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81/W/O/1 Control of Cereal Cyst-nematode - S. Oats

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81/W/O/1

SPRING OATS

CONTROL OF CEREAL CYST-NEMATODE

Object: To study the effects of small amounts of soil fumigants on the control of cereal cyst-nematode (*Heterodera avenae*), on fungal parasites of the nematode and on the yield of spring-sown oats - Woburn White Horse.

Sponsors: A.G. Whitehead, B.R. Kerry.

Design: 3 randomised blocks of 12 plots.

Whole plot dimensions: 2.13 x 9.75.

Treatments:

CHEMICAL Chemicals, all applied at sowing:

NONE None (duplicated)

Applied to the seed furrow:

DI 4	Dichloromethane at 4.0 l
ED+DI 1	Ethylene dibromide at 5.0 kg plus dichloromethane at 1.0 kg
ED+DI 2	Ethylene dibromide at 10 kg plus dichloromethane at 2.0 kg
ED+DI 4	Ethylene dibromide at 20 kg plus dichloromethane at 4.0 kg
TE 1	'Telone II' at 5.0 kg
TE 2	'Telone II' at 10 kg
TE 4	'Telone II' at 20 kg

Combine drilled with the seed:

OX 1	Oxamyl at 0.75 kg
OX 2	Oxamyl at 1.50 kg
OX 4	Oxamyl at 3.00 kg

NOTES: (1) Dichloromethane was used as a diluent to lessen the freezing point of ethylene dibromide.
(2) The field was sown to w. oats before the requirement for this experiment was known. W. oats were destroyed in February.

Standard applications: (10:23:23) at 280 kg, combine drilled, (20:10:10) at 360 kg, N at 90 kg as 'Nitro-Chalk'. Weedkillers: Paraquat on two occasions, at 0.56 kg ion and 0.84 kg ion in 280 l, the second to kill w. oats; methabenzthiazuron at 1.6 kg in 280 l; mecoprop with bromoxynil and ioxynil (as 'Brittox' at 3.5 l) in 280 l. Fungicide: Triadimefon 0.12 kg in 280 l.

Seed: W. oats: Panema, sown at 200 kg.
S. oats: Maris Tabard, sown at 200 kg.

81/W/0/1

Cultivations, etc.: - Paraquat applied: 24 Sept, 1980. Ploughed: 29 Sept. Spring-tine cultivated, w. oats sown: 30 Sept. Methabenzthiazuron applied: 3 Oct. Paraquat applied: 13 Feb, 1981. Ploughed: 18 Feb. NPK applied, spring-tine cultivated, s. oats with combine drilled treatments sown: 18 Mar. All other treatments applied and spring-tine cultivated and s. oats sown: 19 Mar. 'Brittox' applied, N applied: 14 May. Fungicide applied: 3 June. Combine harvested: 13 Aug. Previous crops: W. wheat 1979, barley 1980.

NOTE: Soil samples were taken before sowing, during the season and after harvest for counts of cereal cyst-nematode. Assessments of fungal parasitism of cereal cyst nematode were made during the growing season.

GRAIN TONNES/HECTARE

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

CHEMICAL	
NONE	3.65
DI 4	3.78
ED+DI 1	3.59
ED+DI 2	3.98
ED+DI 4	3.51
TE 1	4.36
TE 2	3.99
TE 4	3.52
OX 1	3.96
OX 2	5.35
OX 4	5.52
MEAN	4.07

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

TABLE	CHEMICAL	
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SED	0.565	MIN REP
	0.489	MAX-MIN

CHEMICAL
 MAX-MIN NONE V ANY OF REMAINDER
 MIN REP ANY OF REMAINDER

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

STRATUM	DF	SE	CV%
BLOCK.WP	23	0.692	17.0
GRAIN MEAN DM%	84.6		
PLOT AREA HARVESTED	0.00097		