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# 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 CaCO<sub>3</sub>) (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                                       |
| (OK)P1 | K annually until 1978, 25 kg P in 1981     |
| (PO)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).

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

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   | (00)0 | (OK)P1 | (PO)P1 | (PK)P3 | MEAN |
|-------|-------|--------|--------|--------|------|
| CHALK |       |        |        |        |      |
| 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<br>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

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

GRAIN TONNES/HECTARE

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

| P K   | (00)0 | (0K)P1 | (P0)P1 | (PK)P3 | MEAN |
|-------|-------|--------|--------|--------|------|
| CHALK |       |        |        |        |      |
| 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<br>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