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78/R/BE/5 Aphids and Entomophthora - Beans

Rothamsted Research

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78/R/BE/5

SPRING BEANS

APHIDS AND ENTOMOPHTHORA

Object: To study the effects of a range of factors on the incidence of Entomophthora infection of aphids and on the yield of spring beans - Gt. Knott I.

Sponsor: N. Wilding.

Design: One experiment (78/R/BE/5/1) 4 randomised blocks of 3 plots
One experiment (78/R/BE/5/2) 3 randomised blocks of 8 plots

Whole plot dimensions: 9.22 x 9.14.

Treatments to 78/R/BE/5/1 (all plots irrigated - total 49 mm):

TREATMNT(1)	Biological and chemical control of aphids:
NONE	None
ENT APH	Entomophthora species applied in live infected aphids
PIRIMICA	Insecticide: Pirimicarb at 0.14 kg in 340 l

Treatments to 78/R/BE/5/2 (all plots unirrigated):

TREATMNT(2)	Biological and chemical control of aphids, fungicides to control Entomophthora:
NONE	None
ENT APH	Entomophthora species applied in live infected aphids
CARBARYL	Insecticide: Carbaryl at 1.49 kg
PIRIMICA	Insecticide: Pirimicarb at 0.14 kg
BENOMYL	Fungicide: Benomyl at 0.61 kg
CAPTAFOF	Fungicide: Captafol at 1.74 kg
MANCOZEB	Fungicide: Mancozeb at 1.36 kg
TRIDEMOR	Fungicide: Tridemorph at 0.52 kg

- NOTES: (1) On all treatments except PIRIMICA aphid colonies were artificially established between 31 May, 1978 and 2 June (10-20 colonies were initiated in each 9.14 m length of row).
- (2) All spray treatments were applied in 340 l.
- (3) Sprays were applied on the following dates:- Pirimicarb: 19 June, 1978. Carbaryl: 12, 28 June and 6 July. Mancozeb, captafol, benomyl and tridemorph: 19 and 28 June, 6, 13, 19 and 26 July.
- (4) Irrigation was applied to BE/5/1 at 25 mm on 1 June, 1978 and 8 mm on each of 19 June, 21 and 25 July.

Basal applications: Manures: FYM at 35 t. Weedkillers: Simazine at 1.1 kg in 220 l. Paraquat at 0.6 kg ion in 220 l.

Seed: Minden, sown at 200 kg.

78/R/BE/5

Cultivations, etc.:— Paraquat applied: 8 Nov, 1977. FYM applied, ploughed: 24 Nov. Rotary harrowed: 8 Mar, 1978. Seed sown: 9 Mar. Simazine applied to BE/5/2: 25 Mar, to BE/5/1: 30 Mar. Combine harvested: 25 Sept. Previous crops: Winter barley (BE/5/2), wheat (BE/5/1) 1976, wheat 1977.

NOTE: Weekly assessments of aphid population density and proportion of aphids infected with *Entomophthora* were made from June to August.

78/R/BE/5/1

GRAIN TONNES/HECTARE

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

TREATMNT(1)	NONE	ENT APH	PIRIMICA	MEAN
	5.33	5.65	5.22	5.40

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

TABLE	TREATMNT(1)
SED	0.448

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

STRATUM	DF	SE	CV%
BLOCK.WP	6	0.634	11.7

GRAIN MEAN DM% 81.6

PLOT AREA HARVESTED 0.00244

78/R/BE/5/2

GRAIN TONNES/HECTARE

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

TREATMNT(2)	
NONE	4.36
ENT APH	4.89
CARBARYL	4.09
PIRIMICA	5.13
BENOMYL	5.29
CAPTAFOL	4.76
MANCOZEB	5.12
TRIDEMOR	4.40
MEAN	4.75

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

TABLE	TREATMNT(2)
SED	0.412

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

STRATUM	DF	SE	CV%
BLOCK.WP	14	0.504	10.6

GRAIN MEAN DM% 81.2

PLOT AREA HARVESTED 0.00244