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## Yields of the Field Experiments 1989

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### 89/R/RN/8 Cultivation/WEEDKILLER - W. Barley

#### Rothamsted Research

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89/R/RN/8

CULTIVATION/WEEDKILLER

**Object:** To study the long-term effects of different methods of primary cultivation on a sequence of crops; weedkillers were also tested until 1981 - Great Harpenden I.

**Sponsor:** R. Moffitt.

The 29th year, w. barley.

For previous years see 'Details' 1967 and 1973 and 74-88/R/RN/8.

**Design:** 2 randomised blocks of 12 plots.

**Whole plot dimensions:** 12.8 x 12.2.

**Treatments:** All combinations of:-

Whole plots

- |                |  |
|----------------|--|
| 1. CLT CHOP    | Primary cultivations annually; straw chopped since 1985:   |
| PLOUGH         | Ploughed: 19 Aug, 1988   |
| ROTA DIG       | Cultivated by rotary digger: 19 Aug  |
| DEEPTINE       | Deep-tine cultivated, twice: 19 Aug  |
| 2. SUBSOIL[82] | Subsoiling in September 1982:  |
| NONE           | None   |
| CNVNTIAL       | Conventional vertical tine   |
| PARAPLOW       | 'Paraplow'   |
| XTR BURN       | plus three extra treatments with straw burnt since 1985, direct drilled until 1984, heavy spring-tine cultivated on 5 Sept, 1988, in addition to basal cultivating, differing in subsoiling in September 1982: |
| NONE           | None   |
| CNVNTIAL       | Conventional vertical tine   |
| PARAPLOW       | 'Paraplow'   |

- NOTES:** (1) Straw was chopped on 5 Aug, 1988 and was burnt on XTR BURN on 17 Aug.
- (2) The conventional vertical tine subsoiler had tines 76 cm apart and worked at a depth of about 50 cm.
- (3) The 'Paraplow' had rigid tines set at a 45 degree angle. The tip of each tine was in line with the attachment of an adjacent tine. The tines were 51 cm apart and worked at a depth of about 38 cm.

**Basal applications:** Manures: (0:18:36) at 920 kg. 'Nitram' at 480 kg. Weedkillers: Glyphosate at 0.27 kg in 200 l. Chlortoluron at 3.5 kg in 200 l. Isoproturon at 2.1 kg with mecoprop at 2.2 kg, bromoxynil at 0.28 kg and ioxynil at 0.28 kg in 200 l. Molluscicide: Methiocarb at 0.22 kg.

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Seed: Igri, sown at 150 kg.

Cultivations, etc.:- PK applied: 16 Sept, 1988. Glyphosate applied: 2 Oct. Heavy spring-tine cultivated: 17 Oct. Heavy spring-tine cultivated, spring-tine cultivated: 22 Oct. Seed sown: 23 Oct. Chlortoluron applied: 16 Nov. Molluscicide applied: 30 Jan, 1989. N applied: 14 Apr. Remaining weedkillers applied: 2 May. Combine harvested: 13 July.

GRAIN TONNES/HECTARE

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

| SUBSOIL[82] | NONE | CNVNTIAL | PARAPLOW | Mean |
|-------------|------|----------|----------|------|
| CLT CHOP    |      |          |          |      |
| PLOUGH      | 4.71 | 4.82     | 4.52     | 4.69 |
| ROTA DIG    | 3.98 | 3.58     | 4.05     | 3.87 |
| DEEPTINE    | 4.12 | 4.34     | 4.50     | 4.32 |
| Mean        | 4.27 | 4.25     | 4.36     | 4.29 |

| XTR BURN | NONE | CNVNTIAL | PARAPLOW | Mean |
|----------|------|----------|----------|------|
|          | 4.90 | 5.09     | 5.49     | 5.16 |

Grand mean 4.51

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

| XTR BURN | CLT CHOP | SUBSOIL[82] | CLT CHOP<br>SUBSOIL[82] |
|----------|----------|-------------|-------------------------|
| 0.486    | 0.281    | 0.281       | 0.486                   |

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

| Stratum  | d.f. | s.e.  | cv%  |
|----------|------|-------|------|
| BLOCK.WP | 11   | 0.486 | 10.8 |

GRAIN MEAN DM% 80.1

PLOT AREA HARVESTED 0.00280