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99/R/CS/309 and 99/W/CS/309 Long-term Straw Incorporation - W. Wheat

Rothamsted Research

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99/R/CS/302

Experimental diary:

17-Mar-99 : T : PRO : Sportak 45 EW at 1.1 l in 200 l.
 15-Apr-99 : B : : 34.5% N at 435 kg.
 19-Apr-99 : T : CARB : Stefes C-Flo 2 at 0.5 l in 200 l.
 : T : CARB+PRO : Sportak 45 EW at 1.1 l with Stefes C-Flo 2 at 0.5
 l in 200 l.
 : T : PRO : Sportak 45 EW at 1.1 l in 200 l.
 25-May-99 : B : : tm)Amistar at 0.8 l in 200 l.
 : B : : tm)Folicur at 0.5 l in 200 l.
 17-Jun-99 : B : : tm)Amistar at 0.25 l in 100 l.
 : B : : tm)Magnesium sulphate at 5.0 kg in 100 l.
 29-Jul-99 : B : : Combine harvested.

NOTE: The yield of one plot with **FUNGCIDE** SA and **EYE INOC** W2 was lost during harvesting. An estimate was used in the analysis.

GRAIN TONNES/HECTARE

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

EYE INOC FUNGCIDE	NATURAL	W 19R 1S	W 1R 19S	R 19R 1S	R 1R 19S	Mean
NONE	9.44	8.99	8.95	8.95	9.31	9.18
CARB	8.64	9.14	7.81	8.69	9.13	8.67
PRO	8.87	8.87	9.45	9.15	9.38	9.10
CARB+PRO	9.52	9.54	8.09	9.08	9.51	9.21
Mean	9.12	9.14	8.57	8.97	9.33	9.04

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

EYE INOC	FUNGCIDE*
0.273	0.545 min.rep
0.236	0.472 max-min

EYE INOC
 max-min NATURAL v any of the remainder
 min.rep Any of the remainder

* Within the same level of **FUNGCIDE** only

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP.SP	23	0.545	6.0

GRAIN MEAN DM% 87.9

SUB-PLOT AREA HARVESTED 0.00138

99/R/CS/309 and 99/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, pests, diseases, weeds and yield of w. wheat - Rothamsted (R) Great Knott III and Woburn (W) Far Field I.

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

The 15th year, w. wheat.

For previous years see 85-98/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 BTTTTT
BT1T2 CTTTTT
BP2 BPPPPPP
BT1P2 CPPPPPP
CT1 CTTTTT
CT1 CPTTPPT
CT1T2 CTPTTPT
CT1T2 CTTPTTP
CP2 CPPPPPP
CP2 CPTTPPT
CT1P2 CTPTTPT
CT1P2 CTTPTTP

Sub-plots:

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

E Early
L Late

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

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- NOTES:** (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 for straw treatment (i.e. B & C which remain unchanged from year to year) and the current years cultivation treatments and sowing dates are used.

Experimental diary:

Great Knott III (R):

17-Aug-98 : T : C : Straw chopped.
 19-Aug-98 : T : B : Straw burnt, ash incorporated with discs.
 09-Sep-98 : T : T : Flexitined.
 22-Sep-98 : T : T : Flexitined.
 24-Sep-98 : B : : tm)Alpha Glyphogan at 3.0 l in 200 l.
 : B : : tm)Mixed wetters at various rates.
 29-Sep-98 : T : P : Ploughed.
 12-Oct-98 : T : E : Combination drilled, Hereward, tr. Sibutol, at 380 seeds/m² with the Nordsten drill.
 13-Oct-98 : B : : Hardy at 10.0 kg.
 15-Oct-98 : B : : Hardy at 7.5 kg.
 04-Nov-98 : B : : Decoy at 7.5 kg.
 23-Nov-98 : T : L : Combination drilled, Hereward, tr. Sibutol, at 400 seeds/m² with the Nordsten drill.
 16-Dec-98 : B : : Draza at 5.5 kg.
 10-Mar-99 : B : : tm)Isoguard at 1.0 l in 200 l.
 : B : : tm)Unite A at 0.125 l in 200 l.
 : B : : tm)Unite B at 1.0 l in 200 l.
 : B : : tm)Cropoil at 1.0 l in 200 l.
 12-Mar-99 : B : : 34.5% N at 145 kg.
 01-Apr-99 : T : CT E: tm)Mon 37500 at 25 g in 200 l.
 : T : CT E: tm)Genamin at 400 ml in 200 l.
 12-Apr-99 : B : : 34.5% N at 435 kg.
 01-May-99 : B : : Opus at 0.7 l in 200 l.
 29-May-99 : B : : tm)Folicur at 1.0 l in 100 l.
 : B : : tm)Sipcam UK Rover 500 at 1.0 l in 100 l.
 17-Jun-99 : B : : Folicur at 0.25 l in 100 l.
 16-Aug-99 : B : : Combine harvest started. Chopped straw.
 19-Aug-99 : B : : Combine harvest completed. Chopped straw.

Far Field I (W):

12-Aug-98 : T : C : Straw chopped.
 28-Aug-98 : T : B : Straw burnt.
 30-Aug-98 : T : T : Flexitined to 10 cm twice.
 02-Sep-98 : T : P : Ploughed.
 14-Sep-98 : T : P : Cambridge rolled.
 24-Sep-98 : B : : tm)Alpha Glyphogan at 3.0 l in 200 l.
 : B : : tm)Codacide Oil at 0.5 l.
 12-Oct-98 : B : : Rotary harrowed.
 : T : E : Combination drilled, Hereward, tr. Sibutol, at 380 seeds/m² with the Nordsten drill.
 05-Nov-98 : B : : Hardy at 15 kg.
 19-Nov-98 : T : L : Combination drilled, Hereward, tr. Sibutol, at 450 seeds/m² with the Nordsten drill.
 23-Nov-98 : B : : Decoy at 5.0 kg.
 18-Feb-99 : B : : 34.5% N at 145 kg.
 25-Feb-99 : B : : tm)Platform S at 1.0 kg in 200 l.
 : B : : tm)Isoguard at 2.0 l in 200 l.
 02-Apr-99 : B : : 34.5% N at 377 kg.
 24-Apr-99 : B : : tm)Folicur at 0.5 l in 200 l.

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Experimental diary:

Far Field I (W):

24-Apr-99 : B : : tm)Tripart Brevis at 2.0 l in 200 l.
 27-May-99 : B : : tm)Folicur at 0.75 l in 200 l.
 27-May-99 : B : : tm)Sipcam UK Rover 500 at 1.0 l in 200 l.
 20-Aug-99 : B : : Combine harvested.

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

GRAIN TONNES/HECTARE

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

SOW DATE	E	L	Mean
STRAWCUL			
BT1 BTTTTTT	9.28	8.01	8.64
BT1T2 CTTTTTT	10.59	9.10	9.85
BP2 BPPPPPP	9.77	9.25	9.51
BT1P2 CPPPPPP	9.22	8.91	9.07
CT1 CTTTTTT	10.89	8.17	9.53
CT1 CPTTPTT	10.62	3.20	6.91
CT1T2 CTPTTPT	8.20	6.43	7.31
CT1T2 CTTPTTP	8.32	8.92	8.62
CP2 CPPPPPP	9.33	8.78	9.06
CP2 CPTTPTT	10.58	4.50	7.54
CT1P2 CTPTTPT	8.80	6.13	7.46
CT1P2 CTTPTTP	8.70	8.99	8.85
Mean	9.53	7.53	8.53

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

STRAWCUL	SOW DATE	STRAWCUL SOW DATE
0.337	0.135	0.471
Except when comparing means with the same level(s) of		
STRAWCUL		0.466

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	33	0.476	5.6
BLOCK.WP.SP	36	0.659	7.7

GRAIN MEAN DM% 82.3

SUB-PLOT AREA HARVESTED 0.00644