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Yields of the Field Experiments 1983

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83/R/CS/140 Chemical Reference Plots - S. Barley

Rothamsted Research

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83/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 tenth year, s. barley.

For previous years see 74-82/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 1.5 kg to stubble of 1979, 1980, 1981 and 1982 s. barley. |
| 2. FUNGCIDE(1) | Fungicide in autumn: |
| NONE | None |
| TRIADIM | Triadimefon at 0.25 kg in autumn 1981 and 1982 cumulative to chlortoluron in 1974 and 1976 only |
| 3. FUNGCIDE(2) | Fungicide in spring: |
| NONE | None |
| BENOMYL | Benomyl at 4 kg to the seedbed |
| 4. INSCTCDE | 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 340 l on 2 Sept, 1982.
Other treatments were applied on 9 Mar, 1983.

Basal applications: Manures: Chalk at 2.9 t. Muriate of potash at 520 kg.
'Nitro-Chalk' at 460 kg. Weedkillers: Dicamba with mecoprop and MCPA
(as 'Banlene Plus' at 4.9 l) in 340 l.

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

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Cultivations, etc.: - Muriate of potash applied: 16 Sept, 1982. Chalk applied: 28 Sept. Ploughed: 29 Nov. N applied, spring-tine cultivated, power harrowed, seed sown: 9 Mar, 1983. Weedkillers applied: 16 May. Combine harvested: 9 Aug.

NOTE: Mildew and aphids were assessed twice during the season. Soil was analysed for benomyl residues.

GRAIN TONNES/HECTARE

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

| FUNGCIDE(1) | NONE | TRIADIM | MEAN |
|-------------|------|----------|------|
| WEEDKLLR | | | |
| NONE | 4.41 | 4.27 | 4.34 |
| GLYPHOS | 4.48 | 4.50 | 4.49 |
| MEAN | 4.44 | 4.39 | 4.41 |
| FUNGCIDE(2) | NONE | BENOMYL | MEAN |
| WEEDKLLR | | | |
| NONE | 4.18 | 4.50 | 4.34 |
| GLYPHOS | 4.47 | 4.51 | 4.49 |
| MEAN | 4.32 | 4.50 | 4.41 |
| FUNGCIDE(2) | NONE | BENOMYL | MEAN |
| FUNGCIDE(1) | | | |
| NONE | 4.37 | 4.51 | 4.44 |
| TRIADIM | 4.28 | 4.50 | 4.39 |
| MEAN | 4.32 | 4.50 | 4.41 |
| INSCTCDE | NONE | CHLORFEN | MEAN |
| WEEDKLLR | | | |
| NONE | 4.31 | 4.36 | 4.34 |
| GLYPHOS | 4.45 | 4.53 | 4.49 |
| MEAN | 4.38 | 4.45 | 4.41 |
| INSCTCDE | NONE | CHLORFEN | MEAN |
| FUNGCIDE(1) | | | |
| NONE | 4.40 | 4.48 | 4.44 |
| TRIADIM | 4.36 | 4.41 | 4.39 |
| MEAN | 4.38 | 4.45 | 4.41 |
| INSCTCDE | NONE | CHLORFEN | MEAN |
| FUNGCIDE(2) | | | |
| NONE | 4.33 | 4.32 | 4.32 |
| BENOMYL | 4.43 | 4.58 | 4.50 |
| MEAN | 4.38 | 4.45 | 4.41 |

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GRAIN TONNES/HECTARE

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

| NEMACIDE | NONE | ALDICARB | MEAN |
|-------------|------|----------|----------|
| WEEDKLLR | 4.17 | 4.51 | 4.34 |
| NONE | 4.32 | 4.65 | 4.49 |
| GLYPHOS | | | |
| MEAN | 4.25 | 4.58 | 4.41 |
| NEMACIDE | NONE | ALDICARB | MEAN |
| FUNGCIDE(1) | | | |
| NONE | 4.25 | 4.63 | 4.44 |
| TRIADIM | 4.24 | 4.53 | 4.39 |
| MEAN | 4.25 | 4.58 | 4.41 |
| NEMACIDE | NONE | ALDICARB | MEAN |
| FUNGCIDE(2) | | | |
| NONE | 4.18 | 4.47 | 4.32 |
| BENOMYL | 4.32 | 4.69 | 4.50 |
| MEAN | 4.25 | 4.58 | 4.41 |
| NEMACIDE | NONE | ALDICARB | MEAN |
| INSCTCDE | | | |
| NONE | 4.30 | 4.47 | 4.38 |
| CHLORFEN | 4.20 | 4.69 | 4.45 |
| MEAN | 4.25 | 4.58 | 4.41 |
| FUNGCIDE(1) | NONE | | TRIADIM |
| FUNGCIDE(2) | NONE | BENOMYL | NONE |
| WEEDKLLR | | | BENOMYL |
| NONE | 4.22 | 4.60 | 4.14 |
| GLYPHOS | 4.53 | 4.43 | 4.42 |
| MEAN | 4.25 | 4.58 | 4.41 |
| FUNGCIDE(1) | NONE | | TRIADIM |
| INSCTCDE | NONE | CHLORFEN | NONE |
| WEEDKLLR | | | CHLORFEN |
| NONE | 4.37 | 4.45 | 4.26 |
| GLYPHOS | 4.43 | 4.52 | 4.46 |
| MEAN | 4.25 | 4.58 | 4.41 |
| FUNGCIDE(2) | NONE | | BENOMYL |
| INSCTCDE | NONE | CHLORFEN | NONE |
| WEEDKLLR | | | CHLORFEN |
| NONE | 4.23 | 4.12 | 4.39 |
| GLYPHOS | 4.43 | 4.51 | 4.47 |
| MEAN | 4.25 | 4.58 | 4.41 |
| FUNGCIDE(2) | NONE | | BENOMYL |
| INSCTCDE | NONE | CHLORFEN | NONE |
| FUNGCIDE(1) | | | CHLORFEN |
| NONE | 4.44 | 4.30 | 4.36 |
| TRIADIM | 4.22 | 4.33 | 4.50 |
| MEAN | 4.25 | 4.58 | 4.49 |

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GRAIN TONNES/HECTARE

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

| FUNGCIDE(1) | NONE | TRIADIM | | |
|-------------|---------------|----------|----------|------|
| NEMACIDE | NONE ALDICARB | NONE | ALDICARB | |
| WEEDKLLR | | | | |
| NONE | 4.17 | 4.65 | 4.18 | 4.36 |
| GLYPHOS | 4.34 | 4.61 | 4.31 | 4.70 |
| FUNGCIDE(2) | NONE | BENOMYL | | |
| NEMACIDE | NONE ALDICARB | NONE | ALDICARB | |
| WEEDKLLR | | | | |
| NONE | 3.99 | 4.36 | 4.35 | 4.65 |
| GLYPHOS | 4.37 | 4.57 | 4.28 | 4.73 |
| FUNGCIDE(2) | NONE | BENOMYL | | |
| NEMACIDE | NONE ALDICARB | NONE | ALDICARB | |
| FUNGCIDE(1) | | | | |
| NONE | 4.21 | 4.54 | 4.30 | 4.72 |
| TRIADIM | 4.15 | 4.40 | 4.33 | 4.66 |
| INSCTCDE | NONE | CHLORFEN | | |
| NEMACIDE | NONE ALDICARB | NONE | ALDICARB | |
| WEEDKLLR | | | | |
| NONE | 4.17 | 4.45 | 4.17 | 4.56 |
| GLYPHOS | 4.42 | 4.48 | 4.23 | 4.83 |
| INSCTCDE | NONE | CHLORFEN | | |
| NEMACIDE | NONE ALDICARB | NONE | ALDICARB | |
| FUNGCIDE(1) | | | | |
| NONE | 4.29 | 4.51 | 4.22 | 4.75 |
| TRIADIM | 4.30 | 4.42 | 4.19 | 4.64 |
| INSCTCDE | NONE | CHLORFEN | | |
| NEMACIDE | NONE ALDICARB | NONE | ALDICARB | |
| FUNGCIDE(2) | | | | |
| NONE | 4.16 | 4.50 | 4.20 | 4.44 |
| BENOMYL | 4.43 | 4.43 | 4.20 | 4.95 |

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

| | |
|------------------------------|-------|
| MARGINS OF TWO FACTOR TABLES | 0.073 |
| TWO FACTOR TABLES | 0.103 |
| THREE FACTOR TABLES | 0.146 |

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

| STRATUM | DF | SE | CV% |
|---------|----|-------|-----|
| WP | 6 | 0.207 | 4.7 |

GRAIN MEAN DM% 87.0

PLOT AREA HARVESTED 0.00075