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83/R/B/9 Electrostatic Spraying and Mildew - S. Barley

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83/R/B/9

SPRING BARLEY

ELECTROSTATIC SPRAYING AND MILDEW

Object: To compare the effects of electrostatic and conventional sprayers on mildew (*Erysiphe graminis*) control and on the yield of s. barley - Geescroft.

Sponsors: A.J. Arnold, G.R. Cayley, P. Etheridge, D.C. Griffiths, F.T. Phillips, B.J. Pye, G.C. Scott.

Design: 4 randomised blocks of 10 plots.

Whole plot dimensions: 3.0 x 13.0.

Treatments: All combinations of:-

1. SPRAYER Spraying machines:

CNVNTIAL	Conventional
ELECT NA	New electrostatic A
ELECT NB	New electrostatic B
ELECT O	Older electrostatic

2. TRIADIME Rates of applying triadimefon fungicide(g):

31
125

plus two extra treatments

EXTRA	
NONE	None
ELECT C1	New electrostatic C, given triadimefon at 31 g.

NOTES: (1) All the electrostatic sprayers had spinning cone nozzles. A and the older type were mounted vertically but differed in electric charge, 7.5 and 30 kV respectively. B and C both were mounted at an angle of 30° to the vertical and also differed in charge, 7.5 and 30 kV respectively.

(2) Fungicide was applied on 13 June, 1983, in 380 l by conventional sprayer, in 8.3 l by electrostatic sprayers.

Basal applications: Manures: 'Nitro-Chalk' at 500 kg followed by 250 kg. Weedkillers: Glyphosate at 1.4 kg in 120 l. Dicamba, mecoprop and MCPA (as 'Herrisol' at 5.0 l) in 250 l.

Seed: Koru, sown at 160 kg.

Cultivations, etc.: - Glyphosate applied: 28 Oct, 1982. Ploughed: 22 Dec. Spring-tine cultivated twice: 11 Mar, 1983. Seed sown: 15 Mar. First N applied: 15 Apr. 'Herrisol' applied: 24 May. Second N applied: 26 May. Combine harvested: 8 Aug. Previous crops: Potatoes 1981, w. wheat 1982.

NOTE: Samples for chemical analysis were taken immediately after treatment. Mildew was assessed seventeen days later.

83/R/B/9

GRAIN TONNES/HECTARE

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

TRIIDIME SPRAYER	31	125	MEAN
CNVNTIAL	6.15	6.34	6.24
ELECT NA	5.95	6.74	6.34
ELECT NB	5.92	6.67	6.29
ELECT O	6.09	6.48	6.28
MEAN	6.03	6.56	6.29

EXTRA	NONE	ELECT C1	MEAN
	5.91	5.93	5.92

GRAND MEAN 6.22

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

TABLE	SPRAYER	TRIIDIME	SPRAYER TRIIDIME & EXTRA

SED	0.260	0.184	0.368

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

STRATUM	DF	SE	CV%
BLOCK.WP	27	0.521	8.4

MEAN DM% 87.4

PLOT AREA HARVESTED 0.00359