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84/R/B/14 Mildew Control by Electrostatic Sprayers - S. Barley

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84/R/B/14

SPRING BARLEY

MILDEW CONTROL BY ELECTROSTATIC SPRAYERS

Object: To compare the effects of a range of electrostatic sprayers on mildew (*Erysiphe graminis*) control and on the yield of spring barley - Webbs.

Sponsors: D.C. Griffiths, G.R. Cayley, P. Etheridge, R.E. Goodchild, B.J. Pye, G.C. Scott.

Design: 4 randomised blocks of 14 plots.

Whole plot dimensions: 3.0 x 15.0.

Treatments:

SPRAYER	Sprayers and rates of application of propiconazole (kg):
CNVNTL 1	Conventional, 0.125 kg
CNVNTL 2	Conventional, 0.250 kg
	Electrostatic sprayers, applying at 0.125 kg:
E NO 1	NIAE, uncharged hydraulic sprayer in 60 l
E NC 1	NIAE, charged hydraulic sprayer in 60 l
E JC 1	'Jumbo', charged in 10.1 l
E AC 1	'APE' charged in 5.6 l
E MMC 1	'Micromax' charged in 9.0 l
E MNC 1	'Micronex' charged in 9.0 l
E JAAC 1	'Jumbo', air assisted, nozzles mounted at 20° to vertical, charged, in 10.1 l
E JAVC 1	'Jumbo', air assisted, nozzles mounted vertically, charged, in 10.1 l
E AAAC 1	'APE', air assisted, nozzles mounted at 20° to vertical, charged, in 5.6 l
E AAVC 1	'APE', air assisted, nozzles mounted vertically, charged, in 5.6 l
NONE	None (duplicated)

- NOTES: (1) Sides and ends of plots, 3m and 5m respectively, were separated by *Atem s.* barley, seed dressed with triadimenol plus fuberidazole.
- (2) The 'Jumbo' has electrostatically charged spinning-cone nozzles.
- (3) The 'APE' has electrostatically charged spinning-disc nozzles.
- (4) The 'Micromax' has inductively-charged spinning-cone nozzles.
- (5) The 'Micronex' is a commercial prototype, electrostatically-charged spinning-disc sprayer.
- (6) Spray treatments were applied in the period 11 to 12 June, 1984.

Basal applications: Manures: FYM at 25 t. 'Nitro-Chalk' at 500 kg.
Weedkillers: 3, 6-dichloropicolinic acid at 0.05 kg and bromoxynil at 0.24 kg with mecoprop (as 'CMPP' at 3.0 l) in 250 l.

Seed: Georgie, sown at 160 kg.

84/R/B/14

Cultivations, etc.: - Heavy spring-tine cultivated: 10 Oct, 1983. FYM applied: 11 Nov. Ploughed: 28 Nov. N applied, spring-tine cultivated: 8 Mar, 1984. Rotary harrowed, seed sown: 10 Mar. Weedkillers applied: 15 May. Combine harvested: 20 Aug. Previous crops: S. barley 1982 and 1983.

NOTE: Plant samples were taken immediately after spraying to assess weedkiller deposits. Mildew assessments were made in June.

GRAIN TONNES/HECTARE

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

SPRAYER	
CNVNTL 1	6.30
CNVNTL 2	6.19
E NO 1	5.96
E NC 1	6.20
E JC 1	5.65
E AC 1	5.74
E MMC 1	5.72
E MNC 1	5.83
E JAAC 1	6.19
E JAVC 1	6.12
E AAAC 1	5.92
E AAVC 1	6.19
NONE	5.42
MEAN	5.92

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

TABLE	SPRAYER
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SED	0.185 MIN REP
	0.160 MAX-MIN

SPRAY
 MAX-MIN NONE V ANY OF REMAINDER
 MIN REP ANY OF REMAINDER

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

STRATUM	DF	SE	CV%
BLOCK.WP	40	0.261	4.4

GRAIN MEAN DM% 87.0

PLOT AREA HARVESTED 0.00306