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86/R/CS/311 Effects of Shallow Straw Incorporation - W. Wheat

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86/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 second year, w. wheat.

For first year see 85/R/CS/311.

Design: Single replicate 3 x 2 split into 2 x 2 x 2.

Whole plot dimensions: 9.0 x 51.0.

Treatments: All combinations of:-

Whole plots

1. STRAW Treatments to straw of previous wheat:

BURNT	Burnt on 10 Sept, 1985
BALED	Baled and removed on 2 Sept
CHOPPED	Chopped on 6 Sept

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

EARLY	Cultivated by rotary grubber on 17 Sept, 1985
LATER	Cultivated by rotary grubber on 9 Oct

Sub plots

3. AUT N Autumn N as 'Nitro-Chalk' applied just before cultivation:

0	None
50	50 kg N on 16 Sept (CULTTIME EARLY), 9 Oct (CULTTIME LATER)

4. FUNGCIDE Fungicides:

0	None
FULL	Full programme:- Triadimefon at 0.125 kg and carbendazim at 0.25 kg in 500 l on 17 Dec, 1985 Prochloraz at 0.40 kg and carbendazim at 0.15 kg in 200 l on 1 May, 1986 Propiconazole at 0.12 kg in 500 l on 13 June Propiconazole at 0.12 kg with carbendazim and maneb (as 'Septal' at 2.5 kg) in 200 l on 1 July

5. INSCTCDE Insecticide:

0	None
CYP+PIR	Cypermethrin at 0.025 kg in 200 l on 13 Nov, 1985 Pirimicarb at 0.14 kg in 500 l on 1 July, 1986

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Basal applications: Manures: (0:24:24) at 1000 kg. 'Nitram' at 130 kg followed by 520 kg. Weedkillers: Paraquat at 0.60 kg ion in 200 l. Clopyralid at 0.07 kg, bromoxynil octanoate at 0.34 kg, mecoprop at 2.5 kg and isoproturon at 2.1 kg in 200 l.

Seed: Mission, sown at 180 kg.

Cultivations, etc.: PK applied: 16 Sept, 1985. Paraquat applied: 8 Oct. Seed sown: 10 Oct. First N applied: 14 Mar, 1986. Second N applied: 27 Apr. Weedkillers applied: 29 Apr. Combine harvested: 20 Aug.

NOTE: Growth was measured and incidence of pests and diseases 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
STRAW			
BURNT	7.95	7.55	7.75
BALED	6.68	7.05	6.87
CHOPPED	6.96	5.88	6.42
MEAN	7.20	6.83	7.01
AUT N	0	50	MEAN
STRAW			
BURNT	7.81	7.68	7.75
BALED	7.06	6.67	6.87
CHOPPED	6.67	6.17	6.42
MEAN	7.18	6.84	7.01
AUT N	0	50	MEAN
CULTTIME			
EARLY	7.32	7.07	7.20
LATER	7.04	6.62	6.83
MEAN	7.18	6.84	7.01
FUNGCIDE	0	FULL	MEAN
STRAW			
BURNT	8.05	7.45	7.75
BALED	7.06	6.67	6.87
CHOPPED	6.57	6.27	6.42
MEAN	7.23	6.79	7.01
FUNGCIDE	0	FULL	MEAN
CULTTIME			
EARLY	7.55	6.84	7.20
LATER	6.91	6.75	6.83
MEAN	7.23	6.79	7.01

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GRAIN TONNES/HECTARE

***** TABLES OF MEANS *****

FUNGCIDE	0	FULL	MEAN	
AUT N				
0	7.41	6.95	7.18	
50	7.05	6.64	6.84	
MEAN	7.23	6.79	7.01	
INSCDCDE	0	CYP+PIR	MEAN	
STRAW				
BURNT	7.57	7.92	7.75	
BALED	6.86	6.87	6.87	
CHOPPED	6.25	6.59	6.42	
MEAN	6.89	7.13	7.01	
INSCDCDE	0	CYP+PIR	MEAN	
CULTTIME				
EARLY	7.11	7.29	7.20	
LATER	6.68	6.97	6.83	
MEAN	6.89	7.13	7.01	
INSCDCDE	0	CYP+PIR	MEAN	
AUT N				
0	7.07	7.29	7.18	
50	6.72	6.96	6.84	
MEAN	6.89	7.13	7.01	
INSCDCDE	0	CYP+PIR	MEAN	
FUNGCIDE				
0	7.15	7.30	7.23	
FULL	6.64	6.95	6.79	
MEAN	6.89	7.13	7.01	
CULTTIME	EARLY		LATER	
AUT N	0	50	0	50
STRAW				
BURNT	8.04	7.86	7.59	7.50
BALED	6.90	6.46	7.21	6.89
CHOPPED	7.04	6.88	6.31	5.46
CULTTIME	EARLY		LATER	
FUNGCIDE	0	FULL	0	FULL
STRAW				
BURNT	8.36	7.54	7.74	7.35
BALED	7.12	6.25	7.01	7.09
CHOPPED	7.17	6.75	5.98	5.79

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GRAIN TONNES/HECTARE

***** TABLES OF MEANS *****

AUT N	0		50	
FUNGCIDE	0	FULL	0	FULL
STRAW				
BURNT	8.36	7.26	7.74	7.63
BALED	7.00	7.11	7.12	6.23
CHOPPED	6.86	6.49	6.29	6.05
AUT N	0		50	
FUNGCIDE	0	FULL	0	FULL
CULTTIME				
EARLY	7.78	6.87	7.32	6.82
LATER	7.04	7.04	6.78	6.45
CULTTIME	EARLY		LATER	
INSTCDE	0	CYP+PIR	0	PIRIMICA
STRAW				
BURNT	7.90	7.99	7.24	7.85
BALED	6.55	6.81	7.17	6.93
CHOPPED	6.86	7.06	5.64	6.13
AUT N	0		50	
INSTCDE	0	CYP+PIR	0	PIRIMICA
STRAW				
BURNT	7.70	7.93	7.45	7.92
BALED	7.16	6.95	6.57	6.78
CHOPPED	6.35	6.99	6.15	6.19
AUT N	0		50	
INSTCDE	0	CYP+PIR	0	PIRIMICA
CULTTIME				
EARLY	7.31	7.33	6.90	7.24
LATER	6.83	7.25	6.54	6.69
FUNGCIDE	0		FULL	
INSTCDE	0	CYP+PIR	0	PIRIMICA
STRAW				
BURNT	7.91	8.19	7.24	7.66
BALED	6.90	7.23	6.83	6.51
CHOPPED	6.65	6.50	5.85	6.69
FUNGCIDE	0		FULL	
INSTCDE	0	CYP+PIR	0	PIRIMICA
CULTTIME				
EARLY	7.38	7.71	6.83	6.86
LATER	6.92	6.89	6.44	7.05
FUNGCIDE	0		FULL	
INSTCDE	0	CYP+PIR	0	PIRIMICA
AUT N				
0	7.31	7.50	6.83	7.08
50	6.99	7.10	6.44	6.83

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GRAIN TONNES/HECTARE

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	AUT N	FUNGCIDE	INSCTCDE	STRAW* AUT N
SED	0.169	0.169	0.169	0.292
TABLE	CULTTIME* AUT N	STRAW* FUNGCIDE	CULTTIME* FUNGCIDE	AUT N FUNGCIDE
SED	0.239	0.292	0.239	0.239
TABLE	STRAW* INSCTCDE	CULTTIME* INSCTCDE	AUT N INSCTCDE	FUNGCIDE INSCTCDE
SED	0.292	0.239	0.239	0.239
TABLE	STRAW* CULTTIME AUT N	STRAW* CULTTIME FUNGCIDE	STRAW* AUT N FUNGCIDE	CULTTIME* AUT N FUNGCIDE
SED	0.413	0.413	0.413	0.337
TABLE	STRAW* CULTTIME INSCTCDE	STRAW* AUT N INSCTCDE	CULTTIME* AUT N INSCTCDE	STRAW* FUNGCIDE INSCTCDE
SED	0.413	0.413	0.337	0.413
TABLE	CULTTIME* FUNGCIDE INSCTCDE	AUT N FUNGCIDE INSCTCDE		
SED	0.337	0.337		

* WITHIN THE SAME LEVEL OF STRAW, CULTTIME OR STRAW.CULTTIME ONLY

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
WP.SP	11	0.584	8.3

GRAIN MEAN DM% 81.3

SUB PLOT AREA HARVESTED 0.00280