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84/R/BE/9 Effects of Pests and Pathogens - S. Beans

Rothamsted Research

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84/R/BE/9

SPRING BEANS

EFFECTS OF PESTS AND PATHOGENS

Object: To assess the effects of three amounts of pest and disease control on irrigated and unirrigated s. beans - Fosters Corner.

Sponsors: J. McEwen, R. Bardner, A.J. Cockbain, D.H. Lapwood, R.M. Webb, D.P. Yeoman.

Design: 4 randomised blocks of 2 plots split into 3.

Whole plot dimensions: 4.27 x 13.7.

Treatments: All combinations of:-

Whole plots

1. IRRIGATN	Irrigation:
NONE	None
FULL	Full (total 150 mm)

Sub plots

2. PATHCONT	Pest and pathogen control:
STANDARD	None
ENHANCED	Phorate at 2.2 kg, applied to seed furrows Pirimicarb at 0.14 kg on 4 June, 1984 Maneb at 0.8 kg with mancozeb at 0.8 kg on 1 Aug
FULL	Benomyl at 0.56 kg on 16 Aug Aldicarb at 10 kg on 20 Mar Phorate at 2.2 kg applied to seed furrows Fosetyl-Al at 1.6 kg on 16 May Pirimicarb at 0.14 kg on 4 June Benomyl at 0.56 kg on 6 July and 16 Aug Maneb at 0.8 kg with mancozeb at 0.8 kg on 1 Aug and 16 Aug

NOTES: (1) A planned application of pirimicarb to all plots was omitted because black aphids were few.

(2) Irrigation was applied as follows (mm water):

3 May	25
15 May	25
15 June	25
24 July	25
1 Aug	25
15 Aug	<u>25</u>
Total	150 mm

(3) Treatment sprays were applied in 220 l.

Basal applications: Weedkillers: Simazine at 1.2 kg in 250 l.

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Seed: Minden, sown at 200 kg.

Cultivations, etc.:- Ploughed: 6 Dec, 1983. Heavy spring-tine cultivated, aldicarb broadcast, rotary harrowed, phorate applied and seed sown: 20 Mar, 1984. Weedkiller applied: 22 Mar. Combine harvested: 31 Aug. Previous crops: W. wheat 1982, s. barley 1983.

NOTE: Plant counts were made after establishment and components of yield were measured at maturity. Total above ground dry matter and N content were measured in August. Migratory nematodes, root and foliar fungi, aphids, weevils and viruses were counted at intervals during the season. N content of grain was measured.

GRAIN TONNES/HECTARE

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

PATHCONT IRRIGATN	STANDARD	ENHANCED	FULL	MEAN
NONE	3.46	4.13	4.57	4.05
FULL	4.69	5.39	5.59	5.22
MEAN	4.08	4.76	5.08	4.64

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

TABLE	PATHCONT	IRRIGATN* PATHCONT

SED	0.118	0.167

* WITHIN THE SAME LEVEL OF IRRIGATN ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	12	0.235	5.1

GRAIN MEAN DM% 85.7

SUB PLOT AREA HARVESTED 0.00293