

Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readable, or you suspect there are some problems, please let us know and we will correct that.



ROTHAMSTED  
RESEARCH

# Numerical Results of the Field Experiments 1968

[Full Table of Content](#)



## 68/B/2 Woburn Ley Arable Rotations

### Rothamsted Research

Rothamsted Research (1970) *68/B/2 Woburn Ley Arable Rotations* ; Numerical Results Of The Field Experiments 1968, pp 73 - 82 - DOI: <https://doi.org/10.23637/ERADOC-1-58>

68/B/2.1

## LEY AND ARABLE ROTATIONS

(WLA)

Woburn Stackyard 1968 - the 31st year.

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

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

Corrective K dressings (in cwt K<sub>2</sub>O) as muriate of potash

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

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

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

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

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

Cultivations, etc.:

Treatment crops.

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

68/B/2.2

Ley 2nd year: NK applied: 26 Mar, 1968, 26 June. Grazed 9 circuits: 28 Apr - 15 Oct.

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

Sainfoin 1st year: Ploughed: 18 Sept, 1967. N and K applied: 28 Mar, 1968. P applied: 29 Mar. Mg applied: 3 Apr. Seed drilled at 70 lb: 11 Apr. Cut once: 6 Aug.

Sainfoin 2nd year: N and K applied: 26 Mar, 1968. First cut: 6 June. Sprayed with paraquat at 0.38 lb ion in 30 gals: 10 June. Second cut: 12 Aug. Sprayed with paraquat at 0.38 lb ion in 30 gals: 14 Aug.

Sainfoin 3rd year: N and K applied: 26 Mar, 1968. First cut: 6 June. Sprayed with paraquat at 0.38 lb ion in 30 gals: 10 June. Rotary cultivated to kill having failed after first cut: 19 July. Sprayed with paraquat at 0.38 lb ion in 30 gals: Aug 14,

Potatoes: Ploughed: 18 Sept, 1967. Fumigant applied: 10 Nov. Mg applied: 3 Apr, 1968. PK applied: 4 Apr. Test nitrogen applied: 8 Apr. Rotary cultivated, potatoes planted: 10 Apr. Sprayed with linuron at 0.5 lb plus paraquat at 0.38 lb in 50 gals: 3 May. Grubbed: 1 June. Ridged: 14 June. Sprayed with mancozeb at 1.2 lb plus demeton-s-methyl at 3.5 oz in 38 gals: 12 July. Sprayed with mancozeb at 1.2 lb in 38 gals: 30 July, 6 Aug. Sprayed with undiluted BOV at 15 gals: 4 Sept. Lifted: 2 Oct.

Rye: Ploughed: 18 Sept, 1967. Seed combine drilled at 150 lb: 13 Oct. Seeds undersown (AH plots): 29 Mar, 1968. 'Nitro-Chalk' applied: 8 Apr. Combine harvested: 23 Aug.

Seeds hay: Seeds undersown in rye at 30 lb: 24 Apr, 1967. NPK applied: 26 Mar, 1968. NK applied: 18 June. Cut twice: 6 June, 12 Aug.

Carrots: Ploughed: 12 Oct, 1967. NPK applied: 5 Apr, 1968. Seed drilled at 3.5 lb: 11 Apr. Sprayed with linuron at 0.5 lb in 50 gals: 28 May. Sprayed with DDT at 0.5 pints in 20 gals: 30 May. Sprayed with menazon at 0.25 lb in 50 gals: 18 June. Lifted: 12 - 13 Nov.

#### Test crops.

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

68/B/2.3

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

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

Standard errors per plot.

Barley, 2nd test crop, grain:

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

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

68/B/2.4

SUMMARY OF RESULTS

TREATMENT CROPS

SAINFOIN, DRY MATTER

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

\* Lucerne 1963 - 64, sainfoin 1965.

68/B/2.5

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

68/B/2.6

TREATMENT CROPS

RYE

GRAIN

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

HAY

DRY MATTER

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

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

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

\*\* Lucerne 1963 - 64, sainfoin 1965.

68/B/2.7

CARROTS

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

\* FYM applied for test crop sugar beet in 1964



68/B/2.8

1ST TEST CROP

BARLEY

GRAIN

	NO	N1	N2	N3	N4
D0 Ley	31.7	28.0	25.8	23.1	-
SA	30.7	30.1	28.0	23.0	-
AH	-	31.5	27.3	22.9	24.2
AR	-	32.9	31.0	30.0	23.1
D1 Ley	34.4	29.1	20.8	22.8	-
SA	32.7	27.1	26.6	23.1	-
AH	-	32.0	27.6	22.7	23.9
AR	-	33.7	31.5	27.9	23.1
	Ley	SA	AH	AR	Mean
CON	26.4	28.0	26.8	29.4	27.7
ALT	27.5	27.4	26.2	28.9	27.5
Mean	27.0	27.7	26.5	29.2	27.6

Mean D.M. %: 80.4

68/B/2.9

1ST TEST CROP

BARLEY

STRAW

	NO	N1	N2	N3	N4
DO Ley	37.5	36.5	31.5	38.5	-
SA	39.1	37.6	43.0	30.4	-
AH	-	33.0	36.6	38.2	31.5
AR	-	30.9	39.4	39.5	35.7
D1 Ley	30.8	39.7	42.0	25.0	-
SA	31.5	36.0	36.8	32.7	-
AH	-	40.5	40.5	27.4	31.4
AR	-	32.3	43.7	38.4	28.4
	Ley	SA	AH	AR	Mean
CON	36.1	36.4	35.1	34.9	35.6
ALT	34.2	35.4	34.7	37.2	35.4
Mean	35.2	35.9	34.9	36.0	35.5

Mean D.M. %: 79.5

68/B/2.10

2ND TEST CROP

BARLEY

GRAIN

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

Mean D.M. %: 79.2

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