

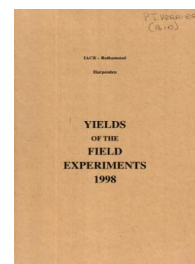
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### 98/R/CS/311 Effects of Shallow Straw Incorporation - W. Wheat

#### Rothamsted Research

Rothamsted Research (1999) *98/R/CS/311 Effects of Shallow Straw Incorporation - W. Wheat* ; Yields Of The Field Experiments 1998, pp 62 - 63 - DOI: <https://doi.org/10.23637/ERADOC-1-52>

98/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, W. Powell, A.D. Todd.

The 14th year, w. wheat.

For previous years see 85-97/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) |
| S P97 | Shallow tine cultivated to 10 cm, (ploughed to 20 cm in autumn 1996) |

### Experimental diary:

11-Aug-97 : T : **STRAW** BALED: Straw baled and removed.  
          : T : **STRAW** BURNT: Straw burnt and ash incorporated.  
          : T : **STRAW** CHOPPED: Straw chopped with trailed chopper.  
12-Aug-97 : B : Discd.  
05-Sep-97 : B : Scythe LC at 1.5 l with Vassgro Non Ionic at 1.0 l in 200 l.  
11-Oct-97 : B : Scythe LC at 3.0 l in 200 l.  
14-Oct-97 : B : Heavy spring-tine cultivated to 10 cm.  
14-Oct-97 : B : Rotary harrowed, Soissons, dressed Anchor, drilled at 400 seeds per m<sup>2</sup>.  
16-Oct-97 : B : Draza at 5.5 kg.

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**Experimental diary:**

13-Jan-98 : B : Hawk at 2.5 l with Sprayprover at 1.0 l in 200 l.  
 17-Feb-98 : B : 34.5% N at 120 kg.  
 16-Mar-98 : B : Ally at 20 g with MSS Optica at 1.0 l in 200 l.  
 28-Apr-98 : B : 34.5% N at 580 kg. Tripart Brevis at 1.5 l in 200 l.  
 29-May-98 : B : Folicur at 0.7 l in 200 l.  
 04-Jun-98 : T : **CULTIVTN** S P95: Roundup at 3.0 l in 200 l.  
 12-Jun-98 : B : Bavistin DF at 0.5 kg with Folicur at 0.5 l in 100 l.  
 08-Aug-98 : B : Combine harvested.

**NOTES:** (1) Plant samples were taken in July to assess root and stem base diseases.  
 (3) All **CULTIVTN** S P95 plots were destroyed with herbicide to reduce brome infestation in readiness for modifications to the experiment, these are omitted from the table of results.

**GRAIN TONNES/HECTARE**

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

| <b>CULTIVTN</b> | S P94 | S P96 | S P97 | Mean |
|-----------------|-------|-------|-------|------|
| <b>STRAW</b>    |       |       |       |      |
| BURNT           | 8.66  | 8.19  | 8.50  | 8.45 |
| BALED           | 6.04  | 6.05  | 7.59  | 6.56 |
| CHOPPED         | 5.57  | 6.83  | 7.81  | 6.74 |
| Mean            | 6.76  | 7.02  | 7.97  | 7.25 |

GRAIN MEAN DM% 87.8

SUB-PLOT AREA HARVESTED 0.00276