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## Yields of the Field Experiments 1988

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

#### **Rothamsted Research**

Rothamsted Research (1989) *88/R/CS/311 Effects of Shallow Straw Incorporation - W. Wheat* ; Yields Of The Field Experiments 1988, pp 114 - 118 - DOI: <https://doi.org/10.23637/ERADOC-1-43>

88/R/CS/311

### EFFECTS OF SHALLOW STRAW INCORPORATION

**Object:** To study the effects of shallow straw incorporation on straw decomposition, toxin production, pests and diseases and on the establishment, growth and yield of winter wheat - West Barnfield I.

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The fourth year, w. wheat.

For previous years see 85-87/R/CS/311.

**Design:** Single replicate of 3 x a half replicate of 2 x 2 x 2 x 2 x 2.

**Whole plot dimensions:** 9.0 x 57.0.

**Treatments:** Combinations of:-

Whole plots

1. **STRAW** Treatments to straw of previous wheat:

BURNT	Burnt and then disced on 21 Aug, 1987
BALED	Baled and removed on 20 Aug
CHOPPED	Chopped on 21 Aug

2. **CULTTIME** Time of cultivation, to 10 cm depth:

EARLY	Cultivated by rotary grubber on 1 Sept, 1987
LATER	Cultivated by rotary grubber on 16 Sept

Sub plots

3. **AUT N** Autumn N as 'Nitram' applied just before cultivation:

0	None
50	50 kg N on 29 Aug, 1987 (CULTTIME EARLY), 16 Sept (CULTTIME LATER)

4. **FUNGCIDE** Fungicides:

0	None
FULL	Full programme:- Prochloraz at 0.40 kg and carbendazim at 0.15 kg in 200 l on 21 Apr, 1988 Propiconazole at 0.125 kg in 260 l on 25 May Propiconazole at 0.125 kg with carbendazim at 0.25 kg and maneb at 1.6 kg in 260 l on 20 June

5. **INSCTCDE** Insecticides:

0	None
FON+PIR	Fonofos at 1.4 kg in 200 l on 21 Jan, 1988 and pirimicarb at 0.14 kg in 260 l on 20 June, 1988

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6. **MOLLCIDE** Residual effects of molluscicide applied for 1987 crop:

0 None  
METHCARB Methiocarb at 0.22 kg in autumn 1986

**Basal applications:** Manures: 'Nitram' at 120 kg and later at 580 kg.  
Weedkillers: Glyphosate at 0.27 kg in 200 l and later at 1.1 kg in 200 l. Tri-allate at 2.2 kg. Isoproturon at 2.1 kg in 200 l. Fluroxypyr at 0.20 kg in 200 l.

**Seed:** Mission, sown at 180 kg.

**Cultivations, etc.:-** First glyphosate applied: 30 Sept, 1987. Spring-tine cultivated, seed sown: 26 Oct. Tri-allate applied: 9 Dec. First N applied: 24 Feb, 1988. Isoproturon applied: 17 Mar. Second N applied: 22 Apr. Fluroxypyr applied: 6 May. Second glyphosate applied: 9 Aug. Combine harvested: 25 Aug.

**NOTE:** Growth was measured and incidence of pests and diseases was assessed at intervals during the season. Ears of volunteers were counted prior to harvest and components of yield were measured.

**GRAIN TONNES/HECTARE**

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

CULTTIME	EARLY	LATER	Mean
<b>STRAW</b>			
BURNT	7.03	7.15	7.09
BALED	6.42	6.55	6.49
CHOPPED	5.79	6.44	6.12
Mean	6.41	6.71	6.56
<b>AUT N</b>	0	50	Mean
<b>STRAW</b>			
BURNT	7.11	7.07	7.09
BALED	6.31	6.66	6.49
CHOPPED	5.88	6.36	6.12
Mean	6.43	6.69	6.56
<b>AUT N</b>	0	50	Mean
<b>CULTTIME</b>			
EARLY	6.26	6.57	6.41
LATER	6.61	6.82	6.71
Mean	6.43	6.69	6.56
<b>MOLLCIDE</b>	0	METHCARB	Mean
<b>STRAW</b>			
BURNT	7.12	7.06	7.09
BALED	6.58	6.39	6.49
CHOPPED	5.97	6.26	6.12
Mean	6.56	6.57	6.56

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GRAIN TONNES/HECTARE

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

MOLLCIDE	0	METHCARB	Mean
<b>CULTTIME</b>			
EARLY	6.34	6.49	6.41
LATER	6.77	6.65	6.71
Mean	6.56	6.57	6.56

MOLLCIDE	0	METHCARB	Mean
<b>AUT N</b>			
0	6.46	6.41	6.43
50	6.65	6.74	6.69
Mean	6.56	6.57	6.56

FUNGCIDE	0	FULL	Mean
<b>STRAW</b>			
BURNT	6.32	7.86	7.09
BALED	5.94	7.04	6.49
CHOPPED	5.46	6.77	6.12
Mean	5.91	7.22	6.56

FUNGCIDE	0	FULL	Mean
<b>CULTTIME</b>			
EARLY	5.72	7.11	6.41
LATER	6.10	7.33	6.71
Mean	5.91	7.22	6.56

FUNGCIDE	0	FULL	Mean
<b>AUT N</b>			
0	5.77	7.10	6.43
50	6.05	7.34	6.69
Mean	5.91	7.22	6.56

FUNGCIDE	0	FULL	Mean
<b>MOLLCIDE</b>			
0	5.84	7.28	6.56
METHCARB	5.98	7.16	6.57
Mean	5.91	7.22	6.56

INSCTCDE	0	FON+PIR	Mean
<b>STRAW</b>			
BURNT	6.84	7.34	7.09
BALED	6.30	6.67	6.49
CHOPPED	5.84	6.40	6.12
Mean	6.32	6.80	6.56

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GRAIN TONNES/HECTARE

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

INSCTCDE	O	FON+PIR	Mean
<b>CULTTIME</b>			
EARLY	6.15	6.68	6.41
LATER	6.49	6.93	6.71
Mean	6.32	6.80	6.56

INSCTCDE	O	FON+PIR	Mean
<b>AUT N</b>			
0	6.14	6.72	6.43
50	6.51	6.88	6.69
Mean	6.32	6.80	6.56

INSCTCDE	O	FON+PIR	Mean
<b>MOLLCIDE</b>			
O	6.30	6.82	6.56
METHCARB	6.35	6.79	6.57
Mean	6.32	6.80	6.56

INSCTCDE	O	FON+PIR	Mean
<b>FUNGCIDE</b>			
O	5.65	6.17	5.91
FULL	7.00	7.44	7.22
Mean	6.32	6.80	6.56

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GRAIN TONNES/HECTARE

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

AUT N	FUNGCIDE	INSCTCDE	MOLLCIDE
0.110	0.110	0.110	0.110
STRAW*	CULTTIME*	STRAW*	CULTTIME*
AUT N	AUT N	FUNGCIDE	FUNGCIDE
0.191	0.156	0.191	0.156
AUT N	STRAW*	CULTTIME*	AUT N
FUNGCIDE	INSCTCDE	INSCTCDE	INSCTCDE
0.156	0.191	0.156	0.156
FUNGCIDE	STRAW*	CULTTIME*	AUT N
INSCTCDE	MOLLCIDE	MOLLCIDE	MOLLCIDE
0.156	0.191	0.156	0.156
FUNGCIDE	INSCTCDE		
MOLLCIDE	MOLLCIDE		
0.156	0.156		

\* Within the same level of STRAW, CULTTIME or STRAW.CULTTIME only

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

Stratum	d.f.	s.e.	cv%
WP.SP	20	0.383	5.8

GRAIN MEAN DM% 78.7

SUB PLOT AREA HARVESTED 0.00276