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90/R/WW/2 Control of Volunteers - W. Wheat

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Rothamsted Research (1991) *90/R/WW/2 Control of Volunteers - W. Wheat* ; Yields Of The Field Experiments 1990, pp 106 - 110 - DOI: <https://doi.org/10.23637/ERADOC-1-42>

90/R/WW/2

WINTER WHEAT

CONTROL OF VOLUNTEERS

Object: To compare methods of volunteer control in winter wheat after w. and s. barley - Delafield, Fosters Corner.

Sponsors: R. Moffitt, D.G. Christian.

Design: 3 replicates of 8 x 3 criss-cross.

Column plot dimensions: 6.0 x 20.0.

Treatments: All combinations of:-

Column plots

1. **PRIMCULT** Primary cultivations:

| | |
|----------|-------------------------------|
| NONE | None until just before sowing |
| DYNDRIVE | 'Bomford Dynadrive' |
| PLOUGH | Plough |
| TINE | Tine |

2. **CULTDATE** Date of cultivations:

| | |
|-------|--|
| EARLY | 25 July, 1989 (Delafield) 17 Aug (Fosters Corner) |
| LATER | 15 Aug (Delafield) 7 Sept (Fosters Corner) |

Row plots

3. **PRSOWCON** Pre-sowing volunteer control:

| | |
|----------|--|
| GLYPHOS | Glyphosate at 0.27 kg in 200 l on 18 Oct, 1989 (Delafield), 1 Nov and 13 Nov (Fosters Corner) |
| PARAQUAT | Paraquat at 0.60 kg ion in 200 l on 18 Oct (Delafield), 1 Nov (Fosters Corner) |
| NONE | None |

- NOTES:**
- (1) The 'Bomford Dynadrive' has a frame similar to a rotary cultivator but it has two rotating shafts containing flat, slightly twisted, spade-shaped tines. The front shaft drives the rear, it is fitted with twice the number of blades and rotates at about one third the speed of the rear shaft.
 - (2) A 1 m strip of Plaisant w. barley was broadcast on the surface, by drill at 120 kg on one end of each plot. It was broadcast before any treatments were applied on 25 July, 1989 (Delafield) and 17 Aug (Fosters Corner).
 - (3) All plots were heavy spring-tine cultivated on 1 Nov, 1989 (Delafield), 14 Nov (Fosters Corner) then rotary harrowed and seed sown by drill 7 Nov (Delafield), 15 Nov (Fosters Corner). The seed was spring-tine cultivated in, (Delafield), and harrowed in, (Fosters Corner), after sowing.
 - (4) **PRIMCULT TINE** was heavy spring-tine cultivated twice.

90/R/WW/2

Basal applications: Manures: 'Nitram' at 120 kg and later at 460 kg.
 Weedkillers: Chlorotoluron at 3.5 kg in 200 l. Bromoxynil at 0.25 kg, ioxynil at 0.25 kg and mecoprop at 2.0 kg with the prochloraz in 200 l (Delafield). Bromoxynil at 0.28 kg, ioxynil at 0.28 kg and mecoprop at 2.2 kg with the prochloraz in 200 l (Fosters Corner). Fungicides: Prochloraz at 0.40 kg. Chlorothalonil at 0.50 kg with propiconazole at 0.12 kg in 200 l (Delafield). Fenpropimorph at 0.75 kg in 200 l.

Seed: Mercia, sown at 180 kg.

Cultivations, etc.:- Chlorotoluron applied: 21 Nov, 1989 (Fosters Corner), 23 Nov (Delafield). N applied: 9 Mar, 1990 and 12 Apr. Bromoxynil, ioxynil and mecoprop with prochloraz applied: 10 Apr (Delafield), 25 Apr (Fosters Corner). Chlorothalonil applied with the propiconazole (Fosters Corner): 31 May. Fenpropimorph applied: 29 June. Combine harvested: 10 Aug (Delafield), 13 Aug (Fosters Corner). Previous crops: W. oilseed rape 1988, w. barley 1989 (Delafield); sunflowers 1988, s. barley 1989 (Fosters Corner).

NOTES: (1) Ears of volunteer plants were counted at anthesis of the sown crop.
 (2) Percentage contamination of harvested grain by volunteer grain was measured.

90/R/WW/2 DELAFIELD W.WHEAT AFTER W.BARLEY

GRAIN TONNES/HECTARE

***** Tables of means *****

| CULTDATE | EARLY | LATER | Mean | |
|-----------------|---------|----------|------|------|
| PRIMCULT | | | | |
| NONE | 5.73 | 5.83 | 5.78 | |
| DYNDRIVE | 5.48 | 5.80 | 5.64 | |
| PLOUGH | 6.30 | 6.43 | 6.36 | |
| TINE | 5.84 | 5.89 | 5.86 | |
| Mean | 5.84 | 5.99 | 5.91 | |
| PRSOWCON | GLYPHOS | PARAQUAT | NONE | Mean |
| PRIMCULT | | | | |
| NONE | 6.11 | 5.79 | 5.44 | 5.78 |
| DYNDRIVE | 5.85 | 5.94 | 5.14 | 5.64 |
| PLOUGH | 6.76 | 6.38 | 5.95 | 6.36 |
| TINE | 6.08 | 6.24 | 5.27 | 5.86 |
| Mean | 6.20 | 6.09 | 5.45 | 5.91 |
| PRSOWCON | GLYPHOS | PARAQUAT | NONE | Mean |
| CULTDATE | | | | |
| EARLY | 6.10 | 5.92 | 5.50 | 5.84 |
| LATER | 6.30 | 6.25 | 5.40 | 5.99 |
| Mean | 6.20 | 6.09 | 5.45 | 5.91 |

90/R/WW/2 DELAFIELD W.WHEAT AFTER W.BARLEY

GRAIN TONNES/HECTARE

***** Tables of means *****

| PRIMCULT | PRSOWCON CULTDATE | GLYPHOS | PARAQUAT | NONE |
|----------|----------------------|---------|----------|------|
| NONE | EARLY | 6.18 | 5.57 | 5.44 |
| | LATER | 6.05 | 6.00 | 5.44 |
| DYNDRIVE | EARLY | 5.75 | 5.70 | 4.99 |
| | LATER | 5.94 | 6.17 | 5.29 |
| PLOUGH | EARLY | 6.61 | 6.22 | 6.08 |
| | LATER | 6.92 | 6.54 | 5.81 |
| TINE | EARLY | 5.85 | 6.18 | 5.48 |
| | LATER | 6.30 | 6.31 | 5.06 |

*** Standard errors of differences of means ***

| | PRIMCULT | CULTDATE | PRSOWCON | PRIMCULT CULTDATE |
|---|----------------------|----------------------|----------------------------------|----------------------|
| | 0.167 | 0.118 | 0.296 | 0.236 |
| | PRIMCULT PRSOWCON | CULTDATE PRSOWCON | PRIMCULT CULTDATE PRSOWCON | |
| | 0.369 | 0.325 | 0.445 | |
| Except when comparing means with the same level(s) of | | | | |
| PRIMCULT | 0.354 | | | |
| CULTDATE | | 0.317 | | |
| PRSOWCON | 0.248 | 0.175 | 0.350 | |
| PRIMCULT.CULTDATE | | | 0.419 | |

***** Stratum standard errors and coefficients of variation *****

| Stratum | d.f. | s.e. | cv% |
|---------------|------|-------|-----|
| BLOCK.WP1 | 4 | 0.363 | 6.1 |
| BLOCK.WP2 | 14 | 0.288 | 4.9 |
| BLOCK.WP1.WP2 | 28 | 0.388 | 6.6 |

GRAIN MEAN DM% 89.5

PLOT AREA HARVESTED 0.00075

90/R/WW/2 FOSTERS CORNER W.WHEAT AFTER S.BARLEY

GRAIN TONNES/HECTARE

***** Tables of means *****

| CULTDATE | EARLY | LATER | Mean |
|-----------------|-------|-------|------|
| PRIMCULT | | | |
| NONE | 5.61 | 5.75 | 5.68 |
| DYNDRIVE | 5.43 | 5.83 | 5.63 |
| PLOUGH | 5.69 | 5.78 | 5.73 |
| TINE | 5.56 | 5.65 | 5.60 |
| Mean | 5.57 | 5.75 | 5.66 |

| PRISOWCON | GLYPHOS | PARAQUAT | NONE | Mean |
|-----------------|---------|----------|------|------|
| PRIMCULT | | | | |
| NONE | 5.74 | 5.43 | 5.87 | 5.68 |
| DYNDRIVE | 5.59 | 5.52 | 5.77 | 5.63 |
| PLOUGH | 5.73 | 5.59 | 5.88 | 5.73 |
| TINE | 5.55 | 5.48 | 5.78 | 5.60 |
| Mean | 5.65 | 5.51 | 5.83 | 5.66 |

| PRISOWCON | GLYPHOS | PARAQUAT | NONE | Mean |
|-----------------|---------|----------|------|------|
| CULTDATE | | | | |
| EARLY | 5.55 | 5.40 | 5.77 | 5.57 |
| LATER | 5.75 | 5.61 | 5.89 | 5.75 |
| Mean | 5.65 | 5.51 | 5.83 | 5.66 |

| PRIMCULT | PRISOWCON | GLYPHOS | PARAQUAT | NONE |
|-----------------|-----------|---------|----------|------|
| CULTDATE | | | | |
| NONE | EARLY | 5.72 | 5.36 | 5.76 |
| | LATER | 5.76 | 5.50 | 5.98 |
| DYNDRIVE | EARLY | 5.43 | 5.32 | 5.55 |
| | LATER | 5.76 | 5.73 | 5.99 |
| PLOUGH | EARLY | 5.60 | 5.47 | 5.99 |
| | LATER | 5.86 | 5.71 | 5.78 |
| TINE | EARLY | 5.46 | 5.46 | 5.75 |
| | LATER | 5.64 | 5.50 | 5.80 |

*** Standard errors of differences of means ***

| | | | | |
|---|-------------------------------|-------------------------------|--|------------------------------|
| | PRIMCULT | CULTDATE | PRISOWCON | PRIMCULT CULTDATE |
| | 0.083 | 0.059 | 0.236 | 0.118 |
| | PRIMCULT PRISOWCON | CULTDATE PRISOWCON | PRIMCULT CULTDATE PRISOWCON | |
| | 0.265 | 0.246 | 0.300 | |
| Except when comparing means with the same level(s) of | | | | |
| PRIMCULT | 0.264 | | | |
| CULTDATE | | 0.246 | | |
| PRISOWCON | 0.140 | 0.099 | 0.197 | |
| PRIMCULT . CULTDATE | | | 0.298 | |

90/R/WW/2 FOSTERS CORNER W.WHEAT AFTER S.BARLEY

GRAIN TONNES/HECTARE

***** Stratum standard errors and coefficients of variation *****

| Stratum | d.f. | s.e. | cv% |
|---------------|------|-------|-----|
| BLOCK.WP1 | 4 | 0.289 | 5.1 |
| BLOCK.WP2 | 14 | 0.144 | 2.5 |
| BLOCK.WP1.WP2 | 28 | 0.238 | 4.2 |

GRAIN MEAN DM% 89.1

PLOT AREA HARVESTED 0.00080