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Numerical Results of the Field Experiments 1970

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70/W/RN/13 Intensive Cereals - Ley, Potatoes, Wheat, Barley

Rothamsted Research

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INTENSIVE CEREALS

(70/W/RN/13)

Woburn Stackyard I 1970 - the fifth year.

For treatments and previous years' results, see 'Results' 66/B/9, 67/B/9, 68/B/7 and 69/W/RN/13.

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

NOTE: The magnesium test was amended to compare residual (MR) with equivalent fresh dressing (MM) to sub-plots previously untreated. The fresh dressings were 1980 lb Epsom salts (half before ploughing, half after) on the wheat blocks and 990 lb Epsom salts (all before ploughing) on the barley blocks.

The ley is now ryegrass only. The barley variety is now Julia.

Basal and standard applications:

All crops: 1.0 cwt P205, 2.0 cwt K20 as (0:14:28), half ploughed in, half applied to plough furrow.

Ley: 1.0 cwt N in spring, 0.75 cwt N after the first two cuts, as 'Nitro-Chalk'. Weedkiller: Paraquat at 0.5 lb ion in 37 gals.

Potatoes: 1.2 cwt N as 'Nitro-Chalk'. Weedkiller: Linuron at 1.0 lb plus paraquat at 0.37 lb ion in 33 gals. Fungicide: Mancozeb at 1.2 lb in 37 gals applied on 2 occasions. Insecticide: Demeton-s-methyl at 3.5 fl oz applied on one occasion with fungicide.

Wheat: Weedkillers: Paraquat at 0.5 lb ion in 37 gals, Ioxynil at 9 oz plus mecoprop at 27 oz in 25 gals.

Barley: Weedkillers: Paraquat at 0.5 lb ion in 37 gals, Ioxynil at 6.5 oz plus mecoprop at 22.5 oz in 25 gals.

Cultivations, etc.:

All plots: Mg and half PK applied: 25 Sept, 1969. Ploughed: 26 Sept. Remaining PK applied: 29 Sept.

Ley: Paraquat applied: 10 Sept, 1969. Seed sown at 28 lb: 30 Sept. N applied: 16 Mar, 1970, 16 June, 24 July. Cut three times: 11 June, 23 July*, 3 Sept*.

Potatoes: Remaining Mg applied on wheat block: 30 Sept, 1969. N applied: 17 Apr, 1970. Rotary cultivated, potatoes planted: 22 Apr. Weedkiller applied: 13 May. Grubbed, rotary ridged: 6 June. Fungicide plus insecticide applied: 31 July. Fungicide applied: 18 Aug. Sprayed with undiluted BOV at 20 gals: 7 Sept. Lifted: 15 Sept.

* Topping cuts. No yields recorded.

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Wheat: Paraquat applied: 10 Sept, 1969. Remaining Mg applied: 30 Sept. Rotary cultivated, seed drilled at 170 lb: 23 Oct. N applied: 24 Apr, 1970. Ioxynil plus mecoprop applied: 7 May. Combine harvested: 14 Aug.

Barley: Paraquat applied: 10 Sept, 1969. Power harrowed, seed drilled at 135 lb: 25 Mar, 1970. N applied: 31 Mar. Ioxynil plus mecoprop applied: 18 May. Combine harvested: 11 Aug.

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

Standard errors per plot.

Ley: dry matter, cwt:

Wheat blocks 1/4 plot: 1st cut: 2.02 or 10.3% (4 d.f.)

Barley blocks 1/4 plot: 1st cut: 1.27 or 4.7% (4 d.f.)

Potatoes, total tubers, tons:

Wheat blocks 1/4 plot: 0.910 or 7.2% (4 d.f.)

Barley blocks 1/4 plot: 1.957 or 14.5% (4 d.f.)

Wheat, grain, cwt:

1/4 plot: 2.70 or 12.9% (12 d.f.)

1/8 plot: 1.54 or 7.4% (16 d.f.)

Barley, grain, cwt:

1/4 plot: 2.47 or 8.6% (12 d.f.)

1/8 plot: 2.18 or 7.6% (16 d.f.)

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SUMMARY OF RESULTS

LEY

PERMANENT WHEAT BLOCKS

1ST AND ONLY CUT, DRY MATTER: CWT

1969

	N1	N2	N3	N4	Mean
	(±1.43)*				(±0.72)
MR	21.3	20.2	18.7	20.3	20.1
MM	18.2	19.8	20.0	19.0	19.2
Mean	19.7	20.0	19.4	19.7	19.7

* For use in vertical and interaction comparisons only

Mean D.M. %: 43.8

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LEY

PERMANENT BARLEY BLOCKS

1ST AND ONLY CUT, DRY MATTER: CWT

1969

	N1	N2	N3	N4	Mean
					(±0.45)
		(±0.90)*			
MR	25.5	28.2	29.0	28.9	27.9
MM	27.8	25.4	23.8	26.3	25.8
Mean	26.7	26.8	26.4	27.6	26.9

* For use in vertical and interaction comparisons only

Mean D.M. %: 37.1

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POTATOES

PERMANENT WHEAT BLOCKS

1968

	N1	N2	N3	N4	Mean
TOTAL TUBERS: TONS					
(±0.644)*					
MR	12.92	12.42	13.62	12.09	12.77
MM	13.56	12.68	11.75	12.45	12.61
Mean	13.24	12.55	12.69	12.27	12.69

* For use in vertical and interaction comparisons only

‡ WARE: 1.5 INCH

MR	95.2	94.9	95.1	94.3	94.9
MM	94.4	95.9	95.1	93.7	94.8
Mean	94.8	95.4	95.1	94.0	94.8

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POTATOES

PERMANENT BARLEY BLOCKS

1968

	N1	N2	N3	N4	Mean
TOTAL TUBERS: TONS					
	(±1.384)*				(±0.692)
MR	14.21	13.69	11.31	13.28	13.12
MM	13.46	14.93	13.69	13.43	13.88
Mean	13.84	14.31	12.50	13.36	13.50

* For use in vertical and interaction comparisons only

‡ WARE: 1.5 INCH

MR	96.0	97.1	96.0	96.8	96.5
MM	96.4	96.8	96.4	96.0	96.4
Mean	96.2	97.0	96.2	96.4	96.4

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WINTER WHEAT

GRAIN: CWT

Crop in				N1	N2	N3	N4	MR	MM	Mean
1966	1967	1968	1969							
				(1) and (2)				(3) and (4)		(±1.12)
L	P	W	W	17.2	18.7	17.9	17.9	18.8	17.1	17.9
W	W	L	P	21.2	23.1	25.1	24.8	23.6	23.6	23.6
W	L	P	W	21.6	24.3	26.8	23.6	24.2	24.0	24.1
W	W	W	W	17.4	18.5	20.5	16.8	18.5	18.1	18.3
								(5) and (6)		(±0.96)
				N1				19.7	19.0	19.3
				N2				21.5	20.8	21.2
				N3				22.5	22.6	22.6
				N4				21.2	20.3	20.8
				Mean (±0.27)				21.2	20.7	21.0

(1) (±2.00) (3) (±1.18) (5) (±1.03) For use in vertical and diagonal comparisons only
 (2) (±1.91) (4) (±0.54) (6) (±0.54) For use in horizontal and interaction comparisons only

Mean D.M. %: 82.7

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WINTER WHEAT

STRAW: CWT

Crop in				N1	N2	N3	N4	MR	MM	Mean
1966	1967	1968	1969							
L	P	W	W	10.4	10.1	11.1	10.7	10.5	10.7	10.6
W	W	L	P	12.6	13.1	15.8	15.6	14.5	14.0	14.3
W	L	P	W	12.9	13.4	14.8	14.6	14.0	13.9	13.9
W	W	W	W	11.0	10.6	12.2	10.7	11.4	10.8	11.1
						N1		11.8	11.7	11.7
						N2		11.9	11.7	11.8
						N3		13.5	13.4	13.5
						N4		13.3	12.5	12.9
						Mean		12.6	12.3	12.5

Mean D.M. %: 92.3

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BARLEY

GRAIN: CWT

Crop in				N1	N2	N3	N4	MR	MM	Mean
1966	1967	1968	1969							
				(1) and (2)				(3) and (4)		(±2.76)
L	P	B	B	22.4	31.2	27.4	30.3	28.4	27.3	27.9
E	B	L	P	29.0	34.3	37.2	35.7	33.5	34.6	34.1
E	L	P	B	19.3	33.0	30.4	30.9	28.3	28.5	28.4
B	B	B	B	12.9	21.1	29.8	32.8	23.8	24.5	24.1
								(5) and (6)		(±0.87)
				N1				20.6	21.2	20.9
				N2				29.5	30.3	29.9
				N3				30.4	32.0	31.2
				N4				33.5	31.4	32.4
				Mean				28.5	28.7	28.6
				(±0.38)						

(1) (±3.14) (3) (±2.81) (5) (±1.03) For use in vertical and diagonal comparisons only
 (2) (±1.75) (4) (±0.77) (6) (±0.77) For use in horizontal and interaction comparisons only

Mean D.M. %: 79.0

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BARLEY

STRAW: CWT

Crop in				N1	N2	N3	N4	MR	MM	Mean
1966	1967	1968	1969							
L	P	B	E	12.9	16.5	16.4	18.8	17.1	15.2	16.1
B	B	L	P	15.5	19.4	18.5	19.4	17.3	19.1	18.2
E	L	P	E	12.6	19.3	18.8	21.7	18.5	17.6	18.1
B	B	B	E	8.6	12.7	18.8	19.2	14.6	15.0	14.8
						N1		12.3	12.5	12.4
						N2		17.3	16.6	17.0
						N3		17.7	18.5	18.1
						N4		20.2	19.4	19.8
						Mean		16.9	16.7	16.8

Mean D.M. %: 86.7