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Yields of the Field Experiments 1976

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76/W/CS/174 Sowing Dates and Ccn - W. Wheat, S. Wheat, Barley and Oats

Rothamsted Research

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SOWING DATES AND CCN

Object: To study the effects of sowing date and a nematicide on the incidence of cereal cyst-nematode (*Heterodera avenae*) (CCN) and the yield of three cereals in a soil known to contain a fungal parasite of the nematode - Woburn, Butt Close.

Sponsor: B.R. Kerry.

The second year, winter and spring wheat, barley and oats.

For previous year see 75/W/M/1.

Design: 4 randomised blocks of 12 whole plots, 6 of them split into 2.

Whole plot dimensions: 2.13 x 6.70.

Treatments: All combinations of:-

Whole plots

1. CROP Crop (cumulative to 1975):

WHEAT	Wheat
BARLEY	Barley
OATS	Oats

2. SOW DATE Sowing date (cumulative to 1975):

AUTUMN	Autumn
SPRING	Spring

3. NEMACIDE Nematicide (cumulative to 1975):

NONE	None
OXAMYL	Oxamyl at 8.8 kg

Sub plots

4. STERILNT Sterilant (1976 only):
(combinations
with SOW DATE
SPRING only)

NONE	None
FORMALIN	Formalin at 3000 l in 109000 l

Standard applications:

Autumn-sown cereals: Manures: (10:24:24) at 260 kg, combine drilled.
Winter wheat: N at 100 kg, as 'Nitro-Chalk'. Winter barley and oats:
N at 80 kg, as 'Nitro-Chalk'.

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Spring-sown cereals: Manures: (20:14:14) at 380 kg combine drilled.

Fungicide to barley only: Tridemorph at 0.53 kg in 340 l.

All cereals: Weedkiller: Ioxynil at 0.6 kg plus mecoprop at 1.8 kg in 340 l. Insecticide: Pirimicarb at 0.14 kg in 280 l.

Seed: Wheat: Flinor, sown at 210 kg in autumn and 200 kg in spring.

Barley: Maris Otter, sown at 190 kg in autumn and 160 kg in spring.

Oats: Peniarth, sown at 200 kg in autumn and 190 kg in spring.

Cultivations, etc.:-

All Cereals: Heavy spring-tine cultivated: 30 Aug, 1975. Rotary cultivated: 1 Sept. Ploughed: 24 Sept. Spring-tine cultivated with crumbler: 26 Sept. Weedkiller applied: 30 Apr. 1976. Insecticide applied: 29 June. Combine harvested: 28 July.

Autumn-sown Cereals: Oxamyl applied and these plots only rotary cultivated: 2 Oct, 1975. Seed sown: 15 Oct. N applied: 12 Apr, 1976.

Spring-sown Cereals: Spring-tine cultivated twice: 14 Oct, 15 Oct, 1975. Formalin applied: 1 Mar, 1976. Oxamyl applied and these plots only rotary cultivated, all plots spring-tine cultivated with crumbler: 22 Mar. Seed sown: 23 Mar. Fungicide applied to barley only: 9 June.

- NOTES: (1) Soil samples were taken before sowing in autumn and spring and after harvest for egg counts of *Heterodera avenae*.
(2) Counts of white female *H.avenae* were made during the growing season and amounts of infection of these by *Entomophthora* spp. and *Verticillium chlamydosporium* were estimated.
(3) Yields from SOW DATE SPRING were very small on all plots and unrecordable on some, because of drought. No yields are presented for combinations with this level.

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SOW DATE AUTUMN ONLY

GRAIN TONNES/HECTARE

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

CROP	WHEAT	BARLEY	OATS	MEAN
NEMACIDE				
NONE	1.58	1.09	0.73	1.13
OXAMYL	2.40	2.65	2.19	2.41
MEAN	1.99	1.87	1.46	1.77

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

TABLE	NEMACIDE	CROP	NEMACIDE CROP
SED	0.163	0.199	0.282

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

STRATUM	DF	SE	CV%
BLOCK.WP	10	0.345	19.5

GRAIN MEAN DM% 87.0

STRAW TONNES/HECTARE

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

CROP	WHEAT	BARLEY	OATS	MEAN
NEMACIDE				
NONE	1.68	1.23	0.75	1.22
OXAMYL	2.30	1.94	1.51	1.92
MEAN	1.99	1.59	1.13	1.57

STRAW MEAN DM% 85.9

PLOT AREA HARVESTED 0.00095