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84/R/B/2 Electrostatic Spraying and Foliar Diseases - W. Barley

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84/R/B/2

WINTER BARLEY

ELECTROSTATIC SPRAYING AND FOLIAR DISEASES

Object: To study the penetration of sprays and control of foliar diseases with a range of electrostatic sprayers - Black Horse II.

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

Design: 4 randomised blocks of 8 plots.

Whole plot dimensions: 3.0 x 15.0.

Treatments:

SPRAYER	Sprayers applying propiconazole:
NONE	None
CNVNTL 2	Conventional hydraulic sprayer, at 125 g in 200 l
CNVNTL 1	Conventional hydraulic sprayer, at 62.5 g in 200 l
EL APE	'APE' electrostatic sprayer, at 62.5 g in 6 l (duplicated)
EL JUMBO	'Jumbo' electrostatic sprayer, at 62.5 g in 10 l (duplicated)
EL MICRO	'Micronex' electrostatic sprayer, at 62.5 g in 13 l

NOTES: (1) Propiconazole was applied on 3 November, 1983 and 14 March, 1984 by all sprayers except the 'Micronex' which was on 14 March only.
(2) The 'APE' electrostatic sprayer had four spinning-disc nozzles mounted on a hand-held boom, the 'Jumbo' had spinning-cone nozzles. Both are charged at 30 kv.
(3) The 'Micronex' is a commercial prototype, electrostatically-charged spinning-disc sprayer.
(4) Chopped straw infected with Rhynchosporium was spread evenly over the whole of the experimental area on 9 September, 1983.

Basal applications: Manures: (5:14:30) at 340 kg. 'Nitro-Chalk' on two occasions, at 190 kg on the first and at 440 kg on the second. Weedkillers: Methabenzthiazuron at 2.4 kg in 250 l. 3, 6-dichloropicolinic acid at 0.07 kg and bromoxynil at 0.34 kg with mecoprop (as 'CMPP' at 4.2 l) in 200 l. Desiccant: Diquat at 0.70 kg ion with 'Agral', a wetting agent, at 0.2 l, in 200 l.

Seed: Maris Otter, sown at 160 kg.

Cultivations, etc.:- Ploughed: 4 Aug, 1983. NPK applied: 23 Aug. Spring-tine cultivated: 7 Sept. Straw applied, rotary harrowed, seed sown: 9 Sept. Methabenzthiazuron applied: 13 Sept. First N applied: 9 Mar, 1984. Second N applied: 4 Apr. 3, 6-dichloropicolinic acid, bromoxynil and mecoprop applied: 13 Apr. Desiccant applied: 23 July. Combine harvested: 26 July. Previous crops: W. barley 1982 and 1983.

NOTE: Plant samples were taken immediately after spraying to assess weedkiller deposits. Mildew was assessed in November and Rhynchosporium in April.

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84/R/B/2

GRAIN TONNES/HECTARE

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

SPRAYER	NONE	CNVNTL 2	CNVNTL 1	EL APE	EL JUMBO	EL MICRO	MEAN
	5.96	6.65	6.64	6.64	6.53	6.27	6.48

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

TABLE	SPRAYER	
SED	0.238	MIN REP
	0.206	MAX-MIN
	0.168	MAX REP

	SPRAYER
MAX REP	EL APE V EL JUMBO
MAX-MIN	EL APE OR EL JUMBO V ANY OF REMAINDER
MIN REP	ANY OF REMAINDER

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

STRATUM	DF	SE	CV%
BLOCK.WP	23	0.336	5.2

GRAIN MEAN DM% 78.6

PLOT AREA HARVESTED 0.00306

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