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77/R/BE/14 Comparison of Sprayers - Beans

Rothamsted Research

Rothamsted Research (1978) *77/R/BE/14 Comparison of Sprayers - Beans* ; Yields Of The Field Experiments 1977, pp 385 - 386 - DOI: <https://doi.org/10.23637/ERADOC-1-29>

77/R/BE/14

SPRING BEANS

COMPARISON OF SPRAYERS

Object: To study the performance of an electrostatic spraying system on distribution of spray material and on yield of beans - Geescroft.

Sponsor: A.J. Arnold.

Design: 3 blocks of 2 plots split into 5.

Whole plot dimensions: 2.67 x 9.14.

Treatments: All combinations of:-

Whole plots:

1. SPRAYDAY	Dates of spraying:
1 JUNE	1 June for electrostatic sprayer, 30 May for farm sprayer
23 JUNE	23 June

Sub plots

2. SPRAYER	Sprayer used to apply permethrin at 0.07 kg:
NONE	None applied
EC 1 E	Electrostatic sprayer, spraying charged particles with a single rotary atomiser, sprayer earthed (SPRAYDAY 1 JUNE only)
EC 2 E	Electrostatic sprayer, spraying charged particles with two rotary atomisers, sprayer earthed
EC 2 -	Electrostatic sprayer, spraying charged particles with two rotary atomisers, sprayer not earthed (SPRAYDAY 23 JUNE only)
EU	Electrostatic sprayer, spraying uncharged particles
FU	Standard Farm sprayer, spraying uncharged particles

NOTES: (1) Farm sprayer applied permethrin in 560 l.
(2) Electrostatic sprayer applied permethrin in 31 l.

Basal applications: Manures: Chalk at 7.5 t. Weedkiller: Simazine at 1.1 kg in 220 l.

Seed: Minden, sown at 220 kg.

Cultivations, etc.: - Chalk applied: 2 Sept, 1976. Ploughed: 9 Sept. Heavy spring-tine cultivated four times: 21 Sept, 22 Sept, 3 Nov, 8 Mar, 1977.
Seed sown: 9 Mar. Weedkiller applied: 4 Apr. Combine harvested: 30 Sept.
Previous crops: Wheat 1975, barley 1976.

NOTE: Observations were made on patterns of spray deposition.

77/R/BE/14

GRAIN TONNES/HECTARE

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

SPRAYER SPRAYDAY	NONE	EC 1 E	EC 2 E	EC 2 -	EU	FU
1 JUNE	4.61	4.95	4.80		4.79	4.93
23 JUNE	4.11		4.62	4.72	4.44	4.44
GRAND MEAN	4.64					

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

TABLE	SPRAYDAY* SPRAYER
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SED	0.184

* WITHIN THE SAME LEVEL OF SPRAYDAY ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	16	0.225	4.9

GRAIN MEAN DM% 81.6

SUB PLOT AREA HARVESTED 0.00244