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72/W/CS/52 Fumigants, Temik and N - S. Wheat

Rothamsted Research

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72/W/CS/52

FUMIGANTS, TEMIK AND N

Object: To study cumulative and residual effects of dazomet, formalin and aldicarb, at a range of nitrogen levels, on nematodes and yield of spring wheat - Woburn Butt Close.

Sponsor: T.D. Williams.

The second year, spring wheat.

For previous year see 71/W/CS/52(t).

Design: 4 blocks of 12 plots, split into 2.

Whole plot dimensions: 2.13 x 9.14. Area harvested: 0.00059.

Treatments: All combinations of:-

Whole plots:

1. Fumigants: None (0), dazomet 380 kg (D), formalin (38% formaldehyde) 2990 l (F), aldicarb ('Temik') 9 kg (T).
2. Nitrogen cumulatively on 1971: 63, 126, 189 kg N 'Nitro-Chalk'.

Sub plots:

3. Years of application of fumigants: 1971 only, none 1972 (R). 1971 and 1972 cumulatively (C).

Basal applications: 390 kg (0:20:20) combine drilled. Weedkillers: Paraquat at 0.56 kg ion in 280 l. Ioxynil at 0.53 kg and mecoprop at 1.6 kg in 280 l.

Seed: Kleiber sown at 190 kg.

Cultivations, etc.: Paraquat applied: 10 Sept, 1971. Ploughed: 21 Sept. Dazomet applied, all plots rotary cultivated: 29 Sept. Formalin applied: 16 Nov. Ploughed: 14 Feb, 1972. Aldicarb applied, seed combine drilled: 15 Mar. N applied: 17 Mar. Ioxynil and mecoprop applied: 3 May. Combine harvested: 1 Sept.

- NOTE: 1. Plant samples were taken in May for counts of root invasion by nematodes and fresh top weights.
2. Crop samples were taken in June for N percentages and roots were examined for soil pathogens.
3. Leaf samples were taken in June for copper analyses.

Standard errors per plot. Grain, tonnes/hectare:

Whole plot: 0.338 or 20.3% (33 d.f.)
Sub plot: 0.376 or 22.6% (39 d.f.)

72/W/CS/52

| APPLICATION | R | | | | C | | |
|-------------|-----------------------|------|------|------|------|------|------|
| FUMIGANT | O | D | F | T | D | F | T |
| N: KG/HA | GRAIN: TONNES/HECTARE | | | | | | |
| 63 | 1.58 | 1.84 | 1.74 | 2.32 | 1.94 | 2.03 | 3.49 |
| 126 | 1.34 | 1.28 | 1.27 | 1.79 | 1.51 | 1.27 | 3.12 |
| 189 | 1.27 | 1.03 | 1.31 | 1.42 | 1.46 | 1.27 | 1.51 |

STANDARD ERRORS OF DIFFERENCES

| | N FUMIGANT APPLICATION |
|----------------------|------------------------------|
| O | 0.208 |
| Excluding O | 0.294 |
| O v any of remainder | 0.254 |

Unless same level of
N and FUMIGANT

| | |
|-------------|-------|
| Excluding O | 0.242 |
|-------------|-------|

| N: KG/HA | STRAW: TONNES/HECTARE | | | | | | |
|----------|-----------------------|------|------|------|------|------|------|
| 63 | 2.75 | 2.46 | 2.62 | 3.06 | 2.47 | 2.83 | 3.41 |
| 126 | 2.31 | 2.54 | 2.08 | 2.72 | 2.53 | 2.24 | 3.63 |
| 189 | 2.28 | 2.13 | 2.13 | 2.28 | 2.10 | 2.26 | 2.47 |

