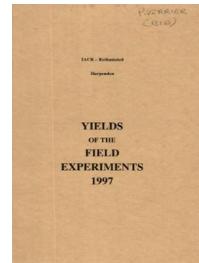


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Yields of the Field Experiments 1997

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97/R/CS/309 and 97/W/CS/309 Long-term Straw Incorporation - W. Wheat

Rothamsted Research

Rothamsted Research (1998) *97/R/CS/309 and 97/W/CS/309 Long-term Straw Incorporation - W. Wheat ; Yields Of The Field Experiments 1997*, pp 61 - 64 - DOI:
<https://doi.org/10.23637/ERADOC-1-53>

97/R/CS/309 and 97/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.

Sponsors: J.F. Jenkyn, E.T.G. Bacon, R.J. Gutteridge, W. Powell, A.D. Todd.

The 13th year, w. wheat.

For previous years see 85-96/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 BTTTT
BT1T2 CTTTT
BP2 BPPPP
BT1P2 CPPPP
CT1 CTTTT
CT1 CPTTP
CT1T2 CTPTT
CT1T2 CTTPT
CP2 CPPPP
CP2 CPTTP
CT1P2 CTPTT
CT1P2 CTTPT

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. BT~~TTT~~, CT~~TTT~~, BP~~PPP~~, CP~~PPP~~, etc.

Experimental diary:

Great Knott III (R):

08-Aug-96 : B : Straw chopped.
20-Aug-96 : T : STRAWCUL BT~~TTT~~, BP~~PPP~~: Straw burnt, ash incorporated with discs.
23-Sep-96 : B : Sting CT at 2.0 l in 200 l.
30-Sep-96 : T : STRAWCUL BT~~TTT~~, CT~~TTT~~, CT~~P~~T~~T~~, CT~~T~~P~~T~~: Heavy spring-tine cultivated.
: T : STRAWCUL BP~~PPP~~, CP~~PPP~~, CPT~~T~~P: Ploughed.
01-Oct-96 : B : Heavy spring-tine cultivated.
02-Oct-96 : T : STRAWCUL BT~~TTT~~, CT~~TTT~~, CT~~P~~T~~T~~, CT~~T~~P~~T~~: Rotary harrowed.
02-Oct-96 : T : SOW DATE E: Rotary harrowed, Hereward, dressed Beret Gold, drilled at 380 seeds per m².
03-Oct-96 : T : SOW DATE E: Rolled.
09-Oct-96 : B : Draza at 5.5 kg.
23-Oct-96 : T : SOW DATE L: Rotary harrowed, Hereward, dressed Beret Gold, drilled at 380 seeds per m².
14-Nov-96 : B : Avadex BW Granular at 22.1 kg.
16-Dec-96 : B : Isoproturon 500 at 4.2 l with Stomp 400 SC at 3.1 l in 200 l.
10-Mar-97 : B : 34.5% N at 118 kg.
07-Apr-97 : B : 34.5% N at 463 kg.
18-Apr-97 : B : Starane 2 at 0.75 l with Barclay Holdup at 2.3 l in 300 l.
04-Jun-97 : B : Folicur at 0.3 l with Pointer at 0.5 l in 300 l.
19-Aug-97 : B : Combine harvested.

Far Field I (W):

15-Aug-96 : T : STRAWCUL BT~~TTT~~, BP~~PPP~~: Straw burnt, ash incorporated with spring-tines.
30-Aug-96 : T : STRAWCUL BT~~TTT~~, CT~~TTT~~, CT~~P~~T~~T~~, CT~~T~~P~~T~~: Heavy spring-tine cultivated.
18-Sep-96 : T : STRAWCUL BT~~TTT~~, CT~~TTT~~, CT~~P~~T~~T~~, CT~~T~~P~~T~~: Heavy spring-tine cultivated.
20-Sep-96 : T : STRAWCUL BP~~PPP~~, CP~~PPP~~, CPT~~T~~P: Ploughed and rolled.
02-Oct-96 : B : Scythe LC at 3.0 l in 200 l.
03-Oct-96 : B : Rotary harrowed.
: T : SOW DATE E: Hereward, dressed Sibutol, drilled at 325 seeds per m².
24-Oct-96 : T : SOW DATE L: Hereward, dressed Sibutol, drilled at 350 seeds per m².
22-Nov-96 : B : Avadex Excel 15G at 15 kg.

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Experimental diary:

Far Field I (W):

12-Dec-96 : B : Stomp 400 SC at 2.5 l with Isoproturon 500 at 1.0 l in
200 l.
07-Mar-97 : B : 34.5% N at 116 kg.
15-Apr-97 : B : 34.5% N at 464 kg.
16-May-97 : B : Halo at 2.0 l in 300 l.
08-Aug-97 : B : Barclay Gallup at 2.0 l in 300 l.
15-Aug-97 : B : Combine harvested.

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

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

GRAIN TONNES/HECTARE

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

SOW DATE STRAWCUL	E	L	Mean
BT1 BTTTT	7.69	8.21	7.95
BT1T2 CTTTT	5.02	4.43	4.73
BP2 PPPPP	7.62	7.86	7.74
BT1P2 CPPPP	6.89	7.70	7.30
CT1 CTTTT	5.50	4.86	5.18
CT1 CPTTP	5.96	7.57	6.76
CT1T2 CTPTT	6.42	5.29	5.85
CT1T2 CTTPT	7.63	6.92	7.28
CP2 PPPPP	7.00	7.75	7.38
CP2 CPTTP	6.10	7.51	6.80
CT1P2 CTPTT	6.11	6.25	6.18
CT1P2 CTTPT	6.49	6.46	6.48
Mean	6.54	6.73	6.63

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

STRAWCUL	SOW DATE	STRAWCUL
		SOW DATE
0.321	0.140	0.470

Except when comparing means with the same level(s) of
STRAWCUL 0.485

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	33	0.454	6.8
BLOCK.WP	33	0.454	6.8

GRAN-MÉTAL-FMS - 22-1

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

GRAIN TONNES/HECTARE

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

SOW DATE STRAWCUL	E	L	Mean
BT1 BTTTT	6.98	5.76	6.37
BT1T2 CTTTT	6.25	5.88	6.06
BP2 BPPPP	7.32	6.46	6.89
BT1P2 CPPPP	5.14	5.15	5.15
CT1 CTTTT	6.75	5.19	5.97
CT1 CPTTP	5.78	6.83	6.31
CT1T2 CTPTT	6.26	6.13	6.19
CT1T2 CTTPT	7.50	4.85	6.17
CP2 CPPPP	6.17	6.07	6.12
CP2 CPTTP	6.89	7.06	6.98
CT1P2 CTPTT	5.15	4.61	4.88
CT1P2 CTTPT	6.72	5.92	6.32
Mean	6.41	5.82	6.12

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

STRAWCUL	SOW DATE	STRAWCUL
		SOW DATE
	0.578	0.179
Except when comparing means with the same level(s) of STRAWCUL		0.725 0.619

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	11	0.578	9.4
BLOCK.WP.SP	12	0.619	10.1

GRAIN MEAN DM% 90.3

SUB-PLOT AREA HARVESTED 0.00660