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66/W/WBO/C/24 Fumigants - Spring Wheat

Rothamsted Research

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66/C/24.1

COMPARISON OF FUMIGANTS

(WBO)

Nitrogen and fumigants - Woburn Butt Close, spring wheat 1966, the second year.

Design: 4 randomised blocks of 16 plots split into two for effects of fumigants.

Area of each sub plot: 0.0010.

Treatments: All combinations of:-

Whole plots:

1. Nitrogen: 0.6 (N1), 1.8 (N3) cwt N as 'Nitro-Chalk' half on Apr 26, half on May 27.
2. Fumigants etc.: None. (O)
None, plots rotary cultivated. (OR)
Methyl bromide applied under gas tight sheets at 436 lb. (MB)
Dichloropropane/dichloropropane at 800 lb injected at 12 inch spacing. (DD)
Chloropicrin at 400 lb injected at 12 inch spacing. (Chp)
Dazomet at 400 lb rotary cultivated in. (Daz)
Formalin as drench at 200 gals formaldehyde in 40% solution. (For)
Calomel dust, 4% mercurous chloride at 5 lb Hg rotary cultivated in. (Mer)

Sub plots:

3. Fumigants etc.: In 1965 only (R).
In 1965, repeated 1966 (C).

Basal applications, etc.: 2 cwt (0:20:20) combine drilled. Weedkiller: 4 lb amino-triazole plus 3.7 lb ammonium thiocyanate in 40 gals, and ioxynil/mecoprop (Actril C at 5 pints in 35 gals).

Cultivations, etc.: Sprayed weedkiller amino-triazole: Oct 9, 1965. Ploughed: Nov 15-23. Fumigants applied (Chp) and (DD) plots: Feb 3, 1966, (For) and (Daz) plots: Feb 7. (R) plots rotary cultivated and fumigants applied to (Mer) plots: Mar 22, (MB) plots: Mar 31. Seed combine drilled at 165 lb: Apr 13. 'Nitro-Chalk' applied: Apr 26, May 27. Sprayed weedkiller Actril: May 13. Harvested: Sept 5. Variety: Kloka.

66/C/24.2

NOTES: (1) Soil samples were taken to estimate initial population of cereal cyst-nematode (*Heterodera avenae*), plant samples for weighing of tops and roots and estimation of nematode invasion of roots: May 31. Soil samples were taken at the end of the season to estimate the nematode population.

(2) For previous results see 'Results' 65/C/31.

Standard errors per plot. Grain:

Whole plot: 6.33 or 25.2% (45 d.f.)

Sub plot: 4.33 or 17.3% (48 d.f.)

66/C/24.3

SUMMARY OF RESULTS

GRAIN

	O	OR	MB	DD	Chp	Daz	For	Mer	Mean
	(+3.16)								(+1.12)
N1	23.2	22.3	21.4	30.8	25.5	27.1	25.9	23.0	24.9
N3	22.6	24.1	27.8	24.8	27.9	27.1	27.3	20.9	25.3
	(1) and (2)								(±0.58)
R		24.2	25.6	30.6	27.2	26.1	24.3	21.7	25.7
C		22.2	23.6	25.0	26.2	28.0	28.9	22.1	25.2
Mean (±2.24)	22.9	23.2	24.6	27.8	26.7	27.1	26.6	21.9	25.1

Mean D.M. %: 80.1

- (1) (±2.49) For use in horizontal and diagonal comparisons.
 (2) (±1.53) For use in vertical and interaction comparisons.