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89/R/CS/333 Comparison of Combinable Crops - W. Wheat

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89/R/CS/333

COMPARISON OF COMBINABLE CROPS

Object: To compare yields and other attributes of a range of combinable crops and to study their effects on a following crop of w. wheat - Long Hoos VI/VII 1.

Sponsors: J. McEwen, D.P. Yeoman, R.J. Darby, M.V. Hewitt.

The second year, w. wheat.

For previous year see 88/R/CS/333.

Design: 3 randomised blocks of 12 plots split into 2.

Whole plot dimensions: 2.5 x 8.0.

Treatments: All combinations of:-

Whole plots

| | |
|-------------|---------------------------------------------|
| 1. PREVCROP | Crops in 1988: |
| W BEANS | W. beans, <i>Vicia faba</i> |
| W OATS | W. oats |
| W PEAS | W. peas, <i>Pisum sativum</i> |
| W RAPE | W. oilseed rape |
| W WHEAT | W. wheat |
| S BEANS | S. beans, <i>Vicia faba</i> |
| S LUPINS | S. lupins, <i>Lupinus albus</i> |
| S PEAS | S. peas, <i>Pisum sativum</i> |
| SNFLOWER | Sunflowers |
| FALLOW/C | Fallow, cultivated |
| FALLOW/P | Fallow, paraquat applied on four occasions |
| RYEGRASS | One-year ryegrass, cut and produce returned |

Sub plots

| | |
|-------------|---------------------------------------------------------------------|
| 2. SPRING N | Nitrogen fertilizer applied on 18 Apr, 1989: |
| O | None |
| N | N applied, amount depending on quantity in crop and soil in spring. |

NOTE: Amounts of N applied (kg N) as 'Nitro-Chalk' were:

| | | |
|----------------|-------------------------|-----|
| After PREVCROP | FALLOW/C | 170 |
| | W PEAS, S BEANS, S PEAS | 180 |
| | FALLOW/P | 190 |
| | W BEANS, W RAPE | 200 |
| | S LUPINS | 210 |
| | SUNFLOWERS | 220 |
| | W WHEAT, RYEGRASS | 230 |
| | W OATS | 240 |

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Standard applications: Weedkillers: Paraquat at 0.60 kg ion in 220 l except after lupins. Isoproturon at 2.5 kg with mecoprop at 1.5 kg in 220 l except after lupins. Isoproturon at 2.5 kg with mecoprop at 0.42 kg in 220 l after lupins only. Isoproturon at 2.5 kg with mecoprop at 1.7 kg with cyanazine at 0.46 kg and clopyralid at 0.08 kg in 220 l to all plots. Difenzoquat at 0.99 kg applied with a wetting agent ('Agral' at 1.0 l) in 220 l. Fungicides: Propiconazole at 0.12 kg in 220 l. Carbendazim at 0.15 kg, maneb at 1.6 kg and tridemorph at 0.38 kg in 220 l. Molluscicide: Metaldehyde at 0.60 kg.

Seed: W. wheat: Mercia, sown at 200 kg.

Cultivations, etc.:- Paraquat applied except after lupins: 9 Sept, 1988. Deep-tine cultivated, except after lupins: 12 Sept. Rotary cultivated and seed sown except after lupins: 19 Sept. After lupin plots spring-tine cultivated, seed sown: 4 Oct. Isoproturon and mecoprop applied except after lupins: 19 Oct, and after lupins: 31 Oct and again to all plots with cyanazine and clopyralid: 6 Jan, 1989. Difenzoquat applied: 8 Feb. Propiconazole applied: 8 Mar. Metaldehyde applied: 15 Mar. Carbendazim, maneb and tridemorph applied: 26 Apr. Combine harvested: 28 July.

NOTE: Because the grain was spilt before weighing, the yield of one plot was lost, with treatment S BEANS N. An estimated value was used in the analysis.

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GRAIN TONNES/HECTARE

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

| SPRING N PREVCROP | O | N | Mean |
|----------------------|------|------|------|
| W BEANS | 6.75 | 9.63 | 8.19 |
| W OATS | 3.82 | 8.81 | 6.31 |
| W PEAS | 6.82 | 9.17 | 7.99 |
| W RAPE | 6.61 | 9.24 | 7.92 |
| W WHEAT | 2.51 | 7.20 | 4.85 |
| S BEANS | 7.47 | 9.80 | 8.64 |
| S LUPINS | 6.66 | 9.42 | 8.04 |
| S PEAS | 6.96 | 9.51 | 8.24 |
| SNFLOWER | 4.86 | 9.14 | 7.00 |
| FALLOW/C | 8.10 | 9.70 | 8.90 |
| FALLOW/P | 7.43 | 9.75 | 8.59 |
| RYEGRASS | 3.68 | 7.55 | 5.62 |
| Mean | 5.97 | 9.08 | 7.52 |

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

| | PREVCROP | SPRING N | PREVCROP SPRING N |
|-------------------------------------------------------------------|----------|----------|----------------------|
| | 0.380 | 0.157 | 0.541 |
| Except when comparing means with the same level(s) of PREVCROP | | | 0.545 |

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

| Stratum | d.f. | s.e. | cv% |
|-------------|------|-------|-----|
| BLOCK.WP | 22 | 0.465 | 6.2 |
| BLOCK.WP.SP | 23 | 0.667 | 8.9 |

GRAIN MEAN DM% 88.0

SUB PLOT AREA HARVESTED 0.00055