ROTHAMSTED RESEARCH

Yields of the Field Experiments 1980

Full Table of Content

80/R/BE/5 Spring Beans Effects of Pest and Pathogen Control

Rothamsted Research

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80/R/BE/5

SPRING BEANS

EFFECTS OF PEST AND PATHOGEN CONTROL

Object: To assess the benefits from three amounts of pest and disease control on irrigated and unirrigated s. beans - Gt Knott II.

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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 124 mm)

Sub plots

2.	PATHCONT	Pest and pathogen control
	STANDARD	None
	ENHANCED	Permethrin at 0.10 kg on 23 Apr, 1980 Pirimicarb at 0.14 kg on 2 June Benomyl at 0.56 kg on 16 July
	FULL	Aldicarb at 10 kg on 3 Mar Permethrin at 0.10 kg on 23 Apr Aluminium tris-ethyl phosphonate at 2.0 kg on 23 Apr Pirimicarb at 0.14 kg on 2 June Benomyl at 0.56 kg on 16 July Benomyl at 0.56 kg on 18 Aug

NOTES: (1) A planned application of pirimicarb to all PATH CONT treatments to control black fly (Aphis fabae) was not applied as numbers of this pest were few.

(2) Irrigation was applied to reduce a deficit of 50 mm to 25 mm before pod set, and from 80 mm to 55 mm after pod set. (mm water):

17 May	9
19 May	21
24 May	25
27 May	20
5 June	6
6 June	6
8 June	12
13 June	25
	124

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(3) Treatment sprays were applied in 340 l.

Basal applications: Manures: Chalk at 3 t. Weedkillers: Trietazine with simazine (as 'Remtal SC' at 2.5 l) in 250 l.

Seed: Minden, sown at 150 kg. (500,000 seeds per hectare).

Cultivations, etc.:- Chalk applied: 8 Oct, 1979. Ploughed: 29 Nov. Spring-tine cultivated: 1 Mar, 1980. Spring-tine cultivated, rotary harrowed: 3 Mar. Seed sown: 4 Mar. Weedkillers applied: 21 Mar. Combine harvested: 18 Sept. Previous crops: W. wheat 1978, s. barley 1979.

NOTE: Plant counts were made after establishment and components of yield measured before harvest. 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	3.91	4.64	5.63	4.72
FULL	3.64	4.26	4.88	4.26
MEAN	3.77	4.45	5.25	4.49

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

TABLE	PATHCONT	IRRIGATN* PATHCONT
SED	0.186	0.263

* WITHIN THE SAME LEVEL OF IRRIGATN ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	12	0.372	8.3

GRAIN MEAN DM% 78.4

SUB PLOT AREA HARVESTED 0.00293

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