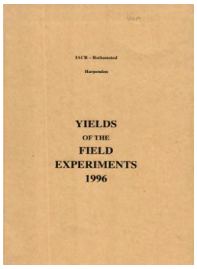
ROTHAMSTED RESEARCH

Yields of the Field Experiments 1996

Full Table of Content



96/R/CS/309 and 96/W/CS/309 Long-term Straw Incorporation - W. Wheat

Rothamsted Research

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96/R/CS/309 and 96/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 twelfth year, w. wheat.

For previous years see 85-95/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 BTTT
   BT1T2 CTTT
   BP2 BPPP
   BT1P2 CPPP
   CT1 CTTT
   CT1 CPTT
   CT1T2 CTPT
   CT1T2 CTTP
   CP2 CPPP
   CP2 CPTT
   CT1P2 CTPT
   CT1P2 CTTP

Sub-plots

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

   E Early
   L Late

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96/R/CS/309 and 96/W/CS/309

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. BTTT, CTTT, BPPP, CPPP, etc.

Experimental diary:

Great Knott III (R):

11-Aug-95 : **T** : **STRAWCUL** BTTT, BPPP: Straw burnt, ash incorporated with discs.
27-Sep-95 : **T** : **STRAWCUL** BTTT, CTTT, CPTT, CTPT: Heavy spring-tine cultivated.
29-Sep-95 : **T** : **STRAWCUL** BPPP, CPPP, CTTP: Ploughed.
05-Oct-95 : B : Heavy spring-tine cultivated.
06-Oct-95 : **T** : **SOW DATE** E: Rotary harrowed, Soissons, dressed Sibutol, drilled at 400 seeds per m^2.
26-Oct-95 : **T** : **SOW DATE** L: Rotary harrowed, Soissons, dressed Sibutol, drilled at 400 seeds per m^2.
30-Oct-95 : B : Avadex BW Granular at 22.5 kg.
14-Nov-95 : B : Draza at 5.5 kg.
07-Mar-96 : B : 34.5% N at 116 kg.
15-Apr-96 : B : 34.5% N at 463 kg.
25-Apr-96 : B : Ally at 30 g with Cheetah Super at 1.25 l in 200 l.
06-Jun-96 : B : Monicle at 1.0 l in 320 l.
07-Aug-96 : B : Combine harvested.

Far Field I (W):

10-Aug-95 : **T** : **STRAWCUL** BTTT, BPPP: Straw burnt, ash incorporated by spring-tine cultivator.
13-Sep-95 : **T** : **STRAWCUL** BPPP, CPPP, CTTP: Ploughed and rolled.
: **T** : **STRAWCUL** BTTT, CTTT, CPTT, CTPT: Heavy spring-tine cultivated twice.
02-Oct-95 : B : Harvest at 3.0 l in 300 l.
09-Oct-95 : B : Rotary harrowed.
: **T** : **SOW DATE** E: Soissons, dressed Sibutol, drilled at 400 seeds per m^2.
31-Oct-95 : **T** : **SOW DATE** L: Spring-tine cultivated, Soissons, dressed Sibutol, drilled at 450 seeds per m^2.
13-Nov-95 : B : Trump at 5.5 l in 200 l.
08-Mar-96 : B : 34.5% N at 116 kg.
25-Apr-96 : B : 34.5% N at 348 kg.
30-Apr-96 : B : Halo at 1.5 l in 200 l.
06-Jun-96 : B : Halo at 2.0 l in 300 l.
08-Aug-96 : B : Combine harvested.

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96/R/CS/309 and 96/W/CS/309

NOTES: Establishment counts were made in winter. Grass weeds were counted in April (R) and ears of grass weeds were counted in June (W) and July (R). Samples were taken in July to assess root and stem base diseases. At Rothamsted insect pitfall traps were placed in four plots and sampled between April and August.

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

GRAIN TONNES/HECTARE

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

SOW DATE	E	L	Mean
STRAWCUL			
BT1 BTTT	6.33	8.37	7.35
BT1T2 CTTT	6.26	6.91	6.58
BP2 BPPP	8.53	8.50	8.51
BT1P2 CPPP	9.03	8.62	8.82
CT1 CTTT	6.08	5.76	5.92
CT1 CPTT	7.31	7.51	7.41
CT1T2 CTPT	7.94	7.21	7.58
CT1T2 CTTP	9.21	8.91	9.06
CP2 CPPP	8.81	8.30	8.55
CP2 CPTT	7.35	7.70	7.52
CT1P2 CTPT	8.60	7.81	8.21
CT1P2 CTTP	8.84	8.74	8.79
Mean	7.86	7.86	7.86

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

STRAWCUL	SOW DATE	STRAWCUL SOW DATE
0.404	0.090	0.460

Except when comparing means with the same level(s) of STRAWCUL 0.311

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	33	0.571	7.3
BLOCK.WP.SP	36	0.440	5.6

GRAIN MEAN DM% 87.8

SUB-PLOT AREA HARVESTED 0.00644

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

GRAIN TONNES/HECTARE

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

SOW DATE	E	L	Mean
STRAWCUL			
BT1 BTTT	7.79	6.09	6.94
BT1T2 CTTT	7.05	6.43	6.74
BP2 BPPP	8.35	7.28	7.81
BT1P2 CPPP	7.18	5.80	6.49
CT1 CTTT	7.98	7.28	7.63
CT1 CPTT	7.31	7.63	7.47
CT1T2 CTPT	7.54	6.68	7.11
CT1T2 CTTP	8.89	7.62	8.26
CP2 CPPP	7.28	6.43	6.86
CP2 CPTT	7.81	6.51	7.16
CT1P2 CTPT	6.08	5.42	5.75
CT1P2 CTTP	8.02	7.04	7.53
Mean	7.61	6.68	7.15

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

STRAWCUL	SOW DATE	STRAWCUL SOW DATE
0.557	0.117	0.627

Except when comparing means with the same level(s) of STRAWCUL 0.406

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	11	0.557	7.8
BLOCK.WP.SP	12	0.406	5.7

GRAIN MEAN DM% 86.9

SUB-PLOT AREA HARVESTED 0.00660

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