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83/R/WW/2 Growth and Yield on a Contrasted Site - W. Wheat

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83/R/WW/2

WINTER WHEAT

GROWTH AND YIELD ON A CONTRASTED SITE

Object: To compare the effects of some of the factors tested in 83/W/WW/2 on the growth and yield of w. wheat on a contrasted site - Long Hoos I/II.

Sponsors: F.V. Widdowson, P.J. Welbank, A.H. Weir.

Design: Half replicate of 2^5 + 16 extra plots.

Whole plot dimensions: 3.0 x 15.2.

Treatment: Combinations of:-

1. SOWDATE Dates of sowing:

15 SEPT	15 September, 1982
20 OCT	20 October
2. TOTAL N Total amount of N fertilizer (kg N) as 'Nitro-Chalk':

140	100 on the first date, 40 on the second
210	170 on the first date, 40 on the second
3. N TIME Timing of fertilizer application:

EARLY	7 Mar, 1983, 4 May
LATE	7 Apr, 17 May
4. IRRIGATN Irrigation:

NONE	None
FULL	Full (112.5 mm) to lessen a deficit of 37.5 mm to 12.5 mm
5. AUT PEST Autumn pesticide:

NONE	None
ALDICARB	Aldicarb at 7.0 kg worked into seedbed

Plus all combinations of the following (all unirrigated, given aldicarb):

1. TOTAL NX Total amount of N fertilizer (kg N) as 'Nitro-Chalk':

0	None
105	65 on the first date, 40 on the second
140	100 on the first date, 40 on the second
175	135 on the first date, 40 on the second
210	170 on the first date, 40 on the second
245	205 on the first date, 40 on the second
2. S DATE N Dates of sowing and timing of N application:

15 SEP NE	Sown 15 Sept 1982, N applied as N TIME EARLY
20 OCT NL	Sown 20 Oct, N applied as N TIME LATE

83/R/WW/2

Plus 4 extra plots for root sampling:

EXTRA

SE 210EX Sown 15 Sept with 210 kg N applied as N TIME EARLY,
unirrigated and given aldicarb

NOTE: The irrigation treatment was as follows (mm water):-

24 June	25
28 June	25
14 July	37.5
21 July	25
Total	112.5

Basal applications: Manures: (0:18:36) at 280 kg. Weedkillers: Mecoprop, bromoxynil and ioxynil (as 'Brittox' at 2.0 l in 450 l on the first occasion, at 1.8 l in 220 l with the mecoprop on the second, and at 2.5 l with the benomyl in 225 l on the third). Mecoprop (as 'Farmon CMPP' at 2.1 l). Fungicides: Benomyl at 0.56 kg. Captafol at 1.4 kg with propiconazole at 0.12 kg in 220 l. Carbendazim at 0.25 kg with maneb at 1.6 kg and propiconazole at 0.12 kg and the insecticide in 220 l. Insecticide: Pirimicarb at 0.14 kg. Growth regulator: Chlormequat at 1.1 kg in 220 l.

Seed: Avalon, dressed chlorfenvinphos, sown at 180 kg.

Cultivations, etc.: PK applied: 10 Sept, 1982. Heavy spring-tine cultivated twice: 13 Sept. Aldicarb applied for SOWDATE 15 SEPT, rotary harrowed, seed sown: 15 Sept. Aldicarb applied for SOWDATE 20 OCT, rotary harrowed, seed sown: 20 Oct. 'Brittox' applied: 25 Jan, 1983. Growth regulator applied to SOWDATE 15 SEPT plots: 8 Mar. 'Brittox' with mecoprop applied: 28 Mar. Growth regulator applied to SOWDATE 20 OCT plots: 14 Apr. 'Brittox' with benomyl applied: 27 Apr. Captafol with propiconazole applied: 24 May. Carbendazim, maneb, propiconazole and the insecticide applied: 23 June. Combine harvested: 10 Aug. Previous crops: W. oats 1981, potatoes 1982.

- NOTES: (1) Light interception, dry weight, leaf area and N content of the above-ground crop were measured on several occasions. Stem nitrate was measured on three occasions during spring.
- (2) Soil samples, to measure mineral N content, were taken on several occasions during winter and spring.

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GRAIN TONNES HECTARE

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

SOWDATE	15 SEPT 10.16	20 OCT 9.96	MEAN 10.06				
TOTAL N	140 9.76	210 10.36	MEAN 10.06				
N TIME	EARLY 10.05	LATE 10.07	MEAN 10.06				
IRRIGATN	NONE 10.13	FULL 9.99	MEAN 10.06				
AUT PEST	NONE 10.03	ALDICARB 10.09	MEAN 10.06				
TOTAL NX S DATE N	0	105	140	175	210	245	MEAN
15 SEPT NE	5.59	9.08	9.70	10.55	10.94	10.92	9.46
20 OCT NL	4.58	8.68	9.92	9.99	10.38	10.31	8.98
MEAN	5.09	8.88	9.81	10.27	10.66	10.61	9.22

EXTRA SE 210EX 10.71

GRAND MEAN 9.83

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

TABLE	SOWDATE	TOTAL N	N TIME	IRRIGATN
SED	0.113	0.113	0.113	0.113
TABLE	AUT PEST			
SED	0.113			

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

STRATUM	DF	SE	CV%
WP	10	0.226	2.2

GRAIN MEAN DM% 86.5

PLOT AREA HARVESTED 0.00209