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Yields of the Field Experiments 1981

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81/W/CS/174 Sowing Dates and Ccn - S. Oats

Rothamsted Research

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81/W/CS/174

SOWING DATES AND CCN

Object: To study the residual effects of sowing date, a nematicide, a soil sterilant and previous cropping on the incidence of cereal cyst-nematode (*Heterodera avenae*) (CCN) and on the yield of s. oats in a soil known to contain a fungal parasite of the nematode - Woburn, Butt Close.

Sponsor: B.R. Kerry.

The seventh year, s. oats.

For previous years see 75/W/M/1 and 76-80/W/CS/174.

Design: Single replicate of 36 plots split into 2.

Whole plot dimensions: 2.13 x 6.70.

Treatments: All combinations of:-

Whole plots

- | | |
|-----------------|---|
| 1. CROP(76) | Crop (cumulative 1975-76): |
| WHEAT | |
| BARLEY | |
| OATS | |
| 2. SOW DATE(76) | Sowing date (cumulative 1975-76): |
| AUTUMN | |
| SPRING | |
| 3. NEMACIDE(78) | Nematicide (cumulative 1975-78): |
| NONE | None |
| OXAMYL | Oxamyl at 8.8 kg |
| 4. CROP(78) | Crop in 1977 & 1978 (all spring sown)(all spring
oats in 1979-81): |
| WHEAT | |
| BARLEY | |
| OATS | |

Sub plots

- | | |
|-------------|--|
| 5. STERILNT | Sterilant: |
| NONE | None |
| FORMALIN | Formalin at 3000 l in 109000 l. To SOW DATE
SPRING in 1976 and 1978 only. To SOW DATE
AUTUMN in 1977 only. |

Basal applications: Manures: (20:10:10) at 500 kg, N at 70 kg as 'Nitro-Chalk'. Weedkillers: Dicamba with mecoprop and MCPA (as 'Banlene Plus' at 4.9 l) in 280 l.

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Irrigation (mm water):

12 June	15
19 June	20
25 June	20
1 July	12.5
2 July	12.5
9 July	23
16 July	23
30 July	22
Total	148

Seed: Peniarth, sown at 180 kg.

Cultivations, etc.:— Ploughed: 5 Jan, 1981. NPK applied: 27 Feb.
Spring-tine cultivated with crumbler attached: 27 Feb, 6 Apr. Seed
sown: 8 Apr. Weedkillers applied: 14 May. N applied: 20 May. Combine
harvested: 28 Aug.

NOTE: Numbers of cereal cyst-nematodes in soil in April were counted.

GRAIN TONNES/HECTARE

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

SOW DATE(76)	AUTUMN	SPRING	MEAN	
CROP(76)				
WHEAT	2.31	2.49	2.40	
BARLEY	2.41	2.59	2.50	
OATS	2.51	2.40	2.46	
MEAN	2.41	2.49	2.45	
NEMACIDE(78)	NONE	OXAMYL	MEAN	
CROP(76)				
WHEAT	2.42	2.38	2.40	
BARLEY	2.45	2.55	2.50	
OATS	2.46	2.45	2.46	
MEAN	2.44	2.46	2.45	
NEMACIDE(78)	NONE	OXAMYL	MEAN	
SOW DATE(76)				
AUTUMN	2.39	2.43	2.41	
SPRING	2.50	2.49	2.49	
CROP(78)	WHEAT	BARLEY	OATS	MEAN
CROP(76)				
WHEAT	2.31	2.58	2.31	2.40
BARLEY	2.42	2.53	2.54	2.50
OATS	2.49	2.66	2.22	2.46
MEAN	2.41	2.59	2.36	2.45

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GRAIN TONNES/HECTARE

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

CROP(78)	WHEAT	BARLEY	OATS	MEAN
SOW DATE(76)				
AUTUMN	2.44	2.48	2.30	2.41
SPRING	2.37	2.70	2.41	2.49
MEAN	2.41	2.59	2.36	2.45
CROP(78)	WHEAT	BARLEY	OATS	MEAN
NEMACIDE(78)				
NONE	2.48	2.51	2.34	2.44
OXAMYL	2.33	2.68	2.37	2.46
MEAN	2.41	2.59	2.36	2.45
STERILNT	NONE	FORMALIN	MEAN	
CROP(76)				
WHEAT	2.47	2.33	2.40	
BARLEY	2.59	2.40	2.50	
OATS	2.51	2.40	2.46	
MEAN	2.53	2.38	2.45	
STERILNT	NONE	FORMALIN	MEAN	
SOW DATE(76)				
AUTUMN	2.50	2.32	2.41	
SPRING	2.56	2.43	2.49	
MEAN	2.53	2.38	2.45	
STERILNT	NONE	FORMALIN	MEAN	
NEMACIDE(78)				
NONE	2.60	2.28	2.44	
OXAMYL	2.45	2.47	2.46	
MEAN	2.53	2.38	2.45	
STERILNT	NONE	FORMALIN	MEAN	
CROP(78)				
WHEAT	2.48	2.33	2.41	
BARLEY	2.71	2.47	2.59	
OATS	2.38	2.33	2.36	
MEAN	2.53	2.38	2.45	
SOW DATE(76)	AUTUMN		SPRING	
NEMACIDE(78)	NONE	OXAMYL	NONE	OXAMYL
CROP(76)				
WHEAT	2.34	2.28	2.50	2.48
BARLEY	2.27	2.54	2.62	2.55
OATS	2.55	2.48	2.37	2.43

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GRAIN TONNES/HECTARE

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

SOW DATE(76)	AUTUMN				SPRING		
CROP(78)	WHEAT	BARLEY	OATS	WHEAT	BARLEY	OATS	
CROP(76)							
WHEAT	2.29	2.50	2.13	2.33	2.65	2.49	
BARLEY	2.38	2.32	2.51	2.46	2.74	2.56	
OATS	2.66	2.62	2.26	2.31	2.70	2.18	
NEMACIDE(78)	NONE			OXAMYL			
CROP(78)	WHEAT	BARLEY	OATS	WHEAT	BARLEY	OATS	
CROP(76)							
WHEAT	2.30	2.50	2.47	2.33	2.66	2.15	
BARLEY	2.53	2.33	2.47	2.31	2.73	2.60	
OATS	2.61	2.69	2.08	2.37	2.63	2.36	
NEMACIDE(78)	NONE			OXAMYL			
CROP(78)	WHEAT	BARLEY	OATS	WHEAT	BARLEY	OATS	
SOW DATE(76)							
AUTUMN	2.58	2.24	2.34	2.31	2.72	2.26	
SPRING	2.38	2.77	2.34	2.36	2.63	2.49	
SOW DATE(76)	AUTUMN		SPRING				
STERILNT	NONE	FORMALIN	NONE	FORMALIN			
CROP(76)							
WHEAT	2.32	2.29	2.62	2.36			
BARLEY	2.62	2.19	2.57	2.60			
OATS	2.55	2.48	2.48	2.32			
NEMACIDE(78)	NONE		OXAMYL				
STERILNT	NONE	FORMALIN	NONE	FORMALIN			
CROP(76)							
WHEAT	2.58	2.26	2.36	2.40			
BARLEY	2.63	2.26	2.55	2.54			
OATS	2.60	2.32	2.43	2.48			
NEMACIDE(78)	NONE		OXAMYL				
STERILNT	NONE	FORMALIN	NONE	FORMALIN			
SOW DATE(76)							
AUTUMN	2.54	2.24	2.46	2.40			
SPRING	2.67	2.32	2.44	2.54			
CROP(78)	WHEAT		BARLEY		OATS		
STERILNT	NONE	FORMALIN	NONE	FORMALIN	NONE	FORMALIN	
CROP(76)							
WHEAT	2.43	2.20	2.60	2.56	2.39	2.23	
BARLEY	2.66	2.18	2.59	2.47	2.53	2.54	
OATS	2.36	2.62	2.95	2.37	2.23	2.22	
CROP(78)	WHEAT		BARLEY		OATS		
STERILNT	NONE	FORMALIN	NONE	FORMALIN	NONE	FORMALIN	
SOW DATE(76)							
AUTUMN	2.59	2.30	2.52	2.45	2.38	2.22	
SPRING	2.37	2.37	2.91	2.49	2.39	2.43	

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GRAIN TONNES/HECTARE

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

CROP(78) STERILNT NEMACIDE(78) NONE OXAMYL	WHEAT		BARLEY		OATS	
	NONE	FORMALIN	NONE	FORMALIN	NONE	FORMALIN
NONE	2.67	2.29	2.72	2.29	2.42	2.26
OXAMYL	2.29	2.38	2.71	2.64	2.34	2.40

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

TABLE	CROP(76)	SOW DATE(76)	NEMACIDE(78)	CROP(78)
SED	0.070	0.057	0.057	0.070

TABLE	STERILNT	CROP(76) SOW DATE(76)	CROP(76) NEMACIDE(78)	SOW DATE(76) NEMACIDE(78)
SED	0.083	0.099	0.099	0.081

TABLE	CROP(76) CROP(78)	SOW DATE(76) CROP(78)	NEMACIDE(78) CROP(78)	CROP(76) STERILNT
SED	0.122	0.099	0.099	0.124
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				0.145
CROP(76)				

TABLE	SOW DATE(76) STERILNT	NEMACIDE(78) STERILNT	CROP(78) STERILNT	CROP(76) SOW DATE(76) NEMACIDE(78)
SED	0.101	0.101	0.124	0.140
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
SOW DATE(76)				0.118
NEMACIDE(78)				0.118
CROP(78)				0.145

TABLE	CROP(76) SOW DATE(76) CROP(78)	CROP(76) NEMACIDE(78) CROP(78)	SOW DATE(76) NEMACIDE(78) CROP(78)	CROP(76) SOW DATE(76) STERILNT
SED	0.172	0.172	0.140	0.175
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				0.205
CROP(76).SOW DATE(76)				

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GRAIN TONNES/HECTARE

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

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

TABLE	CROP(76) NEMACIDE(78) STERILNT	SOW DATE(76) NEMACIDE(78) STERILNT	CROP(76) CROP(78) STERILNT	SOW DATE(76) CROP(78) STERILNT
SED	0.175	0.143	0.215	0.175
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
CROP(76).NEMACIDE(78)	0.205			
SOW DATE(76).NEMACIDE(78)		0.167		
CROP(76).CROP(78)			0.250	
SOW DATE(76).CROP(78)				0.205

TABLE	NEMACIDE(78) CROP(78) STERILNT
SED	0.175
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:	
NEMACIDE(78).CROP(78)	0.205

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

STRATUM	DF	SE	CV%
WP	4	0.172	7.0
WP.SP	16	0.354	14.5

GRAIN MEAN DM% 75.6

SUB PLOT AREA HARVESTED 0.00041