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Yields of the Field Experiments 1974

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74/R/CS/90 Cultivations for Cereals - Wheat

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74/R/CS/90

CULTIVATIONS FOR CEREALS

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

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

The third year, winter wheat.

For previous years see 72/R/CS/90(t) and 73/R/CS/90.

Design: 3 randomised blocks of 10 plots.

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

Treatments: Tillage systems:-

TILLAGE

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): tine cultivated 15 cm: spring-tine cultivated: drilled	2
Two-pass system: Ploughed* 20 cm deep: spring-tine cultivated and drilled	3
Two-pass system: Ploughed* 10 cm deep (4 inches): spring- tine cultivated and drilled	4
Two-pass system: Tine cultivated* 20 cm deep: spring-tine cultivated and drilled	5
Two-pass system: Tine cultivated* 10 cm deep: spring-tine cultivated and drilled	6
Two-pass system: spring-tine cultivated, tine cultivated 10 cm deep**: rotary cultivated and drilled	7
Two-pass system: Sprayed with paraquat (0.56 kg ion in 220 l on 4 Oct): Bettinson direct drilled	8
Two-pass system: Rotary digger (N.I.A.E.) cultivated*: spring- tine cultivated and drilled	9
Two-pass system: Rotary digger cultivated* (20 cm deep): spring- tine cultivated and drilled	10

NOTE: Rotary digger (N.I.A.E.) - depth of working: rotor 10 cm,
tines 20 cm.

* Cultivations done on 5-7 Sept, 1973.

** Cultivations done on 24 Sept.

All other cultivations and all drilling done on 10-11 Oct. A disc
drill was used on all treatments except 8.

74/R/CS/90

Basal applications: Manures: (10:24:24) at 310 kg combine drilled.
 'Nitro-Chalk' at 300 kg. Weedkiller: Mecoprop ('Runcatex CMPP'
 at 8.41 in 220 l).

Seed: Cappelle, sown at 190 kg.

Cultivations, etc.:- N and weedkiller applied: 18 Apr, 1974.
 Combine harvested: 10 Sept.

NOTES: Observations and determinations were made as follows:-

- (1) Soil: Mechanical analysis and profile descriptions, moisture determinations, bulk densities, soil aggregate stability, organic matter, pH, nutrient distribution and photographs.
- (2) Implements: Depth and width of work, forward speed, wheel slip, draught, p.t.o. power, labour requirements.
- (3) Crop: Plant and tiller counts, disease and weed assessments, aerial photographs. Numbers of slugs, earthworms and other surface and soil fauna were estimated.

Standard error per plot.

Grain, tonnes/hectare: 0.432 or 8.5% (18 d.f.)

TABLE OF MEANS

GRAIN: TONNES/HECTARE

TILLAGE

1	2	3	4	5	6	7	8	9	10	Mean
5.61	5.41	4.98	5.00	4.96	4.91	4.91	5.13	4.84	5.03	5.08

STANDARD ERROR OF DIFFERENCES

TILLAGE

0.352

Mean D.M. % 76.6