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82/R/WW/2 Growth and Yield on a Contrasted Site - Winter Wheat

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82/R/WW/2

WINTER WHEAT

GROWTH AND YIELD ON A CONTRASTED SITE

Object: To compare the effects of some of the factors tested in 82/W/WW/2 on the growth and yield of w. wheat on a contrasted site - Pastures.

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

Design: Half replicate of 2^5 + 24 extra plots.

Whole plot dimensions: 3.0 x 15.2.

Treatment: Combinations of the following (all sown to variety Avalon):

- | | |
|-------------|---|
| 1. SOWDATE | Dates of sowing: |
| 22 SEPT | 22 September, 1981 |
| 22 OCT | 22 October |
| 2. TOTAL N | Total amount of N fertilizer (kg N) as 'Nitro-Chalk': |
| 70 | 30 on the first date, 40 on the second |
| 140 | 100 on the first date, 40 on the second |
| 3. N TIME | Timing of fertilizer application: |
| EARLY | 9 Mar, 1982, 11 May |
| LATE | 16 Apr, 24 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 7.1 kg worked into seedbed |

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

- | | |
|-------------|---|
| 1. TOTAL NX | Total amount of N fertilizer (kg N) as 'Nitro-Chalk': |
| 0 | None |
| 35 | None on the first date, 35 on the second |
| 70 | 30 on the first date, 40 on the second |
| 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 |
| 2. S DATE N | Dates of sowing and timing of N application: |
| 22 SEP NE | Sown 22 Sept N applied as N TIME EARLY |
| 22 OCT NL | Sown 22 Oct N applied as N TIME LATE |

82/R/WW/2

plus all combinations of the following (all unirrigated and given aldicarb):

1. VARIETYX Varieties:

AVALON
HUSTLER

2. SOWDATE NX Dates of sowing and timing of N application:

SE 5NE Sown 22 Sept, 140 kg N applied as N TIME EARLY
(Quadruplicated)
SL 5NL Sown 22 Oct, 140 kg N applied as N TIME LATE
(Duplicated)

Basal applications: Manures: (0:14:28) at 360 kg. Weedkillers: Chlortoluron at 5.6 l in 250 l. Mecoprop, bromoxynil and ioxynil (as 'Brittox' at 3.0 l) in 340 l, applied with the growth regulator. Fungicides: Benomyl at 0.56 kg in 340 l. Propiconazole at 0.12 kg in 340 l. Insecticides: Pirimicarb at 0.14 kg in 340 l. Omethoate at 0.64 l in 340 l. Growth regulator: Chlormequat at 0.8 kg.

Seed: Hustler, dressed chlorfenvinphos, sown at 170 kg.
Avalon, dressed chlorfenvinphos, sown at 200 kg.

Cultivations, etc.: - Deep-tine cultivated twice, PK applied: 17 Sept, 1981. Aldicarb applied for SOWDATE 22 SEPT, rotary harrowed, seed sown: 22 Sept. Aldicarb applied for SOWDATE 22 OCT, rotary harrowed, seed sown: 22 Oct. Chlortoluron applied: 28 Oct. Mecoprop, bromoxynil and ioxynil with the growth regulator applied to SOWDATE 22 SEPT plots: 23 Mar, 1982. Benomyl applied: 25 Mar. Omethoate applied: 14 Apr. Mecoprop, bromoxynil and ioxynil with the growth regulator applied to SOWDATE 22 OCT plots: 19 Apr. Propiconazole applied: 26 May. Pirimicarb applied: 14 June. Combine harvested: 20 Aug. Previous crops: W. oats 1980, potatoes 1981.

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

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MAIN FACTORIAL PLOTS

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

GRAND MEAN	7.62	
SOWDATE	22 SEPT	22 OCT
	7.91	7.34
TOTAL N	70	140
	7.38	7.86
N TIME	EARLY	LATE
	7.66	7.59
IRRIGATN	NONE	FULL
	7.66	7.58
AUT PEST	NONE	ALDICARB
	7.60	7.65

EXTRA PLOTS

TOTAL NX	0	35	70	105	140	175	MEAN
S DATE N							
22 SEPT NE	6.54	7.86	7.25	7.86	8.20	9.06	7.80
22 OCT NL	5.85	7.25	6.71	7.06	7.72	7.54	7.02
MEAN	6.20	7.56	6.98	7.46	7.96	8.30	7.41
SDATE NX	SE 5NE	SL 5NL	MEAN				
VARIETY							
AVALON	8.49	6.93	7.97				
HUSTLER	9.13	7.02	8.43				
MEAN	8.81	6.98	8.20				

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

TABLE	SOWDATE	TOTAL N	N TIME	IRRIGATN
-----	-----	-----	-----	-----
SED	0.158	0.158	0.158	0.158

TABLE	AUT PEST
-----	-----
SED	0.158

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

STRATUM	DF	SE	CV%
WP	10	0.315	4.1

GRAIN MEAN DM% 81.3

PLOT AREA HARVESTED 0.00241