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Yields of the Field Experiments 1973

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73/W/CS/52 - Copper Sprays & 'scorch' - Spring Wheat

Rothamsted Research

Rothamsted Research (1974) 73/W/CS/52 - *Copper Sprays & 'scorch' - Spring Wheat* ; Yields Of The Field Experiments 1973, pp 213 - 216 - DOI: <https://doi.org/10.23637/ERADOC-1-98>

73/W/CS/52

COPPER SPRAYS AND 'SCORCH'

Object: To study the residual effects of dazomet, formalin and aldicarb applied in 1971, repeated on half plots in 1972, at a range of nitrogen levels, on nematodes and yield of spring wheat. The effects of a copper oxychloride spray are also studied - Woburn Butt Close.

Sponsors: T.D. Williams, J. Bolton.

The third year, spring wheat.

For previous years see 71/W/CS/52(t) and 72/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:	FUMIGANT
	None	None
	Aldicarb 9 kg	Aldicarb
	Dazomet 380 kg	Dazomet
	Formalin (38% formaldehyde) 3000 l	Formalin
	2. Nitrogen fertiliser (kg N per annum) applied 1971 and 1972, with basal dressing of 165 kg N in 1973 only	NRESID
	63	63
	126	126
	189	189
	3. Copper oxychloride foliar spray in 1973 (kg Cu)	COPPER
	0.0	0.0
	1.1	1.1
	2.2	2.2
Sub plots:	4. Years of application of fumigants:	FUMYEAR
	1971 only	1971
	1971 and 1972 cumulatively	1971/72

On one block the test of copper oxychloride was omitted.

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Basal applications: Manures: Magnesian limestone at 7.5 tonnes. N at 180 kg as 'Nitro-Chalk', (0:20:20) at 400 kg combine drilled. Weedkiller: Ioxynil at 0.53 kg plus mecoprop at 1.6 kg in 280 l.

Seed: Kleiber, sown at 190 kg.

Cultivations, etc.: - Deep-tine cultivated: 27 Sept, 1972. Magnesian limestone applied: 3 Oct. Deep-tine cultivated: 28 Oct. Ploughed: 4 Jan, 1973. N applied: 8 Mar. Seed sown: 15 Mar. Copper oxychloride treatments applied: 31 May. Weedkiller applied: 11 May. Combine harvested: 20 Aug.

- NOTE: 1. Soil samples were taken before sowing and after harvest for counts of nematode eggs and larvae.
2. Plant samples were taken in May for counts of root invasion by nematodes.

Standard errors per plot.

Grain, tonnes/hectare: Blocks 2, 3 and 4: Whole plot: 0.345 or 18.3% (10 d.f.)
Sub plot: 0.216 or 11.5% (28 d.f.)

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TABLES OF MEANS

GRAIN: TONNES/HECTARE

BLOCKS 2, 3 AND 4

FUMIGANT	NRESID			COPPER			FUMYEAR		
	63	126	189	0.0	1.1	2.2	1971	1971/72	Mean
None	1.69	1.78	1.53	1.64	1.83	1.53	1.67	1.67	1.67
Aldicarb	2.02	2.10	1.92	2.23	1.89	1.92	1.95	2.08	2.01
Dazomet	2.12	1.90	2.03	2.13	1.78	2.12	1.94	2.08	2.01
Formalin	1.71	1.81	2.00	1.74	1.79	2.00	1.86	1.83	1.84
	NRESID								
		63		1.88	1.82	1.95	1.87	1.90	1.88
		126		1.87	1.89	1.93	1.88	1.92	1.90
		189		2.05	1.76	1.79	1.81	1.92	1.87
				COPPER					
					0.0		1.89	1.99	1.94
					1.1		1.75	1.89	1.82
					2.2		1.92	1.86	1.89
Mean							1.85	1.91	1.88

STANDARD ERRORS OF DIFFERENCES

FUMIGANT	NRESID	COPPER	FUMYEAR	FUMIGANT NRESID	FUMIGANT COPPER	NRESID COPPER	FUMIGANT FUMYEAR
0.163	0.141	0.141	0.051	0.282	0.282	0.247	0.178
Except when comparing means with same level of FUMIGANT							0.102

NRESID	COPPER
FUMYEAR	FUMYEAR
0.154	0.154
Except when comparing means with same level of	
NRESID	0.088
COPPER	0.088

Mean D.M. % 85.8

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GRAIN: TONNES/HECTARE

BLOCK 1

FUMIGANT	NRESID			FUMYEAR		Mean
	63	126	189	1971	1971/72	
None	1.85	2.01	2.05	1.93	2.00	1.97
Aldicarb	2.54	2.30	1.45	2.24	1.96	2.10
Dazomet	2.04	2.28	2.00	2.02	2.19	2.11
Formalin	1.66	1.84	2.22	2.00	1.81	1.91
		NRESID				
		63		2.11	1.94	2.02
		126		2.07	2.14	2.11
		189		1.97	1.89	1.93
Mean				2.05	1.99	2.02

FUMIGANT	NRESID 63		NRESID 126		NRESID 189	
	1971	1971/72	1971	1971/72	1971	1971/72
None	1.76	1.94	2.02	1.99	2.02	2.08
Aldicarb	2.73	2.36	2.41	2.18	1.57	1.33
Dazomet	1.97	2.10	2.15	2.42	1.96	2.04
Formalin	1.96	1.35	1.71	1.97	2.33	2.11

Mean D.M. % 85.8