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# Yields of the Field Experiments 1966

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## Yields of the Field Experiments 1966 - Numerical Results

### Rothamsted Research

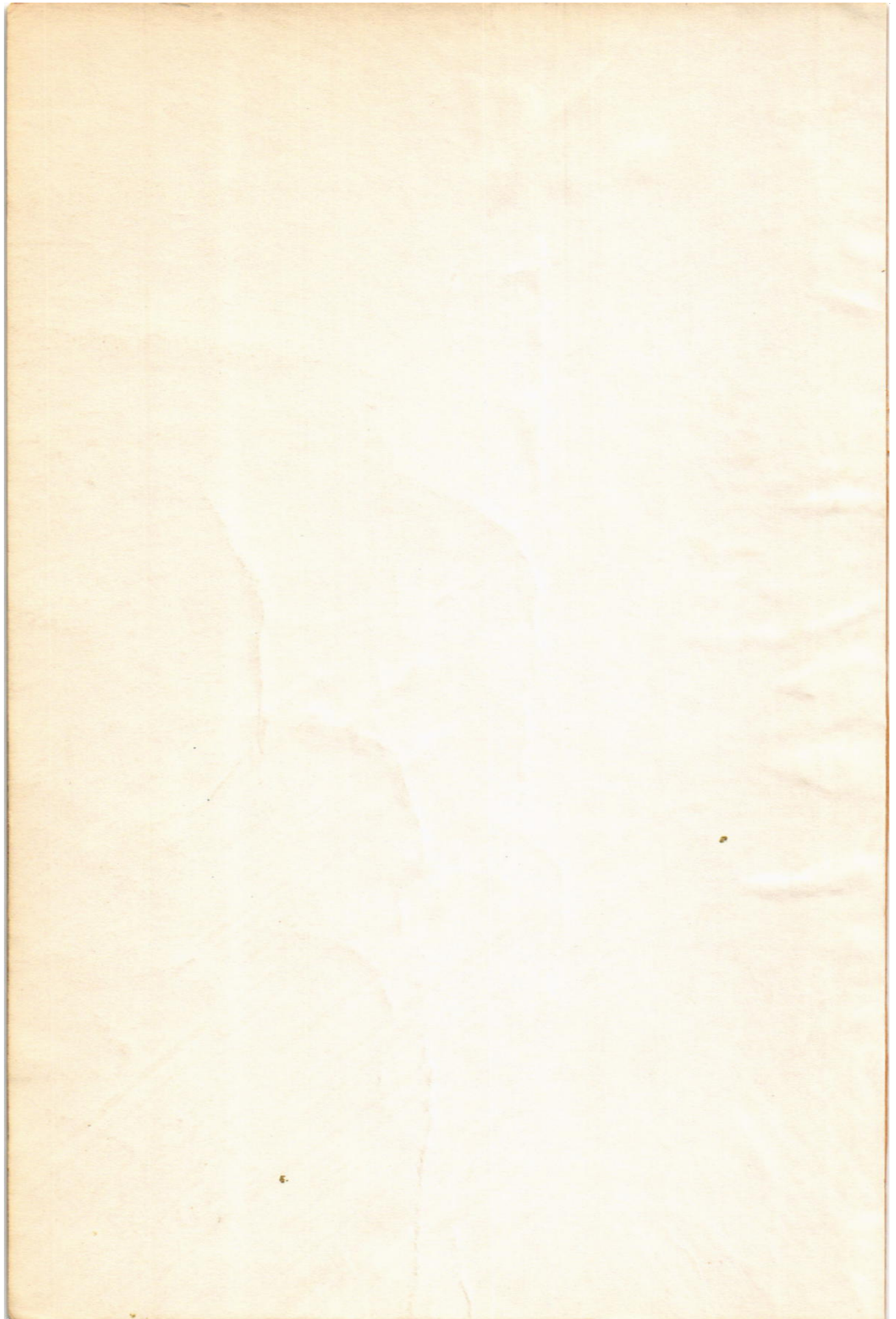
Rothamsted Research (1967) *Yields of the Field Experiments 1966 - Numerical Results* ; Yields Of The Field Experiments 1966, pp 1 - 307 - DOI: <https://doi.org/10.23637/ERADOC-1-158>

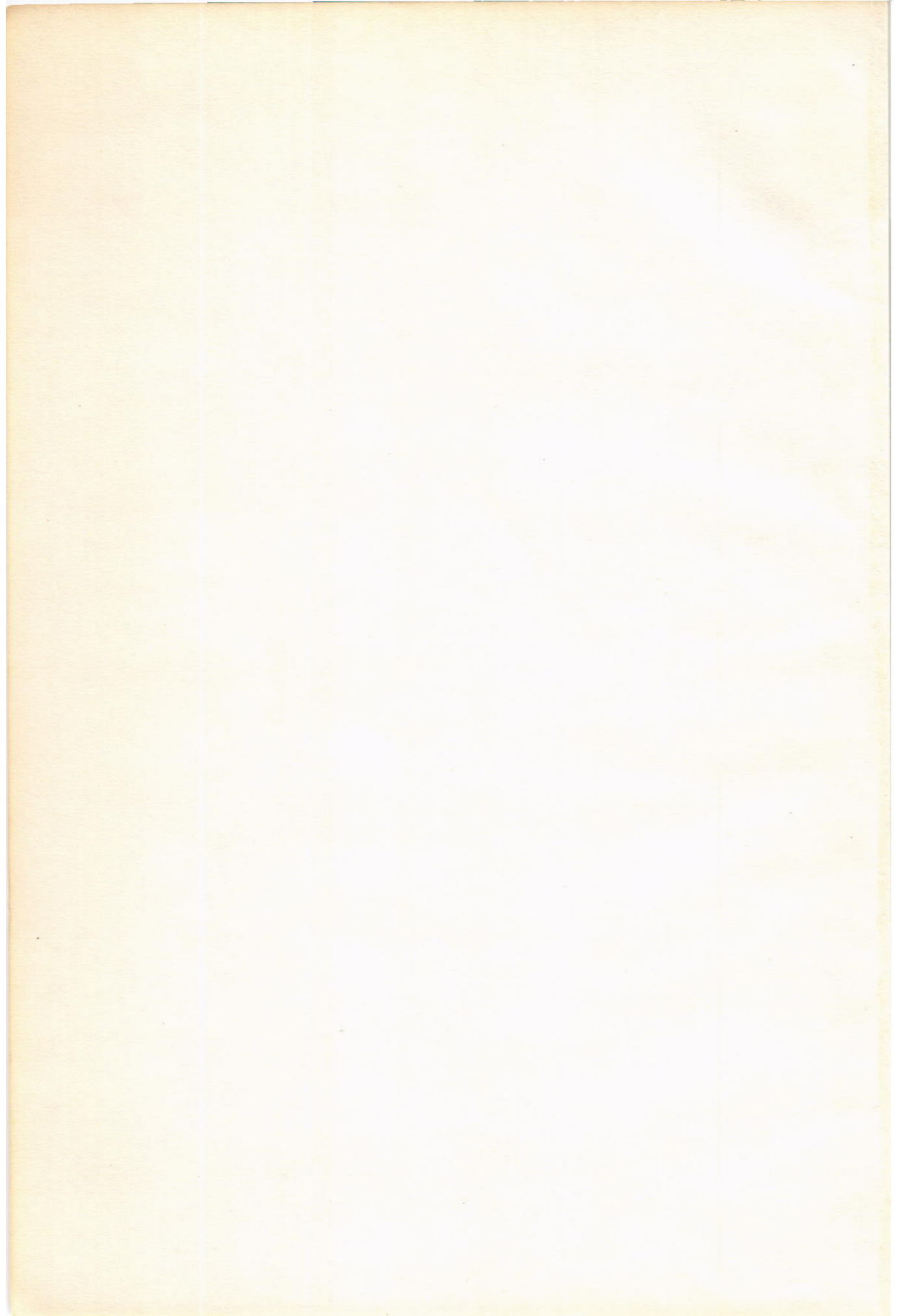
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Field Expt.*

Rothamsted Experimental Station  
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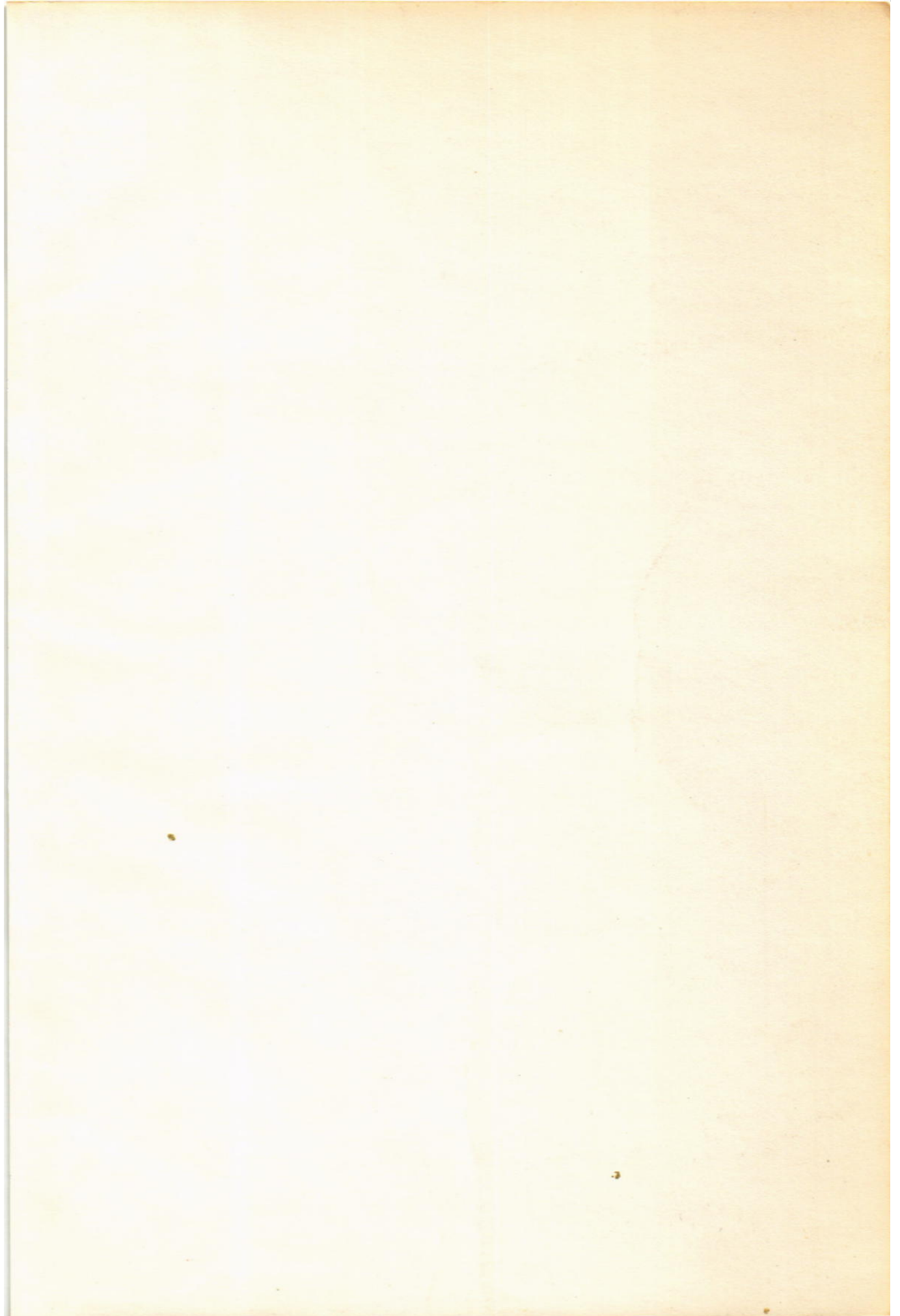
NUMERICAL  
RESULTS  
OF THE  
FIELD  
EXPERIMENTS  
1966











Rothamsted Experimental Station

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NUMERICAL RESULTS

of the

FIELD

EXPERIMENTS

1966

This report includes only experiments conducted at Rothamsted, Woburn and Saxmundham. The design and supervision of these experiments are the responsibility of the Field Plots Committee (present members: F. Yates (Chairman), G.V. Dyke (Secretary), G.W. Cooke, P.H. Gregory, F.G.W. Jones, J.R. Moffatt, H.D. Patterson, C.A. Thorold, D.J. Watson).

Price: 10/-

Published 1967



Foreword

Introduction

1. The Experimental Group

2. The Experimental Group

3. The Experimental Group

4. The Experimental Group

5. The Experimental Group

6. The Experimental Group

This report includes only experiments conducted at the University of California, San Diego. The design and execution of the experiments are the responsibility of the staff of the University of California, San Diego. The experiments were conducted by the staff of the University of California, San Diego. The experiments were conducted by the staff of the University of California, San Diego. The experiments were conducted by the staff of the University of California, San Diego.

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CONTENTS 1966 (CONTD.)

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CONTENTS 1966 (CONTD.)

ANNUAL EXPERIMENTS\* (continued)

Spring wheat	Anhydrous ammonia - Rothamsted & Woburn	(RW601&WW301)	Da/4
Spring wheat	Sowing dates - Woburn	(WW201)	Da/5
Spring wheat	CCC	(RW701)	Da/6
Spring wheat	CCC & Irrigation - Woburn	(WW401)	Da/7
Winter & Spring wheat	Varieties and N	(RW401)	Da/8
Barley	Row spacing - Rothamsted & Woburn	(RB101&WB101)	Db/1
Barley	Spun seed	(RB201)	Db/2
Spring beans	Irrigation and row spacing	(RBe101)	Dc/1
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Kale	Urea		Df/1

MISCELLANEOUS DATA

Meteorological records	Rothamsted & Woburn	E/1
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\* At Rothamsted unless otherwise stated.

- NOTES (1) In the case of the classical, rotation and crop sequence experiments the letters in brackets are the code letters used on the plan. For the annual experiments the letters and numbers are the first plot number.
- (2) From 1966 wherever the potato variety King Edward is mentioned, this means the clone free from paracrinkle virus unless the contrary is stated.





66/A/1.1

WHEAT - BROADBALK 1966

(BK)

The 123rd year

For history, treatments etc. see 'Details' 1962.

Cultivations, etc.:

CROPPED SECTIONS: Section IA (all plots), plot 20 (sections IB and II) sprayed with aminotriazole at 4 lb and ammonium thiocyanate at 3.7 lb: Oct 4, 1965. Ground chalk applied: Oct 7. Dung applied: Oct 28. Ploughed: Oct 29 - Nov 1. Autumn fertilisers applied: Nov 15. Seed drilled at 187 lb: Jan 7, 1966. Spring fertilisers applied: May 2. Second dressing of nitrate of soda applied to plot 16: May 16. Sprayed with Ioxynil/mecoprop (Actril C at 6 pints in 40 gals), all sections except VA: May 16. Combine harvested: Sept 6. Variety: Squarehead's Master 13/4 (Rothamsted seed from Broadbalk field).

FALLOW SECTION: (IB) Ploughed: Oct 29 - Nov 1, 1965, May 23, 1966, July 14 - 15.

BROADBALK WILDERNESS: Cultivations, etc.:

Ungrazed meadow (north): Shrubs grubbed out: Dec 6 - 10, 1965.

Grazed meadow (centre): Grazed by sheep: May 6 - 12, 1966,

May 27 - June 3, June 21 - 29, July 19 - Aug 1, Aug 24 - 30, Sept 23 - 30, Nov 16 - 18.

Grass topped: May 12, June 3, June 29, Aug 1, Aug 30, Sept 30.

66/A/1.2

SUMMARY OF RESULTS

GRAIN

Section Years after fallow	III	IV	VA	II	VB	IA	Mean
	1	2	3	4	8	15	
2A	37.3	31.3	26.5	29.9	26.2	24.8	31.0
2B	35.6	30.4	23.3	33.8	26.0	25.0	30.9
3	15.8	9.8	17.1	11.7	10.5	10.3	12.6
5	22.5	10.9	20.8	15.5	14.8	12.8	16.4
6	27.9	18.1	21.0	22.5	20.0	19.6	22.1
7	28.9	28.4	21.3	28.1	30.8	27.9	27.9
8	28.6	32.1	25.4	31.4	30.8	29.9	30.1
9	27.8	25.5	23.8	24.0	21.9	24.5	25.1
10	16.7	19.7	20.1	18.7	15.5	15.4	18.1
11	18.6	27.0	21.0	18.9	20.5	23.7	21.5
12	24.8	28.0	21.7	22.1	22.3	26.1	24.4
13	32.7	25.3	17.3	30.5	30.3	28.7	28.2
14	25.0	25.0	18.1	22.4	25.2	29.5	23.9
15	29.9	15.2	14.9	19.1	14.1	19.5	19.8
16	33.4	31.2	28.6	30.6	33.1	22.0	31.0
17	33.3	27.7	25.2	30.0	27.8	27.7	29.3
18	23.6	13.6	18.0	9.3	13.5	10.1	15.3
19	29.1	17.3	19.5	18.7	18.6	21.9	21.1
20				17.4		18.5	17.7

Mean D.M. %: 82.1

NOTE: The yields above are calculated (as in all experiments in the 'Results') from the weight of 'first' grain delivered by the combine harvester, adjusted only for moisture content. On certain sub plots in 1966, samples were separated into wheat, weed seeds and rubbish. Results:-

% WEED SEEDS PLUS RUBBISH

Section	Plot no.				
	2	5	7	9	18
VA	5	29	8	10	53
VB	2	4	2	2	2



66/A/1.3

Section Years after fallow	STRAW						Mean
	III	IV	VA	II	VB	IA	
	1	2	3	4	8	15	
2A	41.1	34.0	38.6	29.6	34.1	25.7	34.7
2B	41.5	33.5	35.7	32.8	35.0	25.1	35.2
3	14.3	11.6	22.0	10.5	11.0	11.0	13.0
5	22.9	11.4	25.4	14.9	15.7	14.3	17.1
6	24.1	17.3	28.1	22.6	19.8	19.8	21.8
7	27.1	27.4	29.9	26.7	33.1	30.2	28.2
8	33.6	32.0	35.6	33.6	30.1	29.5	32.8
9	26.8	32.3	33.7	25.9	24.6	29.7	28.6
10	18.1	18.0	20.5	18.3	13.9	19.1	18.0
11	17.1	20.6	24.2	15.4	16.4	23.4	18.6
12	19.8	24.1	27.6	17.8	21.0	25.0	21.7
13	29.7	25.0	25.7	29.7	31.5	30.4	28.4
14	21.3	17.5	24.1	18.3	21.0	28.4	20.4
15	24.8	18.3	22.7	16.8	13.1	24.2	19.8
16	37.9	34.7	41.8	35.1	36.6	36.9	36.7
17	30.4	30.3	38.2	31.7	31.1	31.6	31.7
18	19.1	15.0	25.1	10.4	13.6	12.8	15.7
19	28.4	27.1	29.0	16.8	19.6	21.4	24.0
20				19.4		23.3	20.5

Mean D.M %: 80.2

The image shows a page with a very faint table. The table has approximately 8 columns and 10 rows. The text within the table is extremely light and difficult to read, but it appears to be organized into a grid structure. There are some faint markings that could be numbers or letters, but they are not clear enough to transcribe. The table is centered on the page and occupies most of the vertical space.

66/A/2.1

BARLEY - HOOSFIELD 1966

(HB)

For history, treatments, etc. see 'Details' 1962 and 'Results' 64/A/2.

Cultivations, etc.: Sprayed with aminotriazole at 4 lb and ammonium thiocyanate at 3.7 lb in 40 gals: Oct 4, 1965. Dung applied, all plots ploughed: Nov 1. Fertilisers applied: Mar 17, 1966. Seed drilled at 155 lb: Mar 18. Sprayed with mecoprop/2,4-D (Methoxone Extra at 6 pints in 40 gals): May 27. Combine harvested: Aug 26.

NOTE: Estimates of eyespot (*Cercospora herpotrichoides*) and take-all (*Ophiobolus graminis*) were made.



66/A/2.2

SUMMARY OF RESULTS

Plot		PA	GRAIN MB	Mean	PA	STRAW MB	Mean
1	O	10.2	10.0	10.1	5.1	4.3	4.7
2	O	13.2	10.7	12.0	7.0	3.8	5.4
3	O	6.3	5.5	5.9	2.4	1.6	2.0
4	O	11.9	7.0	9.5	6.3	3.4	4.8
5	O	10.6	8.4	9.5	5.6	4.4	5.0
1	A	16.7	17.7	17.2	11.3	11.6	11.4
2	A	26.7	24.7	25.7	18.0	18.9	18.4
3	A	20.4	26.7	23.6	16.5	20.4	18.5
4	A	29.1	43.4	36.2	19.0	29.6	24.3
5	A	34.3	40.5	37.4	21.9	32.3	27.1
1	AA	15.7	16.5	16.1	11.0	14.2	12.6
2	AA	30.2	34.0	32.1	22.2	29.6	25.9
3	AA	16.8	19.8	18.3	15.3	19.0	17.2
4	AA	27.0	41.0	34.0	16.8	30.0	23.4
1	AAS	22.6	23.6	23.1	20.5	20.7	20.6
2	AAS	30.8	31.2	31.0	24.3	25.5	24.9
3	AAS	21.6	32.2	26.9	18.0	22.7	20.3
4	AAS	32.8	45.1	38.9	22.7	36.8	29.8
1	C	26.4	38.4	32.4	17.9	26.2	22.0
2	C	29.6	40.3	34.9	17.8	24.4	21.1
3	C	25.4	35.9	30.6	15.0	21.8	18.4
4	C	29.4	42.0	35.7	17.4	28.7	23.1
7	- 1	12.2	6.8	9.5	9.4	4.3	6.9
7	- 2	39.8	37.4	38.6	25.2	26.3	25.7
6	- 1	7.0	5.5	6.3	3.9	2.0	3.0
6	- 2	10.1	8.8	9.4	4.5	4.6	4.6
1	N	12.1	11.0	11.5	11.5	12.1	11.8
2	N	18.3	24.2	21.3	10.2	16.7	13.4
Mean		21.0	24.6	22.8	14.2	17.7	15.9
Mean D.M. %:			79.6			66.7	

66/A/3.1

WHEAT AFTER FALLOW - HOOSFIELD 1966

(HWF)

For history, treatments, etc. see 'Details' 1962.

The winter wheat was damaged by wheat bulb fly (*Leptohylemia coarctata*) and plots A3 and A4 were resown with spring wheat. Plot A1, which was less severely attacked, was left in winter wheat.

Area of each plot: Cappelle (C) - 0.0552, Rothwell Perdix (R) - 0.0690, Kloka (K) - 0.124. Area harvested: 0.0368.

Cultivations, etc.:-

Cropped plots: Ploughed: Oct 14, 1965. Seed drilled at 190 lb: Nov 5. Sections A3 and A4 rotary cultivated and redrilled with Kloka spring wheat at 230 lb: May 2, 1966. Winter wheat sprayed with ioxynil/mecoprop (Actril C at 6 pints in 40 gals): May 16. Spring wheat sprayed with MCPA at 1.5 lb a.e. in 40 gals: June 16. Winter wheat combine harvested: Sept 3. Spring wheat combine harvested: Sept 7. Fallowed plots: Ploughed 3 times: Oct 14, 1965, May 23, 1966 and July 15.

66/A/3.2

SUMMARY OF RESULTS

Plot	A3		A4		A1	
	1		1		3	
No of years of fallow						
Strip	A	B	A	B	A	B
Variety	K	K	K	K	C	R
GRAIN						
	10.0	9.0	10.2	9.6	11.2	13.7
STRAW						
	8.0	6.5	8.1	7.1	4.6	7.0

Mean D.M. %: Grain: 79.7  
 Straw: 84.8



66/A/4.1

GRASS - AGDELL 1966

(AG)

For history, treatments etc., see 'Details' 1962 and 'Results' 64/A/4 and 65/A/4.

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

P and K applied after first cut:-

P was applied in 1966 as triple superphosphate to balance withdrawals by grass in 1965, to all sub plots except (P0) which continues to receive no P. Rates in cwt P<sub>2</sub>O<sub>5</sub>:-

Plot no.	Sub plots testing P:-				Sub plots testing K:-			
	P0	P1	P2	P4	K0	K1	K2	K4
1	-	1.01	1.13	1.07	0.82	0.85	0.99	1.00
2	-	0.70	0.77	0.81	0.77	0.81	0.88	0.95
3	-	0.79	0.80	0.98	0.79	0.87	0.86	0.97
4	-	0.54	0.65	0.70	0.75	0.85	0.80	0.86
5	-	0.61	0.70	0.79	0.72	0.80	0.73	0.76
6	-	0.65	0.73	0.82	0.77	0.73	0.77	0.73

Withdrawals of K by grass were too great to be balanced by a single dressing without risk of damage to the grass. Consequently a standard dressing of 5 lb muriate of potash per sub plot (1.48 cwt K<sub>2</sub>O to plots 1, 2, 3 and 4, 1.66 cwt K<sub>2</sub>O to plots 5 and 6) was applied, except to sub plots (K0), which continue to receive no K. The remainder of the dressing required to balance withdrawals will be applied in 1967.

Basal dressing: 'Nitro-Chalk' applied at 0.8 cwt N on Mar 18 and after first 2 cuts. The dressing after the third cut was applied at 1.0 cwt N in error.

Cultivations, etc.:

Grass: P and K fertilisers applied: May 25, 1966. Cut 4 times for silage: May 19, June 29, Aug 12, Oct 12.  
Fallow: Ploughed: Jan 13, 1966.

66/A/4.2

SUMMARY OF RESULTS

DRY MATTER

Plot

P	K	5	6	3	4	1	2	Mean
1ST CUT								
0	4	16.5	8.8	28.1	26.3	33.6	30.0	23.9
1	4	36.4	36.1	37.3	32.5	38.2	42.4	37.1
2	4	42.4	42.9	37.8	37.7	39.1	40.6	40.1
4	4	37.9	42.3	41.0	37.0	34.9	39.5	38.8
4	0	30.3	27.7	36.3	38.7	36.7	23.8	32.2
4	1	35.2	38.3	36.3	35.9	40.4	36.9	37.2
4	2	40.2	33.8	38.5	44.5	38.8	36.4	38.7
4	4	44.6	40.4	36.9	44.6	37.9	43.3	41.3
Mean		35.5	33.8	36.5	37.2	37.4	36.6	36.2
2ND CUT								
0	4	19.8	13.7	15.2	19.3	24.6	22.4	19.2
1	4	20.6	20.4	19.4	28.3	27.7	20.9	22.9
2	4	24.0	23.7	24.3	15.4	25.9	19.1	22.0
4	4	24.0	22.4	20.7	26.0	24.0	22.6	23.3
4	0	14.8	17.3	18.5	23.8	23.3	20.8	19.7
4	1	24.9	27.4	21.1	29.6	26.8	28.2	26.3
4	2	24.3	25.3	24.5	17.0	25.5	20.7	22.9
4	4	24.5	25.1	21.1	16.1	27.9	18.9	22.3
Mean		22.1	21.9	20.6	21.9	25.7	21.7	22.3

Mean D.M. %: 1st cut: 18.0  
2nd cut: 18.4

66/A/4.3

DRY MATTER

Plot

P	K	5	6	3	4	1	2	Mean
3RD CUT								
0	4	3.7	2.8	12.0	9.9	14.4	12.0	9.1
1	4	13.9	16.2	15.4	12.2	21.0	16.2	15.8
2	4	16.2	14.7	14.2	14.0	18.0	14.8	15.3
4	4	14.6	15.6	19.7	14.5	19.4	14.4	16.4
4	0	9.5	7.2	8.8	10.1	12.4	9.2	9.5
4	1	15.6	16.3	16.5	14.2	17.7	14.5	15.8
4	2	19.3	12.9	13.4	13.5	16.6	18.7	15.7
4	4	20.5	16.8	15.7	16.8	16.2	17.5	17.2
Mean		14.2	12.8	14.5	13.1	17.0	14.7	14.4
4TH CUT								
0	4	3.2	3.7	13.4	10.4	20.0	11.5	10.4
1	4	13.0	10.9	16.9	17.7	13.9	16.7	14.9
2	4	9.5	15.9	13.6	12.4	18.8	17.6	14.6
4	4	15.2	15.5	17.0	18.8	15.2	13.7	15.9
4	0	4.8	3.6	11.2	8.7	16.2	6.9	8.6
4	1	15.4	12.8	15.1	14.5	18.6	14.7	15.2
4	2	8.3	11.7	16.5	16.5	12.3	13.1	13.1
4	4	12.6	14.8	12.6	16.5	13.7	16.7	14.5
Mean		10.2	11.1	14.5	14.4	16.1	13.9	13.4

Mean D.M. %: 3rd cut: 15.0  
4th cut: 19.3



66/A/4.4

DRY MATTER

Plot

P	K	5	6	3	4	1	2	Mean
TOTAL OF 4 CUTS								
0	4	43.2	29.0	68.7	65.9	92.6	75.9	62.6
1	4	83.9	83.6	89.0	90.7	100.8	96.2	90.7
2	4	92.1	97.2	89.9	79.5	101.8	92.1	92.1
4	4	91.7	95.8	98.4	96.3	93.5	90.2	94.3
4	0	59.4	55.8	74.8	81.3	88.6	60.7	70.1
4	1	91.1	94.8	89.0	94.2	103.5	94.3	94.5
4	2	92.1	83.7	92.9	91.5	93.2	88.9	90.4
4	4	102.2	97.1	86.3	94.0	95.7	96.4	95.3
Mean		82.0	79.6	86.1	86.7	96.2	86.8	86.2

Mean D.M. %: 17.7

66/A/5

FALLOW - BARNFIELD 1966.

(BN)

For history, treatments etc., see 'Details' 1962 and 'Results' 62/A/5.

Cultivations, etc.: Dung applied: Dec 29, 1965 - Jan 10, 1966.  
Ploughed: Jan 11. Mineral fertilisers applied: May 26 - 31.  
Deep-tine cultivated: June 6. Ploughed second time: Aug 16 - 26.

6/1/16

WILSON - BARRINGTON

(10)

For history, treatment, etc., see "Journal" 1932 and "Journal"

6/1/16

Journal, etc. 1. Long article: Jan 22, 1932 - Jan 20, 1933.  
Journal, etc. 11. History, treatment, etc. for 1932 - 1933.  
Journal, etc. 12. History, treatment, etc. for 1933 - 1934.



66/A/6.1

HAY - THE PARK GRASS PLOTS

(PG)

For history, treatments etc., see 'Details' 1962 and 'Results' 65/A/6.

Cultivations, etc.: Mineral fertilisers applied: Dec 15, 1965.  
Nitrogenous fertilisers applied: 1st dressing - Mar 21, 1966,  
2nd dressing - Apr 29. Cut twice: June 7, Oct 11.

SUMMARY OF RESULTS

DRY MATTER

Plot No	1st cut				2nd cut				Mean	Total of 2 cuts				Total
	a	b	c	d	a	b	c	d		a	b	c	d	
1	16.7	10.2	12.0	8.3	15.9	14.3	8.9	11.4	12.6	32.6	24.6	20.9	19.7	24.4
2	17.2	19.5	12.8	10.1	17.2	18.5	20.3	18.6	18.7	34.4	38.0	33.1	28.7	33.6
3	16.7	19.0	11.4	11.4	16.7	18.1	17.0	18.6	17.6	33.3	37.1	28.4	30.1	32.2
4-1	22.0	23.0	24.0	24.6	21.1	26.4	23.6	31.5	25.7	43.1	49.5	47.7	56.0	49.1
4-2	30.9	32.2	32.6	26.0	21.7	22.0	13.1	16.2	18.3	52.6	54.2	45.8	42.2	48.7
7	42.5	35.9	34.0	33.5	27.4	27.0	27.7	36.7	29.7	70.0	62.9	61.7	70.2	66.2
8	24.3	24.7	29.1	25.4	24.4	23.4	38.3	39.7	31.5	48.8	48.2	67.5	65.1	57.4
9	53.6	54.3	46.1	45.0	28.4	28.0	17.5	26.3	25.1	82.0	82.4	63.6	71.4	74.8
10	35.3	37.9	33.7	27.4	21.0	18.4	16.7	17.4	18.4	56.4	56.3	50.4	44.8	52.0
11-1	61.1	56.7	57.6	25.9	40.7	24.9	28.3	33.7	31.9	101.8	81.6	85.9	59.6	82.2
11-2	56.1	61.4	58.0	40.5	45.2	36.8	30.3	39.3	37.9	101.3	98.2	88.3	79.8	91.9
12	17.3	17.2	17.2	17.2	27.1	23.1	23.1	23.1	25.1	44.4	40.3	40.3	40.3	42.3
13	32.3	35.7	41.2	35.6	35.8	38.8	34.9	41.8	37.8	68.1	74.5	76.1	77.4	74.0
14	39.9	42.8	46.5	45.9	23.4	25.0	27.1	25.9	25.3	63.2	67.8	73.5	71.8	69.1
15	38.3	31.0	31.0	31.0	31.5	34.4	34.4	34.4	32.9	69.8	65.8	65.4	65.4	67.6
16	37.2	40.2	39.2	36.9	23.6	26.5	26.1	24.9	25.3	60.7	66.7	65.3	61.9	63.6
17	20.2	24.7	20.0	17.7	21.7	16.5	26.3	20.0	21.1	41.9	41.2	46.3	37.7	41.8
18-1			25.1	22.7			16.3	16.9	16.6			41.5	39.5	40.5
18-2									19.9					41.3
18-3	24.1	24.2			22.0	21.9			21.9	46.1	46.0			46.0
19-1									34.1					67.6
19-2									29.9					69.4
19-3									31.8					69.3
20-1									37.7					85.8
20-2									33.5					77.1
20-3									28.8					67.3

66/A/6.2

Mean D.M. %: 1st cut: 24.0 2nd cut: 25.1 Total of 2 cuts: 24.6

66/A/7

BARLEY - EXHAUSTION LAND HOOSFIELD 1966

(EX)

For history, treatments etc., see 'Details' 1962 and 'Results' 64/A/7.

Cultivations, etc.: Sprayed with dalapon at 8.9 lb a.e. in 40 gals:  
 Oct 18, 1965. Ploughed: Nov 22. Seed combine drilled at 156 lb:  
 Mar 11, 1966. Sprayed with mecoprop/2,4-D (Methoxone Extra at  
 6 pints in 40 gals): May 27. Combine harvested: Aug 26.  
 Variety: Maris Badger.

SUMMARY OF RESULTS

Plot		Grain	Straw
1	-	11.9	15.7
2	-	13.0	14.6
3	D	33.8	25.3
4	D	32.2	24.3
5	N2	12.2	12.2
6	N2'	10.7	12.9
7	N2PKNaMg	30.5	22.9
8	N2'PKNaMg	27.9	19.9
9	P	27.7	22.7
10	PK	29.1	20.4
Mean		22.9	19.1
Mean D.M. %:		78.7	72.5





66/A/8

CLOVER - ROTHAMSTED GARDEN 1966

(GC)

The 113th year

For history etc., see 'Details' 1962.

Cultivations, etc.: K applied, soil hoed: Mar 22, 1966. Cut, stubble sprayed with paraquat at 2 lb ion in 40 gals: July 28. Plots dug, root stumps carted: Aug 18. Seed drilled at 30 lb: Sept 7. Variety: Red Clover (*Dorsetiensis*).

- NOTE: (1) In the subsequent dry weather the seed failed to germinate.  
(2) Samples of stems, roots and soil were taken in July for nematode counts.

SUMMARY OF RESULTS

DRY MATTER

K0	K2	Mean
24.7	28.1	26.4

Mean D.M. %: 25.8

1913

REPORT OF THE COMMISSIONER OF THE GENERAL LAND OFFICE

(30)

The 1913 year

and history of the land

The land in the adjacent dry weather was held by the Government. The number of acres, some and some were taken in July 1913. The number of acres, some and some were taken in July 1913. The number of acres, some and some were taken in July 1913.

STATEMENT OF REVENUE

BY MONTH

Month	1913	1912
Jan	1.00	1.00
Feb	1.00	1.00
Mar	1.00	1.00
Apr	1.00	1.00
May	1.00	1.00
Jun	1.00	1.00
Jul	1.00	1.00
Aug	1.00	1.00
Sep	1.00	1.00
Oct	1.00	1.00
Nov	1.00	1.00
Dec	1.00	1.00
Total	12.00	12.00

Total 12.00



66/A/9

FALLOW, SITE OF CONTINUOUS WHEAT AND BARLEY EXPERIMENTS

WOBURN STACKYARD 1966

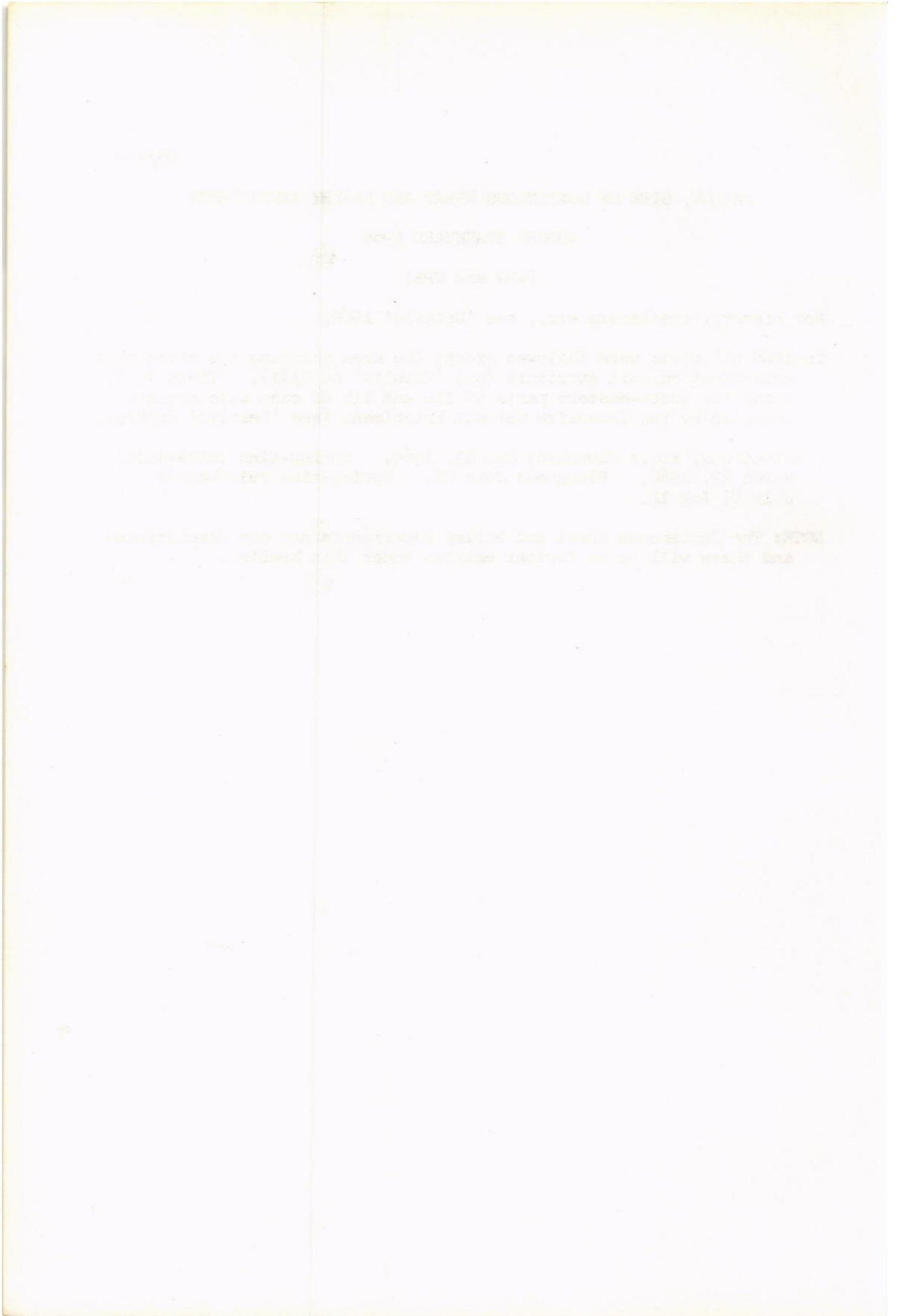
(WPW and WPB)

For history, treatments etc., see 'Details' 1962.

In 1966 all plots were fallowed except the area carrying the micro-plot experiment on soil structure (see 'Results' 66/C/11). Plots 7, 8, 9 and the south-eastern parts of 11a and 11b of each site are now occupied by the Intensive Cereals Experiment (see 'Results' 66/B/9).

Cultivations, etc.: Ploughed: Oct 13, 1965. Spring-tine cultivated: March 29, 1966. Ploughed: June 21. Spring-tine cultivated: July 8, Aug 12.

NOTE: The Continuous Wheat and Barley Experiments are now discontinued and there will be no further entries under this heading.



66/A/10.1

SAXMUNDEHAM

ROTATION I 1966

(SA)

For history, treatments, rotations etc. see Rothamsted Report for 1964, pp. 228 - 232, and for previous years' results see 'Results' 64/A/10 and 65/A/10.

The rotation is now sugar beet, barley, beans, winter wheat.

Area of each plot: 0.0546. Area harvested: Sugar beet - 0.0107, barley - 0.0234, spring beans - 0.0421, winter wheat - 0.0275.  
Area of each sub-plot: 0.0074. Area harvested: 0.0025.

Treatments: New treatments were applied in 1966 as follows:-

Former plot number	Treatment 1899 - 1965*	Treatment from 1966
1	D	D
2	B	B
3	N	N2P2
4	P	N1P1
5	K	N1P2K
6	-	N1P2
7	PK	N1P1K
8	NK	N2P2K
9	NP	N2P1
10	NPK	N2P1K

\* for details see 'Results' 64/A/10.

Symbols (1966) D: 12 tons dung  
B: 4 cwt bonemeal  
N1, N2: 0.5, 1.0 cwt N to wheat, sugar beet and barley.  
C, 0.5 cwt N to beans (all as 'Nitro-Chalk')  
P1, P2: 0.4, 0.8 cwt P2O5 as superphosphate  
K: 1 cwt K2O as muriate of potash.

A small area at the South end of each plot continues to be treated as in 1899 - 1965, except that (i) N is now applied as 'Nitro-Chalk' (ii) wheat 1966 received treatments as on the main plots. Yields of these sub plots were taken in sugar beet only.

Cultivations, etc.:

Sugar beet: Dung applied and ploughed in: Oct 11, 1965. Ploughed: Oct 12. NPK fertilisers applied: Mar 18, 1966. Bonemeal applied: Mar 22. Seed drilled: Mar 30. Singled: May 23.



66/A/10.2

Sprayed with demeton-s-methyl (Metasystox at 17.3 fluid oz in 36 gals): June 15. Lifted: Oct 10. Variety: Klein E.  
Barley: Ploughed (excluding dung plot): Oct 27, 1965. Dung applied: Oct 29. Dung ploughed in: Oct 30. Bonemeal applied: Mar 14, 1966. Fertilisers applied: Mar 15. Seed drilled at 195 lb: Mar 17. Sprayed with Dicamba, MCPA, mecoprop and TBA (Cambilene at 4 pints in 20 gals): May 13. Combine harvested: Aug 17. Variety: Proctor.  
Spring beans: Dung applied: Oct 29, 1965. Ploughed in: Oct 30. Ploughed: Nov 3. Bonemeal applied: Mar 14, 1966. Fertilisers applied: Mar 15. Seed drilled at 110 lb: Mar 16. Sprayed with simazine at 1.2 lb in 23 gals: Mar 25. Sprayed with demeton-s-methyl (Metasystox at 17.3 fluid oz in 36 gals): June 15. Combine harvested: Aug 24. Variety: Spring Tick.  
Winter wheat: Ploughing begun, stopped by rain: Sept 8, 1965. Dung applied and ploughed in (the remainder was not reploughed): Sept 21. PK fertilisers applied: Sept 27. Bonemeal applied, seed drilled: Oct 5. 'Nitro-Chalk' applied: Mar 26, 1966. Sprayed with Dicamba, MCPA, mecoprop and TBA (Cambilene at 4 pints in 20 gals): Apr 29. Combine harvested: Aug 17. Variety: Cappelle.

66/4/10.3

SUMMARY OF RESULTS

NEW TREATMENTS

Treatment 1899 - 1965	Treatment from 1966	Roots	SUGAR BEET Sugar Total % sugar Tops	Plant number	BARLEY Grain Straw	SPRING BEANS Grain	WINTER WHEAT Grain Straw
D	D	13.50	44.6	32.6	34.2	24.3	18.7
B	B	4.67	15.0	22.1	11.2	7.3	9.9
N	N2P2	13.71	47.5	29.2	29.8	9.1	27.1
P	N1P1	9.60	33.0	28.1	25.4	8.4	19.8
K	N1P2K	7.29	25.0	29.4	19.5	7.5	16.7
-	N1P2	9.27	32.1	30.7	28.1	8.8	17.8
PK	N1P1K	10.43	36.7	32.8	28.0	16.8	20.9
NK	N2P2K	10.10	35.2	30.8	32.4	15.2	28.3
NP	N2P1	11.34	39.8	34.4	31.6	14.3	28.9
NPK	N2P1K	10.06	35.7	35.4	29.1	15.1	32.2
Mean		10.00	34.5	30.5	26.9	12.7	22.0
Mean D.M.%:		17.2	5.11	30.5	16.2	83.7	14.4
					83.5	83.7	79.1

66/A/10.4

OLD TREATMENTS

Plot no.	Treatment 1899 - 1966	Roots	Sugar %	SUGAR BEET		Plant number
				Total sugar	Tops	
1	D	11.07	16.2	35.9	5.94	29.4
2	B	5.40	16.1	17.4	3.06	26.2
3	N	4.41	16.7	14.7	3.24	23.8
4	P	4.95	16.2	16.1	2.70	29.8
5	K	2.07	16.2	6.7	1.98	26.2
6	-	3.51	16.4	11.5	2.52	35.9
7	PK	7.29	16.9	24.6	3.78	35.9
8	NK	3.69	16.7	12.3	3.42	31.1
9	NP	12.69	16.9	43.0	5.22	30.7
10	NPK	11.16	17.3	38.6	5.58	34.3
Mean		6.63	16.6	22.1	3.75	30.3



66/A/11.1

SAXMUNDHAM

ROTATION II 1966

(SE)

For history, treatments, rotations, etc. see Rothamsted Report for 1964, pp. 228 - 232, and for previous years' results see 'Results' 64/A/11 and 65/A/11.

All plots were planted with potatoes, which were manured as follows:-

Plots 1, 2, 3 and 8:	No P	(P0)
Plot 4:	20 tons dung	(D)
Plot 5:	20 tons dung plus 1.5 cwt P2O5	(DP1)
Plot 6:	1.5 cwt P2O5	(P1)
Plot 7:	3.0 cwt P2O5	(P2)

All P2O5 as triple superphosphate.

Basal manuring: 1.2 cwt N and 1.2 cwt K2O as (16:0:16) and 0.8 cwt K2O as muriate of potash, applied on the flat.

Area of each plot: 0.0545. Area harvested: 0.0043.

Cultivations, etc.: Dung applied: Nov 2, 1965. Ploughed: Nov 3. Fertilisers applied: Mar 15, 1966. Potatoes planted: Mar 31. Sprayed with linuron at 0.67 lb and paraquat at 0.25 lb ion in 16 gals: Apr 29. Lifted: Sept 21. Variety: Pentland Dell.

NOTE: Leaf samples were taken on June 15 for P and K analysis.

66/A/11.2

SUMMARY OF RESULTS

POTATOES

Plot no.	Treatment 1966	Total tubers
1	PO	7.45
2	PO	14.56
3	PO	16.85
4	D	20.47
5	DP1	20.34
6	P1	18.23
7	P2	18.60
8	PO	16.28
Mean		16.60

66/B/1.1

## LEY AND ARABLE ROTATIONS

(HLA and FLA)

Highfield and Fosters Field 1966, the 18th year.

For details of treatments, rotations etc., see 'Details' and 'Results' 63/B/1.1, 64/B/1.1, 65/B/1.1.

Winter wheat: Sulphate of ammonia is now used for the autumn N test. The basal PK is now applied at 0.45 cwt P2O5 and 0.90 cwt K2O ploughed in and 0.45 cwt P2O5 and 0.90 cwt K2O broadcast before sowing (all as (0:14:28)).

All-grass leys and clover-grass leys (2nd and 3rd years), and all-grass and clover-grass permanent and reseeded grass plots: Fertiliser is now applied to these plots in spring before cutting as follows:-

All-grass sub plots and all-grass leys: 0.6 cwt N and 0.6 cwt K2O as (16:0:16).

Clover-grass sub plots and clover-grass leys: 0.6 cwt K2O as muriate of potash.

Potatoes: Fertilisers are now as follows:-

Sub-plots with dung: 1.2 cwt N, 1.8 cwt P2O5, 1.8 cwt K2O broadcast before ridging as 15:15:15 plus 0:20:20.

Sub-plots without dung: 1.5 cwt N, 2.5 cwt P2O5, 2.5 cwt K2O broadcast before ridging as 15:15:15 plus 0:20:20.

Former reseeded grass plots ploughed up for wheat 1963, 1964, 1965:

These are now put through the arable sequence of treatment crops and were sown with ryegrass in spring 1966 on the plots which carried the barley test crop in 1965. These hay plots receive the same manurial treatment as those in the permanent arable sequence (but in 1966 the former were sown in spring, the latter in autumn).

Reseeded grass plots: Further ploughing up of these plots is discontinued.

ERRATUM to 'Results' 65/B/1.1. The first line (excluding headings) should read 'Highfield and Fosters Field 1965, the 17th year'.

## HIGHFIELD

1st year Treatment Crops:

All-grass ley: Ploughed: Sept 27, 1965. Basal PK compound applied: Mar 22, 1966. 'Nitro-Chalk' applied, seeds sown at 30 lb: Mar 23. Sprayed with dicamba at 0.08 lb and MCPA at



66/B/1.2

1.13 lb in 40 gals: June 1. Cut four times: July 1, Aug 8, Sept 13, Oct 13. NK compound applied after first three cuts.  
Clover-grass ley: Ploughed: Sept 27, 1965. Basal PK compound applied: Mar 22, 1966. Seeds sown at 33 lb: Mar 23. Sprayed with MCPB/MCPA (Tropotox Plus at 5 pints in 40 gals): June 1. Cut three times: July 13, Sept 2, Oct 13. Muriate of potash applied after first two cuts.  
Lucerne: Ploughed: Sept 27, 1965. Basal PK compound applied: Mar 22, 1966. Seed drilled at 20 lb: Apr 29. Cut three times: July 13, Aug 31, Nov 8.  
Hay: Ploughed: Sept 27, 1965. Basal PK compound applied: Sept 29. Seeds sown at 38.5 lb: Oct 5. 'Nitro-Chalk' applied: Mar 22, 1966. Cut twice: June 1 and July 1. NK compound applied after first cut.  
Hay (after reseeded grass till 1962): Ploughed: Sept 27, 1965. Basal NPK compound applied: Mar 17, 1966. Seeds sown at 40 lb: Mar 18. Sprayed with dicamba at 0.08 lb and MCPA at 1.13 lb in 40 gals: June 1. Cut twice: June 29, July 22. NK compound applied after first cut. Variety: S22 Italian ryegrass.

#### 2nd year Treatment Crops:

All-grass ley: Basal PK compound applied: Dec 21, 1965. NK compound applied: Mar 22, 1966. Cut five times: May 19, June 28, Aug 8, Sept 13, Oct 13. NK compound applied after first four cuts.  
Clover-grass ley: Basal PK compound applied: Dec 21, 1965. Muriate of potash applied: Mar 22, 1966. Cut five times: May 19, June 28, Aug 8, Sept 13, Oct 13. Muriate of potash applied after first four cuts.  
Lucerne: Basal PK compound applied: Dec 21, 1965. Sprayed with paraquat at 2 lb ion in 40 gals: Mar 1, 1966. Cut four times: June 1, July 7, Sept 1, Nov 8.  
Sugar beet: Ploughed: Aug 12, 1965. Ploughed second time: Oct 27. Muriate of potash applied: Feb 8, 1966. Basal NPK compound applied: Mar 22. 'Nitro-Chalk' applied: Mar 28. Seed drilled at 10 lb: Mar 30. Singled: May 23. Sprayed with demeton-s-methyl (Metasystox at 12 fluid oz in 37 gals): June 14. Lifted: Nov 17.

#### 3rd year Treatment Crops:

All-grass ley: Basal PK compound applied: Dec 21, 1965. NK compound applied: Mar 22, 1966. Cut four times: May 19, June 28, Aug 8, Sept 13. NK compound applied after first three cuts.



66/B/1.3

Clover-grass ley: Basal PK compound applied: Dec 2, 1965. Muriate of potash applied: Mar 22, 1966. Cut four times: May 19, June 28, Aug 8, Sept 13. Muriate of potash applied after first three cuts.

Lucerne: Basal PK compound applied: Dec 21, 1965. Sprayed with paraquat at 2 lb ion in 40 gals: Mar 1, 1966. Cut three times: June 1, July 7, Sept 1.

Oats: Ploughed: Jan 7, 1966. Seed combine drilled at 160 lb: Mar 7. 'Nitro-Chalk' applied: Mar 9. Sprayed with mecoprop at 2.25 lb a.e. in 40 gals: May 10. Combine harvested: Sept 3.

1st Test Crop, Wheat:-

Basal PK compound applied: Sept 13, 1965. Sulphate of ammonia applied: Sept 14. Ploughed: Sept 16. Basal PK compound applied: Oct 26. Seed drilled at 170 lb: Nov 2. 'Nitro-Chalk' applied: Apr 25, 1966. Sprayed with mecoprop at 2.25 lb a.e. in 40 gals: Apr 29. Combine harvested: Aug 23.

2nd Test Crop, Potatoes:-

Dung applied, plots ploughed: Oct 1, 1965. NPK fertilisers applied: Mar 29 - Apr 1, 1966. Rotary cultivated, potatoes machine planted: Apr 4. Sprayed with linuron at 1 lb and paraquat at 0.75 lb in 37 gals: May 16. Rotary ridged: June 17. Sprayed three times with mancozeb at 1.2 lb in 37 gals: June 30, July 22, Aug 5. Sprayed with undiluted BOV at 15 gals: Sept 16. Haulm destroyed mechanically: Sept 21. Lifted: Sept 27.

3rd Test Crop, Barley:-

Ground chalk applied, plots ploughed: Oct 27, 1965. Seed combine drilled at 140 lb: Mar 7, 1966. 'Nitro-Chalk' applied: Mar 9. Sprayed with mecoprop at 2.25 lb a.e. in 40 gals: May 10. Combine harvested: Aug 20.

Permanent grasses: 16th, 17th and 18th experimental years permanent (old) grass, all blocks, 16th, 17th and 18th years reseeded grass, blocks 1, 4, 6, 7, 9 and 12. Ground chalk applied to blocks 2 and 3, basal PK compound applied: Dec 20, 1965. 'Nitro-Chalk' applied to 'all grass' half plots, muriate of potash to 'clover-grass' half plots: Mar 22, 1966. Cut five times: May 19, June 28, Aug 8, Sept 13. Muriate of potash and NK compound applied to appropriate half plots after each cut.

FOSTERS

1st year Treatment Crop:-

All-grass ley: Ploughed: Sept 27, 1965. Basal PK compound applied: Mar 22, 1966. 'Nitro-Chalk' applied, seeds sown at 30 lb:

66/B/1.4

Mar 23. Sprayed with dicamba at 0.08 lb and MCPA at 1.13 lb in 40 gals: June 1. Cut four times: July 1, Aug 8, Sept 12, Oct 13. NK compound applied after first three cuts.

Clover-grass ley: Ploughed: Sept 27, 1965. Basal PK compound applied: Mar 22, 1966. Seed sown at 33 lb: Mar 23. Sprayed with MCPB/MCPA (Tropotox Plus at 5 pints in 40 gals): June 1. Cut three times: July 13, Sept 2, Oct 13. Muriate of potash applied after first two cuts.

Lucerne: Ploughed: Sept 27, 1965. Basal PK compound applied: Mar 22, 1966. Seed sown at 20 lb: Apr 29. Cut three times: July 13, Aug 31, Nov 8.

Hay: Ploughed: Sept 27, 1965. Basal PK compound applied: Sept 29. Seed sown at 38.5 lb: Oct 5. 'Nitro-Chalk' applied: Mar 22, 1966. Cut twice: June 1, July 1. NK compound applied after first cut.

Hay (after reseeded grass till 1962): Ploughed: Sept 27, 1965. Basal NPK compound applied: Mar 17, 1966. Seed drilled at 40 lb: Mar 18. Sprayed with dicamba at 0.08 lb and MCPA at 1.13 lb in 40 gals: June 1. Cut twice: June 29, July 22. NK compound applied after first cut. Variety: S22 Italian Ryegrass.

#### 2nd year Treatment Crops:-

All-grass ley: Basal PK compound applied: Dec 21, 1965. NK compound applied: Mar 22, 1966. Cut five times: May 18, June 28, Aug 8, Sept 12, Oct 13. NK compound applied after first four cuts.

Clover-grass ley: Basal PK compound applied: Dec 21, 1965. Muriate of potash applied: Mar 22, 1966. Cut five times: May 18, June 28, Aug 8, Sept 12, Oct 13. Muriate of potash applied after first four cuts.

Lucerne: Basal PK compound applied: Dec 21, 1965. Sprayed with paraquat at 2 lb ion in 40 gals: Mar 1, 1966. Cut four times: June 1, July 7, Aug 31, Nov 8.

Sugar beet: Ploughed twice: Aug 12 and Oct 27, 1965. Muriate of potash applied: Feb 8, 1966. Basal NPK compound applied: Mar 22. 'Nitro-Chalk' applied: Mar 28. Seed drilled at 10 lb: Mar 30. Singled: May 25. Sprayed with demeton-s-methyl (Metasystox at 12 fluid oz in 37 gals): June 14. Lifted: Nov 17.

#### 3rd year Treatment Crops:-

All-grass leys: Basal PK compound applied: Dec 21, 1965. NK compound applied: Mar 22, 1966. Cut four times: May 18, June 28, Aug 8, Sept 12. NK compound applied after first three cuts.



66/B/1.5

Clover-grass ley: Basal PK compound applied: Dec 21, 1965. Muriate of potash applied: Mar 22, 1966. Cut four times: May 18, June 28, Aug 8, Sept 12. Muriate of potash applied after first three cuts.

Lucerne: Basal PK compound applied: Dec 21, 1965. Sprayed with paraquat at 2 lb ion in 40 gals: Mar 1, 1966. Cut three times: June 1, July 7, Sept 1.

Oats: Ploughed: Jan 7, 1966. Seed drilled at 160 lb: May 7. 'Nitro-chalk' applied: May 9. Sprayed with mecoprop at 2.25 lb a.e. in 40 gals: May 10. Combine harvested: Sept 3.

1st Test Crop, Wheat:-

Basal PK compound and sulphate of ammonia applied, plots ploughed: Sept 13, 1965. Basal PK compound applied: Oct 26. Seed drilled at 170 lb: Nov 2. 'Nitro-Chalk' applied: Apr 25, 1966. Sprayed with mecoprop at 2.25 lb a.e. in 40 gals: Apr 29. Combine harvested: Aug 23.

2nd Test Crop, Potatoes:-

Dung applied, plots ploughed: Oct 1, 1965. NPK fertilisers applied: Mar 29 - Apr 1, 1966. Rotary cultivated, potatoes machine planted: Apr 4. Sprayed with linuron at 1 lb and paraquat at 0.75 lb in 37 gals: May 16. Rotary ridged: June 16. Sprayed three times with mancozeb at 1.2 lb in 37 gals: June 30, July 22, Aug 5. Sprayed with undiluted BGV at 15 gals: Sept 16. Haulm destroyed mechanically: Sept 22. Lifted: Sept 26.

3rd Test Crop, Barley:-

Ploughed: Oct 27, 1965. Seed combine drilled at 140 lb: Mar 7, 1966. 'Nitro-Chalk' applied: Mar 9. Sprayed with mecoprop at 2.25 lb a.e. in 40 gals: May 10. Combine harvested: Aug 20.

Permanent grasses:-

16th, 17th and 18th years reseeded grass, blocks 1, 3, 6, 8, 9 and 11. Basal PK compound applied: Dec 21, 1965. NK compound applied to 'all-grass' half plots and muriate of potash to 'clover-grass' half plots: Mar 22, 1966. Cut five times: May 18, June 28, Aug 8, Sept 12, Oct 12. Muriate of potash and NK compound applied to appropriate half plots after first four cuts.

Standard errors per sub plot. Test crops.

Potatoes. Total tubers:

Highfield: Whole plot:	1.572 or 6.9% (4 d.f.)
Sub plot:	1.540 or 6.8% (15 d.f.)
Fosters: Whole plot:	1.014 or 4.9% (4 d.f.)
Sub plot:	1.536 or 7.4% (15 d.f.)

66/B/1.6

SUMMARY OF RESULTS

WHEAT 1ST TEST CROP

1963 - 1965

	Lu	LC	LN	AH	Mean
GRAIN					
HIGHFIELD					
Mean	44.5	46.0	43.9	43.4	44.5
To test crop					
NO	51.2	45.2	36.5	31.9	
N1	42.1	51.7	44.8	44.6	
N2	50.3	45.1	46.2	50.1	
N3	34.3	41.9	48.1	47.2	
TO	46.4	46.9	44.7	41.9	45.0
T1	42.6	45.1	43.1	45.0	43.9
FOSTERS					
Mean.	56.4	53.1	54.0	49.2	53.2
To test crop					
NO	51.4	46.3	49.4	31.9	
N1	59.0	54.4	55.8	50.2	
N2	58.8	57.3	55.9	57.7	
N3	56.3	54.3	54.9	56.9	
TO	56.5	51.8	52.2	47.3	51.9
T1	56.2	54.4	55.8	51.1	54.4
Mean D.M. %:	Highfield	82.0			
	Fosters	80.8			



66/3/1.7

WHEAT 1ST TEST CROP

1963 - 1965

	Lu	LC	LN	AH	Mean
STRAW					
HIGHFIELD					
Mean	52.4	42.4	38.0	44.2	44.2
To test crop					
NO	48.7	35.4	31.2	27.4	
N1	51.7	43.6	38.1	46.5	
N2	53.5	41.1	44.1	51.8	
N3	55.5	49.5	38.6	51.0	
TO	51.8	40.5	37.6	40.8	42.7
T1	52.9	44.4	38.4	47.6	45.8
FOSTERS					
Mean	52.4	46.4	47.8	37.6	46.1
To test crop					
NO	42.5	36.4	37.6	21.8	
N1	52.2	45.0	44.1	39.5	
N2	55.6	52.9	51.1	43.2	
N3	59.4	51.1	58.6	45.8	
TO	52.4	43.0	46.2	37.4	44.8
T1	52.5	49.7	49.5	37.8	47.4

Mean D.M. %: Highfield 63.3  
 Fosters 65.3

66/B/1.8

POTATOES 2ND TEST CROP. TOTAL TUBERS

1962 - 1964

	Lu	LC	LN	AH	R	Mean
HIGHFIELD						
	(1) and (2)					(±0.344)
F	22.35	21.57	22.77	21.13	25.76	22.72
D	21.93	22.95	23.83	21.38	24.06	22.83
Mean (±1.112)	22.14	22.26	23.30	21.26	24.91	22.77
FOSTERS						
	(1) and (2)					(±0.343)
F	21.52	21.07	20.87	19.84	22.11	21.08
D	20.90	19.79	20.58	19.89	21.65	20.56
Mean (±0.717)	21.21	20.43	20.72	19.87	21.88	20.82

Highfield (1) (±1.238) For use in horizontal and diagonal comparisons  
 (2) (±0.770) For use in vertical and interaction comparisons

Fosters (1) (±0.899) For use in horizontal and diagonal comparisons  
 (2) (±0.768) For use in vertical and interaction comparisons

66/B/1.9

POTATOES 2ND TEST CROP. % WARE

1962 - 1964

	Lu	LC	LN	AH	R	Mean
HIGHFIELD						
F	97.8	97.7	98.0	97.9	98.4	98.0
D	97.7	97.8	97.9	97.6	97.7	97.7
Mean	97.8	97.7	98.0	97.7	98.0	97.8
FOSTERS						
F	97.9	98.3	97.7	97.5	97.8	97.8
D	98.2	97.7	98.0	97.7	97.7	97.9
Mean	98.1	98.0	97.9	97.6	97.7	97.9

66/E/1.10

BARLEY 3RD TEST CROP

GRAIN

1961 - 1963

	Lu	Ley	CG	AH	R	Mean
HIGHFIELD						
Mean	49.9	53.2	51.1	49.9	52.3	51.3
1966						
NO	43.4	49.5	44.2	45.1	52.8	47.0
N1	50.0	54.8	51.5	48.7	53.7	51.7
N2	52.4	54.2	52.5	52.2	53.1	52.9
N3	54.0	54.5	56.2	53.9	49.6	53.6
1965						
F	50.8	52.4	51.0	49.0	54.0	51.6
D	49.0	54.1	51.2	50.9	50.5	51.1

Excluding AH

1966

1965	NO	N1	N2	N3	Mean
F	47.8	52.4	54.0	54.0	52.0
D	47.1	52.6	52.0	53.2	51.2

Mean D.M. %: 82.3



66/3/1.11

BARLEY 3RD TEST CROP

GRAIN

1961 - 1963

	Lu	Ley	CG	AH	R	Mean
FOSTERS						
Mean	50.8	53.7	51.9	51.2	54.1	52.4
1966						
NO	42.5	49.9	45.3	43.6	53.6	47.0
N1	50.9	56.9	51.0	-	58.0	-
N2	54.2	55.6	55.1	52.2	53.2	54.1
N3	55.6	52.5	56.4	55.0	51.8	54.3
N4	-	-	-	53.8	-	-
1965						
F	47.9	52.2	50.4	51.3	53.5	51.1
D	53.7	55.3	53.4	51.0	54.8	53.6

Excluding AH

1966

1965	NO	N1	N2	N3	Mean
F	43.8	51.8	54.5	54.0	51.0
D	51.9	56.6	54.5	54.3	54.3

Mean D.M. %: 81.6

66/B/1.12

TREATMENT CROPS ARABLE AND HAY ROTATION

HAY: DRY MATTER (Total of 2 cuts)

After arable crop			After reseeded grass ploughed 1962 - 63		
F	D	Mean	F	D	Mean
HIGHFIELD					
71.6	72.9	72.2	54.0	53.9	54.0
FOSTERS					
75.2	80.5	77.8	46.2	49.9	48.0

66/B/1.13

TREATMENT CROPS ARABLE AND HAY ROTATION

HIGHFIELD		FOSTERS
Mean		Mean
	SUGAR BEET	
	ROOTS	
23.69		20.77
	SUGAR %	
16.2		17.0
	TOTAL SUGAR	
76.7		70.8
	TOPS	
22.12		18.99
	OATS	
	GRAIN	
32.9		50.4

Oats, grain, mean D.M. %: Highfield 81.0  
 Fosters 79.4

66/B/1.14

LUCERNE: DRY MATTER

	HIGHFIELD 1964			FOSTERS 1964		
	F	D	Mean	F	D	Mean
1st year (3 cuts)	50.1	49.6	49.8	57.3	60.8	59.0
2nd year (4 cuts)			77.3			81.0
3rd year (3 cuts)			54.3			73.3

ALL-GRASS LEY: DRY MATTER

	HIGHFIELD 1964			FOSTERS 1964		
	F	D	Mean	F	D	Mean
1st year (4 cuts)	79.4	78.7	79.1	67.7	68.9	68.3
2nd year (5 cuts)			115.0			111.2
3rd year (4 cuts)			95.1			99.2



66/B/1.15

CLOVER-GRASS LEY: DRY MATTER

	HIGHFIELD 1964			FOSTERS 1964		
	F	D	Mean	F	D	Mean
1st year (3 cuts)	41.5	45.4	43.4	33.6	32.3	33.0
2nd year (5 cuts)			90.0			92.2
3rd year (4 cuts)			78.7			75.2

PERMANENT GRASS: DRY MATTER

	NO	N1	Mean
HIGHFIELD			
16th exptl year Blocks 9 and 12	55.4	105.8	80.6
Blocks 10 and 11	50.6	108.8	79.7
17th exptl year Blocks 5 and 8	58.8	104.6	81.7
Blocks 6 and 7	56.6	115.0	85.8
18th exptl year Blocks 1 and 4	59.0	110.5	84.7
Blocks 2 and 3	77.7	105.4	91.6

(NO) Clover-grass management

(N1) All-grass management

66/B/1.16

RESEDED GRASS: DRY MATTER

	HIGHFIELD			FOSTERS		
	NO	N1	Mean	NO	N1	Mean
16th exptl year	59.0	113.4	86.2	79.0	112.0	95.5
17th exptl year	59.1	114.7	86.9	76.2	116.8	96.5
18th exptl year	57.4	105.8	81.6	82.7	106.0	94.4

(NO) Clover-grass management  
 (N1) All-grass management

66/B/2.1

REFERENCE PLOTS

ROTHAMSTED (R) GREAT FIELD IV AND HIGHFIELD IX

AND

WOBURN (W) STACKYARD SERIES C, 1966

(RA, RG, WRA and WRF)

For details of previous year's results and for rates of fertilisers, etc., see 'Results' 58/Bc/1, 59/Bc/1, 60/B/3, 61/B/2, 62/B/2, 63/B/2, 64/B/2, 64/B/11 and 65/B/2. For conifer seedbeds and transplants see 63/B/2, 64/B/2 and 65/B/2.

Great Field IV:

Variety of wheat now Champlein and variety of barley Deba Abed on all plots.

Highfield IX:

P is now applied as granular superphosphate on all blocks.

Woburn:

Variety of oats now Maris Quest and variety of barley Maris Badger.

Each plot of sugar beet was split for a test of 0 v 2 cwt sulphate of magnesia applied in May (with 2 cwt v 0 applied after lifting to balance the total dressings).

Woburn Forestry Reference Plots:

Bed 1: All plots with N received 4 topdressings of 4.5g.N as 'Nitro-Chalk', i.e. one more topdressing than in previous years. No formalin was applied.

Bed 2: All manured plots received 4 topdressings of 'Nitro-Chalk' (4.5g.N per occasion for seedbeds, 3g.N per occasion for transplants) compared with only 3 topdressings in 1965.

Cultivations, etc.:-

Great Field IV (R):-

Winter wheat: Dug by hand: Oct 6, 1965. P, K, Mg, Ca and S applied, seed drilled: Oct 8. First N dressings applied (excluding additional plots): Mar 7, 1966. Second N dressings applied, all N applied to additional plots: Apr 30. Trace element spray applied: May 9. Harvested: Aug 18.

Kale: Dung applied, plots dug by hand: Nov 4, 1965. P, K, Mg, Ca and S applied: Mar 7, 1966. First N dressings applied to additional plots, all N to remainder, plots rotary cultivated, seed drilled: Mar 17. Plots resown because of poor take: Apr 28. Second N dressing applied to additional plots: May 31. Trace element spray applied: June 10. Harvested: Oct 26.



66/B/2.2

Barley: Plots dug by hand: Nov 12, 1965. P, K, Mg, Ca and S applied: Mar 7, 1966. All N applied, plots rotary cultivated, seed drilled: Mar 15. Trace element spray applied: May 31. Harvested: Aug 19.

Grass-clover ley: Undersown in barley: Mar 1, 1965. P and K applied (excluding additional plots): Feb 23, 1966. P, K, Mg, Ca and S applied to additional plots: Mar 7. All N applied: Mar 17. Trace element spray applied: May 9. Cut four times: Oct 20, 1965, May 27, 1966, July 8, Sept 16.

Potatoes: Dung applied, plots dug by hand: Nov 10, 1965. P, K, Mg, Ca and S applied: Mar 7, 1966. First N dressings applied to additional plots, all N applied to remaining plots, plots rotary cultivated, potatoes planted: Mar 23. Trace element spray applied: June 10. Earthed up: June 13. Sprayed four times with triphenyltin acetate at 6 oz in 120 gals: June 29, July 13, July 28, Aug 12. Lifted: Plots with neither K nor dung (where haulm died early): Aug 5, remainder: Sept 14.

Permanent grass: Dung applied: Feb 15, 1966. P and K applied: Feb 23. N applied - first dressing: Mar 14, second: May 5, third: July 8. Cut 3 times: May 5, July 8 and Sept 28.

- NOTES: (1) Yields of dry matter were obtained from each crop.  
(2) The percentages of N, P and K were measured in each crop.

Stackyard Series C (W):-

Oats: Plots dug by hand: Sept 27, 1965. P and K applied, seed drilled: Oct 19. First N dressing applied: Mar 8, 1966. Second N dressing applied: May 2. Harvested: Aug 17.

Sugar beet: Dung applied, plots dug by hand: Dec 7, 1965. P and K applied: Feb 28, 1966. First N dressing applied, plots rotary cultivated, seed drilled: Mar 22. Sprayed with 3 oz DDT in 40 gals: May 2. Mg fertiliser applied to half plots: May 26. Singled, second N dressing applied: June 2. Sprayed 4 times with dimethoate and DDT mixture at 1 pt in 40 gals: June 2, June 21, July 7, July 26. Harvested: Oct 10. Mg applied to other half plots: Oct 10.

Barley: Plots dug by hand: Dec 7, 1965. P and K applied: Feb 28, 1966. First N dressing applied, rotary cultivated, seed drilled: Mar 8. Second N dressing applied: May 2. Harvested: Aug 17.

Grass-clover ley: Undersown in barley: Mar 25, 1965. P and K applied: Feb 28, 1966. All N applied: Mar 8. Cut four times: Oct 19, 1965, May 8, 1966, July 6, Sept 13.

Potatoes: Dung applied, plots dug by hand: Dec 14, 1965. P and K applied: Feb 28, 1966. First N dressing applied, plots rotary cultivated, setts planted: Mar 31. Second N dressing applied: May 26. Earthed up: June 2. Sprayed twice with



66/B/2.3

Bordeaux mixture at 5 lb in 40 gals: June 30, July 26.  
Sprayed with triphenyltin acetate at 6 oz in 124 gals:  
July 13. Lifted: Plots with neither K nor dung:  
Aug 4. Remaining plots: Sept 13.  
Permanent grass: Dung, P and K applied: Feb 28, 1966.  
First N dressing applied: Mar 8. Second N dressing  
applied: May 9. Third N dressing applied: June 21.  
Cut four times: May 9, June 21, Aug 22, Oct 17.

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

Errata: To 'Results' 61/B/2 N1, N2 to potatoes 0.75, 1.50 cwt N per acre (formerly 0.6, 1.2), N1, N2 to permanent grass 1.5, 3.0 cwt N per acre (formerly 1.0, 2.0).  
To 'Results' 63/B/2 N1, N2 to ley 0.25, 0.5 cwt N per acre (formerly 0.15, 0.3), to oats 0.5, 1.0 cwt N per acre (formerly 0.3, 0.6), to barley 0.5, 1.0 cwt N per acre (formerly 0.45, 0.9), to fruit 0.5, 1.0 cwt N per acre (formerly 0.6, 1.2). The potash rates for all crops, nil, 2.0 cwt K<sub>2</sub>O per acre (formerly nil, 1.0).

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

Cultivations, etc.: P and K fertilisers applied, ground chalk applied to appropriate plots: Dec 20, 1965. First N dressings applied: Mar 4, 1966. Sample cuts taken 4 times: May 3, June 27, Aug 25, Oct 31. Sampling cages moved after each cut. N dressing applied after each cut except the last.

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

Conifer seedbeds and transplants:

Bed 1: All manures (other than N) dug in: Mar 17, 1966.  
Seed sown: Mar 23. T.V.O. pre-emergent spray: Apr 21.  
N topdressed: June 22, July 12, Aug 10, Sept 9.  
Bed 2: Seedbeds as for Bed 1. Transplant plots lined out: Mar 28. All manures (other than N) as for seedbeds.  
N topdressed on transplants: May 10, June 22, July 12, Aug 10.

66/B/2.4

- NOTES: (1) Height assessments and samples for analysis as in 1965.  
(2) Plots lacking N, K and Mg had typical deficiency symptoms.

Standard errors per plot.

Highfield IX (R), Dry Matter:

1st cut:	3.31 or 22.8% (39 d.f.)
2nd cut:	5.06 or 10.3% (39 d.f.)
3rd cut:	3.96 or 10.1% (39 d.f.)
4th cut:	3.77 or 16.0% (38 d.f.)
Total of 4 cuts:	9.08 or 7.2% (38 d.f.)

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

Mean height:	0.219 or 8.8% (11 d.f.)
Plant number:	168.4 or 16.5% (11 d.f.)



SUMMARY OF RESULTS  
GREAT FIELD IV (R): ORIGINAL PLOTS

Treatment	Winter wheat: GRAIN STRAW	Kale: TOTAL WEIGHT	Barley: GRAIN STRAW	Ley: DRY MATTER				Total Potatoes: TOTAL TUBERS	Permanent grass: DRY MATTER			Total of 3 cuts
				1st cut	2nd cut	3rd cut	4th cut		1st cut	2nd cut	3rd cut	
None	33.3	11.64	29.9	8.0	19.0	18.3	15.2	3.79	3.4	21.3	18.6	43.3
N1	28.4	14.58	38.8	5.1	17.9	16.0	14.9	3.90	8.4	21.6	24.0	54.0
P	33.5	14.93	34.9	5.8	16.4	11.9	10.2	6.78	3.0	16.9	14.8	34.7
N1P	22.1	19.10	35.2	3.2	23.0	10.1	6.5	3.60	9.3	23.4	24.4	57.1
K	33.4	6.94	29.6	10.7	24.5	26.3	23.7	15.88	2.9	15.7	19.2	37.8
N1K	38.9	10.59	33.8	10.6	28.1	31.5	23.1	17.80	8.2	29.6	32.9	70.7
PK	40.7	9.55	38.5	14.5	34.1	33.8	23.1	17.45	4.2	20.5	20.2	44.9
N1PK	53.2	15.62	51.2	11.6	36.7	31.9	24.2	16.76	10.0	30.9	27.1	68.0
N2PK	55.1	20.32	54.9	9.9	39.3	26.9	25.9	21.27	19.7	30.4	31.2	81.3
D	44.7	13.37	50.0	16.6	31.8	31.6	21.6	19.36	23.0	26.9	31.4	81.3
N1PKD	54.2	20.84	57.4	14.0	40.4	37.3	34.7	25.87	25.8	38.3	32.4	96.5
N2PKD	51.2	21.53	61.8	11.0	39.7	31.9	26.8	26.74	29.5	29.3	37.4	96.2
Mean D.M.%:	83.6	67.8	76.8	19.2	17.0	17.3	19.6	18.3	21.7	23.4	25.4	23.5

66/B/2.5

GREAT FIELD (R): ADDITIONAL PLOTS

Treatment	Winter wheat GRAIN STRAW	Kale: TOTAL WEIGHT	Barley GRAIN STRAW	Ley: DRY MATTER			Total of 4 cuts	Potatoes TOTAL TUBERS	
				1st cut	2nd cut	3rd cut			4th cut
None	35.8	17.71	41.2	31.1	7.0	20.5	15.2	58.6	3.26
N2PK	46.8	30.90	56.8	54.1	10.8	35.3	15.7	84.7	20.23
N2 PK Mg Ca	51.5	27.26	56.0	53.5	9.7	35.9	14.2	82.0	19.54
N2 PK Mg S	54.4	30.56	55.8	44.6	8.8	37.6	10.6	84.4	21.10
N2 PK Ca S	49.9	29.00	55.2	51.9	10.0	39.2	17.3	92.6	16.41
N2 PK Mg Ca S	54.1	30.38	56.2	52.9	10.5	37.0	19.7	91.8	19.36
N2 PK Mg Ca S, TE	49.6	30.38	57.2	48.8	9.2	37.4	16.2	84.4	20.06
Mean D.M. %:	85.3		84.1	65.4	19.4	19.1	19.2	19.0	

66/B/2.6



STACKYARD SERIES C (W)

Treat- ment	Oats		Sugar beet		Total sugar: cwt per acre	Barley		Ley: DRY MATTER				Permanent grass:						
	GRAIN	STRAW	ROOTS	%		GRAIN	STRAW	1st cut	2nd cut	3rd cut	4th cut	1st cut	2nd cut	3rd cut	4th cut	Total of 4 cuts		
None	16.2	15.1	9.41	14.5	27.3	10.2	8.2	6.5	14.4	23.6	17.2	61.7	4.22	9.0	11.3	10.6	4.7	35.6
N1	30.4	33.1	13.58	14.2	38.7	21.3	17.4	5.2	19.4	21.5	15.5	61.6	5.56	9.7	18.0	19.2	5.3	52.2
P	15.9	15.2	9.72	14.3	27.8	12.7	9.5	8.6	14.7	18.8	13.9	56.0	4.64	7.9	9.5	9.5	4.0	30.9
N1P	28.0	28.5	11.11	14.1	31.4	21.3	19.5	7.0	21.2	20.0	14.8	63.0	5.50	10.7	19.9	19.3	5.0	54.9
K	15.6	18.4	12.66	15.0	38.0	10.4	8.2	10.0	8.1	26.6	20.3	65.0	7.18	9.1	13.9	13.5	6.5	43.0
N1K	32.0	36.7	16.52	14.9	49.4	31.3	29.4	8.0	22.7	23.6	19.9	74.2	8.56	13.3	21.9	22.5	5.6	63.3
PK	17.1	17.8	11.88	14.9	35.4	9.6	7.8	10.8	6.0	32.2	21.1	70.1	6.56	10.6	14.2	13.1	7.1	45.0
N1PK	31.5	40.4	16.05	14.9	48.0	28.4	25.4	10.2	19.6	32.2	27.7	89.7	10.42	16.4	21.7	24.9	6.0	69.0
N2PK	36.6	53.6	16.98	14.7	50.0	35.2	39.8	5.8	27.4	21.3	17.3	71.8	14.12	9.4	22.2	30.3	9.4	71.3
D	19.2	20.2	18.52	15.2	56.2	11.1	8.8	10.1	10.6	30.1	22.4	73.2	14.12	12.4	15.1	13.7	7.6	48.8
N1PKD	35.4	47.2	23.30	15.1	70.5	35.1	34.0	8.6	23.5	22.8	20.3	75.2	17.20	12.3	21.0	25.3	7.9	66.5
N2PKD	37.4	54.5	22.07	14.6	64.6	39.6	44.7	7.0	28.3	26.1	21.2	82.6	19.91	12.0	23.8	30.4	10.9	77.1
Mean D.M.%:	83.1	63.5				81.4	57.3	17.9	18.9	23.9	23.2	21.0		20.4	23.8	20.0	21.6	21.4

66/B/2.7



66/B/2.8

STACKYARD C (W). Bed 1

SITKA SPRUCE

Treatment	MEAN HEIGHT: INCHES	PLANT NUMBER: PER SQ YARD
	(±0.155)	(±119.0)
None	1.83 (1)	960 (2)
PK Mg	1.72	1119
NK Mg	2.04	1008
NP Mg	2.45	654
NPK	2.66	1044
NPK Mg	2.76 (1)	1054 (2)
NPK Mg F	2.71	1248
C	2.65	939
C NPK Mg	3.37	1266
L NPK Mg	3.12	963
Mean	2.49	1023

(1) (±0.110)      (2) (±84.2)

Bed 2 PLOTS 1 - 6

	O	A	B	Mean
	MEAN HEIGHT: INCHES			
SS	8.38	12.31	13.02	11.24
NS	6.41	8.36	8.39	7.72

66/E/2.9

Bed 2 PLOTS 7 - 12

	O	A	B	Mean
	MEAN HEIGHT: INCHES			
SS	1.00	2.80	3.39	2.39
NS	1.35	2.42	2.59	2.12

	PLANT NUMBER: PER SQ YD			
SS	1374	1134	1284	1264
NS	1128	1122	1122	1124

66/B/2.10

HIGHFIELD IX (R)

GRASS: DRY MATTER

	1st cut	2nd cut	3rd cut	4th cut	Total of 4 cuts
PK	(±1.65)	(±2.53)	(±1.98)	(±1.88)	(±4.54)
NO 00	7.7	33.6	32.8	18.9	93.1
N1 00	13.8	47.9	37.9	22.4	122.0
A1 00	15.4	46.8	37.4	25.9	125.5
NO 10	10.2	43.0	33.5	16.9	103.6
N1 10	16.0	50.0	40.9	24.1	128.7
A1 10	17.8	50.7	36.8	26.2	131.6
NO 01	10.1	39.0	36.9	16.9	103.0
N1 01	17.5	52.2	40.3	28.4	138.3
A1 01	15.3	50.8	38.2	22.2	126.6
NO 11	8.6	41.6	38.2	18.8	107.2
N1 11	19.8	56.3	44.1	28.8	149.0
A1 11	20.3	55.0	38.9	25.9	140.1
N2 11	15.0	60.4	48.8	28.1	152.3
A2 11	15.6	62.4	44.4	25.3	147.7
Mean	14.5	49.3	39.2	23.5	126.3
Mean D.M. %:	1st cut:	18.6			
	2nd cut:	18.1			
	3rd cut:	20.4			
	4th cut:	18.8			
	Total of 4 cuts:	19.0			



66/B/3.1

GREEN MANURING EXPERIMENT

(WGM)

Woburn Stackyard 1966.

For history, treatments, etc., see 'Details' 1962 and 'Results' 64/B/3 and 65/B/3.

Area of each sub plot: 0.0195. Area harvested: 0.0146.

Treatments:

A new arrangement of the N levels was used on both halves in 1966, allowing the estimation of the residual effects of N applied in 1965.

Levels of N: None (N0), 0.3 (N1), 0.6 (N2), 0.9 (N3), 1.2 cwt N (N4), as 'Nitro-Chalk'.

Plots were grouped according to their previous treatment:-

A: no green manures since 1936

B: green manures 1936 - 63

C: green manures 1936 - 65

(dates are of crops testing direct effects)

Upper Half

Plots fallow under old scheme: N1, N2, N3, N4 (A).

Remainder: N0, N1, N2, N3 (B and C).

No green manures were undersown and this part of the experiment ended at harvest 1966.

Lower Half

A new arrangement of the green manuring treatments was begun in 1966.

1966 treatments

A plots: All combinations of:-

1. Green manures undersown 1966: Trefoil (T), ryegrass (R).
2. Nitrogen: N1, N3.

B plots:

1. Green manures undersown 1966: None (O), trefoil (T), ryegrass (R).

2. Nitrogen: to plots undersown: N1, N3.  
to plots not undersown: N0, N1, N2, N3.

C plots:

(No green manures undersown 1966)

Nitrogen: N0, N1, N2, N3.

NOTE: On the B plots the green manures undersown in 1966 were applied as a new factor in all combinations with those applied in 1963.

66/B/3.2

Cultivations, etc.: Ground chalk applied at 18 cwt: Sept 13, 1965.  
Ploughed (plots not undersown): Oct 19. Green manure plots  
ploughed: Feb 2, 1966. Basal PK and seed at 140 lb combine  
drilled: Mar 8. 'Nitro-Chalk' applied: Mar 10. Upper Half  
sprayed with mecoprop/2,4-D (Methoxone Extra at 6 pints in 35 gals):  
May 10. Lower Half sprayed with Morfamquat at 1 lb in 35 gals:  
May 11. Trefoil sown at 30 lb, ryegrass at 40 lb: May 13. Lower  
half sprayed with MCPB/MCPA (Tropotox plus at 5 pints in 35 gals):  
June 10. Combine harvested: Aug 23. Variety: Maris Badger.

66/B/3.3

SUMMARY OF RESULTS

ESTIMATES OF PRODUCE (ROOTS AND TOPS) OF GREEN MANURE CROPS: CWT PER ACRE  
TO BARLEY 1965

	NO	N1	N2	N3	Mean
UPPER HALF					
DRY MATTER					
T	15.6	9.6	8.2	4.2	9.4
R	24.2	21.6	25.6	23.0	23.6
Mean	19.9	15.6	16.9	13.6	16.5
NITROGEN					
T	0.481	0.279	0.244	0.106	0.278
R	0.230	0.207	0.264	0.322	0.256
Mean	0.356	0.243	0.254	0.214	0.267
LOWER HALF					
DRY MATTER					
T	15.9	14.8	6.5	4.4	10.4
R	34.4	19.9	26.6	21.4	25.6
Mean	25.2	17.3	16.6	12.9	18.0
NITROGEN					
T	0.492	0.474	0.200	0.140	0.327
R	0.358	0.214	0.298	0.260	0.283
Mean	0.425	0.344	0.249	0.200	0.305



66/B/3.4

UPPER HALF  
 BARLEY, GRAIN  
 A PLOTS  
 1966

	N1	N2	N3	N4	Mean
1965					
N1	18.0	32.0	33.7	40.2	31.0
N2	17.1	29.0	29.9	35.0	27.8
N3	14.1	32.6	34.4	38.3	29.8
N4	16.5	18.0	29.7	40.8	26.2
Mean	16.4	27.9	31.9	38.6	28.7

66/B/3.5

UPPER HALF  
BARLEY, GRAIN  
B PLOTS

	NO	N1	N2	N3
1966				
1965				
NO	10.2	22.3	33.2	41.0
N1	11.6	19.0	33.6	38.8
N2	13.2	19.7	33.6	38.2
N3	11.2	19.9	33.3	36.9

Green manure  
1955 - 63

T	13.4	15.0	33.8	36.5
R	9.7	21.8	32.9	39.2
TU	13.2	20.2	33.9	39.9
FU	10.0	23.9	33.0	39.1

Mean	11.5	20.2	33.4	38.7
------	------	------	------	------

1965

	NO	N1	N2	N3	Mean
T	23.5	26.1	23.7	25.5	24.7
R	31.6	20.9	29.5	21.7	25.9
TU	31.7	24.3	28.4	22.8	26.8
FU	19.8	31.8	23.1	31.3	26.5
Mean	26.7	25.8	26.2	25.3	26.0

66/B/3.6

UPPER HALF  
BARLEY, GRAIN  
C PLOT

	NO	N1	N2	N3	
1966					
Undersown 1964 - 65					
T	22.7	30.8	37.8	42.4	
R	12.5	22.6	32.6	40.8	
	Undersown 1964 - 65		Mean		
	T	R			
1965					
NO	36.3	28.2	32.2		
N1	34.1	24.4	29.3		
N2	33.0	27.6	30.3		
N3	30.4	28.4	29.4		
Mean	33.5	27.2	30.3		
1965					
	NO	N1	N2	N3	Mean
1966					
NO	21.0	15.7	19.3	14.6	17.6
N1	26.9	27.3	23.8	28.9	26.7
N2	38.9	33.6	36.4	32.1	35.2
N3	42.2	40.5	41.8	42.0	41.6

Mean D.M. %: 79.1



66/E/3.7

LOWER HALF  
BARLEY, GRAIN  
A PLOTS

1966

	N1	N3
--	----	----

Undersown  
1966

T	14.6	34.2
R	14.1	31.1

1965

	N1	N2	N3	N4	Mean
--	----	----	----	----	------

Undersown  
1966

T	25.9	25.0	23.8	22.9	24.4
R	25.0	21.2	21.0	23.2	22.6

1966

N1	15.2	12.4	15.8	13.8	14.3
N3	35.6	33.7	29.0	32.3	32.7

Mean	25.4	23.1	22.4	23.1	23.5
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66/B/3.8

LOWER HALF  
 BARLEY, GRAIN  
 B PLOTS WITH T & R

		1966						
		N1	N3					
Undersown 1966								
T		17.0	33.6					
R		16.8	34.7					
		1965						
		N0	N1	N2	N3	Mean		
Undersown 1966								
T		28.3	25.7	20.3	27.0	25.3		
R		26.0	25.8	23.0	28.2	25.8		
1966								
N1		18.2	18.6	13.6	17.3	16.9		
N3		36.2	32.9	29.7	37.8	34.2		
Mean		27.2	25.7	21.7	27.6	25.5		

66/E/3.9

LOWER HALF

BARLEY, GRAIN

B PLOTS WITHOUT T & R

	1966				
	NO	N1	N2	N3	Mean
1965					
NO	9.4	23.7	27.1	40.9	25.3
N1	9.2	12.4	24.5	31.5	19.4
N2	11.7	14.8	33.7	41.7	25.5
N3	7.3	12.6	24.0	33.2	19.3
Mean	9.4	15.9	27.3	36.8	22.4

C PLOTS

1966

	NO	N1	N2	N3
Undersown 1964 - 65				
T	22.5	29.8	38.9	39.0
R	11.7	20.9	31.7	35.1



66/B/3.10

LOWER HALF  
BARLEY, GRAIN  
C PLOTS

		Undersown 1964 - 65		
		T	R	Mean
1965				
	NO	38.6	23.7	31.1
	N1	33.0	25.3	29.2
	N2	31.3	24.3	27.8
	N3	27.1	26.1	26.6
	Mean	32.5	24.8	28.7

		1966			
		NO	N1	N2	N3
1965					
	NO	20.7	31.4	37.2	35.3
	N1	18.6	24.8	34.6	38.6
	N2	15.1	24.1	34.1	37.9
	N3	14.0	20.9	35.3	36.1
	Mean	17.1	25.3	35.3	37.0

Mean D.M. %: 78.7

66/B/4.1

LEY AND ARABLE ROTATIONS

(WLA)

Woburn Stackyard 1966 - the 29th year.

For history, treatments etc., see 'Details' 1962 and 'Results' 63/B/4, 64/B/4 and 65/B/4.

Potatoes: The variety is now Maris Piper.

Sainfoin: The third year sainfoin failed and was resown after receiving a basal dressing of 0.5 cwt P2O5 and 0.5 cwt K2O as (0:20:20) The normal spring dressings of N and K were not applied.

Corrective K dressings (in cwt K2O) as muriate of potash, and the K equivalent of FYM for Block 3 (sugar beet 1966).

Continuous rotations	No dung plots	Dung plots
Rotation		
Ley	2	0
Lucerne+	5	5
Arable with hay	6	6
Arable	5	5
Alternating rotations		
Last 2 rotations in order		
Arable*/ley	4	0
Arable with hay*/lucerne+	5	4
Ley/arable with hay	5	5
Lucerne/arable	6	5

\* These are actual rotations - they should have been reversed.

+ 3 yr lucerne replaced by sainfoin in 1965.

K equivalent of dung: In 1966 plots not receiving dung received 4.8 cwt K2O as muriate of potash, the K equivalent of the dung used.

Cultivations, etc.:

Treatment crops.

Ley 1st year: Ground chalk applied at 35 cwt: Sept 14, 1965.  
 Ploughed: Sept 27. Fertilisers applied: Mar 22, 1966. Seed sown at 40 lb: Mar 29. NK fertiliser applied: July 5.  
 Grazed 12 circuits: June 22 - Oct 24.  
 Ley 2nd year: NK fertiliser applied: Mar 17, 1966, June 17, Aug 5. Grazed 10 circuits: May 4 - Nov 1.  
 Ley 3rd year: NK fertiliser applied: Mar 17, 1966, June 7, Aug 5. Grazed 11 circuits: Apr 13 - Oct 16.  
 Sainfoin 1st year: Ground chalk applied at 35 cwt: Sept 14, 1965. Ploughed: Sept 27. Fertilisers applied: Mar 22, 1966. Seed drilled at 60 lb: May 10. Cut twice:



66/B/4.2

Aug 12, Oct 24.

Sainfoin 2nd year: Sprayed with paraquat at 1 lb ion in 40 gals:  
Feb 14, 1966. N and K fertilisers applied: Apr 13. Sprayed  
with paraquat at 1 lb ion in 35 gals: June 10. Cut three times:  
June 8, Aug 15, Oct 24.

Sainfoin 3rd year: Sprayed with MCPB at 2.5 lb a.e. in 40 gals:  
Oct 11, 1965. Sprayed with paraquat at 1 lb ion in 40 gals:  
Feb 14, 1966. PK fertiliser applied: May 2. Re-drilled at  
60 lb: May 10. Cut twice: Aug 15, Oct 24.

#### Arable rotations.

Potatoes: Ground chalk applied at 35 cwt: Sept 14, 1965. Ploughed:  
Sept 27. Fertiliser applied: Mar 23, 1966. Rotary cultivated  
and machine planted: Mar 29. Earthed up: June 8. Sprayed with  
mancozeb at 1.2 lb in 33 gals: June 29, July 15, Aug 4. Haulm  
mechanically destroyed: Sept 3. Lifted: Sept 5.

Rye: Deep-tine cultivated: Sept 7, 1965. Seed combine drilled at  
160 lb: Nov 2. 'Nitro-Chalk' applied: Apr 12, 1966. Combine  
harvested: Aug 24.

Seeds hay: Seeds undersown in rye at 30 lb: Mar 31, 1965. 'Nitro-  
Chalk', and PK compound applied: Mar 17, 1966. NK fertiliser  
applied: June 2, cut twice: May 26, July 13.

Carrots: Ploughed: Oct 21, 1965. Fertilisers applied: May 2, 1966.  
Seed drilled at 5.1 lb: May 10. Sprayed with linuron  
at 1 lb in 35 gals: May 11. Sprayed with menazon (saphicol at  
0.5 pints in 47 gals): June 16, July 15, and (saphicol at 0.5  
pints in 50 gals): June 29. Lifted: Sept 29.

#### Test crops.

Sugar beet: Dung equivalent K and half corrective K, dung applied,  
ploughed: Jan 10 - 26, 1966. Remaining corrective K, basal  
muriate of potash, and half basal superphosphate applied:  
Feb 7. Remaining basal superphosphate, basal magnesium  
sulphate, and test 'Nitro-Chalk' and muriate of potash applied:  
Mar 25. Seed drilled at 9 lb: Apr 1. Singled: May 23.  
Sprayed demeton methyl at 12 fluid oz in 33 gals: June 14.  
Lifted: Oct 12.

Barley: Ground chalk applied at 35 cwt: Dec 14, 1965. Ploughed:  
Jan 7, 1966. Balancing muriate of potash, basal superphosphate,  
'Nitro-Chalk' applied and seed drilled at 140 lb: Mar 9.  
Sprayed with mecoprop/2,4-D (Methoxone Extra at 6 pints in  
35 gals): May 11. Combine harvested: Aug 18.

NOTES: Chalk was applied in error to Block 2 (1st year treatment  
crops 1966) as well as to Block 1 (Barley 1966).

#### Erratum to 'Results' 1965

p. 65/B/4.1. The K equivalent of dung for plots not receiving dung  
was 3.3 cwt K<sub>2</sub>O as muriate of potash and not 3.7 cwt K<sub>2</sub>O as stated.



66/B/4.3

Standard errors per plot.

Sugar beet 1/8 plot:

Roots: 1.042 or 4.4% (21 d.f.)  
Total sugar: 3.54 or 4.7% (21 d.f.)  
Tops: 2.039 or 9.2% (21 d.f.)

Barley grain:

Whole plot: 2.68 or 6.3% (4 d.f.)  
1/2 plot: 2.31 or 5.4% (4 d.f.)

66/B/4.4

SUMMARY OF RESULTS

TREATMENT CROPS

LEY, SHEEP DAYS OF GRAZING

1st year      2nd year      3rd year

1843              2650              2277

SAINFOIN, DRY MATTER

	1st cut	2nd cut	3rd cut	Total
1ST YEAR				
1964				
DO	13.8	8.6		22.4
DL	15.4	9.5		24.9
Lu	16.0	9.7		25.7
AH	13.2	8.4		21.6
Mean	14.6	9.0		23.6
2ND YEAR				
1963				
DO	43.4	17.8	2.2	63.4
DL	41.1	19.7	3.4	64.2
Lu	41.3	18.6	2.2	62.1
AH	43.2	18.9	3.3	65.4
Mean	42.2	18.8	2.8	63.8

65/B/4.5

SAINFOIN, DRY MATTER

	1st cut	2nd cut	3rd cut	Total
3RD YEAR				
1962				
DO	25.0	9.9		34.9
DI	24.0	10.4		34.4
Lu	24.4	9.6		34.0
AH	24.6	10.8		35.4
Mean	24.5	10.2		34.7



65/B/4.6

TREATMENT CROPS

	POTATOES		RYE	
	TOTAL TUBERS	% WARE	GRAIN	STRAW
DO	9.14	80.1	34.1	44.9
D1*	12.89	88.4	33.2	44.5
Ley	18.42	94.5	33.2	47.4
Lu	10.28	89.6	35.6	39.0
AH	7.78	72.2	32.0	48.2
AR	7.56	80.8	33.6	44.2
Mean	11.01	84.3	33.6	44.7

HAY

DRY MATTER

	1st cut	2nd cut	Total
1962			
DO	65.0	31.6	96.6
D1*	67.4	33.4	100.8
Lu	66.4	32.5	98.9
AH	66.0	32.4	98.4
Mean	66.2	32.5	98.7

\* Dung applied: Potatoes - for test crop sugar beet in 1964  
 Rye - for test crop sugar beet in 1963  
 Hay - for test crop sugar beet in 1962

Mean D.M. %: Rye, grain: 80.8  
 straw: 78.4

66/E/4.7

CARROTS

	Roots	Tops
1962		
DO	17.80	11.11
D1*	21.34	12.88
Ley	19.26	13.00
AR	19.89	10.98
Mean	19.57	12.00

\* Dung applied for test crop sugar beet in 1962

66/B/4.8

1ST TEST CROP

SUGAR BEET

ROOTS

	N1	N2	N3	N4	N5	N6
			(1)			
DO Ley	20.79	21.68	22.52	22.58	-	-
DO Lu	21.38	23.77	24.95	24.91	-	-
DO AH	-	-	22.16	23.37	22.65	24.51
DO AR	-	18.17	20.45	22.90	22.63	-
D1 Ley	21.44	22.88	22.22	23.41	-	-
D1 Lu	24.84	25.73	26.37	25.63	-	-
D1 AH	-	-	24.70	25.01	25.37	24.95
D1 AR	-	23.39	25.58	26.15	25.50	-
	Ley	Lu	AH	AR	Mean	
CON	22.91	25.10	23.69	22.39	23.52	
ALT	21.47	24.29	24.49	23.80	23.51	
		(2)				
DO KD	21.91	23.90	23.89	20.61	22.58	
DO KI	21.88	23.60	22.45	21.46	22.35	
D1 KO	22.69	25.58	25.14	25.12	24.63	
D1 KI	22.29	25.70	24.88	25.19	24.51	
Mean	22.19	24.70	24.09	23.10	23.52	

(1) ( $\pm 0.521$ ) For use in horizontal and interaction comparisons

(2) ( $\pm 0.368$ ) For use in vertical and interaction comparisons



66/3/4.9

1ST TEST CROP

SUGAR BEET

SUGAR %

	N1	N2	N3	N4	N5	N6
DO Ley	16.1	15.9	15.5	15.3	-	-
DO Lu	16.6	16.4	16.1	16.4	-	-
DO AH	-	-	16.8	16.6	16.2	15.8
DO AR	-	16.7	16.6	16.4	16.1	-
D1 Ley	15.8	15.4	15.3	15.4	-	-
D1 Lu	16.5	16.2	16.1	15.5	-	-
D1 AH	-	-	15.9	15.3	15.2	15.1
D1 AR	-	16.1	15.8	15.8	15.5	-
	Ley	Lu	AH	AR	Mean	
CON	15.6	16.6	15.8	16.1	16.0	
ALT	15.6	15.9	15.9	16.1	15.9	
DO KO	15.6	16.3	16.3	16.4	16.2	
DO KI	15.8	16.4	16.4	16.4	16.3	
D1 KO	15.4	16.1	15.4	15.9	15.7	
D1 KI	15.6	16.0	15.3	15.7	15.7	
Mean	15.6	16.2	15.9	16.1	15.9	

66/B/4.10

LST TEST CROP

SUGAR BEET

TOTAL SUGAR

	N1	N2	N3	N4	N5	N6
			(1)			
Ley	66.8	68.8	69.8	69.3	-	-
DO Lu	71.0	78.0	80.4	81.3	-	-
AH	-	-	74.6	77.4	73.5	77.6
AR	-	60.6	67.8	75.0	72.8	-
Ley	67.5	70.5	67.8	72.3	-	-
D1 Lu	81.8	83.1	84.9	79.7	-	-
AH	-	-	78.6	76.8	77.0	75.3
AR	-	75.4	81.1	82.5	79.2	-
	Ley	Lu	AH	AR	Mean	
CON	71.3	83.2	74.9	72.0	75.3	
ALT	66.9	76.9	77.8	76.6	74.6	
		(2)				
DO KO	68.2	77.9	77.8	67.6	72.9	
DO KI	69.1	77.5	73.7	70.5	72.7	
D1 KO	69.7	82.3	77.5	79.9	77.3	
D1 KI	69.4	82.5	76.3	79.2	76.9	
Mean	69.1	80.0	76.3	74.3	74.9	

(1) ( $\pm 1.77$ ) For use in horizontal and interaction comparisons

(2) ( $\pm 1.25$ ) For use in vertical and interaction comparisons

66/B/4.11

1ST TEST CROP

SUGAR BEET

TOPS

	N1	N2	N3	N4	N5	N6
			(1)			
DO Ley	20.83	21.97	25.39	26.11	-	-
DO Lu	13.56	18.17	20.70	21.08	-	-
DO AH	-	-	16.44	19.44	20.07	24.76
DO AR	-	11.75	15.04	19.44	19.65	-
D1 Ley	22.69	27.00	27.29	28.52	-	-
D1 Lu	18.21	21.04	23.58	24.93	-	-
D1 AH	-	-	23.24	27.21	27.42	30.04
D1 AR	-	18.25	22.90	24.76	26.75	-
	Ley	Lu	AH	AR	Mean	
CON	25.53	18.39	23.24	19.19	21.59	
ALT	24.42	21.93	23.91	20.44	22.68	
		(2)				
DO KO	22.82	18.68	21.10	15.68	19.57	
DO KI	24.34	18.08	19.25	17.26	19.73	
D1 KO	26.60	22.25	26.81	22.75	24.60	
D1 KI	26.15	21.63	27.15	23.58	24.63	
Mean	24.98	20.16	23.58	19.82	22.13	

(1) ( $\pm 1.020$ ) For use in horizontal and interaction comparisons  
 (2) ( $\pm 0.721$ ) For use in vertical and interaction comparisons

66/B/4.12

2ND TEST CROP

BARLEY

	Ley	Lu	AH	AR	Mean
GRAIN					
	(1) and (2)				(±0.82)
DO	44.6	45.0	40.3	39.1	42.2
D1	45.1	46.1	43.1	39.0	43.3
Mean (±1.90)	44.8	45.5	41.7	39.1	42.8
STRAW					
DO	30.2	30.7	23.9	26.7	27.9
D1	27.8	32.5	23.9	21.9	26.5
Mean	29.0	31.6	23.9	24.3	27.2

Mean D.M. %: Grain: 84.0  
 Straw: 69.0

- (1) (±2.22) For use in horizontal and diagonal comparisons  
 (2) (±1.63) For use in vertical and interaction comparisons



66/B/5.1

WOBURN MARKET GARDEN EXPERIMENT

(WMG)

Organic manures, N, P, and K - Lansome Field 1966, the sixth year with revised treatments.

For history, (treatments) etc., see 'Details 1962' and 'Results' 63/B/5, 64/B/5 and 65/B/5.

Area of each sub-plot (globe beet): 0.0031. Area harvested: 0.0006.  
Area of each microplot (carrots): 0.0008. Area harvested: 0.0006.

Treatment symbols:

Dung: None (D0), 10 (D1), 20 tons (D2).

PK compound (0:20:20): None (POK0), 1.5 P2O5, 1.5 K2O (P1K1),  
3.0 P2O5, 3.0 cwt K2O (P2K2).

Superphosphate: None (SP0), 1.5 (SP1), 3.0 cwt P2O5 (SP2).

Peat: None (0), 12.5 tons (PT).

Treatments: All combinations of:-

Series A (globe beet)

Dung plots: Whole plots: Dung: D1, D2 as previously.

PK: POK0, P1K1, the latter on plots that received NPK in 1965.

Quarter plots: Nitrogen: None (N0), 0.9 (N1), 1.8 (N2), 2.7 cwt N (N3) as 'Nitro-Chalk' with (N3-N2+N1-N0) on half plots.

Fertiliser plots: Whole plots: PK: P1K1 as previously, P2K2 on plots that received P1K2 in 1965.

Quarter plots: Nitrogen: 0.9 (N1), 1.8 (N2), 2.7 (N3), 3.6 cwt N (N4) as 'Nitro-Chalk' with (N4-N3+N2-N1) on half plots.

Series B, microplots (carrots)

Dung plots: Whole plots: PK: POK0, P1K1 as in 1965.

Half plots: Dung: D0, D1, D2 as in 1965.  
(D0, D1 on old D1 plots, D0, D2 on old D2 plots).

Quarter plots: Phosphate: SP0, SP1.

Eighth plots: Nitrogen: None (N0), 0.45 cwt N (N1) as 'Nitro-Chalk'.

66/B/5.2

Fertiliser plots: Whole plots: PK: P1K1, P2K2 as in 1965.  
Half plots: Peat: 0, PT as in 1965.  
Quarter plots: Phosphate: SPO, SP1 on plots that received P1K1. SPO, SP2 on plots that received P2K2.  
Eighth plots: Nitrogen: 0.45 (N1), 0.90 cwt N (N2) as 'Nitro-Chalk'.

Basal applications: Series B, microplots (carrots): Weedkiller: Linuron at 1 lb in 50 gals. Insecticide: Rogor at 0.37 lb in 40 gals, on two occasions.

Cultivations, etc.:-

Globe beet Series A: Ploughed: Aug 12, 1965. Ground chalk applied at 18 cwt: Sept 13. Dung applied, all plots ploughed: Feb 3, 1966. Fertilizers applied: Mar 31. Seed drilled at 14 lb: May 10. Singled: June 13. Harvested: July 26, Aug 16. Variety: Detroit.

Carrots Series B, microplots: Peat applied and all plots rotary cultivated: Mar 24, 1966. Fertilisers and dung applied, all plots dug by hand: Mar 29 - 31, Apr 1. Seedbed fertilisers and peat applied, seedbed worked with drags and levelled with rakes: Apr 5 - 6. Seed drilled at 10 lb: Apr 26. Sprayed weedkiller: Apr 27. Fallow area rotary cultivated: June 1. Singled: June 3, 6, 8. Sprayed insecticide: June 9, June 21. Fallow areas rotary cultivated: June 21. Lifted: Aug 8 - 10. Variety: Cluseed New Stump-rooted.

NOTE: Soil samples were taken Aug 16. Crop samples were taken for determination of dry matter, and samples retained for chemical analysis.



66/B/5.3

Standard errors per plot.

Globe beet. Dung and fertiliser plots:

Marketable roots. 1st Harvest, whole plot:	1.220	or	22.5%	(10 d.f.)
1/2 plot:	0.589	or	10.9%	(14 d.f.)
1/4 plot:	1.149	or	21.2%	(28 d.f.)
2nd Harvest, whole plot:	2.063	or	16.5%	(10 d.f.)
1/2 plot:	1.078	or	8.6%	(14 d.f.)
1/4 plot:	2.148	or	17.1%	(28 d.f.)
Mean of 2 harvests, whole plot:	1.579	or	17.6%	(10 d.f.)
1/2 plot:	0.688	or	7.7%	(14 d.f.)
1/4 plot:	1.495	or	16.6%	(28 d.f.)
Total produce. 1st Harvest, whole plot:	1.915	or	15.4%	(10 d.f.)
1/2 plot:	0.874	or	7.0%	(14 d.f.)
1/4 plot:	1.609	or	12.9%	(28 d.f.)
2nd Harvest, whole plot:	2.921	or	14.9%	(10 d.f.)
1/2 plot:	1.602	or	8.2%	(14 d.f.)
1/4 plot:	2.803	or	14.3%	(28 d.f.)
Mean of 2 harvests, whole plot:	2.314	or	14.4%	(10 d.f.)
1/2 plot:	1.025	or	6.4%	(14 d.f.)
1/4 plot:	1.946	or	12.1%	(28 d.f.)

Carrots.

Dung plots. Roots,	1/2 plot:	0.496	or	2.3%	(4 d.f.)
	1/4 plot:	0.900	or	4.1%	(8 d.f.)
	1/8 plot:	0.840	or	3.8%	(16 d.f.)
Tops,	1/2 plot:	0.907	or	9.4%	(4 d.f.)
	1/4 plot:	0.806	or	8.3%	(8 d.f.)
	1/8 plot:	0.763	or	7.9%	(16 d.f.)
Fertiliser plots. Roots,	1/2 plot:	1.843	or	10.2%	(6 d.f.)
	1/4 plot:	1.846	or	10.2%	(12 d.f.)
	1/8 plot:	1.248	or	6.9%	(24 d.f.)
Tops,	1/2 plot:	1.021	or	16.0%	(6 d.f.)
	1/4 plot:	0.989	or	15.5%	(12 d.f.)
	1/8 plot:	0.788	or	12.3%	(24 d.f.)

66/B/5.4

SUMMARY OF RESULTS

GLOBE BEET

DUNG PLOTS

MARKETABLE ROOTS

Dung Organic manure applied 1942 - 61*	D1	D2	D1	D2			
	D1	D2	C1	C2	D1+C1	D2+C2	Mean
	1ST HARVEST						
Mean	3.66	8.18	5.32	7.14	4.49	7.66	6.08
		(±0.610)			(±0.431)		
Fertiliser		(±0.863)			(±0.610)		(±0.431)
POKO	2.25	7.29	3.97	5.68	3.11	6.48	4.80
PKL	5.07	9.08	6.67	8.61	5.87	8.84	7.36
		(1) and (2)			(3) and (4)		(±0.251)
N0	0.95	5.27	1.76	4.01	1.36	4.64	3.00
N1	2.54	8.47	5.21	7.40	3.88	7.94	5.91
N2	4.94	9.57	7.31	8.66	6.12	9.12	7.62
N3	6.20	9.42	7.00	8.49	6.60	8.95	7.78

- (1) (±0.933) For use in horizontal and diagonal comparisons
- (2) (±0.502) For use in vertical and interaction comparisons
- (3) (±0.660) For use in horizontal and diagonal comparisons
- (4) (±0.354) For use in vertical and interaction comparisons

\* Last applied to Leeks 1961/62



66/B/5.5

GLOBE BEET

DUNG PLOTS

MARKETABLE ROOTS

Dung Organic manure applied 1942 - 61*	D1	D2	D1	D2			Mean
	D1	D2	C1	C2	D1+C1	D2+C2	
	2ND HARVEST						
Mean	10.04	16.60	11.39	15.99	10.72	16.29	13.50
		(1.031)			(±0.729)		
Fertiliser		(±1.459)			(±1.031)		(±0.729)
POKO	8.28	16.07	10.09	13.95	9.18	15.01	12.10
PIK1	11.81	17.13	12.69	18.02	12.25	17.57	14.91
		(1) and (2)			(3) and (4)		(±0.466)
N0	4.38	12.13	4.05	9.69	4.22	10.91	7.56
N1	7.60	15.91	10.68	16.16	9.14	16.04	12.59
N2	12.06	19.54	14.48	18.24	13.27	18.89	16.08
N3	16.15	18.82	16.34	19.85	16.24	19.33	17.79

- (1) (±1.600) For use in horizontal and diagonal comparisons
- (2) (±0.931) For use in vertical and interaction comparisons
- (3) (±1.132) For use in horizontal and diagonal comparisons
- (4) (±0.658) For use in vertical and interaction comparisons

\* Last applied to Leeks 1961/62

66/B/5.6

GLOBE BEET

DUNG PLOTS

MARKETABLE ROOTS

Dung Organic manure applied 1942 - 61*	D1	D2	D1	D2			
	D1	D2	C1	C2	D1+C1	D2+C2	Mean
	MEAN OF 2 HARVESTS						
Mean	6.85	(±0.790) 12.39	8.35	11.56	(±0.558) 7.60	11.98	9.79
Fertiliser		(±1.117)			(±0.790)		(±0.558)
PK0	5.26	11.68	7.03	9.82	6.15	10.75	8.45
PK1	8.44	13.11	9.68	13.31	9.06	13.21	11.13
		(1) and (2)			(3) and (4)		(±0.315)
N0	2.67	8.70	2.91	6.85	2.79	7.78	5.28
N1	5.07	12.19	7.95	11.78	6.51	11.99	9.25
N2	8.50	14.56	10.89	13.45	9.70	14.00	11.85
N3	11.17	14.12	11.67	14.17	11.42	14.14	12.78

- (1) (±1.203) For use in horizontal and diagonal comparisons
- (2) (±0.631) For use in vertical and interaction comparisons
- (3) (±0.850) For use in horizontal and diagonal comparisons
- (4) (±0.446) For use in vertical and interaction comparisons

\* Last applied to Leeks 1961/62

66/B/5.7

GLOBE BEET

DUNG PLOTS

TOTAL PRODUCE

Dung Organic manure applied 1942 - 61*	D1	D2	D1	D2			Mean
	D1	D2	C1	C2	D1+C1	D2+C2	
	1ST HARVEST						
Mean	9.51	16.89	11.89	15.33	10.70	16.11	13.40
	(±0.958)				(±0.677)		
Fertiliser	(±1.354)				(±0.958)		(±0.677)
POKO	7.25	15.52	10.01	13.90	8.63	14.71	11.67
PKI	11.76	18.26	13.76	16.76	12.76	17.51	15.13
	(1) and (2)				(3) and (4)		(±0.359)
NO	4.28	11.75	6.51	10.02	5.40	10.88	8.14
N1	8.18	16.59	11.32	15.35	9.75	15.97	12.86
N2	11.96	19.03	14.63	17.00	13.30	18.02	15.66
N3	13.61	20.20	15.08	18.94	14.34	19.57	16.95

- (1) (±1.446) For use in horizontal and diagonal comparisons
- (2) (±0.717) For use in vertical and interaction comparisons
- (3) (±1.023) For use in horizontal and diagonal comparisons
- (4) (±0.507) For use in vertical and interaction comparisons

\* Last applied to Leeks 1961/62

66/B/5.8

GLOBE BEET

DUNG PLOTS

TOTAL PRODUCE

Dung Organic manure applied 1942 - 61*	D1	D2	D1	D2			Mean
	D1	D2	C1	C2	D1+C1	D2+C2	
	2ND HARVEST						
Mean	16.31	(±1.461) 25.55	18.20	25.01	(±1.033) 17.26	25.28	21.27
Fertiliser		(±2.066)			(±1.461)		(±1.033)
POKO	14.24	25.60	16.77	23.01	15.51	24.30	19.91
PlKl	18.39	25.49	19.62	27.01	19.01	26.25	22.63
		(1) and (2)			(3) and (4)		(±0.638)
N0	8.53	19.23	8.43	15.18	8.48	17.20	12.84
N1	13.04	24.13	16.98	25.22	15.01	24.67	19.84
N2	18.96	29.38	22.46	28.10	20.71	28.74	24.73
N3	24.73	29.44	24.93	31.53	24.83	30.49	27.66

- (1) (±2.254) For use in horizontal and diagonal comparisons
- (2) (±1.275) For use in vertical and interaction comparisons
- (3) (±1.594) For use in horizontal and diagonal comparisons
- (4) (±0.901) For use in vertical and interaction comparisons

\* Last applied to Leeks 1961/62



66/E/5.9

GLOBE BEET

DUNG PLOTS

TOTAL PRODUCE

Dung Organic manure applied 1942 - 61*	D1	D2	D1	D2			
	D1	D2	C1	C2	D1+C1	D2+C2	Mean
	MEAN OF 2 HARVESTS						
Mean	12.91	21.22	15.04	20.17	13.98	20.69	17.33
	(±1.157)				(±0.818)		
Fertiliser					(±1.157)		(±0.818)
POKO	10.74	20.56	13.39	18.45	12.07	19.51	15.79
PKL	15.08	21.87	16.69	21.88	15.89	21.88	18.88
		(1) and (2)			(3) and (4)		(±0.423)
NO	6.41	15.49	7.47	12.60	6.94	14.04	10.49
N1	10.61	20.36	14.15	20.28	12.38	20.32	16.35
N2	15.46	24.21	18.55	22.55	17.00	23.38	20.19
N3	19.17	24.82	20.00	25.24	19.59	25.03	22.31

- (1) (±1.745) For use in horizontal and diagonal comparisons
- (2) (±0.858) For use in vertical and interaction comparisons
- (3) (±1.234) For use in horizontal and diagonal comparisons
- (4) (±0.607) For use in vertical and interaction comparisons

\* Last applied to Leeks 1961/62

66/B/5.10

GLOBE BEET  
FERTILISER PLOTS  
MARKETABLE ROOTS

	N1	N2	N3	N4	Mean
1ST HARVEST					
		(1) and (2)			(±0.610)
P1K1	2.25	4.01	5.29	5.21	4.19
P2K2	3.49	5.54	6.43	6.01	5.37
Mean	2.87	4.78 (±0.354)	5.86	5.61	4.78
2ND HARVEST					
		(1) and (2)			(±1.031)
P1K1	6.03	10.50	12.68	14.25	10.86
P2K2	6.92	11.90	14.83	15.45	12.27
Mean	6.47	11.20 (±0.658)	13.75	14.85	11.57

	1st harvest	2nd harvest	
(1)	(±0.933)	(±1.600)	For use in vertical and diagonal comparisons
(2)	(±0.502)	(±0.931)	For use in horizontal and interaction comparisons

66/B/5.11

GLOBE BEET

FERTILISER PLOTS

	N1	N2	N3	N4	Mean
MARKETABLE ROOTS					
MEAN OF 2 HARVESTS					
		(1) and (2)			(±0.790)
P1K1	4.14	7.26	8.98	9.73	7.53
P2K2	5.20	8.72	10.63	10.73	8.82
Mean	4.67	7.99 (±0.446)	9.81	10.23	8.17
TOTAL PRODUCE					
1ST HARVEST					
		(1) and (2)			(±0.958)
P1K1	7.09	10.80	12.33	12.64	10.71
P2K2	8.84	12.58	13.82	13.94	12.29
Mean	7.97	11.69 (±0.507)	13.07	13.29	11.50

	Marketable roots	Total produce	
(1)	(±1.203)	(±1.446)	For use in vertical and diagonal comparisons
(2)	(±0.631)	(±0.717)	For use in horizontal and interaction comparisons

66/B/5.12

GLOBE BEET  
FERTILISER PLOTS  
TOTAL PRODUCE

	N1	N2	N3	N4	Mean
2ND HARVEST					
		(1) and (2)			(±1.461)
PK1	10.45	16.53	19.65	21.92	17.14
P2K2	11.63	17.89	22.27	23.59	18.84
Mean	11.04	17.21	20.96	22.75	17.99
		(±0.901)			
MEAN OF 2 HARVESTS					
		(1) and (2)			(±1.157)
PK1	8.77	13.66	15.99	17.28	13.93
P2K2	10.23	15.23	18.04	18.76	15.57
Mean	9.50	14.45	17.02	18.02	14.75
		(±0.607)			

(1)	2nd harvest (±2.254)	Mean of 2 harvests (±1.745)	For use in vertical and diagonal comparisons
(2)	(±1.275)	(±0.858)	For use in horizontal and interaction comparisons



66/B/5.13

CARROTS

FERTILISER PLOTS P1K1

	SPO	SP1	N1	N2	Mean
ROOTS					
O	(1) and (2)		(3) and (4)		(±0.921)
	15.55	16.18	14.36	17.38	15.87
PT	17.17	16.79	15.42	18.55	16.98
			(5) and (6)		(±0.653)
		SPO	15.10	17.62	16.36
		SP1	14.67	18.30	16.49
		Mean (±0.312)	14.89	17.96	16.42
	SPO	SP1	N1	N2	Mean
TOPS					
O	4.60	5.32	4.41	5.50	4.96
	5.92	5.60	4.85	6.67	5.76
		SPO	4.66	5.86	5.26
		SP1	4.60	6.32	5.46
		Mean	4.63	6.09	5.36

(1) (±1.129) (3) (±0.973) (5) (±0.723) For use in vertical and diagonal comparisons  
 (2) (±0.923) (4) (±0.441) (6) (±0.441) For use in horizontal and interaction comparisons

66/B/5.14

CARROTS

FERTILISER PLOTS F2K2

	SP0	SP2	N1	N2	Mean
ROOTS					
	(1) and (2)		(3) and (4)		(±0.921)
O	19.72	19.56	17.83	21.45	19.64
PT	20.21	19.24	18.30	21.16	19.73
			(5) and (6)		(±0.653)
		SP0	18.57	21.36	19.96
		SP2	17.56	21.25	19.40
		Mean (±0.312)	18.06	21.30	19.68
	SP0	SP2	N1	N2	Mean
TOPS					
	7.03	6.92	6.00	7.95	6.98
O	8.31	7.33	6.88	8.75	7.82
PT					
		SP0	6.81	8.52	7.67
		SP2	6.07	8.18	7.12
		Mean	6.44	8.35	7.40

(1) (±1.129) (3) (±0.973) (5) (±0.723) For use in vertical and diagonal comparisons  
 (2) (±0.923) (4) (±0.441) (6) (±0.441) For use in horizontal and interaction comparisons

66/E/5.15

CARROTS  
 OLD D1 PLOTS  
 ROOTS

	DO	D1	SPO	SP1	NO	N1	Mean
	(±0.351)*		(±0.450)*		(±0.297)*		
POKO	19.54	23.12	20.64	22.01	20.68	21.97	21.33
PLK1	19.09	23.05	20.26	21.88	20.62	21.52	21.07
			(1) and (2)		(3) and (4)		(±0.248)
		DO	18.41	20.21	18.39	20.23	19.31
		D1	22.48	23.68	22.91	23.25	23.08
					(5) and (6)		(±0.318)
			SPO		19.92	20.98	20.45
			SP1		21.38	22.51	21.94
			Mean		20.65	21.74	21.20
			(±0.210)				

(1) (±0.403) (3) (±0.325) (5) (±0.381) For use in vertical and diagonal comparisons

(2) (±0.450) (4) (±0.297) (6) (±0.297) For use in horizontal and interaction comparisons

\* For use in horizontal and interaction comparisons

66/B/5.16

CARROTS

OLD D1 PLOTS

TOPS

	DO	D1	SPO	SP1	NO	NI	Mean
POKO	6.75	9.80	8.25	8.29	7.67	8.88	8.27
PLKI	7.43	11.36	8.87	9.93	8.86	9.94	9.40
		DO	6.78	7.40	6.17	8.02	7.09
		D2	10.34	10.81	10.36	10.80	10.58
			SPO		7.96	9.16	8.56
			SP1		8.56	9.66	9.11
			Mean		8.26	9.41	8.84



66/B/5.17

CARROTS  
 OLD D2 PLOTS  
 ROOTS

	DO	D2	SPO	SP1	NO	N1	Mean
	$(\pm 0.351)^*$		$(\pm 0.450)^*$		$(\pm 0.297)^*$		
POKD	19.31	25.03	22.17	22.17	21.52	22.82	22.17
PIK1	21.22	24.42	23.09	22.55	22.01	23.63	22.82
			(1) and (2)		(3) and (4)		$(\pm 0.248)$
		DO	20.28	20.26	19.24	21.29	20.27
		D2	24.98	24.47	24.29	25.16	24.72
					(5) and (6)		$(\pm 0.318)$
				SPO	21.58	23.68	22.63
				SP1	21.94	22.78	22.36
				Mean	21.76	23.23	22.50
				$(\pm 0.210)$			

(1)  $(\pm 0.403)$  (3)  $(\pm 0.325)$  (5)  $(\pm 0.381)$  For use in vertical and diagonal comparisons

(2)  $(\pm 0.450)$  (4)  $(\pm 0.297)$  (6)  $(\pm 0.297)$  For use in horizontal and interaction comparisons

\*For use in horizontal and interaction comparisons

66/B/5.18

CARROTS

OLD D2 PLOTS

TOPS

	D0	D2	SPO	SP1	NO	N1	Mean
POKD	8.27	13.38	10.78	10.86	10.18	11.46	10.82
PIK1	7.69	12.68	10.37	9.99	9.55	10.81	10.18
		DC	7.91	8.04	7.06	8.89	7.98
		D2	13.24	12.81	12.67	13.39	13.03
				SPO	9.82	11.33	10.58
				SP1	9.90	10.95	10.43
				Mean	9.86	11.14	10.50

66/B/6

RESIDUAL PHOSPHATE ROTATION

(RP)

The long term and residual effects of a number of phosphate fertilisers compared with superphosphate - Great Field IV and Sawyers I 1966, the seventh year.

For treatments and rotation, etc. see 'Results 63/B/8 and previous years' results see 60/B/9, 61/B/8, 62/B/8, 63/B/8, 64/B/7 and 65/B/7.

In 1966 the experiments were fallowed.





66/B/7.1

CULTIVATION - WEEDKILLER ROTATION

(CW)

Great Harpenden 1966 - the 6th year

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

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

Area harvested: Beans - 0.0100, wheat, potatoes and barley - 0.0107.

Minimum cultivation plots: One plot per block (treatment B) receives minimum cultivations. (The remaining reserve plots will in future be described as treatment C). Details will vary according to conditions of soil etc. Paraquat may be used at any stage in this rotation, and special machinery maybe used for drilling these treatments if it is more suitable. In 1966 the cultivations were:-

Beans: Deep-tine cultivated, disc-harrowed, spring-tine cultivated, sprayed with simazine after drilling.

Wheat: Deep-tine cultivated, disc-harrowed, spring-tine cultivated, sprayed with the same selective weedkiller as used on H sub-plots.

Potatoes: Rotary cultivated, treated with herbicide as on X and Y plots.

Barley: Minimum cultivations necessary to produce a seedbed, sprayed with the same selective weedkiller as used on the H sub-plots.

In 1966 beans on both X and Y plots received the same treatment (simazine at 1 lb in 40 gals in spring) - these plots are denoted by S.

Potatoes on the X and Y plots received the same spray (1 lb linuron plus 0.75 lb ion paraquat in 37 gals), denoted by S. The Y plots received an additional cultivation by 'rotary ridger', which was also applied to the M plots.

Operations in 1966

Cultivations, etc.:-

Spring beans: T plots deep-tine cultivated twice and B plots once: Oct 21, 1965. P, A and C plots ploughed: Oct 22. T plots deep-tine cultivated 3rd time and B plots 2nd time, P, T, A, B and C plots disced: Oct 26. P, T, A, B and C plots disced: Oct 30.



66/B/7.2

P, T, A and C plots spring-tine cultivated twice and B plots once, R plots rotary cultivated: Mar 8, 1966. R plots rotary cultivated 2nd time, seed drilled at 200 lb: Mar 9. S plots sprayed: Mar 15. M and C plots tractor hoed 3 times: May 16, June 3 and June 13. Combine harvested: Sept 16. Variety: Pedigree Tick.

Spring wheat: T plots deep-tine cultivated twice: Oct 21, 1965. P, A and C plots ploughed: Oct 22. T plots deep-tine cultivated 3rd time, B plots deep-tine cultivated twice, P, T, A, B and C plots disced: Oct 26. P, T, A, B and C plots disced: Oct 30. P, T, A, B, and C plots spring-tine cultivated twice: Mar 8, 1966. P plots rotary cultivated: Mar 9. R plots rotary cultivated 2nd time, P, T, A, B and C plots spring-tine cultivated 3rd time: Mar 14. Seed drilled at 180 lb: Mar 15. All plots rolled: Mar 21. H sub-plots and B plots sprayed with mecoprop/2,4-D (Methoxane Extra at 6 pints in 40 gals): May 13. Combine harvested: Sept 7. Variety: Kloka.

Potatoes: T plots deep-tine cultivated twice, P and C plot ploughed: Dec 21, 1965. R, A and B plots rotary cultivated: Mar 23, 1966. P and C plots spring-tine cultivated, T plots deep-tine cultivated 3rd time: Mar 24. Basal compound fertiliser applied: Mar 31. R, A and B plots rotary cultivated, T, P and C plots spring-tine cultivated twice: Apr 4. Potatoes machine planted: Apr 5. S plots sprayed: May 10. M and C plots chain-harrowed: May 14. M and C plots grubbed: May 14. M, Y and C plots rotary ridged: June 16. Sprayed 3 times with mancozeb at 1.2 lb in 37 gals: June 30, July 22 and Aug 5. Sprayed with undiluted BOV at 15 gals: Sept 8. Lifted: Sept 20. Variety: Pentland Dell.

Barley: All plots sprayed with sodium trichloroacetate at 18 lb in 40 gals: Oct 20, 1965. All plots spring-tine cultivated: Oct 28. All plots sprayed 2nd time with sodium trichloroacetate at 18 lb in 40 gals: Dec 7. All plots spring-tine cultivated: Dec 22. T plots deep-tine cultivated: Feb 2, 1966. P and C plots ploughed: Feb 3. P, T and C plots spring-tine cultivated twice, B plots once: Mar 7. R and A plots rotary cultivated, seed drilled at 155 lb: Mar 8. All plots rolled: Mar 21. H sub-plots and B plots sprayed with mecoprop/2,4-D (Methoxane Extra at 6 pints in 40 gals): May 13. Combine harvested: Aug 20.

Standard errors per plot.

Spring beans.	Grain, whole plot: 6.76 or 22.2% (8 d.f.)
Wheat.	Grain, whole plot: 2.97 or 8.6% (8 d.f.)
	sub plot: 3.24 or 9.4% (9 d.f.)
Potatoes.	Total tubers, whole plot: 1.782 or 11.1% (8 d.f.)
Barley.	Grain, whole plot: 2.04 or 4.7% (8 d.f.)
	sub plot: 2.79 or 6.4% (9 d.f.)

66/B/7.5

BARLEY

GRAIN

	P	R	T	Mean
Mean ( $\pm 0.83$ )	42.3	44.1	43.4	43.3
1965		( $\pm 1.45$ )		( $\pm 0.83$ )
M	41.2	43.8	44.3	43.1
X	40.2	45.3	43.4	43.0
Y	45.6	43.1	42.5	43.7
		(1) and (2)		( $\pm 0.66$ )
O	42.0	44.1	44.2	43.4
H	42.6	44.0	42.6	43.1
	A-	AH	BH	C
	43.9	41.8	42.4	39.4

General mean: 42.8

Mean D.M. %: 84.2

- (1) ( $\pm 1.16$ ) For use in horizontal and diagonal comparisons  
 (2) ( $\pm 1.14$ ) For use in vertical and interaction comparisons

TABLE 1

SUMMARY OF DATA

Year	Production (Million)			Total (Million)
	A	B	C	
1950	1.0	1.0	1.0	3.0
1951	1.1	1.1	1.1	3.3
1952	1.2	1.2	1.2	3.6
1953	1.3	1.3	1.3	3.9
1954	1.4	1.4	1.4	4.2
1955	1.5	1.5	1.5	4.5
1956	1.6	1.6	1.6	4.8
1957	1.7	1.7	1.7	5.1
1958	1.8	1.8	1.8	5.4
1959	1.9	1.9	1.9	5.7
1960	2.0	2.0	2.0	6.0

Source: Bureau of Economic Analysis, Department of Commerce, Washington, D.C.

(1) All figures are in millions of dollars.

(2) All figures are in millions of dollars.



66/B/8.1

CULTIVATION - WEEDKILLER ROTATION

(WCW)

A comparison of weed control by various cultivation methods and by a pre-emergence weedkiller - Woburn Great Hill I and II 1966, the seventh year.

For history, rotation, treatments etc., to barley, see 'Results' 60/B/11, 61/B/11, 62/B/11, 63/B/11, 64/B/10 and 65/B/9.

Area of each plot: 0.0482. Area harvested: Potatoes - 0.0069, barley - 0.0230.

Potatoes.

Treatments: All combinations of:-

1. Primary cultivations: Ploughed (P), rotary cultivated (R), deep-tine cultivated (T).
2. Weedkiller: None, normal cultivations (M), linuron 2 lb, plus paraquat 0.75 lb ion in 40 gals, with no cultivations (X), linuron, plus paraquat, with rotary ridging (Y).

Basal applications:

Barley: 340 lb (20:10:10) combine drilled. Weedkiller: Mecoprop/2,4-D (Methoxone Extra at 6 pints in 35 gals).

Potatoes: 10 cwt (17:11:22). Fungicide: Mancozeb 1.2 lb in 33 gals. Haulm destroyer: Diquat (Reglone at 4 pints in 33 gals).

Cultivations, etc.:

Potatoes: T plots deep-tine cultivated (two strokes): Nov 26, 1965. P plots ploughed: Dec 14. P and T plots spring-tine cultivated, R plots rotary cultivated: Mar 23, 1966. T plots deep-tine cultivated (one stroke): Mar 24. Basal NPK applied: Mar 25. P and T plots spring-tine cultivated (twice), R plots rotary cultivated (twice), potatoes machine planted: Mar 31. All plots earthed up: Apr 1. M plots harrowed with weeder: Apr 26. M plots re-ridged: May 3. M plots ridges harrowed, X and Y plots sprayed with weedkiller: May 4. M plots harrowed with weeder: May 17. M plots grubbed: June 2. M and Y plots earthed up with rotary ridger: June 4. Fungicide applied: June 29, July 15 and Aug 4. Reglone applied: Sept 13. Haulm destroyed mechanically: Sept 16. Lifted: Sept 22. Variety: Maris Piper.

66/B/8.2

Barley: All plots spring-tine cultivated: Dec 14, 1965. T plots deep-tine cultivated: Dec 15. P plots ploughed: Jan 7, 1966. P and T plots spring-tine cultivated: Mar 9. R plots rotary cultivated, all plots harrowed, seed drilled at 150 lb: Mar 10. 'Nitro-Chalk' applied: Mar 14. Weedkiller applied: May 10. Combine harvested: Aug 19. Variety: Maris Badger.

Standard errors per plot.

Potatoes. Total tubers: 2.634 or 14.8% (8 d.f.)  
Barley. Grain: 3.27 or 11.5% (8 d.f.)

66/B/8.3

SUMMARY OF RESULTS

POTATOES

	M	X	Y	Mean
TOTAL TUBERS				
		(±1.862)		(±1.075)
P	16.92	20.25	19.11	18.76
R	17.57	16.46	18.52	17.52
T	17.45	17.87	16.19	17.17
Mean (±1.075)	17.31	18.19	17.94	17.81

% WARE

P	94.7	93.2	95.5	94.5
R	95.9	95.8	92.8	94.8
T	94.9	93.1	92.4	93.5
Mean	95.2	94.0	93.6	94.3

BARLEY

GRAIN

	N1	N2	N3	Mean
		(±2.31)		(±1.34)
P	21.2	27.8	34.4	27.8
R	17.9	30.4	34.2	27.5
T	24.1	31.1	35.4	30.2
Mean (±1.34)	21.1	29.7	34.7	28.5

Mean D.M. %: 83.3

STATEMENT OF FINANCIAL POSITION

ASSETS

Year	2011	2010	2009	2008
Current Assets	100,000	120,000	150,000	180,000
Property, Plant, and Equipment	200,000	250,000	300,000	350,000
Intangible Assets	50,000	60,000	70,000	80,000
Other Assets	10,000	15,000	20,000	25,000
Total Assets	360,000	445,000	520,000	635,000
Liabilities	150,000	180,000	220,000	280,000
Equity	210,000	265,000	300,000	355,000

LIABILITIES AND EQUITY

Year	2011	2010	2009	2008
Current Liabilities	100,000	120,000	150,000	180,000
Long-Term Liabilities	50,000	60,000	70,000	80,000
Equity	210,000	265,000	300,000	355,000
Total Liabilities and Equity	360,000	445,000	520,000	635,000



66/B/9.1

## INTENSIVE CEREALS

(WIC)

Woburn Stackyard Classical Site 1966 - the first year

To investigate the growing of continuous winter wheat in comparison with a five course rotation, both with heavy dressings of fertilisers. There is a similar experiment involving spring barley.

These experiments are respectively, wheat on part of the site of the Continuous Wheat Experiment 1877 - 1954 and the barley on part of the site of the continuous barley. As well as crop yields, soil carbon and nitrogen will be studied, and the incidence of soil-borne diseases.

Design: For each cereal: 2 randomised blocks of 6 plots, split for N.

Area of each sub-plot: 0.0103. Area harvested: Wheat and barley - 0.0067, potatoes - 0.0069. Area of each whole plot: 0.0431. Area harvested: Ley - 0.0411.

Treatments: Wheat blocks: All combinations of:-

1. Whole plots: cropping:  
Continuous wheat: Five course rotation, in all phases:  
1 year ley, potatoes, wheat, wheat, wheat.
2. Sub-plots: Nitrogen to wheat:  
0.5 (N1), 1.0 (N2), 1.5 (N3), 2.0 (N4) cwt N as 'Nitro-Chalk' as spring top-dressing.

Treatments: Barley blocks: All combinations of:-

1. Whole plots: cropping:  
Continuous barley: Five course rotation, in all phases:  
1 year ley, potatoes, barley, barley, barley.
2. Sub-plots: Nitrogen to barley:  
0.4 (N1), 0.8 (N2), 1.2 (N3), 1.6 (N4) cwt N as 'Nitro-Chalk' applied in the seedbed.

Varieties: Potatoes: Pentland Dell  
Wheat: Cappelle  
Barley: Maris Badger  
Ley: 1 lb English Italian ryegrass, 2 lb Danish Italian ryegrass, 1.5 lb English Broad Red clover, 0.5 lb Canadian Alsike Clover.  
Mixture sown at 29 lb.

Other applications:

All crops: 1.0 cwt P2O5, 2.0 cwt K2O, half ploughed in, half worked into the seedbed.

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

Potatoes: 1.2 cwt N as 'Nitro-Chalk'.

66/B/9.2

NOTE: The whole area carried spring beans without manure in 1964, and was bare fallowed in 1965. To lessen the risk of damage due to Wheat-Bulb Fly mustard was broadcast with 0.42 cwt N as 'Nitro-Chalk' on June 28, 1965. The mustard was destroyed mechanically on Oct 7, and ploughed in on Oct 13.

Cultivations, etc.:

Ley: Half basal PK applied: Oct 26, 1965. Remaining basal PK applied: Mar 22, 1966. 'Nitro-Chalk' applied, seed sown at 29 lb: Mar 30. Cut twice for hay: July 4, Aug 26.

Potatoes: Half basal PK applied: Oct 26, 1965. Remaining basal PK, and 'Nitro-Chalk' applied: Mar 23, 1966. Rotary cultivated, potatoes machine planted: Mar 29. Earthed up: June 8. Sprayed with mancozeb 1.2 lb in 33 gals: June 29, July 15, Aug 4. Haulm mechanically destroyed: Sept 3. Lifted: Sept 13.

Wheat: Half basal PK applied: Oct 26, 1965. Remaining basal PK applied: Oct 29. Seed drilled 160 lb: Nov 2. 'Nitro-Chalk' applied: Apr 12, 1966. Combine harvested: Aug 25.

Barley: Half basal PK applied: Oct 26, 1965. Remaining basal PK applied: Mar 7, 1966. Seed drilled 140 lb, and 'Nitro-Chalk' applied: Mar 8. Combine harvested: Aug 18.

Standard errors per sub plot. Grain:

Wheat: 2.23 or 5.7% (21 d.f.)

Barley: 2.15 or 4.6% (21 d.f.)

66/B/9.3

SUMMARY OF RESULTS

WHEAT GRAIN

N1	N2	N3	N4	Mean
36.2	42.8 (±0.79)	39.9	38.0	39.2

BARLEY GRAIN

38.1	48.4 (±0.76)	51.4	49.0	46.7
------	-----------------	------	------	------

POTATOES

	Permanent wheat block	Permanent barley block
Total tubers	7.65	13.45
% ware	89.5	94.6

CLOVER RYEGRASS LEY

	Permanent wheat block		Permanent barley block	
	Mean	Mean D.M. %	Mean	Mean D.M. %
1st cut	16.8	38.5	21.9	32.0
2nd cut	22.6	16.8	25.2	17.8
Total of 2 cuts	39.4	27.6	47.2	24.9

STATE OF CALIFORNIA  
DEPARTMENT OF REVENUE  
REVENUE ACCOUNT

FUND	REVENUE		EXPENDITURE		BALANCE
	2011	2012	2011	2012	
100	100.0	100.0	100.0	100.0	0.0
200	200.0	200.0	200.0	200.0	0.0
300	300.0	300.0	300.0	300.0	0.0
400	400.0	400.0	400.0	400.0	0.0
500	500.0	500.0	500.0	500.0	0.0
600	600.0	600.0	600.0	600.0	0.0
700	700.0	700.0	700.0	700.0	0.0
800	800.0	800.0	800.0	800.0	0.0
900	900.0	900.0	900.0	900.0	0.0
TOTAL	3,000.0	3,000.0	3,000.0	3,000.0	0.0



66/c/1.1

LEVELS OF K AND Mg

(LM)

K and Mg - Rothamsted Sawyers I - the 8th year, kale.

Design: 3 x 3 x 3 arrangement in 6 blocks of 9 plots, with 3 blocks (1 replicate) at each of 2 levels of Ca.

In addition a 3 x 3 arrangement in 2 blocks of 9 (1 at each level of Ca).

Area of each plot: 0.0212. Area harvested: 0.0045.

Treatments:

Blocks receiving sodium treatments. All combinations of:-

1. (To blocks). Magnesium free calcium carbonate in 1959 and 1962 as follows:

1959 10, 40 cwt (Ca1, Ca2)

1962 38, 76 cwt (Ca1, Ca2)

2. Mg applied each year: None (Mg0), 29 (Mg1), 58 (Mg2) lb Mg applied as magnesium sulphate.

3. K applied each year: (In lb K, as sulphate of potash). None (K0), 68 (K1), 136 (K2).

4. Na (1966 only): None (Na0), 130 lb. Na as sodium chloride (Cl), 130 lb as sodium carbonate (C).

Blocks not receiving sodium treatment. All combinations of (1), (2), (3) as above.

Basal applications: 0.5 cwt P<sub>2</sub>O<sub>5</sub> as triple superphosphate in seedbed, 1.0 cwt N as 'Nitro-Chalk' in seedbed, 1.0 cwt N as 'Nitro-Chalk' top-dressed.

Cultivations, etc.:

Ploughed: Oct 19, 1965. Basal P applied: Mar 18, 1966. Fertilisers applied: Apr 26. 'Nitro-Chalk' applied, seed drilled at 1.5 lb: Apr 28. 'Nitro-Chalk' top-dressed: June 23. Harvested: Dec 5. Variety: Thousand Head.

NOTES: (1) The percentages of Na, Mg and K in the crop were determined.

(2) For previous years' results see 'Results' 60/Ci/3, 61/C/7, 62/C/6, 63/C/1, 64/C/1, 65/C/1.

Standard errors per plot (pooled). Kale fresh weight: 1.703 or 6.8% (34 d.f.)

SUMMARY OF RESULTS

KALE: FRESH WEIGHT

BLOCKS RECEIVING SODIUM TREATMENTS

	MgO	MgI	Mg2	KO	KI	K2	NaO	NaCl	NaC	Mean
CaI	23.48	23.80	24.55	24.13	(±0.568)* 23.75	23.96	24.33	23.68	23.82	23.94
Ca2	25.58	25.69	26.05	25.01	27.71	24.58	25.07	26.29	25.95	25.77
Mean (±0.401)	24.53	24.74	25.30	24.57	25.73	24.27	24.70	24.98	24.88	24.86
	KO	KI	K2	NaO	NaCl	NaC		NaO	NaCl	NaC
MgO	24.62	(±0.695) 25.08	23.88	24.09	(±0.695) 24.60	24.88	KO	24.76	(±0.695) 24.64	24.32
MgI	24.04	25.82	24.36	24.78	25.14	24.31	KI	25.43	25.35	26.40
Mg2	25.05	26.28	24.58	25.22	25.22	25.46	K2	23.91	24.97	23.93

\* For use in horizontal and interaction comparisons

66/C/1.2

66/c/1.3

KALE: FRESH WEIGHT

BLOCKS NOT RECEIVING SODIUM TREATMENTS

	K0	K1	K2	MgO	Mg1	Mg2	Mean
Ca1	22.62	(±0.983)*	24.04	23.81	(±0.983)*	24.64	24.35
Ca2	27.19	26.39	25.30	26.03	27.38	26.16	26.52
					(±1.204)		(±0.695)
		K0		25.55	25.00	24.16	24.90
		K1		25.45	28.28	26.49	26.74
		K2		23.76	24.70	25.55	24.67
		Mean (±0.695)		24.92	25.99	25.40	25.44

\* For use in horizontal and interaction comparisons





66/C/2.1

INTENSIVE BARLEY GROWING EXPERIMENT

(IB)

Little Knott I - 1966, the sixth year

For treatments, etc., see 'Results' 61/C/8 (NO = none, N1 = 0.3, N2 = 0.6, N3 = 0.9 cwt N).

Area of each plot: 0.0212. Area harvested: Winter and spring wheat - 0.0140, barley - 0.0139.

Basal applications: Manures as previously.

Insecticide: Spring beans: Demeton-s-methyl (Metasystox as 12 fluid oz in 37 gals).

Weedkiller: Winter wheat, spring wheat, barley and oats: Ioxynil/mecoprop (Actril C at 5 pints in 40 gals).

Cultivations, etc.: Ground chalk applied at 25 cwt: Nov 3, 1965.

Ploughed: Nov 11.

Spring beans: Seed placement drilled at 200 lb: Mar 8, 1966.

Sprayed: June 14. Combine harvested: Sept 16.

Oats: Seed combine drilled at 160 lb: Mar 7, 1966. 'Nitro-

Chalk' applied: Mar 10. Sprayed: May 10. Combine harvested: Sept 3.

Spring wheat: Seed combine drilled at 180 lb, 'Nitro-Chalk'

applied: Mar 11, 1966. Sprayed: May 10. Combine harvested: Sept 3.

Barley: Seed combine drilled at 140 lb: Mar 8, 1966. 'Nitro-

Chalk' applied: Mar 10. Sprayed: May 10. Combine harvested: Aug 23.

Winter wheat: Seed combine drilled at 190 lb: Jan 3, 1966.

'Nitro-Chalk' applied: Mar 10. Sprayed: May 10. Combine harvested: Aug 23.

- NOTES: (1) Yields were taken only for sequences 1, 2, 3, 4, 7 (Barley) 8 (Spring wheat) 9 and 10 (Winter wheat).  
(2) Estimates of eyespot (*Cercospora herpotrichoides*) and take-all (*Ophiobolus graminis*) were made in spring and summer.  
(3) For the previous years' results see 'Results' 61/C/8, 62/C/7, 63/C/2, 64/C/2, 65/C/2.

Standard errors per plot. Grain:

Winter wheat (9 and 10): 4.71 or 14.5% (7 d.f.)

Barley (1,2,3,4 and 7): 3.04 or 8.8% (19 d.f.)





66/C/3.1

LONG TERM LIMING EXPERIMENTS - BARLEY 1966

(LL and WLL)

Rothamsted Sawyers I and Woburn Stackyard Series C - the fifth year.

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

Area of each plot: 0.0289. Area harvested: 0.0129.

Basal applications:

Sawyers I (R) - 0.5 cwt N as 'Nitro-Chalk' combine drilled.  
 Weedkiller: Ioxynil/mecoprop (Actril C at 4 pints in 40 gals).  
 Stackyard Series C (W) - 0.5 cwt N as sulphate of ammonia broadcast by machine, 0.5 cwt N as 'Nitro-Chalk' broadcast by machine. Weedkiller: Ioxynil/mecoprop (Actril C at 4 pints in 35 gals).

Cultivations, etc.:-

Sawyers I (R): Ploughed: Jan 10, 1966. P and K applied, seed drilled at 160 lb: Mar 14. Sprayed: May 20. Combine harvested: Aug 26. Variety: Maris Badger.  
 Stackyard Series C (W): Ploughed: Sept 16, 1965. P and K applied: Mar 10, 1966. Sulphate of ammonia applied, seed drilled at 140 lb: Mar 11. Sprayed: May 11. 'Nitro-Chalk' applied by machine: June 7. Combine harvested: Sept 8. Variety: Maris Badger.

Standard errors per plot. Grain:

Sawyers I (R): 6.54 or 19.7% (15 d.f.)  
 Stackyard C (W): 1.26 or 3.2% (15 d.f.)

NOTE: Ground chalk tons per acre applied 1962 - 63

	Sawyers I (R)	Stackyard Series C (W)*
CA0	0	0
CA2	2	2
CA4	4	4.75
CA8	8	7.5

\* These were given incorrectly for Woburn in Results 64/C/3.1.

The following is a summary of the actual applications.

	Sawyers I (R)				Stackyard Series C (W)			
1962	0	2	4	6	0	2	4	6
1963	0	0	0	2	0	0	0.75	1.5
<hr/>	<hr/>				<hr/>			
Total	0	2	4	8	0	2	4.75	7.5

66/c/3.2

SUMMARY OF RESULTS

SAWYERS I (R)

GRAIN

	CA0	CA2	CA4	CA8	Mean
Mean ( $\pm 2.31$ )	21.7	35.1	38.0	38.2	33.3
-		( $\pm 3.27$ )			( $\pm 1.64$ )
P	18.5	33.9	36.7	37.0	31.5
-	25.0	36.3	39.4	39.4	35.0
-	25.3	33.7	37.4	36.0	33.1
K	18.2	36.6	38.6	40.4	33.4
	-	P			
-	( $\pm 2.31$ )				
K	32.1	34.2			
	31.0	35.9			

Mean D.M. %: 77.4



66/c/3.3

STACKYARD SERIES C (W)

GRAIN

	CA0	CA2	CA4	CA8	Mean
Mean ( $\pm 0.45$ )	36.9	39.5	41.0	40.9	39.6
-		( $\pm 0.63$ )			( $\pm 0.32$ )
P	34.9 38.9	39.1 39.9	40.2 41.9	39.9 42.0	38.5 40.7
-	36.6	38.8	41.1	40.6	39.3
K	37.1	40.2	40.9	41.3	39.9
	-	P			
-	( $\pm 0.45$ )				
K	38.9 38.2	39.7 41.6			

Mean D.M. %: 86.3



66/C/4.1

METHODS OF APPLICATION OF FERTILISER

(WBT)

Methods of application of fertiliser - Woburn Broadmead I, 1966  
the second year - spring wheat.

Design: 3 x 3 x 3 in 3 blocks of 9 plots together with 3 additional plots per block.

Area of each plot: 0.0212. Area harvested: 0.0126.

Treatments: 3 x 3 x 3: All combinations of:-

To wheat 1966:

1. Levels of N, P and K:

N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
None	None	None	(F0)
0.66	0.66	1.02	(F1)
1.32	1.32	2.03	(F2)

P as superphosphate, K as muriate of potash, both applied in seedbed. N as 'Nitro-Chalk', half in seedbed, half top-dressed.

To potatoes 1965:

2. Levels of compound (13:13:20) to supply:

N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
0.66	0.66	1.02	(L1)
1.32	1.32	2.03	(L2)
2.00	2.00	3.07	(L3)

3. Methods of application: Broadcast (B), placed (P), broadcast and rotary cultivated in (BR).

Additional plots:

To wheat 1966: NPK: F0, F1, F2 as above to plots receiving no fertiliser in 1965.

Basal applications: Manures: None. Weedkillers: Sodium trichloroacetate at 18 lb in 40 gals on 2 occasions, Mecoprop/2,4-D (Methoxone Extra at 6 pints in 35 gals).

Cultivations, etc.: Deep-tine cultivated: Oct 18, 1965. Sprayed (Sodium trichloroacetate): Oct 22 and Dec 29. Seed drilled at 170 lb: Mar 15, 1966. Sprayed (Mecoprop/2,4-D): May 10. Combine harvested: Sept 6. Variety: Kloka.

NOTE: For the previous year's results see 'Results' 65/C/5.

Standard error per plot.

Grain: 2.78 or 7.2% (21 d.f.)

66/C/4.2

SUMMARY OF RESULTS

	GRAIN				STRAW			
	B	P	BR	Mean	B	P	BR	Mean
		(±1.61)		(±0.93)				
FO	25.1	28.8	28.2	27.4	14.3	16.5	14.0	14.9
F1	39.0	40.5	37.9	39.1	26.7	29.0	26.2	27.3
F2	49.0	49.2	49.5	49.2	38.0	38.3	37.3	37.8
Mean	37.7	39.5 (±0.93)	38.5	38.6	26.3	27.9	25.8	26.7
	L1	L2	L3		L1	L2	L3	
		(±1.61)						
FO	22.0	26.1	34.0		11.7	15.0	18.1	
F1	34.1	41.0	42.4		22.1	31.0	28.9	
F2	48.6	50.1	49.0		36.9	39.7	36.9	
Mean	34.9	39.0 (±0.93)	41.8		23.5	28.6	28.0	
		(±1.61)						
B	32.1	38.1	42.9		23.0	28.7	27.2	
P	35.6	42.1	40.7		23.5	32.3	28.0	
BR	36.9	37.0	41.7		24.2	24.6	28.7	



66/c/4.3

Plots receiving no fertiliser in 1965

GRAIN				STRAW			
FO	F1	F2	Mean	FO	F1	F2	Mean
20.3	35.8 (±1.61)	45.6	33.9	9.4	23.6	33.8	22.3

General mean      37.4

25.6

Mean D.M. %:      84.8

79.8

Errata to 'Results' 65/c/4.3

Plots receiving no fertiliser in 1964.      Means should read:  
 Whittlocks (R): 30.7 not 31.2  
 Broadmead (W): 32.0 not 30.7

2.0000

Table showing the results of the

Group 1				Group 2			
Year	Q1	Q2	Q3	Year	Q1	Q2	Q3
1998	1.50	2.00	2.50	1999	1.50	2.00	2.50
		2.50				2.50	
		3.00				3.00	

Table showing the results of the

Table showing the results of the  
Year 2000: Q1: 1.50, Q2: 2.00, Q3: 2.50  
Year 2001: Q1: 1.50, Q2: 2.00, Q3: 2.50

66/C/5.1

GRASS

(AF)

Levels of N and K - Harwoods Piece 1966, the 9th year.

For treatments etc. see 'Results' 63/C/7.1 and 65/C/6.2 and for previous years' results see 58/Cg/2, 59/Cg/2, 60/C1/1, 61/Dg/1, 62/C/11, 63/C/7, 64/C/6 and 65/C/6.

Area of each plot: 0.0087. Area harvested: 1st cut - 0.0057, 2nd, 3rd, 4th cuts - 0.0059.

Cultivations, etc.: N, P and K fertilisers applied: Mar 28, 1966. Cut 4 times: May 17, June 28, Aug 15, Oct 13. N and K applied after first 3 cuts.

NOTE: Crop samples were taken for N, P and K determinations.

Standard errors per plot. Dry matter:

1st cut:	2.07 or 7.5% (33 d.f.)
2nd cut:	1.70 or 6.8% (33 d.f.)
3rd cut:	1.90 or 10.3% (33 d.f.)
4th cut:	1.37 or 11.5% (33 d.f.)
Total of 4 cuts:	4.78 or 5.8% (33 d.f.)

66/c/5.2

SUMMARY OF RESULTS

DRY MATTER

N	0	1	1	1	2	2	2	3	3	3	3	3	3	
P	1	1	1	1	1	1	1	1	1	1	0	2	2	
K	0	0	1	2	0	1	2	0	1	2	2	2	2	Mean

1ST CUT

5.5 17.3 19.1 19.1 30.3 30.0 30.9 33.9 34.6 36.7 37.8 37.4 | 27.7  
 (±1.03)

Mean D.M. %: 19.8

2ND CUT

7.7 20.8 22.6 20.9 28.1 28.4 28.8 28.2 28.5 28.0 28.1 28.0 | 24.8  
 (±0.85)

Mean D.M. %: 19.9

3RD CUT

2.0 14.5 14.8 14.4 20.3 21.2 22.0 17.8 22.8 24.4 23.1 25.1 | 18.5  
 (±0.95)

Mean D.M. %: 19.9



66/C/5.3

DRY MATTER

N	0	1	1	1	1	2	2	2	3	3	3	3	3	3	Mean
P	1	1	1	1	1	1	1	1	1	1	1	1	1	0	2
K	0	0	1	2	0	1	2	0	0	1	1	2	2	2	2

4TH CUT

0.4	8.4	9.9	10.4	11.7	15.3	16.3	9.7	15.0	15.0	15.7	15.1	11.9
					(±0.69)							

Mean D.M. %: 18.4

TOTAL OF 4 CUTS

15.6	60.9	66.4	64.8	90.5	94.8	98.1	89.7	100.9	104.1	104.7	105.6	83.0
					(±2.39)							

Mean D.M. %: 19.5

Treatment symbols:

N	0	1	2	3	0.0	0.3	0.6	0.9	cwt N as 'Nitro-Chalk' 21 per cut
P	0	1	2		0.0	0.6	1.2	cwt P205 as Granular Superphosphate	
K	0	1	2		0.0	0.3	0.6	cwt K2O as Granular Muriate of Potash per cut	



66/C/6.1

DECLINE OF TAKE-ALL

(AD)

The effect of crop sequences on the decline of take-all (*Ophiobolus graminis*) - Great Field I 1966, the fourth year, winter wheat.

Design: 3 randomised blocks of 6 plots each, using the plots of Series III of the Cereal - Bean Rotations Experiment (see 'Results' 61/C/1).

Area of each plot: 0.0145. Area harvested: 0.0091.

Treatments: 6 crop sequences. For details see 'Results' 63/C/8.

Basal applications: 2.5 cwt (0:10:20). Combine drilled, 1.0 cwt N applied in spring as 'Nitro-Chalk'. Weedkillers: Aminotriazole 4lb and ammonium thiocyanate 3.7 lb in 40 gals: Oct 14, 1965. Mecoprop/2,4-D (Methoxone Extra at 6 pints in 40 gals): May 16, 1966.

Cultivations, etc.: Ploughed: Nov 10, 1965. Seed drilled at 190 lb: Jan 3, 1966. 'Nitro-Chalk' applied: Apr 27. Combine harvested: Aug 23. Variety: Cappelle.

NOTES: (1) Estimates were made of the incidence of take-all (*Ophiobolus graminis*) and of eyespot (*Cercospora herpotrichoides*).  
(2) For details of the previous years' results see 'Results' 63/C/8, 64/C/7, 65/C/7.

Standard error per plot.  
Grain: 2.19 or 7.4% (10 d.f.)

66/c/6.2

SUMMARY OF RESULTS

WINTER WHEAT

GRAIN

Crop in 1959	W	W	W	WS	O	B	
1960	W	O	O	W	W	W	
1961	WS	WS	Be	WS	WS	B	
1962	W	W	W	W	W	W	
1963	W	W	W	O	W	W	
1964	W	W	W	W	O	W	
1965	W	W	W	W	W	O	Mean
	30.0	29.2	27.9	30.9	26.4	32.8	29.5
	(±1.27)						

Mean D.M. %: 79.4



66/C/7.1

CEREAL DISEASE REFERENCE PLOTS

(AQ)

Pennells Piece 1966, the fourth year

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

The varieties in 1966 were:-

Winter wheat: Cappelle

Spring wheat: Jufy I

Oats: Condor

Spring beans: Tick

These have remained unchanged since the beginning of the experiment.

Area of each plot: 0.0180. Area harvested: Winter wheat - 0.0115, spring wheat - 0.0116.

Cultivations, etc.: Ploughed: Oct 16, 1965.

Winter wheat: Seed combine drilled at 160 lb: Nov 4. 'Nitro-Chalk' applied: Mar 10, 1966. Sprayed with ioxynil/MCPA (Actril A at 2 pints in 40 gals): Mar 29. Combine harvested: Aug 23.

Spring wheat: Seed combine drilled at 180 lb, 'Nitro-Chalk' applied: Mar 11, 1966. Sprayed with ioxynil/mecoprop (Actril C at 5 pints in 40 gals): May 10. Combine harvested: Sept 3.

Oats: Seed combine drilled at 160 lb: Mar 7, 1966. 'Nitro-Chalk' applied: Mar 10. Sprayed with ioxynil/mecoprop (Actril C at 5 pints in 40 gals): May 10. Combine harvested: Sept 3.

Spring beans: Seed placement drilled at 200 lb: Mar 8, 1966. (Rows spaced at 21 in). Sprayed with demeton-s-methyl (Metasystox at 12 fluid oz in 37 gals): June 14. Combine harvested: Sept 16.

- NOTES: (1) Yields were taken for winter and spring wheat only.  
(2) Estimates were made throughout the growing season of the incidence of take-all (*Ophiobolus graminis*) and eyespot (*Cercospora herpotrichoides*).  
(3) For previous years' results see 'Results' 63/C/10, 64/C/9 and 65/C/9.

66/c/7.2

SUMMARY OF RESULTS

GRAIN

Crop	W	Be	O	W	Mean
1963	W	Be	O	W	
1964	Be	O	W	W	
1965	O	W	W	W	
WINTER WHEAT					
	41.8	41.5	25.5	31.6	35.1
SPRING WHEAT					
	44.8	37.9	35.3	37.1	38.8

Mean D.M. %: Winter wheat: 83.3  
 Spring wheat: 75.4

66/c/8.1

LUCERNE

(AZ)

Row spacing, N and paraquat, Long Hoos VII, the 3rd year 1966.

For treatments, etc. and the previous years' results see 'Results' 64/c/13 and 65/c/12.

Area of each plot: 0.0145. Area harvested: 0.0034.

Cultivations, etc.: Basal PK compound applied: Dec 22, 1965.

Pl treatment sprayed with paraquat at 2 lb ion in 40 gals:

Mar 1, 1966. 'Nitro-Chalk' applied: Mar 15. Cut 3 times:

June 3, July 12 and Oct 25. PK applied after first 2 cuts.

Standard errors per plot. Dry matter:

1st cut: 2.50 or 7.5% (33 d.f.)

2nd cut: 2.09 or 8.0% (33 d.f.)

3rd cut: 1.56 or 10.0% (33 d.f.)

Total of 3 cuts: 4.52 or 6.0% (33 d.f.)

66/c/8.2

SUMMARY OF RESULTS

DRY MATTER

1ST CUT

	NO	N1	N2	Mean
Mean ( $\pm 0.63$ )	31.6	32.8 ( $\pm 0.88$ )	35.3	33.2 ( $\pm 0.51$ )
C	32.5	33.7	35.3	33.9
W	30.6	31.9 ( $\pm 0.88$ )	35.3	32.6 ( $\pm 0.51$ )
PO	34.7	38.4	40.2	37.8
P1	28.4	27.2	30.5	28.7
	C	W		
	( $\pm 0.72$ )			
PO	38.3	37.2		
P1	29.4	28.0		

Mean D.M. %: 20.4

N cwt per acre as 'Nitro-Chalk'

NO = 0.00  
 N1 = 0.25  
 N2 = 0.50



66/c/8.3

DRY MATTER

2ND CUT

	NO	N1	N2	Mean
Mean ( $\pm 0.52$ )	26.4	26.1 ( $\pm 0.74$ )	26.2	26.3 ( $\pm 0.43$ )
C	27.9	26.5	26.6	27.0
W	24.9	25.8 ( $\pm 0.74$ )	25.9	25.5 ( $\pm 0.43$ )
PO	26.5	25.4	25.5	25.8
PI	26.2	26.9	26.9	26.7
	C	W		
	( $\pm 0.60$ )			
PO	26.4	25.2		
PI	27.5	25.8		

Mean D.M. %:16.3

66/c/8.4

DRY MATTER

3RD CUT

	NO	N1	N2	Mean
Mean ( $\pm 0.39$ )	15.0	16.4 ( $\pm 0.55$ )	15.3	15.6 ( $\pm 0.32$ )
C	15.8	16.2	15.2	15.7
W	14.2	16.5 ( $\pm 0.55$ )	15.4	15.4 ( $\pm 0.32$ )
PO	15.8	17.1	16.4	16.4
PI	14.2	15.7	14.3	14.7
	C	W		
	( $\pm 0.45$ )			
PO	16.7	16.2		
PI	14.8	14.6		

Mean D.M. %: 23.8

66/c/8.5

DRY MATTER  
TOTAL OF 3 CUTS

	NO	N1	N2	Mean
Mean ( $\pm 1.13$ )	73.0	75.3 ( $\pm 1.60$ )	76.9	75.0 ( $\pm 0.92$ )
C	76.3	76.4	77.2	76.6
W	69.7	74.2 ( $\pm 1.60$ )	76.6	73.5 ( $\pm 0.92$ )
PO	77.1	80.8	82.1	80.0
Pl	68.8	69.8	71.7	70.1
	C	W		
		( $\pm 1.31$ )		
PO	81.4	78.6		
Pl	71.8	68.4		

Mean D.M. %: 20.2

Table with multiple columns and rows, containing numerical data and text labels. The table is oriented vertically on the page. The text is very faint and difficult to read, but appears to be a data table with several columns and rows. The table is oriented vertically on the page.



66/C/9.1

## IRRIGATION

(IRA and IRB)

The effect of irrigation on potatoes and barley - Great Field I and II 1966. For previous years' results see 'Results' 65/C/14.

### Design:

Potatoes: Two replicates of 4 x 2 x 3 x 2 in two blocks. Each block is divided into 4 whole plots for irrigation treatments, and at right angles into 6 strips for varieties and spacing.

There is a further split for N.

Barley: Two randomised blocks of 4 plots, with plots split for N.

### Area of each sub plot:

Potatoes: 0.0214  
Barley: 0.1286

### Area harvested:

0.0080  
0.0689

### Treatments: Potatoes: All combinations of:-

Whole plots. 1. Irrigation: None (O), early (A), late (B), full (C).

To strips of 1/6th plots.

2. Varieties: Majestic (M), King Edward (E).  
Unchitted seed.

3. Spacing: Seed 12 (S1), 15 (S2), 18 inches (S3) apart in rows.

1/12th plots. 4. Nitrogen: 1.2 (N1), 1.8 (N2) cwt N as compound fertiliser (basal) and 'Nitro-Chalk'.

Barley: All combinations of:-

Main plots. 1. Irrigation: None (O), early (A), late (B), full (C).

Sub plots. 2. Nitrogen: 0.6 (N1), 0.8 (N2) cwt N as compound fertiliser (basal) and 'Nitro-Chalk'.

### Basal applications:

Potatoes: 12 cwt compound fertiliser (10:10:18). Weedkiller: Linuron at 1 lb and paraquat at 0.75 lb ion in 37 gals.

Fungicide: Mancozeb at 1.2 lb in 37 gals on 3 occasions.

Barley: 3 cwt compound fertiliser (20:10:10) combine drilled.

Weedkiller: Mecoprop/2,4-D (Methoxone Extra at 6 pints in 40 gals).

### Cultivations, etc.:-

Potatoes: Sprayed with dalapon at 8.8 lb a.e. in 40 gals:

Nov 8, 1965. Ploughed: Jan 5, 1966. Basal compound

66/C/9.2

fertiliser applied: Apr 1. 'Nitro-Chalk' applied: May 3.  
 East half of experiment (one replicate) rotary cultivated,  
 potatoes planted on eastern four 1/12th plots of each block:  
 May 4. Rotary cultivation completed, remainder of plots  
 planted: May 10. Weedkiller applied: May 27. Rotary  
 ridged: June 17. Fungicide applied: June 30, July 22,  
 Aug 5. Sprayed with undiluted BOV at 15 gals: Sept 8.  
 Haulm destroyed mechanically, potatoes lifted: Sept 21.  
 Previous crop: Barley 1964, spring beans 1965.  
 Barley: Deep-tine cultivated: Mar 23, 1966. Seed drilled at  
 155 lb, 'Nitro-Chalk' applied: Mar 24. Weedkiller applied:  
 May 14. Combine harvested: Aug 19. Variety: Maris Badger.  
 Previous crop: Barley 1964, potatoes 1965.

RAINFALL AND IRRIGATION: INCHES

Week- ending	Rain- fall	IRRIGATION	
		Potatoes A and C	Barley A and C
May 6	0.95		
13	0.93		
20	0.38		
27	0.28		
June 3	0.00		
10	1.15		1.00
17	0.39		
24	1.30		
July 1	0.25		
8	0.45		
15	0.21	1.00	
22	0.87		
29	0.98		
Aug 5	0.94		
12	1.00		
19	0.02		
26	0.08		
Sept 2	1.89		
9	0.17		
16	0.38		
23	0.00		
30	0.62		
<b>Total</b>	<b>13.24</b>	<b>1.00</b>	<b>1.00</b>

66/C/9.3

Standard errors per plot.

Potatoes, total tubers:	Pooled whole & strip:	0.820 or 4.8% (10 d.f.)
	1/6 plot:	0.597 or 3.5% (25 d.f.)
	1/12 plot:	1.065 or 6.2% (36 d.f.)
Barley, grain:	Whole plot:	1.39 or 3.1% (5 d.f.)
	Sub plot:	2.26 or 5.0% (6 d.f.)

SUMMARY OF RESULTS

POTATOES

TOTAL TUBERS

	O & B	A & C	Mean
Mean	17.01	17.38	17.20
	(±0.335)		
M	17.27	17.46	17.37
E	16.76	17.29	17.02
	(1) and (2)		(±0.335)
S1	17.40	18.45	17.93
S2	17.20	17.70	17.45
S3	16.44	15.98	16.21
	(3) and (4)		(±0.410)
N1	16.66	16.97	16.82
N2	17.37	17.78	17.57
	(5) and (6)		(±0.154)

- (1) (±0.172) For use in interaction comparisons only
- (2) (±0.280) For use in all other comparisons
- (3) (±0.211) For use in interaction comparisons only
- (4) (±0.343) For use in all other comparisons
- (5) (±0.368) For use in vertical and diagonal comparisons
- (6) (±0.217) For use in horizontal and interaction comparisons



66/C/9.4

POTATOES

TOTAL TUBERS

	MS1	MS2	MS3	ES1	ES2	ES3
O & B	17.73	16.71	17.37	17.07	17.69	15.51
A & C	18.21	17.59	16.60	18.69	17.81	15.36

	MN1	MN2	EN1	EN2
O & B	17.15	17.39	16.17	17.34
A & C	17.35	17.58	16.59	17.98

	S1N1	S1N2	S2N1	S2N2	S3N1	S3N2
O & B	16.94	17.87	17.04	17.36	16.00	16.87
A & C	17.74	19.16	17.28	18.12	15.90	16.06



66/C/9.5

POTATOES

% WARE

	O & B	A & C	Mean
Mean	97.1	97.2	97.1
M	97.4	97.5	97.5
E	96.7	96.8	96.8
S1	96.4	96.6	96.5
S2	97.2	97.4	97.3
S3	97.5	97.7	97.6
N1	97.0	97.0	97.0
N2	97.1	97.4	97.2

66/c/9.6

POTATOES

% WARE

	MS1	MS2	MS3	ES1	ES2	ES3
O & B	96.9	97.5	97.7	96.0	96.8	97.4
A & C	97.1	97.8	97.8	96.1	96.9	97.5
	MN1	MN2	EN1	EN2		
O & B	97.5	97.3	96.5	96.9		
A & C	97.5	97.6	96.5	97.2		
	SN1	SN2	S2N1	S2N2	S3N1	S3N2
O & B	96.5	96.4	97.2	97.1	97.3	97.7
A & C	96.5	96.7	97.0	97.7	97.5	97.8

66/C/9.7

BARLEY

GRAIN

	O&B	A&C	Mean
	(1) and (2)		(±0.80)
N1	45.6	47.9	46.7
N2	43.4	43.2	43.3
Mean (±0.70)	44.5	45.6	45.0

STRAW

N1	44.5	44.6	44.6
N2	52.0	50.1	51.1
Mean	48.3	47.4	47.8

- (1) (±1.06) For use in horizontal and diagonal comparisons  
 (2) (±1.13) For use in vertical and interaction comparisons

LAWYER		BANK		
DATE	AMOUNT	DATE	AMOUNT	
1914	100.00	1914	100.00	(1)
1915	100.00	1915	100.00	(2)
1916	100.00	1916	100.00	(3)
1917	100.00	1917	100.00	(4)
1918	100.00	1918	100.00	(5)
1919	100.00	1919	100.00	(6)
1920	100.00	1920	100.00	(7)
1921	100.00	1921	100.00	(8)
1922	100.00	1922	100.00	(9)
1923	100.00	1923	100.00	(10)

1914-1923 (10) (1)  
 1924-1933 (10) (2)



66/C/10

## ROW SPACING AND FERTILISERS

(WBU)

Row spacing and concentrated fertilisers - Woburn Workhouse 1966, the second year. Barley 1966 after potatoes 1965.

Design: Two replicates of 4 x 2 x 2 x 2 in 4 blocks of 16 plots.

Area of each plot: 0.0030.

Treatments: All combinations of:-

- To potatoes 1965.
1. Levels of NPK (in proportion 1.0 N, 1.0 P205, 1.5 K20) to supply: None (F0), 0.66 (F1), 1.32 (F2), 2.0 cwt N (F3).
  2. Types of fertiliser: Concentrated (C), dilute (D).
  3. Time of application: Before (B), after (A) rotary cultivation.
  4. Spacing of setts: 14 in. x 14 in. (S14), 14 in. x 28 in. (S28).
- To barley 1966.
5. Concentrated NPK fertiliser to supply: None (F0), 0.33 (F1), 0.66 (F2), 1.0 cwt N (F3) with P205 and K20 in proportion as above.

Basal applications: Manure: None. Mecoprop/2,4-D (Methoxone Extra at 6 pints in 35 gals).

Cultivations, etc.: Deep-tine cultivated twice: Oct 27, 1965. Fertilisers applied, rotary cultivated, seed drilled at 140 lb: Mar 9, 1966. Sprayed weedkiller: May 13. Combine harvested: Sept 12. Variety: Maris Badger.

NOTES: (1) For details of the previous year's results see 'Results' 65/C/18.  
(2) The crop was badly damaged by birds and no yields were taken.



66/c/11.1

## SOIL STRUCTURE 2

Effects of peat (annual applications) and subsoiling (1963 only)  
Woburn Stackyard Field, plot 6 of the Continuous Barley site,  
early potatoes followed by red beet 1966, the fourth year.

Design: 4 randomised blocks of 5 plots split into two for P.  
Two blocks subsoiled.

Area of each plot: 0.0016. Area harvested: Potatoes - 0.0006,  
red beet - 0.0011.

Treatments: All combinations of:-

- |              |                                                                                                                                                                                                                                                                                                                             |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Blocks.      | 1. Subsoiling: None (O), subsoiled (S) by hand to a depth of 20 inches in 1963.                                                                                                                                                                                                                                             |
| Whole plots. | 2. Peat: None (O), 62.5 cwt peat dry matter applied to top 2 inches of soil in 1965 only (Sb65), 1963-66 cumulative dressings, 62.5 cwt peat dry matter applied annually to top 2 inches of soil alone (Sb), or with peat dug in annually to a depth of 8 inches either at the same rate (Dg1), or at twice the rate (Dg2). |
| Half plots.  | 3. Phosphate*: None (O), 75 lb P <sub>2</sub> O <sub>5</sub> (P) applied as triple superphosphate three quarters dug in, and a quarter in the seedbed.                                                                                                                                                                      |

\*not tested on red beet.

Basal applications: Monoammonium phosphate, potassium nitrate, ammonium nitrate and magnesium sulphate to supply 120 lb N, 75 lb P, 150 lb K, 50 lb Mg, to the potatoes, and 200 lb N, 75 lb P, 250 lb K, and 50 lb Mg to red beet. Three quarters being dug in, and a quarter in the seedbed in each case.

Cultivations, etc.:

Early potatoes:

Fertilisers and peat for digging in applied: Mar 25, 1966. All plots dug: Mar 28. Seedbed fertilisers and peat applied, setts planted: Apr 4. Earthed up: May 20. Lifted: July 7.  
Variety: Arran Pilot.

Red beet:

Chalk applied at 1 ton: July 15, 1966. Fertilisers applied to seedbed, seedbed prepared, and seed drilled at 30 lb: July 27. Singled to 4 inch spacing: Aug 24. Lifted: Oct 28. Variety: Crimson Globe.

66/C/11.2

NOTE:

1. Crop samples were taken for estimation of dry matter and PK analysis.
2. Soil samples taken 0-12 inches Dec 15, 1965, for determination of pH and readily soluble P and K.
3. For previous years' results see 'Results' 64/C/20, 65/C/19.

Standard errors per plot.

Early potatoes. Total tubers, whole plot: 0.810 or 8.3% (8 d.f.)  
sub plot: 0.625 or 6.4% (10 d.f.)  
Red beet. Whole plots, Roots: 0.239 or 4.7% (8 d.f.)  
Tops: 0.485 or 4.8% (8 d.f.)  
Roots and tops: 0.698 or 4.6% (8 d.f.)



66/c/11.3

SUMMARY OF RESULTS

EARLY POTATOES

TOTAL TUBERS

	O	Sb65	Sb	Dg1	Dg2	Mean
Mean ( $\pm 0.405$ )	8.76	9.51	10.20	9.99	10.55	9.80
			( $\pm 0.573$ )*			
O	7.98	8.45	9.62	9.07	10.32	9.09
S	9.53	10.56	10.78	10.90	10.78	10.51
			(1) and (2)			( $\pm 0.140$ )
O	8.69	9.11	9.88	9.89	11.07	9.73
P	8.82	9.90	10.52	10.08	10.03	9.87

	O	P	Mean
			( $\pm 0.198$ )*
O	9.14	9.03	9.09
S	10.32	10.71	10.51

\*For use in horizontal and interaction comparisons

(1) ( $\pm 0.461$ ) For use in horizontal and diagonal comparisons

(2) ( $\pm 0.313$ ) For use in vertical and interaction comparisons

66/C/11.4

RED BEET

	O	Sb65	Sb	Dg1	Dg2	Mean
ROOTS						
( $\pm 0.169$ )*						
O	4.72	5.20	4.72	5.30	5.35	5.06
S	4.72	4.72	4.91	5.49	5.40	5.05
Mean ( $\pm 0.120$ )	4.72	4.96	4.81	5.40	5.37	5.05
TOPS						
( $\pm 0.343$ )*						
O	9.19	9.63	9.14	11.23	10.36	9.91
S	9.82	9.58	9.77	10.89	11.67	10.35
Mean ( $\pm 0.242$ )	9.50	9.60	9.46	11.06	11.01	10.13
ROOTS AND TOPS						
( $\pm 0.494$ )*						
O	13.90	14.83	13.86	16.53	15.70	14.96
S	14.54	14.29	14.68	16.38	17.06	15.39
Mean ( $\pm 0.349$ )	14.22	14.56	14.27	16.46	16.38	15.18

\*For use in horizontal and interaction comparisons.

66/C/12.1

GRASS

The effects of oxamide on the growth and N uptake of sown ryegrass.  
Highfield O and E I, 1966, the second year.

Design: 4 randomised blocks of 10 plots.

Area of each plot: 0.0009. Area harvested: 0.0006.

Treatments (applied in 1965): None (0) (2 plots per block) and  
all combinations of:-

1. N fertiliser:

Oxamide powder	(P)
Oxamide, small granules (2-4 mm)	(S)
Oxamide, large granules (7-9 mm)	(L)
Ammonium nitrate	(A)

2. Levels of N: 100 lb (N1), 200 lb (N2) N.

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

Cultivations, etc.: Basal PK applied: Mar 1, 1966. Cut twice:  
May 6 and June 13.

NOTES: (1) % N in grass was determined.

(2) For the previous year's results see 'Results' 65/C/21.

Standard errors per plot. Dry matter:

1st cut:	1.81 or 20.6% (27 d.f.)
2nd cut:	0.64 or 7.7% (27 d.f.)
Total of 2 cuts:	2.19 or 12.8% (27 d.f.)

66/c/12.2

SUMMARY OF RESULTS

DRY MATTER

	O	P	S	L	A	Mean
1ST CUT						
(±0.90)						
N1		6.7	8.5	9.1	6.8	7.8
N2		8.8	12.6	15.9	8.1	11.4
Mean (±0.64)	5.5	7.7	10.6	12.5	7.5	8.8*
2ND CUT						
(±0.32)						
N1		7.9	8.6	9.3	7.5	8.3
N2		8.5	7.7	9.7	8.6	8.6
Mean (±0.23)	7.4	8.2	8.2	9.5	8.1	8.3*
TOTAL OF 2 CUTS						
(±1.09)						
N1		14.6	17.1	18.5	14.3	16.1
N2		17.2	20.3	25.6	16.7	20.0
Mean (±0.77)	12.9	15.9	18.7	22.0	15.5	17.0*

\* General mean

Mean D.M. %: 1st cut: 22.5  
 2nd cut: 23.4  
 Total of 2 cuts: 23.0



66/C/13.1

PARK GRASS MICROPLOTS

(PGM 81 - 160)

Plots 5/1 and 5/2, 1966, the second year

For details of treatments etc., and for previous year's results see 'Results' 65/C/22.

Area harvested: 0.0021.

Residual effects only were measured from treatments K1P2 and K6P2. All other treatments are cumulative.

All plots were cut 3 times. N applied for each cut at 50 and 100 lb. Total for year 150 and 300 lb.

Cultivations, etc.: PK applied: Feb 8, 1966. 'Nitro-Chalk' applied: Mar 7. Cut 3 times: May 23, July 18, Oct 6. 'Nitro-Chalk' applied after every cut except the last.

Standard errors per plot. Dry matter:

Plot 5/1.	1st cut:	2.17	or	12.3%	(11 d.f.)
	2nd cut:	4.01	or	18.1%	(11 d.f.)
	3rd cut:	2.43	or	11.0%	(11 d.f.)
	Total of 3 cuts:	6.31	or	10.2%	(11 d.f.)
Plot 5/2.	1st cut:	3.10	or	8.9%	(11 d.f.)
	2nd cut:	2.86	or	10.1%	(11 d.f.)
	3rd cut:	2.22	or	8.0%	(11 d.f.)
	Total of 3 cuts:	6.13	or	6.7%	(11 d.f.)

66/C/13.2

SUMMARY OF RESULTS

PLOT 5/1: DRY MATTER

1ST CUT

Excluding K1 and K6 plots

	P0	P1	P2	P4	Mean
Mean ( $\pm 0.77$ )	6.3	20.4	22.4	22.9	18.0
		( $\pm 1.53$ )			( $\pm 0.77$ )
K0	6.2	19.6	19.6	19.9	16.3
K2	8.0	20.5	24.2	23.2	19.0
K4	5.7	22.7	24.2	24.7	19.3
K8	5.2	18.9	21.7	23.8	17.4
		( $\pm 1.08$ )			( $\pm 0.54$ )
N1	7.6	19.2	19.2	20.2	16.5
N2	5.0	21.7	25.7	25.7	19.5
	K0	K2	K4	K8	
		( $\pm 1.08$ )			
N1	15.8	17.5	16.3	16.6	
N2	16.9	20.5	22.4	18.2	
	K1* and K6* plots				
	K1	K6	Mean		
		( $\pm 1.53$ )	( $\pm 1.08$ )		
N1	15.0	17.8	16.4		
N2	16.6	14.6	15.6		
Mean ( $\pm 1.08$ )	15.8	16.2	16.0		

\* Applied 1965

General mean: 17.6

Mean D.M. %: 22.4

66/c/13.3

PLOT 5/1: DRY MATTER

2ND CUT

Excluding K1 and K6 plots

	P0	P1	P2	P4	Mean
Mean ( $\pm 1.42$ )	16.7	21.3	26.1	28.3	23.1
		( $\pm 2.84$ )			( $\pm 1.42$ )
K0	10.3	18.1	20.8	23.0	18.0
K2	18.1	21.2	30.5	29.1	24.7
K4	20.6	25.2	26.1	29.0	25.2
K8	18.0	20.7	27.0	32.1	24.5
		( $\pm 2.01$ )			( $\pm 1.00$ )
N1	17.9	20.7	24.5	26.7	22.4
N2	15.6	21.8	27.8	29.9	23.8
	K0	K2	K4	K8	
		( $\pm 2.01$ )			
N1	18.6	23.1	23.8	24.2	
N2	17.4	26.3	26.6	24.8	
	K1* and K6* plots				
	K1	K6	Mean		
	( $\pm 2.84$ )		( $\pm 2.01$ )		
N1	18.0	19.1	18.5		
N2	18.5	18.0	18.2		
Mean ( $\pm 2.01$ )	18.2	18.5	18.4		

\* Applied 1965

General mean: 22.2

Mean D.M. %: 21.5

66/C/13.4

PLOT 5/1: DRY MATTER

3RD CUT

Excluding K1 and K6 plots

	P0	P1	P2	P4	Mean
Mean ( $\pm 0.86$ )	18.0	22.5	24.0	26.2	22.7
		( $\pm 1.72$ )			( $\pm 0.86$ )
K0	16.6	21.8	22.8	20.2	20.4
K2	17.9	23.8	22.4	26.7	22.7
K4	18.4	21.6	24.8	29.0	23.4
K8	19.2	22.8	26.2	28.9	24.3
		( $\pm 1.22$ )			( $\pm 0.61$ )
N1	17.3	21.8	22.7	26.6	22.1
N2	18.7	23.3	25.4	25.9	23.3
	K0	K2	K4	K3	
		( $\pm 1.22$ )			
N1	19.4	22.9	23.3	22.7	
N2	21.3	22.5	23.6	25.9	
	K1* and K6* plots				
	K1	K6	Mean		
	( $\pm 1.72$ )		( $\pm 1.22$ )		
N1	16.4	19.8	18.1		
N2	18.7	22.4	20.6		
Mean ( $\pm 1.22$ )	17.6	21.1	19.4		

\* Applied 1965

General mean: 22.0

Mean D.M. %: 19.5



66/C/13.5

PLOT 5/1: DRY MATTER

TOTAL OF 3 CUTS

Excluding K1 and K6 plots

	P0	P1	P2	P4	Mean
Mean ( $\pm 2.23$ )	41.1	64.2	72.6	77.4	63.8
		( $\pm 4.46$ )			( $\pm 2.23$ )
K0	33.1	59.5	63.2	63.2	54.8
K2	43.9	65.5	77.1	78.9	66.4
K4	44.8	69.4	75.1	82.7	68.0
K8	42.4	62.4	74.9	84.8	66.2
		( $\pm 3.16$ )			( $\pm 1.58$ )
N1	42.7	61.7	66.3	73.4	61.0
N2	39.4	66.8	78.9	81.4	66.6
	K0	K2	K4	K8	
		( $\pm 3.16$ )			
N1	53.8	63.5	63.3	63.4	
N2	55.7	69.2	72.7	68.9	
	K1* and K6* plots				
	K1	K6	Mean		
		( $\pm 4.46$ )	( $\pm 3.16$ )		
N1	49.4	56.7	53.0		
N2	53.7	55.1	54.4		
Mean ( $\pm 3.16$ )	51.5	55.9	53.7		

\* Applied 1965

General mean: 61.8

Mean D.M. %: 21.1

66/c/13.6

PLOT 5/2: DRY MATTER

1ST CUT

Excluding K1 and K6 plots

	P0	P1	P2	P4	Mean
Mean ( $\pm 1.10$ )	35.5	33.9	39.0	33.6	35.5
		( $\pm 2.19$ )			( $\pm 1.10$ )
K0	34.4	32.9	34.5	34.7	34.1
K2	36.4	32.5	37.5	34.5	35.2
K4	35.2	36.5	43.2	32.0	36.7
K8	36.0	33.5	41.0	33.0	35.9
		( $\pm 1.55$ )			( $\pm 0.78$ )
N1	29.1	24.8	28.4	24.4	26.7
N2	41.8	42.9	49.7	42.7	44.3
	K0	K2	K4	K8	
		( $\pm 1.55$ )			
N1	26.1	28.4	26.8	25.4	
N2	42.1	42.0	46.7	46.3	
	K1* and K6* plots				
	K1	K6	Mean		
		( $\pm 2.19$ )	( $\pm 1.55$ )		
N1	26.5	29.4	28.0		
N2	37.2	38.5	37.8		
Mean ( $\pm 1.55$ )	31.8	33.9	32.9		

\* Applied 1965

General mean: 35.0

Mean D.M. %: 19.1

66/c/13.7

PLOT 5/2: DRY MATTER

2ND CUT

Excluding K1 and K6 plots

	P0	P1	P2	P4	Mean
Mean ( $\pm 1.01$ )	28.3	27.1	26.1	29.3	27.7
		( $\pm 2.03$ )			( $\pm 1.01$ )
K0	27.7	28.4	31.6	26.5	28.5
K2	29.2	26.4	26.7	32.8	28.8
K4	27.6	25.4	24.2	27.5	26.2
K8	28.6	28.4	22.0	30.4	27.4
		( $\pm 1.43$ )			( $\pm 0.72$ )
N1	28.3	25.9	27.8	27.5	27.4
N2	28.2	28.4	24.5	31.1	28.0

	K0	K2	K4	K8
		( $\pm 1.43$ )		
N1	27.4	29.1	26.4	26.8
N2	29.7	28.5	26.0	27.9

K1\* and K6\* plots

	K1	K6	Mean
		( $\pm 2.03$ )	( $\pm 1.43$ )
N1	26.5	29.3	27.9
N2	33.7	33.1	33.4
Mean ( $\pm 1.43$ )	30.1	31.2	30.7

\* Applied 1965

General mean: 28.3

Mean D.M. %: 20.7

66/c/13.8

PLOT 5/2: DRY MATTER

3RD CUT

Excluding K1 and K6 plots

	P0	P1	P2	P4	Mean
Mean ( $\pm 0.78$ )	27.5	26.6	27.1	29.0	27.6
		( $\pm 1.57$ )			( $\pm 0.78$ )
K0	26.0	27.5	26.8	27.6	27.0
K2	27.8	26.8	29.1	30.2	28.5
K4	28.4	25.1	28.1	28.1	27.4
K8	27.7	27.2	24.5	30.1	27.4
		( $\pm 1.11$ )			( $\pm 0.56$ )
N1	27.1	23.7	25.7	25.3	25.5
N2	27.8	29.5	28.6	32.7	29.7
	K0	K2	K4	K8	
		( $\pm 1.11$ )			
N1	25.6	27.1	2.8	24.3	
N2	28.3	29.8	30.0	30.5	
	K1* and K6* plots				
	K1	K6	Mean		
		( $\pm 1.57$ )	( $\pm 1.11$ )		
N1	26.8	27.2	27.0		
N2	30.5	32.1	31.3		
Mean ( $\pm 1.11$ )	28.6	29.7	29.1		

\* Applied 1965

General mean: 27.9

Mean D.M. %: 16.3



66/C/13.9

PLOT 5/2: DRY MATTER

TOTAL OF 3 CUTS

Excluding K1 and K6 plots

	P0	P1	P2	P4	Mean
Mean ( $\pm 2.17$ )	91.2	87.6	92.3	91.9	90.8
		( $\pm 4.33$ )			( $\pm 2.17$ )
K0	88.1	88.7	92.8	88.8	89.6
K2	93.3	85.7	93.3	97.6	92.5
K4	91.2	87.0	95.4	87.7	90.3
K8	92.3	89.1	87.6	93.6	90.6
		( $\pm 3.06$ )			( $\pm 1.53$ )
N1	84.5	74.5	81.9	77.2	79.5
N2	97.9	100.8	102.7	106.6	102.0

	K0	K2	K4	K8
		( $\pm 3.06$ )		
N1	79.0	84.6	78.0	76.5
N2	100.2	100.3	102.7	104.7

K1\* and K6\* plots

	K1	K6	Mean
		( $\pm 4.33$ )	( $\pm 3.06$ )
N1	79.7	85.9	82.8
N2	101.3	103.7	102.5
Mean ( $\pm 3.06$ )	90.5	94.8	92.7

\* Applied 1965

General mean: 91.1

Mean D.M. %: 18.7

TABLE 3  
 SUMMARY OF DATA  
 FROM THE 1951 SURVEY

Year	Area	Area	Area	Area	Area
1951	1.00	1.00	1.00	1.00	1.00
1952	1.00	1.00	1.00	1.00	1.00
1953	1.00	1.00	1.00	1.00	1.00
1954	1.00	1.00	1.00	1.00	1.00
1955	1.00	1.00	1.00	1.00	1.00
1956	1.00	1.00	1.00	1.00	1.00
1957	1.00	1.00	1.00	1.00	1.00
1958	1.00	1.00	1.00	1.00	1.00
1959	1.00	1.00	1.00	1.00	1.00
1960	1.00	1.00	1.00	1.00	1.00
1961	1.00	1.00	1.00	1.00	1.00
1962	1.00	1.00	1.00	1.00	1.00
1963	1.00	1.00	1.00	1.00	1.00
1964	1.00	1.00	1.00	1.00	1.00
1965	1.00	1.00	1.00	1.00	1.00
1966	1.00	1.00	1.00	1.00	1.00
1967	1.00	1.00	1.00	1.00	1.00
1968	1.00	1.00	1.00	1.00	1.00
1969	1.00	1.00	1.00	1.00	1.00
1970	1.00	1.00	1.00	1.00	1.00
1971	1.00	1.00	1.00	1.00	1.00
1972	1.00	1.00	1.00	1.00	1.00
1973	1.00	1.00	1.00	1.00	1.00
1974	1.00	1.00	1.00	1.00	1.00
1975	1.00	1.00	1.00	1.00	1.00
1976	1.00	1.00	1.00	1.00	1.00
1977	1.00	1.00	1.00	1.00	1.00
1978	1.00	1.00	1.00	1.00	1.00
1979	1.00	1.00	1.00	1.00	1.00
1980	1.00	1.00	1.00	1.00	1.00
1981	1.00	1.00	1.00	1.00	1.00
1982	1.00	1.00	1.00	1.00	1.00
1983	1.00	1.00	1.00	1.00	1.00
1984	1.00	1.00	1.00	1.00	1.00
1985	1.00	1.00	1.00	1.00	1.00
1986	1.00	1.00	1.00	1.00	1.00
1987	1.00	1.00	1.00	1.00	1.00
1988	1.00	1.00	1.00	1.00	1.00
1989	1.00	1.00	1.00	1.00	1.00
1990	1.00	1.00	1.00	1.00	1.00
1991	1.00	1.00	1.00	1.00	1.00
1992	1.00	1.00	1.00	1.00	1.00
1993	1.00	1.00	1.00	1.00	1.00
1994	1.00	1.00	1.00	1.00	1.00
1995	1.00	1.00	1.00	1.00	1.00
1996	1.00	1.00	1.00	1.00	1.00
1997	1.00	1.00	1.00	1.00	1.00
1998	1.00	1.00	1.00	1.00	1.00
1999	1.00	1.00	1.00	1.00	1.00
2000	1.00	1.00	1.00	1.00	1.00
2001	1.00	1.00	1.00	1.00	1.00
2002	1.00	1.00	1.00	1.00	1.00
2003	1.00	1.00	1.00	1.00	1.00
2004	1.00	1.00	1.00	1.00	1.00
2005	1.00	1.00	1.00	1.00	1.00
2006	1.00	1.00	1.00	1.00	1.00
2007	1.00	1.00	1.00	1.00	1.00
2008	1.00	1.00	1.00	1.00	1.00
2009	1.00	1.00	1.00	1.00	1.00
2010	1.00	1.00	1.00	1.00	1.00
2011	1.00	1.00	1.00	1.00	1.00
2012	1.00	1.00	1.00	1.00	1.00
2013	1.00	1.00	1.00	1.00	1.00
2014	1.00	1.00	1.00	1.00	1.00
2015	1.00	1.00	1.00	1.00	1.00
2016	1.00	1.00	1.00	1.00	1.00
2017	1.00	1.00	1.00	1.00	1.00
2018	1.00	1.00	1.00	1.00	1.00
2019	1.00	1.00	1.00	1.00	1.00
2020	1.00	1.00	1.00	1.00	1.00

66/c/14.1

PARK GRASS MICROPLOTS

(PGM 41-80)

Plot 6, 1966, the second year

For details of treatments etc., and for previous year's results see 'Results' 65/C/33.

Cultivations, etc.: P, K, Na and Mg fertilisers applied:

Dec 16, 1965. 'Nitro-Chalk' applied: Mar 7, 1966. Mecoprop treatment applied at 45 oz a.e. in 50 gals: First spraying: Apr 26, second spraying at same rate: July 28. Cut: May 4, June 1, July 8, Aug 1, Sept 8, Oct 7. 'Nitro-Chalk' applied after every cut except the last.

Standard error per plot.

Dry matter, total of all cuts: 4.09 or 5.5% (27 d.f.)

66/c/14.2

SUMMARY OF RESULTS

DRY MATTER: TOTAL OF ALL CUTS

	NO	SNO	N1	N2	N3	Mean
			(±2.04)			(±0.91)
C3	68.3	34.1	84.1	109.3	105.1	80.2
C6	46.1	26.9	67.4	92.2	107.3	68.0
Mean (±1.45)	57.2	30.5	75.7	100.8	106.2	74.1

Mean D.M. %: 3 cut plots: 19.4  
6 cut plots: 20.1



66/C/15.1

SPRING WHEAT

(BH)

Sod seeding and pests - New Zealand 1966, the second year.

Design: 3 randomised blocks of 3 plots, split into 2.

Area of each sub-plot: 0.0226. Area harvested: 0.0152.

Treatments: All combinations of:-

- Whole plots: 1. Seedbed preparation: Ploughed 1965 and 1966 (M).  
Ploughed with ioxynil spray 1965, ploughed 1966 (MI).  
Direct seeding after paraquat\* spray (P).  
Sub-plots: 2. Insecticide spray: None (O), chlordane at 8.4 lb  
plus diazinon at 4 lb before sowing (D).

\* At 2 lb ion in 40 gals.

Basal applications: 340 lb (20:10:10) combine drilled. Weedkillers:  
Amino-triazole at 4 lb plus ammonium thiocyanate at 3.7 lb in 40 gals,  
mecoprop/2,4-D (Methoxone Extra at 6 pints in 30 gals).

Cultivations, etc.: Amino-triazole and ammonium thiocyanate applied:  
Oct 13, 1965. M plots ploughed, P plots trimmed with forage  
harvester and produce carted: Nov 16. Insecticide applied:  
Jan 27, 1966. P plots sprayed with paraquat: Mar 1. M plots  
rotary cultivated: Mar 14. Seed drilled at 180 lb: Mar 17.  
Mecoprop/2,4-D applied: May 17. Combine harvested: Sept 7.  
Variety: Kloka.

NOTES (1) Counts of soil fauna were made throughout the season.  
(2) For the previous year's results see 'Results' 65/C/24.

Standard errors per plot. Grain:  
Whole plot: 3.59 or 10.3% (4 d.f.)  
Sub-plot: 3.42 or 9.9% (6 d.f.)

66/C/15.2

SUMMARY OF RESULTS

GRAIN

	D	D	Mean
	(1) and (2)		(±2.07)
M	41.8	45.0	43.4
MI	39.7	43.0	41.3
P	18.5	20.3	19.4
Mean (±1.14)	33.3	36.1	34.7

Mean D.M. %: 83.2

(1) (±2.50) For use in vertical and diagonal comparisons

(2) (±1.98) For use in horizontal and interaction comparisons

66/c/16.1

INTENSIVE WINTER BARLEY GROWING EXPERIMENT

(BJ)

Hoosfield (Old Four Course) 1966, the second year

For details of treatments, etc. and for the previous year's results see 'Results' 65/C/25.

Because of the weather spring beans were sown instead of winter beans.

Area of each plot: 0.0386. Area harvested: 0.0254.

Cultivations, etc.: Sprayed with aminotriazole at 2 lb and ammonium thiocyanate at 1.85 lb in 40 gals: Oct 14, 1965. Ploughed: Oct 28.

Barley: Seed drilled at 140 lb: Nov 5, 1965. 'Nitro-Chalk' applied: Apr 13, 1966. Sprayed with ioxynil/mecoprop (Actril C at 5 pints in 40 gals): May 17. Combine harvested: Aug 16.

Spring beans: Seed drilled at 200 lb: Mar 4, 1966. Sprayed with demeton-s-methyl (Metasystox at 12 fluid oz in 37 gals): June 14. Combine harvested: Sept 17. Variety: Pedigree Tick.

NOTES: (1) Yields were taken only for sequences 1, 2 and 4 (Barley).  
(2) Estimates were made of eyespot (*Cercospora herpotrichoides*) and take-all (*Ophiobolus graminis*) in barley.

Standard errors per plot. Barley, grain:  
Sequences 1 and 2: 3.80 or 14.2% (10 d.f.)  
4: 1.18 or 4.1% (4 d.f.)

66/c/16.2

SUMMARY OF RESULTS

Barley (1, 2 and 4)

Crop in 1965	N0	N1	N2	N3	Mean	Mean N1 and N2
		( $\pm 2.19$ )				( $\pm 1.55$ )
B (1)		21.5	26.4	30.2	26.0	23.9
D (2)		19.0	26.6	36.6	27.4	22.8
Be (4)	22.7	( $\pm 0.68$ )		-	28.4	( $\pm 0.48$ ) 31.3

Mean of (1) and (2): 26.7

General mean: 27.3

General mean D.M. %: 83.7



66/c/17.1

LEGUMES AND BARLEY

(BP)

Effects of crop sequences and green manures - Stackyard 1966, the second year.

Design: 2 randomised blocks of 10 plots, split into 2 for N.

Area of each sub-plot: 0.0198. Area harvested: Barley - 0.0131, beans - 0.0124, oats - 0.0132, clover - 0.0047.

Treatments: All combinations of:-

Whole plots:

1. Crop sequences (C):

	1	2	3	4	5	6	7	8	9	10
1965	B	B	B	B	B	B	B	B	B	B
Undersown	Cl	T	T	-	-	-	-	-	T	T

1966	H	B	O	B	O	B	O	Be	B	O
Undersown	-	T	T	T	T	-	-	-	-	-

1967	B	B	B	B	B	B	B	B	B	B
------	---	---	---	---	---	---	---	---	---	---

Sub-plots:

2. Nitrogen: 0.4 (N1), 0.8 (N2), cwt N as 'Nitro-Chalk' in seedbed (none to beans and hay).

B = barley, H = hay, O = oats, Be = spring beans, Cl = red clover, T = trefoil.

Basal applications: 280 lb (0:20:20) in early spring to hay, placement drilled to beans, combine drilled to oats and barley. Insecticide to beans: Demeton-s-methyl (Metasystox at 12 fluid oz in 37 gals).

Cultivations, etc.: Ploughed (except H plots): Jan 28, 1966. All plots except H plots rotary cultivated, beans drilled at 200 lb: Mar 14. Oats drilled at 160 lb and barley at 156 lb, 'Nitro-Chalk' applied to barley and oats: Mar 15. Trefoil sown at 30 lb: Mar 19. Basal PK applied to clover: Mar 21. Clover cut three times: June 3, July 14 and Sept 14. Beans sprayed: June 14. Barley combine harvested: Aug 19. Oats combine harvested: Sept 3.

NOTE: For the previous year's results see 'Results' 65/c/26.

Standard errors per plot. Grain:

Barley. Sub-plot: 4.97 or 20.6% (4 d.f.)

Oats. Sub-plot: 3.73 or 9.1% (4 d.f.)

66/C/17.2

SUMMARY OF RESULTS

BARLEY

GRAIN

Undersown 1965	Undersown 1966		N1	N2	Mean
	-	T			
-	24.8	25.8	21.0	29.6	25.3
T	23.3	22.4	17.1	28.5	22.8
Undersown 1966			( $\pm 2.48$ )*		
-			19.7	28.4	24.0
T			18.5	29.7	24.1
Mean ( $\pm 1.76$ )			19.1	29.1	24.1

\* For use in horizontal and interaction comparisons only.

Mean D.M. %: 83.0

66/c/17.3

OATS  
GRAIN

Undersown 1965	Undersown 1966		N1		N2	Mean
	-	T				
-	43.2	36.8	(+1.87)*		43.5	40.0
T	46.9	37.6	36.5	38.1	46.4	42.3
Undersown 1966			(+1.87)*			
-			42.1		48.0	45.1
T			32.5		41.9	37.2
Mean ( $\pm 1.32$ )			37.3		45.0	41.1

\* For use in horizontal and interaction comparisons only.

Mean D.M. %: 80.0

	SPRING BEANS Grain	HAY: DRY MATTER			Total of 3 cuts
		1st cut	2nd cut	3rd cut	
Mean	31.1	23.8	29.0	28.6	81.5
Mean D.M. %:	72.0	17.5	16.5	16.9	17.0

DATE

CHAIN

Year	1987	1988	1989	1990	1991	1992
Mean (±1.5σ)	21.1	21.1	21.1	21.1	21.1	21.1
1987	21.1	21.1	21.1	21.1	21.1	21.1
1988	21.1	21.1	21.1	21.1	21.1	21.1
1989	21.1	21.1	21.1	21.1	21.1	21.1
1990	21.1	21.1	21.1	21.1	21.1	21.1
1991	21.1	21.1	21.1	21.1	21.1	21.1
1992	21.1	21.1	21.1	21.1	21.1	21.1

\* For use in hydrological and infiltration computations only.

Mean Date: 01/01/90

DAY, DRY WATER

Year	Inflow			Outflow			Total of 3 rows
	Inflow	Outflow	Net	Inflow	Outflow	Net	
1987	21.1	21.1	0.0	21.1	21.1	0.0	21.1
1988	21.1	21.1	0.0	21.1	21.1	0.0	21.1
1989	21.1	21.1	0.0	21.1	21.1	0.0	21.1
1990	21.1	21.1	0.0	21.1	21.1	0.0	21.1
1991	21.1	21.1	0.0	21.1	21.1	0.0	21.1
1992	21.1	21.1	0.0	21.1	21.1	0.0	21.1



66/c/18.1

PREVIOUS CROPS & N FOR BARLEY

(BQ)

The effect of previous cropping and nitrogen on the yield of barley - Stackyard 1966, the second year - barley.

Design: 3 randomised blocks of 9 plots, split into 3 for N.

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

Treatments: All combinations of:-

Whole plots (applied 1965):-

1. Cropping: Spring wheat (W), Kale (K), Italian Ryegrass (G).
2. Nitrogen: None (R0), 1.0 (R2), 2.0 cwt (R4) N as 'Nitro-Chalk'.

Sub plots (applied to barley 1966):-

3. Nitrogen: None (N0), 0.5 (N1), 1.0 cwt (N2) as 'Nitro-Chalk'.

Basal applications: 2.5 cwt (0:20:20) combine drilled. Weed-killer: Mecoprop/2,4-D (Methoxone Extra at 6 pints in 30 gals).

Cultivations, etc.: Ploughed: Jan 28, 1966. Seed drilled at 145 lb: Mar 10. 'Nitro-Chalk' applied: Mar 11. Sprayed: May 17. Combine harvested: Aug 20. Variety: Maris Badger.

NOTE: For the previous year's results see 'Results' 65/C/27.

Standard errors per plot. Grain:

Whole plot: 3.04 or 11.0% (16 d.f.)

Sub plot: 3.07 or 11.1% (36 d.f.)

66/C/18.2

SUMMARY OF RESULTS

GRAIN

	R0	R2	R4	Mean
		(±1.75)		(±1.01)
W	22.2	26.3	31.8	26.8
K	29.8	31.9	33.9	31.8
G	21.3	23.9	27.6	24.3
Mean (±1.01)	24.4	27.4	31.1	27.6

	N0	N1	N2
		(1) and (2)	
W	16.1	27.9	36.3
K	21.6	33.6	40.3
G	11.8	25.9	35.1
Mean (±0.59)	16.5	29.1	37.2

		(1) and (2)	
R0	13.9	26.1	33.3
R2	15.3	28.8	38.0
R4	20.5	32.5	40.3

- (1) (±1.31) For use in vertical and diagonal comparisons  
 (2) (±1.02) For use in horizontal and interaction comparisons

66/c/18.3

GRAIN

	R0				R2				R4			
	NO	N1	N2	NO	N1	N2	NO	N1	N2	NO	N1	N2
	(1) and (2)											
W	10.5	22.7	33.3	16.1	25.7	37.2	21.8	35.1	38.3			
K	22.0	32.8	34.6	21.0	31.9	42.7	21.9	36.3	43.5			
G	9.1	22.9	31.9	8.7	28.8	34.1	17.7	26.0	39.1			

(1) ( $\pm 2.27$ ) For use in comparisons involving different combinations of Crop and R

(2) ( $\pm 1.77$ ) For use in comparisons involving the same combinations of Crop and R

Mean D.M. %: 85.6





66/c/19.1

PREVIOUS CROPS & N FOR BARLEY

(BY)

The effect of previous cropping and nitrogen on the yield of barley - Fosters Corner 1966, the 1st year.

Crops in 1966: Spring wheat, kale and ryegrass.

Design: 3 randomised blocks of 9 plots.

Area of each plot: 0.0321. Area harvested: Spring wheat - 0.0214, kale - 0.0161, ryegrass - 0.0069.

Treatments applied in 1966: All combinations of:-

1. Cropping: Spring wheat (W), kale (K), Italian ryegrass (G).
2. Nitrogen: None (NO), 1.0 (N2), 2.0 cwt (N4) N as 'Nitro-Chalk'.

NOTE: Barley 1967 will test in addition:-

3. Nitrogen: None (NO), 0.5 (N1), 1.0 cwt (N2) N as 'Nitro-Chalk'.

Basal applications: 9 cwt compound (0:20:20). Weedkiller: To wheat: Mecoprop/2,4-D (Methoxone Extra at 6 pints in 30 gals).

Cultivations, etc.: Ploughed: Nov 16, 1965. Basal PK applied: Mar 9, 1966. 'Nitro-Chalk' applied: Mar 16.

Spring wheat: Seed drilled at 170 lb: Mar 16. Weedkiller applied: May 16. Combine harvested: Sept 3. Variety: Kloka.

Kale: Seed drilled at 1.5 lb: Apr 29, 1966. Harvested: Nov 8. Variety: Thousand Head.

Ryegrass: Seed drilled at 40 lb: Mar 18, 1966. Cut 3 times: June 30, Aug 18, Oct 12. Variety: S22 Italian.

Previous crops: Kale and potatoes 1964, barley 1965.

NOTE: Samples were taken from each crop at harvest for estimation of N percentage. Soil samples were taken on Mar 16 for estimation of mineralisable N and pH.

Standard errors per plot.

Spring wheat, Dry matter: 1.69 or 3.9% (4 d.f.)

Kale, Fresh weight: 2.590 or 10.8% (4 d.f.)

Ryegrass, Dry matter, 1st cut: 2.99 or 11.1% (4 d.f.)

2nd cut: 1.93 or 7.7% (4 d.f.)

3rd cut: 0.58 or 6.2% (4 d.f.)

Total of 3 cuts: 4.35 or 7.1% (4 d.f.)

66/C/19.2

SUMMARY OF RESULTS

NO	N2	N4	Mean
SPRING WHEAT			
GRAIN			
	(±0.93)		
30.6	44.8	48.4	41.3
STRAW			
18.0	32.1	30.4	26.8
Mean D.M. %:	Grain: 77.2		
	Straw: 72.7		

KALE			
FRESH WEIGHT			
	(±1.495)		
17.14	25.79	28.85	23.92

66/c/19.3

RYEGRASS

DRY MATTER

NO	N2	N4	Mean
1ST CUT			
10.6	(±1.73) 31.2	38.9	26.9
2ND CUT			
16.7	(±1.11) 23.8	34.8	25.1
3RD CUT			
8.7	(±0.34) 9.4	10.2	9.4
TOTAL OF 3 CUTS			
36.0	(±2.51) 64.3	84.0	61.4

Mean D.M. %: 1st cut: 18.1  
 2nd cut: 19.6  
 3rd cut: 16.6  
 Total of 3 cuts: 18.1

2010-2011

STATE OF CALIFORNIA

DEPARTMENT OF REVENUE

SALES TAX

Year	Rate	Amount	Change
2010	4.71%	\$1,200,000,000	(100,000,000)
2011	4.71%	\$1,200,000,000	0
2012	4.71%	\$1,200,000,000	0
2013	4.71%	\$1,200,000,000	0
2014	4.71%	\$1,200,000,000	0
2015	4.71%	\$1,200,000,000	0

1. 2010-2011: \$1,200,000,000 (100,000,000)

2. 2011-2012: \$1,200,000,000 (0)

3. 2012-2013: \$1,200,000,000 (0)

4. 2013-2014: \$1,200,000,000 (0)

5. 2014-2015: \$1,200,000,000 (0)



66/c/20.1

BARLEY FOLLOWED BY RYEGRASS

(EQ)

The rate of action of P fertilisers, Sawyers II 1966, the second year.

Design: 4 replicates of 7 x 2 x 2 plus 2 plots per block without P, 8 blocks of 16 plots.

Area of each plot:

Barley: 0.0018  
Ryegrass: 0.0018

Area harvested:

0.0009  
0.0007

Treatments, to barley only: No P (0) (2 plots per block) and all combinations of:-

1. Phosphatic fertilisers:

Triple superphosphate	(S)
Potassium metaphosphate	(K)
Triple superphosphate plus potassium metaphosphate*	(SK)
Magnesium ammonium phosphate	(M)
Triple superphosphate plus magnesium ammonium phosphate*	(SM)
Potassium metaphosphate plus magnesium ammonium phosphate*	(KM)
Triple superphosphate plus potassium metaphosphate plus magnesium ammonium phosphate*	(SKM)

\* Each material supplying half the P (one third in treatment SKM).

2. Levels of P: 12 lb (I1), 24 lb (I2) P.

3. Type of fertiliser: Powder, less than 1 mm. (P), granular 1-4 mm. (G).

All applied to barley with 'Nitro-Chalk', muriate of potash and kieserite in amounts adjusted to give a total of 60 lb N, 100 lb K and 25 lb Mg.

Basal applications: To ryegrass: 60 lb N and 50 lb K (16:0:16) on 2 occasions. Weedkillers: To barley: Ioxynil and mecoprop (Actril C at 4 pints in 50 gals), paraquat to stubble at 1 lb ion in 50 gals.

Cultivations, etc.

Barley: Ploughed: Jan 8, 1966. Fertilisers applied, seed drilled at 160 lb: Mar 10. Weedkiller applied: May 19. Harvested green: June 24. Paraquat applied: June 29. Variety: Maris Badger.

66/c/20.2

Ryegrass: Basal NK applied, plots rotary cultivated, seed drilled at 60 lb: July 1. Basal NK applied: Sept 2. Cut: Oct 19. Variety: S22.

NOTE: For previous year's results see 'Results' 65/c/28.

Standard errors per plot. Dry matter:

Barley: 2.65 or 6.7% (90 d.f.)

Ryegrass: 2.66 or 11.4% (90 d.f.)

66/c/20.3

SUMMARY OF RESULTS

	O	S	K	SK	M	SM	KM	SKM	Mean
BARLEY, GREENCROP DRY MATTER: CWT PER ACRE									
Mean	31.3	40.6	41.1	40.9	40.8	40.3	40.2	40.4	39.5
	(±0.66)			(±0.94)					(±0.35)
L1		39.4	39.7	39.9	40.2	37.5	40.4	40.3	39.6
L2		41.8	42.5	42.0	41.5	43.1	40.0	40.5	41.6
P		39.6	40.1	39.8	42.3	40.5	40.1	40.1	40.4
G		41.7	42.2	42.1	39.4	40.1	40.4	40.7	40.9
RYEGRASS, 1ST AND ONLY CUT: DRY MATTER									
Mean	18.2	24.0	24.9	24.1	23.3	24.1	23.9	23.9	23.3
	(±0.66)			(±0.94)					(±0.36)
L1		23.5	24.2	22.8	22.1	22.9	23.3	22.7	23.1
L2		24.6	25.7	25.3	24.5	25.2	24.6	25.1	25.0
P		23.2	24.8	22.3	23.3	24.8	23.9	24.4	23.8
G		24.9	25.1	25.8	23.3	23.3	24.0	23.5	24.3

Mean D.M. %: Barley: 24.6  
 Ryegrass: 11.8

EXHIBIT 10

STATEMENT OF REVENUES

Year	1951	1952	1953	1954	1955	1956	1957	1958	1959	Total
REVENUES FROM FEDERAL GOVERNMENT										
1951	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00
(1951-59)										(9.00)
1951	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00
1952	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00
1953	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00
1954	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00
1955	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00
1956	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00
1957	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00
1958	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00
1959	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00
REVENUES FROM STATE AND LOCAL SOURCES										
1951	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00
(1951-59)										(9.00)
1951	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00
1952	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00
1953	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00
1954	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00
1955	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00
1956	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00
1957	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00
1958	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00
1959	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.00

Total 1951-59 Federal 9.00  
 Total 1951-59 State and Local 9.00



66/B/7.3

SUMMARY OF RESULTS

	P	R	T	Mean
SPRING BEANS				
GRAIN				
Mean ( $\pm 2.76$ )	32.4	28.1	30.8	30.4
M ( $\pm 4.78$ )	34.8	29.8	29.6	31.4 ( $\pm 2.76$ )
S ( $\pm 3.38$ )	31.1	27.2	31.4	29.9 ( $\pm 1.95$ )
	A	B	C	
	30.7	34.5	34.2	

General mean: 31.1

Mean D.M. %: 76.6

WHEAT				
GRAIN				
Mean ( $\pm 1.21$ )	36.9	33.9	32.3	34.4
1965		( $\pm 2.10$ )		( $\pm 1.21$ )
M	39.4	32.8	32.8	35.0
X	36.0	34.1	26.2	32.1
Y	35.2	34.8	37.9	36.0
		(1) and (2)		( $\pm 0.76$ )
O	38.1	32.4	31.5	34.0
H	35.7	35.4	33.1	34.7
	A-	AH	BH	C
	38.6	38.0	32.9	40.0

General mean: 35.0

Mean D.M. %: 83.7

- (1) ( $\pm 1.53$ ) For use in horizontal and diagonal comparisons  
 (2) ( $\pm 1.32$ ) For use in vertical and interaction comparisons

66/B/7.4

	P	R	T	Mean
POTATOES				
TOTAL TUBERS				
Mean ( $\pm 0.727$ )	17.54	15.59 ( $\pm 1.260$ )	15.07	16.07 ( $\pm 0.727$ )
M	15.52	13.39	10.23	13.05
S	18.02	15.30	17.98	17.10
SY	19.09	18.10	17.02	18.07
	A	B	C	
	15.80	17.71	18.10	
General mean: 16.35				
% WARE				
Mean	99.2	98.6	98.9	98.9
M	98.9	98.4	98.6	98.6
S	99.3	98.4	98.9	98.9
SY	99.3	99.0	99.2	99.2
	A	B	C	
	98.6	99.0	99.0	
General mean: 98.9				

66/c/21.1

EARLY POTATOES FOLLOWED BY RADISHES

(ER)

The rate of action of P fertilisers, Delharding, 1966, the first year.

Design: 3 replicates of 7 x 2 x 2 plus 2 plots per block without P, in 6 blocks of 16 plots.

Area of each plot:	Area harvested:
Potatoes: 0.0018	0.0009
Radishes: 0.0006	0.0003

Treatments to potatoes only: No P (0) (2 plots per block) and all combinations of:-

1. Phosphatic fertilisers:

Triple superphosphate	(S)
Potassium metaphosphate	(K)
Triple superphosphate plus potassium metaphosphate*	(SK)
Magnesium ammonium phosphate	(M)
Triple superphosphate plus magnesium ammonium phosphate*	(SM)
Potassium metaphosphate plus magnesium ammonium phosphate*	(KM)
Triple superphosphate plus potassium metaphosphate plus magnesium ammonium phosphate*	(SKM)

\* Each material supplying half the P (one third in treatment SKM).

2. Levels of P: 24 lb (I1), 48 lb (I2) P.

3. Type of fertiliser: Powder, less than 1 mm. (P), granular 1-4 mm. (G).

All applied to potatoes with 'Nitro-Chalk', muriate of potash and kieserite in amounts adjusted to give a total of 100 lb N, 200 lb K and 50 lb Mg.

Basal applications: Ground chalk at 15 cwt. To radishes: 60 lb N and 50 lb K as (16:0:16). Weedkiller:- To potatoes: 1 lb linuron plus 0.75 lb ion paraquat in 50 gals. Insecticide:- To radishes: DDT at 5 oz in 40 gals.

Cultivations, etc.: Ploughed: Oct 25, 1965. Limed: Mar 2, 1966.

66/c/21.2

Potatoes: Fertilisers applied: Mar 28, 1966. Rotary cultivated, potatoes planted: Mar 30. Weedkiller applied: Apr 28. Harvested: July 11. Variety: Arran Pilot.  
Radishes: Rotary cultivated, basal NK applied, seed drilled at 25 lb: July 14, 1966. Insecticide applied: July 25. Harvested: Sept 6. Variety: French Breakfast. Previous crops: Fallow 1964 and 1965.

NOTE: The soil was sampled in spring 1966 for P determination.

Standard error per plot.

Potatoes, Total tubers: 1.000 or 11.2% (59 d.f.)  
Radishes, Fresh weight: 2.004 or 12.0% (60 d.f.)



66/C/21.3

SUMMARY OF RESULTS

	O	S	K	SK	M	SM	KM	SKM	Mean
POTATOES: TOTAL TUBERS									
Mean	5.62	10.09	9.34	9.96	8.25	10.28	9.01	9.08	8.95
				(±0.408)					(±0.134)
L1		8.85	8.85	8.84	7.98	9.63	7.83	8.05	8.58
L2		11.33	9.82	11.08	8.52	10.92	10.18	10.12	10.28
P		10.45	9.28	9.86	9.41	10.62	9.99	9.76	9.91
G		9.73	9.39	10.05	7.10	9.93	8.02	8.41	8.95
RADISHES: FRESH WT.									
Mean	6.86	17.50	19.76	17.83	18.29	17.89	17.55	17.35	16.63
	(±0.578)			(±0.818)					(±0.268)
L1		15.91	18.08	16.17	15.31	16.07	16.20	16.61	16.34
L2		19.08	21.44	19.48	21.26	19.72	18.90	18.10	19.71
P		17.16	18.05	16.65	18.07	17.50	16.79	16.87	17.30
G		17.83	21.48	19.01	18.50	18.29	18.30	17.83	18.75

6-15-1968

PROPERTY OF RESOURCES

UNIT	1967	1968	1969	1970	1971	1972	1973	1974	1975	TOTAL
PROPERTY OF RESOURCES										
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	1000.0
(477.00)										
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	1000.0
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	1000.0
PROPERTY OF RESOURCES										
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	1000.0
(100.00)										
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	1000.0
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	1000.0

66/C/22.1

SPRING WHEAT

(BR, BS)

Effects of formalin and nitrogen, Pastures (few pathogens), and Little Knott I (many pathogens) 1966, the second year.

Design: Pastures: 2 blocks of 8 plots split into 2.  
Little Knott I: 4 blocks of 8 plots.

Area of each plot: 0.0032. Area harvested: Pastures - 0.0012,  
Little Knott I - 0.0013.

Treatments:

Pastures: All combinations of:-

- Whole plots: 1. Formalin (applied 1965): None (O), sprayed with a 38% solution of formaldehyde at 266 gals in 3700 gals (R).  
2. N: None (NO), 0.5 (N1), 1.0 (N2), 1.5 (N3) cwt as 'Nitro-Chalk' applied in 1965 and 1966.  
Sub plots: 3. Formalin (applied 1966): None (O), sprayed with a 38% solution of formaldehyde at 266 gals in 3700 gals (F).

Little Knott I: All combinations of:-

1. Formalin (applied 1965): None (O), sprayed with a 38% solution of formaldehyde at 266 gals in 3700 gals (R).
2. Formalin as 1965, applied 1966: (O) and (F).
3. N (applied 1965 and 1966): None (NO), 0.5 (N1), 1.0 (N2), 1.5 (N3) cwt as 'Nitro-Chalk'.

Basal applications: 280 lb (0:20:20). Weedkillers:

Pastures: Ioxynil/mecoprop (Actril P at 4 pints in 40 gals).  
Little Knott I: Dichlorprop/MCPA (Cornox RK Extra at 6 pints in 40 gals).

Cultivations, etc.:

Pastures: Ploughed: Nov 4, 1965. Formalin applied: Feb 18, 1966. PK basal compound and 'Nitro-Chalk' (first half dressing) applied, rotary cultivated, seed sown at 180 lb: Mar 14. 'Nitro-Chalk' applied (2nd half dressing): May 6. Weedkiller applied: May 12. Harvested: Aug 26. Variety: Kloka.

Little Knott I: Ploughed: Oct 25, 1965. Formalin applied: Feb 18, 1966. PK basal compound, 'Nitro-Chalk' (first half dressing) applied, rotary cultivated, seed drilled at 180 lb: Mar 14. 'Nitro-Chalk' applied (2nd half dressing): May 6. Weedkiller applied: May 13. Harvested: Aug 26. Variety: Kloka.

NOTES: (1) Samples of grain and straw were taken at harvest for N percentage determinations.

(2) For previous year's results see 'Results' 65/C/29.



66/c/22.2

Standard errors per plot. Dry matter:

Pastures (R): Whole plot: 2.31 or 6.3% (7 d.f.)  
 Sub plot: 3.44 or 9.4% (8 d.f.)  
 Little Knott I (R): 3.71 or 13.6% (14 d.f.)

SUMMARY OF RESULTS

PASTURES

GRAIN

	NO	N1	N2	N3	Mean
Mean ( $\pm 1.15$ )	32.7	39.3	39.1	34.7	36.5
		( $\pm 1.63$ )			( $\pm 0.82$ )
O	29.5	39.5	39.3	36.7	36.3
R	35.8	39.1	38.9	32.8	36.6
		(1) and (2)			( $\pm 0.86$ )
O	28.4	39.2	39.2	36.0	35.7
F	36.9	39.5	39.0	33.4	37.2
	O	R			
		(3) and (4)			
O	35.7	35.7			
F	36.8	37.6			

Mean D.M. %: 80.2

(1) ( $\pm 1.67$ ) (3) ( $\pm 1.18$ ) For use in horizontal and diagonal comparisons  
 (2) ( $\pm 1.72$ ) (4) ( $\pm 1.22$ ) For use in vertical and interaction comparisons



66/C/22.3

		PASTURES				
		STRAW				
		NO	N1	N2	N3	Mean
Mean		42.9	61.1	61.5	61.1	56.6
O		41.0	59.4	61.3	63.1	56.2
R		44.8	62.7	61.7	59.1	57.1
O		33.9	55.1	57.4	56.8	50.8
F		51.9	67.0	65.6	65.4	62.5
		O	R			
O		50.8	50.8			
F		61.6	63.4			

Mean D.M. %: 63.8

66/C/22.4

LITTLE KNOTT I

GRAIN

	NO	N1	N2	N3	Mean
Mean ( $\pm 1.31$ )	22.0	26.8	30.1	30.0	27.3
		( $\pm 1.86$ )			( $\pm 0.93$ )
O	23.8	27.6	32.7	30.2	28.6
R	20.3	26.1	27.5	29.9	25.9
O	16.2	24.0	29.2	27.0	24.1
F	27.9	29.7	31.1	33.1	30.4
	O	R			
	( $\pm 1.31$ )				
O	26.5	21.6			
F	30.6	30.2			

Mean D.M. %: 81.3

66/C/22.5

LITTLE KNOTT I

STRAW

	NO	N1	N2	N3	Mean
Mean	26.0	43.0	49.6	52.6	42.8
O	27.7	45.3	52.1	54.0	44.8
R	24.4	40.6	47.2	51.2	40.8
O	18.3	32.5	42.2	43.6	34.1
F	33.8	53.4	57.1	61.6	51.5
	O	R			
O	36.7	31.6			
F	52.9	50.1			

Mean D.M. %: 72.0

TABLE 1

Year	1954	1955	1956	1957	1958	1959
1954	0.35	0.70	0.62	0.35		
1955	2.46	2.52	2.76	7.75		
1956	3.00	3.74	3.54	4.46		
1957	2.46	2.52	2.76	7.75		
1958	3.00	3.74	3.54	4.46		
1959					0	
			0.35	7.75	0	
			2.76	4.46	0	

Source: U.S. Census Bureau

1954-1959

1954-1959

1954-1959

1954-1959

1954-1959

1954-1959

1954-1959

1954-1959

1954-1959

1954-1959

1954-1959

1954-1959

1954-1959

1954-1959

1954-1959

1954-1959

1954-1959



66/C/23.1

SPRING WHEAT

(WBL)

'Scorch' Study - Woburn Butt Close 1966, the third year.

Design: 3 x 2 x 2 x 2 in 4 blocks of 12 plots.

Area of each plot: 0.0032. Area harvested: 0.0023.

Treatments: All combinations of:-

1. Nitrogen applied 1966: 0.6 (N1), 1.2 (N2), 1.8 (N3) cwt N as 'Nitro-Chalk' applied half in seedbed, half on May 27.
2. Fumigant 1966: None (66 O). Sprayed with formalin\* on Feb 17, 1966 (66 F).
3. Fumigant 1965: None (65 O). Sprayed with formalin\* on Dec 7, 1964 (65 F).
4. Fumigant 1964: None (64 O). Sprayed twice with formalin\* (64 F).

Other factors included in 1964 and 1965 have been omitted from the analysis.

\* A 38% solution of formaldehyde at 266 gals in 3700 gals.

Basal applications, etc.: 2.5 cwt (0:20:20) combine drilled.

Weedkiller: Sprayed with Ioxynil/mecoprop (Atril C at 5 pints in 35 gals): May 13, 1966.

Cultivations, etc.: Ploughed: Nov 15 - 23, 1965. Seed drilled at 160 lb: Apr 13, 1966. Seedbed 'Nitro-Chalk' applied: Apr 25. Combine harvested: Sept 7. Variety: Kloka.

- NOTES: (1) Soil samples were taken for *Heterodera avenae* populations in Oct 1965, and for nematode counts in mid Sept 1966.
- (2) 20 plants per plot were taken for estimation of *Heterodera avenae* per gram of root and top weights in May 1966.
- (3) For previous years' results see 'Results' 64/Da/3 and 65/C/30.

Standard error per plot.

Grain: 4.03 or 17.4% (22 d.f.)

66/C/23.2

SUMMARY OF RESULTS

GRAIN

	N1	N2	N3	Mean
		(±1.43)		(±0.82)
66 O	16.3	23.0	25.5	21.6
66 F	18.9	24.5	30.5	24.6
65 O	18.2	22.4	26.0	22.2
65 F	17.1	25.1	30.1	24.1
64 O	18.3	22.7	28.3	23.1
64 F	16.9	24.8	27.8	23.2
Mean (±1.01)	17.6	23.8	28.0	23.1

Mean D.M. %: 81.9

66/C/24.1

## COMPARISON OF FUMIGANTS

(WBO)

Nitrogen and fumigants - Woburn Butt Close, spring wheat 1966, the second year.

Design: 4 randomised blocks of 16 plots split into two for effects of fumigants.

Area of each sub plot: 0.0010.

Treatments: All combinations of:-

Whole plots:

1. Nitrogen: 0.6 (N1), 1.8 (N3) cwt N as 'Nitro-Chalk' half on Apr 26, half on May 27.
2. Fumigants etc.: None. (O)  
None, plots rotary cultivated. (OR)  
Methyl bromide applied under gas tight sheets at 436 lb. (MB)  
Dichloropropane/dichloropropane at 800 lb injected at 12 inch spacing. (DD)  
Chloropicrin at 400 lb injected at 12 inch spacing. (Chp)  
Dazomet at 400 lb rotary cultivated in. (Daz)  
Formalin as drench at 200 gals formaldehyde in 40% solution. (For)  
Calomel dust, 4% mercurous chloride at 5 lb Hg rotary cultivated in. (Mer)

Sub plots:

3. Fumigants etc.: In 1965 only (R).  
In 1965, repeated 1966 (C).

Basal applications, etc.: 2 cwt (0:20:20) combine drilled. Weedkiller: 4 lb amino-triazole plus 3.7 lb ammonium thiocyanate in 40 gals, and ioxynil/mecoprop (Actril C at 5 pints in 35 gals).

Cultivations, etc.: Sprayed weedkiller amino-triazole: Oct 9, 1965. Ploughed: Nov 15-23. Fumigants applied (Chp) and (DD) plots: Feb 3, 1966, (For) and (Daz) plots: Feb 7. (R) plots rotary cultivated and fumigants applied to (Mer) plots: Mar 22, (MB) plots: Mar 31. Seed combine drilled at 165 lb: Apr 13. 'Nitro-Chalk' applied: Apr 26, May 27. Sprayed weedkiller Actril: May 13. Harvested: Sept 5. Variety: Kloka.



66/C/24.2

NOTES: (1) Soil samples were taken to estimate initial population of cereal cyst-nematode (*Heterodera avenae*), plant samples for weighing of tops and roots and estimation of nematode invasion of roots: May 31. Soil samples were taken at the end of the season to estimate the nematode population.  
(2) For previous results see 'Results' 65/C/31.

Standard errors per plot. Grain:  
Whole plot: 6.33 or 25.2% (45 d.f.)  
Sub plot: 4.33 or 17.3% (48 d.f.)



66/C/24.3

SUMMARY OF RESULTS

GRAIN

	O	OR	MB	DD	Chp	Daz	For	Mer	Mean
	(+3.16)								(+1.12)
N1	23.2	22.3	21.4	30.8	25.5	27.1	25.9	23.0	24.9
N3	22.6	24.1	27.8	24.8	27.9	27.1	27.3	20.9	25.3
	(1) and (2)								(+0.58)
R		24.2	25.6	30.6	27.2	26.1	24.3	21.7	25.7
C		22.2	23.6	25.0	26.2	28.0	28.9	22.1	25.2
Mean ( $\pm 2.24$ )	22.9	23.2	24.6	27.8	26.7	27.1	26.6	21.9	25.1

Mean D.M. %: 80.1

- (1) ( $\pm 2.49$ ) For use in horizontal and diagonal comparisons.  
 (2) ( $\pm 1.53$ ) For use in vertical and interaction comparisons.

TABLE 1. Summary of the results of the 1998-1999 survey of the distribution of the 10 most common species of the genus *Salix* in the riparian zone of the Colorado River, Delta, California. The table shows the number of sites where each species was found, the number of individuals per site, and the total number of individuals for each species. The species are listed in descending order of total number of individuals.

Species	Number of Sites	Number of Individuals per Site	Total Number of Individuals
<i>Salix lasiolepis</i>	10	1-10	10
<i>Salix elaeagnifolia</i>	8	1-5	8
<i>Salix arbuscula</i>	7	1-3	7
<i>Salix roemeriana</i>	6	1-2	6
<i>Salix lasiolepis</i>	5	1-4	5
<i>Salix elaeagnifolia</i>	4	1-3	4
<i>Salix arbuscula</i>	3	1-2	3
<i>Salix roemeriana</i>	2	1-1	2
<i>Salix lasiolepis</i>	1	1-1	1
<i>Salix elaeagnifolia</i>	1	1-1	1

66/C/25.1

GRASS

Effect of K on protein synthesis - Woburn Stackyard Series C 1966,  
2nd year.

Design: 4 randomised blocks of 10 plots, with N on blocks for  
3rd and 4th cuts.

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

Treatments: All combinations of:-

Blocks (to 3rd and 4th cuts only):

1. N in addition to basal: None, 100 lb N as ammonium nitrate on June 21, repeated Aug 2 (i.e. for 3rd and 4th cuts).

Plots:

2. Species: Cocksfoot S37 (C), Meadow Fescue S215 (M), sown 1965.
3. Levels of K: None (K0), 60 (K1), 120 (K2), 180 (K3), 240 lb K (K4) as sulphate of potash applied after the second cut.

Basal application: 100 lb N as ammonium nitrate in spring and  
after the first, second and third cuts.

Cultivations etc.: N applied: Mar 9, May 10, June 21, Aug 2, 1966.

K applied: June 23. Cut four times: May 10, June 21, Aug 2,  
Sept 27.

NOTES: (1) After each cut samples were analysed for total N, protein  
N and K. After the last cut, samples were taken to  
assess the residual effects.

(2) For the previous year's results see 'Results' 65/C/32.

Standard errors per plot. Dry matter:

1st cut:	1.21 or 5.2% (27 d.f.)
2nd cut:	1.77 or 8.8% (27 d.f.)
Total of 1st and 2nd cuts:	1.74 or 4.0% (27 d.f.)
3rd cut:	1.53 or 7.6% (18 d.f.)
4th cut:	1.77 or 6.6% (18 d.f.)
Total of 3rd and 4th cuts:	3.01 or 6.4% (18 d.f.)

66/C/25.2

SUMMARY OF RESULTS

DRY MATTER

	K0	K1	K2	K3	K4	Mean
1ST CUT						
			(±0.61)			(±0.27)
C	14.3	16.2	18.0	18.5	20.1	17.4
M	28.1	28.8	30.0	29.7	30.8	29.5
Mean (±0.43)	21.2	22.5	24.0	24.1	25.4	23.5
2ND CUT						
			(±0.88)			(±0.40)
C	19.1	21.4	20.4	20.2	21.5	20.5
M	20.1	20.4	19.5	18.1	19.1	19.5
Mean (±0.62)	19.6	20.9	19.9	19.1	20.3	20.0
TOTAL OF 1ST AND 2ND CUTS						
			(±0.87)			(±0.39)
C	33.4	37.6	38.4	38.6	41.6	37.9
M	48.2	49.3	49.6	47.8	49.9	48.9
Mean (±0.61)	40.8	43.5	44.0	43.2	45.7	43.4
Mean D.M. %: 1st cut: 19.2 2nd cut: 22.8 1st and 2nd cuts: 21.0						



66/C/25.3

DRY MATTER							
	K0	K1	K2	K3	K4	Mean	
3RD CUT							
			( $\pm 0.77$ )*				
N1	16.4	18.8	20.9	20.0	21.5	19.5	
N2	16.9	20.7	21.1	21.9	23.3	20.8	
			( $\pm 0.77$ )				( $\pm 0.34$ )
C	15.3	19.2	21.0	21.8	22.9	20.1	
M	18.0	20.4	21.0	20.2	21.9	20.3	
Mean ( $\pm 0.54$ )	16.7	19.8	21.0	21.0	22.4	20.2	
4TH CUT							
			( $\pm 0.89$ )*				
N1	22.5	25.4	27.9	27.9	28.9	26.5	
N2	20.9	26.4	27.3	29.9	29.8	26.9	
			( $\pm 0.89$ )				( $\pm 0.40$ )
C	19.9	24.9	27.2	28.8	29.8	26.1	
M	23.5	26.8	28.0	29.1	28.9	27.3	
Mean ( $\pm 0.63$ )	21.7	25.9	27.6	28.9	29.4	26.7	

Mean D.M. %: 3rd cut: 23.3  
4th cut: 25.0

\* For use in horizontal and interaction comparisons only

66/C/25.4

DRY MATTER

	K0	K1	K2	K3	K4	Mean
TOTAL OF 3RD AND 4TH CUTS						
			(±1.51)*			
N1	38.9	44.2	48.8	47.9	50.5	46.1
N2	37.8	47.2	48.4	51.8	53.1	47.7
			(±1.51)			(±0.67)
C	35.3	44.2	48.2	50.5	52.8	46.2
M	41.4	47.2	49.1	49.3	50.8	47.6
Mean (±1.07)	38.3	45.7	48.6	49.9	51.8	46.9

Mean D.M. %: 24.1

\* For use in horizontal and interaction comparisons only

66/C/26.1

LUCERNE

(BZ)

Virus control - Long Hoos, 1966.

Design: 4 x 4 Latin square.

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

Treatments: All combinations of:-

1. Cropping: Lucerne (L), lucerne and cocksfoot in alternate rows (M).
2. Insecticide spray: None (O), sprayed with demeton-s-methyl (Metasystox at 12 fluid oz in 80 gals) one week after each cut (S).

The M plots received 0.6 cwt N as 'Nitro-Chalk' in the seedbed, and 0.5 cwt N, 0.5 cwt K<sub>2</sub>O as (16:0:16) as top-dressing after each cut except the last. The L plots received 0.5 cwt K<sub>2</sub>O as muriate of potash as top-dressing after each cut except the last.

Basal applications: 0.6 cwt P<sub>2</sub>O<sub>5</sub>, 1.2 cwt K<sub>2</sub>O as (0:14:28) in seedbed.

Weedkiller: Dinoseb at 2.1 lb in 40 gals.

Cultivations, etc.: Ploughed: Oct 28, 1965. Rotary cultivated: Mar 30, 1966. Basal PK compound applied: Apr 28. 'Nitro-Chalk' applied to M plots: Apr 29. Rotary cultivated: Apr 30. Seed drilled - at 20 lb to L plots and 10 lb lucerne and 4 lb cocksfoot to M plots: May 2. Weedkiller applied: June 16. Cut to clear weeds (no yields): July 14. Cut: Oct 25. Variety: Du Puits. Previous crops: Oats 1964, spring wheat 1965.

NOTE: Aphid counts were made and the incidences of lucerne mosaic virus and of bean leaf roll virus were estimated.

Standard error per plot.

Dry matter: 1.89 or 7.9% (6 d.f.)

66/c/26.2

SUMMARY OF RESULTS

DRY MATTER (cut on Oct 25)

	Q	S	Mean
	(±0.94)		(±0.67)
L	21.7	23.4	22.5
M	25.2	25.3	25.2
Mean (±0.67)	23.4	24.3	23.9

Mean D.M. %: 19.9



66/C/27.1

ESTABLISHED GRASS

(BX)

Anhydrous ammonia for grass, West Barnfield I 1966, the first year.

Design: 4 randomised blocks of 16 plots.

Area of each plot: 0.0080. Area harvested: 0.0052.

Treatments: All combinations of:-

1. Forms of nitrogen: Anhydrous ammonia injected 2 - 3 inches deep (I). 'Nitro-Chalk' broadcast in spring (B). 'Nitro-Chalk' dressing divided equally between 3 cuts (BD).
2. Levels of nitrogen: 1.0 (N1), 2.0 (N2), 3.0 (N3), 4.0 (N4) cwt N. together with no nitrogen - without (NO), with (NO I) the injector running idle through the turf (two plots of each per block).

Basal application: 560 lb (0:14:28).

Cultivations, etc.:- Anhydrous ammonia injected: Mar 2, 1966. 'Nitro-Chalk' to (B) plots and first dressing to (BD) plots and basal PK applied: Mar 8. Cut 3 times: May 16, July 4, Oct 5. 'Nitro-Chalk' applied after first 2 cuts.

Standard errors per plot. Dry matter:

- 1st cut: 2.69 or 10.7% (44 d.f.)
- 2nd cut: 1.89 or 7.4% (44 d.f.)
- 3rd cut: 1.95 or 23.2% (44 d.f.)
- Total of 3 cuts: 4.03 or 6.8% (44 d.f.)

66/C/27.2

SUMMARY OF RESULTS

DRY MATTER

	N1	N2	N3	N4	Mean
1ST CUT					
		( $\pm 1.35$ )			( $\pm 0.67$ )
I	17.0	24.3	23.2	25.0	22.4
B	35.5	36.9	38.4	36.4	36.8
BD	22.5	32.1	35.5	35.9	31.5
Mean ( $\pm 0.78$ )	25.0	31.1	32.4	32.4	30.2

	NO	NO I
	( $\pm 0.95$ )	
	9.6	9.9

General mean: 25.1

Mean D.M. %: 18.8

2ND CUT

		( $\pm 0.94$ )			( $\pm 0.47$ )
I	16.5	19.8	21.0	22.2	19.9
B	21.0	33.4	36.1	34.9	31.4
BD	29.9	39.3	38.2	37.6	36.2
Mean ( $\pm 0.54$ )	22.5	30.8	31.8	31.6	29.2

	NO	NO I
	( $\pm 0.67$ )	
	14.5	15.0

General mean: 25.6

Mean D.M. %: 26.5

66/c/27.3

DRY MATTER					
	N1	N2	N3	N4	Mean
3RD CUT					
		( $\pm 0.98$ )			( $\pm 0.49$ )
I	2.3	1.5	1.8	1.8	1.8
B	1.6	4.0	7.1	15.2	7.0
BD	10.4	24.1	26.7	27.4	22.2
Mean ( $\pm 0.56$ )	4.8	9.8	11.9	14.8	10.3
	NO	NO I			
		( $\pm 0.69$ )			
	3.3	2.1			

General mean: 8.4

Mean D.M. %: 23.5

TOTAL OF 3 CUTS					
		( $\pm 2.01$ )			( $\pm 1.01$ )
I	35.8	45.6	46.0	49.0	44.1
B	58.1	74.4	81.7	86.6	75.2
BD	62.9	95.4	100.4	100.8	89.9
Mean ( $\pm 1.16$ )	52.3	71.8	76.0	78.8	69.7
	NO	NO I			
		( $\pm 1.42$ )			
	27.4	27.1			

General mean: 59.1

Mean D.M. %: 22.9





66/C/28.1

SPRING BEANS

(CA/Be)

Rates and forms of N for beans followed by wheat - Great Knott II 1966, the first year.

Design: 3 randomised blocks of 12 plots.

Area of each plot: 0.0193. Area harvested: 0.0121.

Treatments: None (3 plots per block) and all combinations of:-

1. Forms of nitrogen: Ammonium nitrate (A), nitrate of soda (N), sulphate of ammonia (S).
2. Rates of N: None (NO), 1 (N1), 2 (N2), 3 (N3) cwt N, broadcast.

Basal applications: 360 lb (0:14:28) placement drilled.

Insecticide: Demeton-s-methyl (Metasystox at 12 fluid oz in 37 gals).

Cultivations, etc.: Ploughed: Nov 16, 1965. Seed drilled at 200 lb: Mar 8, 1966. Nitrogen applied: Mar 14. Insecticide applied: June 14. Combine harvested: Sept 23. Variety: Pedigree Tick. Previous crops: Winter wheat and barley 1964, barley 1965.

NOTE: Plant samples were taken for nodulation counts and grain samples for 1000 grain weight and % N.

Standard error per plot.

Grain: 3.00 or 7.3% (21 d.f.)

66/c/28.2

SUMMARY OF RESULTS

GRAIN

	NO	N1	N2	N3	Mean
		(±1.73)			(±1.00)
A		40.2	42.4	42.6	41.7
N		41.3	42.6	42.3	42.1
S		39.3	39.5	43.9	40.9
Mean (±1.00)	39.8	40.3	41.5	42.9	41.1*

\* General mean

Mean D.M. %: 75.8

66/C/29.1

DD AND DAZOMET - SPRING WHEAT

(CC and WCD)

Effects of soil fumigants on yield and soil-borne pathogens, Rothamsted (R) Hoosfield and Woburn (W) Lansome, the first year.

Design: 3 randomised blocks of 3 plots, split into 8.

Area of each sub plot: 0.0048. Area harvested:  
Hoosfield (R) - 0.0048, Lansome (W) - 0.0036.

Treatments: All combinations of:-

Whole plots: 1. Nitrogen: 0.5 (N1), 1.0 (N2), 1.5 cwt N (N3) applied as 'Nitro-Chalk'.

Sub plots: 2. Fumigants: None (0), none, rotary cultivated (R).  
DD: 200 (D2), 400 (D4), 800 lb (D8) injected to 6 inch depth.  
Dazomet: 100 (Z1), 200 (Z2), 400 lb (Z4) rotary cultivated in.

Basal applications: 280 lb (0:20:20) combine drilled. Weedkiller (Lansome (W) only): Ioxynil/mecoprop (Actril C at 5 pints in 35 gals).

Cultivations, etc.:

Hoosfield (R): Ploughed: Oct 28, 1965. DD applied: Nov 8.  
Dazomet applied, Z and R plots rotary cultivated: Mar 7, 1966.  
Seed drilled at 180 lb: Apr 26. 'Nitro-Chalk' applied: Apr 27. Combine harvested: Sept 9. Variety: Kloka.  
Previous crops: Barley 1964, winter barley 1965.

Lansome (W): Ploughed: Sept 30, 1965. DD applied: Nov 22.  
Dazomet applied, Z and R plots rotary cultivated: Feb 14, 1966. Seed drilled at 170 lb: Apr 13.  
'Nitro-Chalk' applied: Apr 25. Weedkiller applied: May 13.  
Combine harvested: Sept 7. Variety: Kloka. Previous crops: Winter wheat 1964, barley 1965.

NOTE: Soil samples were taken for microflora investigations and plant samples for root-rotting diseases. Samples were also taken for nematode counts and plant weights, also soil samples for final nematode population.

Standard errors per plot. Grain.

Hoosfield (R).	Whole plot: 1.19 or 3.9% (4 d.f.)
	Sub plot: 1.73 or 5.6% (42 d.f.)
Lansome (W).	Whole plot: 2.99 or 7.4% (4 d.f.)
	Sub plot: 2.92 or 7.2% (38 d.f.)



66/c/29.2

SUMMARY OF RESULTS

GRAIN

	0	R	D2	D4	D8	Z1	Z2	Z4	Mean
Hoosfield (R)									
	(1) and (2)								(±0.69)
N1	25.8	26.3	27.1	24.6	25.3	29.0	30.4	32.6	27.6
N2	28.6	33.7	31.0	30.4	27.1	31.2	34.6	32.3	31.1
N3	32.7	35.1	34.4	32.5	33.7	33.2	33.2	35.9	33.9
Mean (±0.58)	29.0	31.7	30.8	29.1	28.7	31.1	32.7	33.6	30.9

Mean D.M. %: 83.1

Lansome (W)									
	(1) and (2)								(±1.73)
N1	30.5	31.5	35.1	34.2	40.1	32.0	39.7	41.9	35.6
N2	39.2	40.8	41.3	41.6	43.4	43.4	46.2	45.3	42.7
N3	40.1	38.5	43.7	42.4	41.3	43.7	46.4	45.8	42.8
Mean (±0.97)	36.6	36.9	40.1	39.4	41.6	39.7	44.1	44.3	40.3

Mean D.M. %: 82.8

	Hoosfield (R)	Lansome (W)	
(1)	(±1.16)	(±2.34)	For use in vertical and diagonal comparisons
(2)	(±1.00)	(±1.69)	For use in horizontal and interaction comparisons



66/c/30.1

### INTENSIVE WHEAT

(SC)

Saxmundham, Oldershaw's and Garner's plots 1966, the first year.

Design: 4 randomised blocks of 5 plots, with plots (excluding leys and beans) split into 3 for N.

Area of each sub-plot: 0.0182. Area harvested: 0.0096.

Treatments: All combinations of:-

1. Crop sequences:

	1966	1967	1968	1969	1970
1	W	W	W	W	W
2	L	W	W	W	W
3	L	Be	W	W	W
4	W	L	Be	W	W
5	W	W	L	Be	W

Where W = Winter wheat, L = Ley - one year Meadow Fescue (cut twice\* for hay), Be = Spring beans.

2. Nitrogen to wheat: 0.6 (N1), 1.2 (N2), 1.8 cwt (N3) N per acre as 'Nitro-Chalk'.

\* once only in 1966.

Basal application: 500 lb compound (0:20:20). Other applications: To Meadow Fescue: 1.0 cwt N and 1.0 K<sub>2</sub>O as muriate of potash in seedbed, 0.5 cwt N top-dressed. N as 'Nitro-Chalk'. Weedkiller to wheat: Dicamba, MCP, mecoprop and TBA (Cambilene at 4 pints in 20 gals).

Cultivations, etc.: Ploughed: Sept 29, 1965. Basal compound fertiliser applied: Sept 30.

Wheat: Seed drilled: Oct 8, 1965. 'Nitro-Chalk' applied: Mar 24, 1966. Weedkiller applied: Apr 29. Combine harvested: Aug 17. Variety: Cappelle.

Grass ley: 'Nitro-Chalk' applied: Mar 24, 1966. Muriate of potash applied, seed drilled at 16 lb: Mar 28. 'Nitro-Chalk' applied: July 13. Cut for hay: Aug 12. Variety: Canadian Meadow Fescue.

- NOTES: (1) Yields were taken for winter wheat only.  
(2) Estimates of the incidence of take-all (*Ophiobolus graminis*) and eyespot (*Cercospora herpotrichoides*) were made in April and June.

66/c/30.2

Standard error per sub-plot:

Winter wheat, grain: 2.59 or 9.8% (22 d.f.)

SUMMARY OF RESULTS

WINTER WHEAT

GRAIN

N1	N2	N3	Mean
19.4	28.8	31.5	26.6

Mean D.M. %: 83.8

66/c/31,1

ORGANIC MANURING EXPERIMENT

(WDM)

The cumulative effects of organic matter on light land - Woburn Stackyard B 1966.

The intention is to allow 6 years for the accumulation of organic matter derived from different sources including applied organic manures, green manures and long leys. Later there will be a period of test-cropping with nutrient tests on micro plots.

Design: 4 randomised blocks of eight plots. Plots (except those in leys) being split into four for nitrogen.

Area of each sub-plot: 0.0156. Area harvested: Barley - 0.0104, leys - 0.0129.

Treatments: Whole plots:

- (A) 6 year leys (cut): Grass-clover (N to seedbed only) (Lc).  
All grass (N for each cut) (Ln).
- (B) A sequence of arable crops with the following annual treatments:  
Dung at 3 tons o.m. (approx 20 tons dung) (Dg).  
Chaffed straw at 3 tons organic matter (o.m.) (St).  
Peat at 3 tons o.m. (Pt).  
Green manures as practicable (Gm).  
No organic, fertilisers equivalent to dung (Fd).  
No organic, fertilisers equivalent to straw (Fs).

Quarter plots (not to Lc, Ln):

Nitrogen at 4 levels. The levels each year are equally spaced, but vary from crop to crop. On each sub-plot the levels are applied in rotation in the first four years.

Notes on manuring:

1. Green manures (treatment Gm) receive appropriate fertilisers.
2. Organics are applied in autumn.
3. Treatments Fs, Gm, Pt, Lc, Ln receive the same net amounts of K and Mg as in the straw (allowance being made retrospectively for differential removals). These treatments will receive P at 0.5 cwt P<sub>2</sub>O<sub>5</sub> each year (allowance being made for the P in the peat) and treatment St receives P at 0.5 cwt P<sub>2</sub>O<sub>5</sub> (allowance being made for the P in the straw). Treatment Fd receives PK Na Mg equivalent to the total amounts in the dung.

All P as superphosphate, all K as muriate of potash, all Mg as sulphate of magnesia, and all N as 'Nitro-Chalk'.



66/C/31.2

1964. The experiment began with the sowing of the leys and green manures (Hybrid Italian ryegrass sown at 30 lb) in spring 1964.

Basal manuring:

Lc and Ln: 0.2 cwt N, 0.5 cwt P<sub>2</sub>O<sub>5</sub>, 0.5 cwt K<sub>2</sub>O in seedbed.  
Ln only: 0.5 cwt N in spring and after each cut except the last.  
Gm: 0.5 cwt N, 0.5 cwt P<sub>2</sub>O<sub>5</sub>, 0.5 cwt K<sub>2</sub>O in seedbed.

The remaining plots were left fallow without manures. Because of perennial weeds (grasses and Equisetum) all plots were rotary cultivated in July.

Cultivations, etc.:

Subsoiled: Sept 23, 1963. Ploughed twice: Oct 3, 1963, and Jan 3, 1964. Fertilisers applied: May 1. Seeds sown: May 7. Previous crops: Winter wheat 1962, spring wheat 1963.

1965. Treatment Lc and Ln were resown (basal manuring as for 1964, but with 0.5 cwt N in seedbed for both).

Treatment Gm was resown with species and manuring as in 1964.

Cultivations, etc.:

All plots: Rotary cultivated: July 2, 1964 and again July 18. Deep-tine cultivated: Aug 17. Rotary cultivated: Oct 13. Ploughed: Nov 16. Rotary cultivated: Apr 21, 1965.

Lc and Ln plots: Seeds sown, seedbed fertilisers applied: Apr 23. Sprayed with dinoseb at 1.25 lb in 40 gals: June 30. Cut twice: Aug 12, and Oct 20. 'Nitro-Chalk' applied: Aug 20.

Gm plots: Seed sown, fertiliser applied: Apr 23.

Seeds mixtures 1964 and 1965:

Lc Timothy S48	6 lb
Meadow Fescue S215	10 lb
Smooth-stalked meadow grass	4 lb
Kersey white clover	3 lb
Wild white clover	1 lb

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24 lb

Sown at 24 lb



66/c/31.3

Ln	Timothy S48	8 lb
	Meadow Fescue S215	12 lb
	Smooth-stalked meadow grass	6 lb

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26 lb

Sown at 26 lb

1966. In autumn 1965 winter wheat (Cappelle at 180 lb) was sown on all treatments except Lc and Ln, but it was severely damaged by wheat bulb fly (*Leptohylemia coarctata*) and was replaced by spring barley (Maris Badger at 155 lb). Treatment Gm was undersown with trefoil (inoculated, but with no additional manures) in both wheat and barley.

Fertilisers applied autumn 1965 (cwt)

Treatments	P205	K20	MgO
Dg	-	-	-
St	0.4	-	-
Pt	0.5	1.0	0.15
Gm	-	-	0.15
Fd	1.0	3.0	0.40
Fs	0.5	1.0	0.15
Lc	-	-	0.15
Ln	-	-	0.15

Nitrogen to spring barley:

NO, N1, N2 N3-0.0, 0.2, 0.4, 0.6 cwt N as 'Nitro-Chalk'.

Cultivations, etc.:

Lc and Ln plots: Mg applied: Nov 4, 1965. 'Nitro-Chalk' applied to Ln plots: Mar 17, 1966, June 15, Aug 22. Lc plots cut: June 8, July 13, Aug 12, Oct 25. Ln plots cut: June 8, Aug 12, Oct 25.

Remainder: Peat, straw, dung, P, K, Mg, applied: Sept 2 - 7, 1965. Ploughed: Sept 7. Wheat drilled, trefoil undersown on Gm plots: Nov 2. 'Nitro-Chalk' applied: Apr 28, 1966. Sprayed with paraquat at 0.75 lb ion in 34 gals: Apr 28. Barley drilled, trefoil undersown on Gm plots: Apr 30. Combine harvested: Sept 9.

Standard errors per plot. Barley, grain 1966.

Whole plot: 1.41 or 7.2% (15 d.f.)

Sub plot: 1.82 or 9.3% (54 d.f.)

66/c/31.4

SUMMARY OF RESULTS

1965

GRASS: DRY MATTER

	Lc	Ln
1ST CUT		
	17.1	12.3
2ND CUT		
	14.6	14.3
TOTAL OF 2 CUTS		
	31.7	26.6
Mean D.M. %:		
1st cut:	18.4	23.0
2nd cut:	18.6	24.8
Total of 2 cuts:	18.5	23.9

66/C/31.5

1966

GRASS: DRY MATTER

	Lc	Ln
1ST CUT		
	27.0	43.8
2ND CUT		
	9.4	*
3RD CUT		
	5.2	20.2
4TH CUT		
	12.2	12.9
TOTAL OF ALL CUTS		
	53.7	76.9
* No cut taken.		
Mean D.M. %:		
1st cut:	26.7	31.8
2nd cut (Lc only):	18.0	-
3rd cut:	17.4	26.5
4th cut:	19.1	24.4

66/c/31.6

BARLEY

GRAIN

	NO	N1	N2	N3	Mean
		(1) and (2)			(±0.71)
Dg	11.5	18.5	26.3	35.5	22.9
St	4.1	13.9	22.4	27.9	17.1
Pt	7.1	15.4	24.7	31.3	19.6
Gm	8.8	13.2	17.7	27.8	16.9
Fd	7.3	17.5	26.7	31.3	20.7
Fs	7.0	16.7	23.7	32.9	20.1
Mean (±0.37)	7.6	15.9	23.6	31.1	19.5

Mean D.M. %: 81.8

- (1) (±1.06) For use in vertical and diagonal comparisons  
 (2) (±0.91) For use in horizontal and interaction comparisons



66/C/32.1

IRRIGATION AND EELWORM

(WCE)

Butt Close Woburn, the first year - potatoes.

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

Site: 3 replicates on Series I (Potatoes 1950, 1951, 1954, 1961), 3 on Series IV (last potato crop 1950) of the Irrigation Experiment 1951 - 1965.

Design: (each Series) 3 blocks of 4 whole plots, sequences of varieties on strips of 2 half plots, fumigants on quarter plots.

Area of each quarter-plot: 0.0114. Area harvested: 0.0068.

Treatments: All combinations of:-

1. Whole plots: Irrigation: None (0), full irrigation (C).
2. Strips of 4 plots: Sequences of varieties: (D = Pentland Dell, susceptible P = Maris Piper, resistant).

1966	1967	1968	1969
D	D	D	D
D	P	D	P
P	P	P	P
P	D	P	D

3. Quarter-plots: Fumigants: None (FO), DD injected at 400 lb at 6 inches in rows 12 inches apart (F).  
Irrigation (C) 1966: (inches water)

	Series I	Series IV
May 27	0.5	May 26 0.5
June 1	0.5	June 2 0.5
June 7	0.5	June 6 0.5
June 10	0.5	June 9 0.5
July 4	0.5	July 5 0.5
July 18	0.5	July 14 0.5
<hr/>		
Total	3.0	3.0

Basal applications, etc.: 7 cwt (17:11:22). Weedkiller: Sprayed with 1 lb linuron plus 0.75 lb ion paraquat in 37 gals.  
Fungicide: Mancozeb at 1.2 lb in 33 gals on 3 occasions.

Cultivations, etc.: Series I ploughed: Sept 27, 1965. Series IV

66/C/32.2

ploughed: Jan 8, 1966. Fumigant injected: Feb 14. Basal NPK applied: Mar 23. Rotary cultivated, potatoes planted: Apr 29. Weedkiller applied: May 16. Earthed up: June 9. Fungicide applied: June 29, July 15, Aug 5. Sprayed with diquat (Reglone at 4 pints in 33 gals): Sept 12. Haulm mechanically destroyed: Sept 16. Lifted: Sept 20. Previous crops: Series I - sugar beet 1964, spring wheat 1965, Series IV - lucerne 1964, Italian ryegrass 1965.

- NOTES: (1) Soil samples were taken from each plot after fumigation and before cropping. Cyst and egg counts were made, and soil used for root invasion tests.  
 (2) Plots were scored for magnesium deficiency and general appearance at the beginning of July.

Standard errors per plot. Total tubers:

Series I

Strip: 1.537 or 12.7% (8 d.f.)  
 1/2 plot: 1.577 or 13.0% (8 d.f.)  
 1/4 plot: 1.823 or 15.0% (20 d.f.)

Series IV

Strip: 1.332 or 7.9% (8 d.f.)  
 1/2 plot: 1.900 or 11.3% (8 d.f.)  
 1/4 plot: 1.546 or 9.2% (20 d.f.)

Series	Strip	1/2 plot	1/4 plot
I	1.537	1.577	1.823
IV	1.332	1.900	1.546
Total			

66/c/32.3

SUMMARY OF RESULTS

SERIES I

TOTAL TUBERS

	D	P	O	F	Mean
	(1) and (2)		( $\pm 0.526$ )*		
O	11.47	14.79	10.97	15.29	13.13
C	9.57	12.69	8.82	13.44	11.13
			(3) and (4)		( $\pm 0.628$ )
		D	7.77	13.27	10.52
		P	12.02	15.45	13.74
		Mean ( $\pm 0.372$ )	9.90	14.36	12.13

\* For use in horizontal and interaction comparisons only

- (1) ( $\pm 0.644$ ) For use in interaction comparisons only
- (2) ( $\pm 0.887$ ) For use in horizontal comparisons only
- (3) ( $\pm 0.730$ ) For use in vertical and diagonal comparisons only
- (4) ( $\pm 0.526$ ) For use in horizontal and interaction comparisons only

66/C/32.4

SERIES I

1/2 WARE

	D	P	O	F	Mean
O	86.4	92.6	84.6	94.4	89.5
C	78.9	89.4	76.3	91.9	84.1
		D	73.2	92.1	82.7
		P	87.7	94.3	91.0
		Mean	80.5	93.2	86.8



66/c/32.5

SERIES IV  
TOTAL TUBERS

	D	P	O	F	Mean
	(1) and (2)		( $\pm 0.446$ )*		
O	16.66	19.70	17.79	18.58	18.18
C	13.73	17.28	14.00	17.01	15.50
			(3) and (4)		( $\pm 0.544$ )
		D	14.02	16.37	15.19
		P	17.77	19.21	18.49
		Mean ( $\pm 0.316$ )	15.89	17.79	16.84

\* For use in horizontal and interaction comparisons only

- (1) ( $\pm 0.776$ ) For use in interaction comparisons only
- (2) ( $\pm 0.769$ ) For use in horizontal comparisons only
- (3) ( $\pm 0.629$ ) For use in vertical and diagonal comparisons only
- (4) ( $\pm 0.446$ ) For use in horizontal and interaction comparisons only

66/C/32.6

SERIES IV

% WARE

	D	P	O	F	Mean
D	94.8	94.8	94.7	94.9	94.8
C	92.0	92.1	89.6	94.5	92.1
		D	92.5	94.4	93.4
		P	91.9	95.1	93.5
		Mean	92.2	94.7	93.5

66/C/33.1

SPRING WHEAT

(WBW)

Direct seeding, Woburn White Horse Field 1966, the first year.

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

Area of each sub plot: 0.0149. Area harvested: 0.0071.

Treatments: All combinations of:-

- Whole plots: 1. Seedbed preparation: Direct seeding after aminotriazole 4 lb and ammonium thiocyanate at 3.7 lb in 40 gals in autumn, paraquat at 2 lb ion in 40 gals in spring (S). Normal cultivations (P).
2. Seed dressing: No insecticide, fungicide only (IO). Combined insecticide and fungicide (I).
- Sub plots: 3. Insecticide spray: None (DO), diazinon at 3.8 lb a.i. plus chlordane at 7.6 lb a.i. plus DDT at 6.1 lb a.i. plus zinophos at 3.4 lb a.i. in 40 gals (DD).

Basal applications: 3 cwt (20:10:10) combine drilled. Weedkiller: Mecoprop/2,4-D (Methoxone Extra at 6 pints in 35 gals).

Cultivations, etc.: Aminotriazole and ammonium thiocyanate applied: Oct 15, 1965. 'P' plots ploughed: Jan 27 - 28, 1966. Insecticide and paraquat applied: Mar 14. Seed combine drilled at 180 lb: Mar 18. Mecoprop/2,4-D applied: May 12. Combine harvested: Sept 7. Variety: Kloka. Previous crop: Grass for at least five years.

Standard errors per plot. Grain:  
Whole plot: 2.89 or 6.4% (9 d.f.)  
Sub plot: 2.87 or 6.3% (12 d.f.)

66/c/33.2

SUMMARY OF RESULTS

GRAIN

	O	I	DO	DD	Mean
	(±1.44)		(1) and (2)		(±1.02)
S	43.5	46.6	44.0	46.1	45.1
P	46.6	44.9	44.7	46.8	45.8
			(1) and (2)		
		O	43.5	46.6	45.0
		I	45.3	46.3	45.8
		Mean	44.4	46.4	45.4
		(±0.72)			

Mean D.M. %: 83.0

(1) (±1.25) For use in vertical and diagonal comparisons

(2) (±1.01) For use in horizontal and interaction comparisons



66/Da/1.1

WINTER WHEAT

(RW101 and WW101)

Row spacing, seed rates and N - Rothamsted (R) Great Knott I and Woburn (W) Workhouse 1966.

Design: 2 replicates of a 4 x 2 x 4 factorial arranged in 4 blocks of 8 whole plots, with N on half plots. (4 - 3 + 2 - 1 on whole plots Great Knott I (R), 3 - 2 + 1 - 0 on Workhouse (W)).

Area of each sub plot: 0.0069. Area harvested: 0.0069.

Treatments: All combinations of:-

Whole plots.

1. Row spacing etc.:

Seed broadcast, autumn fertiliser\*\* broadcast (B)

Seed drilled, 4 inch rows, autumn fertiliser broadcast (C)

Seed drilled, 7 inch rows, autumn fertiliser broadcast (W)

Seed drilled, 7 inch rows, with autumn fertiliser combine drilled (W\*)

2. Seed rates: 140 lb (L), 240 lb (H).

Sub plots:

3. Nitrogen in spring:

Great Knott I (R): 0.4 (N1), 0.8 (N2), 1.2 (N3), 1.6 (N4) cwt N as 'Nitro-Chalk' broadcast.

Workhouse (W): None (NO), 0.4 (N1), 0.8 (N2), 1.2 (N3) cwt N as 'Nitro-Chalk' broadcast.

\*\* Great Knott I (R): (6:15:15) to all plots - rate 340 lb.

Workhouse (W): (8:20:16) to all plots - rate 310 lb.

NOTE: At Rothamsted because of a mistake in an instruction nitrogen was applied to the wrong plots: in order to achieve balance certain additions were made making the total applications listed.

Basal applications: Great Knott I (R): Ioxynil/MCPA (Actril A at 2 pints in 40 gals).

66/Da/1.2

Cultivations, etc.:

Great Knott I (R): Deep-tine cultivated twice: Nov 3 and 4, 1965.  
Seed sown, NPK applied: Nov 5. 'Nitro-Chalk' applied: Apr 13, 1966,  
completed: Apr 21. Sprayed: Apr 29. Combine harvested: Aug 24.  
Variety: Cappelle. Previous crops: Barley 1964, potatoes 1965.  
Workhouse (W): Deep-tine cultivated: Oct 27, 1965. Seed sown,  
NPK applied: Nov 3. 'Nitro-Chalk' applied: Apr 27, 1966.  
Combine harvested: Aug 27. Variety: Cappelle. Previous crops:  
Grass 1964, potatoes 1965.

Standard errors per plot. Grain:

Great Knott I (R).	Whole plot: 2.57 or 5.3% (14 d.f.)
	Sub plot: 3.11 or 6.4% (16 d.f.)
Workhouse (W).	Whole plot: 2.88 or 5.2% (14 d.f.)
	Sub plot: 3.98 or 7.1% (16 d.f.)

66/Da/1.3

SUMMARY OF RESULTS

GREAT KNIGHT I (R)

GRAIN

	B	C	W	W*	Mean
Mean ( $\pm 0.91$ )	49.2	48.7	48.9	46.4	48.3
	( $\pm 1.29$ )				( $\pm 0.64$ )
L	49.3	50.6	50.9	48.3	49.8
H	49.0	46.8	47.0	44.5	46.8
	(1) and (2)				(3) and (4)
N1	49.9	49.8	47.3	47.0	48.5
N2	52.0	51.3	50.7	48.1	50.5
N3	46.4	48.1	49.4	45.0	47.2
N4	48.4	45.6	48.3	45.4	47.0
	L	H			
	(5) and (6)				
N1	49.6	47.4			
N2	50.9	50.2			
N3	48.7	45.7			
N4	49.9	44.0			

- (1) ( $\pm 1.56$ ) (5) ( $\pm 1.10$ ) For use in vertical and interaction comparisons involving N4-N2 or N3-N1  
 (2) ( $\pm 1.69$ ) (6) ( $\pm 1.20$ ) For use in all other comparisons  
 (3) ( $\pm 0.78$ ) For use in comparisons N4-N2 or N3-N1  
 (4) ( $\pm 0.85$ ) For use in all other comparisons



66/Da./1.4

WORKHOUSE (W)

GRAIN

	B	C	W	W*	Mean
Mean ( $\pm 1.02$ )	55.9	56.7	55.4	55.3	55.8
		( $\pm 1.44$ )			( $\pm 0.72$ )
L	56.5	57.7	56.1	54.9	56.3
H	55.4	55.8	54.6	55.6	55.3
		(1) and (2)			(3) and (4)
NO	52.8	55.3	53.7	53.0	53.7
N1	57.4	60.1	59.8	57.5	58.7
N2	59.6	58.8	56.2	56.7	57.8
N3	53.9	52.6	52.0	53.8	53.1
	L	H			
		(5) and (6)			
NO	52.4	55.0			
N1	57.8	59.6			
N2	59.3	56.4			
N3	55.8	50.3			

- (1) ( $\pm 1.99$ ) (5) ( $\pm 1.41$ ) For use in vertical and interaction comparisons involving N3-N1 or N2-NO
- (2) ( $\pm 2.02$ ) (6) ( $\pm 1.43$ ) For use in all other comparisons
- (3) ( $\pm 1.00$ ) For use in comparisons N3-N1 or N2-NO
- (4) ( $\pm 1.01$ ) For use in all other comparisons



66/Da/2.1

WINTER WHEAT

(RW 301)

Spun and drilled seed, and cultivations, Great Knott I 1966.

Design:

Spun seed: 6 randomised blocks of 4 plots, with seed rates on strips of 3 blocks.

Drilled seed: 6 randomised blocks of 2 plots.

Area of each plot: 0.0135. Area harvested: 0.0096.

Treatments:

Spun seed: all combinations of:-

To strips of 3 blocks: (1) Seed rate: 190 lb (L), 250 (H).

To plots: (2) Seedbed cultivations: spring-tine cultivate, harrow, sow, harrow (C1). Disc, sow, harrow (C2). Spring-tine cultivate, sow, harrow (C3). Spring-tine cultivate, sow, spring-tine cultivate, harrow (C4).

Drilled seed: Seedbed cultivations C1, C3 as above (all at seed-rate L).

Basal applications: 310 lb (6:15:15) broadcast by distributor, 0.94 cwt N as 'Nitro-Chalk' top dressed in spring. Weedkiller: Ioxynil/MCPA (Actril A at 2 pints in 40 gals).

Cultivations, etc.: Deep-tine cultivated twice: Nov 3, 1965. Basal NPK applied, pre-sowing treatments carried out: Nov 5. Seed sown, post-sowing treatments carried out: Nov 6. Weedkiller applied: Apr 29, 1966. 'Nitro-Chalk' applied: May 2. Combine harvested: Aug 23. Variety: Cappelle. Previous crops: Barley 1964, potatoes 1965.

Standard error per plot (pooled spun and drilled seed):  
Grain: 1.84 or 4.1% (17 d.f.)

66/Da/2.2

SUMMARY OF RESULTS

GRAIN

SPUN SEED

	C1	C2	C3	C4	Mean
	( $\pm 1.06$ )*				
L	48.4	47.2	46.6	45.0	46.8
H	44.1	43.0	43.1	45.9	44.0
Mean ( $\pm 0.75$ )	46.2	45.1	44.9	45.5	45.4

\* For use in horizontal and interaction comparisons only

DRILLED SEED

	C1	C3	Mean
	45.0	44.9	45.0
	( $\pm 0.75$ )		

Pooled mean: 45.3

Pooled mean D.M. %: 82.2

66/Da/3.1

WINTER WHEAT

(BG 13)

Sowing dates and bulb fly, Stackyard 1966.

Design: 4 randomised blocks of 3 plots, split into 2 for covering to prevent egg-laying (unrandomised).

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

Treatments: All combinations of:-

Whole plots: 1. Sowing dates and weedkiller: Nov 2, 1965, sprayed\* (ES). Jan 8, 1966, sprayed\* (IS) and unsprayed (L-).

Sub plots: 2. Not covered (O), covered with polythene sheet to prevent egg-laying July 1 - Oct 7, 1965 (C).

\* With mecoprop/2,4-D (Methoxone Extra at 6.5 pints in 56 gals) on May 13.

Basal applications: 284 lb (6:15:15) combine drilled, 0.8 cwt N as 'Nitro-Chalk' top dressed in spring. Seed dressed with organo-mercury fungicide only.

Cultivations, etc.: Ploughed: Oct 20, 1965. 'Nitro-Chalk' applied: Apr 26, 1966. Combine harvested: Aug 24. Variety: Cappelle. Previous crops: Barley 1964, fallow 1965.

NOTES: (1) Samples were taken from late February until mid-May to estimate numbers of plants, shoots and larvae and damaged plants and shoots. Samples were taken just before harvest to estimate ear number and grain weight. Counts were made for gaps and straw number in stubble after harvest.

(2) The intention was to make sowings in early November, late November and January but the late November sowing could not be made and the treatments listed above were applied.

Standard errors per plot. Grain:

Whole plot: 1.98 or 4.4% (6 d.f.)

Sub plot: 2.75 or 6.1% (8 d.f.)



66/Da/3.2

SUMMARY OF RESULTS

GRAIN

	ES	LS	L-	Mean
	(1) and (2)			
O	47.4	40.7	37.5	41.8
C	49.1	49.3	47.0	48.5
Mean ( $\pm 0.99$ )	48.2	45.0	42.2	45.1

- (1) ( $\pm 1.41$ ) For use in horizontal comparisons only  
 (2) ( $\pm 1.38$ ) For use in interaction comparisons only

Mean D.M. %: 81.4



66/Da/4.1

SPRING WHEAT

(RW 601 and WW 301)

Anhydrous ammonia as a fertiliser - Rothamsted (R) Great Knott III and Woburn (W) Lansome 1966.

Design: 4 randomised blocks of 8 plots.

Area of each plot: 0.0321. Area harvested: Great Knott III (R) - 0.0208, Lansome (W) - 0.0207.

Treatments: All combinations of:-

1. Forms of N: Broadcast 'Nitro-Chalk' (B), injected anhydrous ammonia (I).
2. Levels of N: 0.5 (N1), 1.0 (N2), 1.5 (N3) cwt N together with no nitrogen - without (NO), with (NOI), the injector running empty through the soil.

Basal applications: 280 lb (0:20:20). Weedkiller: Great Knott III (R): Mecoprop/2,4-D (Methoxone Extra at 6 pints in 40 gals). Lansome (W): Ioxynil/mecoprop (Actril C at 5 pints in 35 gals).

Cultivations, etc.:

Great Knott III (R): Ground chalk applied at 22 cwt: Nov 8, 1965. Ploughed: Nov 15, 1965. Anhydrous ammonia injected: Mar 2, 1966. Seed drilled at 170 lb, basal PK and 'Nitro-Chalk' applied: Mar 16, 1966. Sprayed: May 17. Combine harvested: Sept 7. Variety: Kloka. Previous crops: Barley 1964, spring beans 1965.

Lansome (W): Ploughed: Sept 30 - Oct 25, 1965. Anhydrous ammonia injected: Mar 3, 1966. Seed drilled at 160 lb, basal PK and 'Nitro-Chalk' applied: Mar 15. Sprayed: May 13. Combine harvested: Sept 6. Variety: Kloka. Previous crops: Winter wheat 1964, barley 1965.

Standard errors per plot. Grain:

Great Knott III (R): 2.15 or 5.3% (21 d.f.)  
Lansome (W): 3.57 or 14.8% (21 d.f.)

66/Da/4.2

SUMMARY OF RESULTS

GREAT KNOTT III (R)

		GRAIN			
		N1	N2	N3	Mean
			(±1.07)		(±0.62)
B		43.7	45.6	43.6	44.3
I		36.6	46.3	46.9	43.3
Mean (±0.76)		40.2	46.0	45.3	43.8

		NO	NOI	Mean
		31.7	31.1	31.4
		(±1.07)		

General mean: 40.7

Mean D.M. %: 83.0

66/Da/4.3

LANSOME (W)

GRAIN

	N1	N2	N3	Mean
		(±1.78)		(±1.03)
B	23.9	32.8	37.2	31.3
I	17.7	30.2	36.5	28.1
Mean (±1.26)	20.8	31.5	36.9	29.7

	NO	NOI	Mean
	6.6	7.6	7.1
	(±1.78)		

General mean: 24.1

Mean D.M. %: 85.2

Table 1

(a) Summary

Year	2000	2001	2002	2003	2004
Mean	1.00	1.00	1.00	1.00	1.00
Standard Deviation	0.00	0.00	0.00	0.00	0.00
Minimum	0.00	0.00	0.00	0.00	0.00
Maximum	1.00	1.00	1.00	1.00	1.00

Source: U.S. Census Bureau, Current Population Reports, 2000-2004.



66/Da/5.1

SPRING WHEAT

(WW 201)

Effects of sowing date, and time of nitrogen application on the incidence of take-all - Woburn Lansome 1966.

Design: 3 randomised blocks of 3 plots, split into 2.

Area of each sub-plot: 0.0154. Area harvested: 0.0101.

Treatments: All combinations of:-

Whole plots. 1. Sowing dates: Feb 17, 1966 (F), Mar 15 (M), Apr 13 (A). Seed drilled at 160 lb.

Sub plots. 2. Time of application of N: 0.8 cwt N at sowing (T1), 0.4 cwt N at sowing plus 0.4 cwt N in early May (T2). All N as 'Nitro-Chalk'.

Basal applications: 390 lb (0:14:28) combine drilled. Sprayed with Ioxynil/mecoprop (Actril C at 5 pints in 35 gals).

- Cultivations, etc.: Ploughed: Sept 30 - Oct 25, 1965. Seed drilled, seedbed 'Nitro-Chalk' applied - F plots: Feb 17, 1966, - M plots: Mar 15. Seed drilled - A plots: Apr 13. 'Nitro-Chalk' applied - A plots: Apr 21. Top dressing 'Nitro-Chalk' applied: May 11. Combine harvested: Sept 6. Variety: Kloka. Previous crops: Winter wheat 1964, barley 1965.

NOTE: Plant samples were taken from all plots for incidence of take-all (*Ophiobolus graminis*) on 24th May and 6th July.

Standard errors per plot. Grain:  
Whole plot: 1.96 or 6.1% (4 d.f.)  
Sub plot: 2.15 or 6.7% (6 d.f.)

66/Da/5.2

SUMMARY OF RESULTS

GRAIN

	F	M	A	Mean
	(1) and (2)			( $\pm 0.72$ )
T1	30.4	33.0	33.7	32.3
T2	30.1	33.8	31.7	31.9
Mean ( $\pm 1.13$ )	30.2	33.4	32.7	32.1

- (1) ( $\pm 1.43$ ) For use in horizontal and diagonal comparisons
- (2) ( $\pm 1.24$ ) For use in vertical and interaction comparisons

Mean D.M. %: 85.5

66/Da/6.1

SPRING WHEAT

(RW 701)

Effects of CCC - Long Hoos III 1966.

Design: 4 randomised blocks of 8 plots.

Area of each plot: 0.0144. Area harvested: 0.0096.

Treatments: All combinations of:-

1. CCC\* in spray at 40 gals: None (CO), 2.5 lb (CS) in May at 5 leaf stage.
2. Nitrogen: None (NO), 0.8 (N1), 1.6 (N2), 2.4 (N3) cwt N as 'Nitro-Chalk'.

\* 2-chlorotrimethylammonium chloride - a dwarfing compound.

NOTE: (1) A wetter was included in the CCC spray.

Basal applications: 27 cwt ground chalk, 400 lb compound fertiliser (0:14:28) applied broadcast, 340 lb compound fertiliser (0:20:20) combine drilled. Weedkiller: Mecoprop/2,4-D (Methoxone Extra at 6 pints in 40 gals).

Cultivations, etc.: Ground chalk and PK compound applied: Nov 6, 1965. Deep-tine cultivated twice: Feb 4, 1966. Rotary cultivated: Mar 11. Seed drilled at 180 lb, 'Nitro-Chalk' applied: Mar 12. Weedkiller applied, CCC spray applied: May 17. Combine harvested: Sept 7. Variety: Kloka. Previous crops: Winter wheat 1964, potatoes 1965.

NOTE: (2) Counts of shoots were made from time to time.

Standard error per plot.

Grain: 2.85 or 8.7% (21 d.f.)

66/Da/6.2

SUMMARY OF RESULTS

GRAIN

	NO	N1	N2	N3	Mean
		(±1.43)			(±0.71)
CO	19.5	31.5	38.3	38.1	31.8
CS	19.6	34.6	39.7	41.0	33.8
Mean (±1.01 )	19.6	33.0	39.0	39.6	32.8

Mean D.M. %: 82.6



66/De/7.1

SPRING WHEAT

(WW 401)

CCC\*, irrigation, and nitrogen - Woburn Butt Close (Series III) 1966.

\* Chloroethyltrimethylammonium chloride - a dwarfing compound.

Design: 6 blocks of 2 whole plots, CCC on half plots, nitrogen on quarter plots, 2 d.f. for N confounded with quarter plot pairs, one in each direction.

Area of each quarter plot: 0.0143. Area harvested: 0.0032.

Treatments: All combinations of:-

Main plots: 1. Irrigation: None (0), full irrigation (C).

Half plots: 2. CCC: None (0), sprayed with 2.5 lb CCC in 43 gals water (S).

Quarter

plots: 3. Nitrogen: 0.4 (N1), 0.8 (N2), 1.2 (N3), 1.6 (N4)  
cwt N as 'Nitro-Chalk'.

Basal applications: 240 lb (0:14:28) combine drilled, sprayed with ioxynil/mecoprop (Actril C at 5 pints in 35 gals).

Cultivations, etc.: Ploughed: Nov 24, 1965. Seed drilled at 160 lb: Mar 14, 1966. 'Nitro-Chalk' applied: Mar 16. Weedkiller applied: May 13. CCC applied: May 16. C plots irrigation applied at 0.5 inches on each occasion: May 25, June 1, June 3, June 9, July 6, July 15, (total 3 inches). Combine harvested: Sept 7. Variety: Kloka.

NOTE: Weekly samples of 3 feet of row lengths were taken from each plot for chemical analysis, April - June.

Standard error per plot (pooled).

Grain: 4.23 or 10.5% (30 d.f.)

66/Da/7.2

SUMMARY OF RESULTS

GRAIN

	N1	N2	N3	N4	Mean
Mean ( $\pm 1.22$ )	28.1	40.5	45.8	47.3	40.4
		( $\pm 1.73$ )			( $\pm 0.86$ )
O	25.5	38.5	40.6	41.8	36.6
C	30.7	42.5	51.1	52.8	44.3
O	28.3	41.8	43.5	46.6	40.0
S	28.0	39.1	48.2	48.1	40.8
	O	S			
	( $\pm 1.22$ )				
O	35.5	37.7			
C	44.5	44.0			

Mean D.M.: 82.3

66/Da/8.1

WINTER AND SPRING WHEAT

(RW 401)

Varieties and nitrogen - Great Knott I 1966.

Design: 4 randomised blocks of 8 plots.

Area of each plot: 0.0212. Area harvested: 0.0141.

Treatments: All combinations of:-

1. Varieties: Winter wheat - Cappelle (C), Rothwell Perdix (P), spring wheat - Kloka (K), Jufy I (J).
2. Nitrogen: 0.4 (N1), 1.0 (N2) cwt N as 'Nitro-Chalk', top-dressed, in addition to basal.

Basal applications: 300 lb (6:15:15) combine drilled. Weedkiller: Mecoprop/2,4-D (Methoxone Extra at 6 pints in 36 gals).

Cultivations, etc.: Deep-tine cultivated twice: Nov 3, 1965.  
Seed drilled at 190 lb: Feb 17, 1966\*. 'Nitro-Chalk' applied:  
Apr 14. Sprayed: May 14. Combine harvested: Sept 6.  
Previous crops: Barley 1964, potatoes 1965

Standard error per plot.

Grain: 2.13 or 5.1% (21 d.f.)

\* Drilling of winter wheat was delayed by weather and so all varieties were sown on the same date.

66/Da/8.2

SUMMARY OF RESULTS

GRAIN

	C	P	K	J	Mean
		(±1.06)			(±0.53)
N1	40.5	38.3	37.5	42.9	39.8
N2	45.3	40.5	43.5	44.1	43.3
Mean (±0.75)	42.9	39.4	40.5	43.5	41.6

Mean D.M. %: 83.0



66/Db/1.1

BARLEY

(RB101 and WB101)

Row spacing, seed rates and N - Rothamsted (R) Whittlocks N.E. and Woburn (W) Horsepool E. 1966.

Design: 2 replicates of 4 x 2 x 4 factorial arranged in 4 blocks of 8 whole plots, with N on half plots. (3 - 2 + 1 - 0 on whole plots.)

Area of each sub-plot: 0.0069. Area harvested: 0.0069.

Treatments: All combinations of:-

Whole plots:

1. Row spacing etc.:

Seed broadcast, PK\*\* broadcast (B)  
Seed drilled, 4 inch rows, PK broadcast (C)  
Seed drilled, 7 inch rows, PK broadcast (W)  
Seed drilled, 7 inch rows, with PK combine drilled (W\*)

2. Seed rates: 110 lb (L), 220 lb (H).

Sub-plots:

3. Nitrogen: None, 0.4, 0.7, 1.0 cwt N as 'Nitro-Chalk'.

\*\* (0:20:20) to all plots - rate 220 lb.

Basal applications: Weedkiller: Mecoprop/2,4-D (Methoxone Extra at 6 pints in 36 gals).

Cultivations, etc.:

Whittlocks N.E. (R): Ploughed: Nov 1-9, 1965. Seed sown, fertilisers applied: Mar 10, 1966. Sprayed: May 11. Combine harvested: Aug 19. Variety: Maris Badger. Previous crops: Potatoes 1964, winter wheat 1965.

Horsepool E. (W): Ploughed: Oct 28, 1965. PK fertiliser applied and seed sown: Mar 11, 1966. 'Nitro-Chalk' applied: Mar 14. Sprayed: May 13. Combine harvested: Aug 19. Variety: Maris Badger. Previous crops: Potatoes 1964, barley 1965.

Standard errors per plot. Grain:

Whittlocks N.E. (R)	Whole plot: 2.10 or 4.6% (14 d.f.)
	Sub plot: 2.18 or 4.7% (16 d.f.)
Horsepool E. (W)	Whole plot: 2.10 or 4.4% (14 d.f.)
	Sub plot: 3.67 or 7.7% (16 d.f.)

66/D6/1.2

SUMMARY OF RESULTS

WHITFLOCKS N.E. (R)

GRAIN

	B	C	W	W*	Mean
Mean ( $\pm 0.74$ )	45.8	45.9	47.1	45.7	46.1
	( $\pm 1.05$ )				( $\pm 0.53$ )
L	46.1	45.8	48.8	46.3	46.8
H	45.6	45.9	45.4	45.0	45.5
	(1) and (2)				(3) and (4)
NO	36.2	37.6	39.8	36.9	37.6
N1	48.1	47.8	49.5	48.2	48.4
N2	50.6	48.9	49.9	48.3	49.4
N3	48.5	49.2	49.3	49.3	49.0
	L	H			
	(5) and (6)				
NO	39.4	35.8			
N1	47.9	48.9			
N2	50.5	48.3			
N3	49.2	48.8			

- (1) ( $\pm 1.84$ ) and (5) ( $\pm 1.30$ ) For use in vertical and interaction comparisons involving N3-N1 or N2-NO
- (2) ( $\pm 1.30$ ) and (6) ( $\pm 0.92$ ) For use in all other comparisons
- (3) ( $\pm 0.55$ ) For use in comparisons N3-N1 or N2-NO
- (4) ( $\pm 0.65$ ) For use in all other comparisons

66/Db/1.3

HORSEPOOL E. (W)

GRAIN

	B	C	W	W*	Mean
Mean ( $\pm 0.74$ )	47.2	47.6	48.1	46.7	47.4
	( $\pm 1.05$ )				( $\pm 0.52$ )
L	47.2	49.1	50.1	47.1	48.4
H	47.3	46.1	46.1	46.4	46.5
	(1) and (2)				(3) and (4)
N0	46.0	43.3	45.6	42.6	44.4
N1	48.6	51.3	49.8	48.4	49.5
N2	51.4	49.0	49.5	49.7	49.9
N3	43.0	47.0	47.7	46.3	46.0
	L	H			
	(5) and (6)				
N0	44.4	44.4			
N1	50.8	48.2			
N2	52.2	47.6			
N3	46.3	45.7			

- (1) ( $\pm 1.84$ ) and (5) ( $\pm 1.30$ ) For use in vertical and interaction comparisons involving N3-N1 or N2-N0  
 (2) ( $\pm 1.67$ ) and (6) ( $\pm 1.18$ ) For use in all other comparisons  
 (3) ( $\pm 0.92$ ) For use in comparisons N3-N1 or N2-N0  
 (4) ( $\pm 0.83$ ) For use in all other comparisons





66/Db/2.1

BARLEY

(RB 201)

Spun and drilled seed and cultivations - Whittlocks N.E. 1966.

Design:

Spun seed: 6 randomised blocks of 4 plots with seed rates on strips of 3 blocks.

Drilled seed: 6 randomised blocks of 2 plots.

Area of each plot: 0.0135. Area harvested: 0.0096.

Treatments:

Spun seed. All combinations of:

To strips of 3 blocks: (1) Seed rates 140 (L), 200 (H).

To plots: (2) Seedbed cultivations (all on Mar 10, 1966): Spring-tine cultivate, harrow, sow, harrow (C1). Spring-tine cultivate, sow, spring-tine cultivate, harrow (C2). Spring-tine cultivate twice, sow, harrow (C3). Sow, spring-tine cultivate, harrow (C4).

Drilled seed.

Seedbed cultivations: C1, C3 as above (all at seed rate L).

Basal applications: 4 cwt (20:10:10) broadcast by distributor.

Weedkiller: Mecoprop/2,4-D (Methoxone Extra at 6 pints in 36 gals).

Cultivations, etc.: Ploughed: Nov 1, 1965. Basal dressing applied: Mar 9, 1966. Seed sown: Mar 10. Sprayed: May 11. Combine harvested: Aug 19. Variety: Maris Badger. Previous crops: Potatoes 1964, winter wheat 1965.

Standard error per plot (pooled spun and drilled seed):

Grain: 4.53 or 12.0% (17 d.f.)

66/Db/2.2

SUMMARY OF RESULTS

GRAIN

SPUN SEED

	C1	C2	C3	C4	Mean
	(±2.62)*				
L	39.6	40.1	37.9	35.0	38.2
H	37.3	38.5	38.6	34.0	37.1
Mean (±1.85)	38.5	39.3	38.3	34.5	37.6

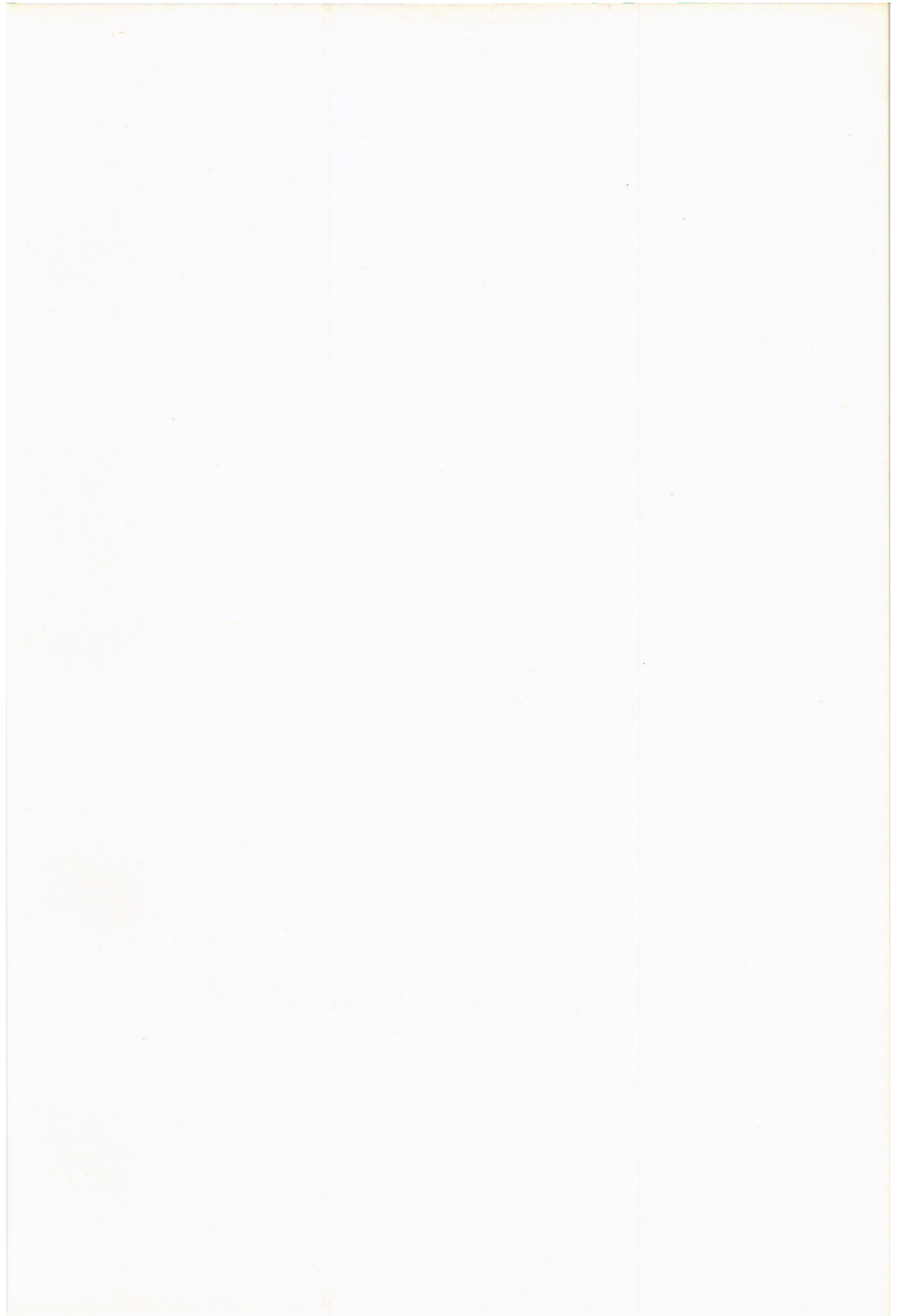
\* For use in horizontal and interaction comparisons only

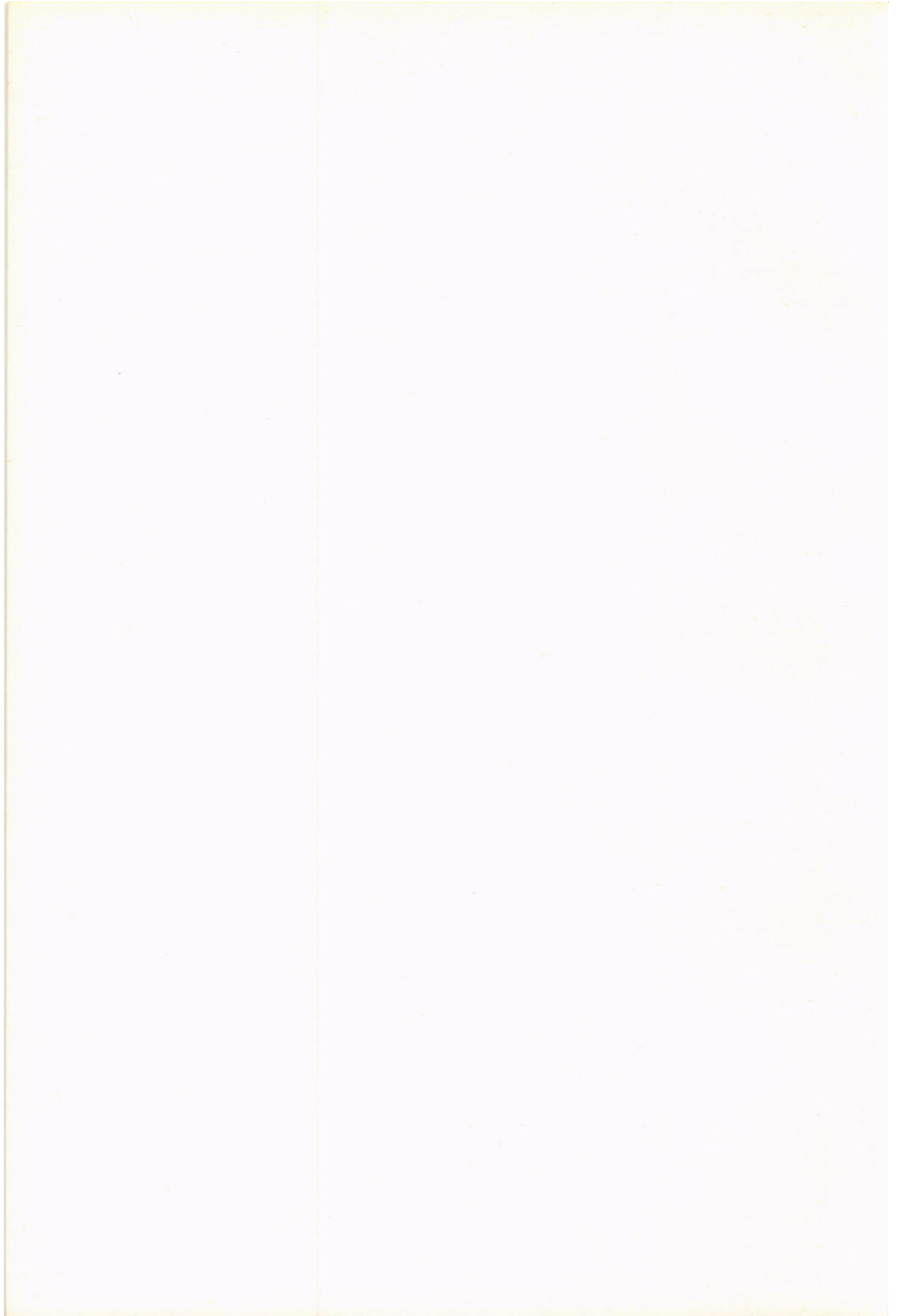
DRILLED SEED

C1	C3	Mean
36.8	39.9	38.4
(±1.85)		

Pooled mean: 37.9

Pooled mean D.M. %: 86.3







66/Dc/1.1

SPRING BEANS

(FBe 101)

Row spacing, seed rates, methods of fertiliser application and irrigation - Long Hoos IV 1966.

Design: A single replicate of 4 x 2 x 2 x 2 x 2 in 8 blocks of 8 plots. Irrigation on one group of 4 blocks.

Area of each plot: 0.0172. Area harvested: 0.0110.

Treatments: All combinations of:-

- Groups of blocks: 1. Irrigation: None (O), 1 in. of water (I).  
Plots: 2. Row spacing: 10.5 ins (C), 21 ins (W).  
3. Seed rates: 200 lb (L), 300 lb (H).  
4. Fertiliser forms and rates: 400 (F1), 560 (F2), compound (0:20:20), 500 (N1), 700 (N2) (6:15:15).  
5. Methods of fertiliser application: Broadcast (B), placed (P).

Basal applications: Ground chalk at 27 cwt. Weedkiller: Simazine at 1 lb in 40 gals. Insecticide: Demeton-s-methyl (Metasystox at 12 fluid oz in 37 gals).

Cultivations, etc.: Ploughed: Oct 15, 1965. Ground chalk applied: Nov 4. Seed drilled, fertilisers applied: Feb 18, 1966. Simazine applied: Mar 4. Irrigated: June 7. Combine harvested: Sept 14. Variety: Spring Tick. Previous crops: Potatoes 1964, winter and spring wheat 1965.

Standard error per plot.

Grain: 2.94 or 7.2% (13 d.f.)

66/Dc/1.2

SUMMARY OF RESULTS

GRAIN

	F1	F2	N1	N2	Mean
Mean	40.4	40.5 ( $\pm 0.73$ )	41.1	40.4	40.6
O	40.3	41.6 ( $\pm 1.04$ )*	41.0	39.8	40.7
I	40.5	39.4	41.2	41.1	40.5
C	40.6	40.6 ( $\pm 1.04$ )	40.7	40.3	40.6 ( $\pm 0.52$ )
W	40.2	40.4	41.5	40.6	40.7
L	39.5	39.9 ( $\pm 1.04$ )	40.8	40.0	40.1 ( $\pm 0.52$ )
H	41.3	41.0	41.4	40.9	41.1
B	40.0	40.5 ( $\pm 1.04$ )	41.7	40.4	40.6 ( $\pm 0.52$ )
P	40.9	40.5	40.6	40.5	40.6

	C	W	L	H	B	P
O	( $\pm 0.73$ )*		( $\pm 0.73$ )*		( $\pm 0.73$ )*	
I	40.3	41.1	39.9	41.4	40.9	40.4
	40.8	40.2	40.2	40.9	40.3	40.7
C			( $\pm 0.73$ )		( $\pm 0.73$ )	
W			40.7	40.4	40.5	40.6
			39.4	41.9	40.7	40.6
L					( $\pm 0.73$ )	
H					39.7	40.5
					41.6	40.7

Mean D.M. %: 75.4

\* For use in horizontal and interaction comparisons only.

66/Dd/1.1

EARLY POTATOES

(RP/1)

Effects of DSA (dimethylamino-succinamic acid - a dwarfing compound) on early potatoes - Little Hoos 1966.

Design: 6 randomised blocks of 4 plots.

Area of each plot: 0.0064. Area harvested: 0.0004.

Treatments: All combinations of:-

1. Varieties: Arran Pilot (A), Maris Peer (M).
2. DSA spray: None (O), sprayed at 1.5 lb in 120 gals at tuber formation (S).

Basal applications: 13.5 tons dung, 7.75 cwt (17:11:22). Fungicide: Mancozeb at 1.2 lb in 37 gals on 2 occasions.

Cultivations, etc.: Dung applied: Jan 11, 1966. Ploughed: Jan 12. Basal NPK applied: Mar 30. Rotary cultivated, potatoes planted: Apr 14. DSA applied: June 10. Fungicide applied: July 1 and 25. Sprayed with diquat (Reglone at 4 pints in 40 gals): Sept 17. Lifted: Sept 19. Previous crops: Barley 1964, fallow 1965.

NOTE: The crop was sampled on 4 occasions for leaf area, dry weights and tuber yield. The yields presented are based on the final samples taken on Sept 19.

Standard error per plot.

Total tubers: 2.397 or 13.6% (14 d.f.)

66/Da/1.2

SUMMARY OF RESULTS

TOTAL TUBERS

	O	S	Mean
	(±0.978)		(±0.692)
A	18.03	18.28	18.16
M	18.03	15.90	16.97
Mean (±0.692)	18.03	17.09	17.56



66/Da/2.1

POTATOES

(RP 3/1 and WP 201)

Soil fungicides and blight - Rothamsted (R) Fosters West Side and Woburn (W) Butt Close 1966.

Design: 6 randomised blocks of 10 plots.

Area of each plot: 0.0043. Area harvested: 0.0021.

Treatments: Fungicides: None (O) and the following combinations of materials and forms and times of application:-

TaSl	TaS2	TaF
TcSl	TcS2	
	DS2	DF
	ZS2	ZF

- Ta - Triphenyltin acetate  
Tc - Triphenyltin chloride, both at 0.18 lb of metallic Sn, equivalent to 0.6 lb triphenyltin acetate  
D - Tetrachloro-iso-phthalonitrile at 5 lb  
Z - Zineb at 3 lb  
Sl - Applied as dust in 210 - 220 lb kaolin lightly forked into the soil in May  
S2 - As Sl but in June  
F - Applied as foliar spray at first foliage blight as a wettable powder in 100 gals of water.

Basal applications:

Fosters West Side (R): 13.5 tons dung. 7.75 cwt (17:11:22).  
Butt Close (W): 10 tons dung. 7 cwt (17:11:22).  
Weedkiller (both fields): Linuron at 1 lb plus paraquat at 0.75 lb ion in 37 gals.

Cultivations, etc.:

Fosters West Side (R): Dung applied: Jan 12, 1966. Ploughed: Jan 14. Basal NPK applied: Mar 29. Rotary cultivated, potatoes planted: Apr 7. Weedkiller applied: May 10. Fungicides applied: Sl plots - May 25, S2 plots - June 20, foliar spray (F) - Aug 2. Haulm destroyed mechanically: Sept 22. Lifted: Sept 26. Variety: King Edward. Previous crops: Kale and spring wheat 1964, barley 1965.

66/Da/2.2

Butt Close (W): Deep-tine cultivated: Sept 16, 1965. Ploughed:  
Nov 15. Dung applied: Jan 11, 1966. Ploughed 2nd time:  
Jan 28. Basal NPK applied: Mar 23. Rotary cultivated,  
potatoes planted: Mar 30. Weedkiller applied: May 7.  
Fungicides applied: S1 plots - May 17, S2 plots - June 27. Haulm  
destroyed mechanically: Sept 7. Lifted: Sept 19. (W) variety  
Variety: King Edward. Previous crops: Barley 1964,  
fallow 1965.

NOTES: (1) Butt Close (W): The haulm became yellow before blight  
appeared and no foliar sprays (F) were applied.  
(2) On Fosters West Side (R) tubers were examined at harvest  
for blight infection. There was no blight on the Butt Close (W)  
experiment.

Standard errors per plot. Total tubers:  
Fosters West Side (R): 1.332 or 8.0% (45 d.f.)  
Butt Close (W): 2.122 or 13.1% (45 d.f.)

SUMMARY OF RESULTS

	0	TaS1	TaS2	TaF	TcS1	TcS2	DS2	DF	ZS2	ZF	Mean
TOTAL TUBERS											
FOSTERS WEST SIDE (R)											
Mean ( $\pm 0.544$ )	16.47	16.20	16.34	17.65	16.50	16.11	16.56	16.22	16.38	17.61	16.60
BUTT CLOSE (W)											
Mean ( $\pm 0.866$ )	16.50	16.43	15.90	14.62	17.14	16.63	16.34	15.31	16.16	16.49	16.15
% WARE											
FOSTERS WEST SIDE (R)											
Mean	94.5	94.2	94.6	94.7	93.9	93.7	94.0	94.4	95.1	93.4	94.3
BUTT CLOSE (W)											
Mean	79.5	78.7	79.7	76.5	77.7	80.9	79.5	77.0	80.9	78.4	78.9

66/Da/2.3

NOTE: Butt Close (w) F not applied

Table 1

Table 1. Summary of the data collected during the study.

Year	Month	Day	Time	Location	Species	Count
2014	Jan	1	08:00	Site 1	Sp. A	15
		1	12:00	Site 1	Sp. B	10
		1	16:00	Site 1	Sp. C	8
		2	08:00	Site 2	Sp. A	12
		2	12:00	Site 2	Sp. B	9
		2	16:00	Site 2	Sp. C	7
	Feb	1	08:00	Site 1	Sp. A	18
		1	12:00	Site 1	Sp. B	11
		1	16:00	Site 1	Sp. C	9
		2	08:00	Site 2	Sp. A	14
		2	12:00	Site 2	Sp. B	10
		2	16:00	Site 2	Sp. C	8

Continued on next page



66/Dd/3.1

## POTATOES

(Two experiments - RP6/1 and RP17/1)

Effects of gaps - Little Hoos 1966.

Design: RP6/1 (variety Pentland Dell) - 4 randomised blocks of 3 plots split into 5.

RP17/1 (variety King Edward) - 6 randomised blocks of 2 plots split into 5.

Area of each plot: 0.0071. Area harvested: 0.0033.

Treatments: All combinations of:-

Whole plots: 1. Time of gapping: At emergence (E) - variety Pentland Dell only, at flowering (F), just before harvest (H).

Sub plots: 2. Amount of gapping: Normal plant population (G0), 4 (G4), 8 (G8), 12 (G12), 16% (G16) of plants removed.

Basal applications: 13.5 tons dung, 7.75 cwt (17:11:22).

Weedkiller: Linuron at 1 lb plus paraquat at 0.75 lb ion in 37 gals. Fungicide: Mancozeb at 1.2 lb in 35 gals on 4 occasions (King Edward) and on 2 occasions (Pentland Dell).

Cultivations, etc.: Dung applied: Jan 11, 1966. Ploughed: Jan 12. Basal NPK applied: Mar 30. Rotary cultivated, potatoes planted: King Edward - Apr 7, Pentland Dell - May 17. Weedkiller applied: June 1. Rotary ridged (King Edward only): June 15. Fungicide applied: King Edward - June 30, July 23, Aug 8 and 18, Pentland Dell - July 23 and Aug 8. Sprayed with undiluted BOV: King Edward - Sept 16, Pentland Dell - Sept 23. Haulm destroyed mechanically: Sept 27. Lifted: King Edward - Sept 28, Pentland Dell - Oct 10. Previous crops: Barley 1964, fallow 1965.

NOTE: The Pentland Dell experiment suffered badly from unplanned gaps and poor growth. A second experiment was therefore started on King Edward potatoes already planted.

Standard errors per plot.	Total tubers:
RP6/1. Pentland Dell.	Whole plot: 0.583 or 3.6% (6 d.f.)
	Sub plot: 1.303 or 8.0% (36 d.f.)
RP17/1. King Edward.	Whole plot: 0.772 or 3.7% (5 d.f.)
	Sub plot: 0.952 or 4.5% (40 d.f.)

66/Dd/3.2

SUMMARY OF RESULTS

TOTAL TUBERS

	G0	G4	G8	G12	G16	Mean
RP6/1 Pentland Dell						
	(1) and (2)					(±0.326)
E		17.20	16.82	16.39	15.15	16.39
F		17.74	16.08	16.21	15.01	16.26
H		16.34	15.88	15.24	13.65	15.28
Mean (±0.376)	17.56	17.09	16.26	15.95	14.60	16.29*
RP17/1 King Edward						
	(1) and (2)					(±0.342)
F		22.90	21.21	21.10	19.63	21.21
H		21.80	20.16	19.18	18.82	19.99
Mean (±0.275)	22.61	22.35	20.69	20.14	19.23	21.00*

\* General Mean

- |              |          |                                                   |
|--------------|----------|---------------------------------------------------|
| RP6/1        | RP17/1   |                                                   |
| (1) (±0.652) | (±0.469) | For use in vertical and diagonal comparisons      |
| (2) (±0.652) | (±0.389) | For use in horizontal and interaction comparisons |

66/Da/3.3

% WARE

	G0	G4	G8	G12	G16	Mean
RP6/1 Pentland Dell						
E		98.9	99.0	98.2	98.5	98.6
F		98.7	98.2	98.8	98.7	98.6
H		98.2	98.6	98.3	98.0	98.3
Mean	98.7	98.6	98.6	98.4	98.4	98.5

RP17/1 King Edward

F		96.6	96.5	96.0	97.0	96.5
H		97.1	96.7	96.4	96.6	96.7
Mean	96.9	96.9	96.6	96.2	96.8	96.7

Page 1		Page 2			
Year	2010	2011	2012	2013	2014
Total Investment 1,000					
0.20	1.00	0.20	0.20	0.20	
0.20	1.00	0.20	0.20	0.20	
0.20	0.20	1.00	0.20	0.20	
0.20	0.20	0.20	0.20	0.20	1.00
Total Investment 1,000					
0.20	0.20	0.20	0.20	0.20	
0.20	0.20	0.20	0.20	0.20	
0.20	0.20	0.20	0.20	0.20	1.00



66/Dd/4.1

POTATOES

(RP 7/1)

Effects of skin-spot (*Oospora pustulans*)\* - Little Hoos 1966.

Design: 6 blocks of 2 plots split into 4.

Area of each plot: 0.0033.

Treatments: All combinations of:-

- Whole plots: 1. Varieties: King Edward (E), Majestic (M).  
Sub plots: 2. Levels of seed infection (*Oospora pustulans*):  
Clean (A), moderately infected (B), severely  
infected (C), unselected stock (D).

Basal applications: 7.75 cwt (17:11:22). Fungicide: Mancozeb  
at 1.2 lb in 35 gals on 4 occasions.

Cultivations, etc.: Ploughed: Jan 12, 1966. Basal NPK applied:  
Mar 30. Rotary cultivated, potatoes planted: May 3.  
Rotary ridged twice: May 28, June 17. Fungicide applied:  
June 30, July 23, Aug 8 and 18. Sprayed with undiluted BOV  
at 21 gals: Sept 16. Haulm destroyed mechanically: Sept 27.  
Lifted: Sept 29. Previous crops: Barley 1964, fallow 1965.

\* In experiment RP7/1 (66/Dd/4) the tuber grades were selected on  
the degree of skin-spotting, in RP10/1 (66/Dd/7) a King Edward  
stock in which the infections occurred mainly close to the  
eyes was used and the grades were based on number of live  
eyes in March.

Standard errors per plot. Total tubers:

- Whole plot: 1.049 or 6.7% (5 d.f.)  
Sub plot: 0.910 or 5.8% (30 d.f.)

66/Dd/4.2

SUMMARY OF RESULTS

	A	B	C	D	Mean
TOTAL TUBERS					
	(1) and (2)				(±0.428)
E	17.92	17.35	12.65	16.72	16.16
M	15.52	15.59	14.66	15.38	15.29
Mean (±0.263)	16.72	16.47	13.66	16.05	15.72
% WARE					
E	96.1	96.2	97.6	96.2	96.5
M	97.7	97.4	97.8	97.6	97.6
Mean	96.9	96.8	97.7	96.9	97.1

- (1) (±0.536) For use in vertical and diagonal comparisons  
 (2) (±0.371) For use in horizontal and interaction comparisons.

66/Dd/5.1

POTATOES

(RP 8/1)

Effects of stem-canker (*Rhizoctonia solani*) - Little Hoos 1966.

Design: 6 randomised blocks of 2 plots split into 4.

Area of each plot: 0.0036. Area harvested: 0.0033.

Treatments: All combinations of:-

Whole plots: 1. Varieties: King Edward (E), Majestic (M).

Sub plots: 2. Infection of seed (*Rhizoctonia solani*):  
Clean (A), moderately infected (B), severely  
infected (C), unselected stock (D).

Basal applications: 7.75 cwt (17:11:22). Fungicide: Sprayed 4  
times with mancozeb at 1.2 lb in 35 gals.

Cultivations, etc.: Ploughed: Jan 12, 1966. Basal NPK applied:  
Mar 30. Rotary cultivated, potatoes planted: May 3.  
Rotary ridged twice: May 28 and June 17. Fungicide applied:  
June 30, July 23, Aug 8 and 18. Sprayed with undiluted BOV  
at 21 gals: Sept 16. Haulm destroyed mechanically:  
Sept 27. Lifted: Sept 29. Previous crops: Barley 1964,  
fallow 1965.

Standard errors per plot. Total tubers:

Whole plot: 0.601 or 4.2% (5 d.f.)

Sub plot: 0.770 or 5.4% (30 d.f.)

65/Da/5.2

SUMMARY OF RESULTS

	A	B	C	D	Mean
TOTAL TUBERS					
	(1) and (2)				(±0.245)
E	18.79	17.12	17.33	17.51	17.69
M	12.47	10.18	9.95	11.65	11.06
Mean (±0.222)	15.63	13.65	13.64	14.58	14.38
% WARE					
E	96.8	95.2	94.7	95.1	95.4
M	96.2	95.4	95.6	96.0	95.8
Mean	96.5	95.3	95.2	95.6	95.6

(1) (±0.366) For use in vertical and diagonal comparisons

(2) (±0.314) For use in horizontal and interaction comparisons



66/Da/6.1

POTATOES

(RP 9/1)

Effects of gangrene (*Phoma* spp.) - Little Hoos 1966.

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

Area of each plot: 0.0067. Area harvested: 0.0033.

Treatments: All combinations of:-

Whole plots: 1. Varieties: King Edward (E), Majestic (M).

Sub plots: 2. Levels of seed-infection (*Phoma* spp.): Clean (A), moderately infected (B), severely infected (C), unselected stock (D).

Basal applications: 7.75 cwt (17:11:22). Fungicide: Mancozeb at 1.2 lb in 35 gals on 4 occasions.

Cultivations, etc.: Ploughed: Jan 12, 1966. Basal NPK applied: Mar 30. Rotary cultivated, potatoes planted: May 3. Rotary ridged twice: May 28 and June 17. Fungicide applied: June 30, July 23, Aug 8 and 18. Sprayed with undiluted BOV at 21 gals: Sept 16. Haulm destroyed mechanically: Sept 27. Lifted: Sept 29. Previous crops: Barley 1964, fallow 1965.

Standard errors per plot. Total tubers:

Whole plot: 0.708 or 4.0% (5 d.f.)

Sub plot: 0.873 or 4.9% (30 d.f.)

66/Da/6.2

SUMMARY OF RESULTS

	A	B	C	D	Mean
TOTAL TUBERS					
	(1) and (2)				(±0.289)
E	18.71	18.13	17.35	18.44	18.16
M	17.71	18.01	15.36	17.50	17.15
Mean (±0.252)	18.21	18.07	16.36	17.97	17.65
% WARE					
E	93.9	92.0	91.3	92.7	92.5
M	97.6	96.3	94.5	95.5	96.0
Mean	95.8	94.1	92.9	94.1	94.2

(1) (±0.423) For use in vertical and diagonal comparisons

(2) (±0.356) For use in horizontal and interaction comparisons

66/Dd/7.1

POTATOES

(RP 10/1)

Effects of 'dead eyes' (*Oospora pustulans*)\* - Little Hoos 1966.

Design: 6 randomised blocks of 4 plots.

Area of each plot: 0.0071. Area harvested: 0.0033.

Treatments: Levels of seed infection (*Oospora pustulans*):-

Clean	(A)
Moderately infected (1-2 live eyes)	(B)
Severely infected (no live eyes)	(C)
Unselected stock	(D)

Basal applications: 7.75 cwt (17:11:22). Mancozeb at 1.2 lb in 35 gals on 4 occasions.

Cultivations, etc.: Ploughed: Jan 12, 1966. Basal NPK applied: Mar 30. Rotary cultivated, potatoes machine planted: May 3. Rotary ridged twice: May 28, June 18. Fungicide applied: June 30, July 23, Aug 8 and 18. Sprayed with undiluted BOV at 21 gals: Sept 16. Haulm destroyed mechanically: Sept 27. Lifted: Sept 29. Variety: King Edward. Previous crops: Barley 1964, fallow 1965.

\* In experiment RP7/1 (66/Dd/4) the tuber grades were selected on the degree of skin-spotting, in RP10/1 (66/Dd/7) a King Edward stock in which the infections occurred mainly close to the eyes was used and the grades were based on number of live eyes in March.

Standard error per plot.

Total tubers: 1.173 or 7.2% (15 d.f.)

66/Da/7.2

SUMMARY OF RESULTS

	A	B	C	D	Mean
TOTAL TUBERS					
	(±0.479)				
Mean	18.85	17.96	10.07	18.65	16.38
% WARE					
Mean	96.3	97.1	96.8	96.5	96.7



66/Da/8.1

POTATOES

(RP 11/1)

Times of burning off haulm - Little Hoos 1966.

Design: 4 randomised blocks of 7 plots, plots being split into two for times of burning off.

Area of each sub plot: 0.0274. Area harvested: 0.0071.

Treatments:

Fungicide sprays* and times of application (whole plots)	Times of burning off** (sub plots)
None (O)	(O), (S)
Early 4 (E+)	(O), (S)
Early 4 (E+)	(B), (C)
Early 3 (E)	(B), (C)
Late 4 (L+)	(B), (C)
Late 3 (L)	(B), (C)
Early 4 (E+)	(A), (IC)

(O) Not burnt off

(A) Burnt off when mean destruction by blight of the remaining haulm on the (E+O) plots was 0.7% (31% senility)

(B) as (A) but 0.8% (58% senility)

(C) as (A) but 1.3% (68% senility)

(IC) as (C) but sprayed also with insecticide (menazon - 'Saphicol' at 10 fluid oz in 35 gals)

(S) sub plots for sampling (no yields recorded).

The first fungicide sprays were applied before the Ministry of Agriculture's blight warning.

\* 1.5 lb fungicide containing 80% mancozeb in 35 gals.

\*\* With undiluted BOV at 21 gals.

Basal applications: 13.5 tons dung, 7.75 cwt (17:11:22).

Cultivations, etc.: Dung applied: Jan 11, 1966. Ploughed: Jan 12. Fertiliser applied: Mar 3. Rotary cultivated, potatoes machine planted: Apr 6. Rotary ridged: June 15. Menazon spray applied, first spraying with mancozeb (E, E+): June 30. Second spraying with mancozeb (E, E+, L, L+): July 22, third (E, E+, L, L+): Aug 8, fourth (E+, L, L+): Aug 18, fifth (L+): Sept 8. (A) plots sprayed with BOV: Sept 8, (B) plots: Sept 16, (C) plots: Sept 23. Haulm destroyed mechanically: Sept 27. Lifted: Sept 28. Variety: King Edward. Previous crops: Barley 1964, fallow 1965.

NOTE: Destruction of foliage was assessed at weekly intervals from the blight outbreak until total destruction. Periodic samples were taken from the sample plots for weights of tubers and assessment of blight in tubers.

66/Dd/8.2

Standard error per plot (Pooled).  
 Total tubers: 0.972 or 4.4% (30 d.f.)

SUMMARY OF RESULTS

	O	E+	E	L+	L	Mean
TOTAL TUBERS						
			(±0.486)			
O	19.29	23.35				(±0.243)
B		22.81	21.64	22.39	23.09	22.48
C		22.15	21.95	21.64	23.80	22.38
A		21.29				
IC		21.68				
Mean of B & C		22.48	21.80 (±0.344)	22.01	23.44	22.09*
% WARE						
O	97.2	97.5				
B		97.5	96.4	97.3	97.3	97.1
C		97.4	97.1	97.4	97.7	97.4
A		97.4				
IC		97.8				
Mean of B & C		97.5	96.7	97.4	97.5	97.3*

\* General mean

66/Da/9.1

POTATOES

(WP 101)

Varieties - Woburn Butt Close 1966.

Design: 4 x 4 Latin square.

Area of each plot: 0.0096. Area harvested: 0.0048.

Treatments:-

Varieties: Pentland Dell (D), King Edward (E), Majestic (see note below), Maris Piper (P).

Basal applications, etc.: 10 tons dung, 7 cwt (17:11:22).

Fungicide: Mancozeb 1.2 lb in 33 gals on 3 occasions. Weedkiller: Linuron at 1 lb a.i., and paraquat 0.75 lb ion in 37 gals.

Cultivations, etc.: Deep-tine cultivated: Sept 16, 1965. Ploughed: Nov 15. Dung applied: Jan 11, 1966. Ploughed: Jan 28. Basal NPK applied: Mar 23. Rotary cultivated and planted: Mar 31. Earthed up (rotoridged): May 4. Sprayed weedkiller: May 7. Sprayed fungicide: June 29, July 18, Aug 4. Haulm destroyed mechanically: Sept 3. Lifted: Sept 13. Previous crops: Barley 1964, fallow 1965.

NOTE: The seed of the varieties D, E and P was once-grown ex Rothamsted, H certificate. Majestic was also included but once-grown seed was not available so a Scotch SS stock was used. Because of fungus diseases this gave only 60% of normal plants (the other varieties gave full plant populations) and was therefore excluded from the analysis. The mean yield of total tubers for Majestic was 9.55 tons, mean % ware 87.7.

Standard errors per plot.

Total tubers: 1.792 or 17.1% (6 d.f.)



66/Dd/9.2

SUMMARY OF RESULTS

D	E	P	Mean
<b>TOTAL TUBERS</b>			
7.72	(±0.896) 10.71	13.04	10.49
<b>% WARE</b>			
72.7	69.8	84.2	75.5

NOTE: The seed of the varieties D, E and F was raised from the tubers of the variety D. The seed of the variety E was raised from the tubers of the variety E. The seed of the variety F was raised from the tubers of the variety F. The seed of the variety G was raised from the tubers of the variety G. The seed of the variety H was raised from the tubers of the variety H. The seed of the variety I was raised from the tubers of the variety I. The seed of the variety J was raised from the tubers of the variety J. The seed of the variety K was raised from the tubers of the variety K. The seed of the variety L was raised from the tubers of the variety L. The seed of the variety M was raised from the tubers of the variety M. The seed of the variety N was raised from the tubers of the variety N. The seed of the variety O was raised from the tubers of the variety O. The seed of the variety P was raised from the tubers of the variety P. The seed of the variety Q was raised from the tubers of the variety Q. The seed of the variety R was raised from the tubers of the variety R. The seed of the variety S was raised from the tubers of the variety S. The seed of the variety T was raised from the tubers of the variety T. The seed of the variety U was raised from the tubers of the variety U. The seed of the variety V was raised from the tubers of the variety V. The seed of the variety W was raised from the tubers of the variety W. The seed of the variety X was raised from the tubers of the variety X. The seed of the variety Y was raised from the tubers of the variety Y. The seed of the variety Z was raised from the tubers of the variety Z.



66/Dd/10.1

POTATOES

(WP301)

Effects of Verticillium - Woburn Great Hill South West 1966.

Design: 2 blocks of 8 plots split into 3 for seed potato stocks.

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

Treatments: All combinations of:-

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

2. Phosphate: None (P0), 2.0 (P1) cwt P205 as superphosphate.

3. Potash: None (K0), 2.5 (K1) cwt K20 as muriate of potash.

Sub plots: 4. Seed stock: (All of variety King Edward): Once grown ex Rothamsted (A), selected from L1 (B), L3 (C) plots of the Woburn 'Methods of Fertiliser Application Experiment' (see 'Results' 65/C/5.1), which was attacked by Verticillium dahliae.

NOTE: Stock A was free from paracrinkle virus, but B and C were not.

Basal applications, etc.: Manures: None. Fungicide: Mancozeb 1.2 lb in 33 gals on 3 occasions.

Cultivations, etc.: Ploughed: Feb 4, 1966. Fertilisers applied: Apr 4. Rotary cultivated and planted: Apr 28. Earthed up: June 13. Sprayed fungicide: June 29, July 22, Aug 10. Haulm destroyed mechanically: Sept 16. Lifted: Sept 23. Previous crops: Barley 1964 and 1965.

Standard errors per plot. Total tubers:

Whole plot: 2.218 or 25.2% (7 d.f.)

Sub plot: 0.959 or 10.9% (16 d.f.)

66/Da/10.2

SUMMARY OF RESULTS

TOTAL TUBERS

	A	B	C	Mean
Mean ( $\pm 0.240$ )	9.61	8.44	8.33	8.79
	(1) and (2)			( $\pm 0.784$ )
NO	4.94	4.47	4.13	4.51
N1	14.28	12.41	12.52	13.07
PO	8.39	7.35	6.84	7.53
P1	10.83	9.52	9.81	10.06
KO	9.13	8.21	8.19	8.51
K1	10.08	8.67	8.46	9.07

	PO	P1	KO	K1
	$(\pm 1.109)$		$(\pm 1.109)$	
NO	3.42	5.60	4.63	4.39
N1	11.63	14.51	12.39	13.75
			$(\pm 1.109)$	
		PO	6.54	8.52
		P1	10.48	9.63

- (1) ( $\pm 0.832$ ) For use in vertical and diagonal comparisons  
 (2) ( $\pm 0.339$ ) For use in horizontal and interaction comparisons

66/Dd/10.3

% WARE				
	A	B	C	Mean
Mean ( $\pm 1.16$ )	84.1	80.1	80.4	81.6
NO	78.2	73.9	73.0	75.0
NL	90.1	86.4	87.8	88.1
PO	81.6	75.8	77.8	78.4
PI	86.6	84.4	83.0	84.7
KO	82.2	78.0	80.7	80.3
KL	86.0	82.3	80.1	82.8
	PO	PI	KO	KL
NO	70.6	79.4	75.5	74.6
NL	86.3	89.9	85.2	91.0
		PO	75.2	81.7
		PI	85.4	83.9

66/Da/11.1

POTATOES

(WP 401)

Control of tuber blight (*Phytophthora infestans*) by fungicide sprays and haulm destruction - Woburn Great Hill South West 1966.

Design: 6 blocks of 4 plots split into two.

Area of each sub plot: 0.0071.

Treatments:- (fungicide sprays each of 1.5 lb fungicide containing 80% mancozeb in 33 gals).

None: (0) one half plot per block  
Sprayed 3 times starting early (E3) one whole plot and two half plots per block on July 1, July 22, Aug 10.  
Sprayed twice starting late (I2) one half plot per block on July 22, Aug 10.

NOTES: (1) The remaining 2 half plots used for sampling, no yields were taken.

(2) The intended treatments were modified as above (the test of burning off being abandoned) because the haulm died early for reasons other than blight.

Basal applications: 10 tons dung, 7 cwt (17:11:22).

Cultivations, etc.: Dung applied: Jan 21, 1966. Ploughed: Feb 3.  
Basal NPK applied: Mar 25. Rotary cultivated, potatoes planted: Apr 4. Grubbed: June 2. Earthed up: June 13. Haulm mechanically destroyed: Sept 16. Lifted: Sept 26 - 27. Variety: King Edward. Previous crops: Barley 1964, barley 1965.

NOTE: (3) Samples of 2 plants from each of six rows of each half plot were taken on 11 occasions from June 29 to Sept 19 for weight of tubers and assessment of blight in tubers.

Standard error per plot.

Total tubers: 2.727 or 21.2% (25 d.f.)



66/Da/11.2

SUMMARY OF RESULTS

0	E3	L2	Mean
TOTAL TUBERS			
13.98 (±1.113)	12.71 (±0.557)	12.18 (±1.113)	12.83
% WARE			
91.3	90.3	90.6	90.5

66/De/1.1

CARROTS

(Wct 1)

The effects of systemic insecticides on yield through control of motley dwarf virus - Woburn Butt Furlong 1966.

Design: 4 x 4 Latin square.

Area of each plot: 0.0135. Area harvested: 0.0029.

Treatments: All combinations of:-

1. Menazon granules placed: None (0), 0.8 lb menazon (G).
2. Menazon spray: None (0), sprayed 3 times with menazon (Saphicol at 0.5 pints in 47 gals twice, Saphicol at 0.5 pints in 50 gals once) (S).

Basal applications: 8 cwt (10:10:18). Weedkiller: 1 lb linuron in 44 gals.

Cultivations, etc.: Ploughed: Sept 27, 1965. Ground chalk applied at 28 cwt: Mar 14, 1966. Basal NPK applied: May 3. Seed drilled at 2.6 lb, menazon granules placed: May 4. Weedkiller applied: May 7. Menazon sprays applied: June 16, June 29, July 15. Lifted: Aug 31. Variety: Clucas New Model Red Cored. Previous crops: Winter wheat 1964, barley 1965.

NOTE: Sticky trap records were taken and periodical aphid counts were made on plots. Estimates of virus infection and yield from samples were made in late August.

Standard errors per plot.

Marketable roots:	0.517 or 4.5% (6 d.f.)
Tops from marketable roots:	0.358 or 7.9% (6 d.f.)

66/De/1.2

SUMMARY OF RESULTS

	O	S	Mean
MARKETABLE ROOTS			
	(±0.258)		(±0.183)
O	8.00	13.76	10.88
G	11.20	12.77	11.98
Mean (±0.183)	9.60	13.27	11.43
TOPS FROM MARKETABLE ROOTS			
	(±0.179)		(±0.127)
O	3.29	5.52	4.40
G	4.35	4.99	4.67
Mean (±0.127)	3.82	5.25	4.54

66/Df/1.1

KALE

Urea concentrations in NPK fertilisers - Highfield IV 1966.

Design: 3 randomised blocks of 18 plots.

Area of each plot: 0.0019. Area harvested: 0.0011.

Treatments: None (O) (2 plots per block) and all combinations of:-

1. Compound fertilisers (all in proportion N: P<sub>2</sub>O<sub>5</sub>: K<sub>2</sub>O of 2:1:1).

Compounds with P as triple superphosphate:-

- N 100% urea (P).
- N 67% urea and 33% ammonium nitrate (Q).
- N 33% urea and 67% ammonium nitrate (R).
- N 100% ammonium nitrate (S).

Compounds with P and part N as monourea phosphate, remaining N as follows:-

- 100% urea (T).
- 66% urea and 33% ammonium nitrate (U).
- 33% urea and 66% ammonium nitrate (V).
- 100% ammonium nitrate (W).

K as muriate of potash in all compounds.

2. Levels: To supply 1.25 (L1), 2.50 (L2) cwt N.

Basal applications: Manures: None.

Cultivations, etc.: Ploughed: Nov 13, 1965. Rotary cultivated, fertilisers broadcast, seed drilled at 10 lb: May 11, 1966. Harvested: Nov 1. Variety: Thousand Head. Previous crops: Winter wheat 1964, barley 1965.

NOTE: Crop samples were taken for germination count, yield and N percentage. Samples were taken at harvest for yield and N percentage.

Standard error per plot.

Fresh weight: 1.628 or 6.6% (34 d.f.)



66/Df/1.2

SUMMARY OF RESULTS

FRESH WEIGHT

	O	P	Q	R	S	T	U	V	W	Mean
										(±0.332)
I1		22.48	22.55	22.69	22.96	21.40	22.76	22.62	23.43	22.61
I2		30.39	28.22	27.21	30.18	28.76	30.79	29.84	27.62	29.13
Mean (±0.665)	14.01	26.43	25.39	24.95	26.57	25.08	26.77	26.23	25.52	24.55*

(±0.940)

\* General mean

METEOROLOGICAL RECORDS 1966 - ROTHAMSTED

(Departure from long period means in brackets)

Month	Total sunshine: hours	Mean temperature: °F		In ground 1 ft., 4 ft. frosts	Ground(2)	Total rainfall: in. 1/1000 acre gauge	Rain(3) days	Drain- age through 20 in. soil: in. m.p.h.	Wind(4)
		Air(1)	Dew point						
Jan	36 (-17.1)	35.1 (-2.1)	32.9	36.6	20	1.32 (-1.20)	19	1.29	5.2
Feb	29 (-39.0)	41.9 (+3.7)	39.2	41.5	11	3.94 (+2.04)	20	3.52	6.6
Mar	120 (+4.4)	42.1 (+0.8)	36.7	42.7	18	0.70 (-1.22)	12	0.02	6.4
Apr	85 (-68.6)	45.5 (-0.4)	41.3	45.0	6	3.26 (+1.32)	25	1.74	5.7
May	207 (+10.9)	51.5 (-0.5)	44.3	52.6	8	2.62 (+0.51)	13	0.85	5.3
June	173 (-29.5)	59.3 (+2.0)	53.0	59.0	1	3.12 (+0.91)	16	0.99	4.1
July	139 (-52.7)	58.3 (-2.3)	51.6	59.9	0	3.12 (+0.57)	17	0.73	4.2
Aug	174 (-7.7)	58.4 (-1.7)	52.6	59.6	0	3.21 (+0.62)	12	1.69	4.0
Sept	167 (+21.8)	57.5 (+1.4)	50.9	58.1	0	1.56 (-0.84)	9	0.17	3.7
Oct	66 (-37.9)	50.7 (+1.6)	48.5	53.9	3	3.55 (+0.62)	22	2.55	3.7
Nov	46 (-15.1)	40.5 (-2.0)	37.1	45.2	15	1.96 (-0.84)	22	1.17	6.2
Dec	33 (-13.1)	40.5 (+1.9)	37.6	41.4	19	3.46 (+0.84)	24	2.90	7.2
Year	1275 (-243.6)	48.4 (+0.2)	43.8	49.6	101	31.82 (+3.33)	211	17.62	5.2

66/E/1.1

(1) Mean of maximum and minimum.

(2) Number of nights grass min. was below 32°F.

(3) Number of days rainfall was 0.01 in. or more.

(4) At 2 metres above ground level.



METEOROLOGICAL RECORDS 1966 - WOBURN

(Departure from long period means in brackets)

Month	Total sunshine: hours	Mean temperature: °F		Grass minimum °F	Total rainfall: in 8 in. gauge	Rain(2) days
		Air(1)	In ground 1 ft.			
January	37 (-14.3)	35.7 (-2.0)	37.1	27.7	1.26 (-0.86)	18
February	36 (-30.2)	42.8 (+4.5)	41.8	36.2	2.99 (+1.39)	19
March	115 (-2.0)	42.9 (+1.0)	43.1	29.6	0.58 (-1.08)	12
April	90 (-51.6)	45.3 (-1.1)	45.4	36.3	3.31 (+1.45)	23
May	216 (+27.9)	51.0 (-1.1)	53.7	37.7	1.88 (-0.19)	12
June	199 (+3.4)	59.5 (+2.0)	59.8	47.6	4.30 (+2.42)	12
July	145 (-37.3)	58.3 (-2.7)	62.0	46.1	2.38 (+0.05)	17
August	187 (+10.5)	57.2 (-3.2)	61.1	47.1	3.84 (+1.38)	14
September	158 (+19.0)	56.7 (+0.2)	58.6	46.4	1.92 (-0.20)	8
October	85 (-18.4)	50.3 (+0.6)	53.7	39.7	4.38 (+2.14)	18
November	50 (-9.6)	40.9 (-2.2)	44.4	31.0	2.48 (+0.06)	25
December	37 (-7.5)	41.2 (+2.1)	41.4	31.0	3.29 (+1.10)	25
Year*	1355(-110.1)	48.5 (-0.1)	50.2	38.0	32.61 (+7.66)	203

66/E/1.2

(1) Mean of maximum and minimum.

(2) Number of days rainfall was 0.01 inches or more.

\* Mean or total.

ROTHAMSTED REPORT FOR 1977, PART 1

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 (yd <sup>2</sup> )	= 0.8361 m <sup>2</sup>
1 acre (ac) (=4840 yd <sup>2</sup> )	= 0.4047 hectare (ha)
1 ounce (oz)	= 28.35 grams (g)
1 pound (lb)	= 0.4536 kilogram (kg)
1 hundredweight (cwt) (=112 lb)	= 50.80 kg
1 ton (=2240 lb)	= 1016 kg = 1.016 metric tons (tonnes) (t)
1 pint	= 0.5682 litre (l)
1 gallon (gal) (=8 pints)	= 4.546 litres
1 fluid ounce = 1/20 pint	= 0.02841 litre = 28.41 ml
1 cubic foot	= 28.32 litres

<i>To convert</i>	<i>Multiply by</i>
oz ac <sup>-1</sup> to g ha <sup>-1</sup>	70.06
lb ac <sup>-1</sup> to kg ha <sup>-1</sup>	1.121
cwt ac <sup>-1</sup> to kg ha <sup>-1</sup>	125.5
cwt ac <sup>-1</sup> to t ha <sup>-1</sup>	0.1255
ton ac <sup>-1</sup> to kg ha <sup>-1</sup>	2511
ton ac <sup>-1</sup> to t ha <sup>-1</sup>	2.511
gal ac <sup>-1</sup> to l ha <sup>-1</sup>	11.233

*The following factors are accurate to about 2 parts in 100:*

$$\begin{aligned}1 \text{ lb ac}^{-1} &= 1.1 \text{ kg ha}^{-1} \\1 \text{ gal ac}^{-1} &= 11 \text{ litres ha}^{-1} \\1 \text{ ton ac}^{-1} &= 2.5 \text{ t ha}^{-1}\end{aligned}$$

*In general reading of the text there will be no great inaccuracy in regarding:*

$$\begin{aligned}1 \text{ lb} &= 0.5 \text{ kg} \\1 \text{ lb ac}^{-1} &= 1 \text{ kg ha}^{-1}\end{aligned}$$

**Temperatures**

To convert °F into °C subtract 32 and multiply by  $\frac{5}{9}$  (0.556)  
To convert °C into °F multiply by  $\frac{9}{5}$  (1.8) and add 32



## CONVERSION FACTORS

### Factors for the Conversion of Metric to Imperial Units

1 centimetre (cm)	= 0.3937 inch (in.) = 0.03281 ft
1 metre (m)	= 1.094 yards (yd)
1 square metre (m <sup>2</sup> )	= 1.196 square yards (yd <sup>2</sup> )
1 hectare (ha)	= 2.471 acres (ac)
1 gram (g)	= 0.03527 ounce (oz)
1 kilogram (kg)	= 2.205 pounds (lb)
1 kg	= 0.01968 hundredweight (cwt) = 0.0009842 ton
1 metric ton (tonne) (t)	= 0.9842 ton
1 litre	= 1.760 pints = 0.2200 gallon (gal)
1 litre = 1000 millilitres (ml)	= 35.20 fluid ounces = 0.03531 cubic foot (ft <sup>3</sup> )

<i>To convert</i>	<i>Multiply by</i>
g ha <sup>-1</sup> to oz ac <sup>-1</sup>	0.01427
kg ha <sup>-1</sup> to lb ac <sup>-1</sup>	0.8921
kg ha <sup>-1</sup> to cwt ac <sup>-1</sup>	0.007966
t ha <sup>-1</sup> to cwt ac <sup>-1</sup>	7.966
kg ha <sup>-1</sup> to tons ac <sup>-1</sup>	0.0003983
t ha <sup>-1</sup> to tons ac <sup>-1</sup>	0.3983
l ha <sup>-1</sup> to gal ac <sup>-1</sup>	0.08902

### Plant nutrients

Plant nutrients are best stated in terms of amounts of the elements (P, K, Na, Ca, Mg, S); the old 'oxide' terminology (P<sub>2</sub>O<sub>5</sub>, K<sub>2</sub>O, Na<sub>2</sub>O, CaO, MgO, SO<sub>3</sub>) is still used in work involving fertilisers and liming since Regulations require statements of P<sub>2</sub>O<sub>5</sub>, K<sub>2</sub>O, etc.

### For quick conversions

(accurate to within 2%) the following factors may be used:

$2\frac{1}{2} \times P = P_2O_5$	$\frac{3}{7} \times P_2O_5 = P$
$1\frac{1}{2} \times K = K_2O$	$\frac{5}{6} \times K_2O = K$
$1\frac{3}{8} \times Ca = CaO$	$\frac{7}{10} \times CaO = Ca$
$1\frac{3}{4} \times Mg = MgO$	$\frac{3}{5} \times MgO = Mg$

### For accurate conversions:

<i>To convert</i>	<i>Multiply by</i>	<i>To convert</i>	<i>Multiply by</i>
P <sub>2</sub> O <sub>5</sub> to P	0.4364	P to P <sub>2</sub> O <sub>5</sub>	2.2915
K <sub>2</sub> O to K	0.8301	K to K <sub>2</sub> O	1.2047
CaO to Ca	0.7146	Ca to CaO	1.3994
MgO to Mg	0.6031	Mg to MgO	1.6581