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## Yields of the Field Experiments 1982

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### 82/R/CS/271 Aphid Control by Natural Enemies - W. Wheat, Ryegrass

#### Rothamsted Research

Rothamsted Research (1983) *82/R/CS/271 Aphid Control by Natural Enemies - W. Wheat, Ryegrass ; Yields Of The Field Experiments 1982*, pp 163 - 163 - DOI:

<https://doi.org/10.23637/ERADOC-1-33>

82/R/CS/271

APHID CONTROL BY NATURAL ENEMIES

Object: To study the effects of early introduction of aphids to ryegrass on subsequent aphid populations on w. wheat - Black Horse I.

Sponsors: W. Powell, A.M. Dewar, G.J.W. Dean, N. Wilding, K.E. Fletcher, R. Bardner, C.A. Edwards, J.R. Lofty.

The first year, w. wheat, ryegrass.

Design: 2 randomised blocks of 3 plots.

Whole plot dimensions: 48 x 48.

Treatments:

|          |  |
|----------|--|
| RYEGRASS | Provision of ryegrass infested with aphids:                            |
| NONE     | None   |
| UNDRSOWN | Undersown uniformly in wheat   |
| ALTRNATE | Strips of ryegrass 6 m wide alternating with strips of wheat 12 m wide |

NOTE: Aphids (*Metopolophium festucae*) were released on the ryegrass on seven occasions during March and April, totaling 350,000 aphids per ha.

Basal applications: Manures: (10:23:23) at 250 kg. 'Nitro-Chalk' at 670 kg. Weedkillers: Paraquat at 0.56 kg ion in 225 l. Methabenzthiazuron at 1.2 kg in 250 l.

Seed: W. wheat: Maris Huntsman, sown at 190 kg.  
Ryegrass: S.24, sown at 22 kg.

Cultivations, etc.: - Heavy spring-tine cultivated twice: 27 Aug, 1981. Paraquat applied: 22 Sept. NPK applied, heavy spring-tine cultivated: 23 Sept. Rotary harrowed, seed sown: 8 Oct. Methabenzthiazuron applied: 15 Oct. N applied: 18 Apr, 1982. Combine harvested: 10 Aug. Previous crops: S. barley 1980, w. barley 1981.

NOTE: Cereal aphids were counted on six occasions during June and July. Above-ground fauna were sampled on 11 occasions between April and July. Ground predators were counted weekly from early May to early August. Parasites and fungal pathogens of aphids were assessed during June and July.

GRAIN TONNES/HECTARE

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

|          |      |          |          |      |
|----------|------|----------|----------|------|
| RYEGRASS | NONE | UNDRSOWN | ALTRNATE | MEAN |
|          | 6.43 | 5.32     | 6.57     | 6.11 |

GRAIN MEAN DM% 86.3

PLOT AREA HARVESTED 0.01524