ROTHAMSTED RESEARCH

Yields of the Field Experiments 1981

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81/R/SC/10 and 81/W/CS/10 Long Term Liming - S. Oats

Rothamsted Research

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81/R/CS/10 and 81/W/CS/10

LONG TERM LIMING

Object: To study the effects of different amounts of lime on the yields of a sequence of crops. The effects of P & K are also studied - Rothamsted (R) Sawyers I and Woburn (W) Stackyard C.

Sponsors: S. McGrath, D.P. Stribley.

The 20th year, s. oats.

For previous years see 'Details' 1967, 1973 and 74-80/R&W/CS/10.

Design: 2 randomised blocks of 16 plots.

Whole plot dimensions: 6.40 x 18.3.

Treatments: All combinations of:-

1. CHALK — Ground chalk (tonnes CaCO3) (total applied 1962-78):

R	W
0	0
7	6
15	14
30	23

2. P K — P & K fertilisers applied (in addition to a basal dressing of 120 kg K in 1981):

(00)0	None
(0K)P1	K annually until 1978, 25 kg P in 1981
(P0)P1	P annually until 1978, 25 kg P in 1981
(PK)P3	P & K annually until 1978, 75 kg P in 1981

NOTES: (1) Until 1978 test P & K were applied cumulatively, rates varied with crop. None was applied in 1979 & 1980 (fallow).
(2) A sub plot test of Mg applied in earlier years has been ignored.

Basal applications:
Sawyers I (R): Manures: N at 80 kg as 'Nitro-Chalk' combine drilled, K at 120 kg as muriate of potash, Mg at 100 kg as kieserite. Weedkillers: Dicamba, mecoprop and MCPA (as 'Herrisol' at 5.0 l) in 250 l.
Stackyard C (W): Manures: N at 80 kg as 'Nitro-Chalk', K at 120 kg as muriate of potash Mg at 100 kg as kieserite. Weedkillers: Dicamba, mecoprop and MCPA (as 'Banlene Plus' at 4.9 l) in 280 l with the fungicide. Fungicide: Tridemorph at 0.53 l.

Seed: Peniarth, sown at 190 kg (R), 200 kg (W).

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Cultivations, etc.:-
Sawyers I (R): Basal K and Mg applied: 1 Dec, 1980. P treatments applied, ploughed: 8 Dec. Rotary harrowed, seed sown: 13 Apr, 1981.
Weedkillers applied: 1 June. Combine harvested: 10 Sept.
Stackyard C (W): Ploughed: 13 Nov, 1980, 12 Dec. Basal K and Mg applied: 8 Dec. N applied, heavy spring-tine cultivated: 6 Apr, 1981. Spring-tine cultivated with crumbler attached: 8 Apr. Rotary cultivated, seed sown: 9 Apr. Weedkillers and fungicide applied: 1 June. Combine harvested: 3 Sept.

81/R/CS/10 SAWYERS I(R)

GRAIN TONNES/HECTARE

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

P K CHALK	(00)0	(0K)P1	(P0)P1	(PK)P3	MEAN
0	3.60	2.71	3.70	3.37	3.34
7	3.35	3.67	3.78	3.42	3.55
15	3.32	3.48	3.48	3.86	3.54
30	2.78	3.02	3.26	3.27	3.08
MEAN	3.26	3.22	3.55	3.48	3.38

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	CHALK	P K	CHALK P K
SED	0.139	0.139	0.278

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	15	0.278	8.2

GRAIN MEAN DM% 82.3

PLOT AREA HARVESTED 0.00520

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81/W/CS/10 STACKYARD C (W)

GRAIN TONNES/HECTARE

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

P K CHALK	(00)0	(0K)P1	(P0)P1	(PK)P3	MEAN
0	3.56	3.90	4.05	4.15	3.92
6	3.60	3.65	3.99	3.95	3.80
14	3.95	3.45	3.35	4.04	3.70
23	3.61	3.66	3.62	3.52	3.60
MEAN	3.68	3.66	3.75	3.92	3.75

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	CHALK	P K	CHALK P K
SED	0.124	0.124	0.248

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	15	0.248	6.6

GRAIN MEAN DM% 82.5

PLOT AREA HARVESTED 0.00503

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