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# Yields of the Field Experiments 1972

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## 72/R/CS/90 Cultivations for Cereals - W. Wheat

### Rothamsted Research

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72/R/CS/90

# CULTIVATIONS FOR CEREALS

Object: To study the engineering aspects - power requirements, rates of work, revenue and costs - of different tillage systems for wheat. Effects on weeds, soil pathogens and yield are also studied - Meadow.

Sponsors: D.E. Patterson (N.I.A.E.), J.R. Moffatt.

The first year, winter wheat.

Design: 3 randomised blocks of 10 plots.

Whole plot dimensions: 13.7 x 33.8. Area harvested: 0.01031.

Treatments: Tillage systems (TS):-

- Three passages of the tractor (three-pass system): Ploughed\*  
20 cm deep (8 inches): spring-tine cultivated: drilled (1)
  - Four-pass system: Tine cultivated\* 15 cm deep (6 inches)  
twice: spring-tine cultivated: drilled (2)
  - Two-pass system: Ploughed\* 20 cm deep (8 inches): spiked  
rotary cultivated and drilled (3)
  - Two-pass system: Ploughed\* 10 cm deep (4 inches): spiked  
rotary cultivated and drilled (4)
  - Two-pass system: Tine cultivated\* 20 cm deep (8 inches):  
spiked rotary cultivated and drilled (5)
  - Two-pass system: Tine cultivated\* 10 cm deep (4 inches):  
spiked rotary cultivated and drilled (6)
  - One-pass system: Tine cultivated 18 cm deep (7 inches)  
and rotary cultivated and drilled (7)
  - One-pass system: Tine cultivated 15 cm deep (6 inches)  
and rotary harrowed and drilled (8)
  - Two-pass system: Ploughed\* 20 cm deep (8 inches): rotary  
harrowed and drilled (9)
  - Two-pass system: Cultivated by rotary digger\* 22 cm deep  
(8.5 inches): spiked rotary cultivated and drilled (10)
- All plots were disc drilled.

\* Cultivations done on 14 Sept, 1971. All others done on 21/22 Oct.

Basal applications: 250 kg (10:24:24) combine drilled. 410 kg  
'Nitro-Chalk' 25% N. Weedkiller: Paraquat at 0.56 kg ion in  
220 l.

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Seed: Joss Cambier sown at 180 kg.

Cultivations, etc.: Paraquat applied: 6 Oct, 1971. N applied:  
21 Apr, 1972. Combine harvested: 25 Aug. Previous crops:  
Barley 1970 and 1971.

NOTE: Observations and determinations were made as follows:

1. Soil: Mechanical soil analysis and profile descriptions, moisture determinations, bulk densities, photographs.
2. Implements: Depth and width of work, forward speed, wheel slip, draught, p.t.o. power, labour requirements.
3. Crop: Tiller counts, disease and weed assessments, grain size, aerial photographs.

Standard error per plot.

Grain, tonnes/hectare: 0.326 or 9.6% (18 d.f.)

#### TABLE OF MEANS

GRAIN: TONNES/HECTARE

TS

| 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | Mean |
|------|------|------|------|------|------|------|------|------|------|------|
| 3.58 | 3.38 | 3.56 | 3.35 | 3.79 | 3.16 | 3.29 | 2.89 | 3.63 | 3.27 | 3.39 |

STANDARD ERROR OF DIFFERENCES

TS 0.266

Mean D.M. %: 85.0