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Yields of the Field Experiments 1973

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73/R/CS/125 - Varieties B Aldicarb - Oats

Rothamsted Research

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73/R/CS/125

VARITIES AND ALDICARB

Object: To study the effects of previous cropping and aldicarb on yield and incidence of *Heterodera avenae* on three varieties of spring oats - Pennell's Piece.

Sponsor: T.D. Williams.

The first year, oats. The experiment is sited on what was previously the spring wheat series of the Cereal Disease Reference Plots (see 73/R/RN/9).

Design: 2 randomised blocks of 6 plots split into 2 breadthways for aldicarb and 3 lengthways for variety.

Whole plot dimensions: 4.27 x 17.1. Area harvested: 0.00091.

Treatments: All combinations of:-

| | | | | | | | | | | |
|---------------------------------|------|------|------|------|------|------|------|------|------|----------|
| Whole plots: 1. Previous crops: | | | | | | | | | | PREVCROP |
| 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | |
| W | W | W | BE | O | W | W | W | BE | O | W/W/BE/O |
| W | W | BE | O | W | W | W | BE | O | W | W/BE/O/W |
| W | BE | O | W | W | W | BE | O | W | W | BE/O/W/W |
| BE | O | W | W | W | BE | O | W | W | W | O/W/W/W |
| O | W | W | W | BE | O | W | W | W | BE | W/W/W/BE |
| W | W | W | W | W | W | W | W | W | W | W/W/W/W |

where W = spring wheat, BE = spring beans, O = spring oats

| | |
|---|----------|
| Sub plots: 2. Aldicarb (kg): | ALDICARB |
| None | 0 |
| 5 | 5 |
| 3. Varieties: | VARIETY |
| Nelson, resistant to <i>Heterodera avenae</i> | Nelson |
| Mostyn, susceptible to <i>Heterodera avenae</i> | Mostyn |
| Weibull's W16840, resistant to <i>Heterodera avenae</i> | W16840 |

Basal applications: Manures: Ground chalk at 10 tonnes. (0:20:20) at 1300 kg. Weedkiller: MCPA, mecoprop and dicamba ('Tetralex Plus' at 7.0 l in 290 l).

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Seed: Sown at 190 kg.

Cultivations, etc.:— Ploughed: 12 Oct, 1972. Chalk applied: 30 Oct.
Ft applied: 20 Feb, 1973. Aldicarb applied and rotary cultivated:
13 Mar. Seed sown: 14 Mar. Weedkiller applied: 21 May. Combine
harvested: 22 Aug.

NOTE: Soil samples were taken for determination of initial eelworm
population on 27 Feb, 1973 and for final population on
30 Aug.

Standard errors per plot. Grain: tonnes/hectare.

| | |
|---------------------|-------------------------|
| Whole plot: | 0.876 or 14.5% (5 d.f.) |
| Sub plot: ALDICARB: | 0.828 or 13.7% (6 d.f.) |
| VARIETY: | 0.476 or 7.9% (12 d.f.) |
| ALDICARB x | |
| VARIETY: | 0.467 or 6.7% (12 d.f.) |

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TABLE OF MEANS

GRAIN: TONNES/HECTARE

PREVCROP

| | W/W/BE/O | W/BE/O/W | BE/O/W/W | O/W/W/W | W/W/W/BE | W/W/W/W | Mean |
|----------|----------|----------|----------|---------|----------|---------|------|
| ALDICARB | | | | | | | |
| 0 | 5.48 | 6.67 | 5.52 | 5.48 | 6.15 | 3.97 | 5.54 |
| 5 | 6.47 | 6.58 | 6.47 | 6.48 | 6.67 | 6.60 | 6.55 |
| VARIETY | | | | | | | |
| Nelson | 6.06 | 6.64 | 5.57 | 5.50 | 6.56 | 4.81 | 5.86 |
| Mostyn | 5.83 | 6.34 | 5.69 | 5.68 | 6.33 | 5.68 | 5.92 |
| W16840 | 6.03 | 6.90 | 6.74 | 6.76 | 6.34 | 5.37 | 6.36 |
| Mean | 5.97 | 6.63 | 6.00 | 5.98 | 6.41 | 5.29 | 6.05 |

| ALDICARB VARIETY | 0 | | | 5 | | |
|---------------------|--------|--------|--------|--------|--------|--------|
| | Nelson | Mostyn | W16840 | Nelson | Mostyn | W16840 |
| PREVCROP | | | | | | |
| W/W/BE/O | 5.93 | 5.12 | 5.38 | 6.20 | 6.54 | 6.67 |
| W/BE/O/W | 6.29 | 6.95 | 6.77 | 6.98 | 5.74 | 7.03 |
| BE/O/W/W | 4.80 | 5.35 | 6.41 | 6.33 | 6.03 | 7.07 |
| O/W/W/W | 4.93 | 5.49 | 6.02 | 6.07 | 5.86 | 7.51 |
| W/W/W/BE | 6.35 | 6.04 | 6.05 | 6.78 | 6.61 | 6.62 |
| W/W/W/W | 3.57 | 4.59 | 3.75 | 6.05 | 6.76 | 6.99 |

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STANDARD ERRORS OF DIFFERENCES

| PREVCROP | ALDICARB | VARIETY | PREVCROP ALDICARB | PREVCROP VARIETY | PREVCROP ALDICARB VARIETY |
|----------|----------|---------|----------------------|---------------------|---------------------------------|
|----------|----------|---------|----------------------|---------------------|---------------------------------|

| | | | | | |
|-------|-------|-------|-------|-------|-------|
| 0.876 | 0.338 | 0.194 | 1.054 | 0.959 | 1.147 |
|-------|-------|-------|-------|-------|-------|

Except when comparing means with same levels of

| | | | |
|-------------------|-------|-------|-------|
| PREVCROP | 0.828 | 0.476 | 0.969 |
| PREVCROP,ALDICARB | | | 0.556 |
| PREVCROP,VARIETY | | | 0.892 |

Mean D.M. % 83.6