.77)	
U0A0	32.3	48.8
U0A1	41.4	61.5
U0A2	38.3	57.4
U0A3	41.7	60.0
U0A4	44.7	66.5
U1A0	39.2	61.1
U1A1	41.2	58.9
U1A2	41.7	58.9
U1A3	39.0	58.6
U2A0	39.5	58.9
U2A1	43.1	59.0
U2A2	42.4	58.1
U3A0	37.8	49.9
U3A1	35.3	51.7
U4A0	38.5	53.1
Mean	39.7	57.5

Mean D.M. %: Grain: 82.3
Straw: 79.2

INTENSIVE WHEAT

(69/S/CS/1)

Saxmundham, Oldershaw's and Garner's plots 1969, the fourth year.
For treatments etc. and for previous years' results see 'Results' 66/C/30, 67/C/23 and 68/C/39.

Area of each sub plot: 0.0182. Area harvested: 0.0098.

Basal applications: 560 lb (0:20:20) broadcast. Weedkillers:
Wheat: Mecoprop at 42 oz and 2,4-D at 10.5 oz in 25 gals.
Beans: Simazine at 1 lb in 23 gals.

Cultivations, etc.: Ploughed: 13 - 21 Sept, 1968. Basal PK applied: 14 Oct.
Wheat: Seed drilled: 15 Oct, 1968. 'Nitro-Chalk' applied: 26 Mar, 1969. Weedkiller applied: 12 May. Combine harvested: 21 Aug. Variety: Cappelle.
Beans: Seed drilled at 240 lb: 24 Mar, 1968. Weedkiller applied: 27 Mar. Harvested: 9 Sept. Variety: Maris Bead.

NOTES: (1) Yields were taken for winter wheat only.
(2) Estimates of the incidence of take-all (Ophiobolus graminis) were made.

Standard errors per plot. Wheat, grain, cwt:
Whole plot: 1.45 or 5.3% (9 d.f.)
Sub plot: 1.69 or 6.2% (24 d.f.)

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SUMMARY OF RESULTS

WINTER WHEAT

Crop 1966	1967	1968	N1	N2	N3	Mean
				GRAIN: CWT		
				(1) and (2)		(±0.72)
W	W	W	20.8	26.9	29.3	25.7
L	W	W	20.4	27.5	28.9	25.6
L	Be	W	24.7	31.7	31.4	29.3
W	L	Be	26.4	29.9	31.4	29.2
Mean (±0.42)			23.0	29.0	30.2	27.4
				STRAW: CWT		
W	W	W	17.1	27.9	27.3	24.1
L	W	W	20.3	28.2	25.8	24.8
L	Be	W	24.2	30.7	28.1	27.7
W	L	Be	22.3	24.3	29.1	25.2
Mean			21.0	27.8	27.6	25.4

(1) (±1.00) For use in vertical and diagonal comparisons only
(2) (±0.85) For use in horizontal and interaction comparisons only

Mean D.M. %: Grain: 78.9
Straw: 82.5

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LUCERNE

(69/S/CS/2)

Phosphate and potash, Saxmundham, Victor's Plot, 1969, the third year. For treatments etc. and for the previous years' results see 'Results' 67//C/46 and 68/C/46.

Area of each plot: 0.0018. Area harvested: 0.0012.

Cultivations, etc.: Fertilisers applied: 11 Mar, 1969. Cut 3 times: 18 June, 29 July, 12 Sept.

Standard errors per plot. Dry matter, cwt:

1st cut:	2.77 or 5.6% (9 d.f.)
2nd cut:	1.62 or 6.2% (9 d.f.)
3rd cut:	1.63 or 8.5% (9 d.f.)
Total of 3 cuts:	3.99 or 4.2% (9 d.f.)

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SUMMARY OF RESULTS

DRY MATTER: CWT

	K0	K1	Mean
	1ST CUT		
	(±1.39)		(±0.98)
P1	45.4	49.2	47.3
P4	51.0	51.0	51.0
Mean (±0.98)	48.2	50.1	49.2
	2ND CUT		
	(±0.81)		(±0.57)
P1	16.3	31.4	23.9
P4	21.6	34.7	28.2
Mean (±0.57)	19.0	33.0	26.0

Mean D.M. %: 1st cut: 25.2
2nd cut: 17.9

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

DRY MATTER: CWT

	K0	K1	Mean
	3RD CUT		
	(±0.81)		(±0.58)
P1	14.1	22.7	18.4
P4	16.3	23.7	20.0
Mean (±0.58)	15.2	23.2	19.2
	TOTAL OF 3 CUTS		
	(±1.99)		(±1.41)
P1	75.8	103.3	89.5
P4	89.0	109.4	99.2
Mean (±1.41)	82.4	106.4	94.4

Mean D.M. %: 3rd cut: 19.9
Total of 3 cuts: 21.0

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

GRASS

(69/S/CS/3)

Rates, forms and times of application of N, Saxmundham Grove Plot, 1969, the first year.

NOTE: This experiment is sited on the area occupied by grass, 'N and cutting', 1967 - 68 (see 'Results' 67/C/47 and 68/C/43) - the previous treatments are ignored.

Design: 4 randomised blocks of 9 plots.

Area of each plot: 0.0018. Area harvested: 1st cut: 0.0013, 2nd and 3rd cuts: 0.0012, 4th cut: 0.0007.

Treatments (T): (in cwt N)

	Anhydrous ammonia	'Nitro-Chalk'	Date of application
1	0.0	0.0	11 Mar
2	2.5	0.0	11 Mar
3	5.0	0.0	11 Mar
4	0.0	2.5	11 Mar
5	0.0	5.0	11 Mar
6	2.5 + 'N serve'	0.0	11 Mar
7	5.0 + 'N serve'	0.0	11 Mar
8	0.0	1.25	11 Mar
		.63	29 May
		.62	29 July
9	0.0	2.5	11 Mar
		1.25	29 May
		1.25	29 July
10	2.5	0.0	11 Mar
		1.25	29 May
		1.25	29 July

Basal applications: 1.0 cwt P_2O_5, 2.0 cwt K_2O as triple superphosphate and muriate of potash.

Cultivations, etc.: Basal PK applied: 11 Mar, 1969. Cut 4 times: 29 May, 22 July, 11 Sept, 28 Oct.

NOTE: The yields of Treatment 1 were omitted from the analysis.

Standard errors per plot. Dry matter, cwt:

1st cut:	5.24 or 11.4% (24 d.f.)
2nd cut:	3.88 or 12.2% (24 d.f.)
3rd cut:	1.69 or 9.8% (24 d.f.)
4th cut:	1.40 or 21.0% (24 d.f.)
Total of 4 cuts:	6.54 or 6.4% (24 d.f.)

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

SUMMARY OF RESULTS

DRY MATTER: CWT

T2	T3	T4	T5	T6	T7	T8	T9	T10	Mean
				1ST CUT					
				(±2.62)					
47.0	47.4	45.9	52.4	44.2	44.2	38.6	47.6	48.0	46.2
				2ND CUT					
				(±1.94)					
30.5	35.5	10.8	34.4	35.3	37.5	26.1	38.9	37.8	31.9
				3RD CUT					
				(±0.84)					
9.4	18.9	4.4	12.8	13.8	21.9	21.4	26.1	26.5	17.2
				4TH CUT					
				(±0.70)					
7.7	7.4	4.8	7.0	6.2	7.5	6.1	6.5	6.9	6.7
				TOTAL OF 4 CUTS					
				(±3.27)					
94.5	109.2	65.9	106.7	99.4	111.1	92.2	119.1	119.3	101.9

	T1	Mean D.M. %*
1st cut:	10.0	18.3
2nd cut:	2.4	24.9
3rd cut:	2.0	26.5
4th cut:	4.2	39.2
Total of 4 cuts:	18.6	27.2

* All plots

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

SPRING WHEAT

(69/S/CS/4)

Phosphate and potash, Saxmundham, Victor's Plot, 1969, the third year, spring wheat following clover. For treatments etc. and for previous years' results see 'Results' 67/C/45 and 68/C/41.

Design: 4 randomised blocks of 4 plots, with plots split into 2 for N*.

Area of each plot: 0.0018. Area harvested: 0.0011.

Treatments: All combinations of:-
Whole plots: 1. Phosphate: 0.5 cwt (P1), 2.0 cwt (P4) P205 as triple superphosphate.
2. Potash: None (K0), 2.0 cwt (K1) K20 as muriate of potash.
Sub plots*: 3. Nitrogen: 0.5 cwt (N1), 1.0 cwt (N2) as 'Nitro-Chalk'.

Basal applications: Manures: None. Weedkiller: Paraquat at 0.5 lb ion in 25 gals.

Cultivations, etc.: P and K applied: 25 Sept, 1968. Ploughed: 31 Oct - 14 Nov, 1968. Paraquat applied: 17 Apr, 1969. Seed drilled: 18 Apr. N applied: 14 May. Combine harvested: 21 Aug. Variety: Kolibri.

Standard error per plot.
Grain, cwt: 1.23 or 8.3% (8 d.f.)

* NOTE: The split for N was ignored at harvest.

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

SUMMARY OF RESULTS

	K0	K1	Mean
	GRAIN: CWT		
	(±0.62)		(±0.44)
P1	15.6	13.8	14.7
P4	15.4	14.5	14.9
Mean (±0.44)	15.5	14.1	14.8
	STRAW: CWT		
P1	30.9	32.0	31.5
P4	29.1	30.4	29.8
Mean	30.0	31.2	30.6

Mean D.M. %: Grain: 78.7
Straw: 63.1

WINTER WHEAT

(69/R/W/1 and 69/W/W/1)

Varieties x N, Rothamsted (R) Long Hoos I and II (pathogen free) and Furzefield (pathogen infected), and Woburn (W) Lansome III (pathogen free), 1969.

Design: Long Hoos I and II (R) and Lansome III (W): 4 randomised blocks of 7 plots, split into 3.
Furzefield (R): 3 randomised blocks of 7 plots, split into 3.

Area of sub plot: 0.0096. Area harvested: 0.0064.

Treatments: All combinations of:-
Whole plots: 1. Varieties: Cappelle (CA), Champlein (CH), Joss Cambier (JC), Maris Beacon (MB), Maris Ranger (MR), Maris Widgeon (MW), West Desprez (WD).
Sub plots: 2. Nitrogen: 0.6 (N2), 0.9 (N3), 1.2 (N4) cwt N as 'Nitro-Chalk' in spring.

Basal applications: 340 lb (6:15:15) combine drilled.
Lansome III (W): Magnesian limestone at 2 tons.
Weedkillers: Long Hoos I and II (R): Mecoprop at 42 oz and 2,4-D at 10.5 oz in 20 gals.
Furzefield (R): 2,4-D at 8 oz and dichlorprop at 32 oz in 20 gals.
Lansome III (W): Ioxynil at 9 oz and mecoprop at 27 oz in 25 gals.

Cultivations, etc.:-
Long Hoos I and II (R): Deep-tine cultivated twice: 22 Oct, 1968. Seed drilled at 180 lb: 23 Oct. 'Nitro-Chalk' applied: 21 Apr, 1969. Weedkiller applied: 1 May. Combine harvested: 29 Aug. Previous crops: Fallow 1967, potatoes 1968.
Furzefield (R): Ploughed: 8 Oct, 1968. Rotary cultivated: 21 Oct. Seed drilled at 180 lb: 23 Oct. 'Nitro-Chalk' applied: 21 Apr, 1969. Weedkiller applied: 5 May. Combine harvested: 29 Aug. Previous crops: Potatoes 1967, winter wheat 1968.
Lansome III (W): Limestone applied: 25 Oct, 1968. Deep-tine cultivated on 2 occasions: 24 and 26 Oct. Seed drilled at 165 lb: 6 Nov. 'Nitro-Chalk' applied: 17 Apr, 1969. Weedkiller applied: 3 May. Combine harvested: 22 Aug. Previous crops: Fallow 1967, potatoes 1968.

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

Standard errors per plot.	Grain, cwt:		
Long Hoos I and II (R):	Whole plot:	3.19 or 5.1%	(18 d.f.)
	Sub plot:	4.29 or 6.8%	(42 d.f.)
Furzefield (R):	Whole plot:	4.13 or 9.1%	(12 d.f.)
	Sub plot:	3.91 or 8.6%	(28 d.f.)
Lansome III (W):	Whole plot:	2.93 or 7.3%	(18 d.f.)
	Sub plot:	1.76 or 4.4%	(42 d.f.)

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

SUMMARY OF RESULTS

GRAIN: CWT

	CA	CH	JC	MB	MR	MW	WD	Mean
	LONG HOOS I AND II (R)							
				(1) and (2)				(±0.81)
N2	62.7	64.1	61.1	71.2	64.6	53.0	62.6	62.8
N3	62.9	65.6	60.7	71.1	65.9	54.4	64.1	63.5
N4	61.6	62.9	59.7	72.1	67.5	49.5	61.1	62.1
Mean (±1.60)	62.4	64.2	60.5	71.5	66.0	52.3	62.6	62.8

(1) (±2.15) For use in vertical and interaction comparisons only
(2) (±2.37) For use in horizontal and diagonal comparisons only

Mean D.M. %: 82.1

				FURZEFIELD (R)				
				(1) and (2)				(±0.85)
N2	44.5	41.5	41.7	44.6	44.3	45.2	43.6	43.6
N3	45.0	43.8	47.8	51.3	43.5	45.9	46.3	46.3
N4	42.9	50.4	40.2	55.0	44.8	46.7	46.6	46.7
Mean (±2.38)	44.2	45.3	43.3	50.3	44.2	45.9	45.5	45.5

(1) (±2.26) For use in vertical and interaction comparisons only
(2) (±3.01) For use in horizontal and diagonal comparisons only

Mean D.M. %: 82.0

				LANSOME III (W)				
				(1) and (2)				(±0.33)
N2	36.5	40.8	37.0	42.6	36.7	37.9	37.8	38.5
N3	39.5	47.5	37.6	42.9	39.4	39.9	43.4	41.5
N4	38.3	44.8	38.5	45.6	37.6	37.9	39.3	40.3
Mean (±1.46)	38.1	44.4	37.7	43.7	37.9	38.6	40.1	40.1

(1) (±0.88) For use in vertical and interaction comparisons only
(2) (±1.63) For use in horizontal and diagonal comparisons only

Mean D.M. %: 80.1

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

WINTER WHEAT

(69/R/W/2 and 69/W/W/2)

Deep-drilled fertiliser - Rothamsted (R) Great Knott I and Woburn (W) Lansome III and Roadpiece 1969.

Design: 4 randomised blocks of 10 plots.

Area of each plot: 0.0064. **Area harvested:** 0.0046.

Treatments: All combinations of:-

1. Methods of application of PK fertiliser: Injected 3-4 in. deep by 'Tume' drill in rows 5.5 in. apart with 'crumblers' on (I), broadcast on seedbed by hand (B).
2. Rates of PK fertiliser (0:20:20): 230 lb* (1), 450 lb (2).
3. Row spacing: 4 (C), 8 (W) inches.

In addition two extra plots with fertiliser combine drilled at rate 1 (D1W) or rate 2 (D2W), row spacing 7 inches.

* 220 lb on Lansome III (W) and Roadpiece (W).

Basal applications: 450 lb 'Nitro-Chalk' broadcast in spring. Magnesian limestone at 40 cwt Lansome III (W), 50 cwt - Roadpiece (W). Weedkiller: Great Knott I (R): Mecoprop at 42 oz and 2,4-D at 10.5 oz in 20 gals. Lansome III (W) and Roadpiece (W): Weedkiller: Ioxynil at 9 oz and mecoprop at 27 oz in 25 gals.

Cultivations, etc.:

Great Knott I (R): Rotary cultivated: 15 Aug, 1968. PK applied, seed drilled at 170 lb: 18-21 Oct. 'Nitro-Chalk' applied: 18 Apr, 1969. Weedkiller applied: 12 May. Combine harvested: 30 Aug. Variety: Joss Cambier. Previous crops: Spring wheat 1967, fallow 1968.

Lansome III (W): Limestone applied: 25 Oct, 1968. Deep-tine cultivated: 26 Oct. PK applied, seed drilled at 165 lb: 5 Nov. 'Nitro-Chalk' applied: 15 Apr, 1969. Weedkiller applied: 1 May. Combine harvested: 11 Aug. Variety: Joss Cambier. Previous crops: Fallow 1967, carrots 1968.

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

Roadpiece (W): Limestone applied: 25 Oct, 1968. Deep-tine cultivated: 7 Nov. PK applied, seed drilled at 165 lb: 15 Nov. 'Nitro-Chalk' applied: 15 Apr, 1969. Weedkiller applied: 1 May. Combine harvested: 11 Aug. Variety: Joss Cambier. Previous crops: Winter wheat 1967, spring beans 1968.

Standard errors per plot. Grain, cwt:

Great Knott I (R):	1.92 or 3.4%	(21 d.f.)
Lansome III (W):	1.87 or 4.4%	(20 d.f.)
Roadpiece (W):	1.85 or 6.4%	(19 d.f.)

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

SUMMARY OF RESULTS

GREAT KNOTT I (R)

GRAIN:CWT

	1	2	C	W	Mean
	(±0.68)		(±0.68)		(±0.48)
I	57.5	56.9	57.6	56.8	57.2
B	57.9	56.5	58.0	56.4	57.2
			(±0.68)		(±0.48)
		1	58.7	56.7	57.7
		2	56.9	56.5	56.7
Mean (±0.48)			57.8	56.6	57.2

D1 W: 56.9 (±0.96)
D2 W: 55.8

General mean: 57.0

Mean D.M.%: 81.7

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

LANSOME III (W)

GRAIN:CWT

	1	2	C	W	Mean
	(±0.66)		(±0.66)		(±0.47)
I	42.4	40.9	42.1	41.2	41.7
B	42.0	42.9	42.8	42.1	42.4
			(±0.66)		(±0.47)
		1	42.8	41.5	42.2
		2	42.1	41.7	41.9
Mean (±0.47)			42.5	41.6	42.0

D1 W: 41.9 (±0.94)
D2 W: 42.6

General Mean: 42.1

Mean D.M.%: 85.2

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

ROADPIECE (W)

GRAIN:CWT

	1	2	C	W	Mean
	(±0.66)		(±0.66)		(±0.46)
I	29.1	28.5	29.8	27.9	28.8
B	28.7	29.8	30.7	27.8	29.2
			(±0.66)		(±0.46)
		1	29.8	28.0	28.9
		2	30.6	27.7	29.1
Mean (±0.46)			30.2	27.8	29.0

D1 W: 29.9 (±0.92)
D2 W: 30.9

General mean: 29.4

Mean D.M.%: 86.4

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

WINTER WHEAT

(69/R/W/4)

Cultivations and bulb fly (Leptohylemyia coarctata) - Stackyard 1969.

Design: 4 randomised blocks of 3 plots.

Area of each plot: 0.0362. Area harvested: 0.0129.

Treatments: Tine cultivation, no ploughing (C), normal ploughing (P), scraped and ploughed (SP).

NOTE: The SP treatment was done by a special plough, the top 1-2 inches of soil being scraped into the open furrow just ahead of the plough.

Basal applications: 280 lb (6:15:15) combine drilled, 0.84 cwt N as 'Nitro-Chalk'. Weedkillers: Paraquat at 0.5 lb ion in 25 gals. Ioxynil at 9 oz and mecoprop at 27 oz in 20 gals, and again at 4.5 oz and 13.5 oz respectively, as the first application was spoiled by rain.

Cultivations, etc.: Paraquat applied: 11 Oct, 1968. P treatment ploughed: 18 Oct. P and C treatment spring tine cultivated: 21 Oct. P treatment rotary cultivated: 22 Oct. P treatment rotary cultivated second time, seed drilled at 180 lb (P and C plots only): 23 Oct. SP treatment scraped and ploughed: 16 Nov. SP treatment power-harrowed and seed drilled at 180 lb: 16 Feb 1969. All plots rolled: 18 Apr. 'Nitro-Chalk' applied: 19 Apr. Ioxynil/mecoprop applied: 12 and 13 May. Combine harvested: 30 Aug. Variety: Cappelle. Previous crops: Winter wheat 1967, fallow 1968.

NOTES:
1. Samples were taken for eggs in February 1969.
2. The special plough needed for the SP treatment was not available when the P plots were ploughed. The SP plots were ploughed in November and the subsequent weather prevented sowing until February. This sowing was too late to be affected by Wheat Bulb fly.

Standard error per plot.
Grain, cwt: 1.35 or 2.8% (6 d.f.)

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

SUMMARY OF RESULTS

GRAIN:CWT

C	P	SP	Mean
	(±0.68)		
49.0	49.1	44.4	47.5

Mean D.M.%: 81.2

WINTER WHEAT

(69/R/W/5)

Effects of seed rates and N on the semi-dwarf variety Gaines, Long Hoos I and II 1969.

Design: 4 randomised blocks of 16 plots.

Area of each plot: 0.0036. Area harvested: 0.0017.

Treatments: All combinations of:-

1. Varieties and seed rates: Cappelle at 168 lb (CM), Gaines* at 112 lb (GL), 168 lb (GM), 224 lb (GH).
2. Nitrogen: 0.6 (N1), 1.2 (N2), 1.8 (N3), 2.4 cwt (N4) as 'Nitro-Chalk' in spring.

* NOTE: Gaines (but not Cappelle) received 'Plantvax' (F461) fungicide at 1.5 lb a.i. in 30 gals on 2 occasions.

Basal applications: 300 lb (0:20:20) broadcast by drill at sowing. Weedkiller: Mecoprop at 42 oz and 2,4-D at 10.5 oz in 30 gals. Fungicides: Ethirimol at 1.5 lb in 30 gals.

Cultivations, etc.: Deep-tine cultivated: 23 Oct, 1968. Seed drilled, basal PK compound applied: 24 Oct. 'Nitro-Chalk' applied: 28 Apr, 1969. Weedkiller applied: 8 May. Ethirimol applied: 4 June. 'Plantvax' applied: 18 June and 1 July. Combine harvested: 25 Aug. Previous crops: Fallow 1967, potatoes 1968.

NOTE: Samples were taken for dry weight determinations at ear emergence and at harvest. Samples were also taken in July for estimation of eyespot (Cercosporella herpotrichoides) and sharp eyespot (Rhizoctonia solani).

Standard error per plot.
Grain, cwt: 3.39 or 5.9% (45 d.f.)

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

SUMMARY OF RESULTS

GRAIN:CWT

	N1	N2	N3	N4	Mean
		(±1.70)			(±0.85)
CM	58.4	62.7	58.6	58.7	59.6
GL	61.8	63.2	59.1	56.7	60.2
GM	56.4	62.0	56.1	50.1	56.2
GH	57.4	56.6	54.3	48.3	54.1
Mean (±0.85)	58.5	61.2	57.0	53.5	57.5

Mean D.M.%: 81.1

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

WINTER WHEAT

(69/R/W/6)

Chlormequat treated seed and N, Long Hoos VII 1969.

Design: 4 randomised blocks of 6 plots.

Area of each plot: 0.0036. Area harvested: 0.0021.

Treatments: All combinations of:-
1. Chlormequat*: None (0), seed treated with chlormequat (C).
2. Nitrogen: 0.5 (N1), 1.0 (N2), 1.5 (N3) cwt as 'Nitro-Chalk' top dressed in spring.

* The amount of chlormequat in the seed was 4.8%.
It was applied by spraying the seed.

Basal applications: 280 lb (0:20:20) broadcast by drill at sowing. Weedkillers: Paraquat at 0.5 lb ion in 25 gals. Mecoprop at 42 oz and 2,4-D at 0.5 oz in 20 gals.

Cultivations, etc.: Ploughed: 6 Aug, 1968. Paraquat applied: 18 Oct. Seed drilled at 190 lb: 22 Oct. 'Nitro-Chalk' applied: 29 Apr, 1969. Mecoprop/2,4-D applied: 3 May. Combine harvested: 1 Sept. Variety: Cappelle. Previous crops: Lucerne 1964 - 1967.

NOTE: A plant count was made on 6 Feb, 1969, a tiller count on 5 June and stem height estimations on 5 and 13 June. Samples for yield were taken on 25 Aug.

Standard error per plot.
Grain, cwt: 4.77 or 9.0% (13 d.f.)

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

SUMMARY OF RESULTS

GRAIN:CWT

	N1	N2	N3	Mean
		(±2.39)		(±1.38)
O	52.2	60.8	59.1	57.4
C	47.2	49.2	48.3	48.2
Mean (±1.69)	49.7	55.0	53.7	52.8

Mean D.M.%: 81.9

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

WINTER WHEAT

(69/R/W/10)

Chemical control of take-all (Ophiobolus graminis), Highfield Drive 1969.

Design: 4 randomised blocks of 7 plots.

Area of each plot: 0.0050. Area harvested: 0.0026.

Treatments: None (0) and all combinations of:-
1. Fungicide: Benomyl (B), M2452(M), each as 50 % wettable powder, 'Plantvax' (P) as 75% wettable powder.
2. Rates of application: 1 lb(1), 5 lb(2) a.i.

Basal applications: 280 lb (6:15:15) combine drilled. 0.8 cwt N as 'Nitro-Chalk' in spring. Weedkiller: mecoprop at 42 oz and 2,4-D at 10.5 oz in 20 gals.

Cultivations, etc.: Ploughed: 20 Sept, 1968. Seed drilled at 180 lb: 16 Oct. 'Nitro-Chalk' applied: 27 Mar, 1969. Fungicides applied: 10 Apr. Weedkiller applied: 1 May. Combine harvested: 30 Aug. Variety: Cappelle. Previous crops: Barley 1967 and 1968.

NOTE: Samples were taken for estimation of take-all (Ophiobolus graminis), eyespot (Cercosporella herpotrichoides) and sharp eyespot (Rhizoctonia solani) in spring and summer.

Standard error per plot.
Grain, cwt: 6.07 or 12.6% (15 d.f.)

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

SUMMARY OF RESULTS

GRAIN: CWT

	B	M	P	Mean
		(±3.04)		(±1.75)
1	50.2	45.6	46.9	47.6
2	51.2	49.8	45.3	48.8
Mean (±2.15)	50.7	47.7	46.1	48.2

0 46.6 (±3.04)

General Mean: 48.0
Mean D.M.%: 81.9

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

SPRING WHEAT

(69/R/W/11)

Effect of gaps - Great Harpenden II 1969.

Design: 4 randomised blocks of 6 plots.

Area of each plot: 0.0121. Area harvested: 0.0121.

Treatments: No rows missing, 30 rows harvested (G0) and gapping of full plant equivalent to 8 rows removed per plot at growth stages shown below (each plot 17' 6'' wide, i.e. nominally 30 rows at 7'' spacing, paths 1 ft. wide between plots. The full width was harvested for yield).

At seedling stage:

3 inch gaps evenly spaced	(G1)
6 inch gaps evenly spaced	(G2)
12 inch gaps evenly spaced	(G4)
Pairs of rows removed	(R)

At start of stem elongation:

Pairs of rows removed	(RL)

Basal applications: 340 lb (25:10:10) combine drilled.
Weedkillers: Paraquat at 0.5 lb ion in 20 gals. 2,4-D at 8 oz and dichlorprop at 32 oz in 20 gals.

Cultivations, etc.: Paraquat applied: 2 Apr, 1969. Ploughed: 10 Apr. Seed drilled at 160 lb: 16 Apr. Gapped: 7-14 May. 2,4-D/dichlorprop applied: 21 May. Gapped: 2 June. Combine harvested: 2 Sept. Variety: Kolibri. Previous crops: Grass since 1959, Potatoes 1968.

Standard error per plot.
Grain, cwt: 0.57 or 1.2% (15 d.f.)

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

SUMMARY OF RESULTS

GRAIN: CWT

G0	G1	G2	G4	R	RL	Mean
		(±0.28)				
48.7	45.1	45.3	44.9	43.7	32.6	45.2

Mean D.M. %: 81.8

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

SPRING WHEAT

(69/R/W/12)

Varieties, N and ethirimol ('Milstem' or 'PP149'), Whittlocks 1969.

Design: 4 randomised blocks of 10 plots, split into 3.

Area of each sub plot: 0.0080. Area harvested: 0.0053.

Treatments: All combinations of:-

Whole plots:
1. Varieties: Kloka (KL), Kolibri (KO), Maris Ensign (ME), Rothwell Sprite (RS), Troll (T).
2. Fungicide: None (0) ethirimol as seed dressing at 1 lb (F).

Sub plots:
3. Nitrogen: 0.5 (N1), 1.0 (N2), 1.5 (N3) cwt (0.5 cwt N in basal compound, remainder as 'Nitro-Chalk').

NOTE: A sixth variety was included but the germination of the seed was poor and the results have been omitted.

Basal applications: 370 lb (15:15:15) combine drilled.
Weedkillers: 2,4-D at 8 oz and dichorprop at 32 oz in 20 gals.

Cultivations, etc.: Ploughed: 21 Nov, 1968. Seed drilled at 185 lb*: 3 Apr, 1969. 'Nitro-Chalk' applied: 11 Apr. Weedkiller applied: 22 May. Combine harvested: 3 Sept. Previous crops: Spring beans 1967, winter wheat 1968.

* Rothwell Sprite at 165 lb because its germination was better than the other varieties.

NOTE: Samples were taken for assessment of mildew (Erysiphe graminis) and other foliar diseases.

Standard errors per plot.
Grain, cwt: Whole plot: 1.64 or 4.5% (27 d.f.)
Sub plot: 2.16 or 5.9% (60 d.f.)

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

SUMMARY OF RESULTS

GRAIN:CWT

	KL	KD	ME	RS	T	Mean
			(±0.82)			(±0.37)
O	33.5	42.2	38.4	32.9	36.5	36.7
F	33.0	40.9	37.4	32.9	36.3	36.1
			(1) and (2)			(±0.34)
N1	31.4	37.3	35.9	30.7	35.3	34.1
N2	34.9	43.2	39.6	33.8	38.3	38.0
N3	33.5	44.1	38.1	34.1	35.6	37.1
Mean (±0.58)	33.2	41.5	37.9	32.9	36.4	36.4

Mean D.M.%: 82.6

(1) (±0.85) For use in horizontal and diagonal comparisons only
(2) (±0.76) For use in vertical and interaction comparions only

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

SPRING WHEAT

(69/R/W/13)

Effects of paths and blank rows - Whittlocks 1969.

Design: 4 blocks of 8 plots, randomisation restricted.

Area of each plot: 0.0161. Area harvested: 0.0107.

Treatments: All combinations of:-

1. Blank rows: None, 16 middle rows harvested (R0)
   2 blank rows, 3 (1) 16 (1) 3 sown (R1)
   4 blank rows, 2 (2) 16 (2) 2 sown (R2)
   6 blank rows, 1 (3) 16 (3) 1 sown (R3).
2. N: 0.6 (N1), 1.2 (N2) cwt as 'Nitro-Chalk', broadcast by drill.

All plots were 24 row-spaces wide, 16 being harvested. (1) etc. indicate number and position of blank (unsown) rows.

Basal applications: 280 lb (0:20:20) combine drilled. Weedkiller: 2,4-D at 8 oz and dichlorprop at 32 oz in 20 gals.

Cultivations, etc.: Ploughed: 21 Nov, 1968. Seed drilled at 180 lb per sown acre: 2 Apr, 1969. 'Nitro-Chalk' applied: 10 Apr. Weedkiller applied: 22 May. Combine harvested: 3 Sept. Variety: Kolibri. Previous crops: Spring beans 1967, winter wheat 1968.

Standard error per plot.
Grain, cwt: 1.92 or 4.4% (21 d.f.)

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SUMMARY OF RESULTS

GRAIN: CWT

	R0	R1	R2	R3	Mean
		(±0.96)			(±0.48)
N1	38.4	39.6	43.4	43.3	41.2
N2	43.7	45.0	46.2	46.2	45.3
Mean (±0.68)	41.0	42.3	44.8	44.7	43.2

Mean D.M.%: 84.2

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

BARLEY

(69/R/B/1 and 69/W/B/1)

Varieties, N and ethirimol, ('Milstem' or 'PP149') Rothamsted (R) Pastures and Woburn (W) Lansome II 1969.

Design (each experiment): 4 blocks of 8 plots (randomisation restricted), split into three for N.

Area of each sub plot: 0.0080. Area harvested: 0.0054.

Treatments: All combinations of:-
- Whole plots: 1. Varieties: Julia (J), Maris Badger (MB), Sultan (S), Zephyr (Z).
- Whole plots: 2. Fungicide: None (0), ethirimol as seed dressing at 1 lb (F).
- Sub plots: 3. Nitrogen: 0.3 (N1), 0.6 (N2), 0.9 (N3) cwt as 'Nitro-Chalk'.

Basal applications: 220 lb (0:20:20) combine drilled.
Weedkillers: Pastures (R):- Paraquat at 0.5 lb ion in 25 gals. 2,4-D at 8 oz and dichlorprop at 32 oz in 20 gals.
Lansome II (W):- Ioxynil octanoate, bromoxynil octanoate and the iso-octyl ester of dichlorprop ('Oxytril P' at 1 pint in 25 gals).

Cultivations, etc.:
Pastures (R): Paraquat applied: 11 Oct, 1968. Ploughed: 13 Nov. Seed drilled at 140 lb: 27 Mar, 1969. 'Nitro-Chalk' applied: 10 Apr. 2,4-D/dichlorprop applied: 13 May. Combine harvested: 14 Aug. Previous crops: Potatoes 1967, barley, 1968.
Lansome II (W): Ploughed: 18 Nov, 1968. Seed drilled at 140 lb: 28 Mar, 1969. 'Nitro-Chalk' applied: 8 Apr. Weedkiller applied: 14 May. Combine harvested: 14 Aug. Previous crops: Spring beans 1967 Winter wheat 1968.

NOTE: Samples were taken for assessment of mildew (Erysiphe graminis) and other foliar diseases.

Standard errors per plot.

Grain, cwt: Pastures (R):	Whole plot:	1.74 or 3.6%	(21 d.f.)
	Sub plot:	2.04 or 4.2%	(48 d.f.)
Lansome II (W):	Whole plot:	1.14 or 2.8%	(21 d.f.)
	Sub plot:	1.87 or 4.5%	(48 d.f.)

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

SUMMARY OF RESULTS

GRAIN:CWT

PASTURES (R)

	J	MB	S	Z	Mean
		(±0.87)			(±0.43)
O	49.6	41.4	49.5	48.6	47.3
F	51.5	43.6	48.4	51.2	48.7
		(1) and (2)			(±0.36)
N1	45.9	38.4	43.2	47.5	43.7
N2	52.5	45.5	52.3	51.7	50.5
N3	53.3	43.6	51.4	50.7	49.7
Mean (±0.61)	50.6	42.5	48.9	49.9	48.0

Mean D.M.%: 83.6

(1) (±0.85) For use in horizontal and diagonal comparisons only
(2) (±0.72) For use in vertical and interaction comparisons only

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

SUMMARY OF RESULTS

GRAIN: CWT

LANSOME II (W)

	J	MB	S	Z	Mean
		(±0.57)			(±0.28)
0	42.7	34.4	43.2	43.2	40.9
F	43.6	35.6	43.7	44.3	41.8
		(1) and (2)			(±0.33)
N1	33.3	27.1	35.9	35.5	33.0
N2	45.2	37.6	45.7	46.6	43.8
N3	50.9	40.2	48.7	49.0	47.2
Mean (±0.40)	43.1	35.0	43.4	43.7	41.3

Mean D.M. %: 84.2

(1) (±0.67) For use in horizontal and diagonal comparisons only
(2) (±0.66) For use in vertical and interaction comparisons only

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

BARLEY

(69/R/B/2 and 69/W/B/2)

Deep-drilled fertiliser - Rothamsted (R) Pastures and Woburn (W) Great Hill II 1969.

Design: 4 randomised blocks of 14 plots.

Area of each plot: 0.0080. Area harvested: 0.0058.

Treatments: All combinations of:-

1. Fertiliser rates*: 0.5 cwt N, 0.25 cwt P205, 0.25 cwt K20 (1), 1.0 cwt N, 0.5 cwt P205, 0.5 cwt K20 (2).
   NBI plots: as 'Nitro-Chalk' 21 and (0:20:20).
   Other plots: as (20:10:10).
2. Methods of fertiliser application: NPK injected 3-4 in. deep in rows 5.5 in. apart, by 'Tume' drill (I)
   NPK broadcast (B), N broadcast, PK injected (NBI).
3. Space between rows of seed: 5 inches (C), 7 inches (W).
   Additional treatments: NPK combine drilled at rate 1 (D1W), rate 2 (D2W), row spacing 7 inches.
   *Rates on Great Hill II (W) were:
   NBI plots: 0.5 cwt 0, 0.22 cwt P205, 0.22 cwt K20 (1) and 1.0 cwt N, 0.45 cwt P205, 0.45 cwt K20 (2).
   D plots: 0.46 cwt N, 0.23 cwt P205, 0.23 cwt K20 (1) 0.96 cwt N, 0.48 cwt P205, 0.48 cwt K20 (2).
   Other plots: 0.47 cwt N, 0.24 cwt P205, 0.24 cwt K20 (1) 1.0 cwt N, 0.5 cwt P205, 0.5 cwt K20 (2).

NOTE: The 'Tume' drill was used once on every plot, with tines in the ground and 'crumblers' on. On 'B' plots the fertiliser was broadcast by the 'Tume' drill with spouts out.

Basal applications:- Manures none: Weedkillers: Pastures (R): Paraquat at 0.5 lb ion in 25 gals. 2,4-D at 8 oz and dichlorprop at 32 oz in 20 gals.
Great Hill II (W): Paraquat at 1.5 lb ion in 25 gals. Ioxynil octanoate, bromoxynil octanoate and the iso-octyl ester of dichlorprop ('Oxytril P' at 1 pint in 25 gals).

Cultivations, etc,:
Pastures (R): Paraquat applied: 11 Oct, 1968. Ploughed: 13 Nov. Fertilisers applied (except 'Nitro-Chalk'), seed drilled at 140 lb: 28 Mar, 1969. 'Nitro-Chalk'

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applied: 11 Apr. 2,4-D/dichlorprop applied: 13 May. Combine harvested: 13 Aug. Variety: Zephyr. Previous crops: Potatoes 1967, barley 1968.

Great Hill II (W): Paraquat applied: 19 Sept, 1968. Ploughed: 4 - 27 Jan, 1969. Fertilisers applied (except 'Nitro-Chalk'), seed drilled at 140 lb: 2 Apr. 'Nitro-Chalk' applied: 3 Apr. 'Oxytril P' applied: 14 May. Combine harvested: 8 Aug. Variety: Zephyr. Previous crops: Fallow 1967, winter wheat 1968.

Standard errors per plot. Grain, cwt:

Pastures (R):	2.03 or 4.3%	(38 d.f.)
Great Hill II (W):	3.06 or 9.2%	(39 d.f.)

NOTE: On Pastures (R) owing to a blockage grain was lost on one plot (IC L2). An estimated value was used in the analysis.

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SUMMARY OF RESULTS

PASTURES (R)

GRAIN

	IC	IW	BC	BW	DW	NBIC	NBIW	Mean
				(±1.01)				(±0.38)
1	48.1	48.5	48.0	48.0	49.2	46.3	45.8	47.7
2	43.4	45.0	49.4	49.0	46.9	47.9	45.7	46.8
Mean (±0.72)	45.7	46.7	48.7	48.5	48.1	47.1	45.8	47.2

Mean D.M. %: 83.2

GREAT HILL II (W)

GRAIN

				(±1.53)				(±0.58)
1	32.4	34.2	30.2	33.0	32.6	32.2	33.4	32.6
2	35.7	35.1	34.7	34.6	32.6	33.0	31.6	33.9
Mean (±1.08)	34.1	34.7	32.5	33.8	32.6	32.6	32.5	33.2

Mean D.M. %: 87.8

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

BARLEY

(69/R/B/3 and 69/W/B/3)

Deeply drilled urea and 'Nitro-Chalk' Rothamsted (R) Pastures and Woburn (W) Stackyard A1, 1969.

Design: 4 blocks of 8 plots (randomisation restricted) plus 1 nil plot per block.

Area of each plot: 0.0161. Area harvested: 0.0107.

Treatments: No nitrogen (N0) and all combinations of:
1. Form of nitrogen: 'Nitro-Chalk' (C), urea (U).
2. Method of application: Injected by 'Tume' drill 3-4 inches deep in rows 5.5 inches apart (I), broadcast (B).
3. Nitrogen: 0.5 (N1), 1.0 (N2) cwt N.

Basal applications: 265 lb (0:20:20) combine drilled.
Weedkillers:-
Pastures (R): Paraquat at 0.5 lb ion in 25 gals 2,4-D at 8 oz and dichlorprop at 32 oz in 20 gals.
Stackyard A1 (W): Ioxynil octanoate, bromoxynil octanoate and the iso-octyl ester of dichlorprop ('Oxytril P' at 1 pint in 25 gals).

Cultivations, etc.:
Pastures (R): Paraquat applied: 11 Oct, 1968. Ploughed: 13 Nov. Urea and 'Nitro-Chalk' injected by 'Tume' drill: 28 Mar, 1969. Seed drilled at 145 lb, urea and 'Nitro-Chalk' broadcast: 29 Mar. 2,4-D/dichlorprop applied: 13 May. Combine harvested: 18 Aug. Variety: Zephyr. Previous crops: Potatoes 1967, barley 1968.
Stackyard A1 (W): Ploughed: 14 Aug, 1968. Ploughed second time: 15 Nov. Treatments applied, seed drilled at 145 lb: 3 Apr, 1969. Weedkiller applied: 16 May. Combine harvested: 8 Aug. Variety: Zephyr. Previous crops: Fallow 1967, 1968.

NOTES: (1) The 'Tume' drill was used on all plots to prepare the seedbed, it being drawn idle through the B and N0 plots.
(2) Percentage of N in grain was determined.

Standard errors per plot: Grain, cwt:
Pastures (R): 2.04 or 4.3% (21 d.f.)
Stackyard A1 (W): 4.53 or 13.7% (21 d.f.)

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SUMMARY OF RESULTS

GRAIN, CWT

	I	B	N1	N2	Mean
		PASTURES (R)			
	(±0.72)				(±0.51)
C	48.0	46.3	47.5	46.8	47.1
U	47.9	47.4	48.8	46.6	47.7
			(±0.72)		(±0.51)
		I	48.6	47.3	48.0
		B	47.6	46.1	46.8
Mean (±0.51)			48.1	46.7	47.4

NO 36.4
General mean: 46.2

		STACKYARD A1 (W)			
	(±1.60)				(±1.13)
C	34.0	32.4	30.6	35.9	33.2
U	32.7	32.8	31.9	33.6	32.7
			(±1.60)		(±1.13)
		I	32.4	34.3	33.4
		B	30.1	35.1	32.6
Mean (±1.13)			31.3	34.7	33.0

NO 10.0
General mean: 30.9

Mean D.M. %: Pastures (R): 79.6
Stackyard A1 (W): 88.3

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

BARLEY

(69/R/B/4)

Early and late mildew (Erysiphe graminis), Long Hoos I and II 1969.

Design: 4 randomised blocks of 4 plots.

Area of each plot: 0.0321. Area harvested: 0.0129.

Treatments: Fungicide ethirimol ('PP149' or 'Milstem'):-

None	(0)
0.25 lb as seed dressing	(1D)
2 lb as seed dressing, crop sprayed on 2 occasions, the first at 1 lb and the second at 1.5 lb in 30 gals.	(8D)
Crop sprayed on 2 occasions as above	(4S)

Basal applications: 340 lb (20:10:10) combine drilled.
Weedkiller: Mecoprop at 36 oz and 2,4-D at 9 oz in 20 gals.

Cultivations, etc.: Deep-tine cultivated 3 times: 13 Nov, 1968. Seed drilled at 140 lb: 27 Mar, 1969. Weedkiller applied: 15 May. Ethirimol spray applied: 25 June and 10 July. Combine harvested: 14 Aug. Variety: Zephyr. Previous crops: Fallow 1967, potatoes 1968.

NOTE: Samples were taken for assessment of mildew (Erysiphe graminis) and other foliar diseases and for assessment of tiller number, tiller length and ear sizes.

Standard error per plot.
Grain, cwt: 2.09 or 4.2% (9 d.f.)

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SUMMARY OF RESULTS

0	1D	8D	4S	Mean
		GRAIN: CWT		
		(±1.05)		
48.4	48.6	52.6	49.1	49.7
		STRAW: CWT		
32.5	31.3	36.1	34.0	33.5

Mean D.M.%: Grain: 80.5
Straw: 82.7

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

BARLEY

(69/R/B/5)

Effects of paths and blank rows - Pastures 1969.

Design: 4 randomised blocks of 8 plots, randomisation restricted.

Area of each plot: 0.0161. Area harvested: 0.0107.

Treatments: All combinations of:-

1. Blank rows: None, 16 middle rows harvested (R0)
   2 blank rows: 3 (1) 16 (1) 3 sown (R1)
   4 blank rows: 2 (2) 16 (2) 2 sown (R2)
   6 blank rows: 1 (3) 16 (3) 1 sown (R3)
2. N: 0.5 (N1), 1.0 (N2) cwt as 'Nitro-Chalk'.

Plots were of 24 row-spaces each, 16 being harvested. (1) etc. indicate number and position of blank (unsown) rows.

Basal applications: 280 lb (0:20:20) combine drilled. Weedkillers: Paraquat at 0.5 lb ion in 25 gals, 2,4-D at 8 oz and dichlorprop at 32 oz in 20 gals.

Cultivations, etc.: Paraquat applied: 11 Oct, 1968. Ploughed: 13 Nov. Seed drilled at 140 lb per sown acre: 28 Mar, 1969. 'Nitro-Chalk' applied: 10 Apr. 2,4-D/dichlorprop applied: 13 May. Combine harvested: 14 Aug. Variety: Zephyr. Previous crops: Potatoes 1967, barley 1968.

Standard error per plot.
Grain, cwt: 1.19 or 2.6% (21 d.f.)

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SUMMARY OF RESULTS

GRAIN:CWT

	R0	R1	R2	R3	Mean
		(±0.59)			(±0.30)
N1	45.3	47.6	48.7	50.2	48.0
N2	41.6	45.2	46.7	47.6	45.3
Mean (±0.42)	43.5	46.4	47.7	48.9	46.6

Mean D.M.%: 82.9

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

BARLEY

(69/S/B/1)

Varieties, N and ethirimol ('Milstem' or 'PP 149'), Saxmundham, Grove Plot 1969.

Design: Two randomised blocks of 10 plots, split into 2 for fungicidal seed dressing.

Area of each sub-plot: 0.0041. Area harvested: 0.0012.

Treatments: None (2 plots per block, one for each variety split as above) and all combinations of:-

Whole plots:
1. Variety: Deba Abed (DA), Maris Badger (MB).
2. Levels of N: 0.6 (N1), 1.2 (N2) cwt as 'Nitro-Chalk'.
3. Times of application of N: In the seedbed (E), as a top-dressing in May (L).

Sub-plots:
4. Ethirimol as a seed-dressing: None (O), seed dressed (P).

Basal applications: 5 cwt (0:20:20) broadcast. Weedkiller: Ioxynil at 6 oz and mecoprop at 18 oz in 40 gals.

Cultivations, etc.: Ploughed: 28 Oct, 1968. Basal PK and 'Nitro-Chalk' applied, seed drilled: 9 Apr, 1969. 'Nitro-Chalk' top-dressing applied, weedkiller applied: 14 May. Harvested: 18 Aug. Previous crops: Sugar beet 1967 and 1968.

Standard errors per plot.

Grain, cwt:	Whole plot:	2.53 or 7.5% (7 d.f.)
	Sub-plot:	1.76 or 5.2% (8 d.f.)

SUMMARY OF RESULTS

GRAIN:CWT

	E	L	DA	MB	O	P	Mean
	(±1.26)		(±1.26)		(1) and (2)		(±0.89)
N1	29.6	37.0	34.2	32.4	31.6	34.9	33.3
N2	35.0	33.8	39.8	28.9	35.0	33.8	34.4
			(±1.26)		(1) and (2)		(±0.89)
		E	33.7	30.9	31.9	32.7	32.3
		L	40.3	30.4	34.7	36.0	35.4
					(1) and (2)		(±0.89)
				DA	35.7	38.4	37.0
				MB	30.9	30.3	30.6
Mean (±0.44)					33.3	34.4	33.8

NO Plots

DA O 19.9
DA P 18.7
MB O 15.5
MB P 17.8

Mean D.M.%: 80.3

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

STRAW:CWT

	E	L	DA	MB	O	P	Mean
N1	32.9	42.7	33.8	41.9	36.0	39.6	37.8
N2	44.9	50.7	44.0	51.6	46.4	49.2	47.8
		E	34.7	43.1	37.0	40.8	38.9
		L	43.1	50.3	45.3	48.1	46.7
				DA	37.7	40.1	38.9
				MB	44.7	48.7	46.7
Mean					41.2	44.4	42.8

NO Plots

DA O 17.8
DA P 15.6
MB O 16.5
MB P 19.6

Mean D.M.%: 53.9

BARLEY

(69/S/B/2)

IBDU (Iso-butylidene di-urea) as a nitrogenous fertiliser for barley, Saxmundham, Rotation I sidelands, 1969.

Design: 3 randomised blocks of 10 plots.

Area of each plot: 0.0023. Area harvested: 0.0009.

Treatments: None (0) (2 plots per block) and all combinations of:-
1. Nitrogen: 'Nitro-Chalk' applied either in seedbed (NS), or half in seedbed, half top-dressed (ND). IBDU in seedbed, either as powder (BP) or as granules (BG).
2. Levels of N: 50 lb (N1), 100 lb (N2).

Basal applications: 512 lb (0:20:20) broadcast. Weedkiller: Mecoprop at 36 oz and 2,4-D at 9 oz in 25 gals.

Cultivations, etc.: Ploughed: 23 Oct, 1968. Basal PK and seedbed nitrogen applied, seed drilled: 26 Mar, 1969. 'Nitro-Chalk' top-dressing applied: 23 May. Weedkiller applied: 23 May. Harvested: 20 Aug. Variety: Sultan.

Standard error per plot.
Grain, cwt: 3.63 or 16.0% (17 d.f.)

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SUMMARY OF RESULTS

	0	NS	ND	BP	BG	Mean
			GRAIN, CWT			
				(±2.10)		(±1.05)
N1		28.4	26.3	13.9	20.9	22.4
N2		26.3	29.4	27.0	25.8	27.1
Mean (±1.48)	14.8	27.4	27.8	20.5	23.4	22.8*
			STRAW, CWT			
N1		28.9	24.7	16.6	20.8	22.7
N2		37.7	36.3	29.5	25.1	32.1
Mean	13.9	33.3	30.5	23.0	22.9	24.7*

* General mean

Mean D.M. %: Grain: 81.7
Straw: 76.5

SPRING BEANS

(69/R/BE/1)

B9*, N, row spacing and seed rate, Stackyard 1969.

Design: A single replicate of 4 x 2 x 2 x 2 x 2 in 4 blocks of 4 plots, split for N treatments, with interactions confounded.

Area of each plot: 0.0022. Area harvested: 0.0005.

Treatments: All combinations of:-

Whole plots:
1. Row spacing: Rows 5.5(C), 21(W) inches apart.
2. Seed rate: 200 (R1), 400 (R2) lb.
3. Growth regulator: None (O), B9* at 4 lb in 56 gals on 3 occasions (S).

Sub plots:
4. Nitrogen: None (N0), 1 (N1), 2 (N2), 3 (N3) cwt as 'Nitro-Chalk'.
5. Time of application of N: In seedbed (E) in June (L).

* N-dimethylaminosuccinamic acid.

Basal applications: 360 lb (0:14:28) drilled 3-4 in deep, by 'Tume' drill. Weedkiller: Simazine at 1 lb in 20 gals. Insecticide: Demeton-s-methyl at 3.5 oz in 37 gals.

Cultivations, etc.: Ploughed: 25 Oct, 1968. Basal fertiliser applied: 10 Mar, 1969. Seed drilled, weedkiller applied: 27 Mar. 'Nitro-Chalk' applied to E plots: 28 Mar, to L plots: 9 June. B9 applied to S plots: 20 May, 12 June, 16 July. Insecticide applied: 25 June. Harvested by sickle: 11 Sept. Variety: Tarvin. Previous crops: Barley 1967, fallow 1968.

NOTE: Germination counts were made and estimates of the percentage of lodging, stem height, number of stems and pods, and of the percentage of N in grain. 1000 grain weights were calculated.

Standard errors per plot. Grain, cwt:
Whole plot: 0.69 or 2.1% (5 d.f.)
Sub plot: 1.63 or 5.0% (13 d.f.)

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SUMMARY OF RESULTS

GRAIN: CWT

	N0	N1	N2	N3	Mean
		(1) & (2)			(±0.24)
C	31.1	33.3	34.1	34.1	33.2
W	31.9	31.4	32.5	32.7	32.1
		(1) & (2)			(±0.24)
R1	32.0	31.6	32.6	33.0	32.3
R2	31.0	33.1	34.0	33.8	33.0
		(1) & (2)			(±0.24)
O	31.1	32.6	34.2	33.1	32.8
S	31.9	32.1	32.4	33.7	32.5
			(1) & (2)		(±0.33)
E		32.8	33.7	34.0	33.5
L		31.9	32.9	32.8	32.5
Mean (±0.41)	31.5	32.3	33.3	33.4	32.6

(1) (±0.56) For use in vertical and diagonal comparisons only
(2) (±0.58) For use in horizontal and interaction comparisons only

Mean D.M.%: 79.6

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

SPRING BEANS

(69/W/BE/1)

Effects of fumigation and nitrogen - Woburn Butt Furlong 1969.

Design: 3 blocks of 6 plots.

Area of each plot: 0.0022. **Area harvested:** 0.0005.

Treatments: All combinations of:-
1. Fumigant: None (O), dazomet at 400 lb (F).
2. Nitrogen: None (N0), 1.0 (N1), 2.0 (N2) cwt N as 'Nitro-Chalk' 21, half seedbed, half top dressing.

Basal applications: 360 lb (0:14:28). **Weedkiller:** Simazine at 0.75 lb in 25 gals. **Insecticides:** Menazon (Saphicol at 1 pint in 28 gals), demeton-s-methyl at 4.4 oz in 20 gals.

Cultivations, etc.: Ploughed: 14 Oct, 1968. Fumigant applied: 16 Oct. Rotary cultivated twice to 4 inches and 8 inches: 17 Oct. Rolled: 18 Oct. Ploughed second time: 17 Jan, 1969. PK applied, seed drilled at 200 lb: 31 Mar. First application of N: 3 Apr. Weedkiller applied: 4 Apr. Menazon applied: 24 May. Second application of N: 30 May. Demeton-s-methyl applied: 2 July. Hand harvested: 4 Sept. Variety: Tarvin. Previous crops: Barley 1967, 1968.

NOTES: (1) Soil samples were taken for counts of ectoparasitic nematodes.
(2) Plant samples were taken for observations of fungal pathogens.
(3) Counts were made of germination, number of stems, number of pods, 1000 grain weights and percentage nitrogen in grain.

Standard error per plot:
Grain, cwt: 1.94 or 14.3% (10 d.f.)

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

SUMMARY OF RESULTS

GRAIN, CWT

	N0	N1	N2	Mean
		(±1.12)		(±0.65)
O	13.4	10.0	8.2	10.5
F	16.0	16.1	18.1	16.7
Mean (±0.79)	14.7	13.1	13.1	13.6

Mean D.M. %: 80.8

SPRING BEANS

(69/R/BE/2)

Growth regulators, Stackyard 1969.

Design: 2 blocks of 16 plots, randomisation restricted.

Area of each plot: 0.0022. Area harvested: 0.0005.

Treatments: Growth regulators and rates of application:-

None (2 plots per block)	(0)
B9 at 2 lb a.i. on 3 occasions	(B1)
B9 at 4 lb a.i. on 3 occasions	(B2)
Morphactin IT 3233 at 0.025 gm a.i.	(MA1)
Morphactin IT 3233 at 2.5 gm a.i.	(MA2)
Morphactin IT 3456 at 0.25 gm a.i.	(MB1)
Morphactin IT 3456 at 25 gm a.i.	(MB2)
Ethrel at 0.1 lb a.i.	(E1)
Ethrel at 1.0 lb a.i.	(E2)
C 011 at 1 lb a.i.	(C1)
C 011 at 4 lb a.i.	(C2)
R34610/1A (JF 2578) at 1 lb a.i.	(RA1)
R34610/1A (JF 2578) at 4 lb a.i.	(RA2)
R34691/1A (JF 2579) at 1 lb a.i.	(RB1)
R34691/1A (JF 2579) at 4 lb a.i.	(RB2)

Each applied in 56 gals.

Basal applications: 360 lb (0:14:28) drilled 3-4 in. deep by 'Tume' drill. Weedkiller: Simazine at 1 lb in 20 gals. Insecticide: Demeton-s-methyl at 3.5 oz in 37 gals.

Cultivations, etc.: Ploughed: 25 Oct, 1968. Basal fertiliser applied: 10 Mar, 1969. Seed drilled at 200 lb, weedkiller applied: 27 Mar. Growth regulators applied: 20 May. B9 applied second time: 13 June. Insecticide applied: 25 June. B9 applied third time: 10 July. Harvested by sickle: 11 Sept. Variety: Tarvin. Previous crops: Barley 1967, fallow 1968.

NOTE: Germination counts were made, and estimates of the percentage of lodging, stem height, number of stems and pods, and of the percentage of N in grain. 1000 grain weights were calculated.

Standard error per plot.
Grain, cwt: 1.94 or 6.3% (15 d.f.)

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

SUMMARY OF RESULTS

GRAIN:CWT

	O	B	MA	MB	E	C	RA	RB	Mean
				(±1.37)					(±0.52)
1		32.3	33.3	32.1	34.1	34.7	30.4	31.2	32.6
2		32.5	15.7	32.1	27.5	29.2	31.8	33.3	28.9
Mean (±0.97)	32.8	32.4	24.5	32.1	30.8	32.0	31.1	32.2	31.0*

Mean D.M.%: 80.5

*General Mean

SPRING BEANS

(69/W/BE/2)

Effects of insecticide on Sitona - Woburn Horsepool 1969.

Design: 6 blocks of 2 plots.

Area of each plot: 0.0022. Area harvested: 0.0005.

Treatment:-
Insecticide: None (0), dieldrin at 1 lb sprayed on to the soil before sowing (I).

Basal applications: Weedkiller: Paraquat at 1.5 lb ion in 25 gals. 4 cwt (0:14:28) placed. Weedkiller: Simazine at 1 lb in 25 gals. Insecticide: Demeton-s-methyl at 3.5 oz in 30 gals.

Cultivations, etc.: Paraquat applied: 16 Oct, 1968. Ploughed: 4 Dec. Spring-tine cultivated: 10 Mar. Dieldrin treatment applied: 12 Mar. Spring-tine cultivated second stroke: 26 Mar. PK applied, seed drilled at 200 lb: 1 Apr. Simazine applied: 4 Apr. Insecticide applied: 25 June. Harvested by hand: 3 Sept. Variety: Maris Bead. Previous crops: Potatoes 1967, winter wheat 1968.

NOTES: 1. Sticky and water traps were placed in the crop from germination until ripening.
2. Plant samples were taken for counts of Sitona larvae and estimates of damage during the growing season.

Standard error per plot.
Grain, cwt: 1.49 or 6.0% (5 d.f.)

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

SUMMARY OF RESULTS

GRAIN: CWT

0	I	Mean
	(±0.61)	
24.5	25.7	25.1

Mean D.M.%: 81.7

SPRING BEANS

(69/R/BE/3 and 69/W/BE/3)

The effect on yield of inoculating beans with different strains of Rhizobium leguminosarum - Rothamsted (R) Stackyard and Woburn (W) Horsepool 1969.

Design: 4 randomised blocks of 6 plots.

Area of each plot:
Stackyard (R): 0.0202. Area harvested: 0.0127.
Horsepool (W): 0.0193. Area harvested: 0.0121.

Treatments: Seed inoculum (Rhizobium leguminosarum):-

None	(0)
Strain 1015	(1)
Strain 1028	(2)
Strain 1034	(3)
Strain 1038	(4)
Strain DP	(5)

Basal applications:
Stackyard (R): 360 lb (0:14:28) injected by 'Tume' drill.
Horsepool (W): 450 lb (0:14:28) placement drilled.
Weedkiller (both fields): Simazine at 1 lb in 20 gals (25 gals on Horsepool (W)).
Insecticide (both fields): Demeton-s-methyl at 3.5 oz in 37 gals (30 gals on Horsepool (W)).

Cultivations, etc.:
Stackyard (R): Ploughed: 25 Oct, 1968. Basal PK compound injected: 10 Mar, 1969. Seed drilled at 200 lb, weedkiller applied: 27 Mar. Insecticide applied: 25 June. Combine harvested: 10 Sept. Variety: Tarvin. Previous crops: Barley 1967, fallow 1968.
Horsepool (W): Ploughed: 2 Dec, 1968. Seed drilled at 200 lb: 1 Apr, 1969. Weedkiller applied: 4 Apr. Insecticide applied: 19 June. Combine harvested: 8 Sept. Variety: Maris Bead. Previous crops: Potatoes 1967, winter wheat 1968.

NOTE: Counts of Rhizobium leguminosarum in soil were made in March before sowing and in June from the rhizosphere. Nodules on roots were also counted.

Standard errors per plot. Grain, cwt:
Stackyard (R): 1.04 or 3.5% (15 d.f.)
Horsepool (W): 1.13 or 5.4% (15 d.f.)

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

SUMMARY OF RESULTS

GRAIN:CWT

0	1	2	3	4	5	Mean
			STACKYARD (R)			
			(±0.52)			
30.2	29.9	30.0	30.1	29.6	29.5	29.9

Mean D.M.%: 83.8

			HORSEPOOL (W)			
			(±0.56)			
21.7	20.0	21.6	20.3	20.9	21.8	21.1

Mean D.M.%: 81.2

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SPRING BEANS

(69/R/BE/4 and 69/W/BE/4)

Deep-drilled fertiliser - Rothamsted (R) Little Hoos and Woburn (W) Horsepool 1969.

Design: 4 randomised blocks of 7 plots.

Area of each plot: 0.0193. Area harvested: 5.5 in rows - 0.0133, 21 in rows - 0.0121.

Treatments: All combinations of:-

1. Space between rows of seed:
   5.5 in. (sown by 'Tume' drill) (C),
   21 in. (sown by 'Smythe' drill) (W).
2. Methods of applying fertiliser (0:14:28): Broadcast (B1), injected 3-4 in. deep in rows 5.5 in. apart by 'Tume' drill (D1).

Additional treatments:-

WP1: Seed sown in rows 21 in. apart, with fertiliser placed near seed by 'Smythe' drill.

CD2: Seed in rows 5.5 in. apart (by 'Tume' drill), fertiliser as above plus 1 cwt K20 as muriate of potash all deeply drilled.

WD2: Fertilizer as CD2, but seed sown in rows 21 in. apart (by 'Smythe' drill).

NOTES:
(1). Rate of application of (0:14:28) 400 lb Little Hoos (R), 430 lb Horsepool (W).
(2). On B plots fertiliser was broadcast by the 'Tume' drill, tines in, spouts out, 'crumblers' on.
(3). On plots where seed and fertiliser were both sown by 'Tume' drill the two operations were separate ('crumblers' on both times).
(4). On D2 plots the extra K was applied by the 'Tume' drill in a separate operation ('crumblers' off).
(5). On P plots the 'Tume' drill was used once without fertiliser, tines in, 'crumblers' on.

Basal applications:

Weedkillers: Little Hoos (R): Paraquat at 0.5 lb ion in 25 gals
Simazine at 1 lb in 20 gals.
Horsepool (W): Simazine at 1 lb in 25 gals.

Insecticide: Little Hoos (R): Demeton-s-methyl at 3.5 oz in 37 gals.
Horsepool (W) : Demeton-s-methyl at 3.5 oz in 30 gals.

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

Cultivations, etc.:

Little Hoos (R): Paraquat applied: 11 Oct, 1968. Ploughed: 12 Nov. Fertilisers applied, seed drilled at 200 lb: 25 Mar, 1969. Simazine applied: 27 Mar. Insecticide applied: 21 June. Combine harvested: 5 Sept. Variety: Maris Bead. Previous crops: Spring wheat 1967 and 1968.

Horsepool (W): Ploughed: 2 Dec, 1968. Fertilisers applied, seed drilled at 200 lb: 2 Apr, 1969. Simazine applied: 4 Apr. Insecticide applied: 19 June. Combine harvested: 8 Sept. Variety: Maris Bead. Previous crops: Potatoes 1967, winter wheat 1968.

Standard errors per plot. Grain, cwt:

Little Hoos (R): 1.19 or 5.1% (18 d.f.)

Horsepool (W): 1.20 or 5.9% (18 d.f.)

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

SUMMARY OF RESULTS

GRAIN:CWT

CB1	CD1	CD2	WB1	WD1	WD2	WP1	Mean
			LITTLE HOOS (R)				
			(±0.60)				
22.0	25.5	23.5	21.5	24.3	24.8	22.8	23.5

Mean D.M.%: 83.2

			HORSEPOOL (W)				
			(±0.60)				
19.2	21.4	20.5	19.8	20.7	20.0	21.3	20.4

Mean D.M.%: 81.5

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SPRING BEANS

(69/R/BE/5)

Effects of aphids, Little Hoos 1969.

Design: 5 x 5 Latin square.

Area of each plot: 0.0161. Area harvested: 0.0080.

Treatments: Insecticides:

None	(O)
Sprayed with demeton-s-methyl at 3.5 oz in 50 gals:	
At start of flowering	(SE)
At end of flowering	(SL)
At start and end of flowering	(SEL)
Treated with 17 oz phorate in granules	(G)

Basal applications: 360 lb (0:14:28) placement drilled. Weedkillers: Paraquat at 0.5 lb ion in 25 gals. Simazine at 1 lb in 20 gals.

Cultivations, etc.: Paraquat applied: 11 Oct, 1968. Ploughed: 12 Nov. Seed drilled at 200 lb: 25 Mar, 1969. Simazine applied: 27 Mar. Phorate applied to G plots: 18 June. Demeton-s-methyl applied: E and EL plots: 19 June, EL and L plots: 14 July. Combine harvested: 5 Sept. Variety: Maris Bead. Previous crops: Spring wheat 1967 and 1968.

NOTE: Aphid counts were made once a week throughout the growing season.

Standard error per plot.
Grain, cwt: 1.37 or 6.2% (12 d.f.)

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SUMMARY OF RESULTS

GRAIN: CWT

O	SE	SL	SEL	G	Mean
		(±0.61)			
20.4	22.2	22.2	23.9	22.0	22.2

Mean D.M.%: 82.4

SPRING OILSEED RAPE

(69/R/RA/2)

Seed rates, row spacing, N and chlormequat, Fosters West Side 1969.

Design: A single replicate of 2 x 3 x 3 x 3 in 3 blocks of 18 plots.

Area of each plot: 0.0193. Area harvested: 0.0138.

Treatments: All combinations of:-
1. Seed rate: 5 lb (L), 10 lb (H).
2. Row spacing: 4 (C), 8 (M), 16 (W) inches.
3. Nitrogen: 1.0 (N5), 1.4 (N7), 1.8 (N9) cwt N as 'Nitro-Chalk'.
4. Chlormequat*: None (C0), 1 (C1), 2 (C2) lb chlormequat in 40 gals.

* 2-chloroethyltrimethylammonium chloride (CCC).

Basal applications: 2.5 cwt (0:20:20). Insecticide: Malathion at 18 oz in 37 gals.

Cultivations, etc.: Rotary cultivated twice: 20 Aug and 22 Oct, 1968. Ploughed: 29 Oct. Basal PK applied: 12 Apr, 1969. 'Nitro-Chalk' applied: 15 Apr. Seed drilled: 16 Apr. W treatments hoed with 'Colwood' hoe: 23 Apr. Chlormequat applied: 11 June. Insecticide applied: 18 June. Combine harvested: 27 Aug. Variety: Nilla. Previous crops: Spring wheat 1967, barley 1968.

Standard errors per plot.

Grain (at 90% dry matter), cwt:	2.31 or 13.9% (25 d.f.)
Yield of fixed oil, lb:	97.4 or 14.2% (25 d.f.)

NOTE: Owing to a combine blockage grain was carried over on to plot 52 (H M N5 C1). An estimated value was used in the analysis.

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

SUMMARY OF RESULTS

GRAIN: CWT

	C	M	W	N5	N7	N9	C0	C1	C2	Mean
	(±0.77)			(±0.77)			(±0.77)			(±0.44)
L	17.6	16.3	16.3	17.7	17.4	15.1	16.1	15.9	18.3	16.7
H	18.2	14.8	16.5	17.7	16.9	14.9	16.0	16.7	16.7	16.5
				(±0.94)			(±0.94)			(±0.54)
			C	18.6	18.0	17.1	17.1	17.2	19.3	17.9
			M	16.6	17.5	12.5	16.1	14.6	15.8	15.5
			W	17.9	16.0	15.3	14.8	17.0	17.3	16.4
							(±0.94)			(±0.54)
						N5	17.0	17.5	18.5	17.7
						N7	15.8	17.7	18.0	17.2
						N9	15.3	13.7	15.9	15.0
Mean (±0.54)							16.0	16.3	17.5	16.6

Mean D.M. %: 73.8

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

% FIXED OIL

	C	M	W	N5	N7	N9	C0	C1	C2	Mean
L	39.0	38.9	38.4	39.5	38.7	38.2	38.9	38.7	38.7	38.8
H	39.3	38.8	38.4	39.8	38.9	37.7	38.7	38.8	39.0	38.8
			C	40.2	39.4	37.9	39.1	39.1	39.3	39.2
			M	39.6	38.9	38.0	39.0	38.8	38.7	38.8
			W	39.3	38.2	37.9	38.3	38.5	38.6	38.4
						N5	39.6	39.6	39.8	39.7
						N7	38.9	38.8	38.8	38.8
						N9	37.9	38.0	38.0	37.9
Mean							38.8	38.8	38.9	38.8

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

YIELD OF FIXED OIL: LB

	C	M	W	N5	N7	N9	C0	C1	C2	Mean
		(±32.5)			(±32.5)			(±32.5)		(±18.7)
L	734	675	670	745	721	613	667	657	755	693
H	761	612	674	749	701	598	659	691	697	682
					(±39.8)			(±39.8)		(±23.0)
			C	796	758	689	713	719	811	748
			M	698	724	509	670	606	655	644
			W	747	650	618	607	697	711	672
								(±39.8)		(±23.0)
						N5	719	735	786	747
						N7	654	733	745	711
						N9	617	553	647	605
Mean (±23.0)							663	674	726	688

SPRING OILSEED RAPE

(69/R/RA/3)

Insecticides and beneficial insects, West Barnfield I, 1969.

Design: 3 randomised blocks of 3 plots.

Area of each plot: 0.3214. Area harvested: 0.0459.

Treatments: None (O), azinphos-methyl applied as 27% wettable powder at 6 oz a.i. (A), Endosulfan applied as 35% wettable powder at 7.3 oz a.i. (E) in 60 gals.

Basal applications: 8 cwt (20:10:10) in seedbed. Weedkiller: Paraquat at 0.75 lb ion in 20 gals.

Cultivations, etc.: Paraquat applied: 1 Oct, 1968. Ploughed: 19 Nov. Basal NPK applied: 14 Apr, 1969. Seed drillled at 8 lb: 16 Apr. Insecticides applied: 27 June. Combine harvested: 28 Aug. Variety: Nilla. Previous crops: Winter wheat 1967, barley, 1968.

NOTE: Insect counts were made with a stationary suction sampler and a portable suction sampler. Visual counts were made of insects on flower heads and estimates made of the number of blind stalks.

Standard errors per plot.

Grain, cwt:	0.57 or 2.8% (4 d.f.)
Yields of Fixed oil:	26.6 or 3.2% (4 d.f.)

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

SUMMARY OF RESULTS

O	A	E	Mean
	GRAIN: CWT		
	(±0.33)		
19.9	20.6	21.0	20.5
	% FIXED OIL		
38.7	38.5	38.5	38.6
	YIELD OF FIXED OIL: LB		
	(±15.4)		
821	844	861	842

Mean D.M.%: 77.8

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POTATOES

(69/R/P/1 and 69/W/P/1)

Seed stocks, diseases and fungicide Rothamsted (R), Great Knott III and Woburn (W), Workhouse 1969.

Design: 4 randomised blocks of 12 plots (11 for yield, one for sampling only), plots split into 4.

Area of each sub plot: 0.0036. Area harvested: 0.0036.

Treatments: All combinations of:-

Whole plots: 1. Seed stocks, diseases and fungicide:
F, FC, FCB, H, HC, HCB, HDE, HCOE, HCOL, HCRL, HCORL,
where F = Once grown seed from Rothamsted farm.
H = Healthy seed.
B = Seed treated with fungicide (Benomyl 10% dust and 10 lb per ton of seed).
C = Chitted seed.
O = Seed inoculated with Oospora.
R = Seed inoculated with Rhizoctonia.
E = Early inoculation.
L = Late inoculation.

Quarter plots: 2. Varieties: King Edward (KE), Majestic (M), Pentland Crown (PC), Pentland Dell (PD).

Basal applications:-

Great Knott III (R): 10.5 cwt (13:13:20). Weedkiller: Paraquat at 0.375 lb ion plus 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 second mancozeb spray.

Workhouse (W): 10 cwt (13:13:20). Weedkiller: Paraquat at 0.375 lb ion plus linuron at 0.5 lb in 25 gals. Fungicide: Mancozeb at 1.2 lb in 37 gals on three occasions. Insecticide: Demeton-s-methyl at 3.5 oz applied with first mancozeb spray.

Cultivations, etc:-

Great Knott III (R): Rotary cultivated: 13 - 23 Sept, 1968, and 21 Oct. Ploughed: 30 Dec - 22 Jan, 1969. Basal NPK applied: 10 Apr. Rotary cultivated: 1 May. Potatoes planted: 2 May. Rotary ridged: 5 May. Weedkiller applied: 20 May. Fungicide applied: 16 July, 4 Aug, 21 Aug. Insecticide applied: 4 Aug. Sprayed with undiluted BOV at 15 gals: 26 Sept. Haulm destroyed mechanically: 2 Oct. Lifted: 7 Oct. Previous crops: Barley 1969, spring beans 1968.

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

Workhouse (W): Ploughed: 19 Nov, 1968. Basal NPK applied: 9 Apr, 1969. Rotary cultivated, potatoes planted: 30 Apr. Rotary ridged: 9 May. Weedkiller applied: 15 May. Insecticide applied: 18 July. Fungicide applied: 18 July, 7 Aug, 27 Aug. Sprayed with undiluted BOV at 16 gals: 25 Sept. Lifted: 10 Oct. Previous crops: Barley 1967, spring beans 1968.

NOTE: Samples were taken on 3 occasions for tuber weight and numbers in different sizes. After harvest, estimates were made of tuber infection with Oospora, Rhizoctonia, Helminthosporium and Phoma.

Standard errors per plot. Total tubers, tons:

Great Knott III (R):	Whole plot:	1.008 or 6.2%	(30 d.f.)
	Sub plot:	0.937 or 5.7%	(99 d.f.)
Workhouse (W):	Whole plot:	1.224 or 6.6%	(29 d.f.)
	Sub plot:	1.219 or 6.6%	(95 d.f.)

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

SUMMARY OF RESULTS

GREAT KNOTT III (R)

TOTAL TUBERS: TONS

	KE	M	PC	PD	Mean
		(1) and (2)			(±0.504)
F	13.79	15.64	14.08	13.46	14.24
FC	16.87	16.88	16.13	13.31	15.80
FCB	17.31	16.47	16.23	14.89	16.22
H	14.36	14.22	16.29	13.70	14.64
HC	17.34	16.94	18.93	15.43	17.16
HCB	17.20	17.80	17.46	15.84	17.08
HOE	15.78	15.21	16.78	14.56	15.58
HCOE	16.87	18.69	18.99	16.28	17.71
HCOL	17.47	16.47	18.71	14.61	16.82
HCRL	17.03	17.76	19.46	15.30	17.39
HCORL	17.89	16.63	18.71	14.39	16.90
Mean (±0.141)	16.54	16.61	17.43	14.71	16.32

(1) (±0.647) For use in vertical and diagonal comparisons only
(2) (±0.468) For use in horizontal and interaction comparisons only

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

GREAT KNOTT III (R)

% WARE (1.7 IN. RIDDLE)

	KE	M	PC	PD	Mean
F	76.2	80.8	92.0	66.7	78.9
FC	79.1	88.9	92.1	88.9	87.3
FCB	72.2	85.0	92.2	86.0	83.8
H	77.2	84.6	91.5	81.5	83.7
HC	78.2	89.2	94.4	89.3	87.8
HCB	67.3	87.1	94.6	87.3	84.1
HOE	73.5	80.8	90.8	82.6	81.9
HCOE	77.0	89.5	94.3	87.2	87.0
HCOL	79.9	89.1	95.4	89.5	88.5
HCRL	79.9	89.1	93.9	88.3	87.8
HCORL	81.7	89.1	95.3	91.2	89.3
Mean	76.6	86.7	93.3	85.3	85.5

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

WORKHOUSE (W)

TOTAL TUBERS: TONS

	KE	M	PC	PD	Mean
		(1) and (2)			(±0.612)
F	15.72	18.68	15.54	15.15	16.27
FC	17.64	19.11	19.44	16.12	18.08
FCB	18.20	19.20	20.85	16.36	18.65
H	16.10	16.19	19.96	15.09	16.83
HC	18.24	19.50	22.55	17.63	19.48
HCB	17.32	19.69	22.05	16.49	18.89
HCE	17.14	17.98	21.96	16.17	18.31
HCOE	18.97	19.60	22.89	18.03	19.87
HCOL	17.73	19.76	22.63	17.14	19.31
HCRL	18.06	19.38	21.91	17.10	19.11
HCORL	17.60	19.33	21.85	17.85	19.16
Mean (±0.184)	17.52	18.95	21.06	16.65	18.84

(1) (±0.808) For use in vertical and diagonal comparisons only
(2) (±0.609) For use in horizontal and interaction comparisons only

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

WORKHOUSE (W)

% WARE (1.75 IN. RIDDLE)

	KE	M	PC	PD	Mean
F	79.6	85.4	92.5	81.5	84.8
FC	83.7	90.0	94.4	93.2	90.3
FCB	86.2	87.6	95.0	89.5	89.6
H	80.3	85.7	91.9	82.7	85.2
HC	83.2	89.7	94.5	91.7	89.8
HCB	82.5	89.6	94.2	89.2	88.9
HOE	78.0	85.0	90.7	84.4	84.5
HCOE	82.7	86.3	93.5	90.5	88.3
HCOL	83.8	90.0	95.3	92.0	90.3
HCRL	84.7	90.3	94.7	92.0	90.4
HCORL	84.9	90.2	94.8	92.6	90.6
Mean	82.7	88.2	93.8	89.0	88.4

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

POTATOES

(69/R/P/2)

Chemicals and seed-borne fungi, Great Knott III 1969.

Design: 4 randomised blocks of 16 plots.

Area of each plot: 0.0036. Area harvested: 0.0036.

Treatments: All combinations of:-

1. Seed treatment with chemicals: Benomyl powder (B), thiabendazole powder (T).
2. Rates of application (R1, R2 and R3 as below): Diluted with kaolin dust to give:-
   - B treatment: 1% (1), 10% (2), 30% (3) a.i.
   - T treatment: 0.1% (1), 1.0% (2), 10% (3) a.i.
3. Time of application: 13 Feb, 1969 (E), 18 Apr (L).

Together with additional seed treatments:

None	(O)
Demosan powder, diluted with kaolin dust to give 10% a.i. Applied on 18 Apr.	(DL)
Agallol, 0.5% solution as 1 minute dip in autumn	(A)
Kaolin dust, applied on 18 Apr.	(KL)

NOTE: All dust treatments were at 10 lb per ton of seed potatoes.

Basal applications: 10.5 cwt (13:13:20). Weedkiller: Paraquat at 0.375 lb ion plus 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 spray of mancozeb.

Cultivations, etc: Rotary cultivated twice: 13-23 Sept, 21 Oct, 1968. Ploughed: 30 Dec-22 Jan, 1969. Basal NPK applied: 10 Apr. Plots rotary cultivated, potatoes machine planted: 21 Apr. Weedkiller applied: 20 May. Insecticide applied: 16 July. Fungicide applied: 16 July, 4 Aug, 21 Aug. Sprayed with undiluted BOV at 15 gals: 26 Sept. Haulm destroyed mechanically: 2 Oct. Lifted: 7 Oct. Variety: King Edward. Previous crops: Barley 1967, spring beans 1968.

Standard error per plot.
Total tubers, tons: 1.226 or 8.5% (33 d.f.)

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

SUMMARY OF RESULTS

TOTAL TUBERS: TONS

	R1	R2	R3	E	L	Mean
		(±0.434)		(±0.354)		(±0.250)
B	15.74	15.22	13.94	15.98	13.95	14.97
T	14.55	14.14	12.89	15.67	12.06	13.86
				(±0.434)		(±0.307)
R1				16.39	13.89	15.14
R2				15.73	13.63	14.68
R3				15.36	11.48	13.42
Mean (±0.250)				15.83	13.00	14.41

	B		T	
	E	L	E	L
		(±0.613)		
R1	17.00	14.47	15.78	13.31
R2	15.96	14.48	15.51	12.78
R3	14.99	12.89	15.72	10.07

O	16.58	
DL	10.51	
A	15.91	(±0.613)
KL	14.26	

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

% WARE

	R1	R2	R3	E	L	Mean
B	68.6	68.1	64.1	68.4	65.4	66.9
T	72.5	72.6	70.5	73.1	70.7	71.9
R1				70.1	71.0	70.5
R2				71.9	68.8	70.4
R3				70.3	64.3	67.3
Mean				70.8	68.0	69.4

	B		T	
	E	L	E	L
R1	68.9	68.3	71.3	73.7
R2	70.1	66.1	73.8	71.5
R3	66.3	61.9	74.2	66.8

O	79.6
DL	70.7
A	69.0
KL	73.1

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

POTATOES

(69/W/P/2)

Nematodes and verticillium - Woburn Broadmead I 1969.

Design: 4 randomised blocks of 6 plots.

Area of each plot: 0.0094. Area harvested: 0.0047.

Treatments:
Chemicals and wheelmarks: None (OO), methyl bromide at 870 lb, with wheelmarks on 3 occasions (MW), methyl bromide at 870 lb, without wheelmarks (MO), temik at 60 lb a.i., without wheelmarks (TO), benomyl at 10 lb of 50% wettable powder per ton of seed, without wheelmarks (BO), wheelmarks on 3 occasions (OW).

Basal applications: 10 cwt (13:13:20), 5 cwt Epsom salts. Weedkiller: Paraquat at 0.5 lb ion plus linuron at 0.5 lb in 25 gals.
Fungicide: Mancozeb at 1.2 lb in 37 gals on 3 occasions.
Insecticide: Demeton-s-methyl at 3.5 oz in 37 gals on one occasion with fungicide.

Cultivations, etc.: Ploughed: 20 Nov, 1968. NPK applied: 8 Apr, 1969. Mg applied, methyl bromide applied under gas tight sheet: 9 Apr. Gas tight sheet removed: 14 Apr. Rotary cultivated, potatoes planted: 25 Apr. Weedkiller applied: 15 May. Wheelmarks applied to MW and W plots: 12 June. Grubbed, rotary ridged MW and W plots only: 18 June. Wheelmarks applied to MW and W plots: 14 July. Fungicide applied: 18 July, 6 Aug, 27 Aug. Insecticide applied: 18 July. Lifted: 24 Sept. Variety: King Edward.

NOTE: Plant samples were taken for Heterodera rostochiensis cyst counts in June.

Standard error per plot.
Total tubers, tons: 1.751 or 13.1% (15 d.f.)

https://doi.org/10.23637/ERADOC-1-96 *pp 308*

SUMMARY OF RESULTS

OO	MW	MO	TO	BO	OW	Mean
			TOTAL TUBERS: TONS			
			(±0.876)			
9.95	17.76	17.66	14.23	10.44	9.97	13.34
			% WARE			
83.7	83.8	84.7	79.2	80.8	83.9	82.7

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

POTATOES

(69/W/P/3)

Verticillium, varieties and CCC - Woburn Broadmead I (diseased site) and Workhouse (healthy site) 1969.

Design: 3 blocks of 2 plots split into 4.

Area of each sub plot: 0.0021. Area harvested: Broadmead I - 0.0019
Workhouse - 0.0021.

Treatments: All combinations of:-
Whole plots: 1. CCC: None (0), soil drench at 15 lb CCC (chlormequat) (S).
Sub plots: 2. Varieties: King Edward (KE), Majestic (M), Maris Piper (MP), Pentland Crown (PC).

Basal applications: 10 cwt (13:13:20). Weedkiller: Paraquat at 0.5 lb ion plus linuron at 0.5 lb in 25 gals (Broadmead I), paraquat at 0.37 lb ion plus linuron at 0.5 lb in 25 gals (Workhouse). Fungicide: Mancozeb at 1.2 lb in 37 gals on 3 occasions. Insecticide: Demeton-s-methyl at 3.5 oz in 37 gals on one occasion with fungicide.

Cultivations, etc.:
Broadmead I: Ploughed: 12 Dec, 1968. NPK applied: 8 Apr, 1969. Rotary cultivated: 30 Apr. Potatoes planted: 1 May. Rotary ridged: 10 May. Weedkiller applied: 15 May. CCC applied: 5 June. Fungicide applied: 19 July, 6 Aug, 27 Aug. Insecticide applied: 19 July. Sprayed with undiluted BOV at 16 gals: 25 Sept. Lifted: 6 Oct. Previous crops: Spring beans 1967, winter wheat 1968.
Workhouse : Ploughed: 20 Nov, 1968. NPK applied: 9 Apr, 1969. Rotary cultivated: 30 Apr. Potatoes planted: 1 May. Rotary ridged: 9 May. Weedkiller applied: 15 May. CCC applied: 5 June. Fungicide applied: 18 July, 7 Aug, 27 Aug. Insecticide applied: 18 July. Sprayed with undiluted BOV at 16 gals: 25 Sept. Lifted: 6 Oct. Previous crops: Barley 1967, spring beans 1968.

NOTE: Plant samples were taken in August for assessment of Verticillium wilt.

Standard errors per plot. Total tubers, tons:
Broadmead I: Sub plot: 0.795 or 6.5% (12 d.f.)
Workhouse: Sub plot: 1.651 or 8.5% (12 d.f.)

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SUMMARY OF RESULTS

BROADMEAD I

	KE	M	MP	PC	Mean
		TOTAL TUBERS			
		(±0.459)*			
O	11.42	11.25	10.46	17.07	12.55
S	11.62	10.28	11.07	14.91	11.97
Mean (±0.325)	11.52	10.76	10.76	15.99	12.26
		% WARE			
O	81.2	93.0	91.9	96.4	90.6
S	82.2	91.9	94.0	95.9	91.0
Mean	81.7	92.5	92.9	96.1	90.8

* For use in horizontal and interaction comparisons only

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

WORKHOUSE

	KE	M	MP	PC	Mean
TOTAL TUBERS					
		(±0.953)*			
O	19.70	18.02	16.84	22.72	19.32
S	19.14	17.96	20.06	20.79	19.49
Mean (±0.674)	19.42	17.99	18.45	21.76	19.40
% WARE					
O	95.6	96.6	96.1	98.0	96.6
S	95.6	97.0	97.2	98.5	97.1
Mean	95.6	96.8	96.6	98.3	96.8

* For use in horizontal and interaction comparisons only

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

POTATOES

(69/W/P/4)

Chemicals and scab - Woburn Gt Hill Bottom I, 1969.

Design: 5 blocks of 6 plots.

Area of each plot: 0.0043. Area harvested: 0.0021.

Treatments:
Chemicals: None (O), 'N-Serve' to sulphate of ammonia 2.9 lb, 2% of the N (N), folpet 70 lb a.i. as 20% dust (F), quintozene 70 lb a.i. as 20% dust (Q), thiram 70 lb a.i. as 15% dust (T), zineb 70 lb a.i. as 15% dust (Z).

Basal applications: 8.5 cwt (0:14:28), 6 cwt sulphate of ammonia. 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 on 3 occasions. Insecticide: Demeton-s-methyl at 3.5 oz in 37 gals on one occasion.

Cultivations, etc.: Ploughed: 3 - 30 Jan, 1969. PK Broadcast: 14 Apr. N applied, treatments applied, rotary ridged, potatoes planted: 18 Apr. Weedkiller applied: 15 May. Rotary ridged:17 June. Fungicide applied: 19 July, 7 Aug, 27 Aug. Insecticide applied: 19 July. Sprayed with undiluted BOV at 16 gals: 25 Sept. Lifted: 3 Oct. Variety: Maris Piper. Previous crops: Green manures 1967, sugar beet, barley 1968.

NOTE: Soil samples were taken for residues of quintozene.

Standard error per plot.
Total tubers, tons: 1.393 or 7.4% (20 d.f.)

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

SUMMARY OF RESULTS

O	N	F	Q	T	Z	Mean
			TOTAL TUBERS: TONS			
			(±0.623)			
18.73	16.60	19.85	19.32	19.81	19.39	18.95
			% WARE			
97.0	95.2	96.8	97.3	96.9	97.3	96.8

POTATOES

(69/R/P/6)

Blight reference plots, Long Hoos V 1969.

Design: 4 randomised blocks of 3 plots.

Area of each plot: 0.0071. Area harvested: 0.0067.

Treatments: Fungicide spray:-

None	(O)
Sprayed with mancozeb at 1.2 lb in 37 gals on 3 occasions	(F)
Sprayed with mancozeb as above, plots used for sampling	(FS)

Basal applications: 10 cwt (13:13:20). Weedkiller: Paraquat at 0.375 lb ion plus linuron at 0.75 lb in 37 gals.

Cultivations, etc.: Ploughed: 23 Oct, 1968. Basal NPK applied: 14 Apr, 1969. Rotary cultivated, potatoes machine planted: 18 Apr. Weedkiller applied: 13 May. Grubbed: 18 June. Earthed up: 27 June. Mancozeb applied: 16 July, 4 Aug, 21 Aug. Sprayed with undiluted BOV at 15 gals: 5 Sept. Haulm destroyed mechanically: 17 Sept. Lifted: 24 Sept. Variety: King Edward. Previous crops: Spring wheat 1967, oilseed rape 1968.

NOTE: No blighted tubers were found.

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

SUMMARY OF RESULTS

O	F	Mean
TOTAL TUBERS:TONS		
15.57	15.38	15.48
% WARE		
94.0	94.2	94.1

POTATOES

(69/W/P/6)

Deeply injected fertiliser - Woburn Stackyard C 1969.

Design: 3 blocks of 10 plots.

Area of each plot: 0.0022. Area harvested: 0.0022.

Treatments: FYM, fertilisers and methods of application:
F2D, F4D, F2DS, F4DS, F2S, F4S, D2, D4, D2F2S, D4F2S where
D2: D4 = 15: 30 tons FYM dug in
F2: F4 = 2.0 cwt N, 3.0 cwt P_2O_5, 3.0 cwt K_2O, 4.0 cwt N, 6.0 cwt P_2O_5, 6.0 cwt K_2O as 'Nitro-Chalk' 21% N and compound fertiliser (0:20:20).
DE: S: DES = Applied deeply: shallowly: half deeply and half shallowly.

Basal applications: 3 tons ground chalk, 5 cwt kieserite. Insecticides: Malathion at 0.6 pts in 50 gals. Dimethoate at 0.3 lb in 40 gals on two occasions with fungicide. Fungicide: Fentin hydroxide at 0.07 lb plus maneb at 0.53 lb in 40 gals on two occasions with dimethoate, fentin hydroxide at 0.1 lb plus maneb at 0.8 lb in 40 gals on one occasion.

Cultivations, etc.: Ploughed: 7 Feb, 1969. Ground chalk, FYM and deeply applied PK applied and dug in: 6 Mar. Deep N applied and rotary cultivated, shallow N, PK, basal Mg applied and raked in, potatoes planted: 15 Apr. Ridged: 16 Apr. Earthed up, malathion applied: 12 June. Dimethoate and fungicide applied: 2 July, 16 July. Fungicide applied: 21 Aug. Lifted: 1 Oct. Variety: King Edward. Previous crops: Spring wheat 1967, fallow 1968.

Standard error per plot.
Total tubers, tons: 1.270 or 6.3% (18 d.f.)

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

SUMMARY OF RESULTS

	TOTAL TUBERS, TONS	% WARE
	(±0.733)	
F2 DE	20.28	81.8
F4 DE	24.37	86.0
F2 DES	20.94	83.2
F4 DES	21.21	88.3
F2 S	20.34	82.7
F4 S	17.42	85.3
D2	14.89	80.8
D4	16.59	81.1
D2F2 S	22.14	85.9
D4F2 S	23.14	86.6
Mean	20.13	84.2

POTATOES

(69/R/P/7)

Comparison of fungicides - Long Hoos V 1969.

Design: 6 x 6 Latin square.

Area of each plot: 0.0129. Area harvested: 0.0043.

Treatments:

No fungicide	(O)
Fentin acetate at 0.3 lb plus maneb at 0.1 lb	(A)
Fentin acetate at 0.1 lb plus maneb at 0.03 lb	(B)
Fentin acetate at 0.1 lb plus maneb at 0.03 lb plus 10 lb wax	(C)
Dibutyltin acetate at 0.7 lb a.i.	(D)
Fentin sulphide at 0.35 lb a.i.	(E)

All the fungicides were applied in 70 gals.

Basal applications: 10 cwt (13:13:20). Weedkiller: Paraquat at 0.375 lb ion plus linuron at 0.75 lb in 37 gals.

Cultivations, etc.: Ploughed: 23 Oct, 1968. Basal NPK applied: 14 Apr, 1969. All plots rotary cultivated, potatoes machine planted: 18 Apr. Weedkiller applied: 13 May. Grubbed: 18 June. Earthed up: 27 June. Fungicide sprays applied: 22 July. Sprayed with undiluted BOV at 15 gals: 5 Sept. Haulm destroyed mechanically: 17 Sept. Lifted: 24 Sept. Variety: King Edward. Previous crops: Winter wheat 1967, oilseed rape 1968.

Standard error per plot.
Total tubers, tons: 0.487 or 3.2% (20 d.f.)

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SUMMARY OF RESULTS

O	A	B	C	D	E	Mean
			TOTAL TUBERS, TONS			
			(±0.199)			
15.53	15.22	15.77	14.83	15.18	15.68	15.37
			% WARE			
95.1	94.4	94.5	94.9	94.4	95.1	94.8

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

POTATOES

(69/R/P/8)

Growth regulators, Great Knott III 1969.

Design: 4 randomised blocks of 7 plots.

Area of each plot: 0.0214. Area harvested: 0.0027.

Treatments: Growth regulators (in lb active ingredient in 40 gals):-

None		(O)
B-nine	2.0	(B)
Chlormequat	2.0	(C)
Ethrel	0.3	(E1)
Ethrel	1.0	(E2)
Morphactin	0.05	(M1)
Morphactin	0.01	(M2)

(Note rate M2 was less than rate M1)

Basal applications: 10.5 cwt (13:13:20). Weedkiller: Paraquat at 0.375 lb ion plus 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 mancozeb spray.

Cultivations, etc.: Rotary cultivated twice: 13-23 Sept, 1968 and 21 Oct. Ploughed: 30 Dec-22 Jan, 1969. Basal NPK applied: 10 Apr. All plots rotary cultivated, potatoes machine planted: 18 Apr. Weedkiller applied: 13 May. Grubbed: 19 June. Growth regulators applied: 25 June. Earthed up: 27 June. Insecticide applied: 16 July. Fungicide applied: 16 July, 4 Aug, 21 Aug. Sprayed with undiluted BOV at 15 gals: 26 Sept. Haulm destroyed mechanically: 2 Oct. Lifted: 8 Oct. Variety: King Edward. Previous crops: Barley 1967, spring beans 1968.

NOTE: From July 17, 6 plants were taken from each plot every 3 weeks, for estimates of tuber number and size, leaf area and dry weights.

Standard error per plot.
Total tubers, tons: 1.217 or 7.7% (18 d.f.)

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

SUMMARY OF RESULTS

O	B	C	E1	E2	M1	M2	Mean
			TOTAL TUBERS: TONS				
			(±0.608)				
17.01	17.09	17.10	15.08	14.39	14.96	14.99	15.80
			% WARE				
93.5	89.3	93.7	90.3	83.5	92.7	93.5	90.9

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

WINTER OATS

(69/R/O/1)

Growth regulators X N, Fosters O and E VI 1969.

Design: 3 randomised blocks of 15 plots.

Area of each plot: 0.0036. Area harvested: 0.0019.

Treatments: All combinations of:-

1. Growth regulators: None (0), ethrel at 1.2 lb (E1), at 2.4 lb (E2), morphactin at 0.005 lb (M1), at 0.05 lb (M2). Each spray was applied in 30 gals.
2. Nitrogen: 0.5 (N1), 1.0 (N2), 1.5 (N3) cwt as 'Nitro-Chalk' top-dressed in spring.

Basal applications: 300 lb (0:20:20) broadcast by drill at sowing. Weedkillers: Paraquat at 0.5 lb ion in 25 gals. Mecoprop at 42 oz and 2,4-D at 10.5 oz in 30 gals.

Cultivations, etc.: Paraquat applied: 18 Oct, 1968. Ploughed: 22 Oct. Rotary cultivated, seed drilled at 300 lb: 23 Oct. 'Nitro-Chalk' applied: 29 Apr, 1969. Mecoprop/2,4-D applied: 12 May. Growth regulators applied: 14 May. Combine harvested: 21 Aug. Variety: Maris Quest. Previous crops: Potatoes 1967, barley and oats 1968.

NOTE: Samples were taken at harvest for components of yield.

Standard error per plot.
Grain, cwt: 3.92 or 7.4% (27 d.f.)

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

SUMMARY OF RESULTS

GRAIN: CWT

	0	E1	E2	M1	M2	Mean
			(±2.26)			(±1.01)
N1	52.1	55.8	54.7	57.3	56.2	55.2
N2	53.1	56.3	51.4	55.2	56.6	54.5
N3	50.4	52.9	49.1	50.4	45.2	49.6
Mean (±1.31)	51.9	55.0	51.7	54.3	52.7	53.1

Mean D.M. %: 82.1

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

GRASS

(69/R/G/1)

Anhydrous and aqueous ammonia, Appletree 1969.

Design: 3 randomised blocks of 26 plots.

Area of each plot: 0.0092. Area harvested: 0.0054.

Treatments: None (N0) (2 plots per block) and all combinations of:-

1. Nitrogen fertiliser and time of application:
   - Applied in autumn:
     - Injected anhydrous ammonia (14 Nov) — IAA
     - Injected aqueous ammonia (13 Nov) — IQA
   - Applied in spring:
     - Injected anhydrous ammonia (28 Mar) — IAS
     - Injected aqueous ammonia (24 Mar) — IQS
   - Broadcast 'Nitro-Chalk':
     - Applied in 3 equal dressings — BD
     - Applied as single dressing — BS
2. N: 1 (N1), 2 (N2), 3 (N3), 4 (N4) cwt (total for the season).

Standard applications: 8.25 cwt (0:14:28) in winter. Weedkiller: Applied to block I and spot-sprayed on docks and nettles in blocks II and III - 2,4-D ('Dicotox' at 6 pints in 40 gals).

Cultivations, etc.: Basal PK compound applied: 15 Nov, 1968. 'Nitro-Chalk' applied (treatment BS and first dressing of BD): 24 Mar, 1969. Weedkiller applied: 28 Apr. Cut 3 times: 4 June, 6 Aug, 15 Oct. 'Nitro-Chalk' applied after first 2 cuts for BD treatment.

NOTES: (1) Grass samples were taken to determine dry matter and percentage of N, P and K. Percentage of Mg was determined in some samples.

(2) Growth of grass in summer showed that the anhydrous ammonia injector did not function properly in autumn and yields from this treatment have been omitted.

Standard errors per plot. Grass, dry matter, cwt.

1st cut:	2.40 or 6.2% (38 d.f.)
2nd cut:	2.36 or 9.1% (38 d.f.)
3rd cut:	0.82 or 14.4% (38 d.f.)
Total of 3 cuts:	3.34 or 4.7% (38 d.f.)

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

SUMMARY OF RESULTS

DRY MATTER: CWT

	IQA	IAS	IQS	BD	BS	Mean
			1ST CUT			
			(±1.38)			(±0.62)
N1	41.2	37.0	40.6	33.9	39.5	38.5
N2	38.6	36.9	39.0	39.4	39.0	38.6
N3	42.6	38.2	40.5	39.4	37.6	39.7
N4	40.9	37.1	40.2	40.9	37.0	39.2
Mean (±0.69)	40.8	37.3	40.1	38.4	38.3	39.0

NO: 19.8 (±0.98)

General mean (Excl IAA): 37.3

Mean D.M. %: 15.0
(All plots)

			2ND CUT			
			(±1.36)			(±0.61)
N1	14.9	18.5	17.9	23.2	16.0	18.1
N2	24.8	21.2	27.5	29.3	28.8	26.3
N3	28.7	23.1	31.4	31.9	31.5	29.3
N4	27.5	30.5	30.2	27.1	32.3	29.5
Mean (±0.68)	24.0	23.3	26.7	27.9	27.1	25.8

NO: 10.9 (±0.96)

General mean (Excl IAA): 24.4

Mean D.M. %: 21.8
(All plots)

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

DRY MATTER: CWT

	IQA	IAS	IQS	BD	BS	Mean
			3RD CUT			
			(±0.48)			(±0.21)
N1	2.0	1.9	1.8	8.5	2.0	3.2
N2	2.4	2.2	3.2	12.2	3.4	4.7
N3	5.9	3.6	5.3	11.9	5.7	6.5
N4	9.5	5.7	9.4	9.5	8.3	8.5
Mean (±0.24)	5.0	3.3	4.9	10.5	4.9	5.7

N0: 1.5 (±0.33)

General mean (Excl IAA): 5.3

Mean D.M. %: 27.4
(All plots)

TOTAL OF 3 CUTS

			(±1.93)			(±0.86)
N1	58.2	57.4	60.3	65.6	57.4	59.8
N2	65.8	60.3	69.8	81.0	71.3	69.6
N3	77.2	64.8	77.1	83.1	74.8	75.4
N4	77.9	73.3	79.8	77.5	77.6	77.2
Mean (±0.97)	69.8	63.9	71.8	86.8	70.3	70.5

N0: 32.2 (±1.36)

General mean (Excl IAA): 67.0

Mean D.M. %: 21.4
(All plots)

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SWEET CORN

(69/G/SC/1)

Seed spacing, phorate and nitrogen - Garden Plots.

Design: 2 blocks of 8 plots, split into 6.

Area of each sub plot: 0.0024. Area harvested: 0.0008.

Treatments: All combinations of:-
Whole plots: 1. Seed spacing: 3 in. (3), 6 in. (6), 12 in. (12), 18 in. (18) in rows 2 feet apart.
2. Phorate: None (0), phorate applied at 1.5 lb a.i. in rows, close to seed (P).
Sub plots: 3. Nitrogen: 0.75 (N1), 1.50 (N2), 3.00 (N4) cwt N as 'Nitro-Chalk'.
4. Time of application of N: All in seedbed (S1), half in seedbed plus half at tasselling (S2).

Basal applications: 1120 lb (0:14:28) broadcast before ploughing.
Weedkiller: Atrazine at 1.5 lb in 30 gals.

Cultivations, etc.: Basal PK applied: 18 Nov, 1968. Ploughed: 10 Dec. Seed sown by seed-spacing drill, phorate applied: 21 May, 1969. N applied: 10 June and 1 Aug. Basal irrigation applied at 1 inch: 11 June. Weedkiller applied: 16 June. Cobs harvested: 24 Sept. Variety: Early King. Previous crops: Fallow 1967, wheat and barley 1968.

NOTE: Cobs were separated into 3 grades:
1. Large saleable, 2. small saleable, 3. unsaleable.
Cobs in saleable grades were counted, and all grades weighed.

Standard errors per plot.
Saleable cobs, cwt: Whole plot: 7.11 or 7.2% (7 d.f.)
Sub plot: 14.68 or 14.9% (39 d.f.)
Number of saleable cobs, thousands:
Whole plot: 1.32 or 5.8% (7 d.f.)
Sub plot: 3.83 or 17.0% (39 d.f.)

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SUMMARY OF RESULTS

TOTAL SALEABLE COBS: CWT

	3	6	12	18	Mean
		(±5.03)			(±2.51)
O	110.6	103.6	84.9	66.8	91.5
P	119.2	125.9	107.0	69.3	105.3
		(1) and (2)			(±2.60)
N1	115.5	110.5	108.4	64.6	99.7
N2	117.2	119.1	88.2	74.3	99.7
N4	112.1	114.7	91.2	65.4	95.8
		(3) and (4)			(±2.12)
S1	115.9	114.8	96.1	60.8	96.9
S2	114.0	114.7	95.8	75.4	100.0
Mean(±3.56)	114.9	114.7	95.9	68.1	98.4

(1) (±5.53) (3) (±4.65) For use in horizontal and diagonal comparisons only

(2) (±5.19) (4) (±4.24) For use in vertical and interaction comparisons only

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NUMBER OF SALEABLE COBS: THOUSANDS

	3	6	12	18	Mean
			(±0.93)		(±0.47)
O	28.3	24.4	17.9	15.1	21.5
P	31.9	26.6	20.8	15.0	23.6
			(1) and (2)		(±0.68)
N1	31.5	24.0	22.1	15.0	23.1
N2	30.6	26.6	18.1	15.4	22.7
N4	28.4	25.9	17.8	14.8	21.7
			(3) and (4)		(±0.55)
S1	30.3	25.5	20.2	13.4	22.3
S2	30.0	25.5	18.6	16.7	22.7
Mean(±0.66)	38.1	25.5	19.4	15.1	22.5

(1) (±1.29) (3) (±1.02) For use in horizontal and diagonal comparisons only

(2) (±1.35) (4) (±1.11) For use in vertical and interaction comparisons only

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INOCULA AND N

(69/R/M/2 and 69/W/M/2)

Beans and spring wheat - Rothamsted (R) Stackyard and Woburn (W) Horsepool.

Design: 4 blocks of 4 plots split into 4 sub plots with confounding.

Area of each sub plot: 0.0011. Area harvested Stackyard (R): 0.0003.
Horsepool (W): 0.0003.

Treatments: All combinations of:-

Whole plots: 1. Beans, seed inoculum (Rhizobium leguminosarum): None (O), ineffective strain 1019 (I), effective strain 1038 (E). Spring wheat (SW).

Sub plots: 2. Fertiliser: Unmanured (U), 360 lb of compound fertiliser (0:14:28) plus 1 ton ground chalk Stackyard (R) 1.5 tons Horsepool (W), (M).

3. Nitrogen: None (0), 1.0 (N1), 2.0 (N2), 3.0 (N3) cwt N as 'Nitro-Chalk', half in the seedbed, and half top dressed.

Standard applications: Weedkiller: Simazine to beans at 1 lb in 40 gals.
Insecticide: Dimethoate to beans at 0.4 fl oz in 3 gals.

Cultivations, etc.:

Stackyard (R): Ploughed: 25 Oct, 1968. Ground chalk, PK and first half N applied: 27 Mar, 1969. Beans drilled at 200 lb, spring wheat drilled at 180 lb: 2 Apr. Weedkiller applied: 11 Apr. Remaining half N applied: 5 May. First harvest: 7 July. Insecticide applied: 30 July. Second harvest: 4 Aug. Varieties: Spring beans - Tarvin, spring wheat - Kolibri. Previous crops: Barley 1967, fallow 1968.

Horsepool (W): Ploughed: 4 Dec, 1968. Ground chalk, PK, and first half N applied: 8 Apr, 1969. Beans drilled at 200 lb, spring wheat drilled at 180 lb: 9 Apr. Weedkiller applied: 11 Apr. Remaining half N applied: 8 May. First harvest: 8 July. Insecticide applied: 30 July. Second harvest: 7 Aug. Varieties: Spring beans - Tarvin, spring wheat - Kolibri. Previous crops: Potatoes 1967, winter wheat 1968.

NOTES: (1) Soil samples were taken for pH determination in February, and Rhizobium counts in February and June.
(2) Grain yields were not taken - separate part plots were harvested green on two occasions.
(3) Dry matter and % N determinations were made on crop produce.

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Standard errors per plot: Dry matter, cwt:

Stackyard (R):	1st cut:	Whole plot:	1.22 or 3.2% (6 d.f.)
		Sub plot:	5.20 or 13.4% (24 d.f.)
	2nd cut:	Whole plot:	5.33 or 9.3% (6 d.f.)
		Sub plot:	6.76 or 11.8% (24 d.f.)
Horsepool (W):	1st cut:	Whole plot:	3.66 or 7.6% (6 d.f.)
		Sub plot:	5.88 or 12.3% (24 d.f.)
	2nd cut:	Whole plot:	5.04 or 7.5% (6 d.f.)

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

SUMMARY OF RESULTS

STACKYARD (R)

DRY MATTER: CWT

	O	I	E	SW	Mean
		1ST CUT			
		(1) and (2)			(±0.92)
U	27.4	24.9	27.0	70.3	37.4
M	29.2	28.1	24.0	78.8	40.0
		(3) and (4)			(±1.30)
N0	29.4	23.7	24.5	47.4	31.2
N1	28.1	27.9	25.9	80.5	40.6
N2	27.0	26.5	26.1	84.8	41.1
N3	28.8	28.0	25.3	85.6	41.9
Mean (±0.61)	28.3	26.5	25.5	74.6	38.7

(1) (±1.44) (3) (±2.33) For use in horizontal and diagonal comparisons only

(2) (±1.84) (4) (±2.60) For use in vertical and interaction comparisons only

Mean D.M. %: 18.7

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STACKYARD (R)

DRY MATTER: CWT

	O	I	E	SW	Mean
		2ND CUT			
		(1) and (2)			(±1.19)
U	47.7	42.2	40.5	101.1	57.9
M	39.7	43.9	40.8	102.7	56.8
		(3) and (4)			(±1.69)
N0	41.8	35.6	39.6	74.5	47.9
N1	46.3	47.0	41.6	111.8	61.6
N2	42.9	48.7	39.5	105.6	59.2
N3	43.9	40.9	42.0	115.7	60.6
Mean (±2.67)	43.7	43.1	40.7	101.9	57.3

(1) (±3.16) (3) (±3.96) For use in horizontal and diagonal comparisons only

(2) (±2.39) (4) (±3.38) For use in vertical and interaction comparisons only

Mean D.M. %: 26.8

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HORSEPOOL (W)

DRY MATTER: CWT

	O	I	E	SW	Mean
		1ST CUT			
		(1) and (2)			(±1.04)
U	38.3	38.4	37.6	74.2	47.1
M	39.7	39.6	37.2	78.7	48.8
		(3) and (4)			(±1.47)
NO	35.8	36.9	35.0	59.4	41.8
N1	43.4	41.0	36.4	80.5	50.3
N2	37.0	37.1	38.2	82.2	48.6
N3	39.8	41.0	40.1	84.0	51.2
Mean (±1.83)	39.0	39.0	37.4	76.5	48.0

(1) (±2.35) (3) (±3.14) For use in horizontal and diagonal comparisons only

(2) (±2.08) (4) (±2.94) For use in vertical and interaction comparisons only

Mean D.M. %: 18.5

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HORSEPOOL (W)

DRY MATTER: CWT

	O	I	E	SW	Mean
		2ND CUT			
		(1) and (2)			(±1.29)
U	60.8	60.2	58.1	87.2	66.6
M	60.5	57.9	56.0	97.4	67.9
		(3) and (4)			(±1.83)
N0	56.3	58.8	52.3	65.2	58.2
N1	65.0	61.1	56.4	97.4	70.0
N2	59.2	60.9	59.7	93.5	68.3
N3	62.3	55.3	59.6	113.1	72.6
Mean (±2.52)	60.7	59.0	57.0	92.3	67.3

(1) (±3.11) (3) (±4.05) For use in horizontal and diagonal comparisons only

(2) (±2.58) (4) (±3.65) For use in vertical and interaction comparisons only

Mean D.M. %: 30.8

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METEOROLOGICAL RECORDS 1969 - ROTHAMSTED

(Departure from long-period means in brackets)

Month	Total sunshine: hours	Mean temperature: °F Air(1)	Dew point	In ground 1 ft.	4ft.	Ground(2) frosts	Total rainfall:in. 1/1000 acre gauge	Rain(3) days	Drain-age through 20 in. soil:in.	Wind(4) m.p.h.
Jan	27 (-25.2)	41.1 (+3.9)	38.6	40.7	44.1	13	2.88 (+0.38)	21	2.97	5.6
Feb	72 (+ 4.3)	32.4 (-5.8)	28.3	36.3	42.8	24	2.56 (+0.65)	15	1.91	6.9
Mar	66 (-50.5)	38.0 (-3.4)	34.1	38.7	41.1	19	1.88 (-0.01)	13	1.21	7.1
Apr	195 (+43.0)	45.3 (-0.6)	38.3	44.8	43.0	13	1.49 (-0.46)	15	0.16	7.1
May	137 (-57.9)	52.7 (+0.8)	47.9	52.7	47.4	0	3.18 (+1.04)	20	0.71	5.1
June	247 (+45.7)	55.8 (-1.5)	49.0	57.0	51.7	1	1.46 (-0.75)	12	0.15	4.9
July	214 (+22.7)	62.0 (+1.4)	56.2	62.2	55.6	0	2.03 (-0.53)	8	0.31	3.5
Aug	123 (-57.4)	61.2 (+1.1)	54.1	61.6	58.3	0	1.80 (-0.79)	15	0.27	3.9
Sept	96 (-48.5)	57.2 (+1.1)	51.8	58.2	57.3	3	0.41 (-2.01)	10	Trace	4.5
Oct	107 (+ 4.4)	54.9 (+5.7)	50.6	54.8	55.6	1	0.24 (-2.72)	10	Trace	4.1
Nov	66 (+ 5.7)	40.9 (-1.5)	37.3	46.1	52.1	16	3.52 (+0.74)	18	1.81	7.1
Dec	17 (-28.9)	36.7 (-1.9)	34.7	40.1	46.5	21	2.60 (-0.03)	20	2.42	6.2
Year	1367(-142.6)	48.2 (0.0)	43.4	49.4	49.6	111	24.05 (-4.49)	177	11.92	5.5

(1) Mean of maximum and minimum
(2) Number of nights grass min. was below 32 °F
(3) Number of days rainfall was 0.01 in. or more.
(4) At 2 metres above ground level.

METEOROLOGICAL RECORDS 1969 - WOBURN

(Departure from long-period means in brackets)

Month	Total sunshine: hours	Air(1)	Mean temperature: °F Dew point	In ground 1 ft.	In ground 4 ft.	Ground(2) frosts	Total rainfall: in. 5 in. gauge	Rain(3) days	Wind m.p.h.
Jan	40.6 (-11.7)	42.2 (+4.9)	38.7	40.2	44.1	11	2.98 (+0.89)	22	5.3
Feb	64.7 (- 1.2)	32.9 (-5.2)	29.7	35.8	43.0	21	2.26 (+0.72)	15	4.9
Mar	64.5 (-55.1)	37.9 (-4.1)	33.8	38.0	41.1	16	2.19 (+0.56)	13	5.1
Apr	182.6 (+38.1)	45.8 (-0.9)	38.6	45.0	47.1	15	1.36 (-0.43)	14	5.8
May	141.8 (-42.7)	53.3 (+1.4)	46.6	53.5	47.6	0	2.95 (+0.79)	17	4.8
June	249.6 (+52.0)	55.8 (-2.0)	49.3	58.8	52.3	5	1.17 (-0.82)	10	3.9
July	216.0 (+36.3)	62.8 (+1.9)	56.2	63.7	56.3	0	1.59 (-0.66)	7	3.7
Aug	118.2 (-55.2)	61.7 (+1.3)	54.7	62.7	58.8	0	2.38 (-0.07)	14	3.6
Sept	104.5 (-30.5)	57.1 (+0.5)	52.4	59.2	58.1	2	0.48 (-1.63)	9	4.0
Oct	106.8 (+ 5.4)	55.2 (+5.3)	51.7	53.7	55.3	3	0.13 (-2.08)	4	4.1
Nov	71.7 (+13.4)	41.7 (-1.6)	37.3	46.0	53.1	16	2.58 (+0.11)	15	4.8
Dec	19.6 (-25.8)	37.3 (-1.7)	35.4	40.3	47.5	21	1.94 (-0.17)	18	4.9
Year	1380.6 (-77.0)	48.6 (-0.1)	43.7	49.7	50.3	110	22.01 (-2.79)	158	4.6

(1) Mean of maximum and minimum
(2) Number of nights grass min. was below 32 °F
(3) Number of days rainfall was 0.01 in. or more
(4) At 2 metres above ground level

METEOROLOGICAL RECORDS 1969 - SAXMUNDHAM

Month	Mean temperature: °F Air(1)	Dew point	In ground under bare soil 1 ft.	Ground(2) frosts	Total rainfall:in. 5 in. gauge	Rain(3) days	Wind m.p.h.
Jan	41.4	34.5	40.6	9	1.95	15	7.01
Feb	32.6	23.7	36.5	18	2.87	11	8.14
Mar	37.4	29.6	38.6	12	2.18	11	7.44
Apr	44.7	36.2	45.2	10	1.40	11	7.73
May	52.6	46.1	53.0	2	3.61	18	6.16
June	56.5	48.6	59.2	1	1.53	13(+)	5.34
July	63.3	55.1	66.2	0	3.91	5(+)	3.91
Aug	61.5	54.7	63.0	0	2.89	14	4.27
Sept	57.7	51.4	60.0	0	0.06	3	4.95
Oct	55.0	47.8	55.4	0	0.28	6	4.59
Nov	42.5	35.2	44.8	11	3.91	14	7.90
Dec	36.6	32.9	38.7	12(+)	2.99	13(+)	6.93
Year	48.5	41.3	50.1	75(+)	27.58	134(+)	6.20

(1) Mean of maximum and minimum
(2) Number of nights grass min. was below 32 °F
(3) Number of days rainfall was 0.01 in. or more
(4) At 2 metres above ground level
+ These figures may be underestimates

CONVERSION FACTORS

Factors for the Conversion of Imperial to Metric Units

1 inch (in.)	= 2·540 centimetres (cm)
1 foot (ft) (=12 in.)	= 30·48 cm
1 yard (yd) (=3 ft)	= 0·9144 metre (m)
1 square yard (yd²)	= 0·8361 m²
1 acre (ac) (=4840 yd²)	= 0·4047 hectare (ha)
1 ounce (oz)	= 28·35 grams (g)
1 pound (lb)	= 0·4536 kilogram (kg)
1 hundredweight (cwt) (=112 lb)	= 50·80 kg
1 ton (=2240 lb)	= 1016 kg = 1·016 metric tons (tonnes) (t)
1 pint	= 0·5682 litre (l)
1 gallon (gal) (=8 pints)	= 4·546 litres
1 fluid ounce = 1/20 pint	= 0·02841 litre = 28·41 ml
1 cubic foot	= 28·32 litres

To convert	*Multiply by*
oz ac^{-1} to g ha^{-1}	70·06
lb ac^{-1} to kg ha^{-1}	1·121
cwt ac^{-1} to kg ha^{-1}	125·5
cwt ac^{-1} to t ha^{-1}	0·1255
ton ac^{-1} to kg ha^{-1}	2511
ton ac^{-1} to t ha^{-1}	2·511
gal ac^{-1} to l ha^{-1}	11·233

The following factors are accurate to about 2 parts in 100:

1 lb ac^{-1} = 1·1 kg ha^{-1}
1 gal ac^{-1} = 11 litres ha^{-1}
1 ton ac^{-1} = 2·5 t ha^{-1}

In general reading of the text there will be no great inaccuracy in regarding:

1 lb = 0·5 kg
1 lb ac^{-1} = 1 kg ha^{-1}

Temperatures

To convert °F into °C subtract 32 and multiply by $\frac{5}{9}$ (0.556)
To convert °C into °F multiply by $\frac{9}{5}$ (1·8) and add 32

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CONVERSION FACTORS

Factors for the Conversion of Metric to Imperial Units

1 centimetre (cm)	=	0·3937 inch (in.) = 0·03281 ft
1 metre (m)	=	1·094 yards (yd)
1 square metre (m^2)	=	1·196 square yards (yd^2)
1 hectare (ha)	=	2·471 acres (ac)
1 gram (g)	=	0·03527 ounce (oz)
1 kilogram (kg)	=	2·205 pounds (lb)
1 kg	=	0·01968 hundredweight (cwt) = 0·0009842 ton
1 metric ton (tonne) (t)	=	0·9842 ton
1 litre	=	1·760 pints = 0·2200 gallon (gal)

1 litre = 1000 millilitres (ml) = 35·20 fluid ounces = 0·03531 cubic foot (ft^3)

To convert	*Multiply by*
g ha^{-1} to oz ac^{-1}	0·01427
kg ha^{-1} to lb ac^{-1}	0·8921
kg ha^{-1} to cwt ac^{-1}	0·007966
t ha^{-1} to cwt ac^{-1}	7·966
kg ha^{-1} to tons ac^{-1}	0·0003983
t ha^{-1} to tons ac^{-1}	0·3983
l ha^{-1} to gal ac^{-1}	0·08902

Plant nutrients

Plant nutrients are best stated in terms of amounts of the elements (P, K, Na, Ca, Mg, S); the old 'oxide' terminology (P_2O_5, K_2O, Na_2O, CaO, MgO, SO_3) is still used in work involving fertilisers and liming since Regulations require statements of P_2O_5, K_2O, etc.

For quick conversions

(accurate to within 2%) the following factors may be used:

$2\frac{1}{3} \times P = P_2O_5$	$\frac{3}{7} \times P_2O_5 = P$
$1\frac{1}{5} \times K = K_2O$	$\frac{5}{6} \times K_2O = K$
$1\frac{2}{5} \times Ca = CaO$	$\frac{7}{10} \times CaO = Ca$
$1\frac{2}{3} \times Mg = MgO$	$\frac{3}{5} \times MgO = Mg$

For accurate conversions:

To convert	*Multiply by*	*To convert*	*Multiply by*
P_2O_5 to P	0·4364	P to P_2O_5	2·2915
K_2O to K	0·8301	K to K_2O	1·2047
CaO to Ca	0·7146	Ca to CaO	1·3994
MgO to Mg	0·6031	Mg to MgO	1·6581

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