ROTHAMSTED RESEARCH

Yields of the Field Experiments 1985

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85/R/WW/6 Electrostatic Sprayers and Weed Control - W. Wheat

Rothamsted Research

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85/R/WW/6

WINTER WHEAT

ELECTROSTATIC SPRAYERS AND WEED CONTROL

Object: To compare the weed control obtained with electrostatic and standard hydraulic sprayers in wheat following oats and wheat following potatoes - Rothamsted Summerdells I (after oats) and Great Harpenden I (after potatoes).

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Design: 4 randomised blocks of 12 plots.

Whole plot dimensions: 3.0 x 15.0.

Treatments:

TREATMNT	Sprayers, weedkillers and times of application:
NONE	None
	Electrostatic sprayer, 'Tecnoma', applying chlorsulfuron plus metsulfuron methyl:
EST E	Early on 17 Oct, 1984 (Summerdells), 31 Oct (Great Harpenden)
EST L	Late on 13 Dec (Summerdells), 21 Dec (Great Harpenden)
EST L+I	Late plus isoproturon (duplicated)
	Electrostatic sprayer, 'Jumbo', applying chlorsulfuron plus metsulfuron methyl:
ESJ E	Early on above dates
ESJ L	Late on above dates
ESJ L+I	Late plus isoproturon (duplicated)
	Conventional, hydraulic sprayer, applying chlorsulfuron plus metsulfuron methyl:
H E	Early on above dates
H L	Late on above dates
H L+I	Late plus isoproturon

NOTES: (1) On one plot on the site after potatoes which should have received ESJ L the treatment was omitted in error. An estimated value was used in the analysis
(2) Chlorsulfuron was applied at 0.015 kg and metsulfuron methyl at 0.005 kg.
(3) Isoproturon was applied at 2.5 kg.
(4) The 'Tecnoma' electrostatic sprayer has vertically mounted, inductively charged rotary atomisers and spray was applied in 12.0 l.
(5) The 'Jumbo' electrostatic sprayer has spinning cone nozzles, spray was charged at 30 kv and was applied in 9.0 l.
(6) The hydraulic sprayer applied sprays in 200 l.

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Standard applications:
Summerdells I: Manures: 'Nitro-Chalk' (27.5% N) at 720 kg. Weedkiller: Paraquat at 0.60 kg ion in 500 l. Fungicides: Propiconazole at 0.25 kg in 200 l. Propiconazole at 0.12 kg with carbendazim and maneb (as 'Septal' at 2.5 kg) in 200 l. Insecticide: Pirimicarb at 0.14 kg in 200 l.
Great Harpenden I: Manures: 'Nitro-Chalk' (27.5% N) at 540 kg. Fungicides: Captafol at 0.96 kg with fenpropimorph at 0.75 kg and carbendazim at 0.15 kg in 200 l.

Seed: Avalon, sown at 170 kg (both fields).

Cultivations, etc.:-
Summerdells I: Disced: 14 Aug, 1984. Paraquat applied, heavy spring-tine cultivated: 19 Sept. Rotary harrowed, seed sown: 26 Sept. N applied: 15 Apr, 1985. Propiconazole alone applied: 3 June. Propiconazole with carbendazim and maneb applied: 2 July. Insecticide applied: 10 July. Combine harvested: 30 Aug. Previous crops: S. barley 1983, w. oats 1984.
Great Harpenden I: Heavy spring-tine cultivated: 12 Oct, 1984. Rotary harrowed, seed sown: 13 Oct. N applied: 15 Apr, 1985. Fungicides applied: 28 June. Combine harvested: 29 Aug. Previous crops: W. beans 1983, potatoes 1984.

NOTE: Weed counts were made throughout the season.

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85/R/WW/6 SUMMERDELLS I

WINTER WHEAT (AFTER OATS)

GRAIN TONNES/HECTARE

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

TREATMNT	
NONE	5.27
EST E	8.02
EST L	7.58
EST L+I	9.22
ESJ E	8.04
ESJ L	7.89
ESJ L+I	8.93
H E	8.98
H L	7.66
H L+I	9.83
MEAN	8.19

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

TABLE	TREATMNT	
SED	0.451	MIN REP
	0.391	MAX-MIN
	0.319	MAX REP

	TREATMNT
MAX REP	EST L+I AND ESJ L+I
MAX-MIN	EST L+I OR ESJ L+I V ANY OF REMAINDER
MIN REP	ANY OF REMAINDER

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

STRATUM	DF	SE	CV%
BLOCK.WP	35	0.638	7.8

GRAIN MEAN DM% 84.1

PLOT AREA HARVESTED 0.00306

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85/R/WW/6 GREAT HARPENDEN I

WINTER WHEAT (AFTER POTATOES)

GRAIN TONNES/HECTARE

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

TREATMNT	
NONE	6.15
EST E	7.35
EST L	8.35
EST L+I	8.29
ESJ E	7.72
ESJ L	7.94
ESJ L+I	8.38
H E	7.52
H L	8.62
H L+I	8.84
MEAN	7.96

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

TABLE	TREATMNT	
SED	0.378	MIN REP
	0.327	MAX-MIN
	0.267	MAX REP

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

STRATUM	DF	SE	CV%
BLOCK.WP	34	0.534	6.7

GRAIN MEAN DM% 81.7

PLOT AREA HARVESTED 0.00306

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