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86/R/WW/9 Electrostatic Sprayers and Weed Control - W. Wheat

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86/R/WW/9

WINTER WHEAT

ELECTROSTATIC SPRAYERS AND WEED CONTROL

Object: To compare the weed control obtained with electrostatic and standard hydraulic sprayers in winter wheat - Claycroft.

Sponsors: G.R. Cayley, D.C. Griffiths, B.J. Pye.

Design: 4 randomised blocks of 7 plots.

Whole plot dimensions: 3.0 x 15.0.

Treatments: All combinations of:-

- | | |
|-------------|-------------------------------------|
| 1. SPRAYERS | Sprayers: |
| ELEC 1 | Electrostatic sprayer 1 |
| ELEC 2 | Electrostatic sprayer 2 |
| HYDRAUL | Hydraulic sprayer |
| 2. SPR TIME | Times of application of weedkiller: |
| PRE EM | Pre-emergence on 14 Oct, 1985 |
| POST EM | Post-emergence on 13 Nov |

plus one extra treatment

EXTRA

NONE None

- NOTES: (1) Electrostatic sprayer 1 was the 'Tecnomat' which has vertically mounted, inductively charged rotary atomisers and spray was applied in 6.4 l.
- (2) Electrostatic sprayer 2 was the 'Jumbo' which has spinning cone nozzles, spray was charged at 30 kv and was applied in 9.1 l.
- (3) Weedkillers used were isoproturon at 2.5 kg, chlorsulfuron at 0.015 kg and metsulfuron methyl at 0.005 kg.
- (4) The hydraulic sprays were applied in 200 l.

Basal applications: Manures: (0:18:36) at 690 kg. 'Nitram' at 600 kg. Weedkiller: Paraquat at 0.60 kg ion in 200 l. Fungicide: Propiconazole at 0.12 kg in 200 l. Desiccant: Glyphosate at 1.4 kg in 200 l.

Seed: Avalon, sown at 190 kg.

Cultivations, etc.:- PK applied: 5 Sept, 1985. Heavy spring-tine cultivated: 17 Sept. Paraquat applied: 10 Oct. Heavy spring-tine cultivated, disced, rotary harrowed, seed sown: 11 Oct. N applied: 28 Apr, 1986. Fungicide applied: 25 June. Desiccant applied: 12 Aug. Combine harvested: 30 Aug. Previous crops: W. wheat 1984, s. barley 1985.

NOTE: Broadleaved and grass weeds were counted at intervals during the growth of the crop.

86/R/WW/9

GRAIN TONNES/HECTARE

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

| SPR TIME SPRAYERS | PRE EM | POST EM | MEAN |
|----------------------|--------|---------|------|
| ELECT 1 | 8.62 | 9.19 | 8.90 |
| ELECT 2 | 9.15 | 9.45 | 9.30 |
| HYDRAUL | 8.53 | 8.98 | 8.76 |
| MEAN | 8.77 | 9.20 | 8.99 |
| NONE | 6.28 | | |
| GRAND MEAN | 8.60 | | |

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

| TABLE | SPRAYERS | SPR TIME | SPRAYERS SPR TIME & NONE |
|-------|----------|----------|--------------------------------|
| ----- | ----- | ----- | ----- |
| SED | 0.333 | 0.272 | 0.471 |

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

| STRATUM | DF | SE | CV% |
|---------------------|---------|-------|-----|
| BLOCK.WP | 18 | 0.666 | 7.7 |
| GRAIN MEAN | 80.0 | | |
| PLOT AREA HARVESTED | 0.00306 | | |