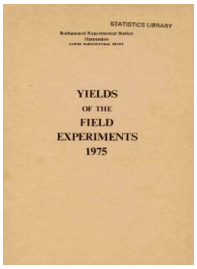
ROTHAMSTED RESEARCH

Yields of the Field Experiments 1975

Full Table of Content



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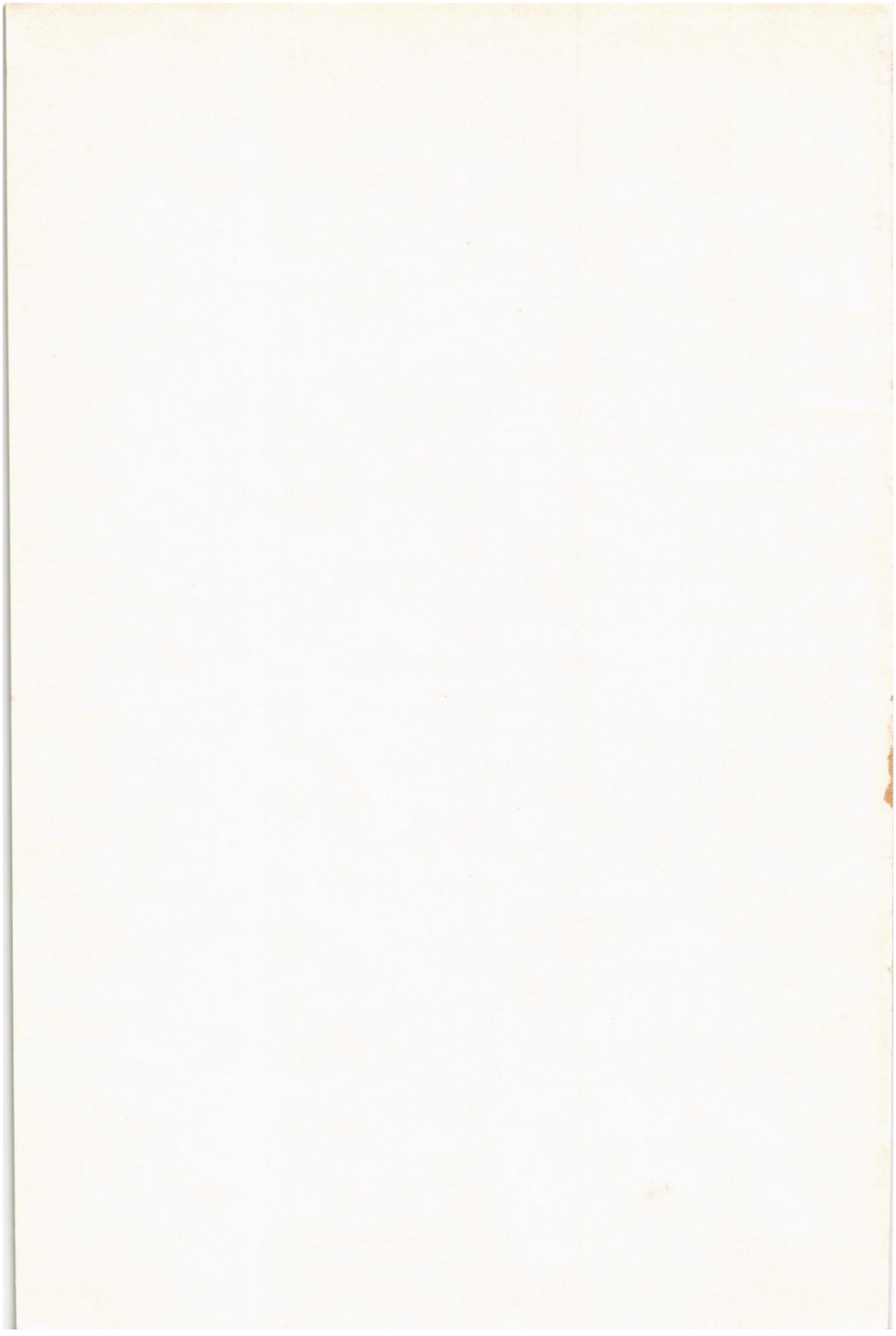
Rothamsted Research

Rothamsted Research (1976) *Default Title ;* Yields Of The Field Experiments 1975, pp 1 - 410 **- DOI: https://doi.org/10.23637/ERADOC-1-141**



002

Harpenden

Lawes Agricultural Trust

YIELDS

of the

FIELD

EXPERIMENTS

1975

This report includes only experiments conducted at Rothamsted, Woburn and Saxmundham. Only those experiments which have the determination of crop yields as an object are included. For many of these, other determinations are of equal or greater importance.

The design and supervision of the field experiments are the responsibility of the Field Plots Committee (members in 1975: G.W. Cooke (Chairman), G.V. Dyke (Secretary), J. McEwen (Deputy Secretary), L. Fowden, I.G. Graham-Bryce, J.M. Hirst, A.E. Johnston, F.G.W. Jones, R. Moffitt, J.A. Nelder, C.P. Whittingham). G.W. Cooke and J.M. Hirst resigned during the year. F.G.W. Jones was appointed Chairman.

Price: 2.00

Published 1976

004

CONTENTS 1975

R = Rothamsted W = Woburn S = Saxmundham

https://doi.org/10.23637/ERADOC-1-141

CONTENTS 1975 (CONTD.)

006

CONTENTS 1975 (CONTD.)

https://doi.org/10.23637/ERADOC-1-141

CONTENTS 1975 (CONTD.)

CONVENTIONS 1975

For each experiment current treatments are shown, together with the factor and level names which are used in the tables. The program used for the analyses of these experiments limits level names to eight characters, and factor names similarly, though a suffix of up to 3 digits in brackets may be appended if required.

For each experiment, other than annuals, references are given to previous years. These refer to the '(Numerical)(Results) Yields of the Field Experiments' - (t) indicates a year when treatments were described. Since 1973 treatments have been described annually for all experiments and (t) is not used for these years.

For the classical and some long-term experiments reference is made to 'Details' - a separate publication, giving a full description of treatments until 1967, with full title 'Details of the Classical and Long Term Experiments up to 1967'.

The following conventions are observed unless otherwise stated.

All areas are in hectares. All plot dimensions are in metres.

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

All yields and plant numbers are per hectare.

The following abbreviations are used in variate headings:

Wheat, barley, oats, rye, beans etc.

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

Sugar beet

Roots:	Roots (washed)
Sugar %:	Sugar percentage

All crops

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

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

'Nitro-Chalk' refers to the grade containing 25% N.

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

The compound fertiliser (13:13:20) used in our experiments is the grade containing sulphate of potash.

Treatment of cereal seed with organomercury and gamma BHC should be assumed in this report, exceptions are noted.

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Harvest Areas for Cereals

On most of those cereal experiments at Rothamsted and Woburn (but not Saxmundham) which are harvested by combine the 'blank-row' technique is used to distinguish the areas taken for yield from the discard areas. When seed is drilled in rows 7in. (18 cm.) apart (the most common arrangement), appropriate coulters are prevented from sowing and 8 or 16 rows are left for yield according to the cutter-bar width of the combine to be used. If the row-spacing is other than 7 in. a similar arrangement is used but with a different number of rows.

The ends of plots are separated from each other or from headlands by 3 ft (91 cm.) fallow paths made after the crop has established.

The 'Area harvested' in the 'Yields', when the blank-row technique is used, is the product:-

number of rows harvested x distance between rows x length of rows.

A series of experiments by Widdowson at Rothamsted (68/Da/9, 68/Db/1, 69/R/W/13, 69/R/B/5, 70/R/WW/3) showed that on average the yield of 16 rows (50 ft (1.5 m) long) was 7.8% greater with blank rows than without.

If no rows are left blank and the plot is wider than the combine harvester so that discards are left uncut, the 'Area harvested' is the product:-

width of cutter bar x length of rows.

If the plot is narrower than the combine so that the whole area between paths is cut, the 'Area harvested' is the product:-

number of rows x distance between rows x length of rows.

We do not apply the adjustment used by some workers who take the harvested area as width x length where each is measured to the centre of 'paths' up to a maximum of 18 in (46 cm).

Tables of means

Tables of means are now presented directly from computer output. Both factor and level names are present in upper case characters. Vertical and horizontal lines are omitted e.g.:-

FACTOR C	LEVEL C1		LEVEL C2		LEVEL C3	
FACTOR B	LEVEL B1	LEVEL B2	LEVEL B1	LEVEL B2	LEVEL B1	LEVEL B2
FACTOR A						
LEVEL A1	*	*	*	*	*	*
LEVEL A2	*	*	*	*	*	*

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Not as hitherto:-

	FACTOR C					
	Level C1		Level C2		Level C3	
FACTOR B	Level B1	Level B2	Level B1	Level B2	Level B1	Level B2
FACTOR A						
Level A1	*	*	*	*	*	*
Level A2	*	*	*	*	*	*

There are other minor differences from previous years in the location of information and of terminology. In particular the standard errors per whole (or sub plot) are now printed under the heading 'Stratum Standard Errors and Coefficients of Variation'. BLOCK.WP refers to those previously labelled 'Per plot' or 'Per whole plot', and BLOCK.WP.SP to those labelled 'Per sub plot'.

Standard errors

NOTE: This report gives standard errors of differences, not of means.

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75/R/BK/1

BROADBALK

Object: To study the effects of organic and inorganic manures on continuous winter wheat. Since 1968 two three-year rotations have been included: potatoes, beans, wheat and fallow, wheat, wheat.

The 132nd year, wheat, potatoes, beans. The eighth year of the revised scheme.

For previous years see 'Details' 1967, Station Report for 1966, pp.229-231, Station Report for 1968, Part 2, 68/A/1(t) and 69-74/R/BK/1.

Areas harvested:

	Section	
Wheat:	0	0.00434
	1	0.00798
	2,3 and 6	0.00659
	8 and 9	0.00694
Potatoes:	4	0.00659
Beans:	7	0.00741

Treatments:

Whole plots: Fertilisers and organic manures:-

Plot	Treatments till 1967	Treatments from 1968	PLOT
01	-	D N2 P K	01DN2PK
21	D	D N2	21DN2
22	D	D	22D
03	None	None	03O
05	P K Na Mg	P K (Na) Mg	05MIN
06	N1 P K Na Mg	N1 P K (Na) Mg	06N1MIN
07	N2 P K Na Mg	N2 P K (Na) Mg	07N2MIN
08	N3 P K Na Mg	N3 P K (Na) Mg	08N3MIN
09	N*1 P K Na Mg	N4 P K (Na) Mg	09N4MIN
10	N2	N2	10N2
11	N2 P	N2 P	11N2P
12	N2 P Na	N2 P Na	12N2PNA
13	N2 P K	N2 P K	13N2PK
14	N2 P Mg	N2 P K Mg	14N2PKMG
15	N2 P K Na Mg	N3 P K (Na) Mg	15N3MIN
16	N*2 P K Na Mg	N2 P K (Na) Mg	16N2MIN
17	+N2	N2 1/2(P K (Na) Mg)	17N2MINF
18	+ P K Na Mg	N2 1/2(P K (Na) Mg)	18N2MINF
19	C	C	19C
20	N2 K Na Mg	N2 K (Na) Mg	20NKMG

\+ Alternating

https://doi.org/10.23637/ERADOC-1-141

N1,N2,N3,N4: 48, 96, 144, 192 kg N (as sulphate of ammonia until 1967, except N* which was nitrate of soda. All as 'Nitro-Chalk' from 1968).
P: 35 kg P as single superphosphate (triple superphosphate in 1974)
K: 90 kg K as sulphate of potash
Na: 55 kg Na as sulphate of soda
(Na): 16 kg Na as sulphate of soda until 1973
Mg: 30 kg Mg annually to Plot 14, 35 kg Mg every third year to other plots since 1974. All as kieserite since 1974, previously as sulphate of magnesia
D: Farmyard manure at 35 tonnes
C: Castor meal to supply 96 kg N
MIN: P K (Na) Mg

Strips of sub-plots: Until 1967 wheat alone was grown on the experiment, with some bare fallowing on strips of sub-plots. From 1968, ten sub-plots were started with the following cropping:-

	1968	1969	1970	1971	1972	1973	1974	1975	SECTION
Section 0	W (last fallowed 1951)	W	W	W	W	W	W	W	SC0/W24
Section 1	W (last fallowed 1966)	W	W	W	W	W	W	W	SC1/W9
Section 2	BE	W	P	BE	W	P	BE	W	SC2/W1
Section 3	W (fallowed 1967)	W	F	W	W	F	W	W	SC3/W2F
Section 4	W (fallowed 1965)	P	BE	W	P	BE	W	P	POTATOES
Section 5	W (fallowed 1965)	F	W	W	F	W	W	F	-
Section 6	F	W	W	F	W	W	F	W	SC6/W1F
Section 7	P	BE	W	P	BE	W	P	BE	BEANS
Section 8*	W (fallowed 1963)	W	W	W	F	W	W	W	SC8/W3F
Section 9	W (last fallowed 1958)	W	W	W	W	W	W	W	SC9/W17

W = wheat, P = potatoes, BE = beans, F = fallow

* No weedkillers

NOTE: For a fuller record of treatments see 'Details' etc.

Standard applications:-
Winter wheat: Weedkillers: Ioxynil with mecoprop ('Actril C' at 7.7 l in 220 l) except Section 8.
Potatoes: Weedkillers: Linuron at 1.1 kg plus paraquat at 0.42 kg ion in 450 l. Fungicide: Mancozeb at 1.3 kg applied with demeton-s-methyl on second occasion. Insecticide: Demeton-s-methyl at 0.25 kg in 450 l on two occasions.
Beans: Insecticide: Demeton-s-methyl at 0.25 kg in 450 l.

Seed: Winter wheat: Cappelle, dressed with dieldrin, sown at 200 kg.
Potatoes: King Edward, once grown Rothamsted seed.
Spring beans: Minor, sown at 220 kg.

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Cultivations, etc.:-

ALL SECTIONS: Superphosphate applied: 21 Oct, 1975. Other autumn fertilisers and castor meal applied: 24 Oct. Ploughed, plots 3-20: 25 Oct. FYM applied: 4 Nov. Ploughed, plots 01, 21, 22: 5 Nov.

CROPPED SECTIONS:

Winter wheat: Rotary harrowed: 6 Nov, 1975. Seed sown: 7 Nov. N applied: 22 Apr, 1975. Weedkiller applied: 9 May. Combine harvested: 13 Aug.

Potatoes: Spring-tine cultivated: 1 May. N applied: 5 May. Spike rotary cultivated, planted: 7 May. Grubbed: 12 May. Linuron plus paraquat applied: 4 June. Insecticide applied and grubbed: 27 June. Rotary cultivated: 18 July. Insecticide with fungicide applied: 21 July. Haulm mechanically destroyed: plot 014 only: 16 Sept, on remaining plots: 19 Sept. Lifted: 19 Sept.

Spring beans: N applied: 4 Mar, 1975. Rotary cultivated, seed sown and spring-tine cultivated: 25 Mar. Tractor hoed twice: 21 May. once: 24 June. Insecticide applied: 9 July. Combine harvested: 29 Aug.

FALLOW SECTION: Spring-tine cultivated: 1 May, 1975. Ploughed: 16 May. Spring-tine cultivated: 27 May. Ploughed: 15 July.

*** TABLES OF MEANS ***

	POTATOES		SPRING BEANS	
	TOTAL TUBERS: TONNES/ HECTARE	% WARE: 3.81 CM (1.5 INCH) RIDDLE	GRAIN: TONNES/ HECTARE	STRAW: TONNES/ HECTARE
PLOT				
01DN2PK	11.9	73.7	0.91	0.47
21DN2	16.0	76.4	1.99	1.01
22D	13.2	72.8	1.51	0.69
030	5.0	70.9	1.09	0.46
05MIN	4.5	65.8	1.31	0.77
06N1MIN	6.4	64.3	1.47	1.07
07N2MIN	9.4	64.5	1.45	1.37
08N3MIN	11.2	66.7	1.60	1.58
09N4MIN	15.5	79.2	2.19	1.39
10N2	5.3	60.6	0.80	0.39
11N2P	5.8	68.7	0.59	0.65
12N2PNA	6.4	64.1	0.31	0.86
13N2PK	9.6	77.3	0.96	1.34
14N2PKMG	12.4	74.9	1.02	1.11
15N3MIN	13.6	82.0	1.19	1.06
16N2MIN	12.3	79.7	1.59	1.23
17N2MINH	8.8	78.7	1.82	0.85
18N2MINH	11.0	77.3	1.96	1.33
19	8.0	72.4	1.03	0.83
MEAN D.M. %			86.9	88.1

POTATOES PLOT AREA HARVESTED 0.00659

BEANS PLOT AREA HARVESTED 0.00618

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75/R/BK/1

WHEAT

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

SECTIONS PLOT	SC2/W1BE	SC6/W1F	SC3W2F	SC1/W9	SC9/W17	SC0/W24	SC8/W3F	MEAN
01DN2PK	6.04	5.88	5.89	-	-	-	-	5.94
21DN2	7.10	5.77	5.75	6.00	5.08	4.21	5.55	5.64
22D	6.69	5.09	4.02	3.79	3.94	3.63	4.58	4.53
030	3.06	2.31	1.10	1.21	1.10	1.22	2.37	1.77
05MIN	3.56	2.54	1.03	1.49	1.24	1.57	2.37	1.97
06N1MIN	5.42	3.07	3.16	3.02	2.61	3.26	2.90	3.35
07N2MIN	6.47	3.29	4.65	3.72	3.41	4.40	3.56	4.21
08N3MIN	6.71	2.87	5.67	4.88	4.51	4.50	4.37	4.79
09N4MIN	6.47	3.66	6.03	5.75	5.22	5.19	5.01	5.33
10N2	5.65	1.36	3.44	3.25	1.98	2.70	2.59	3.00
11N2P	5.62	1.22	4.18	3.65	1.73	3.67	2.47	3.22
12N2PNA	5.65	0.78	4.28	3.69	1.81	3.68	2.53	3.20
13N2PK	6.35	1.58	4.96	4.29	1.68	3.88	2.80	3.65
14N2PKMG	6.46	2.79	4.85	4.39	3.18	4.06	3.20	4.13
15N3MIN	6.42	3.51	5.75	4.70	4.34	4.50	4.02	4.75
16N2MIN	6.22	3.68	4.66	3.82	3.73	3.57	3.03	4.10
17N2MINH	6.39	4.83	4.64	3.54	3.33	3.71	3.13	4.23
18N2MIN	6.27	5.06	4.63	3.61	3.75	3.41	3.04	4.25
19C	3.96	4.08	3.18	3.71	2.09	3.23	3.05	3.33
20NKMG	-	-	-	2.77	-	2.98	-	2.87

GRAIN MEAN DM% 87.1

https://doi.org/10.23637/ERADOC-1-141

75/R/BK/1

WHEAT

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

SECTIONS PLOT	SC2/W1BE	SC6/W1F	SC3W2F	SC1/W9	SC9/W17	SC0/W24	SC8/W3F	MEAN
01DN2PK	6.52	4.79	6.16	-	-	-	-	5.82
21DN2	7.77	5.29	6.95	6.91	5.69	5.06	5.55	6.17
22D	5.70	3.36	4.21	3.99	3.45	4.28	3.83	4.12
030	1.89	1.07	0.71	0.94	0.71	0.86	1.24	1.06
05MIN	2.16	0.84	0.56	1.21	0.73	1.28	1.38	1.17
06N1MIN	4.43	2.24	2.33	2.02	2.32	2.35	2.32	2.57
07N2MIN	5.32	2.99	3.61	3.30	2.94	3.79	3.89	3.69
08N3MIN	6.41	2.98	5.12	3.81	4.30	4.58	4.25	4.49
09N4MIN	6.54	2.96	5.55	4.97	4.63	5.11	5.12	4.98
10N2	3.72	1.70	2.19	1.98	2.56	1.99	2.02	2.31
11N2P	3.74	2.35	3.04	2.80	2.39	3.33	2.93	2.94
12N2PNA	3.70	2.13	3.36	3.03	2.44	2.90	2.48	2.86
13N2PK	5.01	2.17	3.93	3.34	3.19	3.23	3.92	3.54
14N2PKMG	4.82	3.15	3.59	3.14	3.31	3.28	3.46	3.54
15N3MIN	4.36	3.29	5.10	3.57	4.05	4.19	4.16	4.10
16N2MIN	4.49	3.35	3.55	2.58	3.57	2.98	3.57	3.44
17N2MINH	4.49	3.95	3.39	2.12	3.17	2.51	4.16	3.40
18N2MIN	4.65	4.42	3.35	2.23	4.24	1.72	4.05	3.52
19C	2.64	2.80	1.95	1.55	2.59	1.73	2.68	2.28
20NKMG	-	-	-	1.52	-	1.59	-	1.56

STRAW MEAN DM% 92.0

PLOT AREA HARVESTED 0.00009

https://doi.org/10.23637/ERADOC-1-141

75/R/HB/2

HOOSFIELD

Object: To study the effects of organic and inorganic manures on continuous spring barley. Since 1968 a rotation of potatoes, beans and barley has been included.

The 124th year, potatoes, beans and barley. The 8th year of revised scheme.

For previous years see 'Details' 1967, Station Report for 1966, 68/A/2(t), 69/R/HB/2(t) and 70-74/R/HB/2.

Treatments to barley: All combinations of:-

1. Fertilisers, organic manures and frequency of barley cropping:-

Form of N 1852-1966	Additional treatments 1852-1975		MANURE
None	-	Continuous	---CON
None	P	Continuous	-P-CON
None	K (Na) Mg	Continuous	--KCON
None	P K (Na) Mg	Continuous	-PKCON
A	-	Continuous	A--CON
A	P	Continuous	AP-CON
A	K (Na) Mg	Continuous	A-KCON
A	P K (Na) Mg	Continuous	APKCON
N	-	Continuous	N--CON
N	- Si	Continuous	N--SICON
N	P	Continuous	NP-CON
N	P Si	Continuous	NP-SICON
N	K (Na) Mg	Continuous	N-KCON
N	K (Na) Mg Si	Continuous	N-KSICON
N	P K (Na) Mg	Continuous	NPKCON
N	P K (Na) Mg Si	Continuous	NPKSICON
C	-	Continuous	C--CON
C	-	In rotation (P,BE,B)	C--RTN
C	P	Continuous	CP-CON
C	P	In rotation (P,BE,B)	CP-RTN
C	K (Na) Mg	Continuous	C-KCON
C	K (Na) Mg	In rotation (P,BE,B)	C-KRTN
C	P K (Na) Mg	Continuous	CPKCON
C	P K (Na) Mg	In rotation (P,BE,B)	CPKRTN
None	D	Continuous	DCON
(D)	-	Continuous	(D)CON
(Ashes)	-	Continuous	(A)CON
None	-	Continuous	-CON

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Form of N: A, sulphate of ammonia: N, nitrate of soda - each to supply 48 kg N.
C, castor meal to supply 96 kg N.
P: 35 kg P as single superphosphate (triple superphosphate in 1974).
K: 90 kg K as sulphate of potash.
(Na): 16 kg Na as sulphate of soda until 1973.
Mg: 35 kg Mg, as kieserite every third year, since 1974, (sulphate of magnesia until 1973).
Si: Silicate of soda at 450 kg.
D: Farmyard manure at 35 tonnes, (D): until 1871 only.
(Ashes): Weed ash 1852-1916, furnace ash 1917-1932. None since.

2. Nitrogen fertiliser (kg N), as 'Nitro-Chalk', since 1968 (cumulative N applications until 1973, on a cyclic system since 1974):

	N
None	0
48	48
96	96
144	144

There are four extra plots testing all combinations of:-
1. Fertilisers other than magnesium:

		MANURE
Plot 551	A N2 P K Continuous	551AN2PK
Plot 561	- P K Continuous	561--PK
Plot 571	N N2 Continuous	571NN2--
Plot 581	N N2 Continuous	581NN2--

N2: 96 kg N as 'Nitro-Chalk' since 1968. Other symbols as above.

2. Magnesium fertiliser (kg Mg) as kieserite every third year since 1974:

	MGNESIUM
None	0
35	35

Treatments to potatoes and beans:- All combinations of:-
1. Fertiliser and organic manures:

To potatoes and beans: 1852-1966	1852-1975	MANURE
C	-	C---
C	P	CP--
C	K (Na) Mg	C-KMG
C	P K (Na) Mg	CPKMG

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To beans only:

1852-1966	1852-1975	MANURE
N	-	N----
N	Si	N---SI
N P		NP---
N P	Si	NP--SI
N K (Na) Mg		N-KMG-
N K (Na) Mg Si		N-KMGSI
N P K (Na) Mg		NPKMG-
N P K (Na) Mg Si		NPKMGSI

2. Nitrogen fertiliser (kg N), as 'Nitro-Chalk':

Beans (residual effects, applied to previous potatoes)	Potatoes (applied 1975)	NRESID Beans	N Potatoes
None	None	(0)	0
96	96	(96)	96
192	192	(192)	192
288	288	(288)	288

NOTE: For a fuller record see 'Details' etc.

Standard applications:
Potatoes: Weedkillers: Linuron at 1.1 kg plus paraquat at 0.42 kg ion in 450 l. Fungicide: Mancozeb at 1.3 kg applied with demeton-s-methyl on second occasion. Insecticide: Demeton-s-methyl at 0.25 kg in 450 l on two occasions.
Spring beans: Insecticide: Demeton-s-methyl at 0.25 kg in 450 l.
Barley: Weedkiller: Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l).

Seed: Potatoes: King Edward, once grown Rothamsted seed.
Spring beans: Minor, sown at 220 kg.
Barley: Julia, sown at 160 kg.

Cultivations, etc.:-
All crops: P applied: 25 Nov, 1974. K, silicate of soda and FYM applied: 8 Jan, 1975. Ploughed: 10 Jan. Spring-tine cultivated: Once 10 Feb, twice 24 Feb.
Potatoes: N applied: 29 Apr. Spike rotary cultivated, seed machine planted: 7 May. Grubbed: 13 May. Linuron and paraquat applied: 4 June. Insecticide applied and grubbed: 27 June. Rotary ridged: 18 July. Fungicide and insecticide applied: 21 July. Haulm mechanically destroyed: 16 Sept. Lifted: 19 Sept.
Spring beans: Seed sown and spring-tine cultivated: 25 Mar. Tractor hoed: 16 May and 24 June. Insecticide applied: 9 July. Combine harvested: 29 Aug.
Barley: Seed sown and spring-tine cultivated: 25 Feb. N applied: 29 Apr. Weedkiller applied: 20 May. Combine harvested: 7 Aug.

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75/R/HB/2

POTATOES

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

N MANURE	0	96	192	288	MEAN
C---	4.8	5.7	6.4	7.9	6.2
CP--	5.6	5.1	5.7	5.9	5.6
C-KMG	7.0	7.6	9.0	11.1	8.6
CPKMG	8.6	11.4	12.4	10.7	10.8
MEAN	6.5	7.4	8.4	8.9	7.8

PERCENTAGE WARE 3.81CM(1.5INCH)RIDDLE

*** TABLES OF MEANS ***

N MANURE	0	96	192	288	MEAN
C---	62.0	67.6	69.9	78.8	69.6
CP--	63.2	51.5	56.5	58.4	57.4
C-KMG	69.9	61.4	68.4	65.9	66.4
CPKMG	65.5	70.5	72.2	75.1	70.8
MEAN	65.1	62.8	66.7	69.6	66.0

PLOT AREA HARVESTED 0.00191

https://doi.org/10.23637/ERADOC-1-141

75/R/HB/2

BEANS

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

NRESID MANURE	(0)	(96)	(192)	(288)	MEAN
C---	0.90	0.91	0.81	1.01	0.91
CP--	0.80	0.65	0.77	0.65	0.72
C-KMG	0.39	1.46	0.77	0.96	0.89
CPKMG	1.11	1.03	1.19	1.23	1.14
N----	0.65	0.59	0.49	0.74	0.62
N---SI	0.65	0.69	0.77	0.56	0.67
NP---	0.39	0.45	0.60	0.62	0.51
NP--SI	0.45	0.36	0.45	0.38	0.41
N-KMG-	1.01	0.83	0.85	1.10	0.95
N-KMGSI	1.13	1.07	0.92	1.01	1.03
NPKMG-	0.95	0.98	0.95	0.98	0.96
NPKMGSI	1.17	0.92	1.15	0.97	1.05
MEAN	0.80	0.83	0.81	0.85	0.82

GRAIN MEAN DM% 87.9

PLOT AREA HARVESTED 0.00143

https://doi.org/10.23637/ERADOC-1-141

75/R/HB/2

BARLEY

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

N	0	48	96	144	MEAN
MANURE					
---CON	1.03	2.04	2.50	2.78	2.09
-P-CON	1.35	3.09	3.97	4.40	3.20
--KCON	0.71	2.30	3.24	2.81	2.26
-PKCON	1.13	2.93	4.40	4.05	3.13
A--CON	1.08	1.56	2.00	2.16	1.70
AP-CON	2.13	3.47	3.61	2.86	3.02
A-KCON	0.96	1.84	2.03	2.58	1.85
APKCON	1.65	3.29	4.66	4.88	3.62
N--CON	1.13	1.29	1.60	2.45	1.62
N--SICON	1.15	3.19	2.69	3.17	2.55
NP-CON	2.11	3.34	4.25	4.18	3.47
NP-SICON	1.70	3.08	3.87	4.82	3.37
N-KCON	1.34	2.24	2.23	2.59	2.10
N-KSICON	1.33	2.52	3.62	4.79	3.07
NPKCON	1.29	3.34	4.59	4.47	3.42
NPKSICON	1.58	3.45	4.76	4.86	3.66
C--CON	1.37	3.12	4.17	4.05	3.18
C--RTN	2.75	4.44	4.78	4.58	4.14
CP-CON	2.16	3.36	4.80	4.79	3.78
CP-RTN	2.65	4.09	4.22	4.28	3.81
C-KCON	1.06	2.56	3.74	4.44	2.95
C-KRTN	1.66	2.52	4.01	3.76	2.99
CPKCON	1.48	3.73	4.51	4.87	3.65
CPKRTN	2.61	4.06	5.10	4.73	4.13
DCON	2.79	4.26	5.08	4.46	4.15
(D)CON	0.74	2.91	3.02	2.81	2.37
(A)CON	1.43	2.37	2.97	2.96	2.43
-CON	0.88	1.59	2.03	2.22	1.68
MEAN	1.54	2.93	3.66	3.78	2.98

GRAIN MEAN DM% 86.0

https://doi.org/10.23637/ERADOC-1-141

75/R/HB/2

BARLEY

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

N	0	48	96	144	MEAN
MANURE					
---CON	0.35	0.88	0.87	1.02	0.78
-P-CON	0.53	1.20	1.42	1.57	1.18
--KCON	0.17	1.05	1.35	1.18	0.94
-PKCON	0.52	1.20	2.25	2.05	1.50
A--CON	0.35	0.70	0.70	1.04	0.70
AP-CON	0.52	1.43	1.23	1.23	1.11
A-KCON	0.35	0.69	0.86	1.04	0.73
APKCON	0.52	1.21	2.11	2.19	1.51
N--CON	0.67	0.65	0.66	1.00	0.74
N--SICON	0.65	1.32	1.00	1.30	1.07
NP-CON	0.66	1.31	1.98	1.96	1.48
NP-SICON	0.66	1.33	1.63	1.99	1.40
N-KCON	0.33	1.00	0.97	1.31	0.90
N-KSICON	0.66	0.66	2.00	2.28	1.40
NPKCON	0.66	1.70	2.32	2.26	1.74
NPKSICON	0.67	1.68	2.31	1.99	1.66
C--CON	0.68	1.02	1.70	1.99	1.35
C--RTN	1.02	2.02	2.36	1.98	1.84
CP-CON	0.68	1.35	2.36	2.00	1.60
CP-RTN	1.35	1.67	1.91	2.02	1.74
C-KCON	0.33	1.01	1.68	2.37	1.35
C-KRTN	1.00	1.38	2.02	2.03	1.61
CPKCON	0.69	1.70	2.37	2.35	1.78
CPKRTN	1.02	2.37	2.70	2.72	2.20
DCON	1.35	2.03	2.91	2.62	2.22
(D)CON	0.20	1.15	1.37	1.36	1.02
(A)CON	0.47	0.93	1.17	1.40	0.99
-CON	0.23	0.72	0.93	1.37	0.81
MEAN	0.62	1.26	1.68	1.77	1.33

STRAW MEAN DM% 87.1

https://doi.org/10.23637/ERADOC-1-141

75/R/HB/2

BARLEY

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

MANURE / MGNESIUM	551AN2PK	561--PK	571NN2-	581NN2-	MEAN
0	4.15	0.48	2.33	1.70	2.17
35	5.05	0.47	2.01	1.65	2.29
MEAN	4.60	0.47	2.17	1.67777	2.23

GRAIN MEAN DM% 82.6

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

MANURE / MGNESIUM	551AN2PK	561--PK	571NN2-	581NN2-	MEAN
0	1.80	0.14	0.88	0.60	0.85
35	2.13	0.13	0.88	0.75	0.97
MEAN	1.96	0.13	0.88	0.67	0.91

STRAW MEAN DM% 82.7

https://doi.org/10.23637/ERADOC-1-141

75/R/WF/3

WHEAT AND FALLOW

Object: To study the effects of fallowing for one or three years on unmanured winter wheat - Hoosfield.

The 120th year, winter wheat.

For previous years see 'Details' 1967, 68/A/3(t), 69-74/R/WF/3.

Whole plot dimensions: 9.61 x 52.1.

Treatments: Phase of fallowing cycle (up to 1975):-

		PLOT
Plot 1	W F W F F F W F	-
Plot 2	F F F W F W F W	2/FALL1
Plot 3	W F W F W F F F	-
Plot 4	F W F F F W F W	4/FALL1
Plot 5	F F W F W F W F	-
Plot 6	F W F W F F F W	6/FALL3
Plot 7	W F F F W F W F	-
Plot 8	F W F W F W F F	-

W = wheat, F = fallow.

Basal applications: Weedkiller: Ioxynil with mecoprop ('Actril C' at 7.0 l in 220 l).

Seed: Cappelle, dressed with dieldrin, sown at 200 kg.

Cultivations, etc.:-

Wheat plots: Ploughed: 28 Oct, 1974. Power harrowed, seed sown and harrowed in: 8 Nov. Weedkiller applied: 12 May, 1975. Combine harvested: 13 Aug.

Fallow plots: Ploughed: 28 Oct, 1974, 16 May, 1975 and 15 July. Springtine cultivated: 27 May.

https://doi.org/10.23637/ERADOC-1-141

75/R/WF/3

*** TABLES OF MEANS ***

GRAIN TONNES/HECTARE

PLOT	2/FALL1	4/FALL1	6/FALL3	MEAN
	1.42	1.52	2.07	1.67

GRAIN MEAN DM% 86.5

STRAW TONNES/HECTARE

PLOT	2/FALL1	4/FALL1	6/FALL3	MEAN
	0.57	0.44	0.51	0.51

STRAW MEAN DM% 94.4

PLOT AREA HARVESTED 0.01483

https://doi.org/10.23637/ERADOC-1-141

75/R/EX/4

EXHAUSTION LAND

Object: To study the residual effects of manures, applied 1856-1901, on the yield of continuous barley - Hoosfield.

The 120th year, fallow.

For previous years see 'Details' 1967, 68/A/7 and 69-74/R/EX/4.

Cultivations, etc.:- Ploughed: 15 Jan, 1975. Spike rotary cultivated: 8 May. Spring-tine cultivated: 29 May. Rotary cultivated: 19 June and 5 Aug. Deep-tine cultivated: 30 June.

https://doi.org/10.23637/ERADOC-1-141

75/R/PG/5

PARK GRASS

Object: To study the effects of organic and inorganic manures on old grass (for hay). The effects of liming are also studied.

The 120th year, hay.

For previous years see 'Details' 1967, 68/A/6(t), 69-71/R/PG/5, 72/R/PG/5(t) and 73-74/R/PG/5.

Treatments:

Whole plots: Fertilisers and organic manures:-

		MANURE
Plot 1	N1	N1
Plot 2	None (D until 1863)	0(D)
Plot 3	None	0/PLOT3
Plot 4-1	P	P
Plot 4-2	N2 P	N2P
Plot 6	N1 P K Na Mg	N1MIN
Plot 7	P K Na Mg	MIN
Plot 8	P Na Mg	PNAMG
Plot 9	N2 P K Na Mg	N2MIN
Plot 10	N2 P Na Mg	N2PNAMG
Plot 11-1	N3 P K Na Mg	N3MIN
Plot 11-2	N3 P K Na Mg Si	N3MINSI
Plot 12	None	0/PLOT12
Plot 13	D/F	D/F
Plot 14	N2* P K Na Mg	N2*MIN
Plot 15	P K Na Mg (N2* until 1875)	MIN(N2*)
Plot 16	N1* P K Na Mg	N1*MIN
Plot 17	N1*	N1*
Plot 18	N2 K Na Mg	N2KNAMG
Plot 19	D	D
Plot 20	D/N*P K	D/N*PK

N1, N2, N3:	48, 96, 144 kg N as sulphate of ammonia
N1*, N2*:	48, 96 kg N as nitrate of soda (30 kg N to Plot 20 in years with no farmyard manure)
P:	35 kg P (15 kg P to Plot 20 in years with no farmyard manure) as single superphosphate (triple superphosphate in 1974)
K:	225 kg K (45 kg K to Plot 20 in years with no farmyard manure) as sulphate of potash
Na:	15 kg Na as sulphate of soda
Mg:	10 kg Mg as sulphate of magnesia
Si:	Silicate of soda at 450 kg
D:	Farmyard manure at 35 tonnes every fourth year
F:	Fish meal every fourth year to supply 63 kg N
MIN:	P K Na Mg

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Sub plots: Liming (none to Plot 12):-	LIME
a Ground chalk applied as necessary to maintain pH found in 1965	A
b Ground chalk applied as necessary to achieve pH6	B
c Ground chalk applied as necessary to achieve pH5	C
d None	D

Additional sub plots (Plots 18, 19 and 20 only) (tonnes $CaCO_3$ applied every fourth year 1920-1964):-

18-1 None	N2KNAMG0
18-2 13.5	N2KNAMG2
18-3 7.9	N2KNAMG1
19-1 None	D0
19-2 6.3	D2
19-3 1.1	D1
20-1 None	D/N*PK0
20-2 5.6	D/N*PK2
20-3 1.1	D/N*PK1

Since 1965 Plot 18-1 has been split into two for treatments 'c' and 'd' above and Plot 18-3 split into two for treatments 'a' and 'b'. The remaining sub-plots of Plots 18, 19 and 20 are treated as 'a'.

NOTE: For a fuller record of treatments see 'Details' etc.

Cultivations, etc.:- P applied: 17 Jan, 1975. K applied to Plot 20, Na and Mg to Plots 6, 7, 8, 9, 10: 3 Feb. Remaining mineral fertilisers and fish meal applied: 12 Feb. N applied: 1st dressing - 25 Apr, 2nd dressing - 21 May. Cut twice: 10 June, 3 Sept.

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TABLES OF MEANS

DRY MATTER: TONNES/HECTARE

	1ST CUT LIME					2ND CUT LIME				
	A	B	C	D	MEAN	A	B	C	D	MEAN
MANURE										
N1	2.11	2.36	1.77	0.55	1.70	0.62	0.57	0.43	0.18	0.45
O(D)	1.69	1.83	1.16	1.06	1.44	0.26	0.35	0.23	0.21	0.26
O/PLOT3	1.59	1.67	0.72	0.91	1.22	0.26	0.44	0.12	0.16	0.24
P	1.81	2.30	1.71	1.72	1.89	0.30	0.26	0.35	0.33	0.31
N2P	2.60	2.93	2.16	2.33	2.50	0.49	0.35	0.22	0.42	0.37
N1MIN	5.21	4.76			4.99	0.86	0.89			0.87
MIN	4.86	4.94	3.34	3.15	4.07	1.42	1.85	0.95	0.53	1.19
PNAMG	2.16	2.41	2.83	2.75	2.54	0.48	0.41	0.49	0.49	0.47
N2MIN	5.32	5.27	5.82	3.98	5.10	1.59	1.60	0.47	0.63	1.07
N2PNAMG	3.43	3.43	4.06	2.58	3.37	0.30	0.37	0.34	0.34	0.34
N3MIN	5.46	5.81	6.49	3.78	5.39	1.28	1.37	0.76	0.90	1.08
N3MINSI	4.95	5.33	5.72	4.10	5.03	1.61	1.69	0.75	0.81	1.22
O/PLOT12	0.82		0.55		0.69	0.29		0.16		0.23
D/F	4.94	5.02	5.03	4.51	4.88	1.34	1.52	0.95	0.65	1.11
N2*MIN	3.97	4.76	4.96	4.63	4.58	0.80	1.11	1.22	1.46	1.15
MIN(N2*)	3.94		2.30		3.12	1.65		0.71		1.18
N1*MIN	4.31	4.89	4.54	4.22	4.49	1.65	1.80	1.29	1.15	1.47
N1*	2.16	2.55	2.33	1.91	2.24	0.66	0.56	0.67	0.90	0.70
N2KNAMG0			2.06	0.82	1.44			0.29	0.20	0.24
N2KNAMG2	2.05				2.05	0.58				0.58
N2KNAMG1	1.89	2.09			1.99	0.57	0.52			0.54
D0	3.10				3.10	0.57				0.57
D2	3.78				3.78	0.97				0.97
D1	3.37				3.37	0.79				0.79
D/N*PK0	4.45				4.45	0.92				0.92
D/N*PK2	4.56				4.56	0.97				0.97
D/N*PK1	4.11				4.11	1.04				1.04
MEAN DM%					23.7					42.6

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75/R/PG/5

DRY MATTER: TONNES/HECTARE

TOTAL OF 2 CUTS
LIME

MANURE	A	B	C	D	MEAN
N1	2.72	2.93	2.20	0.73	2.15
O(D)	1.95	2.18	1.39	1.27	1.70
O/PLOT3	1.85	2.12	0.84	1.07	1.47
P	2.11	2.57	2.07	2.04	2.20
N2P	3.09	3.28	2.37	2.75	2.87
N1MIN	6.07	5.65			5.86
MIN	6.28	6.78	4.29	3.68	5.26
PNAMG	2.64	2.82	3.32	3.24	3.00
N2MIN	6.91	6.87	6.29	4.61	6.17
N2PNAMG	3.72	3.81	4.40	2.91	3.71
N3MIN	6.75	7.18	7.25	4.68	6.46
N3MINMI	6.57	7.01	6.47	4.92	6.24
O/PLOT12	1.12		0.71		0.91
D/F	6.28	6.55	5.97	5.17	5.99
N2*MIN	4.76	5.87	6.18	6.09	5.73
MIN(N2*)	5.59		3.01		4.30
N1*MIN	5.97	6.68	5.84	5.36	5.96
N1*	2.83	3.11	3.00	2.81	2.94
N2KNAMG0			2.35	1.02	1.68
N2KNAMG2	2.63				2.63
N2KNAMG1	2.46	2.61			2.54
D0	3.67				3.67
D2	4.75				4.75
D1	4.16				4.16
D/N*PK0	5.36				5.36
D/N*PK2	5.53				5.53
D/N*PK1	5.15				5.15
MEAN DM%					33.2

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75/R/AG/6

AGDELL

Object: To study, by crop yields and soil analyses, the residual values of phosphate and potash applied in the period 1848-1951 and further dressings since 1964.

The sixth year of revised scheme, barley, potatoes and sugar beet.

For previous years see 'Details' 1967, 68/A/4, 69/R/AG/6, 70/R/AG/6(t), 71/R/AG/6(t), 72/R/AG/6(t) and 73-74/R/AG/6.

Treatments: All combinations of:-

Whole plots: 1. Fertilisers and organic manures applied to roots every fourth year, in the period 1848-1948 — OLDRESD

None	NONE
P K Na Mg	PKNAMG
N P K Na Mg C	NPKNAMGC

N: 48 kg N as sulphate of ammonia
P: 41 kg P as superphosphate
K: 224 kg K as sulphate of potash
Na: 16 kg Na as sulphate of soda
Mg: 11 kg Mg as sulphate of magnesia
C: Castor meal at 2240 kg supplying about 112 kg N

2. Rotation 1848-1951 — OLDROTN

With fallow: Roots (turnips or swedes), barley, fallow, wheat	FALLOW
With legume: Roots, barley, legume (clover or beans), wheat	LEGUME

Half plots: 3. Residues of 1964 treatments — 1964RESD

P	P
K	K

Quarter plots: 4. Previous cropping 1958-69 on P-test half plots, 1958-70 on K-test half plots — PREVCROP

Arable or fallow	ARABLE
Grass	GRASS

Sixteenth plots: 5. Rates of 1964 treatments (kg) — P2O564 K2O64

P2O5 to P-test half plots	K2O to K-test half plots	P2O564	K2O64
None	None	0	0
500	315	500	315
1000	630	1000	630
2000	1260	2000	1260

https://doi.org/10.23637/ERADOC-1-141

Sixty fourth plots:

6. On P-test half plots: Residuals of P2O5 applied 1970-72 (total, kg) To barley — On K-test half plots: K2O applied 1975 (kg) (cumulative to dressings in 1973-74) To potatoes — To sugar beet — P2O5(70-2) Barley — K2O75 Potatoes — S.Beet

None	None	None	0	0	0
375	250	310	375	250	310

Strips of sixty fourth plots:

7. On P-test half plots: N (kg) to barley 1975 — On K-test half plots: Crops in 1975 — N75 — CROP

63	Potatoes	63	Potatoes
94	Sugar beet	94	Sugar beet

Sub plot dimensions: Plots 1, 2, 3 and 4 - 6.04 x 3.02. Plots 5, 6 - 5.43 x 3.02.

Standard applications:

Barley: Manures: K2O at 130 kg as muriate of potash. Weedkillers: Dicamba with mecoprop and MCPA ('Tetralex Plus' at 4.2 l in 280 l).

Potatoes: Manures: N at 250 kg as 'Nitro-Chalk', P2O5 at 190 kg as superphosphate, MgO at 100 kg as kieserite. Weedkillers: Linuron at 1.1 kg with paraquat at 0.42 kg ion in 280 l. Insecticide: Menazon at 0.28 kg in 280 l twice. Fungicide: Mancozeb at 1.3 kg applied with second insecticide spray.

Sugar beet: Manures: N at 190 kg as 'Nitro-Chalk'. P2O5 at 130 kg as superphosphate. MgO at 100 kg as kieserite. Insecticide: Menazon at 0.28 kg in 280 l on three occasions.

Seed: Barley: Julia, dressed with ethirimol, sown at 170 kg.
Potatoes: King Edward, once grown Rothamsted seed.
Sugar beet: Klein E, sown at 13 kg.

Cultivations, etc.:-

All plots: Ploughed: 9 Dec, 1974. Spring-tine cultivated and power harrowed: 29 Apr, 1975.

Barley: K applied: 5 Nov, 1974. Seed sown and N applied: 30 Apr. Weedkiller applied: 13 June. Combine harvested: 15 Aug.

Potatoes: Standard N, P, Mg and test K applied: 1 May, 1975, spike rotary cultivated and potatoes planted: 12 May. Weedkillers applied: 4 June. Insecticide applied: 30 June, and with fungicide: 18 July. Lifted: 23 Sept.

Sugar beet: Standard N, P, Mg and treatment K applied: 1 May, 1975. Power harrowed and seed sown: 2 May. Insecticide applied: 17 June, 30 June, 18 July. Lifted: 16 Oct.

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75/R/AG/6

P-TEST HALF PLOTS

BARLEY

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

PREVCROP ARABLE

P20570 2	P20564	OLDRESD OLDROTN N74	NONE FALLOW	LEGUME	PKNAMG FALLOW	NPKNAMGC LEGUME	FALLOW	LEGUME
0	0	63	2.90	3.28	4.45	2.52	2.56	3.04
		94	2.29	3.05	4.67	3.75	3.50	2.36
	500	63	2.29	3.34	4.19	3.00	3.27	2.75
		94	3.45	2.49	4.16	4.03	3.72	2.65
	1000	63	3.70	4.05	4.56	4.22	2.20	3.53
		94	3.72	3.59	4.82	3.95	3.55	3.25
	2000	63	3.12	4.32	4.18	3.68	3.63	3.43
		94	3.15	4.77	4.53	3.72	4.16	3.67
375	0	63	2.46	4.02	4.34	3.00	3.31	3.02
		94	2.15	4.29	4.79	3.80	3.75	3.04
	500	63	3.40	3.64	4.30	3.11	3.76	3.42
		94	3.78	2.89	4.56	4.28	4.13	3.21
	1000	63	4.26	3.59	4.63	4.57	2.90	3.77
		94	4.29	3.83	4.64	4.33	3.88	3.90
	2000	63	3.24	4.25	4.56	3.70	3.28	3.08
		94	3.14	4.57	5.06	4.08	3.56	3.47

PREVCROP GRASS

P20570 2	P20564	OLDRESD OLDROTN N74	NONE FALLOW	LEGUME	PKNAMG FALLOW	NPKNAMGC LEGUME	FALLOW	LEGUME
0	0	63	2.31	1.93	0.72	2.10	3.21	2.05
		94	2.43	1.27	3.11	3.10	3.40	2.53
	500	63	3.30	3.59	3.92	2.09	3.16	3.37
		94	3.28	3.66	3.81	2.16	3.95	3.96
	1000	63	4.07	3.43	2.87	3.50	3.32	3.73
		94	3.82	3.27	3.85	4.13	4.23	4.17
	2000	63	4.14	4.43	4.55	3.10	4.11	3.93
		94	4.70	4.75	4.97	3.16	4.37	4.12
375	0	63	3.48	3.42	2.51	2.50	3.47	3.02
		94	3.23	3.21	3.71	3.60	3.76	3.08
	500	63	3.70	4.26	4.13	3.19	3.66	3.54
		94	2.95	3.80	4.67	2.62	4.47	3.90
	1000	63	3.90	4.15	2.61	3.51	3.97	3.98
		94	4.57	3.72	4.52	4.32	4.36	4.56
	2000	63	4.28	4.51	4.54	2.36	3.74	4.38
		94	4.92	4.48	4.90	2.88	4.47	4.33

GRAIN MEAN DM% 84.9

PLOT AREA HARVESTED 0.00085

https://doi.org/10.23637/ERADOC-1-141

75/R/AG/6

K-TEST HALF PLOTS

POTATOES

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

PREVCROP ARABLE

K2075	OLDRESD OLDROTN K2064	NONE		PKNAMG		NPKNAMGC	
		FALLOW	LEGUME	FALLOW	LEGUME	FALLOW	LEGUME
0	0	7.8	7.2	11.9	9.9	10.6	8.9
	315	5.5	8.3	11.2	12.3	7.0	11.3
	630	10.9	8.2	9.4	9.8	8.4	9.0
	1260	8.2	7.5	9.8	11.4	13.4	14.6
250	0	10.8	11.5	9.6	11.9	8.1	12.4
	315	9.8	8.4	13.7	13.6	10.4	9.2
	630	9.0	9.8	10.4	12.6	10.5	12.1
	1260	11.6	12.5	9.1	12.2	13.1	12.1

PREVCROP GRASS

K2075	OLDRESD OLDROTN K2064	NONE		PKNAMG		NPKNAMGC	
		FALLOW	LEGUME	FALLOW	LEGUME	FALLOW	LEGUME
0	0	3.5	2.5	3.9	5.4	3.2	4.9
	315	7.1	2.3	8.3	9.9	7.8	6.9
	630	7.3	6.3	10.5	9.8	9.5	10.5
	1260	6.7	2.4	14.2	12.2	7.9	11.6
250	0	10.9	8.0	13.2	13.7	8.4	9.6
	315	11.2	4.5	12.3	14.1	12.6	12.3
	630	12.6	9.1	11.1	11.9	8.9	12.7
	1260	13.3	3.9	9.0	15.0	12.5	13.5

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75/R/AG/6

K-TEST HALF PLOTS

POTATOES

PERCENTAGE WARE 3.81CM (1.5 INCH) RIDDLE

*** TABLES OF MEANS ***

PREVCROP ARABLE

	OLDRESD	NONE		PKNAMG		NPKNAMGC	
	OLDROTN	FALLOW	LEGUME	FALLOW	LEGUME	FALLOW	LEGUME
K2075	K2064						
0	0	72.3	58.5	77.0	66.5	61.0	61.6
	315	62.2	66.9	76.6	68.6	47.9	67.7
	630	71.8	64.2	67.3	71.9	67.5	55.7
	1260	70.9	74.4	70.6	72.8	68.6	65.8
250	0	77.0	76.7	69.0	74.4	45.6	68.4
	315	64.1	62.2	76.4	69.6	48.9	59.1
	630	55.2	68.6	64.7	70.3	60.6	70.5
	1260	81.5	64.4	70.7	68.0	67.6	71.0

PREVCROP GRASS

	OLDRESD	NONE		PKNAMG		NPKNAMGC	
	OLDROTN	FALLOW	LEGUME	FALLOW	LEGUME	FALLOW	LEGUME
K2075	K2064						
0	0	41.2	50.7	26.2	40.7	16.1	46.0
	315	77.1	67.2	73.3	64.0	57.9	57.5
	630	69.6	62.9	68.0	67.1	56.0	60.9
	1260	56.2	64.1	76.5	67.8	58.7	72.2
250	0	76.3	70.5	75.2	66.6	59.5	70.0
	315	69.8	72.1	75.7	65.4	70.2	74.8
	630	77.7	68.8	67.0	74.8	52.7	72.9
	1260	75.8	92.7	66.7	70.7	73.1	64.8

SUB PLOT AREA HARVESTED 0.00069

https://doi.org/10.23637/ERADOC-1-141 *pp 35*

75/R/AG/6

K-TEST HALF PLOTS

SUGAR BEET

ROOTS (WASHED) TONNES/HECTARE

*** TABLES OF MEANS ***

PREVCROP ARABLE

	OLDRESD	NONE		PKNAMG		NPKNAMGC	
	OLDROTN	FALLOW	LEGUME	FALLOW	LEGUME	FALLOW	LEGUME
K2075	K2064						
0	0	14.5	14.8	15.7	19.3	15.4	17.1
	315	15.7	16.0	17.7	16.6	20.3	17.9
	630	14.8	16.9	18.6	19.3	19.2	17.5
	1260	18.5	15.2	19.5	18.8	16.7	20.6
310	0	16.3	17.2	20.1	21.2	18.8	18.6
	315	15.8	18.6	19.9	20.2	17.5	18.8
	630	17.8	20.9	21.4	20.5	18.6	18.5
	1260	16.7	17.6	21.5	20.8	14.5	20.6

PREVCROP GRASS

	OLDRESD	NONE		PKNAMG		NPKNAMGC	
	OLDROTN	FALLOW	LEGUME	FALLOW	LEGUME	FALLOW	LEGUME
K2075	K2064						
0	0	11.8	16.0	11.4	17.1	13.7	15.8
	315	17.5	14.3	16.2	18.4	16.0	15.0
	630	13.9	17.8	17.3	19.9	17.6	17.9
	1260	16.3	14.5	16.8	18.1	19.7	17.1
310	0	17.5	16.9	17.6	20.5	17.0	15.1
	315	19.5	15.4	18.0	23.4	19.4	19.8
	630	13.6	19.4	20.3	19.8	19.3	17.3
	1260	17.2	17.5	17.5	22.5	21.6	22.7

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75/R/AG/6

K-TEST HALF PLOTS

SUGAR BEET

SUGAR PERCENTAGE

*** TABLES OF MEANS ***

PREVCROP ARABLE

	OLDRESD	NONE		PKNAMG		NPKNAMGC	
	OLDROTN	FALLOW	LEGUME	FALLOW	LEGUME	FALLOW	LEGUME
K2O75	K2O64						
0	0	13.8	14.2	14.9	14.4	13.8	14.6
	315	13.9	14.0	14.5	14.6	14.2	15.1
	630	14.7	14.4	15.1	14.8	14.5	15.3
	1260	15.1	14.2	15.0	14.7	14.7	14.7
310	0	14.7	14.7	15.0	14.7	14.6	15.3
	315	14.7	14.4	15.1	15.0	14.4	15.4
	630	14.5	14.4	14.9	14.9	14.7	15.1
	1260	14.9	14.2	15.2	14.8	14.3	15.3

PREVCROP GRASS

	OLDRESD	NONE		PKNAMG		NPKNAMGC	
	OLDROTN	FALLOW	LEGUME	FALLOW	LEGUME	FALLOW	LEGUME
K2O75	K2O64						
0	0	13.4	12.7	13.3	13.5	13.3	12.8
	315	13.2	14.1	14.5	13.8	13.2	13.8
	630	13.6	13.6	13.5	14.1	14.0	14.0
	1260	14.2	14.2	14.5	14.1	14.6	14.6
310	0	14.1	14.2	14.4	14.4	14.2	14.8
	315	14.3	13.9	14.6	14.4	14.4	15.0
	630	13.8	14.1	14.8	14.4	14.2	14.4
	1260	14.7	14.9	14.6	14.9	14.6	15.1

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75/R/AG/6

K-TEST HALF PLOTS

SUGAR BEET

TOTAL SUGAR TONNES/HECTARE

*** TABLES OF MEANS ***

PREVCROP ARABLE

	OLDRESD	NONE		PKNAMG		NPKNAMGC	
	OLDROTN	FALLOW	LEGUME	FALLOW	LEGUME	FALLOW	LEGUME
K2075	K2064						
0	0	2.00	2.10	2.33	2.78	2.13	2.50
	315	2.18	2.23	2.57	2.42	2.89	2.70
	630	2.17	2.42	2.82	2.85	2.78	2.67
	1260	2.79	2.16	2.92	2.77	2.46	3.02
310	0	2.39	2.52	3.00	3.12	2.73	2.85
	315	2.32	2.68	3.01	3.04	2.52	2.89
	630	2.58	3.00	3.19	3.05	2.74	2.80
	1260	2.49	2.50	3.26	3.08	2.07	3.15

PREVCROP GRASS

	OLDRESD	NONE		PKNAMG		NPKNAMGC	
	OLDROTN	FALLOW	LEGUME	FALLOW	LEGUME	FALLOW	LEGUME
K2075	K2064						
0	0	1.58	2.03	1.52	2.31	1.83	2.03
	315	2.31	2.02	2.35	2.54	2.12	2.07
	630	1.89	2.42	2.34	2.82	2.47	2.50
	1260	2.31	2.06	2.44	2.56	2.87	2.50
310	0	2.47	2.39	2.54	2.94	2.41	2.24
	315	2.79	2.14	2.63	3.37	2.80	2.96
	630	1.87	2.73	3.01	2.85	2.75	2.49
	1260	2.52	2.60	2.56	3.36	3.15	3.41

https://doi.org/10.23637/ERADOC-1-141 *pp 38*

75/R/AG/6

K-TEST HALF PLOTS

SUGAR BEET

TOPS TONNES/HECTARE

*** TABLES OF MEANS ***

PREVCROP ARABLE

	OLDRESD	NONE		PKNAMG		NPKNAMGC	
	OLDROTN	FALLOW	LEGUME	FALLOW	LEGUME	FALLOW	LEGUME
K2075	K2064						
0	0	15.3	19.2	17.0	16.7	14.0	18.8
	315	15.5	16.4	16.0	15.9	17.5	15.3
	630	14.1	15.7	15.1	18.0	16.3	16.8
	1260	12.9	15.4	18.9	17.7	14.5	19.0
310	0	12.1	17.8	18.3	18.8	15.7	22.4
	315	15.8	16.3	16.6	21.5	17.7	16.6
	630	20.1	20.3	19.3	19.8	19.0	18.3
	1260	15.2	16.9	19.5	17.5	17.1	19.7

PREVCROP GRASS

	OLDRESD	NONE		PKNAMG		NPKNAMGC	
	OLDROTN	FALLOW	LEGUME	FALLOW	LEGUME	FALLOW	LEGUME
K2075	K2064						
0	0	18.8	20.9	20.8	27.2	21.9	25.9
	315	19.4	12.7	19.4	22.9	24.2	23.8
	630	15.8	19.8	22.3	22.0	18.3	20.1
	1260	13.9	14.3	17.9	19.4	19.5	18.9
310	0	19.4	20.6	22.0	23.6	19.9	20.1
	315	20.0	14.2	20.3	24.1	24.1	23.9
	630	13.8	18.3	20.3	21.9	21.5	20.2
	1260	14.9	18.6	21.2	23.0	21.9	22.8

SUB PLOT AREA HARVESTED 0.00077

https://doi.org/10.23637/ERADOC-1-141 *pp 39*

75/R/BN/7

BARNFIELD

Object: The experiment was designed to study the effects of organic and inorganic manures on continuous roots. It has been progressively modified to study effects on other crops.

The ninth year of beans on Sections 1 and 2. The first year of Italian ryegrass on the rest of the experiment except for the discard of Strip 4, sown to wheat for take-all studies.

For previous years see 'Details' 1967, 68/A/5(t), 69/R/BN/7, 70/R/BN/7(t), 71/R/BN/7(t), 72/R/BN/7(t) and 73-74/R/BN/7.

Plot dimensions:
Beans: Section 1 (half plots): 5.33 x 55.9. (Strips 1 and 8: 4.27 x 55.9).
Ryegrass: 10.67 x 55.9.

Treatments to ryegrass: All combinations of:-

Whole plots: 1. Fertilisers and organic manures:

	MANURE
D N	DN
D N P K	DNPK
N P K (Na) Mg	NPKMG
N P	NP
N P K	NPK
N P (Na) Mg	NPMG
N	N
N K (Na) Mg	NKMG

N: 75 kg N per cut (since 1975 only) as 'Nitro-Chalk'.
P: 35 kg P as single superphosphate (triple superphosphate in 1974).
K: 225 kg K as sulphate of potash.
(Na): 90 kg Na as sodium chloride until 1973.
Mg: 90 kg Mg as kieserite every fourth year since 1974 (sulphate of magnesia until 1973).
D: Farmyard manure at 35 tonnes.

Half plots: 2. Previous cropping in 1973 (fallow 1974):

	PREVCROP(73)
Potatoes	POTATOES
Sugar beet	SUGBEET

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Sixteenth plots: 3. Nitrogen fertiliser in 1973 as 'Nitro-Chalk' cumulative to previous years (kg N): N(73)

None	0
72	72
144	144
216	216

and partial combinations (excluding treatment NK (Na) Mg) with previous treatments:

4. Residues of forms of N (each suppling 96 kg N): NFORMRES

Nitrate of soda	NS
Sulphate of ammonia	SA
Sulphate of ammonia + castor meal	SA/CM
Castor meal	CM

Castor meal last applied 1961, others until 1959.

NOTE: Yields were not taken from the ryegrass.

Treatments to beans: All combinations of:-

Whole plots: 1. Fertilisers and organic manures: MANURE

D	D
D P K	DPK
P K (Na) Mg	PKMG
P	P
P K	PK
P (Na) Mg	PMG
None	NONE

Rates and forms as for ryegrass

2. Previous crop in 1974 (after continuous beans 1967-1973): PREVCROP(74)

Beans	BEANS
Fallow	FALLOW

Standard applications:
Spring beans: Insecticide: Demeton-s-methyl at 0.25 kg in 450 l.
Ryegrass: Manures: N at 75 kg. Weedkiller: MCPA ('Phenoxylene Plus' at 5.6 l in 220 l).

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Seed: Beans, Maris Bead, sown at 220 kg.
Ryegrass, Italian ryegrass sown at 25 kg.

Cultivations, etc.:- P,K, Mg and FYM applied: 5-10 Feb, 1975. Ploughed: Strips 1 and 2: 11-24 Feb, remainder: 1 Mar.
Spring beans: Spring-tine cultivated: 29 Apr. Spring-tine cultivated twice and power harrowed: 30 Apr. Seed sown and spring-tine cultivated: 1 May. Tractor-hoed: 27 May and 25 June. Insecticide applied: 9 July. Combine harvested: 29 Aug.
Fallow: Spring-tine cultivated: 10 June. Rotary cultivated: 23 June. Deep-tine cultivated: 30 June.
Ryegrass: Spring-tine cultivated twice: 5 May. N applied: 6 May. Power harrowed (excluding strips 1 and 2): 9 May. Spring-tine cultivated: 12 May. Seed sown: 15 May. Weedkiller applied: 30 June. Topped: 28 July, 19 Aug (strips 1 and 2 only) and 24 Oct.

75/R/BN/7

BEANS

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

PREVCROP(74) MANURE	BEANS	FALLOW	MEAN
D	0.49	0.41	0.45
DPK	0.99	0.75	0.87
PKMG	0.43	0.38	0.41
P	0.27	0.30	0.29
PK	0.31	0.25	0.28
PMG	0.44	0.37	0.40
NONE	0.16	0.23	0.19
MEAN	0.44	0.38	0.41

GRAIN MEAN DM% 87.3

PLOT AREA HARVESTED 0.00585

https://doi.org/10.23637/ERADOC-1-141

75/R/GC/8

GARDET CLOVER

Object: To study yields and pathogens of red clover grown continuously - Manor Garden.

The 122nd year, red clover.

For previous years see 'Details' 1967, 68/A/8(t) and 69-74/R/GC/8.

Whole plot dimensions: 2.13 x 3.05.

Treatments: Residual effects of fertilisers applied in previous years. All combinations of:-

1. Nitrogen fertiliser (kg N per cut 1967-72): NPERCUT(72)

0	0
126	126

2. Magnesium fertiliser (kg Mg/annum 1968-72): MG(72)

0	0
112	112

NOTE: In 1973 plots which had not previously received magnesium were given a corrective dressing of Mg at 500 kg as Epsom salts.

Basal applications: Manures: (0:14:28) at 540 kg. K20 at 75 kg, as muriate of potash, after each cut except the last. Mg at 110 kg, as Epsom salts, half in spring, half after first cut. N at 130 kg, as 'Nitro-Chalk', in spring and after each cut except the last.

Seed: English Broad Red sown at 34 kg.

Cultivations, etc.:- Area hand dug, all plants removed: 21 Oct, 1974. Basal PK and Mg applied: 1 Apr, 1975. Area raked down to seedbed, seed sown, basal N applied: 24 Apr. Cut: 15 Aug. Basal N, K and Mg applied: 18 Aug. Cut: 6 Oct.

NOTE: Samples of herbage were taken for determination of N, P, K, Ca, Na and Mg.

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75/R/GC/8

DRY MATTER TONNES/HECTARE

** TABLES OF MEANS ***

NPERCUT(72)	0		126		
MG(72)	0	112	0	112	MEAN
1ST CUT (15/8/75)	0.71	0.60	0.64	0.74	0.67
2ND CUT (6/10/75)	0.53	0.49	0.59	0.71	0.58
TOTAL OF 2 CUTS	1.24	1.09	1.23	1.44	1.25

MEAN DM% 1ST CUT: 38.2
2ND CUT: 16.9
TOTAL OF 2 CUTS: 27.5

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75/S/RN/1

ROTATION I

Object: To compare nutrient cycles, uptakes of nutrients and responses to fresh P and K of lucerne and grass leys. To obtain an estimate of the rate of release of nutrients, particularly K, from Saxmundham soil. The effects of lucerne and grass leys will be compared on subsequent arable crops - Saxmundham.

Sponsors: A.E. Johnston, P.W.H. Brown.

For previous years see 'Details' 1967, 68/A/9(t), 69/S/RN/1(t), 70/S/RN/1(t) and 71-74/S/RN/1.

Whole plot dimensions (new treatments): 5.49 x 17.1.

Treatments: From 1899 to 1969 the experiment followed a four-course rotation of wheat, roots, barley, legumes. Each phase of the rotation was present each year on a separate block. From 1966 each plot was divided, a small area at the south end continued under the original treatment (OLDTREAT), on the larger sub-plots modified treatments (NEWTREAT) were applied (see below).

In 1970 the rotation was stopped and each pair of blocks was divided for lucerne and grass
(the OLDTREAT sub-plots form a part of the Grass area).

TREATMENT 1899-1965	OLDTREAT Grass	NEWTREAT Lucerne	NEWTREAT' Grass
	MANURE	MANURE	MANURE
D	(D)	(D)	(D)N
B	B	B	BN
N	N	(N)P2	(N)P2N
P	P	(P)P1	(P)P1N
K	K	(K)P2K	(K)P2KN
-	-	(-)P2	(-)P2N
PK	PK	(PK)P1K	(PK)P1KN
NK	NK	(NK)P2K	(NK)P2KN
NP	NP	(NP)P1	(NP)P1N
NPK	NPK	(NPK)P1K	(NPK)P1KN

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D: Farmyard manure at 15 tonnes
(D): Farmyard manure at 30 tonnes (1966-1969 15 tonnes on OLDTREAT), 60 tonnes in autumn 1969, none since.
B: Bone meal at 0.5 tonnes
N: 1899-1965 - 38 kg N as nitrate of soda. Since 1970 - 100 kg N (38 kg N on OLDTREAT) per cut as 'Nitro-Chalk'
P: 1899-1965 - 40 kg P_2O_5 as single superphosphate. Since 1966 - 50 kg P_2O_5 as triple superphosphate
P1,P2: 50, 100 kg P_2O_5 as triple superphosphate (single superphosphate until 1965)
K: 1899-1965 63 kg K_2O as muriate of potash. Since 1966 - 126 kg K_2O (75 kg K_2O on OLDTREAT)

NOTES: (1) For a fuller record of treatments see 'Details' etc.
(2) On OLDTREAT grass, clover appeared naturally on some plots in 1975. To unify the plots white clover was sown on all at 33 kg.

Cultivations, etc.:-
Oldtreat Grass: PK and bone meal applied: 19 Feb, 1975. N applied: 26 Mar, 19 June. Clover broadcast and harrowed in: 6 May. Cut: 11 June and 5 Sept.
Newtreat Grass: P, K and bone meal applied: 19 Feb, 1975. N applied: 29 Apr and 19 June. Cut: 11 June and 5 Sept.
Newtreat Lucerne: Paraquat applied at 0.56 kg ion in 340 l: 7 Dec, 1974. PK and bone meal applied: 19 Feb, 1975. Cut: 19 June. Paraquat applied at 1.1 kg ion in 340 l: 10 July. Rotary cultivated: 14 July. Seed sown: 6 Aug but failed to germinate.

GRASS OLD TREATMENTS

1ST AND ONLY CUT (11/6/75)

DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

MANURE	
(D)	1.46
B	1.07
N	1.37
P	0.96
K	0.42
-	0.49
PK	1.31
NK	1.58
NP	1.75
NPK	1.55
MEAN	1.20

MEAN DM% 35.5

PLOT AREA HARVESTED 0.00050

https://doi.org/10.23637/ERADOC-1-141 *pp 46*

75/S/RN/1

GRASS NEW TREATMENTS

DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

MANURE	1ST CUT (11/6/75)	2ND CUT (5/8/75)	TOTAL OF 2 CUTS
(D)N	6.94	2.70	9.64
BN	5.72	1.44	7.17
(N)P2N	5.72	1.79	7.51
(P)P1N	5.77	1.43	7.20
(K)P2KN	5.70	1.82	7.52
(-)P2N	5.71	1.50	7.21
(PK)P1KN	6.02	1.89	7.91
(NK)P2KN	5.97	1.94	7.91
(NP)P1N	5.86	1.63	7.49
(NPK)P1KN	6.14	1.85	7.99
MEAN	5.95	1.80	7.75

1ST CUT MEAN DM% 27.3

2ND CUT MEAN DM% 39.8

TOTAL OF 2 CUTS MEAN DM% 33.6

1ST CUT PLOT AREA HARVESTED 0.00120

2ND CUT PLOT AREA HARVESTED 0.00156

LUCERNE NEW TREATMENTS

1ST AND ONLY CUT (19/6/75)

DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

MANURE	
(D)	3.92
B	3.26
(N)P2	3.15
(P)P1	2.70
(K)P2K	3.61
(-)P2	2.89
(PK)P1K	3.60
(NK)P2K	3.68
(NP)P1	2.56
(NPK)P1K	3.33
MEAN	3.27

MEAN DM% 25.3

PLOT AREA HARVESTED 0.00003

https://doi.org/10.23637/ERADOC-1-141

75/S/RN/2

ROTATION II

Object: To measure, by crop yields and soil analysis, the residual value of P applied as FYM or superphosphate in the periods 1899-1964 and 1965-1967 - Saxmundham.

Sponsor: G.E.G. Mattingly, A.E. Johnston.

The seventh year of revised scheme, barley.

For previous years see 'Details' 1967, 68/A/10(t), 69/S/RN/2(t) and 70-74/S/RN/2.

Whole plot dimensions: 5.49 x 39.8.

Treatments: From 1899-1964 the experiment tested farmyard manure and nitrogen and phosphate fertilisers applied to a rotation of crops. Since 1965 the treatments have been changed to evaluate old residues of P (from FYM and superphosphate) and new residues from treatments applied 1965-1967. All crops of the rotation - potatoes, barley, sugar beet, barley - were grown until 1974. The whole experiment was sown to barley in 1975 and tests combinations of:

Whole plots: 1. Residues of previous treatments:-

	Approximate total dressing 1899-1964	Total dressing 1965-1967	RESIDUE
Plot 1	None	None	(O)O
Plot 2	400 tonnes FYM	None	(D)O
Plot 3	400 tonnes FYM, 2.7 tonnes P_2O_5	None	(DP)O
Plot 4	400 tonnes FYM, 2.7 tonnes P_2O_5	100 tonnes FYM	(DP)I2
Plot 5	400 tonnes FYM, 2.7 tonnes P_2O_5	100 tonnes FYM, 0.56 tonnes P_2O_5	(DP)I2P1
Plot 6	400 tonnes FYM, 2.7 tonnes P_2O_5	0.56 tonnes P_2O_5	(DP)P1
Plot 7	400 tonnes FYM, 2.7 tonnes P_2O_5	1.13 tonnes P_2O_5	(DP)P2
Plot 8	326 tonnes FYM, 4.3 tonnes P_2O_5 (until 1952 only)	None	(DP52)O

https://doi.org/10.23637/ERADOC-1-141

Barley after potatoes (1974) and after sugar beet (1974) tests in addition to 1:-

Sub plots: 2. Phosphate residues 1970-72 (total P2O5 applied (kg)): P2O5(72)

None (2 sub plots/plot)	(0)
126	(126)
252	(252)
378	(378)

and some of the combinations of 2 with:-

3. Phosphate in 1974 and 1975 (kg P2O5): P2O5 74'75

1974	1975	
None	None	(0)0
63	63	(63)63
189	None	(189)0

Barley after barley (1974) after potatoes or sugar beet (1973) tests in addition to 1:-

Sub plots: 2. Phosphate residues 1969-71 (total P2O5 applied (kg)): P2O5(71)

None (2 sub plots/plot)	(0)
126	(126)
252	(252)
378	(378)

and some of the combinations of 2 with:-

3. Phosphate in 1973, 74 and 75 (kg P2O5): P2O573-5

1973	1974&75	
None	None	(0)0
63	63	(63)63
189	None	(189)0

Standard applications: Manures: (25:0:16) at 320 kg. Weedkiller: Dichloroprop plus MCPA ('Mephetol Plus' at 5.6 l in 280 l). Fungicide: Tridemorph at 0.53 kg applied with the weedkiller.

Seed: Julia, dressed with ethirimol, sown at 170 kg.

Cultivation, etc.:- Ploughed: 27 Nov, 1974. Test P applied: 22 Apr, 1975. NK applied and seed sown: 28 Apr. Weedkiller and fungicide applied: 11 June. Combine harvested: 21 Aug.

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75/S/RN/2

BARLEY AFTER POTATOES

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

P205(72)	(0)			(126)		(252)		(378)	
P2057475	0	63	189	63	189	63	189	63	189
RESIDUE									
(0)0	3.60		3.71	4.86			4.73	4.56	
(D)0	4.37	5.08			5.24	5.57			5.47
(DP)0	4.93	5.11			5.34	5.54			4.96
(DP)D2	5.58		5.31	5.53			5.12	5.77	
(DP)D2P1	5.42	5.55			5.56	5.36			5.60
(DP)P1	5.22	5.22			4.73	5.36			5.33
(DP)P2	5.37		5.42	5.25			5.79	5.66	
(DP52)0	5.37		4.71	4.95			5.20	5.40	

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

P205(72)	(0)			(126)		(252)		(378)	
P2057475	0	63	189	63	189	63	189	63	189
RESIDUE									
(0)0	1.96		2.15	2.43			3.02	2.71	
(D)0	2.78	3.21			3.29	3.41			3.43
(DP)0	2.94	2.87			3.18	3.58			3.10
(DP)D2	3.47		3.52	3.47			3.36	3.67	
(DP)D2P1	3.40	3.33			3.67	3.03			4.00
(DP)P1	3.03	3.36			3.04	3.72			3.36
(DP)P2	3.69		3.41	3.21			3.66	3.88	
(DP52)0	3.36		3.18	3.31			3.34	3.51	

STRAW MEAN DM% 62.6

PLOT AREA HARVESTED 0.00060

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75/S/RN/2

BARLEY AFTER BARLEY AFTER POTATOES

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

P2O5(71)	(0)			(126)		(252)		(378)	
P2O573 5	(0)0	(63)63	(189)0	(63)63	(189)0	(63)63	(189)0	(63)63	(189)0
RESIDUE									
(0)0	2.18	4.27			3.05	4.17			3.06
(D)0	3.22		3.52	4.37			3.31	4.40	
(DP)0	4.82		4.54	4.94			5.16	4.30	
(DP)D2	4.95	5.30			4.81	5.12			4.77
(DP)D2P1	5.18		5.28	5.30			5.41	5.22	
(DP)P1	5.26		5.28	5.49			5.49	5.25	
(DP)P2	4.60	5.32			5.33	5.24			5.25
(DP52)0	5.08	4.95			4.53	5.60			4.91

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

P2O5(71)	(0)			(126)		(252)		(378)	
P2O573 5	(0)0	(63)63	(189)0	(63)63	(189)0	(63)63	(189)0	(63)63	(189)0
RESIDUE									
(0)0	1.48	2.83			1.61	2.63			1.54
(D)0	2.04		1.99	2.40			1.80	2.39	
(DP)0	2.99		2.76	3.09			3.06	2.58	
(DP)D2	3.13	3.55			3.15	3.16			2.64
(DP)D2P1	3.40		3.15	3.61			3.32	3.17	
(DP)P1	3.54		3.44	3.27			3.48	3.43	
(DP)P2	3.17	1.98			3.31	3.49			3.20
(DP52)0	2.93	3.16			2.41	3.44			2.85

STRAW MEAN DM% 61.2

PLOT AREA HARVESTED 0.00060

https://doi.org/10.23637/ERADOC-1-141

75/S/RN/2

BARLEY AFTER SUGAR BEET

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

P205(72)	(0)			(126)		(252)		(378)	
P2057475	0	63	189	63	189	63	189	63	189
RESIDUE									
(0)0	2.83	3.18			2.50	2.78			2.97
(D)0	2.88		3.52	3.30			3.86	4.10	
(DP)0	4.22		4.14	4.39			3.99	4.43	
(DP)D2	3.82	5.27			4.79	4.78			5.12
(DP)D2P1	5.09		4.54	4.76			5.01	4.60	
(DP)P1	4.48		4.99	5.12			5.32	4.47	
(DP)P2	4.68	4.37			5.00	5.20			4.92
(DP52)0	3.47	4.94			4.75	4.61			5.01

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

P205(72)	(0)			(126)		(252)		(378)	
P2057475	0	63	189	63	189	63	189	63	189
RESIDUE									
(0)0	1.48	1.88			1.54	1.67			1.26
(D)0	1.52		1.98	1.99			2.23	2.50	
(DP)0	2.54		2.40	2.97			2.42	2.99	
(DP)D2	2.17	3.12			2.94	2.75			3.18
(DP)D2P1	3.46		2.82	3.22			3.37	2.91	
(DP)P1	2.92		3.19	3.61			3.74	2.85	
(DP)P2	3.10	2.88			3.11	3.35			3.12
(DP52)0	1.81	3.29			2.82	2.46			3.17

STRAW MEAN DM% 61.2

PLOT AREA HARVESTED 0.00060

https://doi.org/10.23637/ERADOC-1-141

75/S/RN/2

BARLEY AFTER BARLEY AFTER SUGAR BEET

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

P205(71)	(0)			(126)		(252)		(378)	
P20573 5	(0)0	(63)63	(189)0	(63)63	(189)0	(63)63	(189)0	(63)63	(189)0
RESIDUE									
(0)0	2.00		2.08	3.52			3.08	4.18	
(D)0	3.31	4.17			4.10	4.86			4.29
(DP)0	4.47	5.00			4.87	4.90			4.16
(DP)D2	5.23		5.84	5.48			5.74	6.20	
(DP)D2P1	5.47	5.30			5.42	5.55			5.07
(DP)P1	4.95	5.07			5.37	5.25			5.21
(DP)P2	5.49		6.23	5.60			5.25	6.01	
(DP52)0	4.82		4.86	5.47			5.38	5.21	

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

P205(71)	(0)			(126)		(252)		(378)	
P20573 5	(0)0	(63)63	(189)0	(63)63	(189)0	(63)63	(189)0	(63)63	(189)0
RESIDUE									
(0)0	1.51		1.39	1.82			1.88	2.00	
(D)0	2.17	2.30			2.57	2.80			2.57
(DP)0	2.74	3.09			3.15	2.92			2.40
(DP)D2	3.23		3.70	3.28			3.56	3.79	
(DP)D2P1	3.36	3.25			3.66	3.51			3.18
(DP)P1	3.35	3.10			3.38	3.15			3.22
(DP)P2	3.52		4.01	3.71			2.73	3.99	
(DP52)0	3.05		3.03	3.40			3.30	3.22	

STRAW MEAN DM% 61.0

PLOT AREA HARVESTED 0.00060

https://doi.org/10.23637/ERADOC-1-141

75/R/RN/1 and 75/R/RN/2

LEY/ARABLE

Object: To study the effects of three-year leys on the fertility of the soil as measured by a sequence of three arable test crops. Since 1968, continuous wheat has been grown after the three test crops to study the build-up and decline of take-all (Gaeumannomyces graminis) after the different cropping sequences - Highfield and Fosters.

Sponsors: A.E. Johnston, D.P. Slope.

The 27th year, old grass, leys, oats, wheat.

For previous years see 'Details' 1967, 68/B/1(t), 69/R/RN/1&2(t), 70/R/RN/1&2(t), 71/R/RN/1&2(t) and 72-74/R/RN/1&2.

The experiment is duplicated on:-

A site with much organic matter initially (ploughed out from permanent grass) — HIGHFIELD

A site with little organic matter initially — FOSTERS

Treatments: The experiment originally tested four six-course rotations, with all phases present each year. In recent years these rotations were:- — ROTATION

Treatment crops	Test crops	
LU, LU, LU,	W, P, B	LUCERNE
LC, LC, LC,	W, P, B	CLOCRA
LN, LN, LN,	W, P, B	GRASS
H, SB, O,	W, P, B	ARABLE

LU = lucerne, LC = clover/grass ley, no nitrogen fertiliser, LN = all-grass ley with much nitrogen fertiliser, H = 1-year seeds hay, SB = sugar beet, O = oats, W = wheat, P = potatoes, B = barley.

In 1968 the order of test crops was changed to P, W, B except for those phases that had already started the sequence W, P, B.

In 1975 the barley test crop was changed to wheat.

On both fields in the first three years other plots were sown with long-term reseeded grass — RESEEDED

On Highfield plots of the old turf were left initially unploughed, for comparison with the three-year leys — OLDGRASS

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75/R/RN/1 and 75/R/RN/2

In 1962 and 1963 some of the old and reseeded grass plots were divided for management identical to:- Clover/grass ley — C
All-grass ley — N

From 1963 (reseeded) and 1968 (old grass) some grass plots were ploughed and cropped with the same test crops as above, thereafter these plots followed the Arable rotation. In 1973 some of these plots were returned to reseeded grass.

In 1975 the all-grass half plots of the reseeded grass plots were used for a new experiment (see 75/R/CS/169).

From 1968 only two phases on each field have continued in the original six-course rotation. All other phases have been sown to wheat every year at the end of the test-crop cycle. In 1975:-

Wheat, 7th test crop, 6th cereal (P,W,B,W,W,W,W)	CEREAL 6
Wheat, 8th test crop, 7th cereal (P,W,B,W,W,W,W,W)	CEREAL 7
Wheat, 10th test crop, 8th cereal (W,P,B,W,W,W,W,W,W,W)	CEREAL 8
Wheat, 11th test crop, 9th cereal (W,P,B,W,W,W,W,W,W,W,W)	CEREAL 9

Treatments to 7th-11th test crops wheat:-
Sub plots: Nitrogen fertiliser (kg N) in 1975:- — N 75

75	75
126	126
176	176
225	225

Treatments to 3rd test crop wheat (2nd cereal P,W,W):-
Sub plots: Farmyard manure residues, last applied 1968:- — FYMRES68

None	NONE
30 tonnes on each occasion	FYM

Sub sub plots: Residues of nitrogen fertiliser applied to potatoes 1973 (kg N):- — N(73)

None	0
80	80
160	160
240	240

Sub sub plots: Residues of nitrogen fertiliser applied to wheat 1974 (kg N):- — N(74)

None	0
50	50
100	100
150	150

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Sub sub plots: Nitrogen fertiliser in 1975 (kg N):-

	N 75
None	0
75	75
150	150
225	225

Standard applications:

3rd Treatment crops:

All-grass ley: Manures: 75 kg P2O5, 150 kg K2O as (0:14:28) in winter. 75 kg N, 48 kg K2O as (25:0:16) for each cut.

Clover-grass ley: Manures: 75 kg P2O5, 150 kg K2O as (0:14:28) in winter. 48 kg K2O as muriate of potash for each cut.

Lucerne: Manures: 115 kg P2O5, 230 kg K2O as (0:14:28) in winter.

Oats: Manures: 50 kg N, 50 kg P2O5, 77 kg K2O as (13:13:20) combine drilled. Weedkiller: Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l).

3rd, 7th, 8th, 10th and 11th Test crops:

Winter wheat: Manures: 75 kg P2O5 and 75 kg K2O as (0:20:20), combine drilled. Weedkillers: Mecoprop ('Compitox Extra' at 4.2 l in 220 l).

On Fosters all wheat, on Highfield 3rd test crop only - paraquat at 0.56 kg ion in 220 l, remaining wheat on Highfield 0.84 kg ion in 220 l.

Reseeded grass and Old grass: Manures: 75 kg P2O5 and 150 kg K2O as (0:14:28) in winter.

All-grass half plots: (excluding Reseeded grass): Manures: 75 kg N and 48 kg K2O as (25:0:16) for each cut.

Clover-grass half plots: 48 kg K2O as muriate of potash for each cut.

Seed: Wheat: Cappelle, sown at 200 kg.
Oats: Manod, sown at 200 kg.

Cultivations, etc.:-

3rd year Treatment crops:

All grass ley: PK applied: 15 Jan, 1975. NK applied: 5 Mar, 4 June, 18 Aug. Cut three times: 28 May, 31 July, 10 Nov.

Clover grass ley: PK applied: 15 Jan, 1975. K applied: 5 Mar, 4 June, 18 Aug. Cut three times: 28 May, 31 July, 10 Nov.

Lucerne: PK applied: 15 Jan, 1975. Cut three times: 10 June, 23 July, 10 Nov.

Oats: Ploughed: 17 Jan, 1975. Rotary cultivated and seed sown: 25 Mar. Weedkiller applied: 20 May. Combine harvested: 18 Aug.

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75/R/RN/1 and 75/R/RN/2

Test crops: Winter wheat (7th to 11th test crops):
Paraquat applied: 30 Sept, 1974. Ploughed: 11 Oct. Rotary cultivated: 14 Oct. Drilled: Fosters: 15 Oct, Highfield: 30 Oct. N applied: 22 Apr, 1975. Weedkiller applied: 9 May. Combine harvested: 12 Aug.
Winter wheat (3rd test crops):
Paraquat applied: Block 3, Fosters: 30 Sept, 1974. Block 1 Fosters and Blocks 1 and 4 Highfield: 14 Oct. Ploughed: 15 Oct. Rotary cultivated: 28 Oct. Seed sown: 31 Oct. N applied: 22 Apr, 1975. Weedkiller applied: 9 May. Combine harvested: 11 Aug.
Reseeded and Old grass (excluding all-grass half plots of reseeded grass):
PK applied: 15 Jan, 1975. NK applied to all-grass half plots and K to clover-grass half-plots: 5 Mar, 4 June and 18 Aug. Cut three times: 28 May, 31 July, 10 Nov.

https://doi.org/10.23637/ERADOC-1-141

75/R/RN/1 AND 75/R/RN/2

WHEAT 3RD TEST CROP CEREAL 2

GRAIN TONNES/HECTARE

HIGHFIELD

*** TABLES OF MEANS***

ROTATION	LUCERNE	CLOGRA	GRASS	ARABLE	MEAN
FYMRES(68)					
NONE	3.98	4.65	4.99	4.69	4.58
FYM	3.99	5.11	5.23	4.83	4.79
N(73)					
0	3.92	5.06	4.98	4.66	4.66
80	3.88	5.04	5.15	4.86	4.73
160	4.23	4.44	4.82	4.93	4.61
240	3.91	4.97	5.48	4.60	4.74
N(74)					
0	3.25	4.49	4.81	4.33	4.22
50	3.81	4.69	4.62	4.83	4.49
100	4.18	5.18	5.50	4.79	4.91
150	4.68	5.16	5.50	5.11	5.11
N 75					
0	2.31	3.59	3.49	2.71	3.02
75	3.96	5.53	4.97	4.75	4.81
150	4.53	4.86	5.92	5.98	5.32
225	5.13	5.53	6.05	5.61	5.58
MEAN	3.98	4.83	5.11	4.76	4.68

GRAIN MEAN DM% 85.9

SUB PLOT AREA HARVESTED 0.00325

https://doi.org/10.23637/ERADOC-1-141

75/R/RN/1 AND 75/R/RN/2

WHEAT 3RD TEST CROP CEREAL 2

GRAIN TONNES/HECTARE

POSTERS

*** TABLES OF MEANS ***

ROTATION FYMRES(68)	LUCERNE	CLOVER	GRASS	ARABLE	MEAN
NONE	5.54	5.36	5.38	5.19	5.37
FYM	6.17	4.94	5.59	5.52	5.55
N(73)					
0	5.84	5.88	5.69	5.25	5.67
80	5.90	5.03	5.30	5.36	5.40
160	5.55	4.45	5.52	5.63	5.29
240	6.14	5.23	5.43	5.17	5.49
N(74)					
0	5.53	5.88	5.33	5.04	5.45
50	5.80	4.34	5.50	5.25	5.22
100	5.91	5.30	5.54	5.39	5.54
150	6.18	5.07	5.57	5.72	5.64
N 75					
0	3.96	4.07	3.84	3.21	3.77
75	6.00	5.12	5.84	5.57	5.63
150	6.77	5.38	6.20	6.14	6.12
225	6.69	6.03	6.06	6.49	6.32
MEAN	5.86	5.15	5.49	5.35	5.46

GRAIN MEAN DM% 85.9

SUB PLOT AREA HARVESTED 0.00325

https://doi.org/10.23637/ERADOC-1-141

75/R/RN/1 AND 75/R/RN/2

WHEAT 7TH TEST CROP CEREAL 6

GRAIN TONNES/HECTARE

HIGHFIELD

*** TABLES OF MEANS***

N75 ROTATION	75	126	176	225	MEAN
LUCERNE	4.84	5.34	5.85	5.54	5.40
CLOGRA	5.88	6.48	6.68	6.25	6.32
GRASS	5.50	6.18	5.74	5.64	5.77
ARABLE	5.26	6.11	5.67	5.90	5.74
RESEEDED	6.14	6.49	6.70	6.08	6.35
OLDGRASS	6.16	6.34	6.32	5.67	6.12
MEAN	5.63	6.16	6.16	5.85	5.95

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	ROTATION	N75	ROTATION N75
SED	0.364	0.188	0.540
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
ROTATION			0.461

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	5	0.364	6.1
BLOCK.WP.SP	18	0.461	7.8

GRAIN MEAN DM% 86.8

SUB PLOT AREA HARVESTED 0.00663

https://doi.org/10.23637/ERADOC-1-141

75/R/RN/1 AND 75/R/RN/2

WHEAT 7TH TEST CROP CEREAL 6

GRAIN TONNES/HECTARE

FOSTERS

*** TABLES OF MEANS ***

N75	75	126	176	225	MEAN
ROTATION					
LUCERNE	5.02	6.43	7.12	6.97	6.38
CLOGRA	5.16	5.97	7.03	6.50	6.17
GRASS	5.05	5.80	6.17	6.74	5.94
ARABLE	5.04	6.21	6.91	7.03	6.30
RESEEDED	5.62	6.83	7.23	6.74	6.60
MEAN	5.18	6.25	6.89	6.80	6.28

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	ROTATION	N75	ROTATION N75
SED	0.235	0.180	0.421
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
ROTATION			0.403

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	4	0.235	3.7
BLOCK.WP.SP	15	0.403	6.4

GRAIN MEAN DM% 86.9

PLOT AREA HARVESTED 0.00663

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75/R/RN/1 AND 75/R/RN/2

WHEAT 8TH TEST CROP CEREAL 7

GRAIN TONNES/HECTARE

HIGHFIELD

*** TABLES OF MEANS***

N75 ROTATION	75	126	176	226	MEAN
LUCERNE	5.21	6.51	6.57	6.34	6.16
CLOGRA	5.91	6.58	6.81	6.27	6.39
GRASS	5.17	6.22	6.26	6.38	6.01
ARABLE	5.44	6.01	6.85	6.28	6.15
RESEEDED	5.69	7.07	6.65	6.60	6.50
OLDGRASS	5.89	6.79	7.17	6.47	6.58
MEAN	5.55	6.53	6.72	6.39	6.30

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	ROTATION	N75	ROTATION N75
SED	0.159	0.133	0.324
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
ROTATION			0.326

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	5	0.159	2.5
BLOCK.WP.SP	18	0.326	5.2

GRAIN MEAN DM% 86.8

SUB PLOT AREA HARVESTED 0.00663

https://doi.org/10.23637/ERADOC-1-141

75/R/RN/1 AND 75/R/RN/2

WHEAT 8TH TEST CROP CEREAL 7

GRAIN TONNES/HECTARE

FOSTERS

*** TABLES OF MEANS ***

N75 / ROTATION	75	126	176	225	MEAN
LUCERNE	5.31	6.23	6.85	6.90	6.32
CLOGRA	4.65	6.35	6.68	6.57	6.06
GRASS	4.48	5.34	6.27	6.78	5.72
ARABLE	4.11	5.77	6.77	6.95	5.90
RESEEDED	5.63	6.72	6.90	7.14	6.60
MEAN	4.84	6.08	6.69	6.87	6.12

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	ROTATION	N75	ROTATION N75
SED	0.393	0.151	0.490
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
ROTATION			0.337

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	4	0.393	6.4
BLOCK.WP.SP	15	0.337	5.5

GRAIN MEAN DM% 86.5

PLOT AREA HARVESTED 0.00663

https://doi.org/10.23637/ERADOC-1-141 *pp 63*

75/R/RN/1 AND 75/R/RN/2

WHEAT 10TH TEST CROP CEREAL 8

GRAIN TONNES/HECTARE

HIGHFIELD

*** TABLES OF MEANS***

N75 ROTATION	75	126	176	225	MEAN
LUCERNE	5.26	6.50	6.61	6.36	6.18
CLOGRA	5.97	6.58	5.90	5.39	5.96
GRASS	5.28	6.22	6.32	6.43	6.06
ARABLE	5.50	6.01	6.91	6.33	6.19
RESEEDED	5.75	7.09	6.68	6.57	6.52
OLDGRASS	5.96	6.77	6.18	6.51	6.36
MEAN	5.62	6.53	6.44	6.26	6.21

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	ROTATION	N75	ROTATION N75
SED	0.255	0.189	0.475
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
ROTATION			0.463

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	5	0.255	4.1
BLOCK.WP.SP	18	0.463	7.5

GRAIN MEAN DM% 87.3

SUB PLOT AREA HARVESTED 0.00663

https://doi.org/10.23637/ERADOC-1-141

75/R/RN/1 AND 75/R/RN/2

WHEAT 10TH TEST CROP CEREAL 8

GRAIN TONNES/HECTARE

FOSTERS

*** TABLES OF MEANS ***

N75 ROTATION	75	126	176	225	MEAN
LUCERNE	2.64	3.56	5.45	5.71	4.34
CLOGRA	3.47	4.06	6.11	5.99	4.91
GRASS	3.88	5.52	6.33	6.32	5.51
ARABLE	2.74	5.16	6.25	6.09	5.06
RESEEDED	3.90	4.71	5.90	6.07	5.15
MEAN	3.32	4.60	6.01	6.04	4.99

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	ROTATION	N75	ROTATION N75
SED	0.277	0.210	0.493
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
ROTATION			0.470

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	4	0.277	5.6
BLOCK.WP.SP	15	0.470	9.4

GRAIN MEAN DM% 87.3

PLOT AREA HARVESTED 0.00663

https://doi.org/10.23637/ERADOC-1-141

75/R/RN/1 AND 75/R/RN/2

WHEAT 11TH TEST CROP CEREAL 9

GRAIN TONNES/HECTARE

HIGHFIELD

*** TABLES OF MEANS ***

N75 ROTATION	75	126	176	226	MEAN
LUCERNE	4.24	5.19	5.87	5.83	5.28
CLOGRA	4.57	5.53	5.88	5.57	5.39
GRASS	4.69	5.56	5.72	5.58	5.39
ARABLE	4.50	5.56	6.11	5.60	5.44
RESEEDED	5.39	6.26	6.67	6.58	6.23
OLDGRASS	5.60	6.34	6.58	6.34	6.22
MEAN	4.83	5.74	6.14	5.92	5.66

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	ROTATION	N75	ROTATION N75
SED	0.451	0.139	0.539
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
ROTATION			0.341

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	5	0.451	8.0
BLOCK.WP.SP	18	0.341	6.0

GRAIN MEAN DM% 86.7

SUB PLOT AREA HARVESTED 0.00663

https://doi.org/10.23637/ERADOC-1-141

75/R/RN/1 AND 75/R/RN/2

WHEAT 11TH TEST CROP CEREAL 9

GRAIN TONNES/HECTARE

FOSTERS

*** TABLES OF MEANS ***

N75	75	126	176	225	MEAN
ROTATION					
LUCERNE	4.35	4.75	5.11	7.08	5.32
CLOGRA	4.10	4.73	5.00	5.92	4.94
GRASS	4.11	5.16	6.35	6.57	5.55
ARABLE	4.11	4.71	5.77	6.53	5.28
RESEEDED	4.96	5.84	6.86	7.00	6.17
MEAN	4.33	5.04	5.82	6.62	5.45

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	ROTATION	N75	ROTATION N75
SED	0.879	0.309	1.063
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
ROTATION			0.691

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	4	0.879	16.1
BLOCK.WP.SP	15	0.691	12.7

GRAIN MEAN DM% 86.5

PLOT AREA HARVESTED 0.00663

https://doi.org/10.23637/ERADOC-1-141

75/R/RN/1 and 75/R/RN/2

DRY MATTER: TONNES/HECTARE

OLD GRASS

TOTAL OF 3 CUTS

	C	N
HIGHFIELD		
27th Exptl year		
Blocks 1 & 4	3.06	7.50
Block 2	2.84	8.81

SPRING OATS

TONNES/HECTARE

HIGHFIELD

	GRAIN	STRAW
	3.08	3.21
Mean D.M. %	86.8	91.8

FOSTERS

	GRAIN	STRAW
	2.88	3.46
Mean D.M. %	86.8	94.2

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75/R/RN/1 and 75/R/RN/2

DRY MATTER: TONNES/HECTARE

	HIGHFIELD Mean	FOSTERS Mean
	LUCERNE	
	TOTAL OF 3 CUTS	
3rd year	10.69	13.67
	ALL GRASS LEY	
	TOTAL OF 3 CUTS	
3rd year	6.97	6.71
	CLOVER-GRASS LEY	
	TOTAL OF 3 CUTS	
3rd year	4.98	4.42
	RESEEDED GRASS	
	TOTAL OF 3 CUTS	

	HIGHFIELD		FOSTERS	
	Blocks	RC	Blocks	RC
27th Exptl year	1 & 4	3.03	1 & 3	4.20
27th Exptl year (Seeded 1949 Reseeded 1973)	2 & 3	5.46	2 & 4	5.18

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75/W/RN/3

LEY/ARABLE

Object: To compare the effects on soil fertility of rotations with or without three-year leys. The effects of the cropping systems on soil-borne pathogens are also studied - Woburn Stackyard D.

Sponsors: D.A. Boyd, J.M. First, A.E. Johnston, F.G.W. Jones.

The 38th year, leys, barley, potatoes, wheat.

For previous years see 'Details' 1967, 68/B/2(t), 69/W/RN/3(t), 70/W/RN/3(t), 71/W/RN/3(t), 72/W/RN/3(t) and 73-74/W/RN/3.

Design: 5 series of 8 plots, split for treatments other than rotations.

Whole plot dimensions: 8.53 x 40.7.

Treatments: All phases of four five-course rotations are present:		ROTATION
Grass/clover ley:	L, L, L, P, W	LEY
All legume ley:	SA, SA, SA, P, W until 1971 then CL, CL, CL, P, W	SAINFOIN CLOVER
Arable with roots:	P, R, C, P, W until 1971 then P, B, B, P, W	ARABLE
Arable with hay:	P, R, H, P, W until 1971 then P, B, H, P, W	ARABLE H

P = potatoes, R = rye, C = carrots, W = wheat, B = barley, H = hay,
L = grass/clover ley, SA = sainfoin ley, CL = red clover ley

Additional treatments to first test crop, potatoes:-

1/2 plots:	1. Farmyard manure residues, last applied 1965:-	FYMRES65
	None	NONE
	38 tonnes on each occasion	FYM
1/4 plots:	2. Fumigant applied in 1975:-	FUM75
	None	NONE
	Dichloropropene, 220 kg, plus aldicarb, 11.2 kg	DICHL/AL

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Additional treatments to second test crop, winter wheat:-

1/2 plots	1. Farmyard manure residues, last applied 1964:-	FYMRES64
	None	NONE
	38 tonnes on each occasion	FYM
1/4 plots	2. Fumigant residues, applied 1974:-	FUMRES74
	None	NONE
	Dichloropropene, 220 kg, plus aldicarb, 6.7 kg	DICHL/AL
1/8 plots	3. Nitrogen fertilisers (kg N) in 1975:-	N75
	None	0
	63	63
	126	126
	189	189

Additional treatments to first treatment crop, potatoes:-

1/2 plots	1. Farmyard manure residues, last applied 1963:-	FYMRES63
	None	NONE
	38 tonnes on each occasion	FYM
1/4 plots (A,AH only)	All combinations of:-	
	2. Fumigant residues, applied 1973:-	FUMRES73
	None	NONE
	Chloropicrin, 448 kg, plus aldicarb, 6.7 kg	CHLOR/AL
	3. Fumigant applied in 1975 (cumulative to chloropicrin 1970):-	FUM75(70)
	None	NONE
	Dichloropropene, 220 kg, plus aldicarb, 11.2 kg	DICHL/AL
1/4 plots (L,S only)	All combinations of:-	
	2. Fumigant residues, applied 1973:-	FUMRES73
	None	NONE
	Chloropicrin, 448 kg, plus aldicarb, 6.7 kg	CHLOR/AL

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3. Fumigant applied in 1975:- FUM75

None NONE
Dichloropropene, 220 kg, plus aldicarb, 11.2 kg DICHL/AL

Additional treatments to second treatment crop, barley:-

1/2 plots 1. Farmyard manure residues, last applied 1967 FYMRES67

None NONE
38 tonnes on each occasion FYM

1/8 plots (A,AH only) 2. Fumigant residues, applied 1972:- FUMRES72

None NONE
Chloropicrin, 448 kg, plus aldicarb, 11.2 kg CHLOR/AL

1/4 plots 3. Fumigant residues, applied 1974:- FUMRES74

None NONE
Dichloropropene, 224 kg, plus aldicarb, 6.7 kg DICHL/AL

Additional treatments to third treatment crop, barley:-

1/2 plots 1. Farmyard manure residues, last applied 1966:- FYMRES66

None NONE
38 tonnes on each occasion FYM

1/8 plots 2. Fumigant residues, applied 1971:- FUMRES71

None NONE
Chloropicrin, 448 kg, plus aldicarb, 11.2 kg CHLOR/AL

1/4 plots (except S,L) 3. Fumigant residues, applied 1973:- FUMRES73

None NONE
Chloropicrin, 448 kg, plus aldicarb, 6.7 kg CHLOR/AL

Corrective K dressings (in kg K_2O) as muriate of potash applied to first test crop, potatoes:-

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Continuous rotations	No FYM half plots	FYM half plots
Ley	176	50
Clover	201	264
Arable with hay	63	0
Arable	75	138
Alternating rotations (last two rotations in order)		
Ley/arable	63	163
Sainfoin/arable with hay	151	138
Arable with hay/clover	213	238
Arable/ley	151	188

NOTE: For a fuller record of previous treatments see 'Details' 1967 etc.

Standard applications:-

Winter wheat: Manures: Magnesian limestone at 5 tonnes. (0:20:20) at 290 kg, combine drilled. Weedkiller: Ioxynil at 0.63 kg plus mecoprop at 1.9 kg in 280 l.

Barley: Manures: 2nd and 3rd treatment crops: (15:15:15) at 410 kg, combine drilled. Weedkillers: 3rd treatment crop only: Ioxynil at 0.52 kg plus mecoprop at 1.6 kg in 280 l.

Potatoes: Manures: Test and treatment crops: (13:13:20) at 1940 kg. Weedkillers: Linuron at 1.2 kg plus paraquat at 0.28 kg ion in 280 l. Treatment crop only: Paraquat at 0.56 kg ion in 280 l. Insecticide: Demeton-s-methyl at 0.25 kg in 280 l. Fungicide: Mancozeb at 1.3 kg 390 l.

Hay: Manures: N at 130 kg, as 'Nitro-Chalk', plus (0:14:28) at 540 kg in spring. (25:0:16) at 270 kg after the first cut.

Ley, 1st year: Manures: N at 50 kg as 'Nitro-Chalk', P_2O_5 at 190 kg as superphosphate, K_2O at 130 kg as muriate of potash in the seedbed. Weedkiller: Paraquat at 0.56 kg ion in 280 l.

Leys, 2nd and 3rd years: Manures: (25:0:16) at 360 kg for each cut.

Clover, 1st year: Manures: N at 60 kg as 'Nitro-Chalk', P_2O_5 at 190 kg as superphosphate, K_2O at 130 kg as muriate of potash. Weedkiller: Paraquat at 0.56 kg ion in 280 l.

Clover, 2nd and 3rd years: Manures: N at 60 kg as 'Nitro-Chalk', K_2O at 190 kg as muriate of potash. Weedkiller 3rd year only: Paraquat at 0.84 kg ion in 280 l.

Varieties: Winter wheat: Cappelle, dressed with dieldrin, sown at 200 kg
Barley: Julia, dressed with ethirimol, sown at 160 kg
Potatoes: First test and treatment crops: Maris Piper
Red Clover: 1st year: S123, sown at 45 kg
Red Clover: 3rd year resown: S123, sown at 40 kg
Ley: 1st year: Perennial ryegrass S23, Cocksfoot S143, late flowering red clover, Alsike clover, sown at 30 kg.

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Cultivations, etc.:- Treatment crops:

Ley, 1st year: Paraquat applied: 11 Sept, 1974. Subsoiled: Tines 140 cm apart and 56 cm deep: 17 Sept. Ploughed: 31 Oct. Spring-tine cultivated three times: 6 Nov, 24 Apr, 1975, 28 Apr. Rolled, N, P and K applied: 30 Apr. Seeds sown, harrowed in: 2 May. Rolled: 4 May. Topped four times: 8 June, 1 Aug, 2 Sept, 31 Oct.

Ley, 2nd and 3rd years: NK applied: 6 Mar, 1975, 27 June. Cut once: 23 June. 2nd year ley topped: 9 Sept, 31 Oct and 3rd year ley: 2 Sept.

Clover, 1st year: Paraquat applied: 11 Sept, 1974. Subsoiled: Tines 140 cm apart and 56 cm deep: 17 Sept. Ploughed: 31 Oct. Spring-tine cultivated three times: 6 Nov, 24 Apr, 1975, 28 Apr. Rolled, N, P and K applied: 30 Apr. Seed sown, harrowed in: 2 May. Rolled: 4 May. Topped four times: 8 June, 1 Aug, 2 Sept, 31 Oct.

Clover, 2nd year: N and K applied: 6 Mar, 1975. Cut twice: 23 June, 28 Aug.

Clover, 3rd year: N and K applied: 6 Mar, 1975. Cut and carted off weeds, paraquat applied: 22 May. Rotary cultivated: 27 May. Power harrowed, red clover resown, harrowed in, rolled: 6 June. Weeds pulled by hand: 23 June. Topped: 5 Aug, 2 Sept.

Seeds Hay: Seeds undersown in barley: 30 Apr, 1974. N and PK applied: 6 Mar, 1975. Cut: 23 June. NK applied: 27 June.

Potatoes, 1st treatment crop: Paraquat applied: 11 Sept, 1974. Subsoiled: Tines 140 cm apart and 56 cm deep: 17 Sept. Ploughed: 31 Oct. Spring-tine cultivated: 6 Nov. Deep-tine cultivated: 6 Jan, 1975. Dichloropropene applied, spring-tine cultivated: 8 Jan. NPK applied: 21 Apr. Deep-tine cultivated: 25 Apr. Spring-tine cultivated: 28 Apr. Aldicarb applied, all plots rotary cultivated, potatoes planted: 5 May. Ridges rolled: 10 May. Linuron and paraquat applied: 22 May. Grubbed: 23 June. Rotary ridged: 24 June. Insecticide applied: 25 June. Fungicide applied: 15 July. Haulm mechanically destroyed: 26 Sept. Sprayed with undiluted BOV at 160 l. Lifted: 7 Oct.

Barley, 2nd treatment crop: Deep-tine cultivated twice: 31 Dec, 1974, 6 Jan, 1975. Spring-tine cultivated three times, the second time with crumbler: 26 Feb, 21 Mar, 26 Mar. Seed sown: 26 Mar. Spring-tine cultivated with crumbler, seed resown, seeds hay undersown (Arable H plots), covered in, rolled: 1 May. Thistles hoed by hand: 17 July. Combine harvested: 23 July.

Barley, 3rd treatment crop: Ploughed: 17 Dec, 1974. Spring-tine cultivated three times, the second time with crumbler: 26 Feb, 21 Mar, 26 Mar. Seed sown: 26 Mar. Spring-tine cultivated with crumbler, seed resown, rolled: 1 May. Weedkiller applied: 5 June. Combine harvested: 19 Aug.

Test Crops:

Potatoes, 1st test crop: First half corrective K applied: 9 Oct, 1974. Rotary cultivated: 30 Oct. Ploughed: 31 Oct. Spring-tine cultivated: 6 Nov. Deep-tine cultivated: 6 Jan, 1975. Dichloropropene applied, spring-tine cultivated: 8 Jan. Second half corrective K applied: 21 Feb. NPK applied: 22 Apr. Deep-tine cultivated: 25 Apr. Spring-tine cultivated: 28 Apr. Aldicarb applied, all plots rotary cultivated, potatoes planted: 5 May. Ridges rolled: 10 May. Weedkiller applied: 22 May. Grubbed: 23 June. Rotary ridged: 24 June. Insecticide applied:

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25 June. Fungicide applied: 15 July. Haulm mechanically destroyed: 26 Sept. Sprayed with undiluted BOV at 160 l: 2 Oct. Lifted: 6 Oct.

Wheat, 2nd test crop: Magnesian limestone applied, deep-tine cultivated twice: 7 Nov, 1974. Spring-tine cultivated, seed sown: 8 Nov. N applied: 26 Mar, 1975. Harrowed: 22 Apr. Rolled: 24 Apr. Weedkiller applied: 8 May. Combine harvested: 12 Aug.

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75/W/RN/3

WHEAT 2ND TEST CROP

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

ROTATION	LEY	CLOVER	ARABLE	ARABLEH	MEAN
FYMRES64					
NONE	3.63	3.51	2.92	3.14	3.30
FYM	3.47	3.62	2.78	3.07	3.24
FUMRES74					
NONE	3.45	3.35	2.47	2.84	3.03
DICHL/AL	3.66	3.78	3.23	3.37	3.51
N75					
0	2.54	2.34	1.31	1.69	1.97
63	4.15	3.87	3.00	3.48	3.62
126	4.10	4.11	4.04	3.83	4.02
189	3.43	3.95	3.06	3.43	3.47
MEAN	3.55	3.57	2.85	3.11	3.27

GRAIN MEAN DM% 88.3

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

ROTATION	LEY	CLOVER	ARABLE	ARABLEH	MEAN
FYMRES64					
NONE	4.51	4.56	3.21	3.45	3.93
FYM	4.69	4.82	3.02	3.65	4.05
FUMRES74					
NONE	4.39	4.42	2.45	3.32	3.64
DICHL/AL	4.81	4.96	3.78	3.78	4.33
N75					
0	1.80	1.83	0.91	1.32	1.46
63	4.44	4.40	3.15	3.61	3.90
126	5.87	5.93	4.18	4.53	5.12
189	6.30	6.60	4.22	4.76	5.47
MEAN	4.60	4.69	3.11	3.55	3.99

STRAW MEAN DM% 93.8

SUB PLOT AREA HARVESTED 0.00260

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75/W/RN/3

BARLEY 2ND TREATMENT CROP

ARABLE AND ARABLE H

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

ROTATION	ARABLE	ARAPLEH	MEAN
FYMRES67			
NONE	2.01	2.53	2.27
FYM	2.30	2.43	2.37
FUMRES72			
NONE	2.19	2.42	2.30
CHLOR/AL	2.12	2.54	2.33
FUMRES74			
NONE	2.07	2.43	2.25
DICHL/AL	2.25	2.52	2.39
MEAN	2.16	2.48	2.32

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

ROTATION	ARABLE	ARABLEH	MEAN
FYMRES67			
NONE	1.40	1.94	1.67
FYM	1.55	1.70	1.63
FUMRES72			
NONE	1.51	1.71	1.61
CHLOR/AL	1.43	1.93	1.68
FUMRES74			
NONE	1.40	1.80	1.60
DICHL/AL	1.55	1.84	1.69
MEAN	1.47	1.82	1.65

STRAW MEAN DM% 87.8

PLOT AREA HARVESTED 0.00260

https://doi.org/10.23637/ERADOC-1-141

75/W/RN/3

BARLEY 2ND TREATMENT CROP

LEY AND SANFOIN

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

ROTATION	LEY	SAINFOIN	MEAN
FYMRES67			
NONE	2.30	2.00	2.15
FYM	2.39	2.43	2.41
FUMRES74			
NONE	2.20	2.11	2.15
DICHL/AL	2.49	2.32	2.41
MEAN	2.35	2.22	2.28

GRAIN MEAN DM% 84.1

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

ROTATION	LEY	SAINFOIN	MEAN
FYMRES67			
NONE	1.38	1.60	1.49
FYM	1.87	1.79	1.83
FUMRES74			
NONE	1.35	1.59	1.47
DICHL/AL	1.90	1.79	1.85
MEAN	1.63	1.69	1.66

STRAW MEAN DM% 87.4

PLOT AREA HARVESTED 0.00559

https://doi.org/10.23637/ERADOC-1-141

75/W/RN/3

BARLEY 3RD TREATMENT CROP

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

ROTATION	ARABLE	SAINFOIN	MEAN
FYMRES66			
NONE	1.73	1.34	1.53
FYM	1.78	2.09	1.93
FUMRES71			
NONE	1.79	1.86	1.82
CHLOR/AL	1.72	1.57	1.64
FUMRES73			
NONE	1.78	1.76	1.77
CHLOR/AL	1.73	1.66	1.70
MEAN	1.75	1.71	1.73

GRAIN MEAN DM% 83.0

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

ROTATION	ARABLE	SAINFOIN	MEAN
FYMRES66			
NONE	1.52	1.76	1.64
FYM	1.64	2.56	2.10
FUMRES71			
NONE	1.63	2.40	2.01
CHLOR/AL	1.52	1.92	1.72
FUMRES73			
NONE	1.62	2.26	1.94
CHLOR/AL	1.53	2.05	1.79
MEAN	1.58	2.16	1.87

STRAW MEAN DM% 85.2

PLOT AREA HARVESTED 0.00260

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75/W/RN/3

POTATOES 1ST TEST CROP

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

ROTATION TYPE	LEY	CLOVER	ARABLE	ARABLEH	MEAN
PERM	36.5	38.1	13.6	25.2	28.4
ALT	32.3	32.3	23.5	27.6	28.9
FYMRES65					
NONE	33.8	36.1	16.6	26.7	28.3
FYM	35.0	34.3	20.4	26.2	29.0
FUM75					
NONE	29.4	28.6	14.8	18.3	22.8
DICHL/AL	39.3	41.8	22.2	34.6	34.5
MEAN	34.4	35.2	18.5	26.4	28.6

PERCENTAGE WARE 3.81 (1.5 CM) RIDDLE

*** TABLES OF MEANS ***

ROTATION TYPE	LEY	CLOVER	ARABLE	ARABLEH	MEAN
PERM	91.2	93.7	73.6	83.7	85.5
ALT	91.1	90.8	83.6	90.4	89.0
FYMRES65					
NONE	90.6	91.9	78.8	87.6	87.2
FYM	91.7	92.6	78.4	86.5	87.3
FUM75					
NONE	89.8	89.9	72.6	81.3	83.4
DICHL/AL	92.4	94.6	84.6	92.8	91.1
MEAN	91.1	92.2	78.6	87.1	87.3

PLOT AREA HARVESTED 0.00280

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75/N/AN/3

POTATOES 1ST TREATMENT CROP

ARABLE AND ARABLE H PLOTS

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

ROTATION	ARABLE	ARABLEH	MEAN
FYMRES63			
NONE	12.2	10.1	11.1
FYM	13.6	10.5	12.1
FUMRES73			
NONE	13.0	9.3	11.1
CHLOR/AL	12.7	11.4	12.1
FUM75(70)			
NONE	10.7	8.4	9.6
DICHL/AL	15.0	12.2	13.6
MEAN	12.9	10.3	11.6

PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

*** TABLES OF MEANS ***

ROTATION	ARABLE	ARABLEH	MEAN
FYMRES63			
NONE	93.8	93.1	93.4
FYM	94.8	90.6	92.7
FUMRES73			
NONE	93.9	90.0	91.9
CHLOR/AL	94.8	93.7	94.2
MEAN	94.3	91.8	93.1
FUM75(70)			
NONE	94.6	89.5	92.0
DICHL/AL	94.1	94.2	94.1
MEAN	94.3	91.8	93.1

PLOT AREA HARVESTED 0.00280

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75/W/RN/3

POTATOES 1ST TREATMENT CROP

LEY AND SAINFOIN PLOTS

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

ROTATION	LEY	SAINFOIN	MEAN
FYMRES63			
NONE	12.8	12.7	12.8
FYM	14.6	11.2	12.9
FUMRES73			
NONE	13.4	12.0	12.7
CHLOR/AL	14.1	11.9	13.0
FUM75			
NONE	11.3	8.9	10.1
DICHL/AL	16.1	15.1	15.6
MEAN	13.7	12.0	12.8

PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

*** TABLES OF MEANS ***

ROTATION	LEY	SAINFOIN	MEAN
FYMRES63			
NONE	93.5	94.7	94.1
FYM	94.4	94.4	94.4
FUMRES73			
NONE	93.6	94.5	94.1
CHLOR/AL	94.2	94.6	94.4
FUM75			
NONE	92.9	93.7	93.3
DICHL/AL	95.0	95.4	95.2
MEAN	93.9	94.5	94.2

PLOT AREA HARVESTED 0.00280

https://doi.org/10.23637/ERADOC-1-141

75/W/RN/4

MARKET GARDEN

Object: To study the residual effects of fertilisers and organic manures applied in the period 1942-67 - Woburn Lansome I.

Sponsor: A.E. Johnston.

The 34th year, ryegrass.

For previous years see 'Details' 1967, 68/D/4(t), 68/W/RN/4, 70/W/RN/4(t), 71/W/RN/4(t), 72/W/RN/4(t) and 73-74/W/RN/4.

Design: 2 series each of 40 plots divided into 4 blocks of 10 plots. Series B has the plots split into 2.

Whole plot dimensions: 8.53 x 5.18.

NOTE: Yields were not taken and no new treatments were applied.

Basal applications: 70 kg N as 'Nitro-Chalk' in spring and after the first cut.

Seed: RVP Italian Ryegrass at 40 kg.

Cultivations, etc.:- Both series.
Deep-tine cultivated: 18 July., 1974. Spring-tine cultivated twice: 22 Aug, 16 Sept. Seed sown: 16 Sept. N applied: 19 Mar, 1975, 25 June. Cut twice: 11 June, 27 Aug.

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75/R/RN/5

ARABLE REFERENCE PLOTS

Object: To study the long term effects of FYM and N, P and K fertilisers on the yield and mineral content of crops - Great Field IV.

Sponsor: F.V. Widdowson.

The 20th year of the rotation, barley, ley, potatoes, winter wheat, kale. The 16th year of the same rotation on the additional plots. The 19th year of permanent grass.

For previous years see 58/Bc/1(t), 59/Bc/1(t), 60/B/3(t), 61-64/B/2, 65/B/2(t), 66/B/2(t), 67/B/2, 68/B/3(t) and 69-74/R/RN/5.

Design: 1 block of 12 plots for each crop on original plots. 1 block of 7 plots for each crop on additional plots.

Whole plot dimensions: 2.13 x 2.44.

Treatments: Fertilisers and farmyard manure:

	MANURE
Original plots:	
None	0
N1	N1
P	P
N1 P	N1P
K	K
N1 K	N1K
PK	PK
N1 PK	N1PK
N2 PK	N2PK
D	D
N1 PK D	N1PKD
N2 PK D	N2PKD

N1, 2 (kg N): 19, 38 (ley): 56, 112 (barley): 75, 150 (wheat and potatoes): 125, 250 (kale and permanent grass) as 'Nitro-Chalk'

P: 63 kg P_2O_5 as superphosphate

K: 250 kg K_2O as muriate of potash

D: 38 tonnes FYM (permanent grass): 50 tonnes (kale and potatoes): none to other crops.

NOTE: Potatoes on the original plots test, on sub plots: 0 v. Mg (82 kg MgO as Epsom salts). Untreated sub plots receive 82 kg MgO after potato harvest.

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Additional plots:	MANURE
None	0
N2 PK	F
N2 PK Mg Ca	FMGCA
N2 PK Mg S	FMGS
N2 PK Ca S	FCAS
N2 PK Mg Ca S	FMGCAS
N2 PK Mg Ca S TE	FMGCASTE

F: N2PK
N2: rates as above, applied as urea
P: 126 kg P_2O_5 as potassium dihydrogen phosphate
K: 83 kg K_2O as potassium sulphate to S plots: 93 kg K_2O as potassium chloride to the remainder
Mg: 126 kg MgO as magnesium chloride
Ca: 126 kg CaO as calcium carbonate
S: 30 kg S applied by potassium sulphate
TE: Trace element mixture including Mn, Cu, Zn, B, Mo, Ca, Fe. Test varies with crop

Standard applications:
Winter wheat and barley: Weedkillers: Ioxynil with mecoprop ('Actril C' at 5.6 l in 450 l).
Potatoes: Weedkillers: Linuron at 1.1 kg with paraquat at 0.42 kg ion in 280 l. Insecticide: Menazon at 0.28 kg in 280 l on two occasions. Fungicide: Mancozeb at 1.3 kg in 280 l sprayed with insecticide on two occasions.

Seed:
Winter wheat: Maris Nimrod (Maris Fundin on additional plots) both sown at 210 kg.
Barley: Maris Mink, dressed with ethirimol, sown at 200 kg.
Potatoes: King Edward.
Kale: Thousand Headed.
Grass-clover ley: RVP Italian Ryegrass and Hungaropoly Red Clover.

Cultivations, etc.:-
Winter wheat: Balancing Mg applied to half plots: 9 Sept, 1974. Dug by hand: 11 Sept. P, K, Mg, Ca and S applied: 12 Sept. Seed sown: 24 Oct. Weedkiller, trace elements and first half N dressing applied: 16 Apr, 1975. Second half N dressing and all N to additional plots applied: 8 May. Harvested: 11 Aug.
Barley: Dug by hand: 2 Dec, 1974. P, K, Mg, Ca and S applied: 24 Feb, 1975. Rotary cultivated, N applied and seed sown: 26 Mar. Weedkiller applied: 19 May. Trace elements applied: 23 June. Harvested: 11 Aug.

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Kale: FYM applied and all plots dug by hand: 29 Nov, 1974. P, K, Mg, Ca and S applied: 24 Feb, 1975. Rotary cultivated and seed sown: 21 Apr. All N applied to original plots and first half N to additional plots: 16 May. Second half N to additional plots applied: 12 June. Trace elements applied: 23 June. Harvested: 24 Oct.

Potatoes: FYM applied and all plots dug by hand: 29 Nov, 1974. P, K, Mg, Ca and S applied: 24 Feb, 1975. All N applied to original plots and half N to additional plots and rotary cultivated, Mg applied to half plots of main experiment and potatoes planted: 8 May. Weedkillers applied: 4 June. Second half of N applied to additional plots: 12 June. Trace elements applied: 23 June. Fungicide with insecticide applied: 18 July and 7 Aug. Plots of the main experiment with neither K nor FYM and the no-fertiliser plot of the additional plots lifted: 10 Sept. Remaining plots lifted: 26 Sept.

Grass-clover ley: Seed sown: 15 Sept, 1974. P, K, Mg, Ca and S applied: 3 Dec. N applied: 17 Mar, 1975. Trace elements applied: 16 Apr. Cut four times: 19 May, 14 July, 3 Sept, 17 Oct.

Permanent grass: P and K applied: 3 Dec, 1974. FYM applied: 17 Mar, 1975. N applied: 17 Mar, 19 May, 14 July. Cut three times: 19 May, 14 July, 17 Oct.

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75/R/RN/5

TABLES OF MEANS

GREAT FIELD IV (R): ORIGINAL PLOTS

TONNES/HECTARE

	WINTER WHEAT: GRAIN	WINTER WHEAT: STRAW	KALE: FRESH WEIGHT	BARLEY: GRAIN	BARLEY: STRAW	LEY: DRY MATTER 1ST CUT	2ND CUT	3RD CUT	4TH CUT	TOTAL OF 4 CUTS
MANURE										
0	3.33	4.18	4.8	3.11	2.27	1.62	1.04	0.34	0.09	3.09
N1	4.11	6.78	3.5	3.46	2.80	2.98	1.18	0.41	0.12	4.69
P	4.54	5.27	15.7	2.87	2.27	2.68	1.97	0.78	0.10	5.45
N1P	4.14	6.89	29.6	2.56	2.05	3.98	1.51	0.38	0.16	6.03
K	3.86	5.01	5.2	2.93	2.64	2.63	2.13	0.72	0.10	5.58
N1K	5.89	8.01	3.9	3.95	3.07	3.60	2.13	0.51	0.14	6.38
PK	4.21	5.33	14.8	3.89	2.72	3.01	3.04	1.03	0.28	7.36
N1PK	6.06	9.02	30.1	4.59	3.39	3.95	2.55	0.79	0.33	7.62
N2PK	7.00	10.27	40.1	5.35	4.66	4.85	2.30	0.73	0.22	8.10
D	5.32	6.56	28.8	4.61	3.41	3.55	2.67	0.94	0.12	7.28
N1PKD	6.92	9.02	55.4	5.61	4.24	5.17	2.87	0.80	0.18	9.02
N2PKD	7.39	10.29	69.8	6.06	3.73	5.30	2.46	0.80	0.22	8.78
MEAN DM %	88.5	88.8		86.6	68.4	21.5	33.3	41.1	18.4	28.6

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75/R/RN/5

GREAT FIELD IV (R): ORIGINAL PLOTS

TONNES/HECTARE

	POTATOES: TOTAL TUBERS			PERMANENT GRASS: DRY MATTER			
	0	MG	MEAN	1ST CUT	2ND CUT	3RD CUT	TOTAL OF 3 CUTS
MANURE							
0	6.9	9.6	8.3	0.96	0.34	0.25	1.55
N1	6.2	6.2	6.2	1.52	0.35	0.45	2.32
P	7.3	7.7	7.5	0.85	0.25	0.15	1.25
N1P	5.4	5.8	5.6	2.20	0.22	0.58	3.00
K	17.3	16.5	16.9	1.43	0.43	0.40	2.26
N1K	23.1	23.1	23.1	2.43	0.72	0.83	3.98
PK	23.1	28.8	26.0	1.07	0.64	0.38	2.09
N1PK	31.9	31.9	31.9	2.72	0.63	0.74	4.09
N2PK	25.4	23.8	24.6	3.92	0.73	1.24	5.89
D	30.8	31.9	31.3	3.69	0.54	0.73	4.96
N1PKD	38.4	35.8	37.1	4.34	0.96	1.31	6.61
N2PKD	34.6	40.0	37.3	5.48	1.95	0.90	8.33
MEAN DM%				20.6	35.7	18.8	25.0

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75/R/RN/5

GREAT FIELD IV (R): ADDITIONAL PLOTS

TONNES/HECTARE

	WINTER WHEAT: GRAIN	WINTER WHEAT: STRAW	KALE: FRESH WEIGHT	BARLEY: GRAIN	BARLEY: STRAW	LEY: DRY MATTER 1ST CUT	2ND CUT	3RD CUT	4TH CUT	TOTAL OF 4 CUTS	POTATOES: TOTAL TUBERS
MANURE											
0	3.33	4.40	10.5	1.93	1.62	2.26	1.35	0.64	0.12	4.37	7.9
F	6.35	6.80	54.0	4.08	3.84	5.22	2.40	0.69	0.24	8.55	23.3
FMGCA	5.55	6.33	58.4	5.19	4.18	5.11	2.34	0.67	0.26	8.38	26.0
FMGS	6.58	6.98	46.6	4.94	4.36	4.87	2.17	0.83	0.28	8.15	27.1
FCAS	6.00	7.52	47.1	5.12	3.51	4.52	2.09	0.79	0.23	7.63	25.2
FMGCAS	5.78	6.15	54.5	4.51	4.36	5.33	2.51	0.95	0.25	9.04	24.0
FMGCASTE	6.16	6.84	55.4	5.05	4.66	5.32	2.19	0.70	0.30	8.51	26.1
MEAN DM%	89.2	90.8		86.8	70.1	21.5	33.4	41.4	18.3	28.6	

75/W/RR/6

ARABLE REFERENCE PLOTS

Object: To study the long term effects of FYM and N, P and K fertilisers on the yield and mineral content of crops - Woburn Stackyard C.

Sponsor: F.V. Widdowson.

The sixteenth year, oats, sugar beet, barley, ley, potatoes, permanent grass.

For previous years see 60/B/3(t), 61-65/B/2, 66/B/2(t), 67/B/2(t), 68/B/3(t), 69/W/RR/6, 70/W/RR/6(t) and 71-74/W/RR/6.

Design: 1 blocks of 12 plots for each crop.

Whole plot dimensions: 2.74 x 2.13.

Treatments: All combinations of:-

Blocks: 1. Crops:-

After old grass (1960-73):	CROP
Ley	LEY/G
In arable rotation since 1960:	
Barley	BARLEY
Ley	LEY/A
Potatoes	POTATOES
Sugar beet	SUGRBEET
Oats	OATS
Permanent grass, sown autumn 1973	PERMGRAS

Plots: 2. Fertilisers and farmyard manure:-

	MANURE
None	0
N1	N1
P	P
N1 P	N1P
K	K
N1 K	N1K
PK	PK
N1 PK	N1PK
N2 PK	N2PK
D	D
N1 PK D	N1PKD
N2 PK D	N2PKD

N1,2 (kg N): 31.5, 63 (ley): 63, 126 (barley and oats): 126, 252 (sugar beet and potatoes): 188, 376 (permanent grass) as ammonium nitrate.
P: P_2O_5 at 63 kg as triple superphosphate.
K: K_2O at 252 kg as potassium bicarbonate.
D: Farmyard manure at 25 tonnes (permanent grass): 50 tonnes (sugar beet and potatoes): none to other crops.

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NOTES: (1) The old grass block was dug in autumn 1973 and now follows the arable rotation the crop in 1975 being ley. A new block was sown to permanent grass on adjacent land.
(2) Potatoes and sugar beet test on sub plots: O, Mg (82 kg MgO as Epsom salts). Yields are recorded from potatoes only. Untreated sub plots receive 82 kg MgO after potato and sugar beet harvest.

Standard applications:
Winter oats: Weedkiller: Ioxynil at 0.17 kg with mecoprop at 0.51 kg in 450 l.
Sugar beet: Manures: Boron at 0.92 kg B203 as borax in 1120 l. Insecticide: Menazon at 0.28 kg in 280 l on two occasions.
Barley: Weedkiller: Ioxynil at 0.17 kg with mecoprop at 0.51 kg in 450 l. Fungicide: Tridemorph at 0.53 kg in 340 l.
Potatoes: Insecticide: Menazon at 0.28 kg in 280 l on two occasions the second being with fungicide. Fungicide: Mancozeb at 1.3 kg in 280 l on two occasions the first being with insecticide.
Permanent Grass and leys: Manures: MgO at 82 kg as Epsom salts.

Seed: Winter oats: Peniarth, sown at 210 kg.
Sugar beet: Klein E, sown at 5.6 kg.
Barley: Julia, dressed with ethirimol, sown at 150 kg.
Potatoes: Maris Piper.
Grass-clover ley: R.V.P. Italian ryegrass and Hungaropoly red clover.
Permanent grass: S215 Meadow fescue at 20 kg, S24 perennial ryegrass at 20 kg, crested dogstail at 7 kg, chewings fescue at 7 kg, smooth stalked meadow grass at 7 kg, alsike clover at 4 kg, wild white clover at 2 kg. Mixture sown at 67 kg.

Cultivations, etc.:
Winter oats: Balancing Mg applied: 10 Sept, 1974. Plots dug by hand, P and K applied: 17 Sept. Seed sown: 21 Oct. First half N applied: 19 Mar, 1975. Weedkiller applied: 25 Apr. Second half N applied: 13 May. Harvested: 24 July.
Sugar beet: FYM applied, plots dug by hand: 25 Nov, 1974. P and K applied: 18 Feb, 1975. Rotary cultivated, first half N applied, Mg applied to half plots, raked in, seed drilled: 25 Apr. Singled: 11 June. Second half N applied: 12 June. Insecticide applied: 18 June, 21 July. Boron applied: 3 July. Lifted: 13 Oct.
Barley: Balancing Mg applied: 8 Nov, 1974. Plots dug by hand: 25 Nov. P and K applied: 18 Feb, 1975. First half N applied, rotary cultivated, raked, seed sown, raked: 4 Mar. Second half N applied: 13 May. Weedkiller applied: 21 May. Fungicide applied: 11 June. Harvested: 12 Aug.
Grass-clover ley: Both blocks: Rotary cultivated, ryegrass seed sown, clover seed broadcast, raked: 9 Aug, 1974. P, K and basal Mg applied: 26 Nov. N applied: 19 Mar, 1975. Cut three times: 30 May, 21 July, 1 Oct.

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Potatoes: FYM applied, plots dug by hand: 25 Nov, 1974, P and K applied: 18 Feb, 1975. First half N applied, rotary cultivated, raked, Mg applied to half plots, potatoes planted, earthed up: 13 May. Second half N applied: 12 June. Insecticide applied: 18 June. Insecticide with fungicide applied: 21 July. Fungicide applied: 7 Aug. Lifted plots with neither K nor FYM: 12 Sept. Remaining plots lifted: 29 Sept.

Permanent grass: P,K and basal Mg applied: 26 Nov, 1974. First third N applied: 19 Mar, 1975. Second third N applied: 30 May. Third third N applied: 4 Sept. Cut three times: 30 May, 28 Aug, 29 Oct.

NOTES: (1) Samples were taken for determination of dry matter for each crop, and the percentage of N, P and K.
(2) The percentage of Mg in sugar beet tops, potato tubers and leaves was determined.
(3) The percentage of K in potato leaves in July was determined.

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75/W/RN/6

TONNES/HECTARE

MANURE	OATS GRAIN	OATS STRAW	ROOTS (WASHED)	SUGAR BEET SUGAR %	SUGAR BEET TOTAL SUGAR	SUGAR BEET TOPS	BARLEY GRAIN	BARLEY STRAW	POTATOES -	POTATOES TOTAL TUBERS MG	POTATOES TOTAL TUBERS MEAN
0	1.55	2.02	4.8	13.9	0.66	6.3	2.01	1.55	4.2	5.7	4.9
N1	2.89	3.78	5.5	12.8	0.70	9.4	2.84	2.89	5.0	5.2	5.1
P	1.73	2.16	6.5	14.1	0.92	6.3	1.99	1.41	5.0	4.3	4.7
N1P	3.75	4.42	3.9	13.2	0.52	9.1	2.28	2.64	5.1	4.2	4.6
K	1.98	2.32	7.9	14.4	1.13	6.7	2.14	1.59	16.8	14.0	15.4
N1K	2.65	4.46	11.4	14.0	1.60	12.5	3.19	4.09	14.5	16.2	15.4
PK	1.74	2.67	6.7	14.4	0.96	6.0	2.28	1.69	12.7	13.4	13.1
N1PK	3.69	6.22	8.2	13.6	1.12	10.6	4.54	4.61	19.0	17.0	18.0
N2PK	4.28	6.00	15.2	14.2	2.16	16.7	5.72	5.73	15.9	15.0	15.4
D	2.82	3.84	10.8	14.7	1.58	9.6	2.86	2.31	19.0	18.2	18.6
N1PKD	3.88	8.01	15.0	14.2	2.13	14.0	4.89	5.13	20.8	24.2	22.5
N2PKD	5.28	8.67	16.7	13.7	2.29	17.6	5.92	6.00	24.4	30.3	27.4
MEAN DM%	77.1	49.8					89.4	90.6			

75/R/RN/7

RESIDUAL PHOSPHATE

Object: Originally to study the fresh and residual effects of phosphate fertiliser on the yields of three arable crops grown in rotation. Since 1974 the effects on ley and on yield and pathogens of continuous wheat are also studied - Sawyers I and Great Field IV.

Sponsors: G.E.G. Mattingly, D.E. Slope.

The sixteenth year, barley, wheat (Sawyers I), barley, ley (Great Field IV).

For previous years see 'Details' 1967, 68/B/5(t), 69/R/RN/7, 70/R/RN/7(t) and 71-74/R/RN/7.

Design: Sawyers I: 3 series each of 2 randomised blocks of 12 plots.
Great Field IV: 3 series each of 1 randomised block of 12 plots.

Whole plot dimensions:
Gt. Field IV: 4.27 x 18.3
Sawyers I: 4.27 x 20.1.

Treatments: Rates and frequency of applying phosphate:-

	P_2O_5
None	0
Annual dressings, kg P_2O_5:	
29	29 ANN
57	57 ANN
115	115 ANN
172	172 ANN
Triennial dressings, kg P_2O_5 (last applied 1975):	
86	86 TRI
172	172 TRI
Six-yearly dressings, kg P_2O_5 (last applied 1973):	
344	344 SIX
688	688 SIX
1032	1032 SIX
Single dressing, kg P_2O_5 (applied autumn 1959):	
376 as Gafsa rock phosphate	376 G(1)
376 as granular superphosphate	376 S(1)

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NOTES: (1) Since 1974 the original rotation of potatoes, barley, swedes on both fields has been changed. Blocks after barley are sown to wheat on Sawyers I, to ley on Great Field IV.
(2) Since 1960 all phosphate has been applied as superphosphate.
(3) The six-yearly dressings were applied half in autumn before ploughing, half in spring.
(4) The ley sown in 1974 established poorly. It was ploughed and resown in 1975.

Standard applications:
Barley: Manures: (25:0:16) at 390 kg combine drilled. Weedkillers: Dicamba with mecoprop and MCPA (Sawyers I: 'Banlene Plus' at 5.6 l in 220 l, Great Field IV: 'Tetralex Plus' at 7.0 l in 220 l).
Wheat (Sawyers I only): Manures: K20 at 90 kg as muriate of potash. N at 130 kg as 'Nitro-Chalk'. Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l). Wheat after barley only: Ground chalk at 2.9 tonnes.
First year and reseeded ley (Gt. Field only): Manures: K20 at 120 kg as muriate of potash. N at 60 kg as 'Nitro-Chalk'.
First year ley only: Ground chalk at 2.9 tonnes.

Seed: Barley: Julia, dressed with ethirimol, sown at 160 kg.
Wheat: Cappelle, sown at 200 kg.
Grass clover mixture: 6.7 kg S215 Meadow Fescue, 4.5 kg Contessa Meadow Fescue, 4.5 kg S48 Timothy, 1.7 kg NZ Huia White Clover, 0.6 kg Wild White Clover. Sown at 24 kg.

Cultivations, etc.:- (both fields for barley)
Barley: Ploughed: 29 Oct, 1974. Spring-tine cultivated and P applied: 26 Feb, 1975. Power harrowed and seed sown: 27 Feb. Weedkiller applied: 20 May. Combine harvested: 8 Aug.
Wheat: Chalk applied: 10 Oct, 1974. Ploughed: 28 Oct. P applied: 26 Nov. K applied, power harrowed and seed sown: 9 Dec. N applied: 23 Apr, 1975. Weedkiller applied: 19 May. Combine harvested: 13 Aug.
Leys: First year only: Chalk applied: 10 Oct, 1974. Ploughed: 29 Oct. Reseeded only. Ploughed: 24 Jan, 1975. All leys: Spring-tine cultivated, N and K applied: 5 May. P applied: 6 May. Power harrowed: 7 May. Seed sown: 9 May. Topped: 14 and 28 July, 19 Aug.

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75/R/RN/7

BARLEY

TABLES OF MEANS

	GRAIN TONNES/HECTARE		STRAW TONNES/HECTARE	
	GREAT FIELD IV	SAWYERS I	GREAT FIELD IV	SAWYERS I
P205				
0	1.29	4.58	2.22	2.12
29 ANN	2.80	4.86	2.51	2.22
57 ANN	2.85	5.15	2.51	2.40
115 ANN	1.88	4.86	3.18	2.25
172 ANN	4.66	3.60	2.93	2.71
86 TRI	2.76	4.78	2.58	2.22
172 TRI	1.69	5.44	3.56	2.40
344 SIX	4.02	4.05	2.12	2.38
688 SIX	3.23	5.16	2.99	2.49
1032 SIX	3.81	4.94	2.63	2.10
376G(1)	3.99	4.32	2.14	2.05
376S(1)	3.06	4.26	2.04	1.90
MEAN	3.00	4.67	2.62	2.27

SAWYERS I ONLY GRAIN

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	P205
SED	0.729

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	11	0.729	15.6

GRAIN MEAN DM %	86.5	88.6	93.6	94.6

PLOT AREA HARVESTED 0.00520

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75/R/RN/7

WHEAT SAWYERS I

TABLES OF MEANS

	GRAIN TONNES/HECTARE		STRAW TONNES/HECTARE	
	AFTER BARLEY	AFTER WHEAT	AFTER BARLEY	AFTER WHEAT
P205				
0	5.34	1.85	3.39	1.09
29 ANN	6.43	1.93	4.62	1.28
57 ANN	6.39	2.48	3.75	1.68
115 ANN	6.54	2.78	4.03	1.49
172 ANN	6.77	3.18	4.84	1.76
86 TRI	6.60	1.97	4.43	1.23
172 TRI	6.60	2.31	4.72	1.35
344 SIX	6.11	2.94	4.35	1.61
688 SIX	6.40	2.91	4.28	1.87
1032 SIX	6.78	3.59	5.18	2.39
376G(1)	5.88	1.59	3.92	1.09
376S(1)	6.10	2.11	3.77	1.13
MEAN	6.33	2.47	4.27	1.50

AFTER BARLEY

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	P205
SED	0.371

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	11	0.3709	5.9

AFTER WHEAT

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	P205
SED	0.609

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	11	0.609	24.6

GRAIN MEAN DM %	86.9	87.5	94.3	93.9
PLOT AREA HARVESTED	0.00572			

https://doi.org/10.23637/ERADOC-1-141

75/R/RN/8

CULTIVATION/WEEDKILLER

Object: To study the long term effects of weedkillers and different methods of primary cultivation on a rotation of crops - Great Harpenden I.

Sponsors: R. Moffitt, G.V. Dyke, J.A. Currie.

The 15th year, barley.

For previous years see 'Details' 1967, 68/E/6(t), 69/R/RN/8(t), 70/R/RN/8. 71/R/RN/8(t) and 72-74/R/RN/8.

Design: 2 randomised blocks of 12 plots split into 2.

Whole plot dimensions: 12.8 x 15.2.

Treatments: All combinations of:-

Whole plots: 1. Primary cultivations annually:	CULTIVTN
Ploughed, 19 Mar, 1975	PLOUGH
Rotary cultivated, 20 Mar	ROTAVATE
Deep-tine cultivated twice, 17, 18 Mar	DEEPTINE
2. Weed control to potatoes 1974:	WEEDCNTL(74)
Mechanical	MECHANCL
Linuron plus paraquat	LIN/PAR
Linuron plus paraquat. Grubbed and rotary ridged	LIN/PARR
Sub plots: 3. Hormone weedkiller to barley 1975:	WEEDKILR(75)
None	NONE
Dicamba plus mecoprop and MCPA ('Tetralex Plus' at 7.0 l in 220 l) 6 June, 1975	DI/ME/MC
4. Paraquat weedkiller to wheat stubble autumn 1973:	WEEDKILR(73)
None	NONE
Paraquat	PARAQUAT
plus three extra treatments:-	EXTRA

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Spike rotary cultivated, 23 Apr. Given linuron plus paraquat to potatoes 1974, with sub plot treatments 3 and 4 above. SPIKE

Shallow ploughed, 28 Feb. Given linuron plus paraquat to potatoes 1974, whole plot given paraquat as 4 above, with sub plot treatment 3 above (SH)PLGH

Standard cultivations as considered best for each crop. Deep-tine cultivated twice, 19 Mar for barley. Given linuron plus paraquat and grubbed and rotary ridged to potatoes 1974, with sub plot treatments 3 and 4 above. STANDARD

Basal applications: Maxmores (20:14:14) at 380 kg combine drilled.

Seed: Julia, dressed with ethirimol, sown at 160 kg.

Cultivations, etc.:- Spring-tine cultivated: 24 Dec, 1974. Seed sown: 23 Apr, 1975. Combine harvested: 21 Aug.

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75/R/RN/8

BARLEY

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

OMITTING EXTRA PLOTS

CULTIVTN	PLOUGH	ROTAVATE	DEEPTINE	MEAN
WEEDCNTL(74)				
MECHANCL	3.70	3.33	3.68	3.57
LIN/PAR	3.79	3.55	3.72	3.69
LIN/PARR	3.83	3.43	4.09	3.78
WEEDKLLR(75)				
NONE	3.89	3.74	3.54	3.72
DI/ME/MC	3.66	3.14	4.12	3.64
WEEDKLLR(73)				
NONE	3.94	3.56	3.73	3.74
PARAQUAT	3.61	3.32	3.94	3.62
MEAN	3.77	3.44	3.83	3.68

EXTRA PLOTS ONLY

EXTRA	SPIKE	(SH)PLGH	STANDARD
WEEDKLLR(75)			
NONE	3.53	4.06	3.89
DI/ME/MC	3.80	4.15	4.51
WEEDKLLR(73)			
NONE	4.04		4.00
PARAQUAT	3.29	4.11	4.39
MEAN	3.66	4.11	4.20

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	CULTIVTN	WEEDCNTL(74)	WEEDKLLR(73)	WEEDKLLR(75)
SED	0.189	0.189	0.143	0.143

TABLE	CULTIVTN WEEDCNTL(74)	CULTIVTN WEEDKLLR(73)	CULTIVTN WEEDKLLR(75)
SED	0.328	0.258	0.258
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
CULTIVTN		0.248	0.248

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	8	0.328	8.9
BLOCK.WP.SP	8	0.429	11.7

GRAND MEAN 3.76

GRAIN MEAN DM% 81.6

SUB PLOT AREA HARVESTED 0.00434

https://doi.org/10.23637/ERADOC-1-141

75/R/RN/11

IRRIGATION

Object: To study the effects of irrigation on a rotation of crops. Other agronomic factors are also included - Great Field I and II.

Sponsors: B.J. Legg, P.K. French.

The twelfth year, beans (Great Field I), barley (Great Field II).

For previous years see 64/C/15(t), 65/C/14(t), 66/C/9(t), 67/C/7(t), 68/C/6(t), 69/R/RN/11(t), 70/R/RN/11(t), 71/R/RN/11(t), 72/R/RN/11(t) and 73-74/R/RN/11.

Design: 4 randomised blocks of 4 plots split into half and quarter plots (Great Field I).
2 randomised blocks of 2 plots split into quarter plots (Great Field II).

Whole plot dimensions: Beans - 15.2 x 32.0, barley - 15.2 x 30.5.

Treatments to beans: All combinations of:-

Whole plots: 1. Irrigation (by oscillating spray line):		IRRIGTN
	None	NONE
	Early	EARLY
	Late	LATE
	Full	FULL
Half plots: 2. Spacing between rows (with same wt. of seed/ha):		ROWSPACE
	18 cm (7 in.)	18 CM
	53 cm (21 in.)	53 CM
Quarter plots: 3. Aldicarb:		ALDICARB
	None	0
	14 kg	14

NOTE: One block did not receive the aldicarb treatment.

Treatments to barley: All combinations of:-

Whole plots: 1. Irrigation:		IRRIGTN
	None	NONE
	Full	FULL

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Half plots: 2. Form of N:

	N FORM
'Nitro-Chalk'	NITRO-C
'Gold-N' (sulphur-coated urea)	GOLD-N

Quarter plots: 3. Rate of N (kg):

	N RATE
35	35
70	70

Standard applications:
Beans: Manures: (0:14:28) at 400 kg. Weedkiller: Simazine at 1.1 kg in 220 l.
Barley: Manures: (0:20:20) at 310 kg combine drilled. Weedkillers: Dicamba with mecoprop and MCPA ('Tetralex Plus' at 7.0 l in 220 l).

Seed: Beans: Minden, sown at 220 kg.
Barley: Julia, dressed with ethirimol, sown at 160 kg.

Cultivations, etc.:-
Beans: Ploughed: 23 Jan, 1975. Spring-tine cultivated: 28 Feb. PK applied: 24 Mar. Aldicarb applied and spike rotary cultivated: 25 Apr. Seed sown: 26 Apr. Simazine applied: 28 Apr. Combine harvested: 30 Aug.
Barley: Ploughed: 24 Jan, 1975. Spring-tine cultivated: 28 Feb. N applied, power harrowed, seed sown: 24 Apr. Weedkiller applied: 4 June. Combine harvested: 21 Aug.

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75/R/RN/11

RAINFALL AND IRRIGATION: MM

Week-ending	Rainfall	IRRIGATION SPRING BEANS EARLY	SPRING BEANS LATE	SPRING BEANS FULL	BARLEY FULL
May 3	6.8				
May 10	13.0				
May 17	43.9				
May 24	3.3				
May 31	0.8				
June 7	7.6				
June 14	Trace	25		25	25
June 21	7.8	20		20	25
June 28	8.1				
July 5	Trace	25		25	25
July 12	6.8				
July 19	9.5		30	30	30
July 26	2.9		25	25	25
Aug 2	-		25	25	
Aug 9	10.9				
Aug 16	3.7		30	30	
Aug 23	3.9				
Aug 30	0.6				
Sept 6	Trace				
Sept 13	52.7				
Sept 20	13.0				
Sept 27	33.2				
Oct 4	9.9				
Total	238.4	70	110	180	130

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75/R/RN/11

SPRING BEANS - BLOCKS RECEIVING ALDICARB

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

ROWSPACE IRRIGTN	18 CM	53 CM	MEAN
NONE	2.31	2.04	2.17
EARLY	2.03	2.22	2.12
LATE	2.82	2.70	2.76
FULL	2.57	2.35	2.46
MEAN	2.43	2.33	2.38

ALDICARB IRRIGTN	0	14	MEAN
NONE	1.47	2.87	2.17
EARLY	1.82	2.43	2.12
LATE	2.03	3.48	2.76
FULL	2.27	2.64	2.46
MEAN	1.90	2.86	2.38

ALDICARB ROWSPACE	0	14	MEAN
18 CM	1.91	2.95	2.43
53 CM	1.89	2.76	2.33
MEAN	1.90	2.86	2.38

ROWSPACE	18 CM		53 CM	
ALDICARB	0	14	0	14
IRRIGTN				
NONE	1.57	3.05	1.38	2.69
EARLY	1.72	2.33	1.92	2.52
LATE	1.94	3.70	2.13	3.26
FULL	2.40	2.73	2.15	2.55

https://doi.org/10.23637/ERADOC-1-141

75/R/RN/11

SPRING BEANS - BLOCKS RECEIVING ALDICARB

GRAIN TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	IRRIGTN	ROWSPACE	ALDICARB	IRRIGTN ROWSPACE
SED	0.501	0.101	0.153	0.520
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
IRRIGTN				0.201

TABLE	IRRIGTN ALDICARB	ROWSPACE ALDICARB	IRRIGTN ROWSPACE ALDICARB
SED	0.545	0.183	0.604
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
IRRIGTN	0.306		0.367
ROWSPACE		0.217	
IRRIGTN.ROWSPACE			0.433
IRRIGTN.ALDICARB			0.367

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	6	0.613	25.8
BLOCK.WP.HP	8	0.247	10.4
BLOCK.WP.HP.QP	16	0.530	22.3

GRAIN MEAN DM% 84.8

QUARTER PLOT AREA HARVESTED ROWSPACE 18CM - 0.00412, 53CM - 0.00463

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75/R/RN/11

SPRING BEANS - BLOCKS NOT RECEIVING ALDICARB

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

ROWSPACE IRRIGTN	18 CM	53 CM	MEAN
NONE	1.27	1.02	1.15
EARLY	1.09	1.15	1.12
LATE	1.69	1.28	1.48
FULL	2.25	1.99	2.12
MEAN	1.58	1.36	1.47

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	ROWSPACE	IRRIGTN ROWSPACE
SED	0.201	0.403 *

* ONLY WHEN COMPARING MEANS WITH SAME LEVEL OF IRRIGTN

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP.HP.QP	8	0.403	27.4

GRAIN MEAN DM% 85.5

QUARTER PLOT AREA HARVESTED ROWSPACE 18CM - 0.00412, 53CM - 0.00463

https://doi.org/10.23637/ERADOC-1-141 *pp 106*

75/R/RN/11

BARLEY

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

N FORM	NITRO C	GOLD N	MEAN
IRRIGTN			
NONE	4.00	3.83	3.92
FULL	3.26	3.37	3.31
MEAN	3.63	3.60	3.62

N RATE	35	70	MEAN
IRRIGTN			
NONE	3.87	3.96	3.92
FULL	3.15	3.48	3.31
MEAN	3.51	3.72	3.62

N RATE	35	70	MEAN
N FORM			
NITRO C	3.31	3.95	3.63
GOLD N	3.71	3.49	3.60
MEAN	3.51	3.72	3.62

N FORM	NITRO C		GOLD N	
N RATE	35	70	35	70
IRRIGTN				
NONE	3.48	4.52	4.26	3.41
FULL	3.14	3.38	3.16	3.57

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	IRRIGTN	N FORM	N RATE	IRRIGTN N FORM
REP	8	8	8	4
SED	0.266	0.122	0.337	0.292
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
IRRIGTN				0.173

TABLE	IRRIGTN N RATE	N FORM N RATE	IRRIGTN N FORM N RATE
SED			
ONLY WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
IRRIGTN	0.477		0.507
N FORM		0.477	
IRRIGTN.N FORM			0.675
IRRIGTN.N RATE			0.507

https://doi.org/10.23637/ERADOC-1-141

75/R/RN/11

BARLEY

GRAIN TONNES/HECTARE

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP.HP.QP	4	0.675	18.7

GRAIN MEAN DM% 81.3

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

N FORM	NITRO C	GOLD N	MEAN
IRRIGTN			
NONE	2.22	2.16	2.19
FULL	1.85	2.17	2.01
MEAN	2.03	2.17	2.10

N RATE	35	70	MEAN
IRRIGTN			
NONE	2.11	2.28	2.19
FULL	1.76	2.25	2.01
MEAN	1.94	2.26	2.10

N RATE	35	70	MEAN
N FORM			
NITRO C	1.89	2.18	2.03
GOLD N	1.98	2.35	2.17
MEAN	1.94	2.26	2.10

N FORM	NITRO C		GOLD N	
N RATE	35	70	35	70
IRRIGTN				
NONE	2.22	2.22	1.99	2.34
FULL	1.55	2.14	1.98	2.36

STRAW MEAN DM% 92.5

QUARTER PLOT AREA HARVESTED 0.00347

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75/W/RN/12

ORGANIC MANURING

Object: To study, from crop yields and soil analyses, the cumulative effects of a range of types of organic matter - Woburn, Stackyard B.

Sponsor: C.E.G. Mattingly.

The eleventh year, sugar beet, barley.

For previous years see 66/C/31(t), 67/C/24(t), 68/C/18(t), 69/W/RN/12(t), 70/W/RN/12(t), 71/W/RN/12(t), 72/W/RN/12(t) and 73-74/W/RN/12.

Design for each crop: 2 blocks of 8 plots split into 8.

Whole plot dimensions: 8.53 x 30.5.

Treatments: From 1966 to 1971 the experiment had a preliminary period designed to build up organic matter, derived from different sources. A rotation of potatoes, wheat, sugar beet and barley was started on two blocks in 1972 and the remaining two blocks in 1973. Organic manures were last applied in 1971, the leys were ploughed in autumn 1971 and 1972 before starting the rotation. The experiment now tests all combinations of:-

Whole plots: 1. Organic manures and fertilisers in the preliminary period:

	MANURE
Farmyard manure	FYM
Straw	STRAW
Peat	PEAT
Green manures	GREENMNR
Fertilisers equivalent to FYM	FERT-FYM
Fertilisers equivalent to straw	FERT-STR
Grass/clover ley, no N	CLOVRLEY
Grass ley with N for each cut	GRASSLEY

Sub plots: 2. Fertiliser nitrogen (kg N) in 1975:

Sugar beet	Barley	N S. BEET	N BARLEY
None	None	0	0
40	25	40	25
80	50	80	50
120	75	120	75
160	100	160	100
200	125	200	125
240	150	240	150
280	175	280	175

Standard applications:

Sugar beet: Manures: Ground chalk at 5 tonnes. P_2O_5 at 114 kg as superphosphate, K_2O at 180 kg as muriate of potash in autumn. (0:20:20) at 570 kg, MgO at 100 kg as Epsom salts in the seedbed. Boron at 8.2 kg B_2O_3 (as 'Solubor') in 390 l. Weedkiller: Aminotriazole at 4.5 kg in 280 l. Insecticide: Demeton-s-methyl at 0.25 kg in 280 l on the first occasion and in 390 l on the second occasion.

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Barley: Manures: (0:20:20) at 280 kg, combine drilled. Weedkiller: Ioxynil at 0.52 kg and mecoprop at 1.6 kg in 280 l.

Seed: Sugar beet: Klein E, sown at 5.6 kg.
Barley: Julia, dressed with ethirimol, sown at 160 kg.

Cultivations, etc.:-
Sugar beet: Weedkiller applied: 18 Sept, 1974. Subsoiled, tines 140 cm apart and 60 cm deep: 19 Sept. Ground chalk applied: 9 Oct. PK applied: 15 Nov. Ploughed: 9 Dec. PK and Mg applied, spring-tine cultivated with crumbler: 28 Apr, 1975. Seed sown: 29 Apr. N applied: 29-30 Apr. Tractor hoed three times: 29 May, 27 June, 30 June. Insecticide applied: 9 June. Singled: 16-18 June. Insecticide with boron applied: 1 July. Side hoed: 10-17 July. Lifted: 11-14 Nov.
Barley: Ploughed in sugar beet tops: 14 Jan, 1975. Spring-tine cultivated with crumbler: 3 Mar. Seed sown: 4 Mar. N applied: 18 Mar. We dkiller applied: 20 May. Combine harvested: 11 Aug.

SUGAR BEET

ROOTS (WASHED) TONNES/HECTARE

*** TABLES OF MEANS***

N / MANURE	0	40	80	120	160	200	240	280	MEAN
FYM	8.1	11.6	14.3	14.8	15.2	15.5	13.5	15.4	13.6
STRAW	6.4	10.2	11.2	11.9	12.5	13.2	14.0	13.7	11.6
PEAT	5.2	7.2	10.5	11.0	12.2	13.9	13.9	13.8	11.0
GREENMNR	5.8	9.0	8.2	9.0	12.0	12.3	12.5	12.8	10.2
FERT FYM	4.2	4.1	8.0	8.6	9.6	11.0	11.5	12.3	8.6
FERT STR	3.8	7.8	8.8	11.6	10.6	11.4	11.3	13.2	9.8
CLOVRLEY	7.2	11.4	12.8	14.2	12.7	15.7	16.6	15.0	13.2
GRASSLEY	10.0	12.5	13.8	16.8	18.5	13.2	16.3	14.7	14.5
MEAN	6.3	9.2	11.0	12.2	12.9	13.3	13.7	13.9	11.6

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	MANURE	N	MANURE N
SED	1.37	0.52	1.95

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:
MANURE 1.48

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	7	1.37	11.8
BLOCK.WP.SP	56	1.43	12.8

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75/W/RN/12

SUGAR BEET

TOPS TONNES/HECTARE

*** TABLES OF MEANS***

N / MANURE	0	40	80	120	160	200	240	280	MEAN
FYM	7.4	8.7	11.7	12.0	13.3	14.6	13.8	13.5	11.9
STRAW	5.6	8.7	10.9	12.1	12.8	14.5	13.7	13.9	11.6
PEAT	4.3	7.3	9.3	11.2	13.7	14.2	13.6	12.3	10.8
GREENMNR	5.3	8.9	8.7	11.4	14.4	12.6	13.5	13.7	11.1
FERT FYM	4.3	5.9	7.1	8.4	11.1	11.2	13.4	13.4	9.4
FERT STR	4.1	6.3	9.0	11.5	11.9	11.6	13.1	12.3	10.0
CLOVRLEY	7.5	9.9	11.2	13.3	11.9	14.3	15.1	15.6	12.4
GRASSLEY	7.0	8.9	10.3	13.0	15.4	12.1	14.9	13.5	11.9
MEAN	5.7	8.1	9.8	11.6	13.1	13.2	13.9	13.5	11.1

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	MANURE	N	MANURE N
SED	1.68	0.46	2.07
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
MANURE			1.29

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	7	1.68	15.1
BLOCK.WP.SP	56	1.29	11.6

SUB PLOT AREA HARVESTED 0.00130

https://doi.org/10.23637/ERADOC-1-141

75/W/RN/12

SUGAR BEET

SUGAR PERCENTAGE

*** TABLES OF MEANS***

N MANURE	0	40	80	120	160	200	240	280	MEAN
FYM	15.3	15.1	15.4	15.1	14.7	14.9	14.6	14.3	14.9
STRAW	15.4	15.3	15.1	15.2	14.8	15.0	15.0	14.8	15.1
PEAT	15.3	15.2	15.4	15.3	15.2	15.1	14.9	14.7	15.1
GREENMNR	15.4	15.4	15.0	15.0	14.9	14.7	14.5	14.5	14.9
FERT FYM	15.3	15.3	15.0	15.1	14.9	14.4	14.4	14.1	14.8
FERT STR	15.3	15.4	15.3	15.4	15.0	15.0	15.0	15.0	15.2
CLOVRLEY	15.2	15.2	15.2	15.2	14.7	14.7	14.5	14.5	14.9
GRASSLEY	15.3	15.3	15.3	14.8	15.1	14.5	14.7	14.2	14.9
MEAN	15.3	15.3	15.2	15.1	14.9	14.8	14.7	14.5	15.0

TOTAL SUGAR TONNES/HECTARE

*** TABLES OF MEANS***

N MANURE	0	40	80	120	160	200	240	280	MEAN
FYM	1.25	1.75	2.19	2.24	2.24	2.30	1.97	2.21	2.02
STRAW	0.98	1.56	1.69	1.80	1.84	1.98	2.10	2.03	1.75
PEAT	0.79	1.09	1.62	1.68	1.85	2.10	2.07	2.02	1.65
GREENMNR	0.89	1.39	1.24	1.36	1.79	1.81	1.81	1.86	1.52
FERT FYM	0.63	0.62	1.20	1.30	1.43	1.60	1.65	1.75	1.27
FERT STR	0.58	1.20	1.35	1.79	1.60	1.72	1.69	1.98	1.49
CLOVRLEY	1.09	1.73	1.95	2.16	1.87	2.31	2.42	2.17	1.96
GRASSLEY	1.54	1.92	2.10	2.48	2.78	1.91	2.40	2.10	2.15
MEAN	0.97	1.41	1.67	1.85	1.93	1.97	2.01	2.02	1.73

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	MANURE	N	MANURE N
SED	0.206	0.081	0.298

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:
MANURE 0.230

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	7	0.206	11.9
BLOCK.WP.SP	56	0.230	13.3

https://doi.org/10.23637/ERADOC-1-141

75/W/RN/12

BARLEY

GRAIN TONNES/HECTARE

*** TABLES OF MEANS***

N	0	25	50	75	100	125	150	175	MEAN
MANURE									
FYM	1.80	2.98	4.20	4.42	4.45	4.97	4.61	4.44	3.98
STRAW	1.61	2.82	3.99	4.62	4.39	4.35	4.24	4.49	3.81
PEAT	0.78	2.48	3.20	4.26	4.27	4.54	4.77	4.37	3.58
GREENMNR	2.10	2.95	3.97	4.11	4.90	4.56	4.65	4.36	3.95
FERT FYM	0.68	1.74	3.46	3.72	4.34	4.16	4.48	4.90	3.43
FERT STR	0.91	2.27	3.28	4.37	4.33	4.16	3.97	3.75	3.38
CLOVRLEY	2.02	3.45	4.42	4.41	4.29	4.82	4.61	4.79	4.10
GRASSLEY	2.43	3.20	4.27	4.66	4.78	4.95	4.66	4.08	4.13
MEAN	1.54	2.74	3.85	4.32	4.47	4.56	4.50	4.40	3.80

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	MANURE	N	MANURE N
SED	0.409	0.157	0.582

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:
MANURE 0.443

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	7	0.409	10.8
BLOCK.WP.SP	56	0.443	11.7

GRAIN MEAN DM% 88.3

STRAW TONNES/HECTARE

*** TABLES OF MEANS***

N	0	25	50	75	100	125	150	175	MEAN
MANURE									
FYM	1.15	1.84	2.17	2.38	2.40	2.94	2.26	2.68	2.23
STRAW	0.74	1.59	2.44	2.82	3.02	3.14	3.00	3.17	2.49
PEAT	0.51	1.39	1.83	2.08	2.55	2.67	2.72	2.63	2.05
GREENMNR	1.06	1.56	1.88	2.57	3.15	3.05	2.96	2.82	2.38
FERT FYM	0.45	1.05	1.72	2.27	2.31	2.51	2.62	2.75	1.96
FERT STR	0.51	1.34	1.83	2.82	2.41	2.52	2.74	2.36	2.07
CLOVRLEY	1.02	2.07	2.49	2.54	3.05	3.27	3.24	3.20	2.61
GRASSLEY	1.32	1.74	2.45	3.00	3.27	3.47	3.26	2.98	2.69
MEAN	0.85	1.57	2.10	2.56	2.77	2.94	2.85	2.83	2.31

STRAW MEAN DM% 91.7

SUB PLOT AREA HARVESTED 0.00173

https://doi.org/10.23637/ERADOC-1-141

75/W/RN/13

INTENSIVE CEREALS

Object: To study the effects of intensive cereal cropping on yield, incidence of soil-borne diseases and organic matter in the soil - Woburn Stackyard I.

Sponsor: D.B. Slope.

The tenth year, ley, potatoes, winter wheat, barley.

For previous years see 66/B/9(t), 67/B/9, 68/B/7(t), 69/W/RN/13(t), 70/W/RN/13(t), 71/W/RN/13(t) and 72-74/W/RN/13.

Design: For each experiment: 2 randomised blocks of 6 plots, split into 4.

Whole plot dimensions: 8.53 x 20.4.

Treatments:-
One experiment on winter wheat on part of the site of the classical wheat experiment 1877-1954
One experiment on barley on part of the site of the classical barley experiment 1877-1954
Factors tested on both experiments are the same but crop and nitrogen rates differ. All combinations of:-

Whole plots: 1. Previous crops:

1968	1969	1970	1971	1972	1973	1974	PREVCROP
L	P	C	C	C	L	P	C/C/L/P
P	C	C	C	L	P	C	C/L/P/C
C	C	C	L	P	C	C	L/P/C/C
C	C	L	P	C	C	C	P/C/C/C
C	L	P	C	C	C	L	C/C/C/L
C	C	C	C	C	C	C	C/C/C/C

Ley = 1 year ley P = Potatoes C = Cereal: wheat or barley.

Sub plots: 2. Nitrogen fertiliser (kg N): N

To wheat	To barley	Wheat	Barley
63	50	63	50
126	100	126	100
189	150	189	150
252	200	252	200

NOTE: Ley and potatoes receive standard N only, residues of dressings to cereals are tested (NRESID).

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Basal applications: All crops: P_2O_5 at 130 kg, K_2O at 260 kg as (0:14:28), half ploughed in, half applied to the plough furrow.

Standard applications:
Leys: N at 60 kg, as 'Nitro-Chalk', in seedbed and repeated after sowing. Weedkiller: Amitrotriazole at 4.5 kg in 280 l.
Potatoes: N at 150 kg as 'Nitro-Chalk'. Weedkiller: Limuron at 1.2 kg plus paraquat at 0.28 kg ion in 280 l. Insecticide: Demeton-s-methyl at 0.25 kg in 280 l. Fungicide: Mancozeb at 1.3 kg in 390 l.
Wheat: Weedkillers: Aminotriazole at 4.5 kg in 280 l. Ioxynil at 0.63 kg with mecoprop at 1.9 kg in 280 l.
Barley: Weedkillers: Aminotriazole at 4.5 kg in 280 l. Ioxynil at 0.52 kg with mecroprop at 1.6 kg in 280 l.

Seed: Leys: Italian ryegrass sown at 40 kg.
Potatoes: Pentland Crown.
Wheat: Cappelle sown at 200 kg.
Barley: Julia, dressed with ethirimol, sown at 160 kg.

Cultivations, etc.:- All plots: Half PK applied, ploughed: 30 Oct, 1974. Remaining PK applied: 8 Nov. Spring-tine cultivated: 27 Nov.
Leys: Aminotriazole applied: 11 Sept, 1974. Spring-tine cultivated four times with crumbler on the second and forth occasions: 26 Feb, 3 Mar, 24 Apr, 28 Apr, 1975. N applied: 18 Apr, 11 June. Seed sown: 2 May. Topped: 8 July, 21 Aug.
Potatoes: Spring-tine cultivated three times on the second occasion with crumbler: 26 Feb, 3 Mar, 24 Apr, 1975. N applied: 18 Apr. Deep-tine cultivated: 25 Apr. Rotary cultivated, potatoes planted: 5 May. Limuron with paraquat applied: 22 May. Grubbed: 23 June. Rotary ridged: 24 June. Insecticide applied: 25 June. Fungicide applied: 15 July. Haulm mechanically destroyed: 26 Sept. Sprayed with undiluted B.O.V. at 160 l: 2 Oct. Lifted: 6 Oct.
Wheat: Seed sown: 27 Nov, 1974. N applied: 24 Mar, 1975. Weedkiller applied: 8 May. Combine harvested: 12 Aug.
Barley: Spring-tine cultivated twice, second time with crumbler: 26 Feb, 3 Mar, 1975. Seed sown: 4 Mar. N applied: 19 Mar. Spring-tine cultivated with crumbler three times, seed resown: 1 May. Weedkiller applied: 4 June. Combine harvested: 18 Aug.

NOTES: (1) No cuts were taken from the leys because of poor growth in a dry year.
(2) The barley was resown because of poor germination and bird damage on the first sowing.
(3) Estimates of eyespot (Cercosporella herpotrichoides) and take-all (Gaeumannomyces graminis) were made on both cereal crops.

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75/W/RN/13

POTATOES

WHEAT SITE

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

NRESID	63	126	189	252	MEAN
	25.4	23.9	24.2	20.3	23.4

PERCENTAGE WARE 3.81CM (1.5 INCH) RIDDLE

*** TABLES OF MEANS ***

NRESID	63	126	189	252	MEAN
	97.4	95.7	96.3	95.6	96.2

BARLEY SITE

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

NRESID	50	100	150	200	MEAN
	29.5	29.8	26.6	25.1	27.8

PERCENTAGE WARE 3.81CM (1.5 INCH) RIDDLE

*** TABLES OF MEANS ***

NRESID	50	100	150	200	MEAN
	97.5	97.4	97.5	97.4	97.5

PLOT AREA HARVESTED 0.00139

https://doi.org/10.23637/ERADOC-1-141

75/W/RN/13

WINTER WHEAT

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

N	63	126	189	252	MEAN
PREVCROP					
C/C/L/P	2.75	3.36	3.45	3.43	3.25
C/L/P/C	1.46	2.97	3.39	2.83	2.66
L/P/C/C	1.91	3.15	3.14	2.80	2.75
C/C/C/C	1.81	3.04	3.22	2.77	2.71
MEAN	1.98	3.13	3.30	2.96	2.84

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N	PREVCROP* N
SED	0.150	0.300

* WITHIN THE SAME LEVEL OF PREVCROP ONLY

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	3	0.153	5.4
BLOCK.WP.SP	12	0.300	10.6

GRAIN MEAN DM% 88.2

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

N	63	126	189	252	MEAN
PREVCROP					
C/C/L/P	2.41	4.00	4.52	4.89	3.95
C/L/P/C	1.25	2.85	3.84	3.57	2.88
L/P/C/C	1.86	2.50	3.51	3.74	2.90
C/C/C/C	2.92	3.10	3.62	3.24	3.22
MEAN	2.11	3.11	3.87	3.86	3.24

STRAW MEAN DM% 89.8

SUB PLOT AREA HARVESTED 0.00277

https://doi.org/10.23637/ERADOC-1-141 *pp 117*

75/W/RN/13

BARLEY

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

N	50	100	150	200	MEAN
PREVCROP					
C/C/L/P	2.08	3.13	3.23	2.88	2.83
C/L/P/C	1.73	2.83	2.94	2.82	2.58
L/P/C/C	1.84	2.47	2.73	2.87	2.49
C/C/C/C	1.64	2.11	2.14	2.29	2.04
MEAN	1.82	2.64	2.77	2.71	2.48

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N	PREVCROP* N
SED	0.117	0.234

* WITHIN THE SAME LEVEL OF PREVCROP ONLY

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	3	0.286	11.5
BLOCK.WP.SP	12	0.234	9.4

GRAIN MEAN DM% 86.9

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

N	50	100	150	200	MEAN
PREVCROP					
C/C/L/P	1.65	2.57	2.57	2.41	2.30
C/L/P/C	1.41	2.42	2.41	2.58	2.21
L/P/C/C	1.75	2.18	2.35	2.63	2.23
C/C/C/C	1.26	1.76	1.96	1.98	1.74
MEAN	1.52	2.23	2.32	2.40	2.12

STRAW MEAN DM% 81.6

SUB PLOT AREA HARVESTED 0.00277

https://doi.org/10.23637/ERADOC-1-141

75/W/RN/14

LONG TERM PHOSPHATE

Object: To study the residual effects of superphosphate on a clover/grass ley - Woburn Stackyard III.

Sponsor: G.E.G. Mattingly.

The eighth year, clover/grass ley.

For previous years see 68/B/8(t), 69/W/RN/14, 70/W/RN/14(t), 71/W/RN/14(t), 72/W/RN/14(t) and 73-74/W/RN/14.

Design: 6 blocks of 6 plots, split into 2.

Whole plot dimensions: 8.53 x 15.8.

Treatments: All combinations of:-

Whole plots: 1. Residues of superphosphate applied autumn 1967 and spring 1973 (kg P_2O_5):

1967	1973	Total	P_2O_5RES(73)
None	None	None (Duplicate plots)	0
188	172	360	360
376	344	720	720
753	687	1440	1440
1130	1030	2160	2160

Sub plots: 2. Residues of superphosphate applied in three equal dressings 1970-72 (kg P_2O_5, total):

	P_2O_5RES(72)
None	0
376	376

Basal applications: Manures: K_2O at 110 kg as muriate of potash. MgO at 30 kg as Epsom salts.

Cultivations, etc.:- K and Mg applied: 13 Feb, 1975. Cut once: 9-10 June.

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75/W/RN/14

1ST AND ONLY CUT (9/6/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

P205RES(73) / P205RES(72)	0	360	720	1440	2160	MEAN
0	2.20	4.06	4.19	4.65	4.69	3.67
376	3.27	4.30	4.54	4.61	4.97	4.16
MEAN	2.74	4.18	4.36	4.63	4.83	3.91

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	P205RES(72)	P205RES(73)	P205RES(72) P205RES(73)
SED		0.359(1)	0.402(1)
	0.121	0.415(2)	0.465(2)

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:

P205RES(73)	0.209(3)
	0.296(2)

(1) 0 V ANY OF REMAINDER
(2) ANY OF REMAINDER
(3) 0

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	26	0.719	18.4
BLOCK.WP.SP	31	0.512	13.1

MEAN DM% 32.2

PLOT AREA HARVESTED 0.00145

https://doi.org/10.23637/ERADOC-1-141 *pp 120*

75/W/RN/15

ROTATION AND FUMIGATION

Object: To study different ways of using nematicides in a three-course rotation and to determine the effects on crop yield and incidence of pathogenic nematodes - Woburn Butt Close.

Sponsors: F.G.W. Jones, A.G. Whitehead, T.D. Williams.

The seventh year, potatoes, barley, sugar beet.

For previous years see 69/W/RN/15(t), 70/W/RN/15(t) and 71-74/W/RN/15.

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

Whole plot dimensions: 5.33 x 31.1.

Treatments:

All phases of the rotation potatoes, barley, sugar beet are present.
Each crop tests all combinations of:-
Whole plots: 1. Nitrogen fertiliser (kg N):

To potatoes and sugar beet	To barley	N	Potatoes & s.beet	Barley
75	38		75	38
150	75		150	75
225	113		225	113

Sub plots: 2. Chemicals:

	CHEMICAL
None	0
Dichloropropane/dichloropropene ('D-D') at 448 kg before potatoes	DD(P)
Dichloropropane/dichloropropene ('D-D') at 448 kg before sugar beet	DD(SE)
Dichloropropane/dichloropropene ('D-D') at 448 kg before barley	DD(B)
Dichloropropane/dichloropropene ('D-D') at 448 kg before all crops	DD(ALL)
Dazomet at 224 kg before all crops since 1970 only	DAZ(ALL)
Benomyl at 22 kg before all crops since 1974 only	BEN(ALL)

Standard applications:
Potatoes: Manures: (0:14:28) at 1050 kg. Weedkiller: Linuron at 1.2 kg plus paraquat at 0.28 kg ion in 281 l. Insecticide: Demeton-s-methyl at 0.25 kg in 280 l. Fungicide: Mancozeb at 1.3 kg in 391 l.

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Barley: Manures: (0:20:20) at 320 kg, combine drilled. Weedkiller: Ioxynil at 0.52 kg with mecoprop at 1.9 kg in 280 l.
Sugar beet: Manures: Magnesian limestone at 2.5 tonnes. (0:14:28) at 1050 kg. Boron at 7.4 kg B2O3 (as 'Solubor') applied with the second application of insecticide. Insecticide: Demeton-s-methyl at 0.25 kg in 280 l and on the second occasion in 390 l.

Seed: Potatoes: Pentland Crown.
Barley: Julia, dressed with ethirimol, sown at 160 kg.
Sugar beet: Klein E, sown at 6 kg.

Cultivations, etc.:-
All series: Ploughed: 29 Nov, 1974. 'D-D' injected: 5 Dec. Dazomet applied, and these plots only rotary cultivated, and all plots spring-tine harrowed: 6 Dec. Benomyl applied, and these plots only rotary cultivated: 23 Apr, 1975. Spring-tine cultivated, PK and N applied: 25 Apr.
Potatoes: Spring-tine cultivated with crumbler: 28 Apr. Rotary cultivated, potatoes planted: 1 May. Weedkiller applied: 22 May. Grubbed: 23 June. Rotary ridged: 24 June. Insecticide applied: 26 June. Fungicide applied: 15 July. Haulm mechanically destroyed: 29 Sept. Sprayed with undiluted B.O.V. at 160 l: 2 Oct. Lifted: 16 Oct.
Barley: Spring-tine cultivated, seed sown: 25 Apr, 1975. Weedkiller applied: 4 June. Combine harvested: 19-22 Aug.
Sugar beet: Subsoiled: Tines 140 cm apart and 56 cm deep: 18 Sept, 1974. Magnesian limestone applied: 7 Nov. Spring-tine cultivated with crumbler: 28 Apr, 1975. Seed sown: 29 Apr. Tractor hoed: 30 May. Singled: 3-4 June. Insecticide applied: 9 June. Tractor hoed: 27 June. Boron and insecticide applied: 1 July. Side hoed by hand: 4-7 July. Lifted: 3-4 Nov.

NOTES: (1) Sugar beet plots were damaged by rabbits late in the season.
(2) Soil samples were taken after harvest for eelworm counts.

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75/W/RN/15

POTATOES

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

N	75	150	225	MEAN
CHEMICAL				
0	9.8	11.1	19.4	13.4
DD(P)	22.9	31.3	25.4	26.5
DD(SB)	19.1	19.8	37.9	25.6
DD(B)	19.3	26.9	35.3	27.2
DD(ALL)	14.3	36.7	36.7	29.2
DAZ(ALL)	24.7	31.0	31.8	29.2
BEN(ALL)	12.9	20.5	24.1	19.1
MEAN	17.6	25.3	30.1	24.3

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	CHEMICAL	N* CHEMICAL
SED	2.44	4.22

* WITHIN THE SAME LEVEL OF N ONLY

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP.SP	18	4.22	17.3

PERCENTAGE WARE 3.81CM(1.5 INCH) RIDDLE

*** TABLES OF MEANS ***

N	75	150	225	MEAN
CHEMICAL				
0	89.6	86.3	94.3	90.1
DD(P)	93.3	96.9	94.8	95.0
DD(SB)	93.9	93.9	96.8	94.9
DD(B)	95.0	95.6	96.7	95.7
DD(ALL)	95.5	96.7	95.9	96.1
DAZ(ALL)	97.4	96.1	95.3	96.3
BEN(ALL)	92.7	92.7	95.0	93.5
MEAN	93.9	94.0	95.5	94.5

PLOT AREA HARVESTED 0.00052

https://doi.org/10.23637/ERADOC-1-141

75/W/RN/15

BARLEY

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

N / CHEMICAL	38	75	113	MEAN
0	1.19	1.73	0.65	1.19
DD(P)	1.51	1.72	1.62	1.62
DD(SB)	1.30	1.72	1.94	1.66
DD(B)	1.19	1.29	1.61	1.37
DD(ALL)	1.41	1.40	2.05	1.62
DAZ(ALL)	1.30	2.16	1.61	1.69
BEN(ALL)	1.52	1.73	1.41	1.55
MEAN	1.35	1.68	1.56	1.53

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	CHEMICAL	N* CHEMICAL
SED	0.168	0.291

* WITHIN THE SAME LEVEL OF N ONLY

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP.SP	18	0.291	19.0

GRAIN MEAN DM% 84.2

SUB PLOT AREA HARVESTED 0.00052

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

N / CHEMICAL	38	75	113	MEAN
0	0.84	1.13	1.02	1.00
DD(P)	0.84	1.39	1.49	1.24
DD(SB)	0.75	1.41	1.78	1.32
DD(B)	0.74	1.19	1.39	1.11
DD(ALL)	0.82	0.93	1.02	0.93
DAZ(ALL)	0.91	1.04	1.50	1.15
BEN(ALL)	1.02	1.22	1.31	1.18
MEAN	0.85	1.19	1.36	1.13

STRAW MEAN DM% 90.8

SUB PLOT AREA HARVESTED 0.00052

https://doi.org/10.23637/ERADOC-1-141

75/W/RN/15

SUGAR BEET

ROOTS (WASHED) TONNES/HECTARE

*** TABLES OF MEANS ***

N	75	150	225	MEAN
CHEMICAL				
0	6.8	11.8	10.1	9.6
DD(P)	6.9	11.0	12.4	10.1
DD(SB)	7.7	11.5	8.3	9.2
DD(B)	9.3	4.4	10.7	8.1
DD(ALL)	5.3	5.2	9.4	6.6
DAZ(ALL)	8.1	8.7	8.7	8.5
BEN(ALL)	9.4	12.3	4.5	8.7
MEAN	7.7	9.3	9.1	8.7

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	CHEMICAL	N* CHEMICAL
SED	1.47	2.54

* WITHIN THE SAME LEVEL OF N ONLY

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP.SP	18	2.54	29.3

SUGAR PERCENTAGE

*** TABLES OF MEANS ***

N	75	150	225	MEAN
CHEMIAL				
0	14.5	13.8	13.9	14.1
DD(P)	14.8	14.0	13.6	14.2
DD(SB)	14.3	13.8	13.6	13.9
DD(B)	14.6	13.8	13.3	13.9
DD(ALL)	13.9	12.9	13.4	13.4
DAZ(ALL)	14.4	13.9	13.3	13.9
BEN(ALL)	14.6	14.0	13.9	14.2
MEAN	14.4	13.7	13.6	13.9

https://doi.org/10.23637/ERADOC-1-141

75/W/RN/15

SUGAR BEET

TOTAL SUGAR TONNES/HECTARE

*** TABLES OF MEANS ***

N CHEMICAL	75	150	225	MEAN
0	0.99	1.63	1.40	1.34
DD(P)	1.02	1.54	1.69	1.42
DD(SB)	1.11	1.59	1.13	1.28
DD(B)	1.36	0.61	1.43	1.14
DD(ALL)	0.74	0.68	1.25	0.89
DAZ(ALL)	1.16	1.20	1.17	1.18
BEN(ALL)	1.37	1.73	0.62	1.24
MEAN	1.11	1.28	1.24	1.21

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	CHEMICAL	N* CHEMICAL
SED	0.209	0.362

* WITHIN THE SAME LEVEL OF N ONLY

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP.SP	18	0.362	29.9

PLOT AREA HARVESTED 0.00130

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75/W/RN/16

EFFECTS OF DEEP PK

Object: To study the effects of subsoiling, and of incorporating a large dressing of PK in either the subsoil or topsoil, on yields of a rotation of crops - Woburn Butt Furlong.

Sponsor: J. McEwen.

The second year, winter wheat, sugar beet, spring barley, potatoes.

For previous year see 74/W/RN/16.

Design: 4 series of 3 randomised blocks of 4 plots.

Whole plot dimensions: 4.27 x 2.59.

Treatments: Extra PK and subsoil treatment (applied autumn 1973):

Extra PK	Subsoil (25-50 cm) treatment	PK SUB
None	None	- -
None	Subsoiled	- SUB
To topsoil (0-25 cm)	None	PKTOP -
To subsoil	Subsoiled	- PKSUB

NOTES: (1) The rates of P and K were 1930 kg P_2O_5, as superphosphate and 460 kg K_2O as muriate of potash. These quantities, applied to subsoil, were chosen to equalize available P and K in top and subsoil.
(2) Subsoiling was done by spade, after removing the topsoil which was then replaced. PK to subsoil was worked in by forking.
(3) PK to topsoil was applied half before ploughing in autumn half soon after on the plough furrow.

Standard applications:
Series I: Sugar beet: Manures: Magnesian limestone at 5 tonnes. (0:14:28) at 750 kg. N at 160 kg as 'Nitro-Chalk'. Insecticide: Pirimicarb ('Aphox' at 0.28 kg in 340 l).
Series II: Barley: Manures: (20:14:14) at 380 kg combine drilled. Weedkiller: Ioxynil at 0.63 kg plus mecoprop at 1.9 kg in 340 l.
Series III: Potatoes: Manures: (13:13:20) at 1860 kg. Weedkiller: Linuron at 1.0 kg plus paraquat at 0.42 kg ion in 340 l. Insecticide: Pirimicarb ('Aphox' at 0.28 kg in 340 l).
Series IV: Winter wheat: Manures: (0:20:20) at 290 kg combine drilled. N at 100 kg as 'Nitro-Chalk'. Weedkiller: Ioxynil at 0.63 kg plus mecoprop at 1.9 kg in 340 l. Fungicide: Carbendazim at 0.22 kg plus tridemorph at 0.26 kg in 170 l.

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Seed: Sugar beet: Klein E, sown at 5.6 kg.
Barley: Julia, dressed with ethirimol, sown at 160 kg.
Potatoes: Pentland Crown.
Winter wheat: Cappelle, sown at 200 kg.

Cultivations, etc.:-
Series I: Sugar beet: Magnesian limestone applied: 7 Nov, 1974. Ploughed: 29 Nov. PK applied: 22 Apr, 1975. Spring-tine cultivated, N applied: 25 Apr. Spring-tine cultivated with crumbler, seed sown: 29 Apr. Hand weeded three times: 22 May, 13 June, 21 June. Singled by hand: 29 May. Insecticide applied twice: 5 June, 20 June. Hand lifted: 12 Nov.
Series II: Barley: Ploughed: 29 Nov, 1974. Spring-tine cultivated: 25 Feb, 1975. Seed sown: 28 Feb. Rolled: 26 Apr. Weedkiller applied: 22 May. Hand harvested: 12 Aug.
Series III: Potatoes: Ploughed: 29 Nov, 1974. NPK applied: 21 Apr, 1975. Spring-tine cultivated: 25 Apr. Rotary harrowed, potatoes planted: 1 May. Weedkiller applied: 22 May. Insecticide applied: 20 June. Hand lifted: 22 Oct.
Series IV: Winter wheat: Deep-tine cultivated: 6 Nov, 1974. Spring-tine cultivated: 7 Nov. Seed sown: 8 Nov. N applied: 18 Apr, 1975. Weedkiller applied: 22 May. Fungicide applied: 20 June. Hand harvested: 7 Aug.

NOTE: Samples of wheat and barley grain, potato tubers and sugar beet roots and tops were taken for analysis of N, P, K, Na, Ca and Mg.

POTATOES

TOTAL TUBERS TONNES/HECTARE

***** TABLES OF MEANS *****

PK SUB	- -	- SUB	PKTOP -	- PKSUB	MEAN
	33.8	36.4	32.7	41.4	36.1

******* STANDARD ERRORS OF DIFFERENCES OF MEANS *******

TABLE	PK SUB
SED	3.89

******* STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *******

STRATUM	DF	SE	CV%
BLOCK.WP	6	4.76	13.2

PLOT AREA HARVESTED 0.00043

https://doi.org/10.23637/ERADOC-1-141

75/W/RN/16

SUGAR BEET

ROOTS WASHED TONNES/HECTARE

*** TABLES OF MEANS ***

PK SUB	- -	- SUB	PKTOP -	- PKSUB	MEAN
	14.5	17.1	15.2	17.3	16.0

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	PK SUB
SED	1.00

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	6	1.22	7.6

SUGAR PERCENTAGE

*** TABLES OF MEANS ***

PK SUB	- -	- SUB	PKTOP -	- PKSUB	MEAN
	15.6	15.5	15.5	15.7	15.6

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75/W/RN/16

SUGAR BEET

TOTAL SUGAR TONNES/HECTARE

*** TABLES OF MEANS ***

PK SUB	- -	- SUB	PKTOP -	- PKSUB	MEAN
	2.26	2.66	2.36	2.72	2.50

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	PK SUB
SED	0.180

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	6	0.220	8.8

TOPS TONNES/HECTARE

*** TABLES OF MEANS ***

PK SUB	- -	- SUB	PKTOP -	- PKSUB	MEAN
	10.0	12.4	9.6	11.4	10.9

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	PK SUB
SED	0.75

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	6	0.92	8.5

PLOT AREA HARVESTED 0.00049

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75/W/RN/16

BARLEY

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

PK SUB	- -	- SUP	PKTOP -	- PKSUB	MEAN
	2.30	3.79	1.90	4.69	3.17

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	PK SUB
SED	0.240

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	6	0.293	9.3

GRAIN MEAN DM% 88.0

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

PK SUB	- -	- SUB	PKTOP -	- PKSUB	MEAN
	3.54	4.40	3.30	5.29	4.13

STRAW MEAN DM% 82.3

PLOT AREA HARVESTED 0.00030

https://doi.org/10.23637/ERADOC-1-141

75/W/RN/16

WINTER WHEAT

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

PK SUB	- -	- SUB	PKTOP -	- PKSUB	MEAN
	4.23	5.65	4.31	5.49	4.92

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	PK SUB
SED	0.333

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	6	0.408	8.3

GRAIN MEAN DM% 87.3

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

PK SUB	- -	- SUB	PKTOP -	- PKSUB	MEAN
	7.28	8.39	6.61	8.72	7.75

STRAW MEAN DM% 64.8

PLOT AREA HARVESTED 0.00030

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/1

LEVELS OF N AND K

Object: To study the residual effects of N, P and K fertilisers applied to grass 1958-1967 and further dressings of P and K to arable crops 1969-71 - Harwoods Piece.

Sponsor: F.V. Widdowson.

The eighteenth year, barley.

For previous years see 58/Cg/2(t), 59/Cg/2(t), 60/Ci/1, 61/Dg/1, 62/C/11, 63/C/7, 64/C/6(t), 65/C/6(t), 66/C/5, 67/C/4, 68/C/4(t), 69/R/CS/1(t), 70/R/CS/1(t), 71/R/CS/1(t) and 72-74/R/CS/1.

Design: 4 randomised blocks of 12 plots split into 2.

Whole plot dimensions: 2.13 x 16.5.

Treatments: All combinations of:-

Whole plots: 1. NPK residues:

To grass 1958-67 N	P	K	To potatoes 1971 P	K	NPK RES
0	1	0	1	0	N0 P1 K0
1	1	0	1	0	N1 P1 K0
1	1	1	1	1	N1 P1 K1
1	1	2	1	2	N1 P1 K2
2	1	0	1	0	N2 P1 K0
2	1	1	1	1	N2 P1 K1
2	1	2	1	2	N2 P1 K2
3	1	0	1	0	N3 P1 K0
3	1	1	1	1	N3 P1 K1
3	1	2	1	2	N3 P1 K2
3	0	2	0	2	N3 P0 K2
3	2	2	2	2	N3 P2 K2

To grass: N1, 2, 3 = 38, 75, 113 kg N per cut. P1, 2 = 75, 150 kg P_2O_5 per annum. K1, 2 = 38, 75 kg K_2O per cut.

To potatoes: P1, 2 = 125, 250 kg P_2O_5. K1, 2 = 125, 250 kg K_2O.
All arable crops received basal N.

Sub plots: 2. Residues of muriate of potash applied in three equal dressings 1969-1971 (kg K_2O total): K2O RES

None	0
376	376

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Basal applications: Manures: 'Nitro-Chalk' at 250 kg. Weedkiller: Dicamba with mecoprop and MCPA ('Tetralex Plus' at 7.0 l in 220 l).

Seed: Julia, dressed with ethirimol, sown at 190 kg.

Cultivations, etc.:- Ploughed: 29 Nov, 1974. Spring-tine cultivated and power harrowed: 24 Apr, 1975. Seed sown and N applied: 25 Apr. Weedkiller applied: 6 June. Combine harvested: 26 Aug.

NOTE: The yields have been adjusted for a trend across the site.

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/1

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

K20 RES	0	376	MEAN
NPK RES			
N0 P1 K0	4.53	4.69	4.61
N1 P1 K0	4.64	4.80	4.72
N1 P1 K1	4.59	4.78	4.69
N1 P1 K2	4.97	4.63	4.80
N2 P1 K0	4.94	5.12	5.03
N2 P1 K1	5.01	5.17	5.09
N2 P1 K2	4.74	4.90	4.82
N3 P1 K0	4.80	4.78	4.79
N3 P1 K1	4.67	4.92	4.79
N3 P1 K2	4.74	4.94	4.84
N3 P0 K2	4.43	4.59	4.51
N3 P2 K2	4.99	5.13	5.06
MEAN	4.75	4.87	4.81

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	NPK RES	K20 RES	NPK RES K20 RES
SED	0.197	0.053	0.243
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
NPK RES			0.189

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	33	0.278	5.8
BLOCK.WP.SP	32	0.259	5.4

GRAIN MEAN DM% 85.8

PLOT AREA HARVESTED 0.00118

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/2

GRAZED REFERENCE PLOTS

Object: To study the residual effects of N, P and K fertilisers, applied 1959 - 1970, on grazed grass which now receives basal N only - Highfield IX.

Sponsor: F.V. Widdowson.

The 17th year, old grass.

For previous years see 64/B/11(t), 65/B/2, 66/B/2(t), 67/B/2, 68/B/3, 69-70/R/CS/2, 71/R/CS/2(t), 72-74/R/CS/2.

Basal applications: Manures: 141 kg N as 'Nitro-Chalk' (78 kg N on 17 Apr, 63 kg N on 3 July).

NOTE: Grass was grazed throughout the season, yields were not taken.

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/10 and 75/W/CS/10

LONG TERM LIMING

Object: To study the effects of different amounts of lime on the yields of a range of crops. The direct effects of P and K and the residual effects of Mg are also studied - Rothamsted (R) Sawyers I and Woburn (W) Stackyard C.

Sponsor: J. Bolton.

The 14th year, oats.

For previous years see 'Details' 1967, 68/C/3(t), 69/R&W/CS/10, 70/R&W/CS/10(t) and 71-74/R&W/CS/10.

Design: 2 randomised blocks of 16 plots, split into 2.

Whole plot dimensions: 6.40 x 18.3.

Treatments: All combinations of:-

Whole plots: 1. Ground chalk (tonnes CaCO3) (total applied 1962-63): LIME

Rothamsted (R)	Woburn (W)	R	W
None	None	0	0
5	5	5	5
10	12	10	12
20	19	20	19

2. Phosphate, applied cumulatively to previous dressings, as superphosphate (kg P2O5): P2O5

None 0
63

3. Potassium, applied cumulatively to previous dressings, as muriate of potash (kg K2O): K2O

None 0
126

Sub plots: 4. Magnesium, applied 1974 only, as Epsom salts (kg Mg): MG(74)

None 0
112

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75/R/CS/10 and 75/W/CS/10

Basal applications:
Sawyers I (R): Manures: 80 kg N as 'Nitro-Chalk' combine drilled.
Weedkiller: Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l).
Stackyard C (W): Manures: 80 kg N as 'Nitro-Chalk' combine drilled.
Weedkiller: Ioxynil at 0.52 kg with mecoprop at 1.6 kg in 280 l.

Seed: Sawyers I (R) and Stackyard C (W):
Oats: Manod, sown at 200 kg.

Cultivations, etc.:-
Sawyers I (R): Chisel ploughed: 7 Feb, 1975. Treatment P and K applied: 11 Mar. Rotary cultivated, seed sown, N applied: 25 Mar. Weedkiller applied: 19 May. Combine harvested: 18 Aug.
Stackyard C (W): Ploughed: 11 Dec, 1974. Treatment P and K applied: 17 Mar. Spring-tine cultivated, seed sown, N applied: 20 Mar. Weedkiller applied: 22 May. Combine harvested: 18 Aug.

NOTE: Photographs were taken and growth scores made in May.

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/10 SAWYERS I(R)

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

P2O5	0	63	MEAN
LIME			
0	1.50	2.21	1.85
5	2.15	2.69	2.42
10	2.61	3.12	2.86
20	2.50	3.09	2.80
MEAN	2.19	2.78	2.48

K2O	0	126	MEAN
LIME			
0	2.08	1.63	1.85
5	2.36	2.48	2.42
10	2.79	2.94	2.86
20	2.75	2.84	2.80
MEAN	2.49	2.47	2.48

K2O	0	126	MEAN
P2O5			
0	2.25	2.13	2.19
63	2.74	2.81	2.78
MEAN	2.49	2.47	2.48

MG	0	112	MEAN
LIME			
0	1.26	2.45	1.85
5	2.23	2.60	2.42
10	2.79	2.94	2.86
20	2.83	2.77	2.80
MEAN	2.28	2.69	2.48

MG	0	112	MEAN
P2O5			
0	2.02	2.36	2.19
63	2.54	3.02	2.78
MEAN	2.28	2.69	2.48

MG	0	112	MEAN
K2O			
0	2.37	2.62	2.49
126	2.19	2.76	2.47
MEAN	2.28	2.69	2.48

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75/R/CS/10 SAWYERS I(R)

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

P2O5	0		63	
K2O	0	126	0	126
LIME				
0	1.86	1.14	2.29	2.13
5	2.26	2.03	2.45	2.92
10	2.48	2.74	3.09	3.15
20	2.38	2.62	3.13	3.06

P2O5	0		63	
MG	0	112	0	112
LIME				
0	0.88	2.12	1.65	2.77
5	2.02	2.27	2.44	2.93
10	2.57	2.65	3.02	3.22
20	2.61	2.39	3.05	3.14

K2O	0		126	
MG	0	112	0	112
LIME				
0	1.64	2.51	0.88	2.38
5	2.26	2.45	2.21	2.75
10	2.77	2.81	2.82	3.07
20	2.79	2.71	2.86	2.82

K2O	0		126	
MG	0	112	0	112
P2O5				
0	2.10	2.39	1.94	2.33
63	2.63	2.85	2.45	3.18

	K2O	0		126	
	MG	0	112	0	112
LIME	P2O5				
0	0	1.24	2.49	0.51	1.76
	63	2.04	2.54	1.25	3.00
5	0	2.26	2.26	1.78	2.29
	63	2.26	2.65	2.63	3.22
10	0	2.50	2.47	2.64	2.83
	63	3.04	3.14	2.99	3.30
20	0	2.41	2.35	2.81	2.44
	63	3.18	3.08	2.92	3.21

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75/R/CS/10 SAWYERS I(R)

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	LIME	P205	K20	MG
SED	0.203	0.144	0.144	0.061

TABLE	LIME P205	LIME K20	P205 K20	LIME MG
SED	0.287	0.287	0.203	0.221
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
LIME				0.123

TABLE	P205 MG	K20 MG	LIME P205 K20	LIME P205 MG
SED	0.156	0.156	0.406	0.312
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
P205	0.087			
K20		0.087		
LIME.P205				0.174

TABLE	LIME K20 MG	P205 K20 MG	LIME P205 K20 MG
SED	0.312	0.221	0.442
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
LIME.K20	0.174		
P205.K20		0.123	
LIME.P205.K20			0.245

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	15	0.406	16.4
BLOCK.WP.SP	16	0.245	9.9

GRAIN MEAN DM% 87.0

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75/R/CS/10 SAWYERS I(R)

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

P2O5 LIME	0	63	MEAN
0	1.72	2.55	2.13
5	2.03	2.70	2.37
10	2.38	3.25	2.82
20	2.36	3.14	2.75
MEAN	2.12	2.91	2.52

K2O LIME	0	126	MEAN
0	2.21	2.05	2.13
5	1.99	2.74	2.37
10	2.53	3.10	2.82
20	2.52	2.98	2.75
MEAN	2.31	2.72	2.52

K2O P2O5	0	126	MEAN
0	2.07	2.17	2.12
63	2.56	3.27	2.91
MEAN	2.31	2.72	2.52

MG LIME	0	112	MEAN
0	1.72	2.55	2.13
5	2.30	2.43	2.37
10	2.85	2.79	2.82
20	2.83	2.68	2.75
MEAN	2.42	2.61	2.52

MG P2O5	0	112	MEAN
0	2.02	2.22	2.12
63	2.83	3.00	2.91
MEAN	2.42	2.61	2.52

MG K2O	0	112	MEAN
0	2.26	2.37	2.31
126	2.59	2.85	2.72
MEAN	2.42	2.61	2.52

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/10 SAWYERS I(R)

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

P205	0		63	
K20	0	126	0	126
LIME				
0	2.06	1.38	2.37	2.73
5	1.93	2.12	2.05	3.36
10	2.17	2.59	2.90	3.60
20	2.13	2.59	2.91	3.37

P205	0		63	
MG	0	112	0	112
LIME				
0	1.24	2.20	2.20	2.90
5	2.05	2.01	2.56	2.85
10	2.30	2.46	3.39	3.11
20	2.51	2.22	3.15	3.13

K20	0		126	
MG	0	112	0	112
LIME				
0	1.95	2.48	1.49	2.62
5	1.91	2.07	2.69	2.79
10	2.54	2.52	3.15	3.05
20	2.63	2.42	3.03	2.94

K20	0		126	
MG	0	112	0	112
P205				
0	1.92	2.23	2.12	2.22
63	2.60	2.52	3.05	3.48

	K20	0		126	
	MG	0	112	0	112
LIME	P205				
0	0	1.62	2.49	0.85	1.91
	63	2.28	2.47	2.13	3.33
5	0	1.91	1.96	2.18	2.07
	63	1.92	2.17	3.20	3.52
10	0	1.98	2.35	2.61	2.57
	63	3.10	2.69	3.68	3.52
20	0	2.16	2.10	2.85	2.34
	63	3.09	2.73	3.21	3.53

STRAW MEAN DM% 86.6

SUB PLOT AREA HARVESTED 0.00247

https://doi.org/10.23637/ERADOC-1-141 *pp 143*

75/W/CS/10 STACKYARD C(W)

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

P2O5 LIME	0	63	MEAN
0	1.35	1.66	1.51
5	2.04	2.09	2.07
12	2.04	2.19	2.11
19	2.17	2.18	2.17
MEAN	1.90	2.03	1.97

K2O LIME	0	126	MEAN
0	1.59	1.42	1.51
5	2.01	2.13	2.07
12	2.19	2.04	2.11
19	2.14	2.21	2.17
MEAN	1.98	1.95	1.97

K2O P2O5	0	126	MEAN
0	1.95	1.85	1.90
63	2.01	2.05	2.03
MEAN	1.98	1.95	1.97

MG LIME	0	112	MEAN
0	0.89	2.12	1.51
5	1.84	2.30	2.07
12	1.96	2.27	2.11
19	1.98	2.37	2.17
MEAN	1.67	2.27	1.97

MG P2O5	0	112	MEAN
0	1.59	2.21	1.90
63	1.74	2.32	2.03
MEAN	1.67	2.27	1.97

MG K2O	0	112	MEAN
0	1.80	2.16	1.98
126	1.53	2.37	1.95
MEAN	1.67	2.27	1.97

https://doi.org/10.23637/ERADOC-1-141 *pp 144*

75/W/CS/10 STACKYARD C(W)

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

P205	0		63	
K20	0	126	0	126
LIME				
0	1.45	1.25	1.74	1.59
5	2.07	2.01	1.94	2.25
12	2.19	1.89	2.18	2.19
19	2.09	2.24	2.19	2.17

P205	0		63	
MG	0	112	0	112
LIME				
0	0.71	1.99	1.07	2.25
5	1.82	2.26	1.85	2.34
12	1.89	2.19	2.03	2.35
19	1.94	2.39	2.01	2.35

K20	0		126	
MG	0	112	0	112
LIME				
0	1.09	2.10	0.70	2.14
5	1.95	2.07	1.72	2.54
12	2.13	2.25	1.79	2.29
19	2.05	2.23	1.90	2.51

K20	0		126	
MG	0	112	0	112
P205				
0	1.76	2.14	1.42	2.28
63	1.84	2.19	1.64	2.46

	K20	0		126	
	MG	0	112	0	112
LIME	P205				
0	0	0.93	1.97	0.48	2.01
	63	1.24	2.23	0.91	2.27
5	0	1.98	2.16	1.67	2.36
	63	1.91	1.97	1.78	2.71
12	0	2.14	2.25	1.65	2.13
	63	2.12	2.25	1.94	2.44
19	0	2.01	2.18	1.87	2.61
	63	2.09	2.29	1.93	2.41

https://doi.org/10.23637/ERADOC-1-141

75/W/CS/10 STACKYARD C(W)

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	LIME	P205	K20	MG
SED	0.091	0.064	0.064	0.044

TABLE	LIME P205	LIME K20	P205 K20	LIME MG
SED	0.128	0.128	0.091	0.110
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
LIME				0.088

TABLE	P205 MG	K20 MG	LIME P205 K20	LIME P205 MG
SED	0.078	0.078	0.181	0.155
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
P205	0.062			
K20		0.062		
LIME.P205				0.124

TABLE	LIME K20 MG	P205 K20 MG	LIME P205 K20 MG
SED	0.155	0.110	0.220
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
LIME.K20	0.124		
P205.K20		0.088	
LIME.P205.K20			0.175

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	15	0.181	9.2
BLOCK.WP.SP	16	0.175	8.9

GRAIN MEAN DM% 84.8

https://doi.org/10.23637/ERADOC-1-141 *pp 146*

75/W/CS/10 STACKYARD C(W)

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

P2O5	0	63	MEAN
LIME			
0	1.44	2.00	1.72
5	1.94	2.34	2.14
12	2.15	2.49	2.32
19	2.30	2.46	2.38
MEAN	1.96	2.32	2.14

K2O	0	126	MEAN
LIME			
0	1.65	1.79	1.72
5	1.90	2.38	2.14
12	2.05	2.60	2.32
19	2.15	2.61	2.38
MEAN	1.94	2.34	2.14

K2O	0	126	MEAN
P2O5			
0	1.81	2.11	1.96
63	2.06	2.58	2.32
MEAN	1.94	2.34	2.14

MG	0	112	MEAN
LIME			
0	1.21	2.23	1.72
5	1.95	2.34	2.14
12	2.28	2.36	2.32
19	2.26	2.50	2.38
MEAN	1.92	2.36	2.14

MG	0	112	MEAN
P2O5			
0	1.76	2.16	1.96
63	2.09	2.55	2.32
MEAN	1.92	2.36	2.14

MG	0	112	MEAN
K2O			
0	1.79	2.08	1.94
126	2.06	2.63	2.34
MEAN	1.92	2.36	2.14

https://doi.org/10.23637/ERADOC-1-141

75/W/CS/10 STACKYARD C(W)

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

P205	0		63	
K20	0	126	0	126
LIME				
0	1.48	1.41	1.82	2.18
5	1.81	2.07	2.00	2.63
12	1.95	2.36	2.14	2.84
19	2.00	2.61	2.30	2.61

P205	0		63	
MG	0	112	0	112
LIME				
0	0.97	1.92	1.45	2.54
5	1.77	2.11	2.12	2.56
12	2.08	2.23	2.48	2.50
19	2.22	2.39	2.31	2.60

K20	0		126	
MG	0	112	0	112
LIME				
0	1.24	2.06	1.17	2.41
5	1.76	2.05	2.13	2.62
12	2.10	2.00	2.46	2.73
19	2.06	2.23	2.46	2.76

K20	0		126	
MG	0	112	0	112
P205				
0	1.70	1.92	1.82	2.41
63	1.88	2.25	2.30	2.86

	K20	0		126	
	MG	0	112	0	112
LIME	P205				
0	0	1.18	1.78	0.75	2.06
	63	1.30	2.33	1.59	2.76
5	0	1.67	1.95	1.87	2.27
	63	1.85	2.15	2.39	2.98
12	0	2.01	1.90	2.16	2.55
	63	2.19	2.09	2.77	2.91
19	0	1.95	2.05	2.48	2.74
	63	2.17	2.42	2.44	2.78

STRAW MEAN DM% 80.7

SUB PLOT ARE HARVESTED 0.00247

https://doi.org/10.23637/ERADOC-1-141

75/W/CS/11

SOIL STRUCTURE

Object: To study the residual effects of peat, at a range of nitrogen levels, on the yield of potatoes - Woburn Stackyard II.

Sponsor: A.E. Johnston.

The 12th year, potatoes.

For previous years see 64/C/20(t), 65/C/19(t), 66/C/11(t), 67/C/8(t), 68/C/31(t), 69/W/CS/11(t), 70/W/CS/11(t), 71/W/CS/11, 72/W/CS/11(t) and 73-74/W/CS/11.

Design: Single replicate of 5 x 4. Levels of peat in 4 randomised blocks of 5 plots.

Whole plot dimensions: 2.13 x 3.05.

Treatments: All combinations of:-

1. Peat (tonnes dry matter - total applied 1963-72):

	PEAT
None	0
8	8
55	55
110	110
165	165

2. Nitrogen fertiliser (kg N), cumulative to previous treatments:

	N
None	0
100	100
200	200
300	300

Basal applications: Manures: Ground chalk at 2.5 tonnes. P at 85 kg, as triple superphosphate, K at 300 kg, as potassium bicarbonate, Mg at 55 kg, as magnesium sulphate. Insecticide: Menazon at 0.28 kg in 280 l. Fungicide: Mancozeb at 1.3 kg in 280 l.

Seed: Maris Piper.

https://doi.org/10.23637/ERADOC-1-141 *pp 149*

Cultivations, etc.:- Ground chalk applied, plots dug by hand: 13 Dec, 1974. N,P, K and Mg applied, potatoes planted: 13 May, 1975. Insecticide applied alone: 16 June, 1 July. Insecticide applied with fungicide: 21 July, 7 Aug. Lifted: 29 Sept.

NOTES: (1) Soil samples were taken after harvest for P and K analysis.
(2) Crop samples were taken for N,P,K and Mg analysis.

75/W/CS/11

*** TABLES OF MEANS ***

TOTAL TUBERS TONNES/HECTARE

N / PEAT	0	100	200	300	MEAN
0	14.0	18.1	23.7	23.7	19.9
8	17.7	21.8	23.2	24.9	21.9
55	19.1	24.6	25.1	30.6	24.8
110	16.6	24.3	29.7	33.4	26.0
165	20.5	25.4	32.8	37.7	29.1
MEAN	17.6	22.9	26.9	30.0	24.3

PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

N / PEAT	0	100	200	300	MEAN
0	52.7	61.9	57.8	66.9	59.8
8	67.8	57.0	60.9	60.5	61.6
55	51.6	51.2	54.6	65.3	55.7
110	50.9	41.8	49.7	60.4	50.7
165	42.1	44.2	46.9	58.4	47.9
MEAN	53.0	51.2	54.0	62.3	55.1

PLOT AREA HARVESTED 0.00065

https://doi.org/10.23637/ERADOC-1-141 *pp 150*

75/R/CS/13

N LEVELS TO OLD GRASS

Object: To study the effects of a range of nitrogen rates on yield and botanical composition of very old permanent pasture given a single dressing of P and K annually. N fixed by legumes is estimated and the effect of treatments on nutrients available in the soil is also studied - Park Grass Old Plot 6.

Sponsor: A.E. Johnston.

The eleventh year, old grass.

For previous years see 65/C/33(t), 66/C/14, 67/C/10(t), 68/C/8(t), 69/R/CS/13(t), 70/R/CS/13(t), 71/R/CS/13, 72/R/CS/13(t) and 73-74/R/CS/13.

Design: 4 randomised blocks of 10 plots.

Whole plot dimensions: 1.83 x 10.1.

Treatments: Fertiliser nitrogen (kg N-total per annum applied in four equal dressings as 'Nitro-Chalk'):

	TOTAL N
None (sprayed with mecoprop to control legumes, two plots per block)	0(S)
None (two plots per block)	0
75	75
150	150
225	225
300	300
375	375
450	450

NOTE: Mecoprop applied as 'Clovotox' at 8.4 l in 280 l on 18 Apr.

Basal applications: 34 kg P as superphosphate, 224 kg K as potassium sulphate, 11 kg Mg as magnesium sulphate.

Cultivations, etc.:- Basal P, K and Mg applied: 9 Dec, 1974. N applied: 18 Mar, 1975, 6 June and 8 Aug. Cut: 5 June, 7 Aug and 20 Oct.

https://doi.org/10.23637/ERADOC-1-141 *pp 151*

75/R/CS/13

1ST CUT (20/5/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

TOTAL N	0(S)	0	75	150	225	300	375	450	MEAN
	0.58	2.27	2.39	2.93	3.78	4.55	5.12	5.31	2.98

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	TOTAL N
SED	0.154 (1)
	0.188 (2)
	0.218 (3)

(1) 0(S) V 0
(2) 0(S) OR 0 AGAINST ANY ONE OF THE REMAINDER
(3) ANY OF REMAINDER

**** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	29	0.308	10.3

1ST CUT MEAN DM% 20.9

2ND CUT (8/7/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

TOTAL N	0(S)	0	75	150	225	300	375	450	MEAN
	0.53	1.47	1.31	1.58	2.06	2.20	2.41	2.39	1.60

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	TOTAL N
SED	0.145 (1)
	0.177 (2)
	0.205 (3)

(1) 0(S) V 0
(2) 0(S) OR 0 AGAINST ANY ONE OF THE REMAINDER
(3) ANY OF REMAINDER

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	29	0.289	13.1

2ND CUT MEAN DM% 20.9

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/13

3RD CUT (20/10/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

TOTAL N	0(S)	0	75	150	225	300	375	450	MEAN
	0.33	0.59	0.84	1.12	1.58	1.77	1.96	1.99	1.11

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	TOTAL N
SED	0.066 (1)
	0.081 (2)
	0.094 (3)

(1) 0(S) V 0
(2) 0(S) OR 0 AGAINST ANY ONE OF THE REMAINDER
(3) ANY OF REMAINDER

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	29	0.132	12.0

3RD CUT MEAN DM% 23.6

TOTAL OF 3 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

TOTAL N	0(S)	0	75	150	225	300	375	450	MEAN
	1.44	4.33	4.55	5.63	7.42	8.52	9.49	9.68	5.68

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	TOTAL N
SED	0.186 (1)
	0.227 (2)
	0.263 (3)

(1) 0(S) V 0
(2) 0(S) OR 0 AGAINST ANY ONE OF THE REMAINDER
(3) ANY OF REMAINDER

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	29	0.371	6.5

TOTAL OF 3 CUTS MEAN DM% 21.8

PLOT AREA HARVESTED 0.00086

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/14

NPK TO OLD GRASS

Object: To study the effects of a range of P and K levels on yields of permanent pasture on sites with much or little P and K in the soil - Park Grass Old Plots 5/1 and 5/2.

Sponsor: A.E. Johnston.

The eleventh year, old grass.

For previous years see 65/C/22(t), 66/C/13(t), 67/C/9(t), 68/C/7 and 69-74/R/CS/14.

Design: On each site: A single replicate of 2 x 4 x 4 in 2 blocks of 16 plots each, with 2 x 2 additional plots in each block.

Whole plot dimensions: 1.83 x 10.1.

Treatments:

The experiment is duplicated on sites differing in previous history:-

	PLOT
Park Grass Plot 5/1: No P or K	5/1NORES
Park Grass Plot 5/2: Superphosphate to supply 34 kg P, sulphate of potash to supply 224 kg K, annually 1898-1964	5/2PKRES

On each site, all combinations of:-

1. Nitrogen fertiliser (kg N for each cut):

	NPERCUT
33.6	33.6
67.2	67.2

2. Phosphate (kg P) as superphosphate annually:

	P
None	0
16.8	16.8
33.6	33.6
67.2	67.2

3. Potassium (kg K) as potassium chloride annually:

	K
None	0
112	112
224	224
448	448

https://doi.org/10.23637/ERADOC-1-141

together with extra treatments, all combinations of:-

1. Nitrogen fertiliser (kg N for each cut):	NPERCUT
33.6	33.6
67.2	67.2
2. Residues of PK fertilisers applied 1965 only:	PKRES65
33.6 kg P, 56 kg K	34P56K
33.6 kg P, 336 kg K	34P336K

Cultivations, etc.:- P and K applied: 9 Dec, 1974. N applied: 18 Mar, 1975, 6 June and 8 Aug. Cut: 5 June, 7 Aug and 20 Oct.

https://doi.org/10.23637/ERADOC-1-141 *pp 155*

75/R/CS/14 PLOT 5/1 NORES

EXCLUDING PKRES65 PLOTS

1ST CUT (JUNE 75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

P / NPERCUT	0.0	16.8	33.6	67.2	MEAN
33.6	2.52	4.22	4.10	4.44	3.82
67.2	2.58	4.86	5.26	5.44	4.54
MEAN	2.55	4.54	4.68	4.94	4.18

K / NPERCUT	0	112	224	448	MEAN
33.6	3.14	3.71	4.49	3.92	3.82
67.2	2.93	4.90	5.39	4.93	4.54
MEAN	3.04	4.30	4.94	4.43	4.18

K / P	0	112	224	448	MEAN
0.0	2.20	2.73	3.02	2.25	2.55
16.8	3.12	4.51	5.47	5.06	4.54
33.6	3.30	5.05	5.33	5.03	4.68
67.2	3.53	4.92	5.95	5.36	4.94
MEAN	3.04	4.30	4.94	4.43	4.18

NPERCUT	K / P	0	112	224	448
33.6	0.0	2.72	2.63	2.76	1.95
	16.8	3.21	3.87	5.22	4.57
	33.6	3.11	4.23	4.60	4.45
	67.2	3.53	4.11	5.40	4.71
67.2	0.0	1.68	2.82	3.28	2.55
	16.8	3.02	5.16	5.72	5.55
	33.6	3.49	5.87	6.06	5.60
	67.2	3.53	5.73	6.49	6.01

1ST CUT DM % 20.5

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75/R/CS/14 PLOT 5/1 NORES

EXCLUDING PKRES65 PLOTS

2ND CUT (7/8/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

P NPERCUT	0.0	16.8	33.6	67.2	MEAN
33.6	1.04	1.00	0.74	0.82	0.90
67.2	1.47	1.24	1.93	1.64	1.57
MEAN	1.26	1.12	1.34	1.23	1.24

K NPERCUT	0	112	224	448	MEAN
33.6	0.40	0.66	1.32	1.22	0.90
67.2	0.47	1.31	2.09	2.43	1.57
MEAN	0.43	0.98	1.70	1.82	1.24

K P	0	112	224	448	MEAN
0.0	0.82	1.29	1.49	1.43	1.26
16.8	0.38	1.00	1.78	1.32	1.12
33.6	0.28	0.75	1.99	2.33	1.34
67.2	0.25	0.90	1.56	2.21	1.23
MEAN	0.43	0.98	1.70	1.82	1.24

	K	0	112	224	448
NPERCUT	P				
33.6	0.0	0.71	0.75	1.37	1.31
	16.8	0.26	0.85	1.22	1.67
	33.6	0.23	0.71	1.24	0.78
	67.2	0.38	0.34	1.45	1.10
67.2	0.0	0.93	1.82	1.61	1.54
	16.8	0.50	1.15	2.33	0.98
	33.6	0.32	0.79	2.74	3.88
	67.2	0.11	1.46	1.67	3.32

2ND CUT MEAN DM% 36.8

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/14 PLOT 5/1 NORES

EXCLUDING PKRES65 PLOTS

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

P NPERCUT	0.0	16.8	33.6	67.2	MEAN
33.6	3.55	5.22	4.84	5.26	4.72
67.2	4.06	6.11	7.19	7.08	6.11
MEAN	3.80	5.66	6.01	6.17	5.41

K NPERCUT	0	112	224	448	MEAN
33.6	3.54	4.37	5.81	5.14	4.72
67.2	3.40	6.20	7.47	7.36	6.11
MEAN	3.47	5.29	6.64	6.25	5.41

K P	0	112	224	448	MEAN
0.0	3.02	4.01	4.51	3.68	3.80
16.8	3.50	5.52	7.24	6.39	5.66
33.6	3.58	5.80	7.32	7.36	6.01
67.2	3.78	5.82	7.51	7.57	6.17
MEAN	3.47	5.29	6.64	6.25	5.41

NPERCUT	K P	0	112	224	448
33.6	0.0	3.43	3.38	4.12	3.27
	16.8	3.47	4.72	6.44	6.24
	33.6	3.34	4.94	5.84	5.23
	67.2	3.92	4.45	6.86	5.81
67.2	0.0	2.61	4.65	4.89	4.09
	16.8	3.53	6.31	8.05	6.53
	33.6	3.81	6.66	8.80	9.49
	67.2	3.64	7.19	8.16	9.33

TOTAL OF 2 CUTS MEAN DM% 28.7

PLOT AREA HARVESTED 0.00086

https://doi.org/10.23637/ERADOC-1-141 *pp 158*

75/R/CS/14 PLOT 5/1 NORES

PKRES65 PLOTS

1ST CUT (JUNE 75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

PKRES65 NPERCUT	34P56K	34P336K	MEAN
33.6	1.82	2.04	1.93
67.2	2.35	1.83	2.09
MEAN	2.08	1.93	2.01

1ST CUT DM % 26.3

2ND CUT (7/8/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

PKRES65 NPERCUT	34P56K	34P336K	MEAN
33.6	0.68	0.51	0.59
67.2	0.57	0.59	0.58
MEAN	0.63	0.55	0.59

2ND CUT MEAN DM% 41.2

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

PKRES65 NPERCUT	34P56K	34P336K	MEAN
33.6	2.50	2.54	2.52
67.2	2.92	2.42	2.67
MEAN	2.71	2.48	2.60

TOTAL OF 2 CUTS MEAN DM% 33.7

PLOT AREA HARVESTED 0.00086

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/14 PLOT 5/2 PKRES

EXCLUDING PKRES65 PLOTS

1ST CUT (JUNE 75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

P / NPERCUT	0.0	16.8	33.6	67.2	MEAN
33.6	4.29	5.24	4.65	4.29	4.62
67.2	6.48	6.29	6.34	5.99	6.28
MEAN	5.38	5.77	5.50	5.14	5.45

K / NPERCUT	0	112	224	448	MEAN
33.6	4.47	4.72	4.85	4.43	4.62
67.2	5.92	5.97	6.80	6.40	6.28
MEAN	5.19	5.35	5.83	5.42	5.45

K / P	0	112	224	448	MEAN
0.0	4.97	5.23	6.06	5.27	5.38
16.8	5.79	5.58	6.02	5.67	5.77
33.6	5.04	5.49	5.98	5.49	5.50
67.2	4.98	5.09	5.25	5.24	5.14
MEAN	5.19	5.35	5.83	5.42	5.45

NPERCUT	K / P	0	112	224	448
33.6	0.0	4.31	4.13	4.80	3.92
	16.8	5.54	5.44	5.45	4.53
	33.6	4.27	4.66	4.88	4.79
	67.2	3.74	4.65	4.27	4.49
67.2	0.0	5.63	6.32	7.32	6.62
	16.8	6.05	5.72	6.60	6.82
	33.6	5.81	6.32	7.07	6.18
	67.2	6.21	5.54	6.22	5.99

1ST CUT DM % 20.9

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75/R/CS/14 PLOT 5/2 PKRES

EXCLUDING PKRES65 PLOTS

2ND CUT (7/8/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

P NPERCUT	0.0	16.8	33.6	67.2	MEAN
33.6	1.93	1.24	1.49	1.15	1.45
67.2	2.95	3.08	2.47	3.20	2.92
MEAN	2.44	2.16	1.98	2.17	2.19

K NPERCUT	0	112	224	448	MEAN
33.6	1.24	1.60	1.56	1.40	1.45
67.2	2.67	2.35	3.48	3.20	2.92
MEAN	1.96	1.97	2.52	2.30	2.19

K P	0	112	224	448	MEAN
0.0	2.00	1.87	2.96	2.93	2.44
16.8	1.73	2.11	2.37	2.42	2.16
33.6	1.81	1.93	2.64	1.54	1.98
67.2	2.28	1.99	2.11	2.31	2.17
MEAN	1.96	1.97	2.52	2.30	2.19

	K	0	112	224	448
NPERCUT	P				
33.6	0.0	1.57	1.86	2.41	1.87
	16.8	0.86	1.64	1.54	0.90
	33.6	1.14	1.91	1.42	1.48
	67.2	1.38	1.00	0.87	1.34
67.2	0.0	2.43	1.89	3.51	3.99
	16.8	2.60	2.58	3.19	3.94
	33.6	2.48	1.94	3.87	1.60
	67.2	3.19	2.98	3.34	3.28

2ND CUT MEAN DM% 28.7

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75/R/CS/14 PLOT 5/2 PKRES

EXCLUDING PKRES65 PLOTS

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

P / NPERCUT	0.0	16.8	33.6	67.2	MEAN
33.6	6.22	6.48	6.14	5.43	6.07
67.2	9.43	9.37	8.82	9.19	9.20
MEAN	7.82	7.92	7.48	7.31	7.63

K / NPERCUT	0	112	224	448	MEAN
33.6	5.70	6.32	6.41	5.83	6.07
67.2	8.60	8.32	10.28	9.61	9.20
MEAN	7.15	7.32	8.35	7.72	7.63

K / P	0	112	224	448	MEAN
0.0	6.97	7.10	9.02	8.20	7.82
16.8	7.52	7.69	8.39	8.10	7.92
33.6	6.85	7.42	8.62	7.03	7.48
67.2	7.26	7.08	7.35	7.54	7.31
MEAN	7.15	7.32	8.35	7.72	7.63

NPERCUT	K / P	0	112	224	448
33.6	0.0	5.88	5.99	7.21	5.79
	16.8	6.40	7.08	6.99	5.44
	33.6	5.42	6.57	6.30	6.27
	67.2	5.12	5.65	5.15	5.82
67.2	0.0	8.07	8.21	10.83	10.61
	16.8	8.64	8.29	9.78	10.75
	33.6	8.28	8.26	10.94	7.78
	67.2	9.40	8.52	9.56	9.27

TOTAL OF 2 CUTS MEAN DM% 24.8

PLOT AREA HARVESTED 0.00086

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75/R/CS/14 PLOT 5/2 PKRES

PKRES65 PLOTS

1ST CUT (JUNE 75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

PKRES65 NPERCUT	34P56K	34P336K	MEAN
33.6	4.45	4.26	4.36
67.2	5.58	6.23	5.90
MEAN	5.02	5.24	5.13

1ST CUT DM % 22.6

2ND CUT (7/8/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

PKRES65 NPERCUT	34P56K	34P336K	MEAN
33.6	1.81	1.67	1.74
67.2	2.29	2.68	2.48
MEAN	2.05	2.18	2.11

2ND CUT MEAN DM% 29.3

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

PKRES65 NPERCUT	34P56K	34P336K	MEAN
33.6	6.27	5.94	6.10
67.2	7.87	8.91	8.39
MEAN	7.07	7.42	7.25

TOTAL OF 2 CUTS MEAN DM% 26.0

PLOT AREA HARVESTED 0.00086

https://doi.org/10.23637/ERADOC-1-141 *pp 163*

75/W/CS/16

IRRIGATION AND EELWORMS

Object: To study the cumulative effects of dazomet (later, aldicarb) and irrigation on the yield and incidence of Heterodera spp. on potatoes grown continuously. The effects of growing susceptible and resistant varieties are also studied, either grown continuously or alternated - Woburn Butt Close.

Sponsors: D.M. Parrott, F.G.W. Jones.

The tenth year, potatoes.

For previous years see 66/C/32(t), 67/C/25, 68/C/19, 69/W/CS/16(t), 70-71/W/CS/16, 72/W/CS/16(t) and 73-74/W/CS/16.

Design: 3 blocks of 4 plots, sequences of varieties on strips of 2 half plots, aldicarb on quarter plots.

Whole plot dimensions: 6.48 x 7.11.

Treatments: All combinations of:-

Whole plots: 1. Irrigation:

	IRRIGTN
None	NONE
Full	FULL

Strips of half plots: 2. Cropping sequences with potatoes resistant (R) and susceptible (S) to potato cyst nematode:

1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	CROPSEQN
R	R	R	R	R	R	R	R	R	R	R/R/R/R
S	R	S	R	S	R	S	R	S	R	S/R/S/R
S	S	S	S	S	S	S	S	S	S	S/S/S/S
R	S	R	S	R	S	R	S	R	S	R/S/R/S

Quarter plots: 3. Aldicarb (kg) applied cumulatively to previous dazomet treatments:

	ALDICARB
None	0.0
5.6	5.6

Irrigation treatments 1975 (mm water):

4 Aug	12.7
5 Aug	12.7
7 Aug	12.7
8 Aug	12.7
20 Aug	12.7
27 Aug	12.7
Total	76.2

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Basal applications: Manures: (13:13:20) at 1500 kg. Weedkiller: Linuron at 1.2 kg plus paraquat at 0.28 kg ion in 280 l. Insecticide: Demeton-s-methyl at 0.25 kg in 280 l. Fungicide: Mancozeb at 1.3 kg in 390 l.

Seed: Resistant, Maris Piper. Susceptible, Pentland Dell.

Cultivations, etc.:- Deep-tine cultivated twice: 7 Jan, 1975, 28 Apr. NPK applied, spring-tine cultivated: 28 Apr. Aldicarb applied, rotary cultivated, potatoes planted: 15 May. Weedkiller applied: 30 May. Grubbed: 23 June. Rotary ridged: 24 June. Insecticide applied: 25 June. Fungicide applied: 16 July. Haulm mechanically destroyed: 30 Sept. Lifted: 16 Oct.

NOTE: Soil samples were taken in May for cyst and egg counts of Heterodera rostochiensis and H.pallida.

TOTAL TUBERS TONNES/HECTARE

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.ROW	6	1.65	14.6
BLOCK.ROW.HP	8	3.74	33.0
BLOCK.ROW.HP.QP	12	5.74	50.8

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75/W/CS/16

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

CROPSEQN IRRIGTN	R/R/R/R	S/R/S/R	S/S/S/S	R/S/R/S	MEAN
NONE	7.0	9.7	9.9	11.8	9.6
FULL	15.9	17.2	14.4	4.6	13.0
MEAN	11.4	13.5	12.1	8.2	11.3

ALDICARB IRRIGTN	0.0	5.6	MEAN
NONE	5.9	13.3	9.6
FULL	6.8	19.3	13.0
MEAN	6.3	16.3	11.3

ALDICARB CROPSEQN	0.0	5.6	MEAN
R/R/R/R	8.6	14.3	11.4
S/R/S/R	7.7	19.2	13.5
S/S/S/S	3.6	20.6	12.1
R/S/R/S	5.5	11.0	8.2
MEAN	6.3	16.3	11.3

IRRIGTN	ALDICARB CROPSEQN	0.0	5.6
NONE	R/R/R/R	5.9	8.1
	S/R/S/R	5.9	13.5
	S/S/S/S	2.6	17.1
	R/S/R/S	9.2	14.5
FULL	R/R/R/R	11.3	20.5
	S/R/S/R	9.4	25.0
	S/S/S/S	4.7	24.1
	R/S/R/S	1.7	7.5

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	BLOCK	IRRIGTN	CROPSEQN	ALDICARB
SED	1.17	1.53	1.35	1.66

TABLE	IRRIGTN CROPSEQN	IRRIGTN ALDICARB	CROPSEQN ALDICARB	IRRIGTN CROPSEQN ALDICARB
SED	2.54	2.25	2.70	4.18
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
IRRIGTN		2.34		
CROPSEQN	3.05		3.31	4.50
IRRIGTN.CROPSEQN				4.69
CROPSEQN.ALDICARB				4.50

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75/W/CS/16

PERCENTAGE WARE 3.81CM (1.5 INCH) RIDDLE

*** TABLES OF MEANS ***

CROPSEQN IRRIGTN	R/R/R/R	S/R/S/R	S/S/S/S	R/S/R/S	MEAN
NONE	66.4	73.3	64.7	75.0	69.8
FULL	72.7	88.7	82.6	61.5	76.4
MEAN	69.6	81.0	73.6	68.2	73.1

ALDICARB IRRIGTN	0.0	5.6	MEAN
NONE	60.2	79.5	69.8
FULL	65.7	87.1	76.4
MEAN	63.0	83.3	73.1

ALDICARB CROPSEQN	0.0	5.6	MEAN
R/R/R/R	55.4	83.7	69.6
S/R/S/R	78.5	83.4	81.0
S/S/S/S	63.0	84.3	73.6
R/S/R/S	54.8	81.6	68.2
MEAN	63.0	83.3	73.1

IRRIGTN	ALDICARB CROPSEQN	0.0	5.6
NONE	R/R/R/R	51.6	81.3
	S/R/S/R	71.0	75.6
	S/S/S/S	46.7	82.6
	R/S/R/S	71.5	78.4
FULL	R/R/R/R	59.3	86.2
	S/R/S/R	86.1	91.3
	S/S/S/S	79.3	86.0
	R/S/R/S	38.1	84.8

QUARTER PLOT AREA HARVESTED 0.00092

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/24

PK AND TAKE-ALL

Object: To study the effects of different amounts of phosphate and potassium fertiliser on the yields and incidence of take-all (Gaeumannomyces graminis) in continuous wheat - West Barnfield II.

Sponsors: G.E.G. Mattingly, D.B. Slope.

The eighth year, continuous winter wheat (after continuous barley 1968-1973).

For previous years see 68/C/16(t), 69/R/CS/24, 70/R/CS/24(t) and 71-74/R/CS/24.

Design: 4 randomised blocks of 10 plots, split into 2.

Whole plot dimensions: 5.33 x 20.1.

Treatments: All combinations of:-

Whole plots:	1. Phosphate (kg P) as superphosphate:	P
	None	0
	15 annually	15 A
	60 annually	60 A
	90 six-yearly, last applied autumn 1973	90 S
	360 six-yearly, last applied autumn 1973	360 S
	2. Potassium (kg K) annually as muriate of potash:	K
	30	30
	120	120
Sub plots:	3. Residues of nitrogen fertiliser, applied annually 1970-1973 (kg N) as 'Nitro-Chalk':	N RESID
	(37.5)	37.5
	(75.0)	75.0
	(113)	113
	(150)	150

Basal applications: Manures: 'Nitro-Chalk' at 500 kg. Weedkillers: Glyphosate at 1.7 kg in 220 l, and dicamba with mecoprop and MCPA ('Banlene Plus' 5.6 l in 220 l).

Seed: Cappelle, sown at 200 kg.

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Cultivations, etc.:- Glyphosate applied: 30 Sept, 1974. Ploughed: 17 Oct. Annual P and K applied: 2 Dec. Seed sown: 6 Dec. N applied: 23 Apr, 1975. 'Banlene Plus' applied: 12 May. Combine harvested: 14 Aug.

NOTE: Samples were taken in May and July for estimation of take-all. Soil samples were taken in autumn for P and K analyses.

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75/R/CS/24

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

N RESID / K	37.5	75.0	113	150	MEAN
30	5.05	4.92	5.25	4.86	5.02
120	5.41	4.68	5.25	4.87	5.05
MEAN	5.23	4.80	5.25	4.86	5.04

P / K	0	15 A	60 A	90 S	360 S	MEAN
30	4.35	5.06	5.45	5.08	5.17	5.02
120	4.30	5.04	5.37	5.17	5.38	5.05
MEAN	4.33	5.05	5.41	5.12	5.27	5.04

P / N RESID	0	15 A	60 A	90 S	360 S	MEAN
37.5	4.76	5.01	5.53	5.53	5.31	5.23
75.0	3.84	5.12	5.12	4.88	5.06	4.80
113	4.65	5.25	5.09	5.58	5.67	5.25
150	4.05	4.82	5.90	4.50	5.05	4.86
MEAN	4.33	5.05	5.41	5.12	5.27	5.04

K / P / N RESID	0	15 A	60 A	90 S	360 S
30 / 37.5	4.76	4.69	5.51	5.23	5.06
75.0	3.98	5.19	5.09	5.28	5.08
113	4.51	5.25	5.09	5.31	6.10
150	4.16	5.10	6.10	4.48	4.43
120 / 37.5	4.75	5.33	5.56	5.84	5.57
75.0	3.70	5.04	5.15	4.48	5.05
113	4.79	5.26	5.09	5.86	5.25
150	3.94	4.54	5.70	4.51	5.66

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	K	N RESID	P	K N RESID
SED	0.169	0.239	0.267	0.340

TABLE	K P	N RESID P	K N RESID P
SED	0.377	0.533	0.792

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75/R/CS/24

GRAIN TONNES/HECTARE

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP+BLOCK.WP.SP	37	0.754	15.0

GRAIN MEAN DM% 87.7

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

N RESID	37.5	75.0	113	150	MEAN
K					
30	3.86	4.00	4.28	3.80	3.99
120	4.35	4.31	4.24	4.13	4.26
MEAN	4.11	4.15	4.26	3.97	4.12

P	0	15 A	60 A	90 S	360 S	MEAN
K						
30	3.28	4.08	4.27	4.11	4.20	3.99
120	3.38	4.31	4.64	4.30	4.65	4.26
MEAN	3.33	4.20	4.46	4.20	4.42	4.12

P	0	15 A	60 A	90 S	360 S	MEAN
N RESID						
37.5	3.69	3.78	4.55	4.15	4.36	4.11
75.0	3.17	4.47	4.27	4.37	4.47	4.15
113	3.22	4.61	4.28	4.50	4.70	4.26
150	3.24	3.92	4.71	3.79	4.17	3.97
MEAN	3.33	4.20	4.46	4.20	4.42	4.12

P		0	15 A	60 A	90 S	360 S
K	N RESID					
30	37.5	3.76	3.19	4.56	3.93	3.87
	75.0	3.16	4.22	3.71	4.45	4.44
	113	3.17	4.88	4.18	4.38	4.80
	150	3.02	4.01	4.64	3.67	3.67
120	37.5	3.61	4.36	4.55	4.38	4.84
	75.0	3.17	4.73	4.84	4.29	4.50
	113	3.28	4.34	4.38	4.62	4.59
	150	3.46	3.83	4.78	3.90	4.67

STRAW MEAN DM% 91.9

SUB PLOT AREA HARVESTED 0.00270

https://doi.org/10.23637/ERADOC-1-141 *pp 171*

75/W/CS/34

NEMATICIDES IN CROP SEQUENCE

Object: To study the effects of a range of nematicides on incidence of Heterodera rostochiensis and yield of potatoes. Residual effects of previous treatments are studied in sugar beet and barley - Woburn Great Hill II and III.

Sponsor: A.G. Whitehead.

The seventh year, potatoes, sugar beet, barley.

For previous years see 71/W/CS/34(t), 72/W/CS/34(t) and 73-74/W/CS/34.

Design: 4 series of 3 blocks of 10 plots.

Whole plot dimensions: 4.27 x 9.14.

Treatments: The experiment has four series with the following cropping:-

	1969	1970	1971	1972	1973	1974	1975
Series I	P	P	P*	SB	B	P	P*
Series II	P	P	P	P*	SB	B	P
Series III	P	B	P	P	P*	SB	B
Series IV	P	B	P	P	P	P*	SB

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

* Treatments applied to potatoes, later crops test residual effects.

Treatments to potatoes (Series I): All combinations of:-

1. Nematicides	NEMACIDE(75)
'Dursban'	DURSBAN
Phoxim	PHOXIM
'Dacamox'	DACAMOX
2. Rates of nematicide (kg a.i.):	RATE
Single (2.8 kg for 'Dursban', 'Dacamox': 5.6 kg for phoxim)	SINGLE
Double (5.6 kg for 'Dursban' and 'Dacamox': 11.2 kg for phoxim)	DOUBLE
Quadruple (11.2 kg for 'Dursban' and 'Dacamox': 22.4 kg for phoxim)	QUAD
plus one untreated plot per block	0.0

https://doi.org/10.23637/ERADOC-1-141

Treatments to potatoes (Series II):
All combinations of:-

1. Residues of nematicides applied 1972:	NEMACIDE(72)
Aldicarb	ALDICARB
'Du Pont 1410'	DUPONT
CGA 10576	CGA
2. Rates of nematicide (kg a.i.):	RATE
2.8	2.8
5.6	5.6
11.2	11.2
plus one untreated plot per block	0.0

Treatments to barley (Series III): All combinations of:-

1. Residues of nematicides applied 1973:	NEMACIDE(73)
Benomyl	BENOMYL
'Du Pont 1410'	DUPONT
'Dowco 275'	DOWCO
2. Rates of nematicide (kg a.i.):	RATE
Single rate (2.8 'Du Pont 1410', 'Dowco 275': 5.6 benomyl)	SINGLE
Double rate (5.6 'Du Pont 1410', 'Dowco 275': 11.2 benomyl)	DOUBLE
Quadruple rate (11.2 'Du Pont 1410', 'Dowco 275': 22.4 benomyl)	QUAD
plus one untreated plot per block	0.0

Treatments to sugar beet (Series IV): All combinations of:-

1. Residues of nematicides applied 1974:	NEMACIDE(74)
Benomyl	BENOMYL
Carbofuran	CARBOFUR
Thiabendazole	THIABEND
2. Rates of nematicide (kg a.i.):	RATE
5.6	5.6
11.2	11.2
22.4	22.4
plus one untreated plot per block	0.0

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Standard applications:
Potatoes (Series I and II): Manures: (13:13:20) at 1940 kg. Weedkillers: Linuron at 1.2 kg plus paraquat at 0.28 kg ion in 280 l. Insecticide: Demeton-s-methyl at 0.25 kg in 280 l. Fungicide: Mancozeb at 1.3 kg in 390 l.
Sugar beet (Series IV): Manures: Magnesian limestone at 5 tonnes. (0:14:28) at 750 kg. N at 160 kg as 'Nitro-Chalk'. Boron at 7.4 kg B203 (as 'Solubor') applied with insecticide. Insecticide: Demeton-s-methyl at 0.25 kg applied on two occasions, once in 280 l and with boron in 390 l.
Barley: Manures: (20:14:14) at 490 kg. Weedkiller: Ioxynil at 0.52 kg and mecoprop at 1.6 kg in 280 l.

Seed: Potatoes: Pentland Crown.
Sugar beet: Klein E, sown at 5.6 kg.
Barley: Julia, dressed with ethirimol, sown at 160 kg.

Cultivations, etc.:-
Potatoes (Series I): Ploughed: 19 Dec, 1974. Spring-tine cultivated with crumbler: 25 Feb, 1975. NPK applied: 21 Apr, 1975. Treatments applied, all plots harrowed: 23-24 Apr. Rotary cultivated, potatoes planted: 2 May. Weedkiller applied: 22 May. Grubbed: 23 June. Rotary ridged: 24 June. Insecticide applied: 26 June. Fungicide applied: 15 July. Haulm mechanically destroyed: 2 Oct. Lifted: 15 Oct.
Potatoes (Series II): Subsoiled, tines 140 cm apart and 60 cm deep: 3 Sept, 1974. Ploughed: 19 Dec. Spring-tine cultivated with crumbler: 25 Feb, 1975. NPK applied: 21 Apr. Rotary cultivated, potatoes planted: 2 May. Weedkiller applied: 22 May. Grubbed: 23 June. Rotary ridged: 24 June. Insecticide applied: 26 June. Fungicide applied: 15 July. Haulm mechanically destroyed: 2 Oct. Lifted: 15 Oct.
Sugar beet (Series IV): Magnesian limestone applied: 7 Nov, 1974. Ploughed: 19 Dec. Spring-tine cultivated with crumbler: 25 Feb, 1975. PK applied: 22 Apr. N applied: 25 Apr. Spring-tine cultivated with crumbler: 28 Apr. Seed sown: 29 Apr. Tractor hoed twice: 29 May, 27 June. Singled: 4-5 June. Insecticide applied: 9 June. Boron and insecticide applied: 1 July. Side hoed: 2-3 July. Lifted: 4-5 Nov.
Barley (Series III): Ploughed: 19 Dec, 1974. Spring-tine cultivated with crumbler: 25 Feb, 1975. Seed sown: 28 Feb. Weedkiller applied: 20 May. Combine harvested: 12 Aug.

NOTE: Soil samples were taken before applying treatments and after harvest for counts of cysts, eggs and larvae of Heterodera rostochiensis.

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75/W/CS/34

POTATOES SERIES I

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

RATE NEMACIDE(75)	SINGLE	DOUBLE	QUAD	MEAN
DURSBAN	8.2	13.1	14.9	12.0
PHOXIM	14.4	12.7	15.4	14.2
DACAMOX	10.8	12.5	18.8	14.0
MEAN	11.1	12.8	16.3	13.4

RATE 0.0 7.8

GRAND MEAN 12.8

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	NEMACIDE(75)	RATE	NEMACIDE(75) RATE AND RATE 0.0
SED	1.35	1.35	2.34

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	18	2.87	22.3

PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

*** TABLES OF MEANS ***

RATE NEMACIDE(75)	SINGLE	DOUBLE	QUAD	MEAN
DURSBAN	77.5	81.1	84.0	80.9
PHOXIM	81.3	76.7	80.7	79.6
DACAMOX	83.3	81.2	86.8	83.8
MEAN	80.7	79.7	83.8	81.4

RATE 0.0 77.7

GRAND MEAN 81.0

PLOT AREA HARVESTED 0.00130

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75/W/CS/34

POTATOES SERIES II

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

RATE NEMACIDE(72)	2.8	5.6	11.2	MEAN
ALDICARB	14.9	15.6	24.9	18.5
DUPONT	17.1	16.7	19.0	17.6
CGA	15.4	14.6	17.0	15.7
MEAN	15.8	15.6	20.3	17.2

RATE 0.0 12.8

GRAND MEAN 16.8

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	NEMACIDE(72)	RATE	NEMACIDE(72) RATE AND RATE 0.0
SED	1.10	1.10	1.91

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	17	2.34	13.9

PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

*** TABLES OF MEANS ***

RATE NEMACIDE(72)	2.8	5.6	11.2	MEAN
ALDICARB	75.5	76.0	87.4	79.6
DUPONT	79.8	75.3	81.4	78.8
CGA	76.4	78.4	79.2	78.0
MEAN	77.2	76.6	82.7	78.8

RATE 0.0 76.3

GRAND MEAN 78.5

PLOT AREA HARVESTED 0.00130

https://doi.org/10.23637/ERADOC-1-141

75/W/CS/34

SUGAR BEET SERIES IV

ROOTS WASHED TONNES/HECTARE

*** TABLES OF MEANS ***

RATE NEMACIDE(74)	5.6	11.2	22.4	MEAN
BENOMYL	12.9	12.2	12.2	12.4
CARBOFUR	11.8	11.8	12.7	12.1
THIABEND	11.5	11.6	12.4	11.9
MEAN	12.1	11.9	12.4	12.1

RATE 0.0 12.2

GRAND MEAN 12.1

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	NEMACIDE(74)	RATE	NEMACIDE(74) RATE AND RATE 0.0
SED	0.81	0.81	1.41

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	18	1.73	14.2

SUGAR PERCENTAGE

*** TABLES OF MEANS ***

RATE NEMACIDE(74)	5.6	11.2	22.4	MEAN
BENOMYL	14.4	14.6	14.5	14.5
CARBOFUR	14.5	14.4	14.7	14.5
THIABEND	14.7	14.4	14.6	14.6
MEAN	14.5	14.5	14.6	14.5

RATE 0.0 14.7

GRAND MEAN 14.6

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TOTAL SUGAR TONNES/HECTARE

*** TABLES OF MEANS ***

RATE NEMACIDE(74)	5.6	11.2	22.4	MEAN
BENOMYL	1.86	1.78	1.77	1.80
CARBOFUR	1.72	1.70	1.86	1.76
THIABEND	1.69	1.68	1.82	1.73
MEAN	1.76	1.72	1.82	1.76

RATE 0.0 1.78

GRAND MEAN 1.77

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	NEMACIDE(74)	RATE	NEMACIDE(74) RATE AND RATE 0.0
SED	0.118	0.118	0.205

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	18	0.251	14.2

PLOT AREA HARVESTED 0.00130

https://doi.org/10.23637/ERADOC-1-141

75/W/CS/34

BARLEY SERIES III

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

RATE NEMACIDE(73)	SINGLE	DOUBLE	QUAD	MEAN
BENOMYL	3.46	3.50	3.54	3.50
DUPONT	3.37	3.69	3.37	3.48
DOWCO	3.44	3.59	3.27	3.43
MEAN	3.42	3.59	3.39	3.47

RATE 0.0 3.04

GRAND MEAN 3.43

GRAIN MEAN DM% 87.2

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	NEMACIDE(73)	RATE	NEMACIDE(73) RATE AND RATE 0.0
SED	0.271	0.271	0.470

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	18	0.576	16.8

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75/W/CS/34

BARLEY SERIES III

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

RATE NEMACIDE(73)	SINGLE	DOUBLE	QUAD	MEAN
BENOMYL	2.03	2.09	2.07	2.07
DUPONT	2.05	2.06	1.86	1.99
DOWCO	2.08	2.13	1.96	2.06
MEAN	2.06	2.09	1.97	2.04

RATE 0.0 1.86

GRAND MEAN 2.02

STRAW MEAN DM% 93.7

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	NEMACIDE(73)	RATE	NEMACIDE(73) RATE AND RATE 0.0
SED	0.1332	0.1332	0.2307

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	18	0.2826	14.0

PLOT AREA HARVESTED 0.00260

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75/W/CS/35

NEMATICIDES DOSAGE

Object: To study the effects of rates and methods of applying nematicides on Heterodera rostochiensis and yield of potatoes, residual effects are studied in sugar beet and barley - Woburn Stackyard AII.

Sponsor: A.G. Whitehead.

The fourth year, potatoes, sugar beet, barley.

For previous years see 72/W/CS/35(t) and 73-74/W/CS/35.

Design: 3 series of 4 replicates of 2 x 9.

Whole plot dimensions: 4.27 x 6.10.

Treatments:-
The experiment has three series with the following cropping:-

	1968-71	1972	1973	1974	1975
Series I	P	P*	SB	B	P*
Series II	P	P	P*	SB	B
Series III	P	P	P	P*	SB

P = Potatoes, SB = Sugar beet, B = Barley

* Treatments applied to potatoes, later crops test residual effects.

Treatments to Series I (1972 and 1975), Series II (1973) and Series III (1974):
All combinations of:-
1. Varieties

	VARIETY	
	Series I	Series II&III
Pentland Crown 1975 (Maris Piper 1972)	PC(MP)	PIPER
Pentland Crown 1975 and 1972	PC(PC)	CROWN

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2. Nematicides (kg)	NEMACIDE
None	NONE
Dazomet (half before, half after autumn ploughing)	
220	DAZ2
330	DAZ3
440	DAZ4
660	DAZ6
Dazomet, 220, 'Telone', 220, all after autumn ploughing	DAZ2/TE2
'Telone' 450 all after autumn ploughing	TE4
'DuPont 1410', 5.6 a.i. in spring	DUP
'Telone' 220, after autumn ploughing, 'DuPont 1410' 5.6 a.i. in spring	TE2/DUP

Sugar beet and barley test residual effects of potato varieties - RESVAR(74), RESVAR(73) - and nematicide - RESNEM(74), RESNEM(73).

Standard applications:-

Potatoes: Manures: (13:13:20) at 1480 kg. Insecticide: Demeton-s-methyl at 0.25 kg in 280 l. Fungicide: Mancozeb at 1.3 kg in 390 l.

Sugar beet: Manures: Magnesian limestone at 5 tonnes. N at 160 kg as 'Nitro-Chalk'. (0:14:28) at 750 kg. Boron at 7.4 kg B_2O_3 (as 'Solubor') applied with insecticide. Insecticide: Demeton-s-methyl at 0.25 kg in 280 l and in 390 l when applied with 'Solubor'.

Barley: Manures: (20:14:14) at 450 kg. Weedkiller: Ioxynil at 0.52 kg plus mecoprop at 1.6 kg in 280 l.

Seed: Potatoes: Pentland Crown.
Sugar beet: Klein E, sown at 5.6 kg.
Barley: Julia, dressed with ethirimol, sown at 160 kg.

Cultivations, etc.:-

Potatoes: Subsoiled, tines 140 cm apart and 56 cm deep: 3 Sept, 1974. Ploughed: 5 Dec. Dazomet and 'Telone' applied, all plots rotary cultivated: 9 Dec. Spring-tine harrowed: 10 Dec. NPK applied: 22 Apr, 1975. Deep-tine cultivated: 25 Apr. Spring-tine cultivated with crumbler: 28 Apr. 'DuPont 1410' applied, spring-tine cultivated: 1 May. Rotary cultivated, potatoes planted: 2 May. Inter-row rotary cultivated and ridged up: 12 May. Insecticide applied: 25 June. Fungicide applied: 15 July. Hand weeded: 24 July. Sprayed with undiluted B.O.V. at 160 l: 2 Oct. Haulm mechanically destroyed: 3 Oct. Lifted: 14 Oct.

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Barley: Deep-tine cultivated twice: 6 Jan, 1975. Spring-tine cultivated twice: 26 Feb, 25 Apr. Seed sown, rolled: 25 Apr. Weedkiller applied: 4 June. Combine harvested: 18 Aug.

Sugar beet: Magnesian limestone applied: 7 Nov, 1974. Deep-tine cultivated twice: 31 Dec, 6 Jan, 1975. N applied: 25 Apr. PK applied: 26 Apr. Spring-tine cultivated with crumbler: 28 Apr. Seed sown: 29 Apr. Tractor hoed twice: 29 May, 27 June. Singled: 5-16 June. Insecticide applied: 9 June. Insecticide applied with 'Solubor': 1 July. Side hoed: 8-9 July. Lifted: 6 Nov.

NOTES: (1) Potatoes, Series I. Six plots were damaged by soil erosion, four plots were incorrectly treated and yield figures from one further plot were lost. Estimated values were used in the analysis. Treatments affected were VARIETY, PC(MP), NEMACIDE, NONE, DAZ2, DAZ3, DAZ2/TE2, TE4 (two plots), TE2/DUP and VARIETY, PC(PC), NEMACIDE, DAZ2, DAZ6, DAZ2/TE2, DUP.

(2) Barley, Series II. Twelve plots were affected by waterlogging at sowing time and estimated values were used in the analysis. All were RESVAR(73), PC(MP) and RESNEM(73), NONE, DAZ2, DAZ3, DAZ4, DAZ6 (two plots), DAZ2/TE2, DUP (three plots), TE2/DUP (two plots).

(3) Soil samples were taken before treatments were applied and after harvest for cyst and egg counts of Heterodera rostochiensis.

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75/W/CS/35

POTATOES

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

VARIETY NEMACIDE	PC(MP)	PC(PC)	MEAN
NONE	12.5	7.3	9.9
DAZ2	21.1	14.2	17.7
DAZ3	22.2	22.1	22.2
DAZ4	25.2	24.1	24.6
DAZ6	22.2	24.9	23.5
DAZ2/TE2	18.6	20.4	19.5
TE4	20.4	12.8	16.6
DUP	21.6	21.2	21.4
TE2/DUP	22.6	23.0	22.8
MEAN	20.7	18.9	19.8

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	NEMACIDE	NEMACIDE* VARIETY
SED	2.11	2.98

*WITHIN SAME LEVEL OF VARIETY ONLY

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	36	4.11	20.7

PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

*** TABLES OF MEANS ***

VARIETY NEMACIDE	PC(MP)	PC(PC)	MEAN
NONE	81.7	67.3	74.5
DAZ2	86.7	79.3	83.0
DAZ3	87.1	87.2	87.2
DAZ4	87.4	90.0	88.7
DAZ6	86.6	85.4	86.0
DAZ2/TE2	87.5	83.6	85.6
TE4	82.9	84.2	83.5
DUP	88.0	87.9	87.9
TE2/DUP	89.3	88.1	88.7
MEAN	86.4	83.7	85.0

PLOT AREA HARVESTED 0.00087

https://doi.org/10.23637/ERADOC-1-141

75/W/CS/35

BARLEY

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

RESVAR(73) RESNEM(73)	PIPER	CROWN	MEAN
NONE	2.92	2.98	2.95
DAZ2	2.99	3.28	3.13
DAZ3	3.13	3.51	3.32
DAZ4	2.90	3.00	2.95
DAZ6	3.17	3.23	3.20
DAZ2/TE2	3.10	3.15	3.12
TE4	3.15	2.94	3.05
DUP	3.10	2.96	3.03
TE2/DUP	2.79	3.33	3.06
MEAN	3.03	3.15	3.09

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	RESNEM(73)	RESNEM(73)* RESVAR(73)
SED	0.253	0.356

*WITHIN SAME LEVEL OF RESVAR(73) ONLY

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	43	0.473	15.3

GRAIN MEAN DM% 87.6

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

RESVAR(73) RESNEM(73)	PIPER	CROWN	MEAN
NONE	2.57	2.54	2.55
DAZ2	2.51	2.78	2.64
DAZ3	2.47	2.89	2.68
DAZ4	2.64	2.51	2.57
DAZ6	2.53	2.66	2.59
DAZ2/TE2	2.48	2.54	2.51
TE4	2.71	2.71	2.71
DUP	2.30	2.45	2.38
TE2/DUP	2.63	2.76	2.70
MEAN	2.54	2.65	2.59

STRAW MEAN DM% 80.5

PLOT AREA HARVESTED 0.00173

https://doi.org/10.23637/ERADOC-1-141

75/W/CS/35

SUGAR BEET

ROOTS (WASHED) TONNES/HECTARE

*** TABLES OF MEANS ***

RES VAR(74) / RES NEM(74)	PIPER	CROWN	MEAN
NONE	10.3	10.2	10.2
DAZ2	11.4	11.8	11.6
DAZ3	11.9	11.1	11.5
DAZ4	12.1	12.4	12.2
DAZ6	11.0	10.5	10.7
DAZ2/TE2	11.8	11.5	11.6
TE4	10.3	9.8	10.0
DUP	10.1	10.5	10.3
TE2/DUP	11.3	12.3	11.8
MEAN	11.1	11.1	11.1

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	RES NEM(74)	RESNEM(74)* RESVAR(74)
SED	0.79	1.11

*WITHIN SAME LEVEL OF RES VAR(74) ONLY

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	47	1.49	13.4

SUGAR PERCENTAGE

*** TABLES OF MEANS ***

RES VAR(74) / RES NEM(74)	PIPER	CROWN	MEAN
NONE	14.7	14.7	14.7
DAZ2	14.6	14.7	14.6
DAZ3	14.6	14.5	14.5
DAZ4	14.7	14.9	14.8
DAZ6	14.8	14.8	14.8
DAZ2/TE2	14.6	14.6	14.6
TE4	14.7	14.8	14.7
DUP	14.8	14.7	14.7
TE2/DUP	14.6	14.8	14.7
MEAN	14.6	14.7	14.7

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75/W/CS/35

SUGAR BEET

TOTAL SUGAR TONNES/HECTARE

*** TABLES OF MEANS ***

RESVAR(74) RESNEM(74)	PIPER	CROWN	MEAN
NONE	1.51	1.50	1.50
DAZ2	1.67	1.73	1.70
DAZ3	1.74	1.62	1.68
DAZ4	1.78	1.84	1.81
DAZ6	1.62	1.55	1.59
DAZ2/TE2	1.72	1.68	1.70
TE4	1.51	1.44	1.48
DUP	1.49	1.54	1.52
TE2/DUP	1.65	1.81	1.73
MEAN	1.63	1.63	1.63

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	RESNEM(74)	RESNEM(74)* RESVAR(74)
SED	0.120	0.169

*WITHIN SAME LEVEL OF RESVAR(74) ONLY

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	47	0.227	13.9

PLOT AREA HARVESTED 0.00130

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/41

CULTIVATIONS AND SOIL INVERTEBRATES

Object: To study the effects of cultivations on yields of grass and on populations of soil animals - Road Piece.

Sponsor: C.A. Edwards.

The seventh year, old grass, new grass.

For previous years see 69/R/CS/41(t), 70/R/CS/41(t) and 71-74/R/CS/41.

Design: 4 blocks of 8 plots randomisation restricted.

Whole plot dimensions: 6.40 x 7.32.

Treatments: Cultivations and reseeding:

	CULTIVTN
No treatments to old grass (two plots per block)	O
Grass ploughed up:-	
In spring 1969, reseeded after fewest cultivations needed to produce a seedbed	SF
In spring 1969, reseeded after many seedbed cultivations	SM
In autumn 1969, reseeded spring 1970 after many seedbed cultivations	AM
Every spring since 1969, reseeded each year after fewest cultivations needed to produce a seedbed	SFR
Every spring since 1969, reseeded each year after many seedbed cultivations	SMR
Every autumn since 1969, reseeded every following spring after many seedbed cultivations	AMR

Seeds mixture for 1975: 6.7 kg S215 Meadow Fescue, 4.5 kg Contessa Meadow Fescue, 4.5 kg S48 Timothy, 1.7 kg Nina certified Wild White Clover, 0.6 kg Old Pasture Wild White Clover. Mixture sown at 24 kg.

Basal applications: Manures: (0:14:28) at 500 kg in winter, (25:0:16) at 440 kg in spring, (25:0:16) at 220 kg after each cut except the last.

Cultivations, etc.:- Basal PK applied: 15 Jan, 1975. AMR plots ploughed: 24 Jan. Basal NK applied: 5 Mar. SMR and SFR plots ploughed: 19 Mar. Disced AMR and SMR plots six times, SFR plots three times: 5 May. Power harrowed all plots to be sown: 6 May. Seed sown: 9 May. AMR, SMR, SFR plots topped: 14 July. Other plots cut three times: 28 May, 31 July, 7 Nov. NK applied to all plots except AMR, SMR, SFR: 16 June, and to all plots: 18 Aug.

NOTE: Soil cores were taken to assess total fauna on 7 May, 16 Oct, and quadrats were sampled on each plot for earthworms on 29 May, 16 Oct.

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75/R/CS/41

1ST CUT (28/5/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

CULTIVTN	0	SF	SM	AM	MEAN
	4.67	4.45	4.19	4.75	4.55

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	CULTIVTN
SED	0.231(1)
	0.267(2)

(1) O V ANY REMAINDER
(2) ANY OF REMAINDER

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	13	0.378	8.3

1ST CUT MEAN DM% 18.3

2ND CUT (31/7/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

CULTIVTN	0	SF	SM	AM	MEAN
	0.99	1.52	2.04	1.90	1.49

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	CULTIVTN
SED	0.254(1)
	0.293(2)

(1) O V ANY REMAINDER
(2) ANY OF REMAINDER

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	13	0.414	27.9

2ND CUT MEAN DM% 31.2

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75/R/CS/41

3RD CUT (7/11/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

CULTIVTN	0	SF	SM	AM	MEAN
	0.73	0.78	0.79	0.69	0.74

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	CULTIVTN
SED	0.116(1)
	0.134(2)

(1) O V ANY REMAINDER
(2) ANY OF REMAINDER

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	13	0.190	25.6

3RD CUT MEAN DM% 24.2

TOTAL OF 3 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

CULTIVTN	0	SF	SM	AM	MEAN
	6.39	6.74	7.01	7.3	6.73

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	CULTIVTN
SED	0.410(1)
	0.473(2)

(1) O V ANY OF REMAINDER
(2) ANY OF REMAINDER

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	13	0.669	9.9

TOTAL OF 3 CUTS MEAN DM% 24.5

PLOT AREA HARVESTED 0.00074

https://doi.org/10.23637/ERADOC-1-141

75/W/CS/66

DAZOMET AND NITROGEN

Object: To study the cumulative effects of dazomet and nitrogen on pathogens and yield of maize grown continuously - Woburn Butt Furlong.

Sponsors: A.J. Barnard, D. Hornby.

The fifth year, maize.

For previous years see 71/W/CS/66(t), 72/W/CS/66(t) and 73-74/W/CS/66.

Design: 4 blocks of 2 plots split into 4.

Whole plot dimensions: 2.13 x 16.5.

Treatments: All combinations of:-

Whole plots: 1. Dazomet (kg per annum) cumulative 1971-75:

	DAZOMET
0	0
450	450

Sub plots: 2. Nitrogen fertiliser (kg N per annum) cumulative 1971-75:

	N
50 to seedbed	50
100 to seedbed	100
150 to seedbed	150
100 to seedbed, 50 five weeks after germination	100+50

Basal applications: Manures: (0:14:28) at 860 kg. Weedkiller: Atrazine at 1.1 kg in 280 l.

Seed: Cargill Primeur 170 sown at 124,000 seeds per ha.

Cultivations, etc.:- Ploughed: 31 Dec, 1974. Spring-tine cultivated: 10 Jan, 1975. Dazomet applied, all plots rotary harrowed: 14 Jan. Deep-tine cultivated: 28 Apr. Spring-tine cultivated with crumbler, PK applied: 29 Apr. Weedkiller applied: 8 May. Rotary cultivated: 9 May. Seed sown by hand: 13 May. N applied: 29 May. Late N applied: 15 July. Harvested by hand: 27 Oct.

NOTES: (1) Because of damage to developing cobs by birds, forage yields only were taken.
(2) Soil samples were taken in spring before sowing and again after harvest for counts of ectoparasitic nematodes.
(3) Plants with soil were sampled on three occasions for nematode counts and incidence of stem and leaf pathogens.
(4) Visual scores were made of common smut (Ustilago maydis) and Fusarium spp.

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75/W/CS/66

*** TABLES OF MEANS ***

FORAGE DRY MATTER TONNES/HECTARE

N DAZOMET	50	100	150	100+50	MEAN
0	7.98	9.13	10.32	11.23	9.67
450	9.71	12.05	12.16	11.85	11.44
MEAN	8.84	10.59	11.24	11.54	10.55

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	N	DAZOMET N
SED	0.848	1.369
ONLY WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:		
DAZOMET		1.199

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP.SP	18	1.696	16.1

MEAN DM% 36.8

SUB PLOT AREA HARVESTED 0.00039

https://doi.org/10.23637/ERADOC-1-141 *pp 192*

75/R/CS/90

CULTIVATIONS FOR CEREALS

Object: To study the engineering aspects - power requirements, rate of work, revenue and costs - of different tillage systems for continuous wheat. Effects on weeds, soil pathogens and yields are also studied - Meadow.

Sponsors: D.E. Patterson (N.I.A.E.), R. Moffitt.

The fourth year, winter wheat.

For previous years see 72/R/CS/90(t) and 73-74/R/CS/90.

Design: 3 randomised blocks of 10 plots.

Whole plot dimensions: 13.7 x 33.8.

Treatments: Tillage systems:-

	TILLAGE
Three passages of the tractor (three-pass system): Ploughed* 20 cm deep (8 inches): spring-tine cultivated: drilled.	1
Three-pass system: Tine cultivated* (Bomford) 15 cm deep (6 inches): tine cultivated 15 cm: spring-tine cultivated and drilled.	2
Two-pass system: Ploughed* 20 cm deep: spring-tine cultivated and drilled.	3
Two-pass system: Ploughed* 10 cm deep (4 inches): spring-tine cultivated and drilled.	4
Two-pass system: Tine cultivated* (N.I.A.E.) 20 cm deep: spring-tine cultivated and drilled.	5
Three-pass system: Sprayed with paraquat (0.56 kg ion in 220 l on 14 Oct): tine cultivated* (N.I.A.E.) 10 cm deep: spring-tine cultivated and drilled.	6
Two-pass system: Sprayed with paraquat (0.56 kg ion in 220 l on 14 Oct): tine cultivated, rotary cultivated and drilled.	7
Two-pass system: Sprayed with paraquat (0.56 kg ion in 220 l on 24 Oct): direct drilled.	8
Two-pass system: Rotary digger (N.I.A.E.) cultivated*: spring-tine cultivated and drilled.	9
Two-pass system: Rotary digger cultivated* 20 cm deep: spring-tine cultivated and drilled.	10

* Cultivation done on 14-18 Oct. All other cultivations and drilling done on 24-25 Oct. A disc drill was used on all treatments except 8.

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NOTE: Rotary digger (N.I.A.E.) - depth of working: rotor 10 cm, tines 20 cm.

Basal applications: Manures: (10:24:24) at 310 kg combine drilled, 'Nitro-Chalk' at 380 kg. Weedkiller: Mecoprop ('Proponex Plus' at 4.2 l in 220 l).

Seed: Cappelle, sown at 160 kg.

Cultivations, etc.:- N applied: 21 Apr, 1975. Weedkiller applied: 24 Apr. Combine harvested: 11 Aug.

NOTES: Observations and determinations were made as follows:-

(1) Soil: Mechanical analysis and profile descriptions, moisture determinations, soil aggregate stability, organic matter, pH, nutrient distribution and photographs.

(2) Implements: Depth and width of work, forward speed, wheel slip, power requirements.

(3) Crop: Plant and tiller counts, number of ears and grains per ear, disease and pest assessments, aerial photographs.

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/90

*** TABLES OF MEANS ***

GRAIN TONNES/HECTARE

TILLAGE	1	2	3	4	5	6	7	8	9	10	MEAN
	5.98	5.49	6.05	5.67	5.24	5.56	5.59	5.52	5.80	5.81	5.67

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	TILLAGE
SED	0.284

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	18	0.348	6.1

GRAIN MEAN DM% 86.8

PLOT AREA HARVESTED 0.01031

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75/W/CS/99

EFFECTS OF BREAKS ON TAKE-ALL

Object: To study the phenomenon of 'take-all' (Gaeumannomyces graminis) decline in barley - Woburn Butt Furlong.

Sponsor: D. Hornby.

The fourth year, barley, spring beans.

For previous years see 72/W/CS/99(t) and 73-74/W/CS/99.

Design: 2 blocks of 9 plots.

Whole plot dimensions: 5.33 x 15.2.

Treatments: Previous crops:-

1968-71	1972	1973	1974		PREVCROP
B	B	B	B	(4 plots per block)	B/B/B/B
B	F	B	B		B/F/B/B
B	F	BE	B		B/F/BE/B
B	B	F	BE		B/B/F/BE

B = Barley, BE = Beans, F = Fallow

Standard applications:
Barley: Manures: (20:14:14) at 420 kg combine drilled. Weedkiller: Ioxynil at 0.53 kg and mecoprop at 1.6 kg in 280 l.
Spring beans: Manures: (0:14:28) at 400 kg placement drilled. Weedkiller: Simazine at 0.84 kg in 280 l. Insecticide: Demeton-s-methyl at 0.20 kg in 390 l.

Seed: Barley: Julia, dressed with ethirimol, sown at 160 kg.
Spring beans: Minden, sown at 220 kg.

Cultivations, etc.:-
All plots: Ploughed: 11-13 Dec, 1974. Spring-tine cultivated: 25 Feb, 1975.
Barley: Seed sown: 28 Feb, 1975. Weedkiller applied: 22 May. Combine harvested: 12 Aug.
Spring beans: Spring-tine cultivated with crumbler: 21 Apr, 1975. Seed sown: 23 Apr. Weedkiller applied: 26 Apr. Insecticide applied: 14 July. Combine harvested: 26 Aug.
Fallow: Spring-tine cultivated with crumbler: 21 Apr, 1975. Spring-tine cultivated: 22 May.

NOTE: Soil samples were taken before sowing and after harvest and plant samples in July for incidence of 'take-all' (Gaeumannomyces graminis).

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75/W/CS/99

*** TABLES OF MEANS ***

BARLEY GRAIN TONNES/HECTARE

PREVCROP	B/B/B/B	B/F/B/B	B/F/BE/B	B/B/F/BE	MEAN
	1.42	2.08	2.16	2.19	1.73

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	PREVCROP	
SED	0.270	B/B/B/B V ANY OF REMAINDER
	0.341	ANY OF REMAINDER

--- STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	9	0.341	19.7

GRAIN MEAN DM% 87.0

PLOT AREA HARVESTED 0.00434

SPRING BEANS GRAIN TONNES/HECTARE

MEAN 0.76

MEAN DM% 86.7

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75/R/CS/106

CHEMICAL CONTROL OF PATHOGENS

Object: To study the effects of a range of chemicals on the yield and pathogens of ryegrass - Claycroft.

Sponsors: J.F. Jenkyn, R.T. Plumb.

The third year, ryegrass.

For previous years see 73-74/R/CS/106.

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

Whole plot dimensions: 4.27 x 16.7.

Treatments: All combinations of:-

Whole plots: 1.	Chemicals applied cumulatively 1973 and 1974, none in 1975 (kg a.i.):	CHEMRES
	None (3 plots per block)	0
	BAS 3170F, 1.12 kg per cut	BA
	Benomyl, 1.12 kg per cut	BE
	Captafol, 2.24 kg per cut	CA
	Dazomet, 400 kg, September 1972 only	DA
	Endosulfan, 2.8 l of 'Thiodan', applied frequently	EN
	Menazon, 0.7 l of 'Saphi-Col', applied frequently	ME
	Endosulfan + menazon, applied frequently	EN+ME
Sub plots: 2.	Compound fertiliser (25:0:16), applied for first cut only, after which experiment ended (kg N):	N
	38	38
	75	75
	150	150

Basal applications: Manures: (0:14:28) at 500 kg.

Seed: Gremie, sown spring 1973 at 45 kg.

Cultivations, etc.:- Basal PK applied: 14 Jan, 1975. NK treatments applied: 6 Mar. Cut once: 29 May.

NOTE: A mite count was made on 6 May.

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75/R/CS/106

1ST AND ONLY CUT (29/5/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

CHEMRES N	0	BA	BE	CA	DA	EN	ME	EN+ME	MEAN
38	3.53	4.05	3.41	3.59	3.52	3.67	3.38	3.30	3.55
75	4.72	5.04	4.53	4.86	5.32	4.72	4.52	4.71	4.79
150	4.99	5.44	5.47	4.94	5.32	5.09	5.07	5.33	5.16
MEAN	4.41	4.84	4.47	4.46	4.72	4.49	4.33	4.45	4.50

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	N	CHEMRES	N CHEMRES
SED		0.166 (1)	0.276 (1)
	0.105	0.203 (2)	0.339 (2)
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
CHEMRES		0.191 (3)	
		0.332 (2)	

(1) 0 V ANY OF REMAINDER
(2) ANY OF REMAINDER
(3) 0

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	20	0.249	5.5
BLOCK.WP.SP	44	0.406	9.0

MEAN DM% 21.6

PLOT AREA HARVESTED 0.00050

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/107

VARIETIES AND PATHOGENS

Object: To compare the yields and susceptibilities to diseases of a range of Italian and Perennial Ryegrass varieties - Long Hoos IV.

Sponsors: R.T. Plumb, J.F. Jenkyn.

The third year, Italian and perennial ryegrass.

For previous years see 73-74/R/CS/107.

Design: 2 blocks of 2 whole plots split into 5 (Italian), 6 (Perennial) sub plots.

Whole plot dimensions: 13.1 x 6.10 (Italian), 15.8 x 6.10 (Perennial).

Treatments:-

Whole plots: 1. Ryegrass type:

	TYPE
Italian	ITALIAN
Perennial	PERENNAL

Sub plots: 2. Varieties and sowing time:

	VARIETY
Italian varieties (sown autumn 1972 except where stated):	
Asso, sown spring 1973	ASSO(S)
Grasslands Manawa	MANAWA
R.V.P.	RVP
R.V.P., sown spring 1973	RVP(S)
S.22	S.22
Perennial varieties (all sown autumn 1972):	
Endura	ENDURA
Glasnevin Leafy	GLASNEVI
Gremie	GREMIE
Monta C.I.V.	MONTA
Reveille	REVEILLE
S.24	S.24

Basal applications: Manures: (0:14:28) at 820 kg. (25:0:16) at 300 kg in spring.

Cultivations, etc.:- PK applied: 25 March, 1975. NK applied: 10 Apr. Cut: 19 June.

NOTE: Virus and mite assessments were made on 22 May.

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75/R/CS/107

*** TABLES OF MEANS ***

DRY MATTER TONNES/HECTARE

1ST AND ONLY CUT (19/6/75)

TYPE	ITALIAN					PERENNAL						
VARIETY	ASSO(S)	MANAWA	RVP	RVP(S)	S22	ENDURA	GLASNEVI	GREMIE	MONTA	REVEILLE	S24	MEAN
	5.80	4.42	5.79	6.09	6.23	5.55	7.03	6.38	6.68	7.03	7.17	6.20

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	VARIETY
SED	

ONLY WHEN COMPARING MEANS WITH SAME LEVEL OF
TYPE 0.654

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP.SP	9	0.654	10.5

MEAN DM% 27.7

SUB PLOT AREA HARVESTED 0.00056

75/R/CS/109

BENOMYL AND SCLEROTINIA

Object: To study the effects of three fungicides on yield and incidence of Sclerotinia rot in winter beans - Fosters O & E III.

Sponsor: J.F. Jenkyn.

The third year, winter beans.

For previous years see 73-74/R/CS/109.

Design: 3 randomised blocks of 10 plots.

Whole plot dimensions: 4.06 x 4.27.

Treatments: Fungicide:

	FUNGCIDE
None (3 plots per block)	0
Benomyl, two sprays each to 1973 and 1974 crops, one in 1975 (3 plots per block)	B(2 2) 1
Benomyl, five sprays each to 1973 and 1974 crops, two in 1975	B(5 5) 2
Benomyl + RP 26019, no sprays in 1973 and 1974, two in 1975	BR(0) 2
RP 26019, no sprays in 1973 and 1974, two in 1975	R(0) 2
Captafol, none in 1973, five sprays in 1974, two in 1975	C(0 5) 2

NOTES: (1) Crop in 1973 and 1974 was red clover, infected with Sclerotinia.
(2) Sprays were applied on 7 Feb and 9 May, 1975 (B(2 2) 1 7 Feb only).
(3) Rates of application, in 340 l:- Benomyl at 0.56 kg. RP 26019 at 0.56 kg a.i. and captafol at 1.34 kg.

Basal applications: Manures: (0:14:28) at 850 kg.

Seed: Throws MS, sown at 380 kg.

Cultivations, etc.:- Clover ploughed: 11 July, 1974. Rotary cultivated twice: 30 July and twice: 20 Aug. Spring-tine cultivated: 28 Aug. Ploughed: 16 Sept. PK fertiliser applied: 28 Oct. Power harrowed: 29 Oct. Seed sown: 4 Nov. Combine harvested: 6 Aug, 1975.

NOTE: The crop was sown late and very few plants became infected with Sclerotinia.

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75/R/CS/109

*** TABLES OF MEANS ***

GRAIN TONNES/HECTARE

FUNGCIDE	0	B(2 2) 1	B(5 5) 2	BR(0) 2	R(0) 2	C(0 5) 2	MEAN
	2.94	3.10	3.01	3.07	3.25	3.00	3.04

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	FUNGCIDE	
SED	0.157	0 v B(2 2) 1
SED	0.223	0 or B(2 2) 1 V ANY OF REMAINDER
SED	0.273	ANY OF REMAINDER

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	22	0.334	11.0

GRAIN MEAN DM% 87.5

PLOT AREA HARVESTED 0.00065

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/110

FERTILISER AND FYM

Object: To study the residual effects of a range of rates of NPK fertiliser and FYM applied to potatoes, on the yields of subsequent crops - Stackyard.

Sponsor: F.V. Widdowson.

The third year, spring barley.

For previous years see 73-74/R/CS/110.

Design: Single replicate in 3 blocks of 18 plots.

Whole plot dimensions: 4.27 x 16.2.

Treatments: All combinations of:-

1. Farmyard manure in 1973 (tonnes) to supply 377 kg N:

	FYM(73)
None	0
80	80

2. N and PK fertilisers in 1973 to give rates of nitrogen* (kg N):

	N(73)
188	188
377	377
565	565

3. Times of applying PK fertilisers in 1973:

	PK TIME(73)
All in autumn	AUTUMN
All in spring	SPRING
Half in autumn, half in spring	AUT/SPNG

4. Nitrogen fertiliser to barley in 1975 (kg N):

	N 75
None	0
50	50
100	100

* The ratio of N:P2O5:K2O was 1:1.5:1.5 for all N treatments.

Basal applications: Weedkiller: Dicamba with mecoprop and MCPA ('Tetralex Plus' at 7.0 l in 220 l).

Seed: Julia, dressed ethirimol, sown at 160 kg.

Cultivations, etc.:- Ploughed: 6 Dec, 1974. Spring-tine cultivated: 25 Feb, 1975. N applied, power harrowed and seed sown: 26 Feb. Weedkiller applied: 20 May. Combine harvested: 8 Aug.

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75/R/CS/110

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

N(73)	188	377	565	MEAN
FYM(73)				
0	2.84	3.14	3.01	2.99
80	3.59	3.60	3.97	3.72
MEAN	3.21	3.37	3.49	3.36

PKTIME(73)	AUTUMN	SPRING	AUT/SPNG	MEAN
FYM(73)				
0	2.93	3.48	2.58	2.99
80	3.79	4.22	3.16	3.72
MEAN	3.36	3.85	2.87	3.36

PKTIME(73)	AUTUMN	SPRING	AUT/SPNG	MEAN
N(73)				
188	3.38	3.61	2.65	3.21
377	3.07	4.09	2.94	3.37
565	3.63	3.84	3.01	3.49
MEAN	3.36	3.85	2.87	3.36

N75	0	50	100	MEAN
FYM(73)				
0	1.91	3.24	3.84	2.99
80	2.67	3.47	5.02	3.72
MEAN	2.29	3.36	4.43	3.36

N75	0	50	100	MEAN
N(73)				
188	1.76	3.32	4.55	3.21
377	2.40	3.36	4.35	3.37
565	2.70	3.38	4.39	3.49
MEAN	2.29	3.36	4.43	3.36

N75	0	50	100	MEAN
PKTIME(73)				
AUTUMN	2.28	3.22	4.57	3.36
SPRING	2.78	3.66	5.10	3.85
AUT/SPNG	1.80	3.19	3.62	2.87
MEAN	2.29	3.36	4.43	3.36

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75/R/CS/110

GRAIN TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	FYM(73)	N(73)	PKTIME(73)	N75
SED	0.184	0.226	0.226	0.226

TABLE	FYM(73) N(73)	FYM(73) PKTIME(73)	N(73) PKTIME(73)	FYM(73) N75
SED	0.319	0.319	0.391	0.319

TABLE	N(73) N75	PKTIME(73) N75
		6
SED	0.391	0.391

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	13	0.677	20.2

GRAIN MEAN DM% 87.1

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75/R/CS/110

STRAW TONNES/HECTARE

*** TABLES OF MEANS***

N(73)	188	377	565	MEAN
FYM(73)				
0	1.06	1.27	1.33	1.22
80	1.51	1.87	1.82	1.73
MEAN	1.28	1.57	1.58	1.48

PKTIME(73)	AUTUMN	SPRING	AUT/SPNG	MEAN
FYM(73)				
0	1.41	1.26	0.99	1.22
80	1.75	1.85	1.60	1.73
MEAN	1.58	1.56	1.30	1.48

PKTIME(73)	AUTUMN	SPRING	AUT/SPNG	MEAN
N(73)				
188	1.38	1.36	1.11	1.28
377	1.56	1.74	1.41	1.57
565	1.81	1.57	1.36	1.58
MEAN	1.58	1.56	1.30	1.48

N75	0	50	100	MEAN
FYM(73)				
0	0.69	1.36	1.61	1.22
80	1.00	1.80	2.40	1.73
MEAN	0.84	1.58	2.01	1.48

N75	0	50	100	MEAN
N(73)				
188	0.59	1.39	1.87	1.28
377	0.94	1.70	2.06	1.57
565	1.00	1.65	2.08	1.58
MEAN	0.84	1.58	2.01	1.48

N75	0	50	100	MEAN
PKTIME(73)				
AUTUMN	1.03	1.62	2.08	1.58
SPRING	0.78	1.55	2.33	1.56
AUT/SPNG	0.71	1.56	1.61	1.30
MEAN	0.84	1.58	2.01	1.48

STRAW MEAN DM% 92.3

PLOT AREA HARVESTED 0.00460

https://doi.org/10.23637/ERADOC-1-141 *pp 207*

75/R/CS/116

EFFECTS OF STEM EELWORM

Object: To study the effects of applying field bean straw infested with two races of stem eelworm (Ditylenchus dipsaci) on the yield and subsequent infestation of field beans - Highfield O and E III.

Sponsor: D.J. Hooper.

The third year, spring beans.

For previous years see 73-74/R/CS/116.

Design: 3 randomised blocks of 6 plots.

Whole plot dimensions: 4.27 x 9.14.

Treatments: All combinations of:-

1. Bean straw infested with stem eelworm (Ditylenchus dipsaci) worked into soil, autumn 1972 only: — EELWORM
   - Oat race — OAT
   - Giant race — GIANT
2. Rate of application of straw (tonnes) to give populations of eelworms:- — RATE
   - None — 0
   - Single, 3.1 — SINGLE
   - Double, 6.2 — DOUBLE

Basal applications: Manures: (0:14:28) at 410 kg placement drilled. Weedkillers: Simazine at 0.84 kg in 220 l. Insecticide: Demeton-s-methyl at 0.25 kg in 450 l.

Seed: Minor, sown at 220 kg.

Cultivations, etc.:- Ploughed: 15 Oct, 1974. Rotary harrowed: 14 Apr, 1975. Seed sown and spring-tine cultivated: 21 Apr. Simazine applied: 24 Apr. Tractor-hoed: 27 May and 25 June. Insecticide applied: 10 July. Combine harvested: 29 Aug.

NOTE: Stems showing symptoms of stem eelworm attack were counted on 6 Aug. Samples of seed were taken at harvest to assess seed infestation and soil samples after harvest to assess soil infestation.

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75/R/CS/116

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

RATE EELWORM	0	SINGLE	DOUBLE	MEAN
OAT		0.72	0.54	0.63
GIANT		0.69	0.70	0.70
MEAN	0.89	0.71	0.62	0.74

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	EELWORM	RATE	EELWORM RATE
SED	0.163	0.163	0.230

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

	DF	SE	CV%
BLOCK.WP	11	0.282	38.1

GRAIN MEAN DM% 87.5

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75/R/CS/123

EFFECTS OF VIRUSES

Object: To study the effects of virus infection on yield and persistence of ryegrass and red clover in pure and mixed stands - Garden Plot 14.

Sponsors: A.J. Cockbain, R.T. Plumb.

The third year, red clover and Italian ryegrass.

For previous years see 73-74/R/CS/123.

Design: 4 randomised blocks of 8 plots split into 2.

Whole plot dimensions: 3.35 x 1.22.

Treatments: All combinations of:-

Whole plots: 1. Crop and inoculation with virus in 1973:	CROP VIR
Red clover uninoculated	CLOVER/0
Italian ryegrass uninoculated	GRASS/0
Red clover and Italian ryegrass (mixed within rows) uninoculated	CLOGR/0
Red clover inoculated with Pea Mosaic Virus (PMV)	CLOVER/P
Italian ryegrass inoculated with Ryegrass Mosaic Virus (RMV)	GRASS/R
Red clover and Italian ryegrass (mixed) inoculated with PMV	CLOGR/P
Red clover and Italian ryegrass (mixed) inoculated with RMV	CLOGR/R
Red clover and Italian ryegrass (mixed) inoculated with PMV and RMV	CLOGR/PR

NOTE: Inoculation with PMV was unsuccessful.

Sub plots: 2. Aldicarb (kg) after each cut:	ALDICARB
None	0
10	10

Basal applications: Manures: (25:0:16) at 270 kg to grass plots.

Cultivations, etc.:- NK applied: 19 June, 1975. Cut twice: 9 June, 25 July.

NOTES: (1) Mites (Abacarus hystrix) were counted on 28 Apr and 23 July on grass plots.
(2) Grass was scored for Ryegrass Mosaic Virus on 20 May.

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75/R/CS/123

1ST CUT (6/6/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

ALDICARB	0	10	MEAN
CROP VIR			
CLOVER/0	8.37	8.45	8.41
GRASS/0	8.25	7.63	7.94
CLOGR/0	9.53	8.77	9.15
CLOVER/P	8.35	8.31	8.33
GRASS/R	8.08	7.36	7.72
CLOGR/P	9.40	8.76	9.08
CLOGR/R	8.84	8.93	8.89
CLOGR/PR	8.92	8.57	8.75
MEAN	8.72	8.35	8.53

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	CROP VIR	ALDICARB	CROP VIR ALDICARB
REP	8	32	4
SED	0.440	0.160	0.544
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
CROP VIR			0.451

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	21	0.623	7.3
BLOCK.WP.SP	24	0.638	7.5

1ST CUT MEAN DM% 25.2

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/123

2ND CUT (25/7/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

ALDICARB	0	10	MEAN
CROP VIR			
CLOVER/O	3.14	3.89	3.51
GRASS/O	1.89	1.46	1.68
CLOGR/O	3.04	3.09	3.06
CLOVER/P	3.27	3.76	3.51
GRASS/R	1.57	1.65	1.61
CLOGR/P	2.96	2.92	2.94
CLOGR/R	3.30	3.10	3.20
CLOGR/PR	2.76	3.27	3.01
MEAN	2.74	2.89	2.82

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	CROP VIR	ALDICARB	CROP VIR ALDICARB
REP	8	32	4
SED	0.378	0.122	0.449
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
CROP VIR			0.344

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	21	0.535	19.0
BLOCK.WP.SP	24	0.486	17.3

2ND CUT MEAN DM% 26.8

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/123

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

ALDICARB	0	10	MEAN
CROP VIR			
CLOVER/O	11.51	12.34	11.92
GRASS/O	10.14	9.10	9.62
CLOGR/O	12.56	11.86	12.21
CLOVER/P	11.63	12.06	11.84
GRASS/R	9.65	9.01	9.33
CLOGR/P	12.36	11.68	12.02
CLOGR/R	12.14	12.03	12.09
CLOGR/PR	11.68	11.84	11.76
MEAN	11.46	11.24	11.35

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	CROP VIR	ALDICARB	CROP VIR ALDICARB
REP	8	32	4
SED	0.695	0.248	0.854
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
CROP VIR			0.702

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	21	0.982	8.7
BLOCK.WP.SP	24	0.993	8.8

TOTAL OF 2 CUTS MEAN DM% 26.0

PLOT AREA HARVESTED 0.00011

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/127

SPRING ONIONS

SINGLE AND DIVIDED APPLICATIONS OF ALDICARB

Object: To study the effects of rates and times of applying aldicarb on control of stem eelworm (Ditylenchus dipsaci) and on the yield of spring-sown onions - Great Field II.

Sponsor: A.G. Whitehead.

The third year, spring onions.

For previous years see 73-74/R/CS/127.

Design: 2 randomised blocks of 12 plots.

Whole plot dimensions: 6.09 x 1.52.

Treatments: All combinations of:-

1. Residues of aldicarb applied 1974 (kg):	ALDICARB(74)
None	0.0
2.5	2.5
2. Rates of aldicarb applied 1975 (kg):	**ALDICARB(75)**
2.5	2.5
5.0	5.0
10.0	10.0
3. Times of applying aldicarb 1975:	**ALDTIME(75)**
All in April to seedbed (24 Apr)	APRIL
Half in April, half on 16 July	APR/JULY

Basal applications: Manures: (13:13:20) at 1880 kg. Weedkillers: Propachlor ('Ramrod' at 6.7 kg in 450 l), Pyrazone ('Alicep' at 4.5 kg in 450 gall).

Seed: Robusta, dressed with dieldrin, sown at 6.7 kg.

Cultivations, etc.:- NPK applied, rotary cultivated, seed sown, propachlor applied: 24 Apr, 1975. Pyrazone applied: 18 June. Lifted: 24 Sept.

NOTES: (1) Soil samples were taken in May and after harvest for counts of Ditylenchus dipsaci.

(2) One plot ALDICARB(74) 2.5
ALDICARB(75) 10.0
ALDTIME(75) APRIL
was not completely harvested. An estimated value has been used in the analysis.

(3) There was evidence of a linear trend across the site and yields adjusted for this trend are presented.

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75/R/CS/127

TOTAL ONIONS TONNES/HECTARE

*** TABLES OF MEANS ***

ALDICARB(75) ALDICARB(74)	2.5	5.0	10.0	MEAN
0.0	21.8	21.3	20.9	21.3
2.5	21.2	19.0	20.2	20.2
MEAN	21.5	20.1	20.5	20.7

ALDTIME(75) ALDICARB(74)	APRIL	APR/JULY	MEAN
0.0	21.8	20.8	21.3
2.5	20.1	20.2	20.2
MEAN	20.9	20.5	20.7

ALDTIME(75) ALDICARB(75)	APRIL	APR/JULY	MEAN
2.5	22.4	20.6	21.5
5.0	19.6	20.6	20.1
10.0	20.7	20.3	20.5
MEAN	20.9	20.5	20.7

ALDICARB(75)	2.5		5.0		10.0	
ALDTIME(75)	APRIL	APR/JULY	APRIL	APR/JULY	APRIL	APR/JULY
ALDICARB(74)						
0.0	22.8	20.9	21.7	20.8	21.0	20.8
2.5	22.1	20.3	17.6	20.5	20.5	19.9

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	ALDICARB(74)	ALDICARB(75)	ALDTIME(75)	ALDICARB(74) ALDICARB(75)
SED	0.60	0.73	0.59	1.04

TABLE	ALDICARB(74) ALDTIME(75)	ALDICARB(75) ALDTIME(75)	ALDICARB(74) ALDICARB(75) ALDTIME(75)
SED	0.84	1.06	1.48

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	9	1.44	7.0

PLOT AREA HARVESTED 0.00046

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75/R/CS/130

EFFECTS OF EARTHWORM INOCULATION

Object: To study the effects of different species of earthworms on yield and other characteristics of grass - Fosters O & E.

Sponsor: J.R. Lofty.

The second year, ley.

For previous year see 74/R/CS/130.

Design: 3 blocks of 4 plots.

Whole plot dimensions: 8.53 x 9.14.

Treatments: Inoculation with earthworm species cumulative on 1974 treatments:

	WORMSPEC
None	NONE
Allolobophora longa at 5000 per hectare	ALLOLOBO
Lumbricus terrestris at 5000 per hectare	LUMBRICU
Six species - A.caliginosa, A. chlorotica, A. longa, A. rosea, L. rubellus, L. terrestris at a total of 12000 per hectare	SIX SPEC

NOTE: Earthworms were applied on 11 March, 1975.

Basal applications: Manures: (0:14:28) at 500 kg in winter, (25:0:16) at 440 kg for the first cut and at 220 kg for the second and third cuts.

Cultivations, etc.:- PK applied: 9 Jan, 1975. NK, applied: 5 Mar, 4 June, 18 Aug. Cut: 28 May, 31 July, 7 Nov.

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75/R/CS/130

1ST CUT (28/5/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

WORMSPEC	NONE	ALLOLOBO	LUMBRICU	SIXSPEC	MEAN
	2.79	2.74	2.95	2.68	2.79

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	WORMSPEC
SED	0.290

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	6	0.355	12.7

1ST CUT MEAN DM% 22.3

1ST CUT PLOT AREA HARVESTED 0.00093

2ND CUT (31/7/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

WORMSPEC	NONE	ALLOLOBO	LUMBRICU	SIXSPEC	MEAN
	1.00	0.78	0.75	0.78	0.83

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	WORMSPEC
SED	0.1623

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	6	0.1988	24.0

2ND CUT MEAN DM% 39.4

2ND PLOT AREA HARVESTED 0.00046

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/130

3RD CUT (7/11/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

WORMSPEC	NONE	ALLOLOBO	LUMBRICU	SIXSPEC	MEAN
	1.77	1.78	1.65	1.65	1.71

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	WORMSPEC
SED	0.142

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	6	0.174	10.2

3RD CUT MEAN DM% 21.8

3RD CUT PLOT AREA HARVESTED 0.00046

TOTAL OF 3 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

WORMSPEC	NONE	ALLOLOBO	LUMBRICU	SIXSPEC	MEAN
	5.56	5.30	5.35	5.11	5.33

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	WORMSPEC
SED	0.328

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	6	0.402	7.5

TOTAL OF 3 CUTS MEAN DM% 27.8

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75/R/CS/131

EFFECTS OF EARTHWORM DESTRUCTION

Object: To study the effects of eliminating earthworms on yield and soil structure of old grass - Appletree.

Sponsor: J.R. Lofty.

The 2nd year, old grass.

For previous year see 74/R/CS/131.

Design: 4 blocks of 4 plots.

Whole plot dimensions: 7.62 x 7.62.

Treatments: Chemicals (applied 1974):-	CHEMICAL(74)
None (2 plots per block)	NONE
Benomyl at 5 kg	BENOMYL
Chlordane at 10 kg	CHLORDAN

Basal applications: Manures: (0:14:28) at 500 kg in winter, (25:0:16) at 440 kg for the first cut and at 220 kg for the second and third cut.

Cultivations, etc.:- PK applied: 16 Jan. NK applied: 5 Mar, 16 June, 18 Aug. Cut: 29 May, 31 July, 7 Nov.

NOTE: Soil samples were taken in spring and autumn to assess earthworm populations.

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75/R/CS/131

1ST CUT (29/5/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

CHEMICAL(74)	NONE	BENOMYL	CHLORDAN	MEAN
	6.01	6.01	6.06	6.03

*** STANDARD ERROR OF DIFFERENCES OF MEANS ***

TABLE	CHEMICAL(74)
SED	0.280 (1)
	0.323 (2)

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

	DF	SE	CV%
BLOCK.WP	10	0.457	7.6

MEAN DM% 17.3

2ND CUT (31/7/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

CHEMICAL(74)	NONE	BENOMYL	CHLORDAN	MEAN
	3.42	3.04	2.84	3.10

*** STANDARD ERROR OF DIFFERENCES OF MEANS ***

TABLE	CHEMICAL(74)
SED	0.312 (1)
	0.361 (2)

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

	DF	SE	CV%
BLOCK.WP	10	0.510	16.0

MEAN DM% 33.9

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75/R/CS/131

3RD CUT (7/11/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

CHEMICAL(74)	NONE	BENOMYL	CHLORDAN	MEAN
	1.75	2.01	1.59	1.78

*** STANDARD ERROR OF DIFFERENCES OF MEANS ***

TABLE	CHEMICAL(74)
SED	0.217 (1)
	0.250 (2)

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

	DF	SE	CV%
BLOCK.WP	10	0.354	20.0

MEAN DM% 21.5

TOTAL OF 3 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

CHEMICAL(74)	NONE	BENOMYL	CHLORDAN	MEAN
	11.18	11.06	10.49	10.91

*** STANDARD ERROR OF DIFFERENCES OF MEANS ***

TABLE	CHEMICAL(74)
SED	0.321 (1)
	0.371 (2)

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

	DF	SE	CV%
BLOCK.WP	10	0.524	4.8

MEAN DM% 24.2

PLOT AREA HARVESTED 0.00046

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75/R/CS/133

CONTROL OF PATHOGENS

Object: To study the effects of a range of chemicals on incidence of pathogens and yield of maize - Long Hoos VI/VII 6.

Sponsors: A.J. Barnard, K.E. Fletcher, D.J. Hooper, D. Hornby, R.T. Plumb, T.D. Williams, J.C. Wilson.

The second year, maize.

For previous year see 74/R/CS/133.

Design: 3 randomised blocks of 9 plots split into 3.

Whole plot dimensions: 2.13 x 18.3.

Treatments: All combinations of:-

Whole plots: 1. Chemicals applied cumulatively to 1974 treatments except where stated:

	CHEMICAL
None (4 plots per block)	NONE
Aldicarb, 4.5 kg as granules to seedbed	ALDICARB
Benomyl, 11.2 kg as dust to seedbed	BENOMYL
Dazomet, 450 kg as granules in early spring (1974 only)	DAZ (74)
Phorate, 1.68 kg as granules drilled with the seed	PHORATE
Benomyl + dazomet (1974 only) + phorate, at above rates and times	BE/DA/PH

Sub plots: 2. Nitrogen fertiliser (kg N):

	N
50	50
100	100
150	150

NOTE: Plots were divided for yields at forage and grain stage.

Basal applications: Manures: (0:14:28) at 820 kg. Weedkiller: Atrazine ('Vectal' at 3.4 kg in 340 l).

Seed: Cargill Primeur 170, sown at 123,000 seeds per ha.

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Cultivations, etc.:- Ploughed: 4 Feb, 1975. Spring-tine cultivated: 16 Apr and 21 Apr. PK applied: 28 Apr. Power harrowed: 2 May. Aldicarb and benomyl treatments applied: 6 May. Power harrowed, seed sown: 14 May. Weedkiller applied: 23 May. Part plots harvested for forage: 9 Oct. Part plots harvested for grain: 11 Nov.

NOTES: The following assessments were made:
(1) Total number of plants per plot on 24 July.
(2) Percentage of plants damaged by frit fly (Oscinella frit) on 24 July.
(3) Nitrogen percentage of forage and grain was determined.

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

CHEMICAL N	NONE	ALDICARB	BENOMYL	DAZ(74)	PHORATE	BE/DA/PH	MEAN
50	3.54	3.62	4.01	3.97	3.74	4.42	3.77
100	3.58	3.89	3.52	3.72	4.16	4.08	3.74
150	3.78	4.26	4.11	4.00	4.61	4.75	4.10
MEAN	3.63	3.92	3.88	3.90	4.17	4.41	3.87

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N	CHEMICAL	N CHEMICAL
SED		0.418(1)	0.523(1)
	0.162	0.529(2)	0.662(2)
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
CHEMICAL			0.244(3)
			0.487(2)

(1) NONE V ANY OF REMAINDER
(2) REMAINDER
(3) NONE

***** STRATUM STANDARD ERRRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	19	0.648	16.7
BLOCK.WP.SP	42	0.597	15.4

GRAIN MEAN DM% 65.7

SUB PLOT AREA HARVESTED 0.00039

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75/R/CS/133

FORAGE DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

CHEMICAL N	NONE	ALDICARB	BENOMYL	DAZ(74)	PHORATE	BE/DA/PH	MEAN
50	6.67	6.50	6.21	6.73	7.66	7.27	6.78
100	6.65	6.03	6.35	7.25	7.73	7.08	6.78
150	7.11	9.98	8.61	6.89	8.77	8.95	7.96
MEAN	6.81	7.50	7.06	6.96	8.05	7.77	7.18

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N	CHEMICAL	N CHEMICAL
SED		0.537(1)	0.872(1)
	0.354	0.680(2)	1.103(2)
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
CHEMICAL			0.532(3)
			1.063(2)

(1) NONE V ANY OF REMAINDER
(2) REMAINDER
(3) NONE

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	19	0.832	11.6
BLOCK.WP.SP	42	1.302	18.1

MEAN DM% 32.2

SUB PLOT AREA HARVESTED 0.00020

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75/R/CS/135

DIRECT DRILLING AND DISEASES

Object: To study the effects of direct drilling on pathogens and yield of winter barley - Meadow.

Sponsor: R.D. Prew.

The second year, winter barley.

For previous year see 74/R/CS/135.

Design: 2 randomised blocks of 3 plots.

Whole plot dimensions: 26.7 x 30.5.

Treatments: Cultivations:-	CULTIVTN
Ploughed, spring-tine cultivated, drilled (P)	PLOUGH
Paraquat to stubble, chisel ploughed, rotary harrowed, drilled (C)	CHISEL
Paraquat to stubble, direct drilled (D)	DIRECT

NOTE: Paraquat was applied at 0.84 kg ion in 220 l.

Basal applications: Manures: (10:24:24) at 250 kg combine drilled. 'Nitro-Chalk' in spring at 375 kg. Weedkiller: Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l).

Seed: Maris Otter seed dressed fungicide only, sown at 160 kg (P & C), 190 kg (D).

Cultivations, etc.:- Paraquat applied to C and D plots: 14 Oct, 1974. P plots ploughed: 15 Oct. C plots chisel ploughed: 17 Oct. D plots direct drilled: 24 Oct. P plots spring-tine cultivated, C plots rotary harrowed and seed sown on P and C plots: 25 Oct. N applied: 21 Apr, 1975. Weedkiller applied: 12 May. Combine harvested: 30 July. Previous crops: Barley 1973 and 1974.

NOTES: (1) Much straw trash was left on the surface before drilling, to aid study of foliar diseases. Because of this the crop established badly on D plots and became infested with grass weeds.

(2) Root and foliar diseases were assessed.

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75/R/CS/135

*** TABLES OF MEANS ***

GRAIN TONNES/HECTARE

CULTIVTN	PLOUGH	CHISEL	DIRECT	MEAN
	4.01	4.38	3.08	3.83

GRAIN MEAN DM% 87.5

PLOT AREA HARVESTED 0.00929

https://doi.org/10.23637/ERADOC-1-141 *pp 226*

75/W/CS/138

CONTROL OF PCN

Object: To study the effects of rates and depths of applying nematicides on control of Heterodera rostochiensis (PCN) and yield of early and maincrop potatoes - Woburn Butt Close.

Sponsor: A.G. Whitehead.

The second year, potatoes.

For previous year see 74/W/CS/138.

Design: 2 series (for early and maincrop varieties in 1974, both maincrop in 1975) each of 3 blocks of 7 plots.

Whole plot dimensions: 2.84 x 7.01.

Treatments: To each series: Nematicides, times and depths of application (cumulative to 1974):

	NEMACIDE
None	NONE
Autumn applications, all also given dichloropropene (200 kg) injected at 20 cm:	
Dazomet at 100 kg, worked in to top 7.5 cm of soil	DID1/7.5
Dazomet at 100 kg, worked in to top 15 cm of soil	DID1/15
Dazomet at 200 kg, worked in to top 7.5 cm of soil	DID2/7.5
Dazomet at 200 kg, worked in to top 15 cm of soil	DID2/15
Dichloropropene at 200 kg in autumn, injected at 20 cm + oxamyl at 6 kg (a.i.) in spring	DIDP
Oxamyl at 6 kg (a.i.) in spring	DP

Basal applications: Manures: (13:13:20) at 1860 kg. Weedkiller: Linuron at 1.2 kg plus paraquat at 0.28 kg ion in 280 l. Insecticide: Demeton-s-methyl at 0.25 kg in 280 l. Fungicide: Mancozeb at 1.3 kg in 390 l.

Seed: Pentland Crown.

Cultivations, etc.:-

Both series: Deep-tine cultivated: 6 Dec, 1974. Dichloropropene and dazomet applied, spring-tine cultivated: 11 Dec. NPK applied: 22 Apr, 1975. Spring-tine cultivated, oxamyl applied, spring-tine cultivated: 25 Apr. Insecticide applied: 26 June. Fungicide applied: 15 July. Haulm mechanically destroyed: 29 Sept. Sprayed with undiluted BOV at 160 l: 2 Oct. Lifted: 17 Oct.

Series I: Rotary cultivated, King Edward potatoes planted in error: 28 Apr. King Edward potatoes lifted and replanted with Pentland Crown: 13 May. Weedkiller applied: 30 May.

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Series II: Rotary cultivated, potatoes planted: 28 Apr. Ridged up: 12 May. Weedkiller applied: 29 May.

NOTES: (1) Soil samples were taken before planting and after harvest for cyst and egg counts of Heterodera rostochiensis.
(2) One block of each series was not harvested for yield because of very poor growth caused by wet conditions at planting.

75/W/CS/138

SERIES I

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

NEMACIDE	NONE	DID1/7.5	DID1/15	DID2/7.5	DID2/15	DIDP	DP	MEAN
	3.2	7.4	4.0	13.9	10.4	24.8	19.2	11.8

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	NEMACIDE
SED	5.08

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	6	5.08	42.9

PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

*** TABLES OF MEANS ***

NEMACIDE	NONE	DID1/7.5	DID1/15	DID2/7.5	DID2/15	DIDP	DP	MEAN
	56.5	76.5	62.7	85.1	80.1	87.3	84.9	76.1

PLOT AREA HARVESTED 0.00100

https://doi.org/10.23637/ERADOC-1-141 *pp 228*

75/W/CS/138

SERIES II

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

NEMACIDE	NONE	DID1/7.5	DID1/15	DID2/7.5	DID2/15	DIDP	DP	MEAN
	2.9	14.7	10.1	14.4	12.7	27.8	22.3	15.0

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	NEMACIDE
SED	5.37

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	6	5.37	35.9

PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

*** TABLES OF MEANS ***

NEMACIDE	NONE	DID1/7.5	DID1/15	DID2/7.5	DID2/15	DIDP	DP	MEAN
	28.9	80.9	80.5	84.2	88.9	84.4	85.3	76.2

PLOT AREA HARVESTED 0.00100

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/139

FUNGICIDES AND K

Object: To study the effects of fungicides and rates of potassium on the incidence of mildew and yield of barley - W. Barnfield II.

Sponsor: J.F. Jenkyn.

The second year, barley.

For previous year see 74/R/CS/139.

Design: 3 randomised blocks of 16 plots.

Whole plot dimensions: 4.27 x 20.1.

Treatments (Cumulative on 1974): All combinations of:-

1. Fungicides:

	FUNGCIDE
None (duplicated)	NONE
Ethirimol as a seed dressing (commercially dressed)	ETHIRIMO
Tridemorph foliar spray (0.53 kg in 340 l)	TRIDEMOR

2. Potassium (kg K20):

	K20
None	0
50	50
100	100
200	200

Basal applications: Manures: (30:13:0) at 340 kg combine drilled. Weedkiller: Dicamba, with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l).

Seed: Julia, sown at 160 kg.

Cultivations, etc.:- Ploughed: 2 Nov, 1974. Spring-tine cultivated, K applied, power harrowed and seed sown: 28 Feb, 1975. Weedkiller applied: 11 May. Tridemorph applied: 5 June. Combine harvested: 6 Aug. Previous crops: Barley 1973 and 1974.

NOTE: Mildew and Rhynchosporium were assessed on 11 June and 8 July.

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*** TABLES OF MEANS ***

GRAIN TONNES/HECTARE

K20	0	50	100	200	MEAN
FUNGCIDE					
NONE	4.48	4.90	5.15	5.42	4.99
ETHIRIMO	4.62	5.61	5.62	5.79	5.41
TRIDEMOR	4.45	5.56	5.63	6.04	5.42
MEAN	4.51	5.24	5.38	5.67	5.27

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	FUNGCIDE	K20	FUNGCIDE K20
SED	0.292(1)	0.337	0.476(3)
	0.337(2)		0.583(1)
			0.674(2)

(1) NONE V ETHIRIMO OR TRIDEMOR
(2) ETHIRIMO V TRIDEMOR
(3) NONE

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
UNITS	36	0.825	15.9

GRAIN MEAN DM% 87.2

PLOT AREA HARVESTED 0.00429

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/140

CHEMICAL REFERENCE PLOTS

Object: To study the persistence in soil of four agricultural chemicals applied annually, singly and in combination and their effects on soil microflora and on yield of continuous barley - Long Hoos V 3.

Sponsors: G.G. Briggs, N. Walker, R. MacDonald.

The second year, barley.

For previous year see 74/R/CS/140.

Design: Two replicates of 2 x 2 x 2 x 2 fully randomised.

Whole plot dimensions: 4.06 x 4.57.

Treatments, applied cumulatively to 1974 except WEEDKLLR - 1974 only:
All combinations of:-

1. Fungicide:	FUNGCIDE
None	NONE
Benomyl at 4 kg applied 22 Apr, 1975	BENOMYL
2. Insecticide:	INSCTCDE
None	NONE
Chlorfenvinphos at 2 kg applied 22 Apr, 1975	CHLORFEN
3. Nematicide:	NEMACIDE
None	NONE
Aldicarb at 6 kg applied 22 Apr, 1975	ALDICARB
4. Weedkiller:	WEEDKLLR(74)
None	NONE
Chlortoluron at 2 kg applied 1974 only	CHLORTOL

Basal applications: Manures: (20:14:14) at 500 kg. Weedkillers: Dicamba with mecoprop and MCPA ('Tetralex Plus' at 7.0 l in 340 l).

Seed: Julia - undressed, sown at 160 kg.

Cultivations, etc.:- Ploughed: 19 Sept, 1974. Power harrowed, NPK applied, seed sown: 22 Apr, 1975. Weedkiller applied: 6 June. Combine harvested: 13 Aug.

NOTES: (1) Mildew and aphid numbers were assessed in May, June and July, and barley yellow dwarf virus in July. Chemical residues in the soil were assessed throughout the season and aldicarb in the crop in July.
(2) There was evidence of a linear trend across the site, and yields adjusted for this trend are presented.

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GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

INSCTCDE	NONE	CHLORFEN	MEAN
FUNGCIDE			
NONE	5.01	5.08	5.05
BENOMYL	5.22	5.39	5.31
MEAN	5.12	5.23	5.18

NEMACIDE	NONE	ALDICARB	MEAN
FUNGCIDE			
NONE	4.75	5.34	5.05
BENOMYL	4.96	5.66	5.31
MEAN	4.86	5.50	5.18

NEMACIDE	NONE	ALDICARB	MEAN
INSCTCDE			
NONE	4.88	5.35	5.12
CHLORFEN	4.83	5.64	5.23
MEAN	4.86	5.50	5.18

WEEDKLLR(74)	NONE	CHLORTOL	MEAN
FUNGCIDE			
NONE	5.05	5.05	5.05
BENOMYL	5.13	5.49	5.31
MEAN	5.09	5.27	5.18

WEEDKLLR(74)	NONE	CHLORTOL	MEAN
INSCTCDE			
NONE	5.07	5.17	5.12
CHLORFEN	5.10	5.37	5.23
MEAN	5.09	5.27	5.18

WEEDKLLR(74)	NONE	CHLORTOL	MEAN
NEMACIDE			
NONE	4.77	4.94	4.86
ALDICARB	5.40	5.60	5.50
MEAN	5.09	5.27	5.18

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GRAIN TONNES/HECTARE

INSCTCDE	NONE		CHLORFEN	
NEMACIDE	NONE	ALDICARB	NONE	ALDICARB
FUNGCIDE				
NONE	4.70	5.33	4.81	5.35
BENOMYL	5.06	5.38	4.85	5.93

INSCTCDE	NONE		CHLORFEN	
WEEDKLLR(74)	NONE	CHLORTOL	NONE	CHLORTOL
FUNGCIDE				
NONE	5.04	4.99	5.05	5.10
BENOMYL	5.10	5.35	5.15	5.63

NEMACIDE	NONE		ALDICARB	
WEEDKLLR(74)	NONE	CHLORTOL	NONE	CHLORTOL
FUNGCIDE				
NONE	4.72	4.78	5.37	5.31
BENOMYL	4.82	5.09	5.43	5.89

NEMACIDE	NONE		ALDICARB	
WEEDKLLR(74)	NONE	CHLORTOL	NONE	CHLORTOL
INSCTCDE				
NONE	4.86	4.91	5.28	5.43
CHLORFEN	4.69	4.97	5.52	5.76

NEMACIDE		NONE		ALDICARB	
WEEDKLLR(74)		NONE	CHLORTOL	NONE	CHLORTOL
FUNGCIDE	INSCTCDE				
NONE	NONE	4.75	4.65	5.32	5.33
	CHLORFEN	4.69	4.92	5.41	5.28
BENOMYL	NONE	4.96	5.16	5.23	5.53
	CHLORFEN	4.69	5.02	5.62	6.25

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	FUNGCIDE	INSCTCDE	NEMACIDE	WEEDKLLR(74)
SED	0.129	0.135	0.128	0.133

TABLE	FUNGCIDE INSCTCDE	FUNGCIDE NEMACIDE	INSCTCDE NEMACIDE	FUNGCIDE WEEDKLLR(74)
SED	0.185	0.182	0.189	0.186

TABLE	INSCTCDE WEEDKLLR(74)	NEMACIDE WEEDKLLR(74)	FUNGCIDE INSCTCDE NEMACIDE	FUNGCIDE INSCTCDE WEEDKLLR(74)
SED	0.191	0.188	0.261	0.265

TABLE	FUNGCIDE NEMACIDE WEEDKLLR(74)	INSCTCDE NEMACIDE WEEDKLLR(74)	FUNGCIDE INSCTCDE NEMACIDE WEEDKLLR(74)
SED	0.261	0.268	0.372

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/140

GRAIN TONNES/HECTARE

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
WP	15	0.362	7.0

GRAIN MEAN DM% 89.1

PLOT AREA HARVESTED 0.00075

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/144

N AND WEEDKILLER

Object: To study the cumulative effects of two rates of solid and liquid nitrogen in combination with the residual effects of three frequencies of applying weedkiller the year before on weed control and yield of old grass - Bones Close.

Sponsors: A. Penny, F.V. Widdowson.

The second year, old grass.

For previous year see 74/R/CS/144.

Design: 3 randomised blocks of 20 plots.

Whole plot dimensions: 2.13 x 9.14.

Treatments: All combinations of:-

1. Form of nitrogen fertiliser (cumulative on 1974): N FORM

Solid, 'Nitro-Chalk' 25% N.	SOLID
Liquid, urea/ammonium nitrate 26% N.	LIQUID

2. Rate of nitrogen fertiliser per cut (cumulative on 1974) (kg N): N PERCUT

50	50
100	100

3. Frequency of applying weedkiller (2,4-DB + MCPA + benazolin) in 1974 (None in 1975): WEEDKLLR(74)

None	0
For 1st cut	1
For 1st and 2nd cuts	2
For 1st, 2nd and 3rd cuts	3

plus four treatments given no nitrogen fertiliser (NPERCUT(0)) and receiving WEEDKLLR(74) as above.

Basal applications: Manures: (0:14:28) at 500 kg.

Cultivations, etc.:- PK applied: 16 Jan, 1975. N applied: 24 Mar, 17 June, 8 Sept. Cut: 10 June, 2 Sept, 4 Nov.

NOTES: (1) Visual scores of leaf scorch were made within four days of application of treatments.
(2) Samples from each cut were taken for the assessment of proportions of grass and weeds, and of N in each.

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75/R/CS/144

OLD GRASS

1ST CUT (10/6/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

NPERCUT	50	100	MEAN
NFORM			
SOLID	7.18	7.61	7.39
LIQUID	7.02	7.69	7.35
MEAN	7.10	7.65	7.37

WEEDKLLR(74)	0	W1	W2	W3	MEAN
NFORM					
SOLID	7.29	7.48	7.16	7.64	7.39
LIQUID	7.20	7.09	7.60	7.52	7.35
MEAN	7.24	7.28	7.38	7.58	7.37

WEEDKLLR(74)	0	W1	W2	W3	MEAN
NPERCUT					
50	6.95	6.95	7.24	7.25	7.10
100	7.53	7.62	7.52	7.91	7.65
MEAN	7.24	7.28	7.38	7.58	7.37

NPERCUT(0)

WEEDKLLR(74)	0	W1	W2	W3	MEAN
	4.92	4.32	5.17	5.01	4.86

GRAND MEAN 6.87

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	NFORM	NPERCUT	WEEDKLLR(74)	NFORM NPERCUT
SED	0.108	0.108	0.152	0.152

TABLE	NFORM WEEDKLLR(74)	NPERCUT WEEDKLLR(74)	WEEDKLLR(74) NPERCUT(0)
SED	0.216	0.216	0.305

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	38	0.373	5.4

1ST CUT MEAN DM% 22.6

1ST CUT PLOT AREA HARVESTED 0.00111

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75/R/CS/144

OLD GRASS

2ND CUT (3/9/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

NPERCUT NFORM	50	100	MEAN
SOLID	0.93	1.38	1.16
LIQUID	0.72	1.14	0.93
MEAN	0.82	1.26	1.04

WEEDKLLR(74) NFORM	0	W1	W2	W3	MEAN
SOLID	1.16	1.28	1.06	1.12	1.16
LIQUID	1.00	0.95	0.94	0.82	0.93
MEAN	1.08	1.11	1.00	0.97	1.04

WEEDKLLR(74) NPERCUT	0	W1	W2	W3	MEAN
50	0.88	0.89	0.69	0.84	0.82
100	1.28	1.33	1.32	1.10	1.26
MEAN	1.08	1.11	1.00	0.97	1.04

NPERCUT(0)

WEEDKLLR(74)	0	W1	W2	W3	MEAN
	0.42	0.34	0.42	0.44	0.40

GRAND MEAN 0.91

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	NFORM	NPERCUT	WEEDKLLR(74)	NFORM NPERCUT
SED	0.071	0.071	0.100	0.100

TABLE	NFORM WEEDKLLR(74)	NPERCUT WEEDKLLR(74)	WEEDKLLR(74) NPERCUT(0)
SED	0.142	0.142	0.200

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	38	0.245	26.9

2ND CUT MEAN DM% 44.6

2ND CUT PLOT AREA HARVESTED 0.00111

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/144

OLD GRASS

3RD CUT (4/11/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

NPERCUT	50	100	MEAN
NFORM			
SOLID	1.37	1.52	1.44
LIQUID	1.01	1.48	1.25
MEAN	1.19	1.50	1.35

WEEDKLLR(74)	0	W1	W2	W3	MEAN
NFORM					
SOLID	1.42	1.36	1.54	1.45	1.44
LIQUID	1.37	1.29	1.30	1.02	1.25
MEAN	1.40	1.32	1.42	1.24	1.35

WEEDKLLR(74)	0	W1	W2	W3	MEAN
NPERCUT					
50	1.32	1.23	1.06	1.15	1.19
100	1.47	1.41	1.78	1.33	1.50
MEAN	1.40	1.32	1.42	1.24	1.35

NPERCUT(0)

WEEDKLLR(74)	0	W1	W2	W3	MEAN
	0.50	0.22	0.27	0.21	0.30

GRAND MEAN 1.14

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	NFORM	NPERCUT	WEEDKLLR(74)	NFORM NPERCUT
SED	0.062	0.062	0.088	0.088

TABLE	NFORM WEEDKLLR(74)	NPERCUT WEEDKLLR(74)	WEEDKLLR(74) NPERCUT(0)
SED	0.125	0.125	0.177

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	38	0.216	19.1

3RD CUT MEAN DM% 25.7

3RD CUT PLOT AREA HARVESTED 0.00084

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/144

OLD GRASS

TOTAL OF 3 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

NPERCUT NFORM	50	100	MEAN
SOLID	9.48	10.50	9.99
LIQUID	8.75	10.30	9.52
MEAN	9.11	10.40	9.76

WEEDKLLR(74) NFORM	0	W1	W2	W3	MEAN
SOLID	9.87	10.11	9.76	10.22	9.99
LIQUID	9.57	9.32	9.84	9.36	9.52
MEAN	9.72	9.72	9.80	9.79	9.76

WEEDKLLR(74) NPERCUT	0	W1	W2	W3	MEAN
50	9.15	9.07	8.99	9.23	9.11
100	10.29	10.37	10.61	10.34	10.40
MEAN	9.72	9.72	9.80	9.79	9.76

NPERCUT(0)

WEEDKLLR(74)	0	W1	W2	W3	MEAN
	5.84	4.87	5.86	5.66	5.56

GRAND MEAN 8.92

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	NFORM	NPERCUT	WEEDKLLR(74)	NFORM NPERCUT
SED	0.157	0.157	0.222	0.222

TABLE	NFORM WEEDKLLR(74)	NPERCUT WEEDKLLR(74)	WEEDKLLR(74) NPERCUT(0)
SED	0.314	0.314	0.444

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	38	0.543	6.1

TOTAL OF 3 CUTS MEAN DM% 31.0

1ST CUT PLOT AREA HARVESTED 0.00111

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/148

SLOW-RELEASE N

Object: To compare the residual effects of a slow-release form of nitrogen with a conventional form (both applied to potatoes in 1974 at a range of rates), using winter wheat as the test crop - Pastures.

Sponsors: D. Cox, T.M. Addiscott.

The second year, winter wheat.

For previous year see 74/R/CS/148.

Design: 2 randomised blocks of 18 plots split into 2.

Whole plot dimensions: 4.27 x 16.2.

Treatments: All combinations of:-

Whole plots: 1. Form of nitrogen fertiliser 1974: — N FORM(74)

'Gold-N' , sulphur-coated urea	GOLD N
'Nitro-Chalk', ammonium nitrate/calcium carbonate	NITRO C

2. Rates of nitrogen fertiliser 1974 (kg N): — N RATE(74)

None	0
50	50
100	100
150	150
200	200
250	250
300	300
350	350
400	400

Sub-plots: 3. Rates of nitrogen fertiliser 1975 (kg N) applied as 'Nitro-Chalk': — N 75

None	0
30	30
60	60
90	90

Basal applications: Manures: (0:20:20) at 250 kg, combine drilled.

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75/R/CS/148

Seed: Cappelle, dressed with dieldrin, sown at 200 kg.

Cultivations, etc.:- Chisel ploughed twice: 10 Dec, 1974. Power harrowed, seed sown: 19 Dec. N applied: 25 Apr, 1975. Combine harvested: 14 Aug. Previous crops: Beans 1973, potatoes 1974.

NOTE: Samples of grain were taken for N determinations.

GRAIN MEAN DM% 87.2

SUB PLOT AREA HARVESTED 0.00217

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/148

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

N RATE(74)	50	100	150	200	250	300	350	400	MEAN
N FORM(74)									
GOLD N	6.00	6.44	6.25	6.73	7.39	6.95	7.29	7.42	6.81
NITRO C	6.20	6.07	6.43	6.88	6.66	6.46	7.08	7.09	6.61
MEAN	6.10	6.25	6.34	6.80	7.03	6.70	7.19	7.26	6.71

N RATE(74)	0	50	100	150	200	250	300	350	400	MEAN
N 75										
0	4.24	4.86	4.80	5.12	5.73	6.32	5.80	7.25	6.93	5.67
30	5.81	5.61	5.91	6.05	6.78	7.01	6.70	7.10	7.27	6.47
60	6.61	7.03	7.04	7.16	7.32	7.08	7.18	7.38	7.51	7.15
90	7.33	6.90	7.27	7.03	7.38	7.69	7.13	7.01	7.31	7.23
MEAN	6.00	6.10	6.25	6.34	6.80	7.03	6.70	7.19	7.26	6.63

N 75	0	30	60	90	MEAN
N FORM(74)					
NONE	4.24	5.81	6.61	7.33	6.00
GOLD N	6.08	6.62	7.31	7.23	6.81
NITRO C	5.62	6.49	7.11	7.20	6.61
MEAN	5.67	6.47	7.15	7.23	6.63

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N 75	N FORM(74)	N RATE(74)	N FORM(74) N RATE(74)	N FORM(74) N 75	N RATE(74) N 75
SED	0.092	0.094(1) 0.060(2)	0.119	0.146	0.217(1) 0.137(2) 0.275(3)	0.275

EXCEPT WHEN COMPARING MEANS WITH LEVELS 0 & 60 OR 30 & 90 OF N 75
0.102

EXCEPT WHEN COMPARING MEANS WITH SAME LEVELS OF N FORM(74)
AND LEVELS 0 & 60 OR 30 & 90 OF N 75
0.242(1)
0.153(2)
0.307(3)

EXCEPT WHEN COMPARING MEANS WITH SAME LEVELS OF N RATE(74)
AND LEVELS 0 & 60 OR 30 & 90 OF N 75
0.307

(1) NONE V REMAINDER
(2) WITHIN REMAINDER
(3) WITHIN NONE

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	8	0.169	2.5
BLOCK.WP.SP	16	0.307	4.6

https://doi.org/10.23637/ERADOC-1-141 *pp 243*

75/R/CS/149 and 75/W/CS/149

LIQUID FERTILISERS

Object: To study the residual effects of a range of rates and methods of applying liquid fertilisers to potatoes on the yield of winter wheat - Rothamsted (R), Geescroft and Woburn (W) Lansome III.

Sponsors: F.V. Widdowson, A. Penny.

The second year, winter wheat.

For previous year see 75/R&W/CS/149.

Design: Single replicate of 72 plots in 3 blocks of 24 plots.

Whole plot dimensions: Geescroft (R): 4.27 x 15.2. Lansome III (W): 4.27 x 12.2.

Treatments: All combinations of:-

1. Form and method of applying fertiliser in 1974:

	APPLICN(74)
Granules, broadcast over the plough furrow	GB
Liquid fertiliser, sprayed onto the plough furrow	LS
Liquid fertiliser placed in bands on each side of the seed	LP
Liquid fertiliser divided, 2/3 onto the plough furrow, 1/3 placed on each side of the seed	LSP

2. Rate of nitrogen and phosphorus fertiliser in 1974 (kg N and kg P2O5):

	NP RATE(74)
188	N2 P2
282	N3 P3
377	N4 P4

3. Ratio of potassium rate to nitrogen and phosphorus rate in 1974:

	K RATIO(74)
N:P2O5:K2O = 1:1:1	1.0
N:P2O5:K2O = 1:1:1.5	1.5

4. Nitrogen fertiliser in 1975 (kg N):

Rothamsted	Woburn	N 75 (R)	N 75 (W)
None	30	0	30
30	60	30	60
60	90	60	90

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75/R/CS/149 and 75/W/CS/149

Basal applications:-
Geescroft (R): Weedkiller: Ioxynil at 0.52 kg and mecoprop at 1.6 kg in 220 l. Growth regulator: Chlormequat at 1.7 l in 220 l. Fungicide: Benodanil at 1.1 kg in 450 l.
Lansome III (W): Weedkiller: Ioxynil 0.63 kg and mecoprop at 1.9 kg in 280 l. Growth regulator: Chlormequat at 1.7 l in 280 l. Fungicide: Benodanil at 1.1 kg in 390 l.

Seed: Geescroft (R): Maris Templar, sown at 200 kg.
Lansome III (W): Maris Templar, sown at 200 kg.

Cultivations, etc.:-
Geescroft (R): Chisel ploughed twice: 21 Dec, 1974. Rotary harrowed, seed sown, spring-tine cultivated: 31 Dec. N applied: 24 Apr, 1975. Weedkiller applied: 14 May. Growth regulator applied: 21 May. Fungicide applied: 20 June. Combine harvested: 28 Aug.
Lansome III (W): Deep-tine cultivated twice: 31 Oct, 6 Nov, 1974. Spring-tine cultivated three times: 8 Nov, 25 Nov, 26 Nov. Seed sown: 4 Dec. N applied: 16 Apr, 1975. Harrowed: 22 Apr. Weedkiller and growth regulator applied: 9 May. Fungicide applied: 25 June. Combine harvested: 15 Aug.

NOTES: (1) Grain samples were taken for determination of percentage N.
(2) Yields from three plots on W/CS/149 were lost, those with treatment combinations:

APPLICN(74)	NP RATE(74)	K RATIO(74)	N 75
GB	N4 P4	1.0	30
LS	N3 P3	1.5	30
LSP	N4 P4	1.5	90

Estimated values were used in the analysis.

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75/R/CS/149 GEESCROFT(R)

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

NP RATE(74) APPLICN(74)	N2 P2	N3 P3	N4 P4	MEAN
GB	4.11	5.19	5.18	4.83
LS	4.66	5.00	5.44	5.03
LP	4.93	4.84	5.03	4.93
LSP	4.46	5.43	5.28	5.05
MEAN	4.54	5.11	5.23	4.96

K RATIO(74) APPLICN(74)	1.0	1.5	MEAN
GB	4.70	4.96	4.83
LS	4.93	5.14	5.03
LP	4.99	4.87	4.93
LSP	5.00	5.10	5.05
MEAN	4.91	5.02	4.96

K RATIO(74) NP RATE(74)	1.0	1.5	MEAN
N2 P2	4.40	4.68	4.54
N3 P3	4.92	5.31	5.11
N4 P4	5.40	5.07	5.23
MEAN	4.91	5.02	4.96

N 75 APPLICN(74)	0	30	60	MEAN
GB	4.23	5.36	4.89	4.83
LS	4.26	5.21	5.63	5.03
LP	4.12	4.96	5.71	4.93
LSP	4.34	4.94	5.88	5.05
MEAN	4.24	5.12	5.53	4.96

N 75 NP RATE(74)	0	30	60	MEAN
N2 P2	3.65	4.65	5.32	4.54
N3 P3	4.55	5.32	5.47	5.11
N4 P4	4.51	5.39	5.79	5.23
MEAN	4.24	5.12	5.53	4.96

N 75 K RATIO(74)	0	30	60	MEAN
1.0	4.00	5.16	5.55	4.91
1.5	4.47	5.08	5.50	5.02
MEAN	4.24	5.12	5.53	4.96

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/149/GEESECROFT(R)

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

NP RATE(74)	N2 P2		N3 P3		N4 P4	
K RATIO(74)	1.0	1.5	1.0	1.5	1.0	1.5
APPLICN(74)						
GB	4.08	4.15	4.81	5.57	5.20	5.15
LS	4.43	4.89	4.78	5.21	5.57	5.32
LP	4.74	5.12	4.78	4.89	5.45	4.61
LSP	4.37	4.55	5.29	5.57	5.35	5.20

N 75		0	30	60
APPLICN(74)	NP RATE(74)			
GB	N2 P2	3.83	4.65	3.86
	N3 P3	4.75	5.49	5.33
	N4 P4	4.11	5.93	5.49
LS	N2 P2	3.64	4.67	5.67
	N3 P3	4.14	5.20	5.64
	N4 P4	4.99	5.77	5.57
LP	N2 P2	3.80	4.97	6.01
	N3 P3	4.08	5.15	5.29
	N4 P4	4.48	4.76	5.85
LSP	N2 P2	3.33	4.30	5.74
	N3 P3	5.24	5.42	5.62
	N4 P4	4.45	5.11	6.26

K RATIO(74)	1.0			1.5		
N 75	0	30	60	0	30	60
APPLICN(74)						
GB	3.99	5.32	4.78	4.47	5.40	5.00
LS	3.80	5.28	5.70	4.72	5.15	5.55
LP	4.16	5.02	5.80	4.09	4.90	5.63
LSP	4.06	5.03	5.92	4.62	4.86	5.83

K RATIO(74)	1.0			1.5		
N 75	0	30	60	0	30	60
NP RATE(74)						
N2 P2	3.35	4.56	5.30	3.95	4.74	5.35
N3 P3	4.07	5.32	5.36	5.04	5.32	5.58
N4 P4	4.58	5.61	6.00	4.44	5.18	5.59

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75/R/CS/149 GEESECROFT (R)

GRAIN TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	APPLICN(74)	NP RATE(74)	K RATIO(74)	N 75
SED	0.238	0.206	0.168	0.206

TABLE	APPLICN(74) NP RATE(74)	APPLICN(74) K RATIO(74)	NP RATE(74) K RATIO(74)	APPLICN(74) N 75
SED	0.412	0.337	0.292	0.412

TABLE	NP RATE(74) N 75	K RATIO(74) N 75	APPLICN(74) NP RATE(74) K RATIO(74)	APPLICN(74) NP RATE(74) N 75
SED	0.358	0.292	0.583	0.723

TABLE	APPLICN(74) K RATIO(74) N 75	NP RATE(74) K RATIO(74) N 75
SED	0.583	0.508

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
WP	10	0.714	14.4

GRAIN MEAN DM% 87.9

PLOT AREA HARVESTED 0.00434

https://doi.org/10.23637/ERADOC-1-141

75/W/CS/149 LANSOME III(W)

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

NP RATE(74) APPLICN(74)	N2 P2	N3 P3	N4 P4	MEAN
GB	4.43	4.94	5.63	5.00
LS	4.91	5.36	4.95	5.07
LP	4.61	5.23	5.40	5.08
LSP	4.60	5.06	4.94	4.87
MEAN	4.64	5.15	5.23	5.00

K RATIO(74) APPLICN(74)	1.0	1.5	MEAN
GB	5.27	4.73	5.00
LS	4.86	5.29	5.07
LP	5.06	5.10	5.08
LSP	4.94	4.79	4.87
MEAN	5.03	4.98	5.00

K RATIO(74) NP RATE(74)	1.0	1.5	MEAN
N2 P2	4.58	4.69	4.64
N3 P3	5.18	5.11	5.15
N4 P4	5.33	5.13	5.23
MEAN	5.03	4.98	5.00

N 75 APPLICN(74)	30	60	90	MEAN
GB	4.35	5.15	5.50	5.00
LS	4.25	5.50	5.47	5.07
LP	4.04	5.13	6.06	5.08
LSP	4.50	5.01	5.09	4.87
MEAN	4.29	5.20	5.53	5.00

N 75 NP RATE(74)	30	60	90	MEAN
N2 P2	3.54	4.97	5.40	4.64
N3 P3	4.55	5.25	5.64	5.15
N4 P4	4.77	5.38	5.55	5.23
MEAN	4.29	5.20	5.53	5.00

N 75 K RATIO(74)	30	60	90	MEAN
1.0	4.47	5.19	5.43	5.03
1.5	4.10	5.20	5.63	4.98
MEAN	4.29	5.20	5.53	5.00

https://doi.org/10.23637/ERADOC-1-141

75/W/CS/149 LANSOME III (W)

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

NP RATE(74)	N2 P2		N3 P3		N4 P4	
K RATIO(74)	1.0	1.5	1.0	1.5	1.0	1.5
APPLICN(74)						
GB	4.59	4.26	5.34	4.54	5.88	5.38
LS	4.55	5.28	5.31	5.41	4.71	5.18
LP	4.70	4.52	5.10	5.35	5.36	5.44
LSP	4.49	4.71	4.98	5.14	5.35	4.53

	N 75	30	60	90
APPLICN(74)	NP RATE(74)			
GB	N2 P2	3.59	5.03	4.66
	N3 P3	3.85	5.42	5.55
	N4 P4	5.60	5.01	6.29
LS	N2 P2	3.90	5.16	5.67
	N3 P3	4.77	5.57	5.74
	N4 P4	4.08	5.78	4.98
LP	N2 P2	2.90	5.03	5.90
	N3 P3	4.79	5.14	5.75
	N4 P4	4.44	5.21	6.54
LSP	N2 P2	3.78	4.65	5.38
	N3 P3	4.77	4.88	5.53
	N4 P4	4.94	5.50	4.37

K RATIO(74)	1.0			1.5		
N 75	30	60	90	30	60	90
APPLICN(74)						
GB	5.36	5.12	5.34	3.34	5.19	5.66
LS	3.90	5.66	5.01	4.60	5.34	5.93
LP	3.97	4.96	6.24	4.12	5.30	5.89
LSP	4.65	5.04	5.13	4.34	4.98	5.05

K RATIO(74)	1.0			1.5		
N 75	30	60	90	30	60	90
NP RATE(74)						
N2 P2	3.86	4.79	5.10	3.22	5.15	5.70
N3 P3	4.50	5.44	5.61	4.60	5.06	5.67
N4 P4	5.05	5.36	5.57	4.48	5.40	5.52

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75/W/CS/149 LANSOME III (W)

GRAIN TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	APPLICN(74)	NP RATE(74)	K RATIO(74)	N 75
SED	0.284	0.238	0.217	0.231

TABLE	APPLICN(74) NP RATE(74)	APPLICN(74) K RATIO(74)	NP RATE(74) K RATIO(74)	APPLICN(74) N 75
SED	0.487	0.399	0.346	0.576

TABLE	NP RATE(74) N 75	K RATIO(74) N 75	APPLICN(74) NP RATE(74) K RATIO(74)	APPLICN(74) NP RATE(74) N 75
SED	0.524	0.388	0.688	1.042

TABLE	APPLICN(74) K RATIO(74) N 75	NP RATE(74) K RATIO(74) N 75
SED	0.813	0.693

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
WP	7	0.793	15.8

GRAIN MEAN DM% 86.1

PLOT AREA HARVESTED 0.00347

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/155

RAINFALL AND LEACHING

Object: To study the leaching of nitrate nitrogen by a range of winter rainfall rates and to relate leaching and responses to fertiliser nitrogen applied to spring wheat - Long Hoos VI/VII 4.

Sponsors: T.M. Addiscott, D. Cox.

The first year, spring wheat.

Design: 2 blocks of 16 plots, randomisation restricted.

Whole plot dimensions: 2.13 x 2.13.

Treatments: All combinations of:

1. 'Rainfall' (mm), October-February inclusive:

	RAINFALL
177	177
258	258
396	396
484	484

2. Nitrogen fertiliser, applied 16 May (kg N):

	N
None	0
40	40
80	80
120	120

NOTE: Natural rainfall in the period October-February was 396 mm. Smaller rates were achieved by covering and the larger rate by supplementing natural rainfall with irrigation.

Basal applications: Manures: (0:20:20) at 250 kg combine drilled. Weedkiller: Dicamba with mecoprop and MCPA ('Tetralex Plus' at 7.0 l in 340 l).

Seed: Kleiber, sown at 190 kg.

Cultivations, etc.:- Ploughed: 19 Sept, 1974. Power harrowed: 20 Sept. Hand dug: 26 Mar, 1975. Power harrowed and seed sown: 22 Apr. Weedkiller applied: 6 June. Combine harvested: 28 Sept. Previous crops: Fallow 1973 and 1974.

NOTES: (1) Concentrations of nitrate and ammonium ions at two soil depths were determined at monthly intervals, and nitrate concentration at additional levels on 11 March.
(2) N content of grain was determined.
(3) There was evidence of a fertility trend across the site and yields adjusted for this trend are presented.

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75/R/CS/155

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

N RAINFALL	0	40	80	120	MEAN
177	1.51	2.45	2.35	2.68	2.25
258	1.67	2.42	2.79	2.28	2.29
396	1.73	2.03	2.10	2.10	1.99
484	1.70	1.90	2.47	2.13	2.05
MEAN	1.65	2.20	2.42	2.30	2.14

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	RAINFALL	N	RAINFALL N
SED	0.168	0.169	0.330

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	14	0.317	14.8

GRAIN MEAN DM% 87.6

PLOT AREA HARVESTED 0.00035

https://doi.org/10.23637/ERADOC-1-141 *pp 253*

75/R/CS/156

LEATHERJACKET STUDY

Object: To study the effects of birds and rainfall on leatherjacket populations and yield of old grass - Road Piece.

Sponsor: C.A. Edwards.

The first year, old grass.

Design: 2 blocks of 9 plots.

Whole plot dimensions: 2.74 x 3.66.

Treatments:

	TREATMNT
None (5 plots per block)	NONE
Protected from bird attack by wire netting:	
from 29 November, 1974	NET-NOV
from 26 February, 1975	NET-FEB
Larvae added 12 June, 1975	LARVAE
Protected from rain by plastic cover from 29 November, 1974	COVERED

Basal applications: (0:14:28) at 500 kg in winter

Cultivations, etc.:- PK applied: 26 Feb, 1975. Cut: 22 May, 7 Nov.
Cages and plastic covers removed: end September.

NOTE: Soil cores to assess leatherjacket populations were taken on 3 Feb, 16 Apr and 7 July.

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75/R/CS/156

1ST CUT (29/5/75)

*** TABLES OF MEANS ***

DRY MATTER TONNES/HECTARE

TREATMNT	NONE	NET-NOV	NET-FEB	LARVAE	COVERED	MEAN
	3.03	3.44	3.39	3.71	3.53	3.42

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	TREATMENT
SED	0.450(1)
	0.580(2)

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	12	0.580	17.9

MEAN DM% 25.0

2ND CUT (10/11/75)

*** TABLES OF MEANS ***

DRY MATTER TONNES/HECTARE

TREATMENT	NONE	NET-NOV	NET-FEB	LARVAE	COVERED	MEAN
	1.14	1.31	1.71	1.42	0.46	1.21

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	TREATMENT
SED	0.123(1)
	0.159(2)

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	12	0.159	13.5

MEAN DM% 35.0

(1) NONE V. ANY OF REMAINDER
(2) ANY OF REMAINDER

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75/R/CS/156

TOTAL OF 2 CUTS

*** TABLES OF MEANS ***

DRY MATTER TONNES/HECTARE

TREATMENT	NONE	NET-NOV	NET-FEB	LARVAE	COVERED	MEAN
	4.17	4.74	5.10	5.13	3.99	4.63

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	TREATMENT
SED	0.506(1)
	0.653(2)

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	12	0.653	14.8

MEAN DM% 30.0

(1) NONE V. ANY OF REMAINDER
(2) ANY OF REMAINDER

https://doi.org/10.23637/ERADOC-1-141 *pp 256*

75/R/CS/158

RATES AND FORMS OF N

Object: To study the cumulative effects of autumn injection of liquid fertilisers at different rates and spacings on nitrification losses and the yield of old grass - Bones Close.

Sponsors: F.V. Widdowson, J. Ashworth, A. Penny.

The second year, old grass.

For previous year see 74/R/G/1.

Design: 4 randomised blocks of 20 plots.

Whole plot dimensions: 2.44 x 15.2.

Treatments (All cumulative on 1974): All combinations of:-

1. Forms of liquid nitrogen fertiliser:	N FORM L
Aqueous ammonia 25% N	LIQUID AA
Aqueous urea 18% N	LIQUID AU
2. Spacing between injection tines (cm):	SPACING
30	30
60	60
3. Total nitrogen fertiliser applied per annum (kg N):	TOTALN L
250	250
375	375
500	500
plus all combinations of:	
4. Forms of solid nitrogen fertiliser:	N FORM S
'Nitro-Chalk' 25% N	SOLID NC
Prilled urea 46% N	SOLID U
5. Total nitrogen fertiliser applied per annum (kg N):	TOTALN S
250	250
375	375
500	500
	EXTRA
plus two extra plots per block, untreated.	NONE

https://doi.org/10.23637/ERADOC-1-141 *pp 257*

NOTE: Aqueous nitrogen fertilisers were applied in one dressing on 15 Jan, 1975. Solid nitrogen was divided equally and applied on 17 Mar, 17 June, 8 Sept.

Basal applications: Manures: (0:14:28) at 500 kg.

Cultivations, etc.:- PK applied: 16 Jan, 1975. Cut: 9 June, 2 Sept, 3 Nov.

NOTES: (1) N determinations were made on the samples from each cut.
(2) Urea hydrolysis and ammonia nitrification were measured in injected soil profiles.

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/153

GRASS

1ST CUT (9/6/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

SPACING	30	60	MEAN
N FORM L			
LIQUIDAA	8.12	7.75	7.93
LIQUIDAU	8.09	7.89	7.99
MEAN	8.11	7.82	7.96

TOTALN L	250	375	500	MEAN
N FORM L				
LIQUIDAA	8.25	7.75	7.80	7.93
LIQUIDAU	8.02	8.05	7.91	7.99
MEAN	8.14	7.90	7.85	7.96

TOTALN L	250	375	500	MEAN
SPACING				
30	8.37	8.11	7.85	8.11
60	7.91	7.69	7.86	7.82
MEAN	8.14	7.90	7.85	7.96

TOTALN S	250	375	500	MEAN
N FORM S				
SOLIDNC	7.28	7.39	7.03	7.23
SOLIDU	7.13	7.33	7.91	7.46
MEAN	7.20	7.36	7.47	7.34

EXTRA NONE 4.76

GRAND MEAN 7.46

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N FORM L	SPACING	TOTALN L	N FORM S	TOTALN S
SED	0.146	0.146	0.179	0.207	0.253

TABLE	N FORM L SPACING	N FORM L TOTALN L	SPACING TOTALN L	N FORM S TOTALN S
SED	0.207	0.253	0.253	0.358

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	58	0.507	6.8

1ST CUT MEAN DM% 24.2

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75/R/CS/158

GRASS

2ND CUT (2/9/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

SPACING N FORM L	30	60	MEAN
LIQUIDAA	0.78	0.88	0.83
LIQUIDAU	1.08	1.05	1.06
MEAN	0.93	0.96	0.94

TOTALN L N FORM L	250	375	500	MEAN
LIQUIDAA	0.62	0.85	1.02	0.83
LIQUIDAU	0.88	1.11	1.20	1.06
MEAN	0.75	0.98	1.11	0.94

TOTALN L SPACING	250	375	500	MEAN
30	0.69	0.88	1.20	0.93
60	0.80	1.07	1.02	0.96
MEAN	0.75	0.98	1.11	0.94

TOTALN S N FORM S	250	375	500	MEAN
SOLIDNC	1.40	1.25	1.03	1.23
SOLIDU	1.17	0.98	0.99	1.04
MEAN	1.28	1.11	1.01	1.13

EXTRA NONE 0.27

GRAND MEAN 0.93

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N FORM L	SPACING	TOTALN L	N FORM S	TOTALN S
SED	0.071	0.071	0.087	0.100	0.123

TABLE	N FORM L SPACING	N FORM L TOTALN L	SPACING TOTALN L	N FORM S TOTALN S
SED	0.100	0.123	0.123	0.173

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	58	0.245	26.2

2ND CUT MEAN DM% 43.5

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75/R/CS/158

GRASS

3RD CUT (3/11/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

SPACING	30	60	MEAN
N FORM L			
LIQUIDAA	0.22	0.22	0.22
LIQUIDAU	0.24	0.30	0.27
MEAN	0.23	0.26	0.24

TOTALN L	250	375	500	MEAN
N FORM L				
LIQUIDAA	0.15	0.27	0.24	0.22
LIQUIDAU	0.18	0.34	0.28	0.27
MEAN	0.16	0.30	0.26	0.24

TOTALN L	250	375	500	MEAN
SPACING				
30	0.14	0.28	0.27	0.23
60	0.19	0.33	0.25	0.26
MEAN	0.16	0.30	0.26	0.24

TOTALN S	250	375	500	MEAN
N FORM S				
SOLIDNC	0.56	0.41	0.27	0.41
SOLIDU	0.65	0.54	0.41	0.54
MEAN	0.60	0.47	0.34	0.47

EXTRA NONE 0.03

GRAND MEAN 0.29

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N FORM L	SPACING	TOTALN L	N FORM S	TOTALN S
SED	0.031	0.031	0.038	0.044	0.054

TABLE	N FORM L SPACING	N FORM L TOTALN L	SPACING TOTALN L	N FORM S TOTALN S
SED	0.044	0.054	0.054	0.076

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	58	0.107	36.9

3RD CUT MEAN DM% 21.1

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75/R/CS/158

GRASS

TOTAL OF 3 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

SPACING	30	60	MEAN
N FORM L			
LIQUIDAA	9.12	8.84	8.98
LIQUIDAU	9.41	9.23	9.32
MEAN	9.26	9.04	9.15

TOTALN L	250	375	500	MEAN
N FORM L				
LIQUIDAA	9.02	8.87	9.06	8.98
LIQUIDAU	9.08	9.49	9.38	9.32
MEAN	9.05	9.18	9.22	9.15

TOTALN L	250	375	500	MEAN
SPACING				
30	9.20	9.27	9.32	9.26
60	8.90	9.09	9.12	9.04
MEAN	9.05	9.18	9.22	9.15

TOTALN S	250	375	500	MEAN
N FORM S				
SOLIDNC	9.24	9.04	8.34	8.87
SOLIDU	8.94	8.85	9.31	9.03
MEAN	9.09	8.94	8.83	8.95

EXTRA NONE 5.06

GRAND MEAN 8.68

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N FORM L	SPACING	TOTALN L	N FORM S	TOTALN S
SED	0.167	0.167	0.205	0.236	0.289

TABLE	N FORM L SPACING	N FORM L TOTALN L	SPACING TOTALN L	N FORM S TOTALN S
SED	0.236	0.289	0.289	0.409

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	58	0.578	6.7

TOTAL OF 3 CUTS MEAN DM% 29.6

PLOT AREA HARVESTED 0.00111

https://doi.org/10.23637/ERADOC-1-141 *pp 262*

75/W/CS/159

METHODS OF INCORPORATING NEMATICIDE

Object: To study the effects of several methods of incorporating three rates of aldicarb into the soil on the incidence of Heterodera rostochiensis and yield of potatoes - Woburn Butt Close I.

Sponsors: A.G. Whitehead, R.H. Bromilow.

The second year, potatoes.

For previous year see 74/W/P/3.

Design: 4 randomised blocks of 16 plots.

Whole plot dimensions: 2.84 x 11.4.

Treatments (cumulative on 1974): All combinations of:-

1. Rates of aldicarb (kg):

	ALDICARB
2.25	2.25
4.50	4.50
9.00	9.00

2. Methods of incorporation of aldicarb (all applied just before planting):

	METHOD
Applied to surface and then cultivated by 'Roterra' (a rotary cultivator with blades revolving around a vertical axis) to 20 cm depth	S/RR
Half applied to surface and half to 5 cm depth*, then cultivated by 'Roterra' to 20 cm depth	SM/RR
One third applied to surface, one third to 5 cm depth*, one third to 10 cm depth* then cultivated by 'Roterra' to 20 cm depth	SMD/RR
Soil cultivated by 'Roterra' to 20 cm depth, then all aldicarb applied to surface, then rotary cultivated to 10 cm depth	RR/S/RV1
Soil cultivated by 'Roterra' to 20 cm depth, then all aldicarb applied to surface, then rotary cultivated to 20 cm depth	RR/S/RV2
together with one plot not treated with aldicarb, cultivated by 'Roterra' to 20 cm depth	ALDICARB 0.00

* Applied with a specially made applicator.

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Basal applications: Manures: (13:13:20) at 1940 kg. Weedkiller: Linuron at 1.2 kg plus paraquat at 0.28 kg ion in 280 l. Insecticide: Demeton-s-methyl at 0.25 kg in 280 l. Fungicide: Mancozeb at 1.3 kg in 390 l.

Seed: Pentland Crown.

Cultivations, etc.:- Deep-tine cultivated: 7 Jan, 1975. NPK applied: 22 Apr. Spring-tine cultivated: 25 Apr. Treatments applied: 30 Apr. Potatoes planted: 1 May. Weedkiller applied: 22 May. Grubbed: 23 June. Rotary ridged: 24 June. Insecticide applied: 25 June. Fungicide applied: 15 July. Haulm mechanically destroyed: 2 Oct. Sprayed with undiluted BOV at 160 l. Lifted: 16 Oct.

NOTES: (1) Soil samples were taken in spring before treatments were applied and after harvest, for cyst and egg counts of Heterodera rostochiensis.

(2) Because of waterlogging growth was very poor on thirteen plots:

ALDICARB	METHOD
0.00	S/RR
2.25	SM/RR
2.25	RR/S/RV1
4.50	S/RR
4.50	SMD/RR
9.00	S/RR (TWO)
9.00	SM/RR
9.00	SMD/RR (TWO)
9.00	RR/S/RV1
9.00	RM/S/RV2

and no yields were taken from these. Estimated values were used in the analysis.

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75/W/CS/159

POTATOES

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

METHOD ALDICARB	S/RR	SM/RR	SMD/RR	RR/S/RV1	RR/S/RV2	MEAN
2.25	19.9	22.5	16.8	21.4	24.3	21.0
4.50	22.2	21.9	18.3	19.3	19.9	20.3
9.00	17.6	20.4	17.6	24.9	26.4	21.4
MEAN	19.9	21.6	17.6	21.9	23.5	20.9

ALDICARB 0.00 7.7

GRAND MEAN 20.1

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	ALDICARB	METHOD	ALDICARB METHOD
SED	1.36	1.75	3.03

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	32	4.29	21.4

POTATOES

PERCENTAGE WARE 3.81 CM(1.5 IN) RIDDLE

*** TABLES OF MEANS ***

METHOD ALDICARB	S/RR	SM/RR	SMD/RR	RR/S/RV1	RR/S/RV2	MEAN
2.25	88.2	90.2	85.8	85.6	88.7	87.7
4.50	84.7	86.7	86.4	89.4	88.9	87.2
9.00	87.3	86.4	85.3	87.7	87.5	86.9
MEAN	86.7	87.8	85.8	87.6	88.3	87.3

ALDICARB 0.00 83.4

GRAND MEAN 87.0

PLOT AREA HARVESTED 0.00045

https://doi.org/10.23637/ERADOC-1-141 *pp 265*

75/R/CS/162

TIMES OF APPLYING ACARICIDE

Object: To study the effects of applying the acaricide endosulfan, at a range of times, on the incidence of ryegrass mosaic virus and its mite vectors and on the yield of ryegrass - Claycroft

Sponsors: R.W. Gibson, R.T. Plumb.

The first year, ryegrass.

Design: 4 randomised blocks of 18 plots.

Whole plot dimensions: 4.27 x 6.10.

Treatments: All combinations of:-

1. Varieties

	VARIETY
Italian, S.22	S 22
Perennial, S.24	S 24

2. Times of applying acaricide:

	ACA TIME
Never	0
May (None in 1975)	MAY
June (None in 1975)	JUNE
July (29 July)	JULY
August (2 Sept)	AUGUST
September (1 October)	SEPTEMBR
October (30 October)	OCTOBER
May-October (29 July - 30 October)	MAY/OCT
After each cut (One in 1975)	POST CUT

NOTE: Endosulfan was applied at 0.35 kg in 430 l.

Basal applications: Manures: (0:14:28) at 500 kg, 'Nitro-Chalk' at 300 kg. Weedkiller: Paraquat at 0.56 kg ion in 220 l.

Seed: Perennial ryegrass, S.24 sown at 25 kg
Italian ryegrass, S.22 sown at 25 kg.

Cultivations, etc.:- Paraquat applied: 22 Apr, 1975. Cultivated twice, PK and N applied by cultivator drill, and cultivated: 6 May. Power harrowed: 9 May. Seed sown: 16 May. Topped: 16 July and 21 Aug. Cut: 26 Nov. Previous crops: Wheat 1973 and 1974.

NOTES: (1) Mites (Abacarus hystrix) were counted on 2 July, 5 Aug and 18 Nov.
(2) Herbage samples were taken for determination of endosulfan residues.

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75/R/CS/162

1ST AND ONLY CUT (26/11/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

VARIETY ACA TIME	S 22	S 24	MEAN
0	1.78	2.19	1.98
JULY	2.00	2.61	2.30
AUGUST	1.83	2.44	2.14
SEPTEMBR	1.99	2.55	2.27
OCTOBER	1.72	2.42	2.07
MAY/OCT	1.85	2.50	2.17
POST CUT	2.01	2.22	2.11
MEAN	1.88	2.42	2.15

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	ACA TIME	VARIETY	ACA TIME VARIETY
SED	0.152 (1)		0.152 (3)
	0.186 (2)	0.088	0.215 (1)
			0.264 (2)

(1) 0 V ANY OF REMAINDER
(2) ANY OF REMAINDER
(3) 0

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	55	0.373	17.6

1ST CUT MEAN DM% 15.1

1ST CUT PLOT AREA HARVESTED 0.00062

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75/R/CS/166 and 75/W/CS/166

LIQUID FERTILISERS

Object: To study the effects of a range of rates and methods of applying liquid fertilisers on the quality and yield of potatoes - Rothamsted (R), Long Hoos I/II and Woburn (W), Far Field I.

Sponsors: F.V. Widdowson, A. Penny.

The first year, potatoes.

Design: 2 randomised blocks of 32 plots.

Whole plot dimensions: 4.27 x 12.2

Treatments: All combinations of:

1. Form and method of applying fertiliser:

	APPLICN
Granules (13:13:20), broadcast over the plough furrow	GRAN B
Liquid (7:7:10), sprayed on plough furrow	LIQUID S
Liquid, placed in bands on each side of the seed	LIQUID P
Liquid, divided, half on plough furrow, half placed	LIQUID D

2. Rate of nitrogen in NPK fertiliser (kg N):

	N IN NPK
126	126
188	188
251	251
314	314

3. Spacing of tubers within the rows (rows all 71 cm apart) (cm):

	SPACING
30	30 CM
45	45 CM

Basal applications:-
Long Hoos I/II (R): Weedkiller: Linuron at 1.0 kg plus paraquat at 0.42 kg ion in 450 l. Insecticide: Demeton-s-methyl at 0.25 kg in 450 l. Fungicide: Mancozeb at 1.3 kg in 450 l.

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75/R/CS/166 and 75/W/CS/166

Irrigation (mm water):

21 July	76
26 July	51
19 Aug	51
29 Aug	38
Total	216

Far Field I (W): Weedkiller: Linuron at 1.2 kg plus paraquat at 0.28 kg ion in 280 l. Insecticide: Demeton-s-methyl at 0.25 kg in 280 l. Fungicide: Mancozeb 1.3 kg in 390 l.

Seed: Long Hoos I/II (R): King Edward.
Far Field I (W): Pentland Crown.

Cultivations, etc.:-
Long Hoos I/II (R): Ploughed: 7 Jan, 1975. Treatments applied: 2 May. Rotary cultivated: 7 May. Treatments applied, potatoes planted: 9 May. Grubbed: 14 May. Rotary ridged: 22 May. Weedkiller applied: 30 May. Grubbed: 26 June. Insecticide applied: 27 June. Rotary ridged: 7 July. Fungicide applied: 28 July. Haulm mechanically destroyed: 26 Sept. Sprayed with undiluted BCV at 170 l: 1 Oct. Lifted: 10 Oct. Previous crops: Barley 1973, beans 1974.
Far Field I (W): Ploughed: 9-10 Jan, 1975. Deep-tine cultivated: 21 Apr. Spring-tine cultivated: 3 May. Treatments applied, potatoes planted: 5-6 May. Weedkiller applied: 30 May. Grubbed: 23 June. Rotary ridged: 24 June. Insecticide applied: 26 June. Fungicide applied: 16 July. Haulm mechanically destroyed: 29 Sept. Sprayed with undiluted BCV at 160 l: 2 Oct. Lifted: 8-9 Oct. Previous crops: Fallow 1973, beans 1974.

NOTES: (1) Emergence counts were made. Emergence was uneven because of the wet seedbeds.
(2) Leaf and haulm samples were taken in early September for N, P, K and Mg analysis.

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75/R/CS/166 LONG HOOS I/II (R)

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

N IN NPK APPLICN	126	188	251	314	MEAN
GRAN B	36.9	34.2	38.9	38.2	37.0
LIQUID S	33.6	35.5	31.3	34.3	33.7
LIQUID P	31.8	32.9	40.4	34.3	34.9
LIQUID D	31.0	38.3	37.0	37.6	36.0
MEAN	33.3	35.2	36.9	36.1	35.4

SPACING APPLICN	30 CM	45 CM	MEAN
GRAN B	38.8	35.2	37.0
LIQUID S	33.8	33.6	33.7
LIQUID P	35.2	34.5	34.9
LIQUID D	37.0	34.9	36.0
MEAN	36.2	34.6	35.4

SPACING N IN NPK	30 CM	45 CM	MEAN
126	34.7	31.9	33.3
188	36.4	34.1	35.2
251	38.4	35.4	36.9
314	35.2	36.9	36.1
MEAN	36.2	34.6	35.4

APPLICN	SPACING N IN NPK	30 CM	45 CM
GRAN B	126	38.5	35.2
	188	40.0	28.4
	251	41.3	36.5
	314	35.5	40.8
LIQUID S	126	34.1	33.2
	188	34.0	37.1
	251	34.0	28.6
	314	33.2	35.4
LIQUID P	126	33.9	29.7
	188	32.0	33.9
	251	42.6	38.2
	314	32.2	36.4
LIQUID D	126	32.4	29.5
	188	39.7	36.8
	251	35.7	38.2
	314	40.0	35.2

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75/R/CS/166 LONG HOOS I/II (R)

PERCENTAGE WARE 3.81CM (1.5INCH) RIDDLE

*** TABLES OF MEANS ***

N IN NPK	126	188	251	314	MEAN
APPLICN					
GRAN B	69.4	68.8	71.9	68.7	69.7
LIQUID S	66.8	69.8	65.2	70.7	68.1
LIQUID P	70.0	68.3	76.7	78.1	73.3
LIQUID D	70.7	71.3	71.2	68.1	70.3
MEAN	69.2	69.5	71.3	71.4	70.4

SPACING	30 CM	45 CM	MEAN
APPLICN			
GRAN B	69.4	69.9	69.7
LIQUID S	66.9	69.4	68.1
LIQUID P	72.2	74.3	73.3
LIQUID D	67.5	73.2	70.3
MEAN	69.0	71.7	70.4

SPACING	30 CM	45 CM	MEAN
N IN NPK			
126	68.6	69.8	69.2
188	69.5	69.6	69.5
251	69.7	72.9	71.3
314	68.3	74.5	71.4
MEAN	69.0	71.7	70.4

	SPACING	30 CM	45 CM
APPLICN	N IN NPK		
GRAN B	126	68.5	70.2
	188	74.4	63.1
	251	70.9	72.9
	314	63.9	73.6
LIQUID S	126	66.3	67.4
	188	68.4	71.2
	251	65.1	65.3
	314	67.8	73.6
LIQUID P	126	75.5	64.4
	188	65.0	71.7
	251	75.8	77.5
	314	72.6	83.6
LIQUID D	126	64.2	77.2
	188	70.2	72.4
	251	66.7	75.7
	314	68.9	67.4

PLOT AREA HARVESTED 0.00173

https://doi.org/10.23637/ERADOC-1-141

75/W/CS/166 FAR FIELD I (W)

*** TABLES OF MEANS ***

TOTAL TUBERS TONNES/HECTARE

N IN NPK APPLICN	126	188	251	314	MEAN
GRAN B	38.7	40.3	43.7	43.5	41.5
LIQUID S	37.5	40.8	41.7	43.6	40.9
LIQUID P	41.7	43.5	43.9	45.1	43.6
LIQUID D	36.7	45.5	42.8	44.6	42.4
MEAN	38.6	42.5	43.0	44.2	42.1

SPACING APPLICN	30 CM	45 CM	MEAN
GRAN B	43.4	39.7	41.5
LIQUID S	40.1	41.7	40.9
LIQUID P	44.6	42.6	43.6
LIQUID D	43.8	41.0	42.4
MEAN	43.0	41.2	42.1

SPACING N IN NPK	30 CM	45 CM	MEAN
126	40.0	37.3	38.6
188	43.0	42.1	42.5
251	43.4	42.7	43.0
314	45.5	42.9	44.2
MEAN	43.0	41.2	42.1

APPLICN	SPACING N IN NPK	30 CM	45 CM
GRAN B	126	41.2	36.1
	188	42.1	38.4
	251	44.6	42.8
	314	45.5	41.5
LIQUID S	126	36.2	38.7
	188	39.6	42.1
	251	40.5	42.9
	314	44.1	43.0
LIQUID P	126	44.1	39.3
	188	44.6	42.4
	251	43.3	44.6
	314	46.4	43.9
LIQUID D	126	38.5	34.9
	188	45.6	45.3
	251	45.0	40.6
	314	46.1	43.0

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75/W/CS/166 FAR FIELD I (W)

PERCENTAGE WARE 3.81CM (1.5INCH) RIDDLE

*** TABLES OF MEANS ***

N IN NPK / APPLICN	126	188	251	314	MEAN
GRAN B	88.2	89.6	90.0	89.4	89.3
LIQUID S	86.2	88.0	88.4	90.3	88.2
LIQUID P	87.7	89.6	89.5	92.4	89.8
LIQUID D	86.8	89.9	90.2	90.0	89.2
MEAN	87.2	89.3	89.5	90.5	89.1

SPACING / APPLICN	30 CM	45 CM	MEAN
GRAN B	89.0	89.7	89.3
LIQUID S	87.3	89.2	88.2
LIQUID P	88.5	91.1	89.8
LIQUID D	88.4	90.0	89.2
MEAN	88.3	90.0	89.1

SPACING / N IN NPK	30 CM	45 CM	MEAN
126	86.5	88.0	87.2
188	88.5	90.0	89.3
251	88.5	90.5	89.5
314	89.6	91.4	90.5
MEAN	88.3	90.0	89.1

APPLICN	SPACING / N IN NPK	30 CM	45 CM
GRAN B	126	88.2	88.2
	188	89.1	90.1
	251	89.8	90.3
	314	88.6	90.1
LIQUID S	126	86.5	86.0
	188	88.1	87.8
	251	86.0	90.8
	314	88.4	92.1
LIQUID P	126	85.0	90.5
	188	88.8	90.4
	251	87.7	91.4
	314	92.5	92.3
LIQUID D	126	86.1	87.4
	188	88.0	91.7
	251	90.7	89.7
	314	88.9	91.1

PLOT AREA HARVESTED 0.00173

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75/R/CS/166 LONG HOOS I/II (R)

TOTAL TUBERS TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	APPLICN	N IN NPK	SPACING	APPLICN N IN NPK
SED	1.51	1.51	1.07	3.02

TABLE	APPLICN SPACING	N IN NPK SPACING	APPLICN N IN NPK SPACING
SED	2.13	2.13	4.26

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	31	4.26	12.1

75/W/CS/166 FAR FIELD I (W)

TOTAL TUBERS TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	APPLICN	N IN NPK	SPACING	APPLICN N IN NPK
SED	0.75	0.75	0.53	1.50

TABLE	APPLICN SPACING	N IN NPK SPACING	APPLICN N IN NPK SPACING
SED	1.06	1.06	2.12

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	31	2.12	5.0

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75/R/CS/169

ORGANIC MATTER AND RESPONSES TO N

Object: To study the effects of different amounts of organic matter in the soil on the uptake of nitrogen fertiliser by grass - Highfield and Fosters Ley Arable (see also 75/R/RN/1&2).

Sponsors: A.E. Johnston, A. Penny.

The first year, grass.

Design: On each field: 2 blocks of 6 plots for each date of sowing grass.

Whole plot dimensions: 3.50 x 8.23.

Treatments: All combinations of:-

1. Fields:

   Highfield (old grass until 1949)
   Fosters (old arable until 1949)

2. Date of sowing grass:

	SOW DATE
1949	1949
1973 (grass 1949-1963, arable 1964-1972)	1973

3. Nitrogen fertiliser (kg N) per cut:

	N
None (2 plots per block)	0
25	25
50	50
75	75
100	100

Basal applications: Manures: (0:14:28) at 540 kg.

Cultivations, etc.:- PK applied: 15 Jan, 1975. N applied: 25 Apr, 9 June, 11 Aug. Cut: 3 June, 6 Aug, 27 Oct.

https://doi.org/10.23637/ERADOC-1-141 *pp 275*

75/R/CS/169

GRASS

1ST CUT (3/6/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

SOW DATE	1949		1973		MEAN	
	HIGHFIELD	FOSTERS	HIGHFIELD	FOSTERS	HIGHFIELD	FOSTERS
N						
0	4.31	3.23	4.89	4.41	4.60	3.82
25	4.82	3.86	5.88	5.49	5.35	4.68
50	4.95	3.89	6.30	5.47	5.63	4.68
75	5.15	4.48	6.42	5.93	5.79	5.21
100	4.88	4.72	7.09	6.22	5.98	5.47
MEAN	4.74	3.90	5.91	5.32	5.33	4.61

HIGHFIELD ONLY

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N	SOW DATE* N
SED	0.213(1)	0.246(3)
	0.246(2)	0.301(1)
		0.348(2)

NOTE (FOR ALL CUTS)
(1) NO V REMAINDER
(2) REMAINDER
(3) NO ONLY
* WITHIN SAME LEVEL OF SOW DATE ONLY

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP.SP	12	0.348	6.5

FOSTERS ONLY

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N	SOW DATE* N
SED	0.271(1)	0.313(3)
	0.313(2)	0.383(1)
		0.442(2)

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP.SP	12	0.442	9.6

HIGHFIELD 1ST CUT MEAN DM% 21.4

FOSTERS 1ST CUT MEAN DM% 23.8

https://doi.org/10.23637/ERADOC-1-141

75/R/CS/169

GRASS

2ND CUT (6/8/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

SOW DATE	1949		1973		MEAN	
	HIGHFIELD	FOSTERS	HIGHFIELD	FOSTERS	HIGHFIELD	FOSTERS
N						
0	0.70	0.52	0.62	0.22	0.66	0.37
25	1.09	0.81	1.09	0.42	1.09	0.62
50	1.57	1.06	1.31	0.80	1.44	0.93
75	1.46	1.33	1.85	0.77	1.66	1.05
100	1.25	1.89	1.47	1.37	1.36	1.63
MEAN	1.13	1.02	1.16	0.63	1.14	0.83

HIGHFIELD ONLY

***** STANDARD ERRORS OF DIFFFRENCES OF MEANS *****

TABLE	N	SOW DATE* N
SED	0.138(1)	0.160(3)
	0.160(2)	0.195(1)
		0.226(2)

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP.SP	12	0.226	19.7

FOSTERS ONLY

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N	SOW DATE* N
SED	0.195(1)	0.225(3)
	0.225(2)	0.276(1)
		0.318(2)

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP.SP	12	0.318	38.5

HIGHFIELD 2ND CUT MEAN DM% 36.3

FOSTERS 2ND CUT MEAN DM% 38.6

https://doi.org/10.23637/ERADOC-1-141 *pp 277*

75/R/CS/169

GRASS

3RD CUT (27/10/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

SOW DATE	1949		1973		MEAN	
	HIGHFIELD	FOSTERS	HIGHFIELD	FOSTERS	HIGHFIELD	FOSTERS
N						
0	0.19	0.05	0.09	0.03	0.14	0.04
25	0.57	0.23	0.34	0.08	0.45	0.16
50	0.77	0.37	0.45	0.21	0.61	0.29
75	0.92	0.44	0.79	0.25	0.86	0.35
100	0.74	0.32	0.38	0.22	0.56	0.27
MEAN	0.56	0.24	0.36	0.14	0.46	0.19

HIGHFIELD ONLY

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N	SOW DATE* N
SED	0.061(1) 0.071(2)	0.071(3) 0.087(1) 0.100(2)

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP.SP	12	0.100	21.8

FOSTERS ONLY

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N	SOW DATE* N
SED	0.070(1) 0.080(2)	0.080(3) 0.099(1) 0.114(2)

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP.SP	12	0.114	59.6

HIGHFIELD 3RD CUT MEAN DM% 28.1

FOSTERS 3RD CUT MEAN DM% 30.3

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75/R/CS/169

GRASS

TOTAL OF 3 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

SOW DATE N	1949 HIGHFIELD	1949 FOSTERS	1973 HIGHFIELD	1973 FOSTERS	MEAN HIGHFIELD	MEAN FOSTERS
0	5.20	3.80	5.61	4.66	5.40	4.23
25	6.48	4.90	7.31	6.00	6.89	5.45
50	7.29	5.32	8.05	6.48	7.67	5.90
75	7.53	6.25	9.06	6.96	8.30	6.60
100	6.87	6.93	8.94	7.81	7.91	7.37
MEAN	6.43	5.17	7.43	6.09	6.93	5.63

HIGHFIELD ONLY

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N	SOW DATE* N
SED	0.256(1) 0.296(2)	0.296(3) 0.362(1) 0.418(2)

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP.SP	12	0.418	6.0

FOSTERS ONLY

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N	SOW DATE* N
SED	0.428(1) 0.494(2)	0.494(3) 0.605(1) 0.699(2)

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP.SP	12	0.699	12.4

HIGHFIELD TOTAL OF 3 CUTS MEAN DM% 28.6

FOSTERS TOTAL OF 3 CUTS MEAN DM% 30.9

SUB PLOT AREA HARVESTED 0.00075

https://doi.org/10.23637/ERADOC-1-141 *pp 279*

75/S/CS/1

VARIETIES. N AND CCC

Object: To study the effects of nitrogen fertiliser, at a range of rates and times, and chlormequat (CCC) on the yield of two varieties of winter wheat - Saxmundham, Oldershaw's and Garner's plots.

Sponsors: F.V. Widdowson, A.E. Johnston.

The tenth year, winter wheat.

For previous years see 66/C/30(t), 67/C/23(t), 68/C/39, 69-70/S/CS/1, 71/S/CS/1(t), 72/S/CS/1(t) and 73-74/S/CS/1.

Design: A single replicate of 4 x 2 x 2 x 2 in 4 blocks of 4 plots, each split lengthways into 2, plus one additional plot per block. Additionally all the plots are split breadthways into 3.

Whole plot dimensions: 5.49 x 40.2.

Treatments: All combinations of:-

Whole plots (All sown at a seed rate of 170 kg with 13 cm (5 inches) between the rows):

1. Number of previous continuous wheat crops: — PREVCROP

6	6 WHEAT
7	7 WHEAT
8	8 WHEAT
9	9 WHEAT

2. Chlormequat (kg): — CCC

None	0.0
1.7 in 340 l	1.7

Half plots:

3. Times of applying nitrogen fertiliser: — N TIME

Single dressing (5 May)	SINGLE
Divided dressing (Half 23 April, half 15 May)	DIVIDED

4. Varieties: — VARIETY

Cappelle	CAPPELLE
Maris Huntsman	HUNTSMAN

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75/S/CS/1

Pairs of sixth plots: 5. Rates of nitrogen fertiliser in addition to 62 kg N in autumn (28 Oct) (kg N): N RATE

50	50
100	100
150	150

Together with one extra plot per block which had 5 previous wheat crops and was sown with Cappelle at a seed rate of 180 kg with 20 cm (8 inches) between the rows and tested all combinations of: EXTRA

Half plots: 1. Time of applying nitrogen fertiliser: N TIME

23 Apr	APRIL
15 May	MAY

Pairs of sixth plots: 2. Rate of nitrogen fertiliser (kg N): N RATE

50	50
100	100
150	150

NOTE: 62 kg N, 31 kg P2O5, 31 kg K2O was broadcast at drilling as (20:10:10) to all plots except EXTRA. EXTRA plots were to have tested autumn N as in 74/S/CS/1 but bad weather prevented this. A test of early v late spring N was substituted and these plots received a balancing dressing of 31 kg P2O5 and 31 kg K2O as (0:20:20).

Basal applications: Manures: (0:20:20) at 1260 kg applied to stubble before ploughing. Weedkillers: Ioxynil at 0.63 kg with mecoprop at 1.9 kg in 450 l.

Cultivations, etc.:- Basal PK applied: 10 Sept, 1974. Ploughed: 16 Sept. NPK applied to all plots except EXTRA and all seed sown: 28 Oct. Balancing PK applied to EXTRA plots: 22 Apr, 1975. Weedkillers applied: 30 Apr. Chlormequat applied: 15 May. Combine harvested: 19 Aug.

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75/S/CS/1

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

PREVCROP CCC	6 WHEAT	7 WHEAT	8 WHEAT	9 WHEAT	MEAN
0.0	3.81	3.99	3.76	3.84	3.85
1.7	4.35	4.05	4.21	3.75	4.09
MEAN	4.08	4.02	3.99	3.80	3.97

PREVCROP N TIME	6 WHEAT	7 WHEAT	8 WHEAT	9 WHEAT	MEAN
SINGLE	3.99	3.62	3.83	3.65	3.77
DIVIDED	4.17	4.42	4.14	3.95	4.17
MEAN	4.08	4.02	3.99	3.80	3.97

PREVCROP VARIETY	6 WHEAT	7 WHEAT	8 WHEAT	9 WHEAT	MEAN
CAPPELLE	4.12	4.11	4.02	3.67	3.98
HUNTSMAN	4.04	3.94	3.95	3.93	3.97
MEAN	4.08	4.02	3.99	3.80	3.97

PREVCROP N RATE	6 WHEAT	7 WHEAT	8 WHEAT	9 WHEAT	MEAN
50	2.98	3.04	2.69	2.76	2.87
100	3.81	4.24	4.08	3.93	4.02
150	5.45	4.78	5.19	4.70	5.03
MEAN	4.08	4.02	3.99	3.80	3.97

GRAIN MEAN DM% 85.1

PLOT AREA HARVESTED 0.00355

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75/S/CS/1

EXTRA

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

N RATE	50	100	150	MEAN
N TIME				
APRIL	2.80	3.62	4.62	3.68
MAY	2.84	3.62	4.49	3.65
MEAN	2.82	3.62	4.55	3.67

GRAIN MEAN DM% 85.0

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

N RATE	50	100	150	MEAN
N TIME				
APRIL	3.26	4.18	4.55	4.00
MAY	2.72	3.96	4.29	3.65
MEAN	2.99	4.07	4.42	3.83

STRAW MEAN DM% 80.9

PLOT AREA HARVESTED 0.00355

https://doi.org/10.23637/ERADOC-1-141 *pp 283*

75/R/WW/1 and 75/W/WW/1

WINTER WHEAT

VARIETIES, N, CCC AND FUNGICIDE

Object: To study the yields and flour quality of a selection of the newer varieties of winter wheat and the effects of nitrogen, chlormequat and fungicides on land in rotation (pathogen free) and after several cereals (pathogen infected) - Rothamsted (R) Pastures (pathogen free) and Great Harpenden I (pathogen infected) and Woburn (W) Lansome III (pathogen free).

Sponsor: R. Moffitt, J.F. Jenkyn, D.B. Slope.

Design: 4 randomised blocks of 8 plots split into 4 with confounding.

Whole plot dimensions: 4.27 x 27.1.

Treatments: All combinations of:-

Whole plots: 1. Varieties:

	VARIETY
Atou	AT
Bouquet	BC
Cappelle	CA
Flinor	FL
Maris Freeman	FR
Maris Fundin	FU
Maris Huntsman	HU
Maris Templar	TE

Sub plots: 2. Nitrogen fertiliser (kg N):

Pastures (RH)	Gt.Harpenden I (RD) and Lansome III (WH)	N (RH)	N (RD & WH)
None	63 in spring	0	63
63 in spring	126 in spring	63	126
126 in spring	189 in spring	126	189
63 in spring + 63 at flowering	126 in spring + 63 at flowering	63+63	126+63

3. Chlormequat (kg):

	CCC
None	0.0
1.7	1.7

4. Fungicide in early May:

	FUNGCIDE(1)
None	NONE
Carbendazim	CARBENDA

5. Fungicides at flowering:

	FUNGCIDE(2)
None	NONE
Carbendazim + tridemorphe	CARB/TRI

NOTE: Treatment 4 was not applied on Lansome III (W).

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75/R/WW/1 and 75/W/WW/1

Basal applications:

Manures:

Pastures (RH), and Great Harpenden I (RD): (0:20:20) at 310 kg, combine drilled.

Lansome III (WH): (0:20:20) at 290 kg, combine drilled.

Weedkillers:

Pastures (RH): Mecoprop at 1.7 kg plus bromoxynil at 0.14 kg with ioxynil at 0.21 kg and dichlorprop at 0.42 kg in 220 l.

Great Harpenden I (RD): MCPA, mecoprop and dicamba ('Banlene Plus' at 5.6 kg in 220 l).

Lansome III (WH): Ioxynil at 0.63 kg with mecoprop at 1.9 kg in 280 l.

Seed: Sown at 200 kg.

Cultivations, etc.:-

Great Harpenden I (RD): Ploughed: 22 Oct, 1974. Rotary harrowed: 5 Dec. Seed sown: 6 Dec. N applied: 18 Apr, 1975. Weedkiller applied: 12 May. Fungicide applied: 15 May. Chlormequat applied: 20 May. Late N, and fungicides applied: 18 June. Combine harvested: 19 Aug. Previous crops: Barley 1973, winter wheat 1974.

Pastures (RH): Chisel ploughed twice: 9-10 Dec, 1974. Rotary cultivated, seed sown: 20 Dec. N applied: 18 Apr, 1975. Weedkiller applied: 9 May. Fungicide applied: 15 May. Chlormequat applied: 20 May. Late N, and fungicides applied: 18 June. Combine harvested: 15 Aug. Previous crops: Beans 1973, potatoes 1974.

Lansome III (WH): Deep-tine cultivated twice: 31 Oct, 6 Nov, 1974. Spring-tine cultivated twice: 8 Nov, 25 Nov. Seed sown: 26 Nov. N applied: 11 Apr, 1975. Weedkiller applied: 9 May. Chlormequat applied: 22 May. Late N applied: 23 June. Fungicides applied: 1 July. Combine harvested: 15 Aug. Previous crops: Beans 1973, potatoes 1974.

NOTES: (1) Pastures (RH): Samples were taken for assessments of foliar diseases.
(2) Great Harpenden I (RD): Samples were taken for estimates of eyespot (Cercosporella herpotrichoides) and take-all (Gaeumannomyces graminis).
(3) Grain samples were taken from all sites at harvest for assessments of flour quality.

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75/R/WW/1 PASTURES (RH) PATHOGEN FREE

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

VARIETY N	AT	BO	CA	FL	FR	FU	HU	TE	MEAN
0	5.57	5.36	5.03	4.94	6.15	4.90	5.76	5.32	5.38
63	7.42	7.38	7.16	6.84	7.27	7.01	7.68	7.74	7.31
126	8.01	7.88	7.58	7.69	8.01	7.77	8.10	8.11	7.89
63+63	8.34	8.14	7.95	7.62	7.73	8.22	7.89	8.36	8.03
MEAN	7.33	7.19	6.93	6.78	7.29	6.97	7.36	7.38	7.15

VARIETY CCC	AT	BO	CA	FL	FR	FU	HU	TE	MEAN
0.0	7.09	7.08	6.79	6.46	7.51	6.86	7.23	7.54	7.07
1.7	7.58	7.30	7.07	7.10	7.08	7.09	7.48	7.22	7.24
MEAN	7.33	7.19	6.93	6.78	7.29	6.97	7.36	7.38	7.15

VARIETY FUNGCIDE(1)	AT	BO	CA	FL	FR	FU	HU	TE	MEAN
NONE	7.39	7.04	7.03	6.50	7.30	6.87	7.45	7.37	7.12
CARBENDA	7.28	7.34	6.82	7.05	7.29	7.07	7.27	7.39	7.19
MEAN	7.33	7.19	6.93	6.78	7.29	6.97	7.36	7.38	7.15

VARIETY FUNGCIDE(2)	AT	BO	CA	FL	FR	FU	HU	TE	MEAN
NONE	7.33	7.16	6.86	6.66	6.85	6.97	7.39	7.17	7.05
CARB/TRI	7.34	7.22	6.99	6.89	7.73	6.98	7.33	7.59	7.26
MEAN	7.33	7.19	6.93	6.78	7.29	6.97	7.36	7.38	7.15

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N	CCC	FUNGCIDE(1)	FUNGCIDE(2)
SED	0.148	0.105	0.105	0.105

TABLE	VARIETY	N VARIETY
SED	0.168	0.400
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:		
VARIETY		0.419

TABLE	CCC VARIETY	FUNGCIDE(1) VARIETY	FUNGCIDE(2) VARIETY
SED	0.268	0.268	0.268
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
VARIETY	0.297	0.297	0.297

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75/R/WW/1 GT HARPENDEN I (RD) PATHOGEN INFECTED

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

VARIETY N	AT	BO	CA	FL	FR	FU	HU	TE	MEAN
63	5.01	5.30	4.39	3.83	4.76	3.92	4.63	4.99	4.60
126	6.36	6.07	5.77	5.35	5.83	6.20	6.01	6.59	6.02
189	5.72	5.70	5.50	6.12	5.67	6.02	6.40	6.50	5.95
126+63	6.28	5.94	5.78	6.19	6.62	5.53	6.25	6.94	6.19
MEAN	5.84	5.75	5.36	5.37	5.72	5.42	5.82	6.26	5.69

VARIETY CCC	AT	BO	CA	FL	FR	FU	HU	TE	MEAN
0.0	6.22	5.71	5.27	5.42	5.87	5.63	5.79	6.20	5.76
1.7	5.46	5.80	5.45	5.33	5.57	5.21	5.85	6.32	5.62
MEAN	5.84	5.75	5.36	5.37	5.72	5.42	5.82	6.26	5.69

VARIETY FUNGCIDE(1)	AT	BO	CA	FL	FR	FU	HU	TE	MEAN
NONE	5.79	5.70	5.45	5.36	5.95	5.13	5.89	6.13	5.67
CARBENDA	5.89	5.81	5.27	5.39	5.49	5.70	5.75	6.38	5.71
MEAN	5.84	5.75	5.36	5.37	5.72	5.42	5.82	6.26	5.69

VARIETY FUNGCIDE(2)	AT	BO	CA	FL	FR	FU	HU	TE	MEAN
NONE	5.64	5.88	5.23	5.41	5.67	5.48	5.88	6.24	5.68
CARB/TRI	6.04	5.63	5.49	5.34	5.77	5.35	5.76	6.28	5.71
MEAN	5.84	5.75	5.36	5.37	5.72	5.42	5.82	6.26	5.69

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N	CCC	FUNGCIDE(1)	FUNGCIDE(2)
SED	0.140	0.099	0.099	0.099

TABLE	VARIETY	N VARIETY
SED	0.217	0.406
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:		
VARIETY		0.396

TABLE	CCC VARIETY	FUNGCIDE(1) VARIETY	FUNGCIDE(2) VARIETY
SED	0.294	0.294	0.294
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
VARIETY	0.280	0.280	0.280

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75/W/WW/1 LANSOME III (W) PATHOGEN FREE

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

VARIETY N	AT	BO	CA	FL	FR	FU	HU	TE	MEAN
63	3.37	3.71	3.60	3.26	3.69	2.66	3.34	3.95	3.45
126	3.82	4.42	4.06	4.33	4.68	3.19	4.11	4.33	4.12
189	4.16	4.19	4.01	4.59	3.86	3.25	3.86	4.33	4.03
126+63	4.14	4.34	4.11	4.44	4.06	2.78	4.05	4.56	4.06
MEAN	3.87	4.17	3.95	4.16	4.07	2.97	3.84	4.29	3.91

VARIETY CCC	AT	BO	CA	FL	FR	FU	HU	TE	MEAN
0.0	3.90	4.08	3.96	4.21	4.16	3.22	3.68	4.44	3.96
0.7	3.84	4.26	3.93	4.10	3.99	2.71	4.00	4.15	3.87
MEAN	3.87	4.17	3.95	4.16	4.07	2.97	3.84	4.29	3.91

VARIETY FUNGCIDE(2)	AT	BO	CA	FL	FR	FU	HU	TE	MEAN
NONE	4.05	4.13	3.75	3.94	4.04	2.98	3.86	4.03	3.85
CARB/TRI	3.69	4.20	4.14	4.37	4.11	2.96	3.82	4.56	3.98
MEAN	3.87	4.17	3.95	4.16	4.07	2.97	3.84	4.29	3.91

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N	CCC FUNGCIDE(2)	VARIETY
SED	0.100	0.071	0.071	0.334

TABLE	N VARIETY	CCC VARIETY	FUNGCIDE(2) VARIETY
SED	0.414	0.362	0.362

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:

VARIETY	0.283	0.200	0.200

https://doi.org/10.23637/ERADOC-1-141

75/R/WW/1 PASTURES (RH) PATHOGEN FREE

GRAIN TONNES/HECTARE

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	17	0.237	3.3
BLOCK.WP.SP	40	0.593	8.3

GRAIN MEAN DM% 86.0

SUB PLOT AREA HARVESTED 0.00173

75/R/WW/1 GT HARPENDEN I (RD) PATHOGEN INFECTED

GRAIN TONNES/HECTARE

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	17	0.306	5.4
BLOCK.WP.SP	40	0.561	9.8

GRAIN MEAN DM% 88.4

SUB PLOT AREA HARVESTED 0.00001

75/W/WW/1 LANSOME III (W) PATHOGEN FREE

GRAIN TONNES/HECTARE

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	6	0.472	12.1
BLOCK.WP.SP	14	0.401	10.2

GRAIN MEAN DM% 86.1

SUB PLOT AREA HARVESTED 0.00173

https://doi.org/10.23637/ERADOC-1-141 *pp 289*

75/R/WW/2

WINTER WHEAT

FOLIAR DISEASES

Object: To study the effects of different amounts of infected straw, seed infection and seed dressing on incidence of Septoria and yield of winter wheat - Pastures.

Sponsors: J.F. Jenkyn, J. King (M.A.F.F.).

Design: 2 randomised blocks of 12 plots.

Whole plot dimensions: 4.27 x 9.14.

Treatments: All combinations of:-

1. Rate of applying straw, infected with Septoria, to seedbed: — STRAW RT

None	NONE
Little (66 kg/ha)	LITTLE
Much (584 kg/ha)	MUCH

2. Seed infection with Septoria: — SEED INF

None	NONE
Infected	INFECTED

3. Seed dressing: — SEED DRS

None	NONE
Fungicide (Mercury as, 'Agrosan GN', at 2.2 g/kg of seed)	FUNGCIDE

Basal applications: Manures: (0:20:20) at 250 kg combine drilled. 'Nitro-Chalk' at 240 kg. Weedkillers: Mecoprop ('Compitox Extra' at 2.8 l) plus bromoxynil with ioxynil ('Oxytril CM' at 1.4 l) in 220 l. Growth regulator: Chlormequat ('Cycocel' at 4.2 l in 340 l). Irrigation: 5 mm applied on each of 7 occasions.

Seed: Cappelle, sown at 200 kg.

Cultivations, etc.:- Chisel ploughed twice: 9 Dec, 1974. Spring-tine cultivated, straw applied and all plots rotary cultivated: 10 Dec. Seed sown and cultivated in: 18 Dec. N applied: 5 Apr, 1975. Weedkiller applied: 9 May. Growth regulator applied: 20 May. Water applied: 25, 26 and 28 June, 5, 12, 19 and 26 July. Combine harvested: 13 Aug. Previous crops: Beans 1973, potatoes 1974.

NOTE: Septoria was assessed on the seedlings and again on 16 and 28 July.

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75/R/WW/2

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

SEED INF	NONE	INFECTED	MEAN
STRAW RT			
NONE	7.12	6.85	6.98
LITTLE	6.69	6.95	6.82
MUCH	6.32	6.71	6.51
MEAN	6.71	6.83	6.77

SEED DRS	NONE	FUNGCIDE	MEAN
STRAW RT			
NONE	6.48	7.49	6.98
LITTLE	6.63	7.01	6.82
MUCH	6.16	6.86	6.51
MEAN	6.43	7.12	6.77

SEED DRS	NONE	FUNGCIDE	MEAN
SEED INF			
NONE	6.38	7.05	6.71
INFECTED	6.47	7.20	6.83
MEAN	6.43	7.12	6.77

SEED INF	NONE		INFECTED	
SEED DRS	NONE	FUNGCIDE	NONE	FUNGCIDE
STRAW RT				
NONE	6.72	7.52	6.25	7.45
LITTLE	6.58	6.80	6.68	7.22
MUCH	5.83	6.82	6.50	6.91

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	STRAW RT	SEED INF	SEED DRS	STRAW RT SEED INF
SED	0.165	0.134	0.134	0.233

TABLE	STRAW RT SEED DRS	SEED INF SEED DRS	STRAW RT SEED INF SEED DRS
SED	0.233	0.190	0.329

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	11	0.329	4.9

GRAIN MEAN DM% 86.4

PLOT AREA HARVESTED 0.00260

https://doi.org/10.23637/ERADOC-1-141

75/R/WW/3

WINTER WHEAT

SEED DRESSINGS AND SEPTORIA

Object: To study the importance and efficiency of organo-mercury and non-mercury seed dressings against certain pathogens, particularly Septoria seedling blight. Also to study the importance of seedling infections in the epidemiology of the disease - Pastures.

Sponsor: G.L. Bateman.

Design: 2 blocks of 15 plots.

Whole plot dimensions: 2.41 x 11.6.

Treatments: Seed dressings, to seed infected with Septoria (per kg seed):

	SEEDRESS
None (3 plots per block)	0
Phenyl mercury acetate at 1 mg Hg) (2 plots	PMA 1
Phenyl mercury acetate at 5 mg Hg) each per	PMA 5
Phenyl mercury acetate at 25 mg Hg) block)	PMA 25
Carboxin at 4.5 g (a.i.)	CARBOXIN
Guazatine at 0.8 g (a.i.)	GUAZATIN
Guazatine at 0.6 g + maneb at 0.6 g (a.i.)	GUAZ/MAN
Maneb at 3.2 g (a.i.)	MANEB
Quinacetol sulphate at 0.27 g + maneb at 0.45 g (a.i.)	QUIN/MAN
Thiabendazole at 2.4 g (a.i.)	THIABEND

Basal applications: Manures: 'Nitro-Chalk' at 380 kg.

Seed: Chalk, sown at 200 kg.

Cultivations, etc.:- Chisel ploughed twice: 9 Dec, 1974. Rotary harrowed: 19 Dec. Seed sown: 20 Dec. N applied: 21 Apr, 1975. Combine harvested: 18 Aug. Previous crops: Beans 1973, potatoes 1974.

NOTE: Counts were made of seedling emergence. Assessments were made of seedlings infected by Septoria, and on one occasion of leaf infection by Septoria, mildew and eyespot.

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75/R/WW/3

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

SEEDRESS	
0	7.27
PMA 1	7.40
PMA 5	7.25
PMA 25	7.08
CARBOXIN	7.16
GUAZATIN	7.01
GUAZ/MAN	7.11
MANEB	7.08
QUIN/MAN	7.30
THIABEND	7.36
MEAN	7.22

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	SEEDRESS
SED	0.175 (1)
	0.222 (2)
	0.192 (3)
	0.235 (4)
	0.272 (5)

(1) 0 V ANY OF PMA
(2) 0 V ANY OF REMAINDER (EXCLUDING 0 AND PMA)
(3) PMA
(4) PMA V ANY OF REMAINDER
(5) ANY OF REMAINDER

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OFF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	19	0.272	3.8

GRAIN MEAN DM% 85.0

PLOT AREA HARVESTED 0.00126

https://doi.org/10.23637/ERADOC-1-141 *pp 293*

75/R/WW/4

WINTER AND SPRING WHEAT

SOWING DATES AND INSECTICIDES

Object: To study the effects of dates of sowing and times of applying insecticides on the incidence of cereal aphids, barley yellow dwarf virus (BYDV) and yield of winter wheat - Whittlocks.

Sponsor: R.T. Plumb.

Design: 4 randomised blocks of 12 plots.

Whole plot dimensions: 6.40 x 24.4.

Treatments: All combinations of:-

1. Dates of sowing:	SOW DATE
8 November 1974	8 NOV
5 December 1974	5 DEC
27 February 1975	27 FEB
2. Phorate granules to seedbed:	INSCTCDE(1)
None	NONE
Phorate at 5 kg	PHORATE
3. Menazon spray:	INSCTCDE(2)
None	NONE
Menazon (0.7 l 'Saphi-Col' in 450 l on 13 June 1975)	MENAZON

NOTE: It was intended to sow winter wheat in September, October and November, but because of poor weather, only two autumn sowings were possible and the third series of plots were sown with spring wheat on 27 February.

Seed: Winter wheat: Cappelle, sown at 200 kg.
Spring wheat: Kleiber, sown at 200 kg.

Basal applications: Manures: (10:24:24) at 250 kg, 'Nitro-Chalk' at 500 kg.

Cultivations, etc.:- Ploughed: 25 Sept to 9 Oct, 1974. Spring-tine cultivated twice: 7 Nov. Phorate applied, plots rotary cultivated, seed sown: 8 Nov. Phorate applied and plots power harrowed, seed sown: 5 Dec. Phorate applied, plots power harrowed, seed sown: 27 Feb, 1975. N applied to all plots: 20 Apr. Combine harvested: November and December sowing: 14 Aug, February sowing: 28 Aug. Previous crops: Barley 1973, Oats 1974.

NOTE: Aphid counts were made on 24 Apr, 22 May, 11 June, 4, 10 and 21 July, virus counts on 26 June and 4 July. Ear weights and grain numbers prior to harvest and 1,000 grain weights were determined.

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75/R/WW/4

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

INSCTCDE(1)	NONE	PHORATE	MEAN
SOW DATE			
8 NOV	5.90	5.99	5.94
5 DEC	5.59	5.74	5.66
27 FEB	3.78	4.27	4.02
MEAN	5.09	5.33	5.21

INSCTCDE(2)	NONE	MENAZON	MEAN
SOW DATE			
8 NOV	5.98	5.91	5.94
5 DEC	5.60	5.73	5.66
27 FEB	4.01	4.03	4.02
MEAN	5.20	5.22	5.21

INSCTCDE(2)	NONE	MENAZON	MEAN
INSCTCDE(1)			
NONE	5.01	5.17	5.09
PHORATE	5.39	5.28	5.33
MEAN	5.20	5.22	5.21

INSCTCDE(1)	NONE		PHORATE	
INSCTCDE(2)	NONE	MENAZON	NONE	MENAZON
SOW DATE				
8 NOV	5.94	5.86	6.02	5.96
5 DEC	5.47	5.72	5.74	5.74
27 FEB	3.61	3.94	4.41	4.13

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	SOW DATE	INSCTCDE(1)	INSCTCDE(2)	SOW DATE INSCTCDE(1)
SED	0.145	0.118	0.118	0.205

TABLE	SOW DATE INSCTCDE(2)	INSCTCDE(1) INSCTCDE(2)	SOW DATE INSCTCDE(1) INSCTCDE(2)
SED	0.205	0.167	0.290

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	33	0.410	7.9

GRAIN MEAN DM% 87.3

PLOT AREA HARVESTED 0.00390

https://doi.org/10.23637/ERADOC-1-141

75/R/WW/5

WINTER WHEAT

RATES AND TIMES OF N AND VARIETIES

Object: To study the physiological basis of the response of three varieties of wheat to a wide range of nitrogen levels - Long Hoos IV 6.

Sponsor: G.N. Thorne.

Design: 2 blocks of 24 plots.

Whole plot dimensions: 1.65 x 9.76.

Treatments: All combinations of:-

1. Varieties:

	VARIETY
Cappelle	CAPPELLE
Maris Fundin	FUNDIN
Maris Huntsman	HUNTSMAN

2. Nitrogen fertiliser, as 'Nitro-Chalk' (kg N):

	N
None	0
30	30
60	60
90	90
120	120
150	150
180	180
210	210

Basal applications: Manures: (0:14:28) at 820 kg. Fungicide: Tridemorph at 0.53 kg in 340 l. Iodine-benzanilide ('BASF 3170F' at 2.2 kg in 340 l).

Seed: Sown at 200 kg.

Cultivations, etc.:- Ploughed: 25 Sept, 1974. PK applied: 1 Oct. Spring-tine cultivated: 14 Oct. Power harrowed and seed sown: 6 Nov. 'Nitro-Chalk' applied: 18 Apr, 1975. Tridemorph applied: 13 June. Iodine-benzanilide applied: 16 June. Harvested by hand: 7 Aug. Previous crops: Maize 1973, oats 1974.

NOTE: Plant counts were made after germination and shoot counts throughout the season. Dry weight and leaf areas were determined on six occasions between 19 June and 7 Aug. Soil moisture was measured from April to August. Light penetration of the canopy was measured in July. Rates of photosynthesis and translocation were measured twice in June and once in July. Respiration of shoots and ears was measured at the end of June.

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75/R/WW/5

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

N / VARIETY	0	30	60	90	120	150	180	210	MEAN
CAPPELLE	3.58	4.20	4.75	5.82	6.11	6.76	6.16	6.46	5.48
FUNDIN	3.13	4.58	5.59	5.90	6.40	7.59	7.88	6.85	5.99
HUNTSMAN	3.42	4.04	5.40	6.40	6.61	6.97	6.60	7.01	5.81
MEAN	3.38	4.27	5.24	6.04	6.37	7.11	6.88	6.77	5.76

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	VARIETY	N	VARIETY N
SED	0.122	0.199	0.345

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	23	0.345	6.0

GRAIN MEAN DM% 89.8

PLOT AREA HARVESTED 0.00023

https://doi.org/10.23637/ERADOC-1-141

75/R/WW/6

WINTER WHEAT

RATES AND TIMES OF N AND K

Object: To study the effects of a range of rates and times of applying nitrogen and potassium on the yield of wheat - Long Hoos III.

Sponsors: O. Talibudeen, A. Penny, M.B. Page.

Design: 2 randomised blocks of 2 plots split into 30.

Whole plot dimensions: 2.67 x 2.74.

Treatments: All combinations of:-

Whole plots: 1. Potassium — POTASH

None	-
Potassium nitrate added to urea treatments (growth stages 6,10,11.1) to give a K:N ratio of 1:10.	K

Sub plots: 2. Nitrogen rates and times (applied as 'Nitro-Chalk' at growth stage 2, as a 5% urea solution to later growth stages) kg N: — N

Growth stage 2 Early tillering		6 Early stem extension		10 In boot		11.1 Grain filling	
30	+	30	+	0	+	0	11--
30	+	30	+	0	+	30	11-1
30	+	30	+	0	+	60	11-2
30	+	30	+	30	+	0	111-
30	+	30	+	30	+	30	1111
30	+	30	+	60	+	0	112-
30	+	90	+	0	+	0	13--
30	+	90	+	0	+	30	13-1
30	+	90	+	0	+	60	13-2
30	+	90	+	30	+	0	131-
30	+	90	+	30	+	30	1311
30	+	90	+	60	+	0	132-
90	+	30	+	0	+	0	31--
90	+	30	+	0	+	30	31-1
90	+	30	+	0	+	60	31-2
90	+	30	+	30	+	0	311-
90	+	30	+	30	+	30	3111
90	+	30	+	60	+	0	312-
90	+	90	+	0	+	0	33--
90	+	90	+	0	+	30	33-1
90	+	90	+	0	+	60	33-2
90	+	90	+	30	+	0	331-
90	+	90	+	30	+	30	3311
90	+	90	+	60	+	0	332-

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plus six extra sub plots per whole plot not given POTASH but given N:

							EXTRA
0	+	0	+	0	+	0	----
30	+	0	+	0	+	0	1---
60	+	0	+	0	+	0	2---
90	+	0	+	0	+	0	3---
120	+	0	+	0	+	0	4---
180	+	0	+	0	+	0	6---

NOTE: 'Nitro-Chalk' applied: 21 Apr. Urea and potassium nitrate applied: 21 May (stage 6), 18 June (stage 10), 16 July (stage 11.1).

Basal applications: Manures: (0:20:20) at 310 kg. Weedkillers: Ioxynil with mecoprop ('Actril C' at 5.6 l in 280 l).

Seed: Cappelle, sown at 200 kg.

Cultivations, etc.:- Ploughed: 18 Oct, 1974. Rotary cultivated: 28 Nov. Seed sown: 29 Nov. Weedkiller applied: 22 May, 1975. Cut by hand: 18 Aug. Previous crops: Fallow 1973, winter oats 1974.

NOTE: Samples of grain and straw were taken at harvest for N determinations.

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75/R/WW/6

WINTER WHEAT

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

POTASH	-	K	MEAN
N			
11--	3.46	3.58	3.52
11-1	3.58	3.78	3.68
11-2	3.27	3.56	3.42
111-	3.89	3.51	3.70
1111	3.87	3.75	3.81
112-	3.93	3.74	3.83
13--	3.79	3.99	3.89
13-1	4.25	4.10	4.17
13-2	4.08	4.30	4.19
131-	4.24	4.22	4.23
1311	4.36	4.33	4.34
132-	4.27	4.36	4.31
31--	4.74	4.90	4.82
31-1	5.21	5.02	5.12
31-2	5.21	5.29	5.25
311-	5.09	4.93	5.01
3111	5.16	5.09	5.12
312-	5.04	5.55	5.29
33--	4.87	5.43	5.15
33-1	5.23	5.42	5.33
33-2	5.60	5.51	5.55
331-	5.23	5.65	5.44
3311	5.35	5.27	5.31
332-	5.79	5.41	5.60
MEAN	4.56	4.61	4.59

NO POTASH APPLIED

N	----	1---	2---	3---	4---	6---	MEAN
	1.90	3.26	4.12	4.83	5.32	5.47	4.15

GRAND MEAN 4.50

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N	POTASH* N
SED	0.222	0.314

*WITHIN THE SAME LEVEL OF POTASH ONLY

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP.SP	63	0.314	7.0

GRAIN MEAN DM% 86.1

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75/R/WW/6

WINTER WHEAT

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

POTASH N	-	K	MEAN
11--	4.38	4.78	4.58
11-1	4.61	4.70	4.66
11-2	4.21	4.50	4.36
111-	4.89	4.34	4.61
1111	4.82	4.64	4.73
112-	4.52	4.54	4.53
13--	4.70	4.84	4.77
13-1	4.51	4.86	4.69
13-2	5.25	4.95	5.10
131-	5.04	5.19	5.12
1311	4.85	5.30	5.08
132-	5.12	5.32	5.22
31--	6.08	6.32	6.20
31-1	6.70	6.36	6.53
31-2	6.70	6.92	6.81
311-	6.58	6.39	6.49
3111	6.69	6.67	6.68
312-	6.94	7.07	7.00
33--	6.16	6.92	6.54
33-1	6.78	7.19	6.99
33-2	7.26	6.93	7.10
331-	6.24	6.95	6.59
3311	6.56	6.64	6.60
332-	7.37	6.90	7.13
MEAN	5.71	5.80	5.75

NO POTASH APPLIED

N	----	1---	2---	3---	4---	6---	MEAN
	2.28	4.19	5.52	6.47	6.93	8.10	5.58

GRAND MEAN 5.72

STRAW MEAN DM% 83.2

SUB PLOT AREA HARVESTED 0.00048

https://doi.org/10.23637/ERADOC-1-141 *pp 301*

75/R/WW/7

WINTER WHEAT

INSECTICIDES AND BULB FLY

Object: To study the effects of different insecticidal seed dressings on attack by wheat bulb fly (Leptohylemyia coarctata) and yield of winter wheat - Fosters West.

Sponsor: D.C. Griffiths.

Design: 4 randomised blocks of 8 plots.

Whole plot dimensions: 2.41 x 9.14.

Treatments: 1. Insecticides (% a.i. to wt. of seed):-

		INSCTCDE
None		NONE
Chlorfenvinphos	0.2	CHLORFEN
Fonofos	0.2	FONOFOS
Isophenphos	0.2	ISOPH 2
Isophenphos	0.5	ISOPH 5
Permethrin (NRDC 143)	0.2	PERMETHR
Pirimiphos ethyl	0.2	PIRIMIPH
Triazophos	0.2	TRIAZOPH

Basal applications: Manures: 'Nitro-Chalk' at 410 kg. Weedkiller: Ioxynil with mecoprop ('Actril C' at 7.0 l in 220 l).

Seed: Maris Templar, sown at 180 kg.

Cultivations, etc.:- Rotary harrowed: 5 Dec, 1974. Seed sown: 10 Dec. N applied: 25 Apr, 1975. Weedkiller applied: 19 May. Combine harvested: 15 Aug. Previous crops: Barley 1973, fallow 1974.

NOTE: Amounts of insecticides on seed were determined. Plant emergence counts were made in January and samples were taken in March for determination of number of damaged shoots and percentage with live wheat bulb fly larvae.

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75/R/WW/7

*** TABLES OF MEANS ***

GRAIN TONNES/HECTARE

INSCTCDE	
NONE	4.62
CHLORFEN	5.88
FONOFOS	5.74
ISOPH 2	6.10
ISOPH 5	5.58
PERMETHR	5.99
PIRIMIPH	5.52
TRIAZOPH	5.32
MEAN	5.59

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	INSCTCDE
SED	0.395

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	21	0.559	10.0

GRAIN MEAN DM% 86.5

PLOT AREA HARVESTED 0.00151

https://doi.org/10.23637/ERADOC-1-141 *pp 303*

75/R/WS/1

SPRING WHEAT

CONTROL OF FOLIAR DISEASES

Object: To study the effects of a range of fungicides on the incidence of foliar diseases and yield of spring wheat - Fosters Corner.

Sponsors: J.F. Jenkyn, A. Bainbridge.

Design: 3 randomised blocks of 7 plots.

Whole plot dimensions: 4.27 x 9.14.

Treatments: Fungicide and methods of application:-

	FUNGCIDE
None	0
Benodanil foliar spray on 18 June and 18 July	BS 2
Carbendazim foliar spray on 18 June and 18 July	CS 2
MEB 6447 foliar spray on 18 June and 18 July	MS 2
Tridemorph foliar spray on 18 June and 18 July	TS 2
MEB 6447 seed dressing and MEB 6447 foliar spray on 18 July	MD MS 1
MEB 6447 seed dressing and benodanil, carbendazim, MEB 6447, tridemorph foliar sprays on 18 June and 18 July	MD ALL S

NOTES: (1) All foliar fungicides were applied in 340 l:-
(a) Benodanil at 1.12 kg with 175 ml Cistowett.
(b) Carbendazim at 0.25 kg.
(c) MEB 6447 at 0.25 kg a.i.
(d) Tridemorph at 0.53 kg.
(2) MEB 6447 seed dressing was applied at 50 g a.i. per 100 kg seed.

Basal applications: Manures: (20:14:14) at 380 kg combine drilled.
Weedkiller: Dicamba with mecoprop and MCPA ('Tetralex Plus' at 7.0 l in 220 l).

Seed: Kleiber, sown at 190 kg.

Cultivations, etc.:- Ploughed: 11 Nov, 1974. Spring-tine cultivated: 21 Apr, 1975. Spring-tine cultivated and rotary harrowed: 24 Apr. Seed sown and harrowed in: 25 Apr. Weedkiller applied: 13 June. Combine harvested: 28 Aug. Previous crops: Barley 1973, beans 1974.

NOTES: (1) MEB 6447 seed dressing lessened germination.
(2) Mildew was assessed on three occasions.

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75/R/WS/1

*** TABLE OF MEANS ***

GRAIN TONNES/HECTARE

FUNGCIDE	0	BS 2	CS 2	MS 2	TS 2	MD MS 1	MD ALL S	MEAN
	2.77	2.77	2.92	3.24	2.96	2.90	2.45	2.86

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	FUNGCIDE
SED	0.166

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	12	0.204	7.1

GRAIN MEAN DM% 87.0

PLOT AREA HARVESTED 0.00195

https://doi.org/10.23637/ERADOC-1-141

75/R/B/1

WINTER BARLEY

FUNGICIDES AND MILDEW

Object: To study the effects of applying tridemorph on one or two occasions on the incidence of mildew and the yield of winter barley - Fosters West.

Sponsors: A. Bainbridge, J.F. Jenkyn, M. Finney.

Design: 4 randomised blocks of 3 plots.

Whole plot dimensions: 4.27 x 9.14.

Treatments: Times of applying tridemorph:-

	TRIDEMOR
None	NONE
Once, 20 May	ONCE
Twice, 20 May, 13 June	TWICE

NOTE: Tridemorph was applied at 0.53 kg in 340 l.

Basal applications: Manures: (0:20:20) at 310 kg combine drilled, 'Nitro-Chalk' at 410 kg. Weedkiller: Ioxynil with mecroprop ('Actril C' at 7.0 l in 220 l).

Seed: Senta, sown at 160 kg.

Cultivations, etc.:- Rotary harrowed: 5 Dec, 1974. Seed sown, harrowed: 6 Dec. N applied: 25 Apr, 1975. Weedkiller applied: 19 May. Combine harvested: 30 July. Previous crops: Barley 1973, fallow 1974.

NOTE: Leaves of mildewed plants were fed C^{14} and assessed after 24 hours and at harvest for distributions of C^{14} within the plant. Mildew assessments were made throughout the season.

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75/R/B/1

*** TABLES OF MEANS ***

GRAIN TONNES/HECTARE

TRIDEMOR	NONE	ONCE	TWICE	MEAN
	3.83	4.66	4.39	4.30

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	TRIDEMOR
SED	0.354

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	6	0.501	11.7

GRAIN MEAN DM% 86.1

PLOT AREA HARVESTED 0.00260

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75/R/B/2

WINTER BARLEY

FOLIAR DISEASES

Object: To study the effects of different amounts of infected straw, seed infection and seed dressing on incidence of Rhynchosporium and yield of winter barley - Pastures.

Sponsors: J.F. Jenkyn, J. King (M.A.F.F.).

Design: 2 randomised blocks of 12 plots.

Whole plot dimensions: 4.27 x 9.14.

Treatments: All combinations of:-

1. Rate of applying straw, infected with Rhynchosporium, to seedbed: — STRAW RT
   - None — NONE
   - Little (66 kg/ha) — LITTLE
   - Much (584 kg/ha) — MUCH
2. Seed infection with Rhynchosporium: — SEED INF
   - None — NONE
   - Infected — INFECTED
3. Seed dressing: — SEED DRS
   - None — NONE
   - Fungicide (Mercury as 'Agrosan GN' at 2.2 gm/kg of seed) — FUNGCIDE

Basal applications: Manures: (0:20:20) at 250 kg combine drilled. 'Nitro-Chalk' at 240 kg. Weedkillers: Mecoprop ('Compitox Extra' at 2.8 l) plus bromoxynil with ioxynil ('Oxytril CM' at 1.4 l) in 220 l. Fungicide: Ethirimol at 0.35 kg in 340 l. Irrigation: 5 mm applied on each of 7 occasions.

Seed: Maris Otter, sown at 160 kg.

Cultivations, etc.:- Chisel ploughed twice: 9 Dec, 1974. Spring-tine cultivated, straw applied and all plots rotary cultivated: 10 Dec. Seed sown and cultivated in: 18 Dec. N applied: 5 Apr, 1975. Weedkiller applied: 9 May. Ethirimol applied: 5 June. Water applied: 25, 26 and 28 June, 5, 12, 19 and 26 July. Combine harvested: 30 July. Previous crops: Beans 1973, potatoes 1974.

NOTE: Rhynchosporium was assessed on 8 May and 8 July.

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75/R/B/2

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

SEED INF STRAW RT	NONE	INFECTED	MEAN
NONE	6.04	5.51	5.78
LITTLE	5.20	5.75	5.47
MUCH	5.50	5.54	5.52
MEAN	5.58	5.60	5.59

SEED DRS STRAW RT	NONE	FUNGCIDE	MEAN
NONE	5.51	6.04	5.78
LITTLE	5.58	5.36	5.47
MUCH	5.30	5.75	5.52
MEAN	5.46	5.72	5.59

SEED DRS SEED INF	NONE	FUNGCIDE	MEAN
NONE	5.38	5.78	5.58
INFECTED	5.55	5.65	5.60
MEAN	5.46	5.72	5.59

SEED INF	NONE		INFECTED	
SEED DRS	NONE	FUNGCIDE	NONE	FUNGCIDE
STRAW RT				
NONE	5.94	6.14	5.09	5.93
LITTLE	5.32	5.07	5.84	5.65
MUCH	4.88	6.13	5.72	5.36

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	STRAW RT	SEED INF	SEED DRS	STRAW RT SEED INF
SED	0.246	0.201	0.201	0.347

TABLE	STRAW RT SEED DRS	SEED INF SEED DRS	STRAW RT SEED INF SEED DRS
SED	0.347	0.284	0.491

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	11	0.491	8.8

GRAIN MEAN DM% 86.0

PLOT AREA HARVESTED 0.00260

https://doi.org/10.23637/ERADOC-1-141

75/R/B/4 and 75/W/B/4

SPRING BARLEY

VARIETIES, N AND FUNGICIDES

Object: To study the yields of some of the newer varieties of barley. The effects of fungicides and a range of nitrogen rates are also studied - Rothamsted (R) Gt Knott II and Woburn (W) Far Field II.

Sponsors: R. Moffitt, J.F. Jenkyn.

Design: 2 randomised blocks of 18 plots split into 3.

Whole plot dimensions: 4.27 x 24.7.

Treatments: All combinations of:-

Whole plots:	1. Varieties and mildew control:		VARIETY
		Julia - no fungicide	JU 0
		Julia - seed dressed ethirimol	JU E
		Julia - tridemorph spray at 0.53 kg in 220 l, early with weedkiller	JU TW
		Julia - seed dressed MEB 6447	JU M
		Julia)	JU T
		Aramir)	AR T
		Hassan) sprayed tridemorph at 0.53 kg in	HA T
		Lofa Abed) 450 l at recommended stage	LA T
		Maris Mink)	MM T
	2. Rust fungicide:		FUNGCIDE
		None	NONE
		Benodanil at 1.12 kg in 450 l	BENODANI
Sub plots:	3. Nitrogen fertiliser (kg N):		N
		38	38
		75	75
		113	113

NOTE: At Woburn the planned FUNGCIDE treatment was not applied i.e. VARIETY treatments were duplicated in each block.

Basal applications:-
Great Knott II (R): Manures: (0:20:20) at 310 kg. Weedkiller: Dicamba, mecoprop and MCPA ('Tetralex Plus' at 7.0 l in 220 l).
Far Field II (W): Manures: (0:20:20) at 310 kg. Weedkiller: Ioxynil at 0.52 kg and mecoprop at 1.6 kg in 280 l.

Seed: Both sites varieties sown at 160 kg.

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Cultivations, etc.:-

Great Knott II (R): Ploughed: 4-6 Nov, 1974. Spring-tine cultivated twice: 14 Apr, 21 Apr, 1975. Rotary harrowed: 22 Apr. Seed sown: 23 Apr. N applied: 30 Apr. Weedkiller applied to all plots tridemorph treatment applied with weedkiller: 6 June. Tridemorph applied: 20 June. Benodanil applied: 21 July. Combine harvested: 22 Aug. Previous crops: Beans 1973, winter wheat 1974.

Far Field II (W): Ploughed: 10-13 Jan, 1975. Spring-tine cultivated with crumbler twice: 21 Mar, 25 Mar. Seed sown: 25 Mar. N applied: 1 Apr. Weedkiller applied to all plots, tridemorph treatment applied with weedkiller: 20 May. Tridemorph applied: 20 June. Combine harvested: 11 Aug. Previous crops: Fallow 1973, barley 1974.

NOTES: (1) Estimates of mildew (Erysiphe graminis) and other leaf diseases were made during the season.

(2) GREAT KNOTT II (R). There was evidence of a linear fertility trend across the site and yields adjusted for this trend are presented.

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75/R/B/4 GREAT KNOTT (R)

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

FUNGCIDE	NONE	BENODANI	MEAN
VARIETY			
JU 0	3.45	3.68	3.57
JU E	3.93	3.87	3.90
JU TW	3.99	4.13	4.06
JU M	3.54	3.65	3.60
JU T	3.62	4.16	3.89
AR T	3.44	3.26	3.35
HA T	3.13	3.41	3.27
LA T	4.26	4.30	4.28
MM T	3.41	3.78	3.59
MEAN	3.64	3.80	3.72

N	38	75	113	MEAN
VARIETY				
JU 0	3.16	3.71	3.83	3.57
JU E	3.37	3.95	4.38	3.90
JU TW	3.44	4.23	4.51	4.06
JU M	3.04	3.76	3.99	3.60
JU T	3.40	3.81	4.48	3.89
AR T	2.93	3.49	3.63	3.35
HA T	2.80	3.29	3.72	3.27
LA T	3.81	4.31	4.72	4.28
MM T	2.95	3.77	4.05	3.59
MEAN	3.21	3.81	4.15	3.72

N	38	75	113	MEAN
FUNGCIDE				
NONE	3.15	3.71	4.07	3.64
BENODANI	3.27	3.92	4.22	3.80
MEAN	3.21	3.81	4.15	3.72

FUNGCIDE	NONE			BENODANI		
N	38	75	113	38	75	113
VARIETY						
JU 0	3.11	3.60	3.66	3.22	3.83	4.00
JU E	3.35	3.92	4.52	3.39	3.97	4.25
JU TW	3.23	4.15	4.60	3.65	4.30	4.43
JU M	2.91	3.79	3.92	3.17	3.72	4.06
JU T	3.18	3.56	4.12	3.61	4.05	4.83
AR T	3.11	3.55	3.65	2.74	3.43	3.60
HA T	2.85	2.99	3.56	2.75	3.59	3.88
LA T	3.84	4.29	4.64	3.77	4.33	4.80
MM T	2.74	3.52	3.97	3.16	4.03	4.14

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75/R/B/4 GREAT KNOTT (R)

GRAIN TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	VARIETY	FUNGCIDE	N	VARIETY FUNGCIDE
REP	12	54	36	6
SED	0.196	0.090	0.063	0.278

TABLE	VARIETY N	FUNGCIDE N	VARIETY FUNGCIDE N
REP	4	18	2
SED	0.247	0.116	0.350

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:

VARIETY	0.190		
FUNGCIDE		0.089	
VARIETY.FUNGCIDE			0.269

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	16	0.270	7.3
BLOCK.WP.SP	36	0.267	7.2

GRAIN MEAN DM% 81.7

SUB PLOT AREA HARVESTED 0.00163

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75/W/B/4 FAR FIELD II (W)

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

N VARIETY	38	75	113	MEAN
JU O	4.15	5.33	5.59	5.02
JU E	4.10	5.29	5.81	5.07
JU TW	4.09	5.57	5.82	5.16
JU M	4.30	5.36	5.75	5.14
JU T	4.13	5.43	5.80	5.12
AR T	3.95	5.43	6.12	5.16
HA T	4.07	5.37	5.86	5.10
LA T	4.25	5.66	6.64	5.52
MM T	4.64	4.91	5.99	5.18
MEAN	4.19	5.37	5.93	5.16

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	VARIETY	N	VARIETY N
SED	0.188	0.085	0.282
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
VARIETY			0.256

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	26	0.267	5.2
BLOCK.WP.SP	54	0.362	7.0

GRAIN MEAN DM% 89.3

SUB PLOT AREA HARVESTED 0.00217

https://doi.org/10.23637/ERADOC-1-141

75/R/B/5

SPRING BARLEY

NITROGEN AND FOLIAR DISEASES

Object: To study the effects of mildew and brown rust on the response to a range of nitrogen rates applied at different times - Gt. Knott II.

Sponsor: J.F. Jenkyn.

Design: Single replicate of 6 x 3 x 2 x 2.

Whole plot dimensions: 4.27 x 9.14.

Treatments: All combinations of:-

1. Amounts of nitrogen fertiliser (kg N):	N RATE
25	25
50	50
70	70
90	90
110	110
135	135
2. Times of applying N:	N TIME
Seedbed	SB
Top dressed	TD
Half to seedbed, half top dressed	SB/TD
3. Mildew fungicide:	MILDEW F
None	NONE
Tridemorph on 6, 24 June and 21 July	TRIDEMOR
4. Rust fungicide:	RUST F
None	NONE
Benodanil on 24 June	BENODANI

NOTE: Fungicides were applied in 340 l:-
(a) Tridemorph at 0.53 kg
(b) Benodanil at 1.12 kg with 175 ml 'Citowett'

Basal applications: Manures: (0:20:20) at 310 kg. Weedkiller: Dicamba, with mecoprop and MCPA ('Tetralex Plus' at 7.0 l in 220 l).

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Seed: Zephyr, sown at 160 kg.

Cultivations, etc.:- Ploughed: 6 Nov, 1974. Spring-tine cultivated: 14 and 21 Apr, 1975. Rotary harrowed: 22 Apr. Seed sown and harrowed in: 23 Apr. Seedbed N applied: 29 Apr. N top dressing applied: 22 May. Weedkiller applied: 6 June. Combine harvested: 22 Aug. Previous crops: Beans 1973, winter wheat 1974.

NOTES: (1) Counts were made of seedling emergence. Mildew was assessed twice and brown rust once.

(2) There was evidence of a pattern of yields across the site and the results presented have been adjusted for covariance on a dummy variate representing the comparison between plots 1 to 36 and plots 37 to 72.

https://doi.org/10.23637/ERADOC-1-141

75/R/B/5

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

RUST F / MILDEW F	NONE	BENODANI	MEAN
NONE	2.92	3.15	3.03
TRIDEMOR	3.52	3.64	3.58
MEAN	3.22	3.39	3.31

N TIME / MILDEW F	SB	TD	SB/TD	MEAN
NONE	3.19	2.73	3.18	3.03
TRIDEMOR	3.82	3.38	3.54	3.58
MEAN	3.50	3.06	3.36	3.31

N TIME / RUST F	SB	TD	SB/TD	MEAN
NONE	3.46	2.90	3.30	3.22
BENODANI	3.54	3.22	3.42	3.39
MEAN	3.50	3.06	3.36	3.31

N RATE / MILDEW F	25	50	70	90	110	135	MEAN
NONE	2.63	3.03	3.00	3.17	3.19	3.19	3.03
TRIDEMOR	3.10	3.18	3.52	3.96	3.78	3.92	3.58
MEAN	2.86	3.11	3.26	3.57	3.48	3.56	3.31

N RATE / RUST F	25	50	70	90	110	135	MEAN
NONE	2.75	2.94	3.30	3.59	3.32	3.41	3.22
BENODANI	2.97	3.28	3.22	3.54	3.65	3.70	3.39
MEAN	2.86	3.11	3.26	3.57	3.48	3.56	3.31

N RATE / N TIME	25	50	70	90	110	135	MEAN
SB	2.89	3.12	3.29	3.63	4.02	4.05	3.50
TD	2.86	3.13	2.99	3.25	3.05	3.06	3.06
SB/TD	2.84	3.06	3.50	3.82	3.38	3.56	3.36
MEAN	2.86	3.11	3.26	3.57	3.48	3.56	3.31

RUST F	NONE			BENODANI		
N TIME / MILDEW F	SB	TD	SB/TD	SB	TD	SB/TD
NONE	3.08	2.54	3.13	3.29	2.93	3.23
TRIDEMOR	3.83	3.25	3.48	3.80	3.51	3.60

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75/R/B/5

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

MILDEW F	RUST F \ N RATE	25	50	70	90	110	135
NONE	NONE	2.42	2.88	2.93	3.13	3.11	3.04
	BENODANI	2.83	3.18	3.06	3.21	3.26	3.34
TRIDEMOR	NONE	3.09	2.99	3.68	4.05	3.53	3.78
	BENODANI	3.11	3.37	3.37	3.88	4.03	4.07

MILDEW F	N TIME \ N RATE	25	50	70	90	110	135
NONE	SB	2.84	3.00	2.99	3.10	3.62	3.57
	TD	2.49	3.00	2.61	2.84	2.62	2.84
	SB/TD	2.54	3.09	3.39	3.58	3.32	3.15
TRIDEMOR	SB	2.95	3.24	3.60	4.16	4.42	4.52
	TD	3.22	3.26	3.37	3.67	3.49	3.27
	SB/TD	3.13	3.04	3.60	4.06	3.44	3.97

RUST F	N TIME \ N RATE	25	50	70	90	110	135
NONE	SB	2.57	2.74	3.67	3.97	3.83	3.97
	TD	2.81	3.10	2.74	3.12	2.66	2.94
	SB/TD	2.88	2.97	3.50	3.69	3.47	3.32
BENODANI	SB	3.22	3.50	2.92	3.29	4.21	4.13
	TD	2.90	3.17	3.24	3.39	3.44	3.18
	SB/TD	2.79	3.16	3.50	3.96	3.28	3.81

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	MILDEW F	RUST F	N TIME	N RATE
SED	0.075	0.075	0.099	0.137

TABLE	MILDEW F RUST F	MILDEW F N TIME	RUST F N TIME	MILDEW F N RATE
SED	0.107	0.135	0.135	0.192

TABLE	RUST F N RATE	N TIME N RATE	MILDEW F RUST F N TIME	MILDEW F RUST F N RATE
SED	0.191	0.239	0.189	0.268

TABLE	MILDEW F N TIME N RATE	RUST F N TIME N RATE
SED	0.335	0.331

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
WP	9	0.318	9.6

GRAIN MEAN DM% 83.5

PLOT AREA HARVESTED 0.00195

https://doi.org/10.23637/ERADOC-1-141

75/R/B/6

SPRING BARLEY

SYSTEMIC FUNGICIDE STUDY

Object: To study the effectiveness of methyl benzimidazol-2-ylcarbamate (MBC) and several precursors of MBC and to relate chemical measurements of persistence, movement and conversion to MBC to field performance - Gt. Knott II.

Sponsors: I.J. Graham-Bryce, P.H. Nicholls.

Design: 4 randomised blocks of 6 plots.

Whole plot dimensions: 2.41 x 9.14.

Treatments: Fungicidal seed dressings (at 0.5 kg/ha):-

	FUNGCIDE
None	NONE
Benomyl	BENOMYL
Ethirimol	ETHIRIMO
MBC	MBC
NF 48	NF 48
Thiophanate methyl	THIOPHAN

Basal applications: Manures: (20:14:14) at 440 kg. Weedkiller: Dicamba with mecoprop and MCPA ('Tetralex Plus' at 7.0 l in 220 l).

Seed: Sultan, infected with smut, sown at 160 kg.

Cultivations, etc.:- Ploughed: 6 Nov, 1974. Spring-tine cultivated: 14 and 21 Apr, 1975. Rotary cultivated and seed sown: 23 Apr. NPK applied: 25 Apr. Weedkiller applied: 6 June. Combine harvested: 26 Aug. Previous crops: Beans 1973, winter wheat 1974.

NOTE: Counts of mildew were made three times, and of smut and eyespot once.

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75/R/B/6

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

FUNGCIDE	NONE	BENOMYL	ETHIRIMO	MBC	NF 48	THIOPHAN	MEAN
	2.82	2.99	2.71	2.96	2.99	2.59	2.84

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	FUNGCIDE
SED	0.204

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	15	0.288	10.1

GRAIN MEAN DM% 88.0

PLOT AREA HARVESTED 0.00151

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75/R/B/7

SPRING BARLEY

CONTROL OF CEREAL APHIDS AND BYDV

Object: To study the effects of controlling cereal aphids at different times on the incidence of barley yellow dwarf virus (BYDV) and on the yield of barley - Highfield IV.

Sponsor: R.T. Plumb.

Design: 4 blocks of 8 plots, randomisation restricted.

Whole plot dimensions: 6.40 x 24.4

Treatments: All combinations of:-

1. Phorate, as granules to seedbed (kg a.i.):	PHORATE
None	0.0
5.0	5.0
2. Menazon spray early (13 June) (1 'Saphi-Col'):	MENAZON(1)
None	0.0
0.7	0.7
3. Menazon spray late (9 July) (1 'Saphi-Col'):	MENAZON(2)
None	0.0
0.7	0.7

NOTE: 'Saphi-Col' applied in 450 l.

Basal applications: Manures: (20:14:14) at 380 kg, combine drilled.

Seed: Julia, dressed with ethirimol, sown at 160 kg.

Cultivations, etc.:- Ploughed: 3 Dec, 1974. Phorate applied, spring-tine cultivated twice and seed sown: 4 Mar, 1975. Combine harvested: 6 Aug. Previous crops: Barley 1973, winter oats 1974.

NOTES: (1) Emergence counts were made on 25 April.
(2) Aphid counts were made on three occasions and virus counts on two occasions.
(3) 1000 grain weights were determined.

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75/R/B/7

*** TABLES OF MEANS ***

GRAIN TONNES/HECTARE

MENAZON(1) PHORATE	0.0	0.7	MEAN
0.0	4.58	4.20	4.39
5.0	4.17	4.35	4.26
MEAN	4.38	4.28	4.33

MENAZON(2) PHORATE	0.0	0.7	MEAN
0.0	4.41	4.37	4.39
5.0	4.16	4.36	4.26
MEAN	4.28	4.37	4.33

MENAZON(2) MENAZON(1)	0.0	0.7	MEAN
0.0	4.30	4.45	4.38
0.7	4.27	4.28	4.28
MEAN	4.28	4.37	4.33

MENAZON(1)	0.0		0.7	
MENAZON(2) PHORATE	0.0	0.7	0.0	0.7
0.0	4.68	4.48	4.14	4.26
5.0	3.92	4.42	4.39	4.30

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	PHORATE	MENAZON(1)	MENAZON(2)	PHORATE MENAZON(1)
SED	0.127	0.127	0.127	0.180

TABLE	PHORATE MENAZON(2)	MENAZON(1) MENAZON(2)	PHORATE MENAZON(1) MENAZON(2)
SED	0.180	0.180	0.255

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	21	0.360	8.3

GRAIN MEAN DM% 86.4

PLOT AREA HARVESTED 0.00390

https://doi.org/10.23637/ERADOC-1-141

75/R/B/8

SPRING BARLEY

EFFECTS OF MILDEW SOURCES ON DISEASE CONTROL

Object: To study the effects of nearby sources of mildew on control by tridemorph sprays applied at a range of times - Little Hoos.

Sponsors: J.F. Jenkyn, A.Bainbridge.

Design: 3 randomised blocks of 2 plots split into 7.

Whole plot dimensions: 4.27 x 9.14.

Treatments: All combinations of:.

Whole plots: 1. Mildew source: MILDSRCE

None (seed treated ethirimol, crop sprayed tridemorph)	NONE
Much (no mildew control)	MUCH

Sub plots: 2. Times of applying tridemorph (single sprays applied at about 5-day intervals at 0.53 kg in 340 l): TRIDEMOR

1	22 May	1
2	29 May	2
3	4 June	3
4	9 June	4
5	13 June	5
6	16 June	6
7	20 June	7

NOTE: The whole plot treatments were applied to a strip of crop 10 m wide at the ends of all sub plots. There were no discards between sub plots (0.6 m fallow paths only). The sides of sets of seven sub plots were separated by strips of crop 19 m wide, seed treated ethirimol, crop sprayed tridemorph at 0.53 kg in 450 l on 20 June.

Basal applications: Manures: (20:14:14) at 440 kg. Weedkillers: Paraquat at 0.42 kg ion in 220 l, dicamba with mecoprop and MCPA ('Tetralex Plus' at 7.0 l in 220 l).

Seed: Julia sown at 160 kg.

Cultivations, etc.:- Ploughed: 14 Nov, 1974. Paraquat applied: 27 Feb, 1975. Spring-tine cultivated: 1, 2, and 25 Mar. Seed sown: sub plots and ends of plots 11-17: 14 Apr, sowing completed and all plots spring-tine cultivated: 21 Apr. Weedkiller applied: 6 June. Combine harvested: 22 Aug. Previous crops: Potatoes 1973, winter wheat 1974.

NOTE: Mildew was assessed on one occasion.

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75/R/B/8

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

TRIDEMOR / MILDSRCE	1	2	3	4	5	6	7	MEAN
NONE	5.63	5.33	5.53	5.36	5.29	5.37	5.23	5.39
MUCH	5.47	5.48	5.35	5.18	4.70	5.11	4.81	5.16
MEAN	5.55	5.41	5.44	5.27	5.00	5.24	5.02	5.27

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	TRIDEMOR	MILDSRCE TRIDEMOR
SED	0.146	
ONLY WHEN COMPARING MEANS WITH SAME LEVEL(S) OF: MILDSRCE		0.206

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP.SP	24	0.253	4.8

GRAIN MEAN DM% 84.5

SUB PLOT AREA HARVESTED 0.00195

https://doi.org/10.23637/ERADOC-1-141

75/R/B/9

SPRING BARLEY

MILDEW CONTROL IN SYSTEMATIC AND BALANCED DESIGNS

Object: To study the effects of tridemorph sprays, applied at different times, in systematic and balanced designs and to assess the magnitude of interference between plots - Little Hoos.

Sponsors: J.F. Jenkyn, A. Bainbridge, G.V. Dyke.

Designs: Systematic: 4 'blocks' of 6 plots.
Serially balanced: 9 'blocks' of 4 plots (+ 2 flanking plots).

Whole plot dimensions: 4.27 x 7.62.

Treatments: To systematic design: Times of applying tridemorph: TRIDEMOR

None	0
Once, on 22 May	1
Once, on 4 June	2
Once, on 13 June	3
Repeated three times at above dates	R

Plots arranged in linear sequence:

R0R123 R0R321 123R0R 321R0R

Serially balanced design:

Fungicide sprays as above but omitting level 3.

These were applied to 38 plots in one line on the field in an order such that each of the 36 possible sets of 3 adjacent treatments occurred exactly once (but omitting sets with the same treatment on 2 successive plots). The effects of treatments to neighbouring plots (lefthand neighbour - LHN, righthand neighbour - RHN) are estimated in the analysis. (See Dyke and Shelley, Journal of Agricultural Science, Cambridge, in the press.)

In this experiment, 'left' was north, 'right' was south.

The analysis presented assumes a Fourier curve with 4 terms, 2 sine and 2 cosine, to represent positional variation.

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NOTES: (1) The surrounds of both designs to a distance of 17 m were sown with seed dressed with organomercury and ethirimol, and were sprayed with tridemorph at 1.6 kg in 450 l on 20 June.
(2) Tridemorph was applied at 0.53 kg in 340 l on each occasion to plots.

Basal applications: Manures: (20:14:14) at 440 kg combine drilled. Weedkillers: Paraquat at 0.42 kg ion in 220 l. Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l).

Seed: Julia, dressed with organomercury only, sown at 160 kg.

Cultivations, etc.:- Ploughed: 14 Nov, 1974. Paraquat applied: 27 Feb, 1975. Spring-tine cultivated: 1, 2 and 25 Mar. Sown: 26 Mar. 'Banlene Plus' applied: 20 May. Combine harvested: 6 Aug. Previous crops: Potatoes 1973, winter wheat 1974.

NOTE: Mildew was assessed on 10 June and 7 July.

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75/R/B/9

BARLEY

SYSTEMATIC DESIGN

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

TRIDEMOR	-	1	2	3	R	MEAN
	5.50	5.82	5.90	5.82	6.01	5.84

GRAIN MEAN DM% 87.8

SERIALLY BALANCED DESIGN

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

GRAND MEAN 5.80

TRIDEMOR	-	1	2	R
	5.31	5.87	6.03	6.00

LHN TRIDEMOR	-	1	2	R
-		5.35	5.38	5.20
1	6.00		5.75	5.85
2	6.05	6.20		5.83
R	6.16	5.71	6.14	

RHN TRIDEMOR	-	1	2	R
-		5.34	5.31	5.29
1	5.77		6.07	5.77
2	6.02	6.00		6.06
R	5.83	6.13	6.05	

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	TRIDEMOR	TRIDEMOR LHN	TRIDEMOR RHN
SED	0.070	0.173	0.179

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
WP	12	0.145	2.5

GRAIN MEAN DM% 88.1

PLOT AREA HARVESTED 0.00163

https://doi.org/10.23637/ERADOC-1-141

75/R/B/11

SPRING BARLEY

FUNGICIDES AND GRAIN MICROFLORA

Object: To study the effects of a broad spectrum fungicide, applied at a range of times, on barley crops with or without additional specific fungicides against rust and mildew. Effects on yield, quality and grain-surface microorganisms before harvest and in storage are studied - Long Hoos IV 3.

Sponsor: R.A. Hill.

Design: 2 blocks of 16 plots, randomisation restricted.

Whole plot dimensions: 2.41 x 6.10.

Treatments: All combinations of:-

1. Specific fungicides for foliar pathogen control:	SPECFUNG
None	NONE
Ethirimol seed dressing + tridemorph spray at 0.53 kg in 340 l on 10 May	ALL
2. Benomyl on 16 July:	BENOMYL(1)
None	NONE
Sprayed	SPRAYED
3. Benomyl on 28 July:	BENOMYL(2)
None	NONE
Sprayed	SPRAYED
4. Benomyl on 11 Aug:	BENOMYL(3)
None	NONE
Sprayed	SPRAYED

NOTE: Benomyl was applied at 1.12 kg in 340 l.

Basal applications: Weedkillers: Dicamba with mecoprop and MCPA ('Tetralex Plus' at 7.0 l in 340 l).

Seed: Julia, sown at 160 kg.

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Cultivations, etc.:- Ploughed: 16 Jan, 1975. Spring-tine cultivated: 26 Mar. Spring-tine cultivated and seed sown: 21 Apr. Weedkiller applied: 6 June. Combine harvested: 22 Aug. Previous crops: Barley 1973, potatoes 1974.

NOTES: (1) Leaf microflora were assessed soon after each application of benomyl.
(2) Microflora, 1000 grain weight and germination were assessed on samples of grain taken at harvest.

GRAIN TONNES/HECTARE

** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	15	0.523	16.2

GRAIN MEAN DM% 81.0

PLOT AREA HARVESTED 0.00075

https://doi.org/10.23637/ERADOC-1-141

75/R/B/11

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

BENOMYL(1) SPECFUNG	NONE	SPRAYED	MEAN
NONE	3.29	3.12	3.20
ALL	3.34	3.15	3.25
MEAN	3.31	3.14	3.23

BENOMYL(2) SPECFUNG	NONE	SPRAYED	MEAN
NONE	3.25	3.16	3.20
ALL	3.14	3.35	3.25
MEAN	3.20	3.25	3.23

BENOMYL(2) BENOMYL(1)	NONE	SPRAYED	MEAN
NONE	3.25	3.38	3.31
SPRAYED	3.14	3.13	3.14
MEAN	3.20	3.25	3.23

BENOMYL(3) SPECFUNG	NONE	SPRAYED	MEAN
NONE	3.30	3.11	3.20
ALL	3.30	3.19	3.25
MEAN	3.30	3.15	3.23

BENOMYL(3) BENOMYL(1)	NONE	SPRAYED	MEAN
NONE	3.34	3.29	3.31
SPRAYED	3.26	3.01	3.14
MEAN	3.30	3.15	3.23

BENOMYL(3) BENOMYL(2)	NONE	SPRAYED	MEAN
NONE	3.27	3.12	3.20
SPRAYED	3.33	3.17	3.25
MEAN	3.30	3.15	3.23

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GRAIN TONNES/HECTARE

BENOMYL(1)	NONE		SPRAYED	
BENOMYL(2)	NONE	SPRAYED	NONE	SPRAYED
SPECFUNG				
NONE	3.35	3.23	3.16	3.09
ALL	3.16	3.52	3.13	3.18

BENOMYL(1)	NONE		SPRAYED	
BENOMYL(3)	NONE	SPRAYED	NONE	SPRAYED
SPECFUNG				
NONE	3.33	3.24	3.27	2.97
ALL	3.34	3.34	3.26	3.05

BENOMYL(2)	NONE		SPRAYED	
BENOMYL(3)	NONE	SPRAYED	NONE	SPRAYED
SPECFUNG				
NONE	3.40	3.10	3.20	3.12
ALL	3.13	3.15	3.47	3.23

BENOMYL(2)	NONE		SPRAYED	
BENOMYL(3)	NONE	SPRAYED	NONE	SPRAYED
BENOMYL(1)				
NONE	3.29	3.21	3.38	3.37
SPRAYED	3.24	3.04	3.29	2.98

	BENOMYL(2)	NONE		SPRAYED	
	BENOMYL(3)	NONE	SPRAYED	NONE	SPRAYED
SPECFUNG	BENOMYL(1)				
NONE	NONE	3.49	3.20	3.17	3.29
	SPRAYED	3.32	2.99	3.22	2.95
ALL	NONE	3.10	3.21	3.58	3.46
	SPRAYED	3.16	3.09	3.35	3.00

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	SPECFUNG	BENOMYL(1)	BENOMYL(2)	BENOMYL(3)
SED	0.185	0.185	0.185	0.185

TABLE	SPECFUNG BENOMYL(1)	SPECFUNG BENOMYL(2)	BENOMYL(1) BENOMYL(2)	SPECFUNG BENOMYL(3)
SED	0.261	0.261	0.261	0.261

TABLE	BENOMYL(1) BENOMYL(3)	BENOMYL(2) BENOMYL(3)	SPECFUNG BENOMYL(1) BENOMYL(2)	SPECFUNG BENOMYL(1) BENOMYL(3)
SED	0.261	0.261	0.370	0.370

TABLE	SPECFUNG BENOMYL(2) BENOMYL(3)	BENOMYL(1) BENOMYL(2) BENOMYL(3)	SPECFUNG BENOMYL(1) BENOMYL(2) BENOMYL(3)
REP	4	4	2
SED	0.370	0.370	0.523

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75/S/B/1

SPRING BARLEY

VARIETIES, N AND FUNGICIDES

Object: To study the effects of rates, times and forms of nitrogen and of fungicides on the incidence of foliar diseases and yields of two varieties of barley - Saxmundham, Grove Plot.

Sponsors: F.V. Widdowson, J.F. Jenkyn, A. Penny.

Design: Single replicate of 32 plots split into 2.

Whole plot dimensions: 2.43 x 12.2.

Treatments: All combinations of:-

Whole plots: 1. Varieties:	VARIETY
Julia	JULIA
Wing	WING
2. Solid nitrogen fertiliser (kg N):	S N
50	50
100	100
3. Time of applying solid nitrogen fertiliser:	S N TIME
Seedbed on 28 Apr	SEEDBED
Top dressed on 29 May	TOPDRESS
4. Liquid nitrogen fertiliser (kg N):	L N
None	0
50 (half on 26 June, half on 17 July)	50
5. Mildew control:	MILD CON
None	NONE
Seed dressed ethirimol crop sprayed tridemorph at 0.53 kg in 280 l on 26 June	ETH/TRID

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Sub plots: 6. Rust control:	RUST CON
None	NONE
Crop sprayed benodanil at 1.12 kg in 280 l on 26 June, 17 July	BENODANI

NOTE: 'Nitro-Chalk' was used as solid fertiliser 'Agsol N26' as liquid fertiliser in 75 litres.

Basal applications: Manures: (0:20:20) at 310 kg. Weedkiller: Dichlorprop plus MCPA ('Mephetol Plus' at 5.6 l in 340 l),

Seed: Sown at 190 kg.

Cultivations, etc.:- Ploughed: 15 Oct, 1974. Seed sown: 28 Apr, 1975. Weedkiller applied: 11 June. Combine harvested: 20 Aug. Previous crops: Barley 1973 and 1974.

NOTE: Mildew (Erysiphe graminis), brown rust (Puccinia hordei) and yellow rust (P. striiformis) were assessed on 29 July.

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BARLEY

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

S N	50	100	MEAN
VARIETY			
JULIA	3.33	3.66	3.49
WING	3.60	3.86	3.73
MEAN	3.46	3.76	3.61

S N TIME	SEEDBED	TOPDRESS	MEAN
VARIETY			
JULIA	3.70	3.28	3.49
WING	4.09	3.37	3.73
MEAN	3.89	3.33	3.61

S N TIME	SEEDBED	TOPDRESS	MEAN
S N			
50	3.82	3.11	3.46
100	3.97	3.54	3.76
MEAN	3.89	3.33	3.61

L N	0	50	MEAN
VARIETY			
JULIA	3.38	3.60	3.49
WING	3.61	3.84	3.73
MEAN	3.50	3.72	3.61

L N	0	50	MEAN
S N			
50	3.32	3.61	3.46
100	3.68	3.84	3.76
MEAN	3.50	3.72	3.61

L N	0	50	MEAN
S N TIME			
SEEDBED	3.85	3.94	3.89
TOPDRESS	3.15	3.50	3.33
MEAN	3.50	3.72	3.61

MILD CON	NONE	ETH/TRID	MEAN
VARIETY			
JULIA	3.31	3.67	3.49
WING	3.65	3.81	3.73
MEAN	3.48	3.74	3.61

MILD CON	NONE	ETH/TRID	MEAN
S N			
50	3.31	3.61	3.46
100	3.65	3.86	3.76
MEAN	3.48	3.74	3.61

https://doi.org/10.23637/ERADOC-1-141

75/S/B/1

BARLEY

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

MILD CON S N TIME	NONE	ETH/TRID	MEAN
SEEDBED	3.81	3.98	3.89
TOPDRESS	3.15	3.50	3.33
MEAN	3.48	3.74	3.61

MILD CON L N	NONE	ETH/TRID	MEAN
0	3.39	3.61	3.50
50	3.57	3.87	3.72
MEAN	3.48	3.74	3.61

RUST CON VARIETY	NONE	BENODANI	MEAN
JULIA	3.37	3.61	3.49
WING	3.69	3.77	3.73
MEAN	3.53	3.69	3.61

RUST CON S N	NONE	BENODANI	MEAN
50	3.34	3.59	3.46
100	3.72	3.79	3.76
MEAN	3.53	3.69	3.61

RUST CON S N TIME	NONE	BENODANI	MEAN
SEEDBED	3.73	4.06	3.89
TOPDRESS	3.33	3.32	3.33
MEAN	3.53	3.69	3.61

RUST CON L N	NONE	BENODANI	MEAN
0	3.47	3.53	3.50
50	3.59	3.85	3.72
MEAN	3.53	3.69	3.61

RUST CON MILD CON	NONE	BENODANI	MEAN
NONE	3.46	3.51	3.48
ETH/TRID	3.60	3.87	3.74
MEAN	3.53	3.69	3.61

https://doi.org/10.23637/ERADOC-1-141

75/S/B/1

GRAIN TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	VARIETY	S N	S N TIME	L N
SED	0.102	0.102	0.102	0.102

TABLE	MILD CON	RUST CON	VARIETY S N	VARIETY S N TIME
SED	0.102	0.122	0.144	0.144

TABLE	S N S N TIME	VARIETY L N	S N L N	S N TIME L N
SED	0.144	0.144	0.144	0.144

TABLE	VARIETY MILD CON	S N MILD CON	S N TIME MILD CON	L N MILD CON
SED	0.144	0.144	0.144	0.144

TABLE	VARIETY RUST CON	S N RUST CON	S N TIME RUST CON	L N RUST CON
SED	0.159	0.159	0.159	0.159

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:

VARIETY	0.172			
S N		0.172		
S N TIME			0.172	
L N				0.172

TABLE	MILD CON RUST CON
REP	16
SED	0.159

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:

MILD CON	0.172

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
WP	6	0.289	8.0
WP.SP	16	0.487	13.5

GRAIN MEAN DM% 82.2

SUB PLOT AREA HARVESTED 0.00073

https://doi.org/10.23637/ERADOC-1-141

75/R/0/1

WINTER AND SPRING OATS

SOWING DATES AND INSECTICIDES

Object: To study the effects of dates of sowing and times of applying insecticides on the incidence of cereal aphids, barley yellow dwarf virus (BYDV) and yield of winter oats - Summerdells II.

Sponsor: R.T. Plumb.

Design: 4 randomised blocks of 12 plots.

Whole plot dimensions: 6.40 x 24.4.

Treatments: All combinations of:-

1. Sowing dates:	SOW DATE
1 November 1974	1 NOV
5 December 1974	5 DEC
27 February 1975	27 FEB
2. Phorate granules to seedbed:	INSCTCDE(1)
None	NONE
Phorate at 5 kg	PHORATE
3. Menazon spray:	INSCTCDE(2)
None	NONE
Menazon (0.7 l 'Saphi-Col' in 450 l)	MENAZON

NOTE: It was intended to sow winter oats in September, October and November, but because of poor weather, only two sowings were possible and the third date was altered to spring oats sown on 27 February.

Basal applications: Manures: (0:20:20) combine drilled, at 260 kg for November sowing and at 310 kg for December and February sowings, 'Nitro-Chalk' at 380 kg. Weedkiller: Ioxynil with mecoprop ('Actril C' at 7.0 l in 220 l).

Seed: Winter oats: Maris Quest, sown at 190 kg.
Spring oats: Manod, sown at 190 kg.

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Cultivations, etc.:- Ploughed: 15 Oct, 1974. Rotary harrowed: 29 Oct. Phorate applied and spring-tine cultivated Nov. plots: 31 Oct. Seed sown: 1 Nov. Phorate applied, power harrowed and seed sown on Dec. plots: 5 Dec. Phorate applied, power harrowed and seed sown on Feb. plots: 27 Feb, 1975. N applied: 20 Apr. Weedkiller applied: 12 May. Menazon applied: 13 June. Combine harvested, winter oats: 4 Aug, spring oats: 18 Aug. Previous crops: Barley 1973 and 1974.

NOTES: (1) Aphid and virus counts were made on five occasions.
(2) Ear samples were taken for 'blasting' counts.
(3) 1000 grain weights were determined.

https://doi.org/10.23637/ERADOC-1-141

75/R/0/1

GRAIN TONNES/HECTARE

*** TABLE OF MEANS ***

INSCTCDE(1)	NONE	PHORATE	MEAN
SOW DATE			
1 NOV	6.26	6.34	6.30
5 DEC	6.15	6.04	6.09
27 FEB	3.71	4.07	3.89
MEAN	5.37	5.49	5.43

INSCTCDE(2)	NONE	MENAZON	MEAN
SOW DATE			
1 NOV	6.30	6.30	6.30
5 DEC	6.12	6.06	6.09
27 FEB	3.82	3.95	3.89
MEAN	5.42	5.44	5.43

INSCTCDE(2)	NONE	MENAZON	MEAN
INSCTCDE(1)			
NONE	5.35	5.39	5.37
PHORATE	5.48	5.49	5.49
MEAN	5.42	5.44	5.43

INSCTCDE(1)	NONE		PHORATE	
INSCTCDE(2)	NONE	MENAZON	NONE	MENAZON
SOW DATE				
1 NOV	6.31	6.21	6.29	6.40
5 DEC	6.16	6.14	6.09	5.99
27 FEB	3.59	3.82	4.06	4.09

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	SOW DATE	INSCTCDE(1)	INSCTCDE(2)	SOW DATE INSCTCDE(1)
SED	0.067	0.055	0.055	0.095

TABLE	SOW DATE INSCTCDE(2)	INSCTCDE(1) INSCTCDE(2)	SOW DATE INSCTCDE(1) INSCTCDE(2)
SED	0.095	0.077	0.134

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	33	0.190	3.5

GRAIN MEAN DM% 87.6

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PLOT AREA HARVESTED 0.00390

75/R/BE/1

WINTER BEANS

SEED RATES, ROW SPACINGS AND FUNGICIDES

Object: To study the effects of plant density and fungicides on Chocolate Spot (Botrytis spp.) and yield of winter beans - Gt. Knott I.

Sponsor: A. Bainbridge.

Design: 2 randomised blocks of 24 plots.

Whole plot dimensions: 4.27 x 9.14.

Treatments: All combinations of:-

1. Fungicides:

	FUNGCIDE
None (4 plots per block)	0
Benomyl (0.56 kg in 340 l)	BENOMYL
RP 26019 (Glycophene at 0.56 kg in 340 l)	RP 26019

2. Seed rates (kg):

	SEEDRATE
126	126
378	378

3. Spacing between rows:

	SPACING
18 cm (7 inches)	18 CM
53 cm (21 inches)	53 CM

NOTE: It was intended to compare applications of fungicides on one and two occasions. Because of exceptionally dry weather and failure of Chocolate Spot to develop, only one application was made.

Basal applications: Manures: FYM at 50 tonnes.

Seed: Throws MS.

Cultivations, etc.:- FYM applied: 4 Sept, 1974. Ploughed: 16 Sept. Spring-tine cultivated: 26 Nov. Seed sown: 27 Nov. Fungicides applied: 9 May. Combine harvested: 12 Aug. Previous crops: Winter wheat 1973, barley 1974.

NOTES: (1) Emergence counts were made in spring.
(2) Chocolate Spot assessments were made throughout the season.

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75/R/BE/1

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

SEEDRATE FUNGCIDE	126	378	MEAN
0	3.80	4.25	4.03
BENOMYL	3.73	4.27	4.00
RP 26019	3.47	4.37	3.92
MEAN	3.74	4.28	4.01

SPACING FUNGCIDE	18 CM	53 CM	MEAN
0	4.12	3.93	4.03
BENOMYL	4.21	3.80	4.00
RP 26019	4.30	3.54	3.92
MEAN	4.17	3.84	4.01

SPACING SEEDRATE	18 CM	53 CM	MEAN
126	3.97	3.51	3.74
378	4.37	4.18	4.28
MEAN	4.17	3.84	4.01

SEEDRATE	126		378	
SPACING FUNGCIDE	18 CM	53 CM	18 CM	53 CM
0	3.98	3.63	4.27	4.23
BENOMYL	4.04	3.42	4.38	4.17
RP 26019	3.84	3.09	4.76	3.99

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	FUNGCIDE	SEEDRATE	SPACING	FUNGCIDE SEEDRATE
SED	0.116(1) 0.147(2)	0.085	0.085	0.104(3) 0.164(1) 0.207(2)

TABLE	FUNGCIDE SPACING	SEEDRATE SPACING	FUNGCIDE SEEDRATE SPACING
SED	0.104(3) 0.164(1) 0.207(2)	0.120	0.147(3) 0.232(1) 0.293(2)

(1) 0 V BENOMYL OR RP 26019
(2) BENOMYL V RP 26019
(3) 0

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75/R/BE/1

GRAIN TONNES/HECTARE

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	35	0.293	7.3

GRAIN MEAN DM% 88.6

MEAN PLOT AREA HARVESTED 0.00270

https://doi.org/10.23637/ERADOC-1-141

75/R/BE/2

WINTER BEANS

FUNGICIDES AND BOTRYTIS

Object: To study the effect of a range of fungicides on control of Botrytis and yield of winter beans - Long Hoos IV 5.

Sponsor: A. Bainbridge.

Design: 3 blocks of 7 plots.

Whole plot dimensions: 2.67 x 3.05.

Treatments: Fungicides (applied twice at dates determined by Botrytis attack):-

	FUNGCIDE
None	NONE
Benomyl at 0.56 kg	BENOMYL
'RP 26019' at 0.56 kg a.i.	RP 26019
Thiophanate methyl at 1.12 kg	THIOPHAN
'BASF 35200' at 0.56 kg a.i.	BASF
Carbendazim at 0.56 kg	CARBENDA
Captafol at 1.3 kg	CAPTAFOL

NOTE: Fungicides were applied in 340 l on 9 May, 10 June.

Basal applications: Manures: (0:14:28) at 820 kg.

Seed: Throws M.S., sown at 380 kg.

Cultivations, etc.:- Ploughed: 25 Sept, 1974. PK applied: 1 Oct. Spring-tine cultivated: 14 Oct. Power harrowed: 27 Nov. Seed sown: 28 Nov. Combine harvested: 12 Aug, 1975. Previous crops: Potatoes 1973, mixed cereals 1974.

NOTE: Assessments were made at fortnightly intervals of Chocolate Spot (Botrytis fabae).

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75/R/BE/2

*** TABLES OF MEANS ***

GRAIN TONNES/HECTARE

FUNGCIDE	NONE	BENOMYL	RP 26019	THIOPHAN	BASF	CARBENDA	CAPTAFOL	MEAN
	4.09	4.21	4.04	3.93	3.64	3.88	3.52	3.90

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	FUNGCIDE
SED	0.376

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	12	0.460	11.8

GRAIN MEAN DM% 88.6

PLOT AREA HARVESTED 0.00049

https://doi.org/10.23637/ERADOC-1-141

75/R/BE/4

SPRING BEANS

APHIDS AND ENTOMOPHTHORA

Object: To study the effects of the fungus Entomophthora on aphid populations and yield of field beans - Gt Field I.

Sponsor: N. Wilding.

Design: 5 randomised blocks of 5 plots.

Whole plot dimensions: 10.4 x 10.4.

Treatments: Control of insects and fungi:-

	TREATMNT
None	NONE
Insecticide: Demeton-s-methyl at 0.25 kg in 340 l on 17 July	INSCTCDE
Fungicide: Maneb at 0.8 kg in 340 l on 10 and 25 July	FUNGCIDE
Entomophthora spp, applied in live infected aphids on 9, 10, 11 July	ENTAPHID
Entomophthora virulenta, applied as resting-spore powder on 10 and 25 July	ENTSPORE

Basal applications: Manures: (0:14:28) at 400 kg. Weedkiller: Simazine at 1.1 kg in 220 l.

Seed: Minden, sown at 220 kg.

Cultivations, etc.:- Wheat stubble ploughed: 23 Jan, 1975. Potato ground chisel ploughed twice: 6 Feb. Spring-tine cultivated: 28 Feb. PK applied: 9 Apr. Seed sown: 22 Apr. Simazine applied: 24 Apr. Combine harvested: 29 Aug. Previous crops: Barley 1973, potatoes and winter wheat 1974.

NOTES: (1) As only small numbers of A. fabae appeared naturally the crop was inoculated with live adults on 25/26 July.
(2) During July weekly samples of aphids were collected for determination of the proportion infected by Entomophthora.
(3) The aphid population was assessed weekly during July.

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75/R/BE/4

*** TABLES OF MEANS ***

GRAIN TONNES/HECTARE

TREATMNT	
NONE	0.74
INSCTCDE	1.35
FUNGCIDE	0.62
ENTAPHID	0.58
ENTSPORE	0.61
MEAN	0.78

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	TREATMNT
SED	0.141

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	16	0.223	28.6

GRAIN MEAN DM% 89.1

PLOT AREA HARVESTED 0.00221

https://doi.org/10.23637/ERADOC-1-141

75/R/BE/5

SPRING BEANS

CONTROL OF WEEVILS

Object: To study the effects of several insecticides on control of weevils (and their parasites), weevil-transmitted viruses, and yield of field beans - Delafield.

Sponsors: A.J. Cockbain, J.H. Stevenson, P. Etheridge.

Design: 4 blocks of 6 plots.

Whole plot dimensions: 8.53 x 18.3. (Plots separated by fallows - 6.4 m).

Treatments: All combinations of insecticides:-

1. Sprays to foliage:	SPRAY
None	NONE
Fenitrothion at 0.75 kg	FENITRO
Malathion at 0.75 kg	MALATHIO
2. Granules to foliage:	GRANULE
None	NONE
Phorate at 1.1 kg	PHORATE

NOTE: Sprays, in 500 l, were applied on 22 May and 18 June. Granules were applied on 22 May and 20 June.

Basal applications: Manures: (0:14:28) at 410 kg placement drilled. Weedkiller: Simazine at 1.1 kg in 220 l. Insecticide: Menazon at 0.28 kg in 450 l.

Seed: Maris Bead, sown at 220 kg.

Cultivations, etc.:- Ploughed: 17 Jan, 1975. Spring-tine cultivated twice: 20 Apr. Seed sown and spring-tine cultivated: 22 Apr. Weedkiller applied: 24 Apr. Fallow areas rotary cultivated: 27 May, 25 June and 30 July. Menazon applied: 9 July. Combine harvested: 28 Aug. Previous crops: Winter wheat 1973, barley 1974.

NOTE: Amounts of damage by weevils were recorded on 21 May, and 30 May, and numbers of adults were estimated on 16 and 23 June. Incidence of viruses was assessed on 21 May, 24 June, 10 and 25 July and samples of seed were taken on 26 Aug to assess virus infection.

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75/R/BE/5

*** TABLES OF MEANS ***

GRAIN TONNES/HECTARE

SPRAY / GRANULE	NONE	FENITRO	MALATHIO	MEAN
NONE	1.41	1.91	1.74	1.68
PHORATE	1.44	1.93	1.92	1.76
MEAN	1.42	1.92	1.83	1.72

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	GRANULE	SPRAY	GRANULE SPRAY
SED	0.068	0.084	0.118

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	15	0.167	9.7

GRAIN MEAN DM% 86.2

PLOT AREA HARVESTED 0.00585

https://doi.org/10.23637/ERADOC-1-141

75/R/BE/7

SPRING BEANS

EFFECTS OF IN-ROW ALDICARB

Object: To study the effects of a range of rates of aldicarb applied in the rows on stem eelworm (Ditylenchus dipsaci) and weevil - transmitted viruses and the yield of field beans - Fosters O & E VI.

Sponsors: D.J. Hooper, A.J. Cockbain.

Design: 4 blocks of 4 plots.

Whole plot dimensions: 2.54 x 9.14.

Treatments: Rates of aldicarb (kg):-

	ALDICARB
None	0
1	1
2	2
4	4

NOTE: Aldicarb applied in bands over the open drills at sowing, harrowed in.

Basal applications: Manures: (0:14:28) at 750 kg. Weedkiller: Simazine at 1.1 kg in 340 l.

Seed: Maris Bead, sown at 220 kg.

Cultivations, etc.:- Ploughed: 17 Jan, 1975. PK applied, power harrowed: 23 Apr. Seed sown: 25 Apr. Weedkiller applied: 8 May. Combine harvested: 30 Aug. Previous crops: Beans 1973 and 1974.

NOTES: (1) Stems showing symptoms of attack by stem eelworm were counted on 5 Aug and samples of seed were taken at maturity to assess seed infestation.
(2) After harvest soil samples were taken to assess infestation by stem eelworm.

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75/R/BE/7

*** TABLES OF MEANS ***

GRAIN TONNES/HECTARE

ALDICARB	0	1	2	4	MEAN
	1.08	1.69	1.87	2.03	1.67

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	ALDICARB
SED	0.106

*** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION ***

STRATUM	DF	SE	CV%
BLOCK.WP	9	0.150	9.0

GRAIN MEAN DM% 87.0

PLOT AREA HARVESTED 0.00139

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75/R/P/1 and 75/W/P/1

POTATOES

VARIETIES

Object: To study the yield, susceptibility to fungal diseases and tolerance to potato cyst nematode (PCN) of several varieties of potatoes - Rothamsted (RH) Long Hoos I/II (PCN free) and Woburn (WH) Far Field I (PCN free) and Woburn (WI) Long Mead (PCN infected).

Sponsors: R. Moffitt, G.A. Hide, K. Evans.

Design: 3 randomised blocks of 7 plots, Long Hoos I/II (RH)
3 randomised blocks of 11 plots, Far Field I (WH) and Long Mead (WI)

Whole plot dimensions: (R) - 2.84 x 12.2, (W) - 4.27 x 12.2.

Treatments: Varieties:

Long Hoos I/II (RH)	Far Field (I/WH) & Long Mead (WI)	VARIETY
	Arran Banner	BANNER
Desiree	Desiree	DESIREE
King Edward		EDWARD
	Majestic	MAJESTIC
Maris Piper	Maris Piper	PIPER
	Maris Peer	PEER
Pentland Crown	Pentland Crown	CROWN
	Pentland Dell	DELL
Pentland Ivory	Pentland Ivory	IVORY
	Record	RECORD
Stormont Enterprise	Stormont Enterprise	ENTPRISE
Ulster Lancer	Ulster Lancer	LANCER

Basal applications:
Long Hoos I/II (RH): Manures: (13:13:20) at 1510 kg. Weedkiller: Linuron at 1.1 kg plus paraquat at 0.42 kg ion in 450 l. Insecticide: Demeton-s-methyl at 0.25 kg in 450 l. Fungicide: Mancozeb at 1.3 kg in 450 l.
Far Field I (WH): Manures: (13:13:20) at 1880 kg.
Long Mead (WI): Manures: (13:13:20) at 1860 kg.
Far Field I (WH) and Long Mead (WI): Weedkillers: Linuron at 1.2 kg plus paraquat at 0.28 kg ion in 280 l. Insecticide: Demeton-s-methyl at 0.25 kg in 280 l. Fungicide: Mancozeb at 1.3 kg in 390 l.

Cultivations, etc.:-
Long Hoos I/II (RH): Ploughed: 7 Jan, 1975. Spring-tine cultivated twice: 26 Apr, 5 May. NPK applied: 1 May. Spike rotary cultivated, potatoes planted: 7 May. Grubbed: 14 May. Rotary ridged: 22 May. Weedkiller applied: 30 May. Grubbed: 26 June. Insecticide applied: 27 June. Rotary ridged: 30 June. Fungicide applied: 28 July. Haulm mechanically destroyed: 26 Sept. Sprayed with undiluted BOV at 170 l: 29 Sept. Lifted: 13 Oct. Previous crops: Barley 1973, beans 1974.

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75/R/P/1 and 75/W/P/1

Far Field I (WH): Ploughed: 9-10 Jan, 1975. NPK applied: 18 Apr. Deep-tine cultivated: 21 Apr. Spring-tine cultivated: 3 May. Rotary harrowed, potatoes planted: 7 May. Weedkiller applied: 30 May. Grubbed: 23 June. Rotary ridged: 24 June. Insecticide applied: 26 June. Fungicide applied: 16 July. Arran Banner lifted by hand: 17 Sept. Remaining haulm mechanically destroyed: 29 Sept. Sprayed with undiluted BOV at 160 l: 2 Oct. Remaining varieties lifted: 8 Oct. Previous crops: Fallow 1973, beans 1974.

Long Mead (WI): Subsoiled, tines 140 cm apart and 60 cm deep: 19 Sept, 1974. Ploughed: 16 Jan, 1975. Spring-tine cultivated, NPK applied: 29 Apr. Rotary harrowed twice: 6 May, 7 May. Potatoes planted: 7 May. Weedkiller applied: 30 May. Grubbed: 23 June. Rotary ridged: 25 June. Insecticide applied: 26 June. Fungicide applied: 16 July. Hand weeded twice: 17 July, 29 July. Lifted: 16 Oct. Previous crops: Potatoes 1973, fallow 1974.

NOTES: (1) The stock of Arran Banner was found, during growth, to be mixed with Maris Piper, yields were not taken.
(2) Tubers were graded into six sizes. Incidence of Rhizoctonia solani and common scab on the produce was assessed.

https://doi.org/10.23637/ERADOC-1-141

75/R/P/1

LONG HOOS I/II (RH)

*** TABLE OF MEANS ***

VARIETY	TOTAL TUBERS TONNES/HECTARE	PERCENTAGE WARE 4.44CM (1.75 INCH) RIDDLE
DESIREE	12.1	80.7
EDWARD	14.9	53.8
PIPER	17.3	70.4
CROWN	19.1	89.8
IVORY	15.5	86.8
ENTPRISE	15.2	74.6
LANCER	14.1	70.1
MEAN	15.5	75.2

TOTAL TUBERS TONNES/HECTARE

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	VARIETY
SED	1.19

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	12	1.45	9.4

PLOT AREA HARVESTED 0.00235

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75/W/P/1

FAR FIELD I (WH)

*** TABLE OF MEANS ***

VARIETY	TOTAL TUBERS TONNES/HECTARE	PERCENTAGE WARE 4.44CM (1.75 INCH) RIDDLE
DESIREE	27.3	80.9
MAJESTIC	27.6	65.9
PIPER	28.4	51.2
PEER	19.9	43.7
CROWN	35.6	88.5
DELL	33.5	53.6
IVORY	32.2	89.5
RECORD	31.0	67.3
ENTPRISE	28.8	65.5
LANCER	28.8	65.1
MEAN	29.3	67.1

TOTAL TUBERS TONNES/HECTARE

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	VARIETY
SED	1.82

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	18	2.23	7.6

PLOT AREA HARVESTED 0.00130

https://doi.org/10.23637/ERADOC-1-141

75/W/P/1

LONG MEAD (WI)

*** TABLE OF MEANS ***

VARIETY	TOTAL TUBERS TONNES/HECTARE	PERCENTAGE WARE 4.44CM (1.75 INCH) RIDDLE
DESIREE	3.9	47.4
MAJESTIC	4.4	10.5
PIPER	17.1	51.7
PEER	0.9	7.4
CROWN	11.9	69.9
DELL	6.0	7.2
IVORY	7.8	41.8
RECORD	7.6	23.0
ENTPRISE	6.1	13.4
LANCER	3.7	8.4
MEAN	6.9	28.1

TOTAL TUBERS TONNES/HECTARE

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	VARIETY
SED	1.85

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	18	2.27	32.7

PLOT AREA HARVESTED 0.00130

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75/R/P/2 and 75/W/P/2

POTATOES

SEED STOCKS AND SEED TREATMENT

Object: To study the effects of treating tubers with systemic fungicides or a fumigant on tuber-borne diseases and yield of potatoes - Rothamsted (R) Long Hoos I/II and Woburn (W) Far Field I.

Sponsors: G.A. Hide, M.J. Adams, F. Bell.

Design: 4 randomised blocks of 6 plots split into 4 (plus one extra block for sampling).

Whole plot dimensions: 5.69 x 9.53.

Treatments: All combinations of:-

Whole plots: 1. Varieties: — VARIETY

King Edward, Long Hoos I/II (R) only	EDWARD
Maris Piper, Far Field I (W) only	PIPER
Pentland Crown	CROWN
Pentland Ivory	IVORY

2. Seed health: — HEALTH

ex FS, once-grown at Rothamsted in 1974	FS
ex VTSC, once-grown at Rothamsted in 1974	VTSC

Sub plots: 3. Fungicide to seed tubers: — FUNGCIDE

None	NONE
Benomyl	BENOMYL
See-butylamine	SEEBUTYL
Thiabendazole	THIABEND

Basal applications:-

Long Hoos I/II (R): Manures: (13:13:20) at 1510 kg. Weedkiller: Linuron at 1.1 kg plus paraquat at 0.42 kg ion in 450 l. Insecticide: Demeton-s-methyl at 0.25 kg in 450 l. Fungicide with insecticide: Mancozeb at 1.3 kg plus demeton-s-methyl at 0.25 kg in 450 l.

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Far Field I (W): Manures: (13:13:20) at 1880 kg. Weedkiller: Linuron at 1.2 kg plus paraquat at 0.28 kg ion in 280 l. Insecticide: Demeton-s-methyl at 0.25 kg in 280 l. Fungicide: Mancozeb at 1.3 kg in 390 l.

Cultivations, etc.:-

Long Hocs I/II (R): Ploughed: 7 Jan, 1975. Spring-tine cultivated: 26 Apr. NPK applied: 1 May. Spring-tine cultivated, spike rotary cultivated, potatoes planted: 5 May. Grubbed: 14 May. Rotary ridged: 22 May. Weedkiller applied: 30 May. Insecticide applied: 27 June. Fungicide with insecticide applied: 28 July. Haulm mechanically destroyed: 26 Sept. Sprayed with undiluted BOV at 170 l: 29 Sept. Lifted: 14 Oct. Previous crops: Barley 1973, beans 1974.

Far Field I (W): Ploughed: 9-10 Jan, 1975. NPK applied: 18 Apr. Deep-tine cultivated: 21 Apr. Spring-tine cultivated: 3 May. Rotary harrowed, potatoes planted: 8 May. Weedkiller applied: 30 May. Insecticide applied: 26 June. Fungicide applied: 16 July. Haulm mechanically destroyed: 29 Sept. Sprayed with undiluted BOV at 160 l: 2 Oct. Lifted: 9 Oct. Previous crops: Fallow 1973, beans 1974.

NOTES: (1) Counts of plant and stem numbers were made before burning off.
(2) Crop samples were taken in July and October for tuber weight, size and estimates of fungal infections.
(3) At harvest tubers were graded into 6 sizes and assessments made of Oospora, Rhizoctonia, Helminthosporium and Phoma infection.

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75/R/P/2 LONG HOOS I/II (R)

TOTAL TUBERS TONNES/HECTARE

*** TABLE OF MEANS ***

HEALTH VARIETY	FS	VTSC	MEAN
EDWARD	19.9	17.6	18.7
CROWN	22.6	20.7	21.6
IVORY	17.1	20.8	19.0
MEAN	19.8	19.7	19.8

FUNGCIDE VARIETY	NONE	BENOMYL	SECBUTYL	THIABEND	MEAN
EDWARD	18.3	18.9	20.1	17.7	18.7
CROWN	21.4	21.8	22.3	21.0	21.6
IVORY	18.4	20.2	18.3	18.9	19.0
MEAN	19.4	20.3	20.3	19.2	19.8

FUNGCIDE HEALTH	NONE	BENOMYL	SECBUTYL	THIABEND	MEAN
FS	19.9	20.2	20.0	19.3	19.8
VTSC	18.9	20.4	20.5	19.1	19.7
MEAN	19.4	20.3	20.3	19.2	19.8

VARIETY	FUNGCIDE HEALTH	NONE	BENOMYL	SECBUTYL	THIABEND
EDWARD	FS	20.1	20.4	20.6	18.6
	VTSC	16.6	17.3	19.6	16.8
CROWN	FS	22.6	23.0	22.2	22.3
	VTSC	20.2	20.6	22.4	19.6
IVORY	FS	16.9	17.1	17.3	17.0
	VTSC	19.9	23.3	19.4	20.8

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	VARIETY	HEALTH	FUNGCIDE	VARIETY HEALTH
SED	2.58	2.10	0.57	3.65

TABLE	VARIETY FUNGCIDE	HEALTH FUNGCIDE	VARIETY HEALTH FUNGCIDE
SED	2.72	2.22	3.84
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
VARIETY	0.99		
HEALTH		0.81	
VARIETY.HEALTH			1.41

https://doi.org/10.23637/ERADOC-1-141

75/R/P/2 LONG HOOS I/II (R)

TOTAL TUBERS TONNES/HECTARE

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	15	5.16	26.1
BLOCK.WP.SP	54	1.99	10.1

PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

*** TABLE OF MEANS ***

HEALTH VARIETY	FS	VTSC	MEAN
EDWARD	35.9	22.1	29.0
CROWN	74.9	69.9	72.4
IVORY	80.9	77.2	79.0
MEAN	63.9	56.4	60.1

FUNGCIDE VARIETY	NONE	BENOMYL	SECBUTYL	THIABEND	MEAN
EDWARD	30.1	27.2	29.0	29.7	29.0
CROWN	71.0	71.8	77.9	68.8	72.4
IVORY	78.0	79.0	79.0	80.2	79.0
MEAN	59.7	59.3	62.0	59.6	60.1

FUNGCIDE HEALTH	NONE	BENOMYL	SECBUTYL	THIABEND	MEAN
FS	64.5	64.2	63.6	63.3	63.9
VTSC	54.9	54.5	60.3	55.8	56.4
MEAN	59.7	59.3	62.0	59.6	60.1

VARIETY	FUNGCIDE HEALTH	NONE	BENOMYL	SECBUTYL	THIABEND
EDWARD	FS	37.1	36.0	33.3	37.3
	VTSC	23.1	18.4	24.7	22.1
CROWN	FS	75.4	75.3	77.6	71.3
	VTSC	66.7	68.3	78.1	66.3
IVORY	FS	81.2	81.2	80.0	81.3
	VTSC	74.8	76.8	78.1	79.1

PLOT AREA HARVESTED 0.00135

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75/W/P/2 FAR FIELD I (W)

TOTAL TUBERS TONNES/HECTARE

*** TABLE OF MEANS ***

HEALTH	FS	VTSC	MEAN
VARIETY			
PIPER	19.4	18.3	18.9
CROWN	32.9	33.5	33.2
IVORY	22.4	23.2	22.8
MEAN	24.9	25.0	25.0

FUNGCIDE	NONE	BENOMYL	SECBUTYL	THIABEND	MEAN
VARIETY					
PIPER	17.5	19.1	18.4	20.6	18.9
CROWN	34.2	31.5	32.7	34.3	33.2
IVORY	20.1	22.2	25.5	23.4	22.8
MEAN	23.9	24.2	25.5	26.1	25.0

FUNGCIDE	NONE	BENOMYL	SECBUTYL	THIABEND	MEAN
HEALTH					
FS	22.7	25.7	25.7	25.5	24.9
VTSC	25.1	22.8	25.3	26.7	25.0
MEAN	23.9	24.2	25.5	26.1	25.0

	FUNGCIDE	NONE	BENOMYL	SECBUTYL	THIABEND
VARIETY	HEALTH				
PIPER	FS	17.1	19.9	19.5	21.3
	VTSC	17.8	18.3	17.3	20.0
CROWN	FS	31.5	32.8	33.0	34.2
	VTSC	36.9	30.3	32.4	34.3
IVORY	FS	19.6	24.5	24.6	20.9
	VTSC	20.7	19.8	26.3	25.8

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	VARIETY	HEALTH	FUNGCIDE	VARIETY HEALTH
SED	1.25	1.02	0.99	1.76

TABLE	VARIETY FUNGCIDE	HEALTH FUNGCIDE	VARIETY HEALTH FUNGCIDE
SED	1.94	1.58	2.74
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
VARIETY	1.71		
HEALTH		1.40	
VARIETY .HEALTH			2.42

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75/H/P/2 FAR FIELD I (W)

TOTAL TUBERS TONNES/HECTARE

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	15	2.49	10.0
BLOCK.WP.SP	54	3.43	13.7

PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

*** TABLES OF MEANS ***

HEALTH VARIETY	FS	VTSC	MEAN
PIPER	28.1	22.8	25.5
CROWN	78.2	74.0	76.1
IVORY	74.9	70.1	72.5
MEAN	60.4	55.6	58.0

FUNGCIDE VARIETY	NONE	BENOMYL	SECBUTYL	THIABEND	MEAN
PIPER	24.1	26.8	23.6	27.3	25.5
CROWN	74.5	74.9	78.5	76.6	76.1
IVORY	69.2	70.2	75.5	75.1	72.5
MEAN	55.9	57.3	59.2	59.7	58.0

FUNGCIDE HEALTH	NONE	BENOMYL	SECBUTYL	THIABEND	MEAN
FS	59.0	60.4	61.3	60.9	60.4
VTSC	52.9	54.2	57.1	58.4	55.6
MEAN	55.9	57.3	59.2	59.7	58.0

VARIETY	FUNGCIDE HEALTH	NONE	BENOMYL	SECBUTYL	THIABEND
PIPER	FS	24.3	29.6	28.2	30.3
	VTSC	24.0	24.0	18.9	24.3
CROWN	FS	79.1	77.1	77.6	78.8
	VTSC	69.9	72.7	79.3	74.4
IVORY	FS	73.5	74.4	78.1	73.6
	VTSC	64.9	65.9	73.0	76.5

PLOT AREA HARVESTED 0.00135

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75/R/P/3

POTATOES

SEED SOURCES

Object: To study yields and tuber-borne diseases of potato stocks freed from these diseases by the use of stem cuttings and to compare these with local once-grown and bought-in certified stocks. The effects of irrigation are also studied - Long Hoos I/II.

Sponsors: G.A. Hide, D.H. Lapwood, M.J. Adams.

Design: 2 randomised blocks of 2 plots, split into 24 (plus one extra plot for sampling).

Whole plot dimensions: 1.42 x 9.53.

Treatments: All combinations of:-

Whole plots: 1. Irrigation:		IRRIGTN
	None	NONE
	Watered (total 216 mm)	WATERED
Sub plots: 2. Sources of King Edward seed tubers:		SEEDSRCE
	Healthy (ex Scotland VTSC), (2 plots/block)	HEALTHY
	Healthier (once-grown at Rothamsted from ex Scotland VTSC), (2 plots/block)	HEALTHY+
	Four different commercial stocks (ex VTSC)	COMM/1-COMM/4
	Eight different certified stocks (not ex VTSC)	CERT/1-CERT/8
	Eight different once-grown stocks ex Lincolnshire (not ex VTSC)	OG/1-OG/8

Basal applications: Manures: (13:13:20) at 1510 kg. Weedkillers: Linuron at 1.1 kg plus paraquat at 0.42 kg ion in 450 l. Fungicide: Mancozeb at 1.3 kg with demeton-s-methyl on the second occasion. Insecticide: Demeton-s-methyl at 0.25 kg in 450 l on two occasions.

Cultivations, etc.:- Ploughed: 7 Jan, 1975. Spring-tine cultivated: 26 Apr. NPK applied: 1 May. Spring-tine cultivated, spiked rotary cultivated, potatoes machine planted: 5 May. Grubbed: 14 May. Rotary ridged: 22 May. Weedkiller applied: 30 May. Grubbed: 26 June. Insecticide applied: 27 June. Rotary ridged: 30 June. Insecticide and fungicide applied: 28 July. Irrigation applied: 76 mm on 18 July, 51 mm on 26 July and 19 Aug, 38 mm on 29 Aug. Haulm mechanically destroyed: 26 Sept. Sprayed with undiluted BOV at 170 l: 29 Sept. Lifted: 13 Oct. Previous crops: Barley 1973, beans 1974.

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NOTES: (1) Counts of plant and stem numbers were made before burning off.
(2) Crop samples were taken on 10, 30 July, 18 August for assessment of rotting of mother tubers and infection of plants and of progeny tubers.
(3) At harvest tubers were graded into 6 sizes and assessments made of Oospora, Rhizoctonia, Helminthosporium and Phoma infections.
(4) One row of sub plots did not receive full irrigation and the yields have been adjusted by using covariates.

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75/R/P/3

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

IRRIGTN SEEDSRCE	NONE	WATERED	MEAN
HEALTHY	21.4	36.1	28.7
HEALTHY+	19.6	35.8	27.7
COMM/1	17.9	41.6	29.8
COMM/2	18.0	42.9	30.5
COMM/3	21.8	43.3	32.6
COMM/4	18.0	40.7	29.3
CERT/1	24.2	34.0	29.1
CERT/2	15.6	35.8	25.7
CERT/3	16.1	32.1	24.1
CERT/4	15.0	31.6	23.3
CERT/5	19.3	37.2	28.3
CERT/6	17.8	29.1	23.4
CERT/7	20.6	37.2	28.9
CERT/8	18.0	37.0	27.5
OG/1	21.2	37.4	29.3
OG/2	16.5	32.4	24.4
OG/3	16.0	29.4	22.7
OG/4	14.5	36.2	25.4
OG/5	17.6	34.7	26.1
OG/6	14.2	34.9	24.6
OG/7	12.6	31.4	22.0
OG/8	13.2	30.1	21.7
MEAN	17.9	35.5	26.7

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	SEEDSRCE	SEEDSRCE* IRRIGTN
SED	3.36(1)	4.80(1)
	2.91(2)	4.16(2)
	2.37(3)	3.39(3)

(1) ANY OF REMAINDER
(2) THE REMAINDER V HEALTHY OR HEALTHY+
(3) HEALTHY V HEALTHY+
* EXCEPT WHEN COMPARING MEANS WITH THE SAME LEVEL OF IRRIGTN

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP.SP	49	4.70	17.6

https://doi.org/10.23637/ERADOC-1-141

75/R/P/3

PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

*** TABLES OF MEANS ***

IRRIGTN	NONE	WATERED	MEAN
SEEDSRCE			
HEALTHY	26.6	53.4	40.0
HEALTHY+	33.5	52.9	43.2
COMM/1	37.7	56.2	46.9
COMM/2	30.2	59.0	44.6
COMM/3	35.2	56.8	46.0
COMM/4	23.0	51.6	37.3
CERT/1	39.4	59.5	49.5
CERT/2	27.5	47.8	37.6
CERT/3	33.4	46.9	40.2
CERT/4	28.4	40.2	34.3
CERT/5	36.1	50.3	43.2
CERT/6	38.3	52.8	45.5
CERT/7	47.7	60.2	53.9
CERT/8	41.6	62.7	52.1
OG/1	35.7	60.2	48.0
OG/2	27.2	53.6	40.4
OG/3	29.8	46.5	38.2
OG/4	28.1	50.9	39.5
OG/5	41.0	56.2	48.6
OG/6	31.7	56.8	44.2
OG/7	29.9	50.4	40.2
OG/8	31.7	46.7	39.2
MEAN	33.1	53.3	43.2

PLOT AREA HARVESTED 0.00135

https://doi.org/10.23637/ERADOC-1-141

75/R/P/4

POTATOES

BLIGHT AND APHID REFERENCE PLOTS

Object: To study the separate and combined effects of sprays to control blight and aphids on potatoes - Great Harpenden II.

Sponsors: O.J. Stedman, R.W. Gibson.

Design: 4 randomised blocks of 7 plots split into 3.

Whole plot dimensions: 8.53 x 9.53.

Treatments: All combinations of:-

Whole plots: 1. Blight fungicide: — FUNGCIDE

- None — NONE
- Mancozeb applied on 21 July at 1.3 kg in 450 l — MANCOZEB

2. Aphicide: — APHICIDE

- None — NONE
- Demeton-s-methyl applied early, on 24 June at 0.25 kg in 450 l — DEMETONE
- Demeton-s-methyl applied with the blight spray on 21 July on 0.25 kg in 450 l — DEMETONL

Sub plots: 3. Varieties: — VARIETY

- King Edward — EDWARD
- Majestic — MAJESTIC
- Pentland Crown — CROWN

together with one extra treatment, sprayed mancozeb only and split for varieties as above, plot used for sampling (no yields recorded).

Basal applications: Manures: (13:13:20) at 1510 kg. Weedkillers: Linuron at 1.1 kg with paraquat at 0.42 kg ion in 450 l.

https://doi.org/10.23637/ERADOC-1-141

Cultivations, etc.:- Ploughed: 14 Jan, 1975. Spring-tine cultivated and NPK applied: 30 Apr. Spiked rotary cultivated and potatoes machine planted: 6 May. Grubbed: 14 May. Rotary ridged: 22 May. Weedkillers applied: 30 May. Grubbed: 25 June. Rotary ridged: 4 July. Haulm mechanically destroyed: 25 Sept. Sprayed with undiluted BOV at 170 l: 1 Oct. Lifted: 15 Oct. Previous crops: Barley 1973 and 1974.

NOTE: Tuber samples were taken for blight determination.

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75/R/P/4

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

APHICIDE FUNGCIDE	NONE	DEMETONE	DEMETONL	MEAN
NONE	20.9	22.4	21.4	21.6
MANCOZEB	21.7	23.6	21.7	22.3
MEAN	21.3	23.0	21.5	21.9

VARIETY FUNGCIDE	EDWARD	MAJESTIC	CROWN	MEAN
NONE	18.5	19.0	27.2	21.6
MANCOZEB	19.5	19.6	27.8	22.3
MEAN	19.0	19.3	27.5	21.9

VARIETY APHICIDE	EDWARD	MAJESTIC	CROWN	MEAN
NONE	18.7	18.5	26.7	21.3
DEMETONE	20.0	20.8	28.2	23.0
DEMETONL	18.4	18.7	27.6	21.5
MEAN	19.0	19.3	27.5	21.9

FUNGCIDE	VARIETY APHICIDE	EDWARD	MAJESTIC	CROWN
NONE	NONE	18.3	17.9	26.6
	DEMETONE	19.3	20.6	27.3
	DEMETONL	18.0	18.5	27.6
MANCOZEB	NONE	19.1	19.1	26.8
	DEMETONE	20.6	21.0	29.1
	DEMETONL	18.8	18.9	27.5

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	FUNGCIDE	APHICIDE	VARIETY	FUNGCIDE APHICIDE
SED	0.36	0.44	0.49	0.62

TABLE	FUNGCIDE VARIETY	APHICIDE VARIETY	FUNGCIDE APHICIDE VARIETY
SED	0.67	0.82	1.16

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:

FUNGCIDE	0.69		
APHICIDE		0.85	
FUNGCIDE.APHICIDE			1.20

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75/R/P/4

TOTAL TUBERS TONNES/HECTARE

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	15	0.88	4.0
BLOCK.WP.SP	36	1.69	7.7

PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

APHICIDE / FUNGCIDE	NONE	DEMETONE	DEMETONL	MEAN
NONE	89.1	91.0	89.7	89.9
MANCOZEB	90.0	90.8	89.6	90.1
MEAN	89.6	90.9	89.7	90.0

VARIETY / FUNGCIDE	EDWARD	MAJESTIC	CROWN	MEAN
NONE	82.2	90.5	97.1	89.9
MANCOZEB	82.4	90.6	97.3	90.1
MEAN	82.3	90.6	97.2	90.0

VARIETY / APHICIDE	EDWARD	MAJESTIC	CROWN	MEAN
NONE	81.8	89.9	97.0	89.6
DEMETONE	83.7	91.8	97.1	90.9
DEMETONL	81.5	90.0	97.5	89.7
MEAN	82.3	90.6	97.2	90.0

FUNGCIDE	VARIETY / APHICIDE	EDWARD	MAJESTIC	CROWN
NONE	NONE	80.4	90.0	96.9
	DEMETONE	84.2	92.0	96.8
	DEMETONL	82.0	89.5	97.7
MANCOZEB	NONE	83.2	89.8	97.2
	DEMETONE	83.2	91.7	97.4
	DEMETONL	80.9	90.5	97.4

SUB PLOT AREA HARVESTED 0.00271

https://doi.org/10.23637/ERADOC-1-141 *pp 369*

75/R/P/6

POTATOES

NUTRIENTS AND BRUISING

Object: To study the effects of forms of nutrients on susceptibility to bruising and on yield of two varieties of potato - Long Hoos V1.

Sponsor: D.M. McIlroy.

Design: 2 randomised blocks of 36 plots.

Whole plot dimensions: 3.55 x 6.25.

Treatments: All combinations of:-

1. Varieties:	VARIETY
King Edward	EDWARD
Record	RECORD
2. Form of nitrogen (at 200 kg N):	N FORM
Calcium nitrate	NITRATE
Urea (+ nitrification inhibitor - 'N-Serve')	UREA
3. Form of cation:	CAT FORM
All as potassium (250 kg K20)	K
All as sodium (140 kg NA20)	NA
Part as potassium (125 kg K20), part as sodium (70 kg NA20)	K NA
4. Form of anion:	AN FORM
All as chloride	CL
All as sulphate	SO4
Half as sulphate, half as chloride	CL SO4

NOTE: Fertiliser treatments were applied on 21 Apr, 1975.

Basal applications: Manures: 250 kg P205 as triple superphosphate.
Weedkillers: Linuron at 1.1 kg and paraquat at 0.42 kg ion in 340 l.

Seed: King Edward, once grown Rothamsted seed.
Record, AA Certificate.

https://doi.org/10.23637/ERADOC-1-141 *pp 370*

Cultivations, etc.:- Ploughed: 19 Sept, 1974. P applied: 26 Mar, 1975. Spring-tine cultivated: 16 Apr. Power harrowed: 28 Apr. Rotary cultivated, ridged, potatoes planted by hand and covered in: 5 May. Weedkillers applied: 23 May. Lifted: 20 Oct. Previous crops: Beans 1973, barley 1974.

NOTES: (1) Counts of plant emergence were made on 12 June and of stem numbers on 1 July. Soil pH was determined on 9 July.
(2) The average depth of bruises and dry matter of the stem end of the cortex were determined at harvest.

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

N FORM / VARIETY	NITRATE	UREA	MEAN
EDWARD	19.5	21.1	20.3
RECORD	18.6	20.5	19.6
MEAN	19.1	20.8	19.9

CAT FORM / VARIETY	K	NA	K NA	MEAN
EDWARD	21.6	19.5	19.6	20.3
RECORD	18.2	20.2	20.2	19.6
MEAN	19.9	19.9	19.9	19.9

CAT FORM / N FORM	K	NA	K NA	MEAN
NITRATE	19.3	19.8	18.1	19.1
UREA	20.6	19.9	21.8	20.8
MEAN	19.9	19.9	19.9	19.9

AN FORM / VARIETY	CL	SO4	CL SO4	MEAN
EDWARD	20.5	19.4	20.9	20.3
RECORD	21.2	18.2	19.3	19.6
MEAN	20.9	18.8	20.1	19.9

AN FORM / N FORM	CL	SO4	CL SO4	MEAN
NITRATE	20.3	17.8	19.3	19.1
UREA	21.5	20.0	20.9	20.8
MEAN	20.9	18.8	20.1	19.9

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75/R/P/6

TOTAL TUBERS TONNES/HECTARE

*** TABLES OF MEANS ***

AN FORM	CL	SO4	CL SO4	MEAN
CAT FORM				
K	20.5	19.9	19.5	19.9
NA	20.1	18.5	21.1	19.9
K NA	22.1	18.0	19.7	19.9
MEAN	20.9	18.8	20.1	19.9

N FORM	NITRATE			UREA		
CAT FORM	K	NA	K NA	K	NA	K NA
VARIETY						
EDWARD	21.0	19.7	17.7	22.3	19.3	21.6
RECORD	17.6	19.9	18.4	18.9	20.5	22.0

N FORM	NITRATE			UREA		
AN FORM	CL	SO4	CL SO4	CL	SO4	CL SO4
VARIETY						
EDWARD	19.8	18.4	20.2	21.3	20.3	21.6
RECORD	20.7	16.8	18.5	21.7	19.7	20.1

	AN FORM	CL	SO4	CL SO4
VARIETY	CAT FORM			
EDWARD	K	21.9	23.1	19.9
	NA	19.6	18.2	20.8
	K NA	20.1	16.9	22.0
RECORD	K	19.0	16.6	19.1
	NA	20.5	18.8	21.4
	K NA	24.1	19.2	17.4

	AN FORM	CL	SO4	CL SO4
N FORM	CAT FORM			
NITRATE	K	17.6	20.4	19.8
	NA	21.3	16.6	21.6
	K NA	21.9	15.8	16.6
UREA	K	23.3	19.3	19.2
	NA	18.8	20.4	20.6
	K NA	22.3	20.3	22.8

		AN FORM	CL	SO4	CL SO4
VARIETY	N FORM	CAT FORM			
EDWARD	NITRATE	K	19.7	22.9	20.4
		NA	19.1	18.4	21.7
		K NA	20.6	14.0	18.5
	UREA	K	24.1	23.4	19.4
		NA	20.2	17.9	19.8
		K NA	19.5	19.7	25.5
RECORD	NITRATE	K	15.6	17.9	19.2
		NA	23.4	14.9	21.5
		K NA	23.1	17.5	14.6
	UREA	K	22.5	15.3	19.0
		NA	17.5	22.8	21.3
		K NA	25.1	20.9	20.1

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75/R/P/6

TOTAL TUBERS TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	VARIETY	N FORM	CAT FORM	AN FORM
SED	0.36	0.86	1.05	1.05

TABLE	VARIETY N FORM	VARIETY CAT FORM	N FORM CAT FORM	VARIETY AN FORM
SED	1.21	1.48	1.48	1.48

TABLE	N FORM AN FORM	CAT FORM AN FORM	VARIETY N FORM CAT FORM	VARIETY N FORM AN FORM
SED	1.48	1.81	2.10	2.10

TABLE	VARIETY CAT FORM AN FORM	N FORM CAT FORM AN FORM	VARIETY N FORM CAT FORM AN FORM
SED	2.57	2.57	3.63

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	35	3.63	18.2

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75/R/P/6

PERCENTAGE WARE 3.18 CM (1.25 INCH) RIDDLE

*** TABLES OF MEANS ***

N FORM	NITRATE	UREA	MEAN
VARIETY			
EDWARD	86.2	85.5	85.8
RECORD	88.9	87.9	88.4
MEAN	87.5	86.7	87.1

CAT FORM	K	NA	K NA	MEAN
VARIETY				
EDWARD	85.9	85.7	85.9	85.8
RECORD	89.2	87.6	88.4	88.4
MEAN	87.6	86.7	87.1	87.1

CAT FORM	K	NA	K NA	MEAN
N FORM				
NITRATE	87.7	87.4	87.6	87.5
UREA	87.5	86.0	86.6	86.7
MEAN	87.6	86.7	87.1	87.1

AN FORM	CL	SO4	CL SO4	MEAN
VARIETY				
EDWARD	86.2	84.0	87.3	85.8
RECORD	89.2	87.7	88.4	88.4
MEAN	87.7	85.8	87.8	87.1

AN FORM	CL	SO4	CL SO4	MEAN
N FORM				
NITRATE	88.0	86.7	87.9	87.5
UREA	87.3	85.0	87.8	86.7
MEAN	87.7	85.8	87.8	87.1

AN FORM	CL	SO4	CL SO4	MEAN
CAT FORM				
K	88.7	86.2	87.9	87.6
NA	86.7	85.4	87.9	86.7
K NA	87.7	85.9	87.7	87.1
MEAN	87.7	85.8	87.8	87.1

N FORM	NITRATE			UREA		
CAT FORM	K	NA	K NA	K	NA	K NA
VARIETY						
EDWARD	85.7	87.0	86.0	86.1	84.5	85.7
RECORD	89.6	87.3	89.2	88.8	87.5	87.5

https://doi.org/10.23637/ERADOC-1-141 *pp 374*

75/R/P/6

PERCENTAGE WARE 3.18CM (1.25 INCH) RIDDLE

*** TABLES OF MEANS ***

N FORM AN FORM VARIETY	NITRATE CL	NITRATE SO4	NITRATE CL SO4	UREA CL	UREA SO4	UREA CL SO4
EDWARD	86.1	85.2	87.3	86.3	82.8	87.3
RECORD	90.0	88.2	88.4	88.4	87.1	88.3

VARIETY	AN FORM CAT FORM	CL	SO4	CL SO4
EDWARD	K	87.3	84.2	86.3
	NA	86.0	83.3	87.9
	K NA	85.3	84.6	87.7
RECORD	K	90.0	88.2	89.5
	NA	87.4	87.5	87.9
	K NA	90.1	87.3	87.7

N FORM CAT	AN FORM CAT FORM	CL	SO4	CL SO4
NITRATE	K	88.1	86.7	88.1
	NA	88.3	85.6	88.2
	K NA	87.7	87.8	87.3
UREA	K	89.2	85.6	87.6
	NA	85.1	85.3	87.6
	K NA	87.7	84.0	88.2

VARIETY	N FORM CAT	AN FORM CAT FORM	CL	SO4	CL SO4
EDWARD	NITRATE	K	85.4	85.9	85.8
		NA	87.9	84.5	88.4
		K NA	85.1	85.2	87.6
	UREA	K	89.2	82.4	86.7
		NA	84.1	82.1	87.4
		K NA	85.5	83.9	87.8
RECORD	NITRATE	K	90.9	87.5	90.5
		NA	88.7	86.6	88.0
		K NA	90.2	90.4	86.9
	UREA	K	89.1	88.8	88.6
		NA	86.1	88.4	87.8
		K NA	90.0	84.1	88.5

PLOT AREA HARVESTED 0.00076

https://doi.org/10.23637/ERADOC-1-141 *pp 375*

75/R/ON/1

WINTER AND SPRING ONIONS

STEM-EELWORM CONTROL

Object: To study the effects of rates and times of applying aldicarb on control of stem-eelworm (Ditylenchus dipsaci) and on the yield of winter onions. Spring-sown onions treated with aldicarb are also included - Great Field II.

Sponsor: A.G. Whitehead.

Design: 3 randomised blocks of 10 plots.

Whole plot dimensions: 1.22 x 5.18.

Treatments: Aldicarb (kg):-

	ALDICARB
To winter onions:	
None (2 plots/block)	0
1 in seedbed, 1 in spring	1+1
2 in seedbed, none in spring	2
2 in seedbed, 2 in spring	2+2
4 in seedbed, none in spring	4
4 in seedbed, 4 in spring	4+4
8 in seedbed, none in spring	8
To spring onions:	
4 kg in seedbed (2 plots/block)	

NOTE: Yields were not taken from the spring-sown onions.

Standard applications: Manures: Autumn-sown plots: (13:13:20) at 1040 kg, 'Nitro-Chalk' at 450 kg. Spring-sown plots: (13:13:20) at 1880 kg. Weedkiller: Propachlor ('Ramrod' at 6.7 kg in 450 l).

Seed: Winter: Imai Early Yellow, dressed with dieldrin, sown at 6.7 kg.
Spring: Robusta, dressed with dieldrin, sown at 6.7 kg.

Cultivations, etc.:- Ploughed: 22 Aug, 1974. Autumn-sown plots: rotary cultivated twice, NPK and aldicarb applied, seed sown: 22 Aug. Weedkiller applied: 27 Aug. N applied: 14 Feb, 1975. Aldicarb applied: 21 Apr. Lifted: 4 July. Spring-sown plots: Weedkiller applied: 27 Aug, 1974. Rotary cultivated, NPK and aldicarb applied and seed sown: 21 Apr, 1975. Previous crops: Onions 1973, barley 1974.

NOTES: (1) Soil samples were taken from winter-sown plots on 23 July for counts of Ditylenchus dipsaci.
(2) Onions were stored until 3 October to determine loss of weight and percentage of bulbs rotting after harvest.

https://doi.org/10.23637/ERADOC-1-141 *pp 376*

75/R/ON/1

SALEABLE ONIONS TONNES/HECTARE

*** TABLES OF MEANS ***

ALDICARB	0	1+1	2	2+2	4	4+4	8	MEAN
	13.2	18.6	18.8	19.3	18.5	19.2	19.3	17.5

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	ALDICARB
SED	2.74(1)
	3.17(2)

(1) 0 V ANY OF REMAINDER
(2) ANY OF REMAINDER

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	15	3.88	22.1

PLOT AREA HARVESTED 0.00063

https://doi.org/10.23637/ERADOC-1-141

75/R/SW/1

SWEDES

EFFECTS OF FUNGICIDES AND INSECTICIDE

Object: To study the effects of fungicides and insecticide on mildew, viruses and yield of swedes sown early or late - Long Hoos V 4.

Sponsors: J.F. Jenkyn, C.J. Rawlinson.

Design: 3 randomised blocks of 12 plots.

Whole plot dimensions: 1.91 x 5.49.

Treatments: All combinations of:-

1. Sowing date: — SOWDATE

Early, 1 May	EARLY
Late, 23 June	LATE

2. Chemicals and times of application: — CHEMICAL

None	NONE
Tridemorph to early growth	TR/E
Tridemorph to late growth	TR/L
Tridemorph to early + late growth	TR/EL
Tridemorph and pirimicarb to early + late growth	TR+PI/EL
Benomyl to early + late growth	BEN/EL

NOTES: (1) Dates of spraying:
SOWDATE EARLY to Early growth: 24 June, 25 July
SOWDATE EARLY to Late growth: 22 Aug, 1 Sept, 22 Sept
SOWDATE LATE to Early growth: 22 Aug, 1 Sept
SOWDATE LATE to Late growth: 22 Sept
An additional pirimicarb spray was applied to CHEMICAL TR+PI/EL - to SOWDATE EARLY on 13 June, to SOWDATE LATE on 25 July.
(2) Chemicals were applied in 340 l:-
Tridemorph at 0.53 kg, benomyl at 1.0 kg, pirimicarb at 0.14 kg.

Basal applications: Manures: (24:14:14) at 730 kg. Weedkiller: Trifluralin ('Treflan' at 2.3 l in 340 l).

Seed: Wilhelmsburger, sown at 4.5 kg.

Cultivations: Ploughed: 19 Sept, 1974. NPK applied: 28 Apr, 1975.
Early-sown plots: Weedkiller applied and power harrowed: 30 Apr.
Seed sown: 1 May.
Late-sown plots: Weedkiller applied, rotary cultivated and seed sown: 23 June.
Lifted: 24 Nov. Previous crops: Potatoes 1973, wheat and barley 1974.

NOTE: Mildew and virus infections were assessed at intervals throughout the season.

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*** TABLES OF MEANS ***

ROOTS TONNES/HECTARE

CHEMICAL SOWDATE	NONE	TR/E	TR/L	TR/EL	TR+PI/EL	BEN/EL	MEAN
EARLY	20.6	21.5	23.6	28.4	35.4	32.4	27.0
LATE	19.8	25.9	16.9	20.8	21.3	27.5	22.0
MEAN	20.2	23.7	20.3	24.6	28.3	30.0	24.5

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	SOWDATE	CHEMICAL	SOWDATE CHEMICAL
SED	1.25	2.16	3.06

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	22	3.74	15.3

ROOT NUMBER THOUSANDS/HECTARE

CHEMICAL SOWDATE	NONE	TR/E	TR/L	TR/EL	TR+PI/EL	BEN/EL	MEAN
EARLY	111.1	119.6	102.6	121.7	104.7	114.8	112.4
LATE	86.1	85.6	89.3	92.5	81.3	75.5	85.0
MEAN	98.6	102.6	95.9	107.1	93.0	95.1	98.7

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	SOWDATE	CHEMICAL	SOWDATE CHEMICAL
SED	5.57	9.65	13.65

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	22	16.72	16.9

PLOT AREA HARVESTED 0.00063

https://doi.org/10.23637/ERADOC-1-141

75/R/LP/1

LUPINS

INOCULATION, N AND PATHOGEN CONTROL

Object: To study the effects of Rhizobium inoculation, nitrogen fertiliser and a range of pesticides on growth, yield and control of pathogens of two varieties of grain lupins - Long Hoos V 2.

Sponsors: P.J. Dart, A.J. Cockbain, J.C. Wilson.

Design: Single replicate of 4 plots split into 16.

Whole plot dimensions: 8.99 x 24.7.

Treatments: All combinations of:-

Whole plots:	1. Varieties:	VARIETY
	Lupinus angustifolius sown at 70 kg	ANGUSTIF
	Lupinus albus, var.Kievsky sown at 160 kg	ALBUS K
	2. Rhizobium inoculation:	RHIZOB
	None	NONE
	Inoculated	INOC
Sub plots:	3. Nitrogen fertiliser to seedbed (kg N):	N
	Nitrogen	0
	150 on 28 Apr	150
	4. Nematicide to seedbed:	NEMACIDE
	None	NONE
	Aldicarb at 10 kg on 29 May	ALDICARB
	5. Insecticide, foliar spray:	INSCTCDE
	None	NONE
	Menazon at 0.28 kg in 340 l on 30 June	MENAZON
	6. Fungicide, foliar spray:	FUNGCIDE
	None	NONE
	Benomyl at 1.12 kg in 340 l on 17 July	BENOMYL

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Basal applications: Manures: (0:14:28) at 820 kg. Weedkiller: Trifluralin ('Treflan' at 2.3 l in 340 l).

Cultivations, etc.:- Ploughed: 5 Feb, 1975. Spring-tine cultivated: 16 Apr. PK applied: 28 Apr. Power harrowed and seed sown: 29 Apr. Weedkiller applied: 30 Apr. Combine harvested: 18 Sept. Previous crops: Potatoes 1973, barley 1974.

NOTES: (1) Assessments of weevil damage were made on 12 June, of virus infection on 2 July and of aphid infestations at 10-16 day intervals from 12 June to 26 Aug.
(2) Plant emergence counts were made on 25 June.

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LUPINS

*** TABLES OF MEANS ***

INSCTCDE N	NONE	DEMETON	MEAN
0	1.28	1.29	1.28
150	1.36	1.42	1.39
MEAN	1.32	1.36	1.34

INSCTCDE NEMACIDE	NONE	DEMETON	MEAN
NONE	1.25	1.25	1.25
ALDICARB	1.38	1.46	1.42
MEAN	1.32	1.36	1.34

FUNGCIDE VARIETY	NONE	BENOMYL	MEAN
ANGUSTIF	0.80	0.99	0.90
ALBUSK	1.79	1.76	1.77
MEAN	1.29	1.38	1.34

FUNGCIDE RHIZOB	NONE	BENOMYL	MEAN
NONE	1.24	1.25	1.24
INOC	1.35	1.50	1.43
MEAN	1.29	1.38	1.34

FUNGCIDE N	NONE	BENOMYL	MEAN
0	1.21	1.36	1.28
150	1.38	1.39	1.39
MEAN	1.29	1.38	1.34

FUNGCIDE NEMACIDE	NONE	BENOMYL	MEAN
NONE	1.24	1.26	1.25
ALDICARB	1.35	1.50	1.42
MEAN	1.29	1.38	1.34

FUNGCIDE INSCTCDE	NONE	BENOMYL	MEAN
NONE	1.27	1.37	1.32
DEMETON	1.32	1.39	1.36
MEAN	1.29	1.38	1.34

RHIZOB	NONE		INOC	
N	0	150	0	150
VARIETY				
ANGUSTIF	0.77	0.96	0.95	0.91
ALBUSK	1.47	1.78	1.95	1.90

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LUPINS

*** TABLES OF MEANS ***

RHIZOB VARIETY	NONE	INOC	MEAN
ANGUSTIF	0.86	0.93	0.90
ALBUSK	1.62	1.92	1.77
MEAN	1.24	1.43	1.34

N VARIETY	0	150	MEAN
ANGUSTIF	0.86	0.93	0.90
ALBUSK	1.71	1.84	1.77
MEAN	1.28	1.39	1.34

N RHIZOB	0	150	MEAN
NONE	1.12	1.37	1.24
INOC	1.45	1.40	1.43
MEAN	1.28	1.39	1.34

NEMACIDE VARIETY	NONE	ALDICARB	MEAN
ANGUSTIF	0.83	0.96	0.90
ALBUSK	1.66	1.88	1.77
MEAN	1.25	1.42	1.34

NEMACIDE RHIZOB	NONE	ALDICARB	MEAN
NONE	1.17	1.32	1.24
INOC	1.32	1.53	1.43
MEAN	1.25	1.42	1.34

NEMACIDE N	NONE	ALDICARB	MEAN
0	1.19	1.37	1.28
150	1.30	1.47	1.39
MEAN	1.25	1.42	1.34

INSCTCDE VARIETY	NONE	DEMETON	MEAN
ANGUSTIF	0.87	0.92	0.90
ALBUSK	1.76	1.79	1.77
MEAN	1.32	1.36	1.34

INSCTCDE RHIZOB	NONE	DEMETON	MEAN
NONE	1.28	1.21	1.24
INOC	1.36	1.50	1.43
MEAN	1.32	1.36	1.34

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LUPINS

*** TABLES OF MEANS ***

RHIZOB	NONE		INOC	
NEMACIDE	NONE	ALDICARB	NONE	ALDICARB
VARIETY				
ANGUSTIF	0.82	0.91	0.85	1.01
ALBUSK	1.53	1.72	1.80	2.05

N	0		150	
NEMACIDE	NONE	ALDICARB	NONE	ALDICARB
VARIETY				
ANGUSTIF	0.78	0.94	0.88	0.98
ALBUSK	1.61	1.81	1.72	1.96

N	0		150	
NEMACIDE	NONE	ALDICARB	NONE	ALDICARB
RHIZOB				
NONE	1.05	1.19	1.30	1.44
INOC	1.34	1.56	1.31	1.50

RHIZOB	NONE		INOC	
INSCTCDE	NONE	DEMETON	NONE	DEMETON
VARIETY				
ANGUSTIF	0.87	0.86	0.88	0.98
ALBUSK	1.68	1.57	1.84	2.01

N	0		150	
INSCTCDE	NONE	DEMETON	NONE	DEMETON
VARIETY				
ANGUSTIF	0.83	0.89	0.91	0.95
ALBUSK	1.72	1.70	1.80	1.88

N	0		150	
INSCTCDE	NONE	DEMETON	NONE	DEMETON
RHIZOB				
NONE	1.16	1.08	1.39	1.34
INOC	1.40	1.50	1.32	1.49

NEMACIDE	NONE		ALDICARB	
INSCTCDE	NONE	DEMETON	NONE	DEMETON
VARIETY				
ANGUSTIF	0.82	0.85	0.92	1.00
ALBUSK	1.68	1.65	1.84	1.93

NEMACIDE	NONE		ALDICARB	
INSCTCDE	NONE	DEMETON	NONE	DEMETON
RHIZOB				
NONE	1.21	1.14	1.34	1.29
INOC	1.29	1.36	1.42	1.63

NEMACIDE	NONE		ALDICARB	
INSCTCDE	NONE	DEMETON	NONE	DEMETON
N				
0	1.21	1.18	1.34	1.41
150	1.28	1.32	1.43	1.52

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LUPINS

*** TABLES OF MEANS ***

RHIZOB	NONE		INOC	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
VARIETY				
ANGUSTIF	0.75	0.93	0.85	1.01
ALBUSK	1.73	1.52	1.85	2.00

N	0		150	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
VARIETY				
ANGUSTIF	0.76	0.97	0.85	1.02
ALBUSK	1.66	1.76	1.92	1.76

N	0		150	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
RHIZOB				
NONE	1.06	1.19	1.42	1.32
INOC	1.35	1.54	1.35	1.46

NEMACIDE	NONE		ALDICARB	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
VARIETY				
ANGUSTIF	0.73	0.94	0.87	1.05
ALBUSK	1.75	1.57	1.82	1.95

NEMACIDE	NONE		ALDICARB	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
RHIZOB				
NONE	1.19	1.15	1.28	1.35
INOC	1.29	1.36	1.41	1.64

NEMACIDE	NONE		ALDICARB	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
N				
0	1.16	1.23	1.26	1.49
150	1.32	1.28	1.44	1.50

INSCTCDE	NONE		DEMETON	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
VARIETY				
ANGUSTIF	0.73	1.01	0.87	0.97
ALBUSK	1.80	1.72	1.78	1.80

INSCTCDE	NONE		DEMETON	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
RHIZOB				
NONE	1.26	1.29	1.21	1.22
INOC	1.27	1.45	1.43	1.56

INSCTCDE	NONE		DEMETON	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
N				
0	1.20	1.35	1.21	1.37
150	1.33	1.38	1.44	1.40

INSCTCDE	NONE		DEMETON	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
NEMACIDE				
NONE	1.24	1.26	1.24	1.26
ALDICARB	1.29	1.48	1.41	1.52

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LUPINS

*** TABLES OF MEANS ***

TABLE	N	NEMACIDE	INSCTCDE	FUNGCIDE	VARIETY* N
SED	0.040	0.040	0.040	0.040	0.056

TABLE	RHIZOB* N	VARIETY* NEMACIDE	RHIZOB* NEMACIDE	N NEMACIDE	VARIETY* INSCTCDE
SED	0.056	0.056	0.056	0.056	0.056

TABLE	RHIZOB* INSCTCDE	N INSCTCDE	NEMACIDE INSCTCDE	VARIETY* FUNGCIDE	RHIZOB* FUNGCIDE
SED	0.056	0.056	0.056	0.056	0.056

TABLE	N FUNGCIDE	NEMACIDE FUNGCIDE	INSCTCDE FUNGCIDE	VARIETY* RHIZOB	VARIETY* RHIZOB N NEMACIDE
SED	0.056	0.056	0.056	0.079	0.079

TABLE	VARIETY* N NEMACIDE	RHIZOB* N NEMACIDE	VARIETY* RHIZOB INSCTCDE	VARIETY* N INSCTCDE	RHIZOB* N INSCTCDE
SED	0.079	0.079	0.079	0.079	0.079

TABLE	VARIETY* NEMACIDE INSCTCDE	RHIZOB* NEMACIDE INSCTCDE	N NEMACIDE INSCTCDE	VARIETY* RHIZOB FUNGCIDE	VARIETY* N FUNGCIDE
SED	0.079	0.079	0.079	0.079	0.079

TABLE	RHIZOB* N FUNGCIDE	VARIETY* NEMACIDE FUNGCIDE	RHIZOB* NEMACIDE FUNGCIDE	N NEMACIDE FUNGCIDE	VARIETY* INSCTCDE FUNGCIDE
SED	0.079	0.079	0.079	0.079	0.079

TABLE	RHIZOB* INSCTCDE FUNGCIDE	N INSCTCDE FUNGCIDE	NEMACIDE INSCTCDE FUNGCIDE
SED	0.079	0.079	0.079

* WITHIN SAME LEVEL OF VARIETY OR RHIZOB OR VARIETY.RHIZOB (WHICHEVER IS APPLICABLE) ONLY

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
WP.SP	22	0.158	11.8

GRAIN MEAN DM% 83.3

SUB PLOT AREA HARVESTED 0.00052

https://doi.org/10.23637/ERADOC-1-141

75/W/NB/1

NAVY BEANS

INOCULANTS, VARIETIES AND N

Object: To study the effects of different Rhizobium strains and rates and times of applying nitrogen fertilizer on yield and nodulation of two varieties of navy beans - Woburn, White Horse.

Sponsors: A.R.J. Eaglesham, P.J. Dart.

Design: Single replicate of 2 x 5 x 5 x 2 fully randomised.

Whole plot dimensions: 1.90 x 4.27.

Treatments: All combinations of:-

1. Varieties:	VARIETY
Limelight	LL
Purley King	PK
2. Rhizobium inoculants:	RHIZOBUM
None	0
1	1
2	2
3	3
4	4
3. Rates of nitrogen fertilizer (kg N):	N RATE
None	0
150	150
200	200
250	250
300	300
4. Times of applying nitrogen fertilizer:	N TIME
Early, 29 May	EARLY
Late, 30 July	LATE

Basal applications: Manures: (0:14:28) at 450 kg. Weedkillers: Paraquat at 0.56 kg ion in 280 l. Trifluralin at 1.1 kg in 340 l.

Seed: Varieties: Limelight, sown at 290 kg.
Purley King, sown at 110 kg.

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Cultivations, etc.:- Paraquat applied: 19 Sept, 1974. Subsoiled: Tines 140 cm apart and 56 cm deep: 14 Oct. Ploughed: 18 Dec. Spring-tine cultivated three times, the second time with crumbler: 3 Mar, 1975, 21 Apr, 22 May. PK applied, trifluralin applied, power harrowed twice: 27 May. Spring-tine cultivated, seed sown: 28 May. Hand harvested: 21 Aug, 27 Aug, 2 Sept, 29 Sept.

NOTES: (1) Assessments were made during the growing season of nodulation and nitrogenase activity.
(2) Samples were taken of stems, leaves and pods, during the growing season, for dry matter yields.

https://doi.org/10.23637/ERADOC-1-141

75/W/NB/1

NAVY BEANS

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

RHIZOBUM VARIETY	0	1	2	3	4	MEAN
LL	2.54	2.24	2.13	2.12	2.28	2.26
PK	2.68	2.66	2.79	2.14	2.40	2.54
MEAN	2.61	2.45	2.46	2.13	2.34	2.40

RHIZOBUM N RATE	0	1	2	3	4	MEAN
150	2.15	2.07	2.23	2.10	2.19	2.15
200	2.72	2.88	2.74	2.12	2.39	2.57
250	2.72	2.64	2.10	2.25	2.56	2.46
300	2.85	2.22	2.77	2.05	2.22	2.42
MEAN	2.61	2.45	2.46	2.13	2.34	2.40

RHIZOBUM N TIME	0	1	2	3	4	MEAN
EARLY	2.46	2.50	2.53	1.92	2.40	2.37
LATE	2.76	2.40	2.39	2.34	2.27	2.43
MEAN	2.61	2.45	2.46	2.13	2.34	2.40

N RATE VARIETY	150	200	250	300	MEAN
LL	1.93	2.42	2.38	2.31	2.26
PK	2.36	2.71	2.53	2.53	2.54
MEAN	2.15	2.57	2.46	2.42	2.40

N RATE N TIME	150	200	250	300	MEAN
EARLY	2.12	2.61	2.30	2.43	2.37
LATE	2.18	2.53	2.61	2.41	2.43
MEAN	2.15	2.57	2.46	2.42	2.40

N TIME VARIETY	EARLY	LATE	MEAN
LL	2.33	2.19	2.26
PK	2.40	2.67	2.54
MEAN	2.37	2.43	2.40

VARIETY	LL		PK	
N TIME	EARLY	LATE	EARLY	LATE
N RATE				
150	1.89	1.97	2.34	2.38
200	2.60	2.25	2.62	2.81
250	2.37	2.39	2.23	2.84
300	2.47	2.15	2.40	2.67

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75/W/NB/1

NAVY BEANS

GRAIN TONNES/HECTARE

*** TABLE OF MEANS ***

VARIETY N TIME RHIZOBUM	LL EARLY	LATE	PK EARLY	LATE
0	2.58	2.49	2.35	3.02
1	2.24	2.25	2.77	2.55
2	2.28	1.98	2.79	2.80
3	2.15	2.09	1.70	2.59
4	2.41	2.14	2.39	2.41

N RATE	RHIZOBUM N TIME	0	1	2	3	4
150	EARLY	2.05	2.18	2.53	1.86	1.96
	LATE	2.24	1.96	1.93	2.33	2.42
200	EARLY	2.58	3.11	2.68	2.11	2.58
	LATE	2.85	2.65	2.81	2.13	2.20
250	EARLY	2.61	2.43	1.89	1.94	2.63
	LATE	2.83	2.85	2.32	2.57	2.49
300	EARLY	2.61	2.30	3.03	1.78	2.45
	LATE	3.10	2.14	2.50	2.32	1.99

VARIETY	RHIZOBUM N RATE	0	1	2	3	4
LL	150	1.89	2.03	1.58	2.01	2.14
	200	2.57	2.38	2.43	2.15	2.59
	250	2.79	2.38	2.08	2.16	2.48
	300	2.90	2.18	2.42	2.16	1.89
PK	150	2.40	2.11	2.86	2.18	2.23
	200	2.86	3.38	3.05	2.10	2.18
	250	2.65	2.90	2.13	2.35	2.64
	300	2.81	2.26	3.12	1.95	2.54

N RATE 0

RHIZOBUM VARIETY	0	1	2	3	4	MEAN
LL	1.68	2.09	1.94	2.15	2.08	1.99
PK	2.18	2.76	2.34	2.86	2.23	2.47
MEAN	1.93	2.43	2.14	2.51	2.15	2.23

GRAND MEAN 2.37

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75/W/NB/1

NAVY BEANS

GRAIN TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	VARIETY	RHIZOBUM	N RATE	N TIME	RHIZOBUM VARIETY
SED	0.099	0.157	0.141	0.099	0.222

TABLE	RHIZOBUM N RATE	RHIZOBUM N TIME	N RATE VARIETY	N RATE N TIME	N TIME VARIETY
SED	0.314	0.222	0.199	0.199	0.141

TABLE	VARIETY N TIME N RATE	VARIETY N TIME RHIZOBUM	RHIZOBUM N RATE N TIME	RHIZOBUM VARIETY N RATE
SED	0.281	0.314	0.445	0.445

TABLE	VARIETY N RATE 0	RHIZOBUM N RATE 0	RHIZOBUM VARIETY N RATE 0
SED	0.199	0.314	0.445

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
WP	20	0.4446	18.8

MEAN DM% 91.1

PLOT AREA HARVESTED 0.00049

https://doi.org/10.23637/ERADOC-1-141 *pp 391*

75/R/G/1 and 75/W/G/1

GRASS

AQUEOUS AMMONIA AND NITRIFICATION INHIBITORS

Object: To study the effects of two nitrification inhibitors on autumn and spring-injected aqueous ammonia - Rothamsted (R) Claycroft and Woburn (W) Bull Field.

Sponsors: J. Ashworth, G.G. Briggs, A. Penny.

Design: Claycroft (R): 4 randomised blocks of 8 plots.
Bull Field (W): 3 randomised blocks of 8 plots.

Whole plot dimensions: 2.43 x 9.14.

Treatments: All combinations of:-

1. Nitrification inhibitors (added with aqueous ammonia, itself applied at 250 kg N/ha): INHIBITR

None	-
Carbon disulphide at 15 kg/ha	CS
'N-serve' (2-chloro-6-trichloromethyl-pyridine) at 2.5 kg/ha	NS

2. Times of applying aqueous ammonia: N TIME

Autumn 1974	AUTUMN
Spring 1975	SPRING

together with two extra plots: EXTRA

No nitrogen	NO N
'Nitro-Chalk' at 250 kg N/ha, dressing divided between cuts in 1975.	NC

Basal manuring: (0:14:28) at 500 kg.

Seed: Claycroft (R): Gremie perennial ryegrass.
Bull Field (W): Old grass.

Cultivations, etc.:-
Claycroft (R): Aqueous ammonia autumn treatments injected: 28 Nov, 1974. PK applied: 14 Jan, 1975. Aqueous ammonia spring treatments injected: 26 Feb. 'Nitro-Chalk' applied in three equal applications: 18 Mar, 16 June, 8 Sept. Cut three times: 6 June, 1 Sept, 28 Oct. Previous crops: Grass 1973, 1974.

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Bull Field (W): Aqueous ammonia autumn treatments injected: 27 Nov, 1974. PK applied: 10 Jan, 1975. Aqueous ammonia spring treatments injected: 25 Feb. 'Nitro-Chalk applied in three equal applications: 19 Mar, 23 June, 4 Sept. Cut twice: 12 June, 4 Sept. Previous crops: Grass 1973, 1974.

NOTES: (1) Grass samples were taken for N determinations.
(2) N in the injected soil profile was measured at regular intervals from December, 1974 to June, 1975 and ammonia evaporation was measured in December, 1974 and March, 1975.

75/R/G/1 CLAYCROFT (R)

1ST CUT (6/6/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

INHIBITR / N TIME	-	CS	NS	MEAN
AUTUMN	6.61	7.12	7.31	7.01
SPRING	6.41	7.03	7.04	6.83
MEAN	6.51	7.08	7.17	6.92

EXTRA	NO N	NC	MEAN
	4.57	6.68	5.63

GRAND MEAN 6.60

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	EXTRA	N TIME	INHIBITR	N TIME INHIBITR AND EXTRA
SED	0.354	0.204	0.250	0.354

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	21	0.501	7.6

1ST CUT MEAN DM% 25.6

PLOT AREA HARVESTED 0.00082

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75/R/G/1 CLAYCROFT (R)

2ND CUT (1/9/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

INHIBITR N TIME	-	CS	NS	MEAN
AUTUMN	0.53	0.48	0.48	0.49
SPRING	0.44	0.63	0.44	0.50
MEAN	0.48	0.55	0.46	0.50

EXTRA	NO N	NC	MEAN
	0.23	0.64	0.43

GRAND MEAN 0.48

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	EXTRA	N TIME	INHIBITR	N TIME INHIBITR AND EXTRA
SED	0.091	0.052	0.064	0.091

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	21	0.128	26.6

2ND CUT MEAN DM% 52.6

2ND CUT PLOT AREA HARVESTED 0.00073

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75/R/G/1 CLAYCROFT (R)

3RD CUT (28/10/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

INHIBITR N TIME	-	CS	NS	MEAN
AUTUMN	0.15	0.16	0.16	0.16
SPRING	0.19	0.21	0.22	0.20
MEAN	0.17	0.18	0.19	0.18

EXTRA	NO N	NC	MEAN
	0.08	0.48	0.28

GRAND MEAN 0.21

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	EXTRA	N TIME	INHIBITR	N TIME INHIBITR AND EXTRA
SED	0.035	0.020	0.025	0.035

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	21	0.050	24.4

3RD CUT MEAN DM% 21.4

3RD CUT PLOT AREA HARVESTED 0.00065

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75/R/G/1 CLAYCROFT (R)

TOTAL OF 3 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

INHIBITR N TIME	-	CS	NS	MEAN
AUTUMN	7.28	7.76	7.95	7.66
SPRING	7.03	7.87	7.69	7.53
MEAN	7.16	7.81	7.82	7.60

EXTRA	NO N	NC	MEAN
	4.88	7.79	6.34

GRAND MEAN 7.28

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	EXTRA	N TIME	INHIBITR	N TIME INHIBITR AND EXTRA
SED	0.342	0.198	0.242	0.342

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	21	0.484	6.6

TOTAL OF 3 CUTS MEAN DM% 33.2

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75/W/G/1 BULL FIELD (W)

1ST CUT (6/6/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

INHIBITR N TIME	-	CS	NS	MEAN
AUTUMN	6.87	7.05	7.18	7.03
SPRING	6.89	6.62	6.77	6.76
MEAN	6.88	6.83	6.98	6.90

EXTRA	NO N	NC	MEAN
	6.16	7.34	6.75

GRAND MEAN 6.86

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	EXTRA	N TIME	INHIBITR	N TIME INHIBITR AND EXTRA
SED	0.473	0.273	0.334	0.473

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	13	0.579	8.4

1ST CUT MEAN DM% 23.0

PLOT AREA HARVESTED 0.00089

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75/W/G/1 BULL FIELD (W)

2ND CUT (4/9/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

INHIBITR N TIME	-	CS	NS	MEAN
AUTUMN	0.49	0.70	0.67	0.62
SPRING	1.18	0.57	0.47	0.74
MEAN	0.83	0.63	0.57	0.68

EXTRA	NO N	NC	MEAN
	0.72	1.24	0.98

GRAND MEAN 0.75

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	EXTRA	N TIME	INHIBITR	N TIME INHIBITR AND EXTRA
SED	0.269	0.155	0.190	0.269

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	13	0.330	43.8

2ND CUT MEAN DM% 40.9

PLOT AREA HARVESTED 0.00066

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75/W/G/1 BULL FIELD (W)

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

INHIBITR N TIME	-	CS	NS	MEAN
AUTUMN	7.35	7.75	7.85	7.65
SPRING	8.07	7.19	7.24	7.50
MEAN	7.71	7.47	7.55	7.58

EXTRA	NO N	NC	MEAN
	6.38	8.57	7.73

GRAND MEAN 7.61

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	EXTRA	N TIME	INHIBITR	N TIME INHIBITR AND EXTRA
SED	0.611	0.353	0.432	0.611

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	13	0.749	9.8

TOTAL OF 2 CUTS MEAN DM% 31.9

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75/R/M/1

SPRING WHEAT AND MAIZE

PHYSIOLOGICAL STUDY

Object: To study the photosynthetic mechanisms of spring wheat and maize and assess the effects of a photorespiration inhibitor - Fosters Corner.

Sponsors: A.J. Keys, A.J. Barnard.

Design: Spring wheat: 3 randomised blocks of 9 plots. Maize: 1 randomised block of 9 plots.

Whole plot dimensions: Spring wheat: 4.06 x 6.10. Maize: 4.27 x 6.10.

Treatments: All combinations of:-

1. Rates of photorespiration inhibitor (ethyl-2,3-epoxypropanoate) kg:

	E E RATE
None	0.00
0.27	0.27
0.77	0.77

2. Times of applying photorespiration inhibitor:

	E E TIME
Early, wheat: 24 June. Maize: 11 July	EARLY
Middle, wheat: 11 July. Maize: 29 July	MIDDLE
Late, wheat: 29 July. Maize: 7 Aug	LATE

NOTE: Yields were not taken from the maize.

Basal applications: Manures: (20:14:14) at 500 kg combine drilled for wheat and at 750 kg for maize. Weedkillers: Wheat: Dicamba with mecoprop and MCPA ('Tetralex Plus' at 7.0 l in 340 l), maize: Atrazine at 1.7 kg in 340 l.

Seed: Wheat: Kleiber, sown at 190 kg.
Maize: Cargill Primeur 170 sown at 123000 seeds per ha.

Cultivations, etc.:- Ploughed: 11 Nov, 1974. Spring-tine cultivated: 21 Apr, 1975. Spring-tine cultivated and rotary harrowed: 24 Apr.
Wheat: NPK applied and seed sown: 26 Apr. Weedkiller applied: 9 June. Combine harvested: 28 Aug.
Maize: NPK applied: 12 May. Power harrowed and seed sown: 14 May. Weedkiller applied: 23 May. Harvested: 14 Nov.
Previous crops: Barley 1973, beans 1974.

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75/R/M/1

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

E E TIME / E E RATE	EARLY	MIDDLE	LATE	MEAN
0.27	2.92	2.87	2.97	2.92
0.77	2.87	3.01	2.85	2.91
MEAN	2.89	2.94	2.91	2.91

E E RATE 0.0 2.91

GRAND MEAN 2.91

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	E E RATE	E E TIME	E E RATE E E TIME AND E E RATE 0.0
SED	0.092	0.112	0.159

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	18	0.194	6.7

MEAN D.M% 87.9

PLOT AREA HARVESTED 0.00101

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75/W/M/1

MIXED CROPS

WINTER AND SPRING WHEAT, BARLEY AND OATS
SOWING DATES AND CEREAL CYST-NEMATODE

Object: To study the effects of sowing date and a nematicide on the incidence of cereal cyst-nematode (Heterodera avenae) and the yield of three cereals in a soil known to contain a fungal parasite of the nematode - Woburn, Butt Close.

Sponsor: B.R. Kerry.

Design: 4 randomised blocks of 12 plots.

Whole plot dimensions: 2.13 x 6.70.

Treatments: All combinations of:-

Whole plots: 1. Crop:		CROP
	Wheat	WHEAT
	Barley	BARLEY
	Oats	OATS
2. Sowing date:		SOW DATE
	Autumn	AUTUMN
	Spring	SPRING
3. Nematicide:		NEMACIDE
	None	NONE
	Oxamyl at 8.8 kg	OXAMYL

Standard applications:
Autumn-sown cereals: Manures: (10:24:24) at 250 kg combine drilled. Winter wheat: N at 110 kg as 'Nitro-Chalk'. Winter barley and oats: N at 90 kg as 'Nitro-Chalk'.
Spring-sown cereals: Manures: (20:14:14) at 380 kg combine drilled. N at 50 kg as 'Nitro-Chalk'.
All cereals: Weedkillers: Ioxynil at 0.63 kg plus mecoprop at 1.9 kg in 340 l.

Seed: Wheat: Maris Ranger, sown at 200 kg.
Barley: Maris Otter, sown at 170 kg.
Oats: Maris Quest, sown at 190 kg.

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Cultivations, etc.:-

Autumn-sown cereals: Treatments applied and these plots only rotary cultivated: 12 Nov, 1974. Spring-tine cultivated, seed sown: 27 Nov. Weedkiller applied: 22 May, 1975. N applied: 29 May. Harvested by hand: 1 Aug.

Spring-sown cereals: Spring-tine cultivated: 27 Nov, 1974. Treatments applied and these plots only rotary cultivated: 4 Mar, 1975. Spring-tine cultivated with crumbler, seed sown: 20 Mar. Weedkiller applied: 22 May. N applied: 20 June. Hand harvested: 5 Aug.

All cereals: Ploughed: 31 Oct, 1974. Spring-tine cultivated: 7 Nov. Previous crops: Spring wheat 1973, spring oats 1974.

NOTES: (1) Soil samples were taken before sowing in autumn and spring and after harvest for egg counts of Heterodera avenae.
(2) Larval invasion counts were made in April, May and June.
(3) Counts of white females were made in June, July and August and disease assessments made.
(4) Root and stem samples were taken during the growing season for assessments of dry matter.
(5) All crops were severely damaged by birds before harvest and yields were not taken.

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75/R/M/2

MAIZE AND SWEET CORN

INSECT AND VIRUS CONTROL

Object: To study the effects of several insecticides applied at different times on control of insects and on yield of maize and sweet corn - Long Hoos V 7.

Sponsors: J.C. Wilson, K.E. Fletcher, R.T. Plumb.

Design: 3 randomised blocks of 2 plots split into 8.

Whole plot dimensions: 3.20 x 18.3.

Treatments: All combinations of:-

Whole plots: 1. Crop:

	CROP
Grain maize, Cargill Primeur 170	MAIZE
Sweet corn, Early King	SWEETCRN

Sub plots: 2. Chemicals and times of application:

	CHEMICAL
None (duplicated, for maize only)	NONE
Aldicarb in seedbed (sweet corn only)	AL
Phorate granules in seedbed (duplicated, for maize only)	PH
Phorate granules in seedbed plus second-early spray of dimethoate (sweet corn only)	PH/DI/E2
Chlorfenvinphos, first-early spray (25 June)	CH/E1
Chlorfenvinphos, second-early spray (18 July)	CH/E2
Dimethoate, first-early spray (25 June)	DI/E1
Dimethoate, second-early spray (18 July)	DI/E2

NOTE: Aldicarb applied at 4.48 kg.
Dimethoate applied at 0.67 kg in 340 l.
Phorate applied at 1.68 kg.
Chlorfenvinphos applied at 0.55 kg in 340 l.

Basal applications: Manures: (20:14:14) at 730 kg. Weedkiller: Atrazine ('Vectal' at 3.4 kg in 340 l).

Seed: Grain maize: Cargill Primeur sown at 123,000 seeds/ha.
Sweetcorn: Early King sown at 123,000 seeds/ha.

Cultivations: Ploughed: 10 Jan, 1975. NPK applied: 28 Apr. Spring-tine cultivated: 12 May. Aldicarb applied, power harrowed: 15 May. Phorate applied and seed sown: 21 May. Weedkiller applied: 23 May. Sweet corn harvested: 8 Sept. Grain maize harvested: 10 Nov. Previous crops: Spring wheat 1973, potatoes 1974.

NOTES: (1) Assessments of the numbers of plants and of shoots attacked by frit fly (Oscinella frit) were made: sweet corn: 9, 29 July, grain maize: 15 July.
(2) Aphid counts and virus assessments were made on 18 June, 10 July and 15 September.

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75/R/M/2

CROP MAIZE

*** TABLES OF MEANS ***

GRAIN TONNES/HECTARE

CHEMICAL	NONE	PH	CH/E1	CH/E2	D1/E1	D1/E2	MEAN
	2.96	2.90	2.76	2.76	3.26	3.18	2.97

*** STANDARD ERRORS OF DIFFERENCES OF MEANS ***

TABLE	CHEMICAL
SED	0.306 (1)
	0.375 (2)
	0.433 (3)

(1) NON V PH
(2) NONE OR PH V ANY OF REMAINDER
(3) ANY OF REMAINDER

***** STRATUM STANDARD ERRORS AND COEFFICENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	16	0.531	17.9

GRAIN MEAN DM% 65.0

PLOT AREA HARVESTED 0.00130

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75/R/M/2

CROP SWEETCRN

*** TABLES OF MEANS ***

WEIGHT OF SALEABLE COBS (OVER 10.16 CM) TONNES/HECTARE

CHEMICAL	NONE	AL	PH	PH/D1/E2	CH/E1	CH/E2	D1/E1	D1/E2	MEAN
	1.26	1.97	3.11	2.11	1.29	1.90	0.87	1.46	1.75

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	CHEMICAL
SED	0.364

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	14	0.446	25.5

NUMBER OF SALEABLE COBS (OVER 10.16 CM) TONNES/HECTARE

CHEMICAL	NONE	AL	PH	PH/D1/E2	CH/E1	CH/E2	D1/E1	D1/E2	MEAN
	9.4	14.8	20.0	15.5	10.8	13.9	7.0	11.9	12.9

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	CHEMICAL
SED	2.81

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	14	3.44	26.7

PLOT AREA HARVESTED 0.00149

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75/E/1

METEOROLOGICAL RECORDS 1975 - ROTHAMSTED

(Departure from long-period means in brackets)

	Total sunshine: hours	Mean temperature: °C Air(1)	Dew point	In ground 30cm	In ground 100cm	Ground(2) frosts	Total rainfall: mm 0.000405 ha (1/1000 acre) gauge	Rain(3) days	Drainage through 50.8 cm (20 in) soil: mm	Wind(4) miles per hour
Jan	37 (-14)	6.1 (+3.2)	4.7	6.3	7.6	16	101 (+37)	22	83	11.5
Feb	65 (- 3)	4.3 (+0.9)	2.1	5.3	6.7	20	35 (-14)	10	28	7.8
Mar	60 (-56)	4.3 (-0.8)	2.3	5.3	6.3	17	90 (+42)	24	59	10.7
Apr	125 (-26)	8.1 (+0.5)	4.5	7.6	6.7	13	53 (+ 4)	19	27	9.8
May	163 (-31)	9.4 (-1.6)	5.5	10.4	9.2	7	68 (+14)	10	29	11.0
June	289 (+87)	14.3 (+0.2)	8.3	13.5	11.2	3	25 (-32)	7	TRACE	8.4
July	232 (+42)	17.3 (+1.5)	11.9	16.0	13.7	0	21 (-43)	10	TRACE	7.5
Aug	233 (+54)	18.7 (+3.1)	13.0	17.6	15.5	0	20 (-45)	9	TRACE	5.5
Sept	155 (+10)	13.6 (+0.2)	9.8	14.5	14.7	1	108 (+47)	16	32	8.1
Oct	115 (+12)	9.4 (-0.2)	7.2	11.4	12.6	9	20 (-54)	12	3	6.9
Nov	76 (+14)	5.4 (+0.3)	3.9	8.1	10.4	17	56 (-16)	14	33	8.6
Dec	37 (- 8)	4.1 (+0.3)	2.6	5.5	7.8	19	39 (-27)	10	30	8.4
Year*	1587 (+81)	9.6 (+0.6)	6.3	10.1	10.2	122	636 (-87)	163	324	8.7

(1) Mean of maximum and minimum
(2) Number of nights grass min. was below 0.0 °C
(3) Number of days rainfall was 0.2 mm or more
(4) At 2 metres above ground level

* Mean or total

75/E/1

METEOROLOGICAL RECORDS 1975 - WOBURN

(Departure from long-period means in brackets)

Month	Total sunshine: hours	Mean temperature: °C Air(1)	Dew point	In ground 30cm	In ground 100cm	Ground(2) frosts	Total rainfall: mm 12.7 cm (5 in) gauge	Rain(3) days	Wind(4) miles per hour
Jan	31 (-19)	6.6 (+3.5)	4.6	6.4	7.9	14	63 (+ 9)	20	12.8
Feb	36 (-30)	3.9 (+0.5)	2.0	5.8	7.1	20	33 (- 6)	8	5.7
Mar	56 (-61)	4.4 (-1.0)	2.6	5.4	6.6	11	106 (+65)	22	8.4
Apr	106 (-36)	8.3 (+0.3)	5.2	7.5	6.9	10	71 (+26)	18	8.9
May	152 (-32)	9.5 (-1.5)	5.9	10.9	9.3	6	62 (+ 8)	10	8.5
June	262 (+64)	13.9 (-0.3)	8.8	15.3	11.8	3	34 (-17)	6	6.8
July	218 (+39)	17.4 (+1.4)	12.4	17.5	14.2	0	30 (-26)	12	8.4
Aug	216 (+45)	18.4 (+2.7)	13.5	18.8	15.9	0	10 (-52)	8	5.9
Sept	141 (+ 6)	13.5 (0.0)	10.4	14.5	14.8	1	94 (+42)	17	8.7
Oct	123 (+21)	9.8 (-0.2)	7.6	11.3	12.8	10	19 (-35)	10	6.3
Nov	61 (+ 1)	5.5 (-0.7)	4.1	8.0	10.7	18	35 (-30)	15	7.6
Dec	26 (-19)	4.1 (+0.1)	2.8	5.6	8.4	14	32 (-19)	10	8.2
Year*	1428 (-21)	9.6 (+0.4)	6.7	10.6	10.5	107	589 (-35)	156	8.0

(1) Mean of maximum and minimum
(2) Number of nights grass min. was below 0.0 °C
(3) Number of days rainfall was 0.2 mm or more
(4) At 2 metres above ground level

* Mean or total

75/E/1

METEOROLOGICAL RECORDS 1975 - SAXMUNDHAM

Month	Mean temperature: °C Air(1)	Dew point	In ground under bare soil 30 cm	Ground(2) frosts	Total rainfall:mm 12.7 cm (5 in) gauge	Rain(3) days	Wind(4) miles per hour
Jan	6.4	5.0	6.1	3	94	19	9.0
Feb	4.5	2.8	4.8	18	13	5	4.9
Mar	4.5	2.2	5.5	10+	65	19+	6.3
Apr	6.9	5.0	7.5	9	48	18	6.5
May	9.3	6.7	11.2	4	50	12	6.9
June	13.5	9.4	15.8	1	23	8	5.0
July	16.8	12.8	17.5	1	46	9	4.7
Aug	18.5	16.1	19.9	0	28	7	4.1
Sept	14.5	11.7	15.9	0	107	13	6.3
Oct	10.4	7.8	11.2	1	19	10	4.8
Nov	5.9	5.0	7.1	13	85	14	5.2
Dec	4.2	2.8	4.6	15+	36	9+	5.0
Year*	9.6	7.3	10.6	75+	614	143+	5.7

(1) Mean of maximum and minimum
(2) Number of nights grass min. was below 0.0 °C
(3) Number of days rainfall was 0.2 mm or more
(4) At 2 metres above ground level

* Mean or total

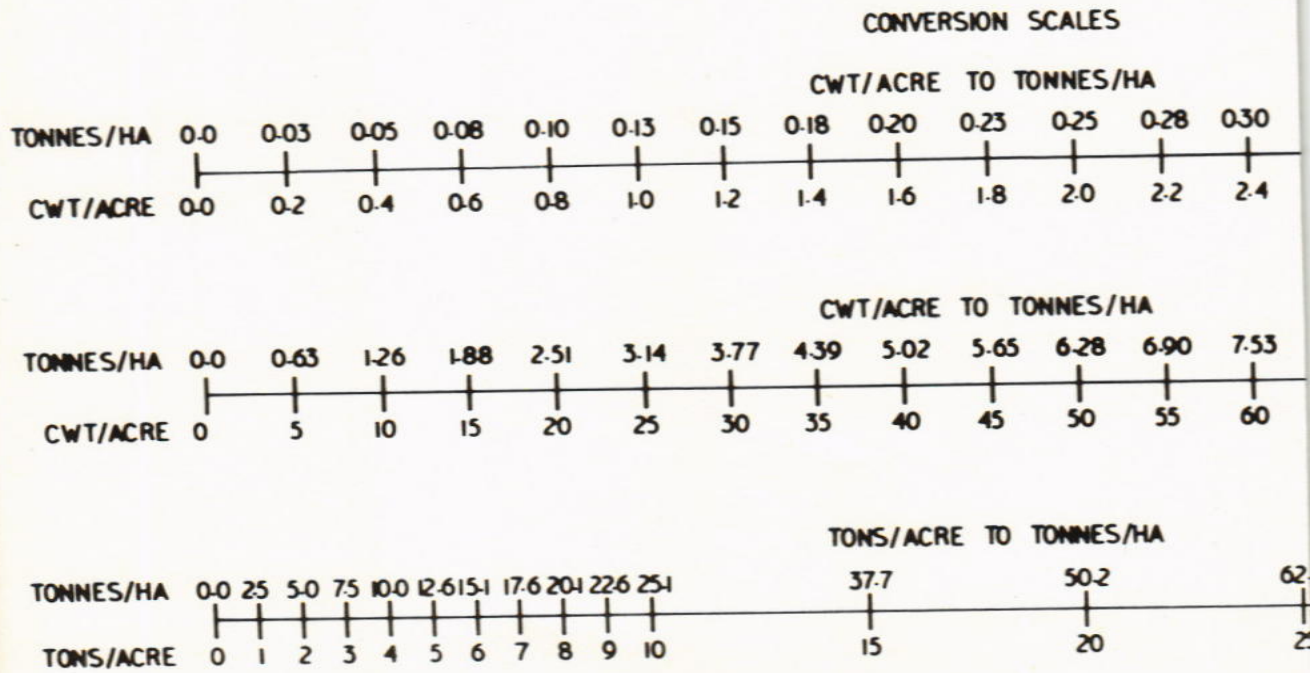
\+ Based on available daily observations i.e. these figures minimal

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 (sq yd)	= 0·8361 sq m
1 acre (=4840 sq yd)	= 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)
1 pint	= 0·5682 litre
1 gallon (gal) (=8 pints)	= 4·546 litre
1 fluid ounce = 1/20 pint	= 0·02841 litre = 28·41 ml
1 cubic foot	= 28·32 litre

To convert	*Multiply by*
oz/acre to g/ha	70·06
lb/acre to kg/ha	1·121
cwt/acre to kg/ha	125·5
cwt/acre to tonnes/ha	0·1255
tons/acre to kg/ha	2511
tons/acre to tonnes/ha	2·511
gal/acre to litre/ha	11·23



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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 (sq m)	=	1·196 square yards (sq yd)
1 hectare (ha)	=	2·471 acres
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)	=	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

To convert	*Multiply by*
g/ha to oz/acre	0·01427
kg/ha to lb/acre	0·8921
kg/ha to cwt/acre	0·007966
tonnes/ha to cwt/acre	7·966
kg/ha to tons/acre	0·0003983
tonnes/ha to tons/acre	0·3983
litre/ha to gal/acre	0·08902

Temperatures

To convert °F into °C subtract 32 and multiply by $\frac{5}{9}$ (0·5556)
To convert °C into °F multiply by $\frac{9}{5}$ (1·8) and add 32