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Numerical Results of the Field Experiments 1970

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70/R/RN/5 Arable Reference Plots - W. Wheat, Kale, Barley Grass-clover Ley, Potatoes, Grass

Rothamsted Research

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ARABLE REFERENCE PLOTS

(70/R/RN/5)

Great Field IV 1970. Winter wheat, kale, barley, ley, potatoes and permanent grass.

For details of previous years' 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, 65/B/2, 66/B/2, 67/B/2, 68/B/3 and 69/R/RN/5.

Cultivations, etc.:-

Winter wheat: Balancing Mg applied to half plots, plots dug by hand: 24 Sept, 1969. P, K, Mg, Ca and S applied: 25 Sept. Seed drilled: 14 Oct, additional plots: 17 Oct. First half N dressing applied (excluding additional plots): 2 Apr, 1970. All N applied to additional plots, all plots sprayed with ioxynil at 7.5 oz and mecoprop at 22.5 oz in 80 gals, second half N dressing applied: 14 May. Trace element spray applied: 5 June. Harvested: 14 Aug.

Kale: FYM applied, plots dug by hand: 19 Nov, 1969. Ca applied: 27 Jan, 1970. P, K, Mg and S applied: 23 Feb. First half N dressing applied to additional plots, all N to remainder, plots rotary cultivated, seed drilled: 29 Apr. Sprayed with dimethoate at 4.8 oz in 40 gals: 17 June. Trace element spray applied: 18 June. Second half N dressing applied to additional plots: 25 June. Sprayed with menazon ('Saphicol' at 0.5 pints in 40 gals): 7 and 30 July. Harvested: 30 Oct.

Barley: Dug by hand: 6 Nov, 1969. Ca applied: 22 Jan, 1970. P, K, Mg and S applied: 23 Feb. N applied, plots rotary cultivated, seed drilled: 17 Apr. Trace element spray applied: 11 June. Harvested: 13 Aug.

Grass - clover ley: Seed drilled in barley stubble (additional plots): 15 Aug, 1969, remainder: 20 Aug. Mg applied: 12 Dec. P, K, Ca and S applied: 15 Dec. N applied: 16 Mar, 1970. Trace element spray applied: 14 May. Cut three times: 27 May, 27 July, 5 Oct.

Potatoes: FYM applied, plots dug by hand: 20 Nov, 1969. Ca applied: 27 Jan, 1970. P, K, Mg and S applied: 23 Feb. First half N dressing applied to additional plots, all N to remainder, plots rotary cultivated, Mg applied to half plots, potatoes planted: 29 Apr. Sprayed with dimethoate at 4.8 oz in 40 gals: 17 June. Trace element spray applied: 18 June. Potatoes earthed up: 20 June. Second half N dressing applied to additional plots:

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25 June. Sprayed on 2 occasions with menazon ('Saphicol' at 0.5 pints) plus captafol at 1.5 lb in 40 gals: 7 and 30 July. Lifted: Plots of main experiment with neither K nor FYM and no fertiliser plots of additional plots: 1 Sept, remainder: 21 Sept. Permanent grass: P and K applied: 15 Dec, 1969. FYM applied: 3 Mar, 1970. N applied: 16 Mar, 1 June, 20 Aug. Cut three times: 27 May, 20 Aug, 27 Oct.

- NOTES: (1) On the additional plots 5 cwt CaO per acre as ground chalk was applied to each plot of each crop to correct low soil pH.
- (2) Yields of dry matter were obtained for each crop.
- (3) The percentages of N, P and K were measured for each crop.
- (4) The percentage of Mg was measured in potato tubers on the main experiment.
- (5) The percentage of K in potato leaves was measured on the main experiment.
- (6) pH of soil was measured.

SUMMARY OF RESULTS
ORIGINAL PLOTS

Treatment	WINTER WHEAT:		KALE: FRESH WEIGHT TUNES	BARLEY:		LEY: DRY MATTER: CWT			POTATOES TOTAL TUBERS TUNES	PERMANENT GRASS: DRY MATTER: CWT			
	GRAIN CWT	STRAW CWT		GRAIN CWT	STRAW CWT	1st cut	2nd cut	3rd cut		Total of 3 cuts	1st cut	2nd cut	3rd cut
	21.1	22.5	6.60	14.4	11.5	2.8	6.3	5.8	3.60	2.6	7.1	3.1	12.8
O	26.6	33.5	8.51	18.6	15.1	3.5	6.8	4.2	3.29	12.0	10.5	10.4	32.9
N1	31.5	36.4	9.55	17.8	14.4	9.7	8.2	8.5	4.46	2.8	5.0	3.9	11.7
P	23.5	28.6	19.27	21.2	17.4	11.7	9.2	4.0	3.06	14.3	13.0	14.1	41.4
N1P	27.1	31.8	6.60	15.6	14.8	7.3	10.5	17.1	11.80	4.2	6.2	4.3	14.7
K	33.2	37.1	6.08	20.4	18.5	9.6	11.2	14.3	15.02	16.2	12.5	12.0	40.7
N1K	29.2	35.8	9.20	19.4	16.5	13.1	14.1	30.7	13.80	4.8	8.9	3.9	17.6
PK	39.8	50.4	19.80	32.5	28.7	20.8	10.3	23.7	17.97	18.7	10.4	11.6	40.7
N1PK	42.7	53.5	22.57	35.6	30.1	23.2	11.2	20.0	19.18	33.2	15.7	17.1	66.0
N2PK	32.9	46.1	16.50	30.1	24.8	10.5	13.9	20.5	18.14	19.8	9.0	8.4	37.2
D	43.3	53.4	23.44	37.4	34.7	21.6	13.3	22.5	22.57	36.0	13.5	16.0	65.5
N1PKD	46.4	59.1	29.00	39.5	34.7	26.8	13.0	21.6	23.35	37.9	14.8	19.9	72.6
N2PKD													
Mean D.M.%	86.1	86.8		84.9	75.6	25.2	32.2	24.6		28.0	23.9	20.5	24.1

ADDITIONAL PLOTS

Treatment	WINTER WHEAT:		KALE: FRESH WEIGHT TONS	BARLEY:		LEY: DRY MATTER: CWT			POTATOES TOTAL TUBERS TONS
	GRAIN CWT	STRAW CWT		GRAIN CWT	STRAW CWT	1st cut	2nd cut	3rd cut	
None	24.5	27.5	9.90	14.5	12.6	9.9	7.5	4.9	4.65
N2 PK	41.0	46.8	26.91	36.3	29.8	26.4	11.0	15.4	17.54
N2 PK Mg Ca	39.1	47.4	25.87	31.8	30.2	29.4	11.6	23.8	17.97
N2 PK Mg S	39.0	47.5	22.57	33.9	28.0	31.9	11.4	25.4	18.32
N2 PK Ca S	38.3	48.5	23.27	31.9	29.9	23.3	10.4	14.3	18.66
N2 PK Mg Ca S	39.9	47.4	22.05	35.2	32.4	32.3	11.9	20.7	16.84
N2 PK Mg Ca S TE	40.8	49.8	23.44	34.3	25.7	30.8	11.3	23.3	17.80
Mean D.M. %:	86.1	88.2		86.5	87.8	24.0	31.3	24.0	26.4

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