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## Yields of the Field Experiments 1974

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### **74/W/CS/49 Resistance to Cyst Nematode - Spring Wheat**

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74/W/CS/49

RESISTANCE TO CYST NEMATODE

Object: To study the residual effects of formalin, applied at different times to winter and spring sown wheat 1970-72, and of previous cropping with resistant and susceptible winter oats on yield and incidence of cereal cyst nematode on spring wheat.

Sponsor: T.D. Williams.

The fifth year, spring wheat.

For previous years see 70/W/CS/49(t), 71/W/CS/49(t), 72/W/CS/49(t) and 73/W/CS/49. (Until 1972 the title of the experiment was 'Fumigant and N'.)

Design: A single replicate of 4 blocks of 4 plots, split into 8.

Whole plot dimensions: 2.16 x 21.0. Sub plot area harvested: 0.00041.

Treatments: All combinations of:-

Whole plots:

- |                                                                                |         |
|--------------------------------------------------------------------------------|---------|
| 1. Crops, sowing dates and times of applying formalin in the period 1970-1972: | CROPETC |
| Winter wheat sown in autumn, formalin in early autumn                          | WWA     |
| Winter wheat sown in spring, formalin in early autumn                          | WWS     |
| Spring wheat sown in spring, formalin in early autumn                          | WSS     |
| Spring wheat sown in spring, formalin in early spring                          | WSS*    |

Quarter plots (broadways):

- |                                                                                                 |        |
|-------------------------------------------------------------------------------------------------|--------|
| 2. Residues of nitrogen fertiliser (kg N) applied annually 1970-1972, basal N in 1973 and 1974: | NRESID |
|-------------------------------------------------------------------------------------------------|--------|

75	75
125	125
176	176
226	226

74/W/CS/49

3. Formalin in 1970-1972:			FORMALIN
1970	1971	1972	
None	None	None	OOO
None	Formalin	None	OFO
Formalin	None	Formalin	FOF
Formalin	Formalin	Formalin	FFF

Half plots (lengthways):

4. Varieties of oats in 1973:	VARIETY(73)
Peniarth - susceptible to cereal cyst nematode	SUSCEPT
Peniarth x Avena sterilis - resistant to cereal cyst nematode	RESISTANT

Basal applications: Manures: (20:15:15) at 450 kg combine drilled.  
Weedkiller: Paraquat applied at 0.56 kg ion in 370 l, ioxynil at  
0.63 kg plus mecoprop at 1.96 kg in 340 l.

Seed: Kleiber sown at 190 kg.

Cultivations, etc.: - Paraquat applied: 12 Sept, 1973. Sub soiled, tines  
140 cm apart and 50 cm deep: 24 Sept. Rotary cultivated: 18 Oct.  
Ploughed: 14 Nov. Spring-tine cultivated with crumbler, seed sown:  
28 Mar, 1974. Ioxynil with mecoprop applied: 8 May. Combine  
harvested: 29 Aug.

- NOTES: 1. Soil samples were taken before sowing and after harvest for  
counts of *Heterodera avenae* eggs.  
2. Plant samples were taken in May for counts of root invasion  
by *Heterodera avenae*.  
3. Due to a combine harvester fault the yields from 4 plots  
were not taken. Estimated values were used in the analysis.

Standard errors per plot. Grain, tonnes/hectare:

Whole plot: 0.412 or 17.9% (6 d.f.)  
Pooled half and quarter plot: 0.409 or 17.8% (68 d.f.)

