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# Yields of the Field Experiments 1985

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## 85/R/CS/140 Chemical Reference Plots - S. Barley

### Rothamsted Research

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85/R/CS/140

CHEMICAL REFERENCE PLOTS

Object: To study the persistence in soil of agricultural chemicals applied annually, singly and in combination and their effects on soil microflora and on yield of continuous s. barley - Long Hoos V 3.

Sponsors: G.G. Briggs, R. Macdonald.

The 12th year, s. barley.

For previous years see 74-84/R/CS/140.

Design: Single replicate of 32 plots.

Whole plot dimensions: 4.06 x 4.57.

Treatments, applied cumulatively except as stated:

All combinations of:-

- |                |                                                                               |
|----------------|-------------------------------------------------------------------------------|
| 1. WEEDKLLR    | Weedkiller in autumn:                                                         |
| NONE           | None                                                                          |
| GLYPHOS        | Glyphosate at 1.4 kg to barley stubble each autumn since 1979.                |
| 2. FUNGCIDE(1) | Fungicide in autumn:                                                          |
| NONE           | None                                                                          |
| TRIADIM        | Triadimefon at 0.25 kg in autumn 1981, 1982 and 1984, 0.28 kg in autumn 1983. |
| 3. FUNGCIDE(2) | Fungicide in spring:                                                          |
| NONE           | None                                                                          |
| BENOMYL        | Benomyl at 4 kg to seedbed                                                    |
| 4. INSECTCDE   | Insecticide:                                                                  |
| NONE           | None                                                                          |
| CHLORFEN       | Chlorfenvinphos at 2 kg to the seedbed                                        |
| 5. NEMACIDE    | Nematicide:                                                                   |
| NONE           | None                                                                          |
| ALDICARB       | Aldicarb at 6 kg to the seedbed as granules                                   |

NOTE: Glyphosate and triadimefon were applied in 220 l on 26 Sept, 1984 and 17 Oct respectively. Other treatments were applied on 19 Mar, 1985.

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Basal applications: Manures: 'Nitro-Chalk' (27.5% N) at 550 kg.  
Weedkillers: Mecoprop, bromoxynil and ioxynil (as 'Brittox' at 3.5 l) in 220 l.

Seed: Klaxon, seed not dressed, sown at 160 kg.

Cultivations, etc.: Ploughed: 1 Nov, 1984. N applied, spring-tine cultivated: 18 Mar, 1985. Power harrowed, seed sown: 19 Mar. Weedkillers applied: 10 May. Combine harvested: 23 Aug.

# GRAIN TONNES/HECTARE

## \*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

|             |      |          |      |
|-------------|------|----------|------|
| FUNGCIDE(1) | NONE | TRIADIM  | MEAN |
| WEEDKLLR    |      |          |      |
| NONE        | 6.92 | 7.33     | 7.13 |
| GLYPHOS     | 7.04 | 7.24     | 7.14 |
| MEAN        | 6.98 | 7.29     | 7.14 |
| FUNGCIDE(2) | NONE | BENOMYL  | MEAN |
| WEEDKLLR    |      |          |      |
| NONE        | 7.04 | 7.21     | 7.13 |
| GLYPHOS     | 7.23 | 7.06     | 7.14 |
| MEAN        | 7.13 | 7.14     | 7.14 |
| FUNGCIDE(2) | NONE | BENOMYL  | MEAN |
| FUNGCIDE(1) |      |          |      |
| NONE        | 7.00 | 6.97     | 6.98 |
| TRIADIM     | 7.27 | 7.30     | 7.29 |
| MEAN        | 7.14 | 7.14     | 7.14 |
| INSCTCDE    | NONE | CHLORFEN | MEAN |
| WEEDKLLR    |      |          |      |
| NONE        | 7.01 | 7.24     | 7.13 |
| GLYPHOS     | 7.39 | 6.90     | 7.14 |
| MEAN        | 7.20 | 7.07     | 7.14 |
| INSCTCDE    | NONE | CHLORFEN | MEAN |
| FUNGCIDE(1) |      |          |      |
| NONE        | 7.16 | 6.80     | 6.98 |
| TRIADIM     | 7.24 | 7.34     | 7.29 |
| MEAN        | 7.20 | 7.07     | 7.14 |

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GRAIN TONNES/HECTARE

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

|             |      |          |      |          |
|-------------|------|----------|------|----------|
| INSCTCDE    | NONE | CHLORFEN | MEAN |          |
| FUNGCIDE(2) |      |          |      |          |
| NONE        | 7.21 | 7.06     | 7.14 |          |
| BENOMYL     | 7.19 | 7.08     | 7.14 |          |
| MEAN        | 7.20 | 7.07     | 7.14 |          |
| NEMACIDE    | NONE | ALDICARB | MEAN |          |
| WEEDKLLR    |      |          |      |          |
| NONE        | 6.94 | 7.32     | 7.13 |          |
| GLYPHOS     | 7.18 | 7.11     | 7.14 |          |
| MEAN        | 7.06 | 7.21     | 7.14 |          |
| NEMACIDE    | NONE | ALDICARB | MEAN |          |
| FUNGCIDE(1) |      |          |      |          |
| NONE        | 6.84 | 7.12     | 6.98 |          |
| TRIADIM     | 7.27 | 7.30     | 7.29 |          |
| MEAN        | 7.06 | 7.21     | 7.14 |          |
| NEMACIDE    | NONE | ALDICARB | MEAN |          |
| FUNGCIDE(2) |      |          |      |          |
| NONE        | 7.10 | 7.17     | 7.14 |          |
| BENOMYL     | 7.01 | 7.26     | 7.14 |          |
| MEAN        | 7.06 | 7.21     | 7.14 |          |
| NEMACIDE    | NONE | ALDICARB | MEAN |          |
| INSCTCDE    |      |          |      |          |
| NONE        | 7.08 | 7.32     | 7.20 |          |
| CHLORFEN    | 7.04 | 7.10     | 7.07 |          |
| MEAN        | 7.06 | 7.21     | 7.14 |          |
| FUNGCIDE(1) | NONE | TRIADIM  |      |          |
| FUNGCIDE(2) | NONE | BENOMYL  | NONE | BENOMYL  |
| WEEDKLLR    |      |          |      |          |
| NONE        | 6.85 | 7.00     | 7.23 | 7.43     |
| GLYPHOS     | 7.15 | 6.94     | 7.30 | 7.18     |
| FUNGCIDE(1) | NONE | TRIADIM  |      |          |
| INSCTCDE    | NONE | CHLORFEN | NONE | CHLORFEN |
| WEEDKLLR    |      |          |      |          |
| NONE        | 6.93 | 6.91     | 7.09 | 7.58     |
| GLYPHOS     | 7.39 | 6.70     | 7.38 | 7.10     |

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GRAIN TONNES/HECTARE

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

|              |      |          |          |          |
|--------------|------|----------|----------|----------|
| FUNGICIDE(2) | NONE |          | BENOMYL  |          |
| INSCTCDE     | NONE | CHLORFEN | NONE     | CHLORFEN |
| WEEDKLLR     |      |          |          |          |
| NONE         | 6.93 | 7.15     | 7.09     | 7.34     |
| GLYPHOS      | 7.48 | 6.97     | 7.29     | 6.82     |
| FUNGICIDE(2) | NONE |          | BENOMYL  |          |
| INSCTCDE     | NONE | CHLORFEN | NONE     | CHLORFEN |
| FUNGICIDE(1) |      |          |          |          |
| NONE         | 7.11 | 6.89     | 7.21     | 6.72     |
| TRIADIM      | 7.30 | 7.24     | 7.17     | 7.43     |
| FUNGICIDE(1) | NONE |          | TRIADIM  |          |
| NEMACIDE     | NONE | ALDICARB | NONE     | ALDICARB |
| WEEDKLLR     |      |          |          |          |
| NONE         | 6.72 | 7.12     | 7.15     | 7.51     |
| GLYPHOS      | 6.97 | 7.12     | 7.39     | 7.09     |
| FUNGICIDE(2) | NONE |          | BENOMYL  |          |
| NEMACIDE     | NONE | ALDICARB | NONE     | ALDICARB |
| WEEDKLLR     |      |          |          |          |
| NONE         | 6.92 | 7.16     | 6.95     | 7.48     |
| GLYPHOS      | 7.28 | 7.17     | 7.08     | 7.04     |
| FUNGICIDE(2) | NONE |          | BENOMYL  |          |
| NEMACIDE     | NONE | ALDICARB | NONE     | ALDICARB |
| FUNGICIDE(1) |      |          |          |          |
| NONE         | 6.91 | 7.09     | 6.78     | 7.16     |
| TRIADIM      | 7.30 | 7.24     | 7.25     | 7.36     |
| INSCTCDE     | NONE |          | CHLORFEN |          |
| NEMACIDE     | NONE | ALDICARB | NONE     | ALDICARB |
| WEEDKLLR     |      |          |          |          |
| NONE         | 6.79 | 7.23     | 7.09     | 7.40     |
| GLYPHOS      | 7.37 | 7.41     | 6.99     | 6.80     |
| INSCTCDE     | NONE |          | CHLORFEN |          |
| NEMACIDE     | NONE | ALDICARB | NONE     | ALDICARB |
| FUNGICIDE(1) |      |          |          |          |
| NONE         | 7.03 | 7.29     | 6.65     | 6.96     |
| TRIADIM      | 7.12 | 7.35     | 7.42     | 7.25     |
| INSCTCDE     | NONE |          | CHLORFEN |          |
| NEMACIDE     | NONE | ALDICARB | NONE     | ALDICARB |
| FUNGICIDE(2) |      |          |          |          |
| NONE         | 7.13 | 7.28     | 7.08     | 7.05     |
| BENOMYL      | 7.03 | 7.36     | 7.00     | 7.15     |

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

|                              |       |
|------------------------------|-------|
| MARGINS OF TWO FACTOR TABLES | 0.124 |
| TWO FACTOR TABLES            | 0.175 |
| THREE FACTOR TABLES          | 0.247 |

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

| STRATUM | DF | SE    | CV% |
|---------|----|-------|-----|
| WP      | 6  | 0.350 | 4.9 |

GRAIN MEAN DM% 83.6

PLOT AREA HARVESTED 0.00075