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84/R/WW/7 Aphid Control by Erynia - W. Wheat

Rothamsted Research

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84/R/WW/7

WINTER WHEAT

APHID CONTROL BY ERYNIA

Object: To study the effect on caged and uncaged aphid populations of applying two amounts of the aphid pathogenic fungus *Erynia neoaphidis* on the incidence of aphids and on the yield of w. wheat - Long Hoos V 4.

Sponsor: N. Wilding.

Design: 3 randomised blocks of 6 plots.

Whole plot dimensions: 2.14 x 2.0.

Treatments: All combinations of:-

1. COVER Covering on plots:
 - NONE None
 - CAGED Mesh-sided cages covering plots from 18 May, 1984 to 29 June.

2. INOCULUM Rate of inoculum:
 - NONE None
 - E NEO 1 E. neoaphidis applied as a powder of mummified aphids at 0.5 kg on 17 June and 4 July
 - E NEO 2 E. neoaphidis applied as a powder of mummified aphids at 5.0 kg on 17 June and 4 July

Note: *Sitobion avenae* and *Metopolophium dirhodum* were released on all plots, during a ten-day period from the end of May.

Basal applications: Manures: Chalk at 2.9 t. 'Nitro-Chalk' at 450 kg. Weedkillers: Glyphosate at 1.4 kg in 250 l. Mecoprop, bromoxynil and ioxynil (as 'Brittox' at 3.5 l) in 220 l applied with the fungicide. Fungicide: Triadimefon at 0.12 kg in 220 l on two occasions, the first with the 'Brittox'. Insecticide: Pyrethrum dust (as 'Anti-ant' at 116 kg).

Seed: Maris Huntsman, sown at 190 kg.

Cultivations, etc.: - Glyphosate applied: 18 Aug, 1983. Chalk applied: 23 Aug. Ploughed: 31 Aug. Spring-tine cultivated, seed sown: 5 Oct. 'Brittox' with the fungicide applied, N applied: 10 Apr, 1984. Fungicide alone applied: 4 May. Pyrethrum applied: 21 May. Combine harvested: 22 Aug. Previous crops: Fallow 1982, w. rape 1983.

NOTE: Samples of live aphids were taken weekly from mid June until late July to determine proportions infected with *Erynia*, and the total population was estimated weekly.

84/R/WW/7

GRAIN TONNES/HECTARE

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

INOCULUM COVER	NONE	E NEO 1	E NEO 2	MEAN
NONE	7.00	6.88	7.07	6.98
CAGED	4.04	3.61	3.79	3.82
MEAN	5.52	5.24	5.43	5.40

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

TABLE	INOCULUM	COVER	INOCULUM COVER
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SED	0.232	0.190	0.328

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

STRATUM	DF	SE	CV%
BLOCK.WP	10	0.402	7.5

GRAIN MEAN DM% 86.9

PLOT AREA HARVESTED 0.00010