ROTHAMSTED RESEARCH

Yields of the Field Experiments 1986

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86/R/WX/4 Exhaustion Land - S. Barley

Rothamsted Research

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86/R/EX/4

EXHAUSTION LAND

Object: To study the residual effects of manures applied 1856-1901, and of additional phosphate applied since 1986, on the yield of continuous s. barley - Hoosfield.

The 131st year, s. barley.

For previous years see 'Details' 1967, 1973 and 74-85/R/EX/4.

Treatments: All combinations of:-

Whole plots

1. OLD RES		Residues of manures applied annually 1876-1901:
	0	None
	D	Farmyard manure at 35 tonnes
	N	96 kg N as ammonium salts
	P	34 kg P as superphosphate
	NPKNAMG	N and P as above plus 137 kg K as sulphate of potash, 16 kg Na as sulphate of soda, 11 kg Mg as sulphate of magnesia
2. P(86)		Phosphate applied annually from 1986:
	0	None
	P1	44 kg P as superphosphate
	P2	87 kg P as superphosphate
	P3	131 kg P as superphosphate

plus all combinations of:-

1. OLD RES		Residues of manures applied annually 1876-1901:
	0	None
	D	Farmyard manure at 35 tonnes
	N*	96 kg N as nitrate of soda
	PK	34 kg P as superphosphate, 137 kg K as sulphate of potash
	N*PK	N, P and K as above
2. N(86)		Nitrogen fertilizer (kg N) as 'Nitro-Chalk' until 1985, as 'Nitram' in 1986 (basal until 1975, on a cyclic system since 1976):
	0	
	48	
	96	
	144	

NOTE: All plots in the combination OLD RES, P(86) were given N at 48 kg as 'Nitram' and K at 83 kg as muriate of potash.

Basal applications: Weedkillers: Clopyralid at 0.05 kg, bromoxynil octanoate at 0.24 kg and mecoprop at 2.1 kg in 200 l applied with the tridemorph. Fungicide: Tridemorph at 0.52 kg on two occasions, the first with the weedkillers, the second in 200 l.

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Seed: Triumph, seed dressed triadimenol and fuberidazole, sown at 160 kg.

Cultivations, etc.:- Ploughed: 7 Oct, 1985. Spring-tine cultivated: 28 Apr, 1986. P and K applied, rotary harrowed: 1 May. Seed sown: 2 May. N applied: 29 May. Weedkillers with tridemorph applied: 2 June. Tridemorph applied: 16 July. Combine harvested: 29 Aug.

PHOSPHATE PLOTS

GRAIN TONNES/HECTARE

***** TABLES OF MEANS *****

P(86) OLD RES	0	P1	P2	P3	MEAN
0	1.88	3.55	3.89	4.05	3.34
D	3.50	4.47	4.70	4.30	4.24
N	1.90	3.49	4.01	3.82	3.31
P	3.26	4.04	4.41	4.03	3.93
NPKNAMG	3.08	3.96	4.41	4.35	3.95
MEAN	2.72	3.90	4.28	4.11	3.76

GRAIN MEAN DM% 77.3

STRAW TONNES/HECTARE

***** TABLES OF MEANS *****

P(86) OLD RES	0	P1	P2	P3	MEAN
0	0.41	1.11	1.32	1.24	1.02
D	0.95	1.38	1.45	1.38	1.29
N	0.48	1.11	1.24	1.30	1.03
P	0.97	1.31	1.52	1.24	1.26
NPKNAMG	0.89	1.17	1.45	1.44	1.24
MEAN	0.74	1.21	1.40	1.32	1.17

STRAW MEAN DM% 85.3

PLOT AREA HARVESTED 0.00728

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86/R/EX/4

NITROGEN PLOTS

GRAIN TONNES/HECTARE

***** TABLES OF MEANS *****

N(86) / OLD RES	0	48	96	144	MEAN
0	1.47	1.47	1.96	1.54	1.61
D	2.42	3.11	3.84	3.43	3.20
N*	1.32	1.73	1.68	1.43	1.54
PK	2.03	2.75	3.17	3.14	2.77
N*PK	2.01	2.64	3.30	2.97	2.73
MEAN	1.85	2.34	2.79	2.50	2.37

GRAIN MEAN DM% 72.9

STRAW TONNES/HECTARE

***** TABLES OF MEANS *****

N(86) / OLD RES	0	48	96	144	MEAN
0	0.42	0.41	0.55	0.48	0.46
D	0.69	1.03	1.10	1.03	0.96
N*	0.35	0.54	0.41	0.48	0.44
PK	0.68	0.96	1.03	1.16	0.96
N*PK	0.62	0.82	1.16	1.09	0.92
MEAN	0.55	0.75	0.85	0.85	0.75

STRAW MEAN DM% 85.0

PLOT AREA HARVESTED 0.00728

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