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97/R/CS/311 Effects of Shallow Straw Incorporation - W. Wheat

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97/R/CS/311

EFFECTS OF SHALLOW STRAW INCORPORATION

Object: To study the effects of straw incorporation by rotational ploughing, with shallow cultivation in the intervening years, on diseases and yield of winter wheat - West Barnfield I.

Sponsors: J.F. Jenkyn, R.J. Gutteridge, A.D. Todd.

The 13th year, w. wheat.

For previous years see 85-96/R/CS/311.

Design: 6 x 4 criss-cross split into 2 sub-plots. Originally a single replicate of 3 x 2 x 2 x 2 x 2.

Whole plot dimensions: 4.5 x 12.0.

Treatments: Combinations of:-

Whole plots

1. **STRAW** Treatments to straw of previous wheat:

BURNT	Burnt (duplicated)
BALED	Baled and removed (duplicated)
CHOPPED	Chopped and incorporated (duplicated)

Criss-cross with

2. **CULTIVTN** Autumn cultivations since 1993, previously all shallow cultivated:

S P94	Shallow tine cultivated to 10 cm, (ploughed to 20 cm in autumn 1993)
S P95	Shallow tine cultivated to 10 cm, (ploughed to 20 cm in autumn 1994)
S P96	Shallow tine cultivated to 10 cm, (ploughed to 20 cm in autumn 1995)
P97	Ploughed to 20 cm, (shallow tine cultivated previously)

NOTE: Only the first letter (the treatment in 1997) is used in the experimental diary.

Experimental diary:

08-Aug-96 : T : **STRAW** BALED: Straw baled and removed.
08-Aug-96 : T : **STRAW** CHOPPED: Straw chopped with trailer chopper.
20-Aug-96 : T : **STRAW** BURNT: Straw burnt and ash incorporated with discs.
30-Sep-96 : B : Gramoxone 100 at 3.0 l in 200 l.
09-Oct-96 : T : **CULTIVTN** P: Ploughed.
 : T : **CULTIVTN** S: Heavy spring-tine cultivated.
10-Oct-96 : B : Rotary harrowed twice, Soissons, dressed Sibutol and Gammasan 30, drilled at 380 seeds per m².
15-Nov-96 : B : Avadex Excel 15G at 15.0 kg.
27-Nov-96 : B : Stefes IPU at 1.0 l with Stomp 400 SC at 2.5 l in 200 l.

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Experimental diary:

03-Mar-97 : B : 34.5% N at 116 kg.
04-Apr-97 : B : 34.5% N at 580 kg.
08-Aug-97 : B : Combine harvested.

NOTE: Plant samples were taken in July to assess root and stem base diseases.

GRAIN TONNES/HECTARE

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

CULTIVTN	S P94	S P95	S P96	P97	Mean
STRAW					
BURNT	7.17	6.80	6.94	7.05	6.99
BALED	5.00	6.18	6.15	6.09	5.85
CHOPPED	5.24	6.06	6.42	6.68	6.10
Mean	5.80	6.35	6.50	6.61	6.32

GRAIN MEAN DM% 86.4

SUB-PLOT AREA HARVESTED 0.00288