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# Yields of the Field Experiments 1985

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## 85/W/CS/321 Soil Compaction and Yield - W. Oats

### Rothamsted Research

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85/W/CS/321

SOIL COMPACTION AND YIELD

Object: To study the residual effects of disrupting a compact layer in a sandy soil on the yield of winter oats - Woburn, Butt Close III.

Sponsors: P.J. Welbank, F.V. Widdowson.

Associate sponsors: K.J. Parkinson, J.E. Leach, A.H. Weir, P.B. Barraclough.

The second year, w. oats.

For previous year see 84/W/WW/3.

Design: A single replicate of 2 x 2 x 2 x 2 + 12 extra plots.

Whole plot dimensions: 2.75 x 14.8.

Treatments: All combinations of treatments applied for w. wheat 1984:

Whole plots

1. CULTIVTN(84)      Cultivations:

WYE DIG              Deep cultivation with Wye double-digger  
PLOUGH              Normal cultivation with mouldboard plough

Sub plots

2. IRRIGATN(84)      Irrigation:

NONE                  None  
FULL                  Full (175 mm)

3. WINTER N(84)      Amounts of nitrogen fertilizer applied on 30 Nov, 1983 and 31 Jan, 1984 (kg N) as urea:

0  
35+35

4. SPRING N(84)      Amounts of nitrogen fertilizer applied in spring (kg N) as 'Nitro-Chalk' (26% N):

115  
185

5. N TIME(84)        Times of applying spring fertilizer:

EARLY                All except 40 kg N on 8 Mar, 1984; remainder on 2 May  
LATE                  All except 40 kg N on 3 Apr; remainder on 15 May



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GRAIN TONNES/HECTARE

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

IRRIGATN(84)	NONE	FULL	MEAN
CULTIVTN(84)			
WYE DIG	6.47	6.36	6.41
PLOUGH	6.19	6.59	6.39
MEAN	6.33	6.47	6.40
WINTER N(84)	0	35+35	MEAN
CULTIVTN(84)			
WYE DIG	6.52	6.30	6.41
PLOUGH	6.38	6.40	6.39
MEAN	6.45	6.35	6.40
WINTER N(84)	0	35+35	MEAN
IRRIGATN(84)			
NONE	6.20	6.46	6.33
FULL	6.71	6.24	6.47
MEAN	6.45	6.35	6.40
SPRING N(84)	115	185	MEAN
CULTIVTN(84)			
WYE DIG	6.10	6.73	6.41
PLOUGH	6.33	6.45	6.39
MEAN	6.22	6.59	6.40
SPRING N(84)	115	185	MEAN
IRRIGATN(84)			
NONE	6.06	6.60	6.33
FULL	6.37	6.58	6.47
MEAN	6.22	6.59	6.40
SPRING N(84)	115	185	MEAN
WINTER N(84)			
0	6.25	6.66	6.45
35+35	6.18	6.52	6.35
MEAN	6.22	6.59	6.40
N TIME(84)	EARLY	LATE	MEAN
CULTIVTN(84)			
WYE DIG	6.28	6.55	6.41
PLOUGH	6.50	6.29	6.39
MEAN	6.39	6.42	6.40
N TIME(84)	EARLY	LATE	MEAN
IRRIGATN(84)			
NONE	6.28	6.38	6.33
FULL	6.49	6.46	6.47
MEAN	6.39	6.42	6.40

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GRAIN TONNES/HECTARE

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

N TIME(84)	EARLY	LATE	MEAN	
WINTER N(84)				
0	6.50	6.40	6.45	
35+35	6.27	6.43	6.35	
MEAN	6.39	6.42	6.40	
N TIME(84)	EARLY	LATE	MEAN	
SPRING N(84)				
115	6.16	6.27	6.22	
185	6.61	6.56	6.59	
MEAN	6.39	6.42	6.40	
IRRIGATN(84)	NONE		FULL	
WINTER N(84)	0	35+35	0	35+35
CULTIVTN(84)				
WYE DIG	6.26	6.67	6.78	5.94
PLOUGH	6.13	6.26	6.64	6.54
IRRIGATN(84)	NONE		FULL	
SPRING N(84)	115	185	115	185
CULTIVTN(84)				
WYE DIG	5.99	6.94	6.21	6.51
PLOUGH	6.13	6.26	6.53	6.64
WINTER N(84)	0		35+35	
SPRING N(84)	115	185	115	185
CULTIVTN(84)				
WYE DIG	6.12	6.93	6.08	6.52
PLOUGH	6.39	6.38	6.28	6.52
WINTER N(84)	0		35+35	
SPRING N(84)	115	185	115	185
IRRIGATN(84)				
NONE	6.04	6.35	6.08	6.85
FULL	6.46	6.96	6.28	6.19
IRRIGATN(84)	NONE		FULL	
N TIME(84)	EARLY	LATE	EARLY	LATE
CULTIVTN(84)				
WYE DIG	6.28	6.66	6.27	6.45
PLOUGH	6.29	6.10	6.71	6.47
WINTER N(84)	0		35+35	
N TIME(84)	EARLY	LATE	EARLY	LATE
CULTIVTN(84)				
WYE DIG	6.45	6.60	6.10	6.50
PLOUGH	6.56	6.21	6.43	6.37
WINTER N(84)	0		35+35	
N TIME(84)	EARLY	LATE	EARLY	LATE
IRRIGATN(84)				
NONE	6.16	6.23	6.40	6.53
FULL	6.84	6.58	6.14	6.34

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GRAIN TONNES/HECTARE

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

SPRING N(84)	115		185	
N TIME(84)	EARLY	LATE	EARLY	LATE
CULTIVTN(84)				
WYE DIG	5.89	6.31	6.66	6.80
PLOUGH	6.43	6.24	6.57	6.33
SPRING N(84)	115		185	
N TIME(84)	EARLY	LATE	EARLY	LATE
IRRIGATN(84)				
NONE	6.14	5.99	6.43	6.77
FULL	6.18	6.56	6.80	6.36
SPRING N(84)	115		185	
N TIME(84)	EARLY	LATE	EARLY	LATE
WINTER N(84)				
0	6.16	6.35	6.85	6.46
35+35	6.16	6.20	6.37	6.67
SPRING NX(84)	80	150	220	MEAN
CULTIVNX(84)				
WYE DIG	6.30	6.74	6.40	6.48
PLOUGH	6.75	6.40	6.30	6.48
MEAN	6.52	6.57	6.35	6.48
EXTRA WY NO I		PL NO I	MEAN	
	6.37	6.06	6.21	

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

SED APPLY TO MAIN FACTORIAL PLOTS ONLY

MARGINS OF TWO FACTOR TABLES	0.173
TWO FACTOR TABLES	0.244
THREE FACTOR TABLES	0.345

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

STRATUM	DF	SE	CV%
WP	6	0.489	7.6

GRAIN MEAN DM% 80.1