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## Numerical Results of the Field Experiments 1969

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### 69/W/RN/13 - Intensive Cereals - Ley, Potatoes, Wheat & Barley

#### Rothamsted Research

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## INTENSIVE CEREALS

(69/W/RN/13)

Woburn Stackyard I 1969 - the fourth year.

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

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

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

### Basal and standard applications:

All crops: 1.0 cwt P<sub>2</sub>O<sub>5</sub>, 2.0 cwt K<sub>2</sub>O as (0:14:28), half ploughed in, half applied to the plough furrow.

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

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

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

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

### Cultivations, etc.:

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

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

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

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

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

NOTE: Estimates of eyespot (*Cercospora herpotrichoides*) and take-all (*Ophiobolus graminis*) were made in May and June on barley and in April and July on wheat.

Standard errors per plot.

Ley, dry matter, cwt:

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

SUMMARY OF RESULTS  
 LEY  
 PERMANENT WHEAT BLOCKS  
 1968

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

\* For use in vertical and interaction comparisons only

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

\* For use in vertical and interaction comparisons only

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

LEY  
 PERMANENT WHEAT BLOCKS  
 1968

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

\* For use in vertical and interaction comparisons only

Mean D.M. %: 32.4



LEY  
PERMANENT BARLEY BLOCKS  
1968

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

\* For use in vertical and interaction comparisons only

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

\* For use in vertical and interaction comparisons only

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

LEY  
PERMANENT BARLEY BLOCKS

1968

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

\* For use in vertical and interaction comparisons only

Mean D.M. %: 33.6

WINTER WHEAT

GRAIN: CWT

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

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

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

Mean D.M. %: 82.1



WINTER WHEAT

STRAW: CWT

Crop in			N1	N2	N3	N4	0	Mg	Mean	
1966	1967	1968								
L	P	W	25.7	30.8	30.3	32.1	29.3	30.2	29.7	
P	W	W	18.9	29.3	28.8	30.3	26.6	27.0	26.8	
W	L	P	33.0	45.0	48.1	47.4	43.3	43.4	43.4	
W	W	W	25.7	32.3	35.1	34.3	31.2	32.5	31.8	
							N1	26.2	25.4	25.8
							N2	34.6	34.1	34.4
							N3	35.3	35.8	35.6
							N4	34.3	37.8	36.0
Mean								32.6	33.3	32.9

Mean D.M. %: 87.4

BARLEY  
GRAIN: CWT

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

(1) (±1.06) (3) (±0.69) (5) (±0.64) For use in vertical and diagonal comparisons only  
 (2) (±1.03) (4) (±0.54) (6) (±0.54) For use in horizontal and interaction comparisons only

Mean D.M. %: 82.4

BARLEY

STRAW: CWT

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

Mean D.M. %: 88.3

POTATOES  
PERMANENT WHEAT BLOCKS

1967

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

\* For use in vertical and interaction comparisons only

% WARE

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

POTATOES  
 PERMANENT BARLEY BLOCKS  
 1967

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

\* For use in vertical and interaction comparisons only

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