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

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78/R/CS/90

CULTIVATIONS FOR CEREALS

Object: To study the effects of different tillage systems for continuous wheat - Meadow.

Sponsors: R. Moffitt, R.D. Prew, C.A. Edwards.

The seventh year, winter wheat.

For previous years see 72-77/R/CS/90.

Design: 3 randomised blocks of 4 plots.

Whole plot dimensions: 13.7 x 33.8.

Treatments

TILLAGE Tillage systems:-

- 1 Three passages of the tractor (three-pass system): Ploughed 20 cm deep (8 inches): disc harrowed: drilled.
- 2 Three-pass system: Chisel-ploughed once 15 cm deep (6 inches): disc harrowed: drilled.
- 8 Two-pass system: Sprayed with paraquat (0.56 kg ion in 220 l on 3 Oct, 1977): direct drilled.
- 9 Three-pass system: Rotary digger (N.I.A.E.) cultivated: disc harrowed: drilled.

NOTES: (1) Rotary digger (N.I.A.E.) - depth of working: rotor 10 cm, tines 20 cm.
(2) Treatments 3-7 and 10 were not included in the experiment in 1978.

TILLAGE 1 plots ploughed: 31 Oct, 1977. TILLAGE 2 plots chisel ploughed: 10 Oct.
TILLAGE 9 plots rotary dug: 3 Oct. TILLAGE 1, 2 and 9 disc harrowed, sown, harrowed: 7 Nov. TILLAGE 8 direct drilled and disc harrowed in: 7 Nov.

Basal applications: Manures: (10:24:24) at 250 kg, combine drilled. 'Nitra-Shell 34' at 360 kg. Weedkillers: Paraquat at 0.84 kg ion in 220 l, methabenzthiazuron at 3.1 kg in 220 l, and difenzoquat at 0.99 kg with 1 l 'Agral' (a wetting agent) in 220 l.

Seed: Maris Huntsman, sown at 190 kg.

Cultivations, etc.: - Chopped stubble: 19 Sept, 1977. Paraquat applied: 30 Oct. Methabenzthiazuron applied: 11 Nov. N applied: 7 Apr, 1978. Difenzoquat applied: 10 May. Combine harvested: 29 Aug.

NOTES: (1) Disease and pest assessments were made during the season.
(2) Measurements were made on TILLAGE 1 and TILLAGE 8 of the following:-
In the soil: total organic matter, organic carbon, organic nitrogen, microbial bio-mass, total soil adenosine triphosphate. In the plants: total nitrogen at flowering.

78/R/CS/90

GRAIN TONNES/HECTARE

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

TILLAGE	1	2	8	9	MEAN
	6.40	6.02	4.71	6.44	5.89

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

TABLE	TILLAGE
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SED	0.410

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

STRATUM	DF	SE	CV%
BLOCK.WP	6	0.502	8.5

GRAIN MEAN DM% 82.9

PLOT AREA HARVESTED 0.01031