

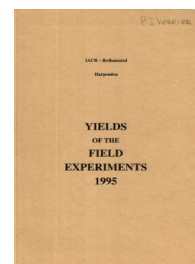
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### 95/R/CS/309 and 95/W/CS/309 Long-term Straw Incorporation - W. Wheat

#### Rothamsted Research

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## 95/R/CS/309 and 95/W/CS/309

### LONG-TERM STRAW INCORPORATION

**Object:** To study the effects of rotational ploughing and time of sowing after the incorporation or burning of straw on soil conditions and pests, diseases, weeds and yield of w. wheat - Rothamsted (R) Great Knott III and Woburn (W) Far Field I.

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The eleventh year, w. wheat.

For previous years see 85-94/R & W/CS/309.

**Design:** 4 randomised blocks of 12 plots split into 2 sub-plots (R).  
2 randomised blocks of 12 plots split into 2 sub-plots (W).

**Whole plot dimensions:** 9.0 x 28.0 (R).  
9.0 x 30.0 (W).

**Treatments:** All combinations of:-

Whole plots

1. **STRAWCUL** Treatment of straw of previous crop and type of cultivation up to 1994 (before the space) and subsequently (after the space):

BT1 BTT  
BT1T2 CTT  
BP2 BPP  
BT1P2 CPP  
CT1 CTT  
CT1 CPT  
CT1T2 CTP  
CT1T2 CTT  
CP2 CPP  
CP2 CPT  
CT1P2 CTP  
CT1P2 CTT

Sub-plots

2. **SOW DATE** Date of sowing:

E Early  
L Late

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- NOTES:** (1) The following codes are used:  
B Straw burnt  
C Straw chopped and spread  
T1 Cultivated to 10 cm depth  
T1P2 Cultivated to 10 cm depth, ploughed to 20 cm  
T1T2 Cultivated to 10 cm depth and again to 20 cm  
P2 Ploughed to 20 cm depth  
(2) From 1994 T plots were cultivated to 10 cm and P plots were ploughed to 20 cm depth.  
(3) In the experimental diary only the code after the space is used. i.e. BTT, CTT, BPP, CPP, etc.

**Experimental diary:**

Great Knott III (R).

- 06-Aug-94 : T : STRAWCUL CTT, CPP, CPT, CTP: Straw chopped.  
08-Aug-94 : T : STRAWCUL BTT, BPP: Straw burnt, ash incorporated with discs.  
02-Sep-94 : B : PK as (0:20:32) at 1317 kg.  
27-Sep-94 : B : Sting CT at 2.0 l in 200 l.  
03-Oct-94 : T : STRAWCUL CTT, CPT, BTT: Heavy spring-tine cultivated, twice.  
          : T : STRAWCUL BPP, CPP, CTP: Ploughed.  
10-Oct-94 : T : STRAWCUL CTT, CPT, BTT, SOW DATE E: Cultivated by rotary grubber, rotary harrowed.  
          : T : STRAWCUL BPP, CPP, CTP, SOW DATE E: Spring-tine cultivated.  
11-Oct-94 : T : SOW DATE E: Rotary harrowed, Soissons, dressed Beret 050FS, drilled at 380 seeds per m<sup>2</sup>.  
17-Nov-94 : T : SOW DATE L: Rotary harrowed, Soissons, dressed Beret 050FS drilled at 450 seeds per m<sup>2</sup>.  
24-Nov-94 : B : Draza at 5.5 kg.  
25-Nov-94 : B : Avadex BW Granular at 22.5 kg.  
10-Mar-95 : B : 34.5% N at 118 kg.  
16-Mar-95 : B : Stefes IPU at 5.0 l in 200 l.  
11-Apr-95 : B : 34.5% N at 463 kg.  
10-May-95 : B : Halo at 2.0 l in 200 l.  
16-Jun-95 : B : Bravo 500 at 1.0 l with Silvacur at 0.5 l in 300 l.  
04-Aug-95 : B : Combine harvested.

Far Field I (W).

- 08-Sep-94 : B : PK as (0:20:32) at 781 kg.  
26-Sep-94 : B : Gramoxone 100 at 3.0 l in 200 l.  
28-Sep-94 : T : STRAWCUL BTT, BPP: Straw burnt.  
29-Sep-94 : T : STRAWCUL BPP, CPP, CTP: Ploughed.  
30-Sep-94 : B : Rotary harrowed.  
          : T : STRAWCUL BTT, CTT, CPT: Spring-tine cultivated.  
          : T : STRAWCUL BPP, CPP, CTP: Rolled.  
          : T : SOW DATE E Soissons dressed Beret 050FS drilled at 350 seeds per m<sup>2</sup>.  
02-Nov-94 : T : SOW DATE E: Avadex BW Granules at 22.5 kg.  
16-Nov-94 : T : SOW DATE L: Rotary harrowed. Soissons dressed Beret 050FS, drilled at 400 seeds per m<sup>2</sup>.  
28-Nov-94 : T : SOW DATE L: Avadex BW Granules at 22.5 kg.  
02-Dec-94 : B : Stomp 400 at 3.3 l with Stefes IPU at 3.0 l in 200 l.

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**Experimental diary:**

Far Field I (W).

- 15-Mar-95 : B : 34.5% N at 116 kg.
- 28-Apr-95 : B : 34.5% N at 464 kg.
- 02-May-95 : B : Starane 2 at 1.0 l with Halo at 2.0 l in 200 l.
- 01-Jun-95 : B : Cyclone at 1.0 l in 300 l.
- 30-Jun-95 : B : Pirimicarb 50 DG at 280 g in 300 l.
- 02-Aug-95 : B : Combine harvested.

- NOTES:**
- (1) On W/CS/309 three late-sown, tined sub-plots on one side of the experiment grew poorly after being waterlogged, with treatment combinations **STRAWCUL** CT1T2-CTT, CT1-CPT, BT1-BTT. These plots have been treated as missing values and estimated values have been used in the analysis.
  - (2) Establishment counts were made in winter. Numbers of grass weeds were counted in March and April and numbers of ears of grass weeds were counted in June.
  - (3) Crop samples were taken in April (R) and June (R and W) to measure diseases affecting the stem bases and roots.

95/R/CS/309 GREAT KNOTT III(R)

**GRAIN TONNES/HECTARE**

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

SOW DATE	E	L	Mean
<b>STRAWCUL</b>			
BT1 BTT	6.38	8.59	7.48
BT1T2 CTT	6.04	6.33	6.19
BP2 BPP	8.10	8.96	8.53
BT1P2 CPP	7.68	8.51	8.10
CT1 CTT	6.24	7.13	6.68
CT1 CPT	7.27	7.05	7.16
CT1T2 CTP	7.60	8.27	7.94
CT1T2 CTT	6.11	6.62	6.36
CP2 CPP	7.58	8.02	7.80
CP2 CPT	7.17	7.07	7.12
CT1P2 CTP	8.50	8.40	8.45
CT1P2 CTT	7.37	6.58	6.98
Mean	7.17	7.63	7.40

\*\*\* Standard errors of differences of means \*\*\*

	<b>STRAWCUL</b>	<b>SOW DATE</b>	<b>STRAWCUL SOW DATE</b>
	0.410	0.117	0.500
Except when comparing means with the same level(s) of			
<b>STRAWCUL</b>			0.405



95/R/CS/309 GREAT KNOTT III(R)

GRAIN TONNES/HECTARE

\*\*\*\*\* Stratum standard errors and coefficients of variation \*\*\*\*\*

Stratum	d.f.	s.e.	cv%
BLOCK.WP	33	0.579	7.8
BLOCK.WP.SP	36	0.573	7.7

GRAIN MEAN DM% 91.4

SUB-PLOT AREA HARVESTED 0.00644

95/W/CS/309 FAR FIELD I (W)

GRAIN TONNES/HECTARE

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

SOW DATE	E	L	Mean
<b>STRAWCUL</b>			
BT1 BTT	2.61	3.54	3.08
BT1T2 CTT	1.36	4.91	3.13
BP2 BPP	6.08	5.97	6.02
BT1P2 CPP	5.38	5.14	5.26
CT1 CTT	2.16	4.34	3.25
CT1 CPT	4.06	3.78	3.92
CT1T2 CTP	6.63	6.78	6.70
CT1T2 CTT	1.12	4.57	2.85
CP2 CPP	5.62	5.77	5.69
CP2 CPT	3.26	4.18	3.72
CT1P2 CTP	5.66	5.42	5.54
CT1P2 CTT	3.59	5.01	4.30
Mean	3.96	4.95	4.46

\*\*\* Standard errors of differences of means \*\*\*

STRAWCUL	SOW DATE	STRAWCUL
		SOW DATE
0.790	0.116	0.839
Except when comparing means with the same level(s) of		
STRAWCUL		0.401

\*\*\*\*\* Stratum standard errors and coefficients of variation \*\*\*\*\*

Stratum	d.f.	s.e.	cv%
BLOCK.WP	11	0.790	17.7
BLOCK.WP.SP	9	0.401	9.0

GRAIN MEAN DM% 91.4

SUB-PLOT AREA HARVESTED 0.00660