# Yields of the Field Experiments 1977

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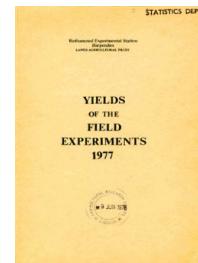
# 77/R/WS/2 Irrigation, Lodging, N, Ccc and Microflora - S. Wheat

## Rothamsted Research

77/R/WS/2

SPRING WHEAT

IRRIGATION, LODGING, N, CCC AND MICROFLORA

Object: To study the effects of irrigation, artificial lodging, nitrogen
fertiliser and a growth regulator on grain microflora and yield -
Long Hoos V 2.

Sponsor: R.A. Hill.

Design: 2 randomised blocks of 2 plots split into 8.

Whole plot dimensions: 9.75 x 17.4.

Treatments: All combinations of:-

Whole plots

1. IRRIGTN        Irrigation:

   NONE           None
   FULL           Full (75 mm)

Sub plots

2. N             Nitrogen fertiliser (kg N):

    25
   100

3. LODGING       Lodging:

   NONE           None, supported by netting
   LODGED         Lodged, under netting

4. GRWTHREG      Growth regulator:

   NONE           None
   CHLORMEQ       Chlormequat (CCC) at 1.1 kg in 340 l on 19 June, 1977

NOTES: (1) N applied on 9 May.
       (2) Irrigation was applied at 5 mm on each dry day during the
           season, divided equally between morning and afternoon.

Basal applications: Manures: (0:14:28) at 940 kg. Weedkillers: Dicamba with
mecoprop and MCPA ('Tetralex Plus' at 5.6 l in 340 l).

Seed: Sappo, sown at 180 kg.

Cultivations, etc.:- Deep-tine cultivated: 13 Sept, 1976. PK applied: 8 Nov.
Ploughed: 9 Nov to 14 Dec. Power harrowed and seed sown: 14 Apr, 1977.
Weedkillers applied: 1 June. Combine harvested: 27 Sept. Previous crops:
Lupins 1975, spring oats 1976.

NOTE: Grain microflora were assessed during the season and at harvest. Grain
was assessed for mycotoxins before and after harvest and after storage.

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GRAIN TONNES/HECTARE

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

| N | 25 | 100 | MEAN |
|---|---|---|---|
| IRRIGTN | | | |
| NONE | 2.43 | 2.64 | 2.54 |
| FULL | 2.43 | 2.38 | 2.40 |
| | | | |
| MEAN | 2.43 | 2.51 | 2.47 |

| LODGING | NONE | LODGED | MEAN |
|---|---|---|---|
| IRRIGTN | | | |
| NONE | 3.77 | 1.30 | 2.54 |
| FULL | 3.72 | 1.09 | 2.40 |
| | | | |
| MEAN | 3.74 | 1.20 | 2.47 |

| LODGING | NONE | LODGED | MEAN |
|---|---|---|---|
| N | | | |
| 25 | 3.58 | 1.29 | 2.43 |
| 100 | 3.91 | 1.11 | 2.51 |
| | | | |
| MEAN | 3.74 | 1.20 | 2.47 |

| GRWTHREG | NONE | CHLORMEQ | MEAN |
|---|---|---|---|
| IRRIGTN | | | |
| NONE | 2.38 | 2.69 | 2.54 |
| FULL | 2.31 | 2.50 | 2.40 |
| | | | |
| MEAN | 2.35 | 2.60 | 2.47 |

| GRWTHREG | NONE | CHLORMEQ | MEAN |
|---|---|---|---|
| N | | | |
| 25 | 2.35 | 2.51 | 2.43 |
| 100 | 2.34 | 2.68 | 2.51 |
| | | | |
| MEAN | 2.35 | 2.60 | 2.47 |

| GRWTHREG | NONE | CHLORMEQ | MEAN |
|---|---|---|---|
| LODGING | | | |
| NONE | 3.60 | 3.89 | 3.74 |
| LODGED | 1.09 | 1.30 | 1.20 |
| | | | |
| MEAN | 2.35 | 2.60 | 2.47 |

| N | 25 | | 100 | |
|---|---|---|---|---|
| LODGING | NONE | LODGED | NONE | LODGED |
| IRRIGTN | | | | |
| NONE | 3.51 | 1.36 | 4.03 | 1.25 |
| FULL | 3.64 | 1.22 | 3.79 | 0.96 |

| N | 25 | | 100 | |
|---|---|---|---|---|
| GRWTHREG | NONE | CHLORMEQ | NONE | CHLORMEQ |
| IRRIGTN | | | | |
| NONE | 2.30 | 2.56 | 2.46 | 2.83 |
| FULL | 2.41 | 2.45 | 2.22 | 2.54 |

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GRAIN TONNES/HECTARE

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

| LODGING | NONE | | LODGED | |
|---|---|---|---|---|
| GRWTHREG | NONE | CHLORMEQ | NONE | CHLORMEQ |
| IRRIGTN | | | | |
| NONE | 3.56 | 3.99 | 1.20 | 1.40 |
| FULL | 3.65 | 3.79 | 0.97 | 1.21 |

| LODGING | NONE | | LODGED | |
|---|---|---|---|---|
| GRWTHREG | NONE | CHLORMEQ | NONE | CHLORMEQ |
| N | | | | |
| 25 | 3.53 | 3.62 | 1.18 | 1.39 |
| 100 | 3.68 | 4.15 | 0.99 | 1.22 |

| | LODGING | NONE | | LODGED | |
|---|---|---|---|---|---|
| | GRWTHREG | NONE | CHLORMEQ | NONE | CHLORMEQ |
| IRRIGTN | N | | | | |
| NONE | 25 | 3.35 | 3.67 | 1.25 | 1.46 |
| | 100 | 3.76 | 4.30 | 1.15 | 1.35 |
| FULL | 25 | 3.70 | 3.58 | 1.11 | 1.33 |
| | 100 | 3.59 | 3.99 | 0.84 | 1.08 |

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

| TABLE | N | LODGING | GRWTHREG | IRRIGTN*<br>N |
|---|---|---|---|---|
| SED | 0.065 | 0.065 | 0.065 | 0.092 |

| TABLE | IRRIGTN*<br>LODGING | N<br>LODGING | IRRIGTN*<br>GRWTHREG | N<br>GRWTHREG |
|---|---|---|---|---|
| SED | 0.092 | 0.092 | 0.092 | 0.092 |

| TABLE | LODGING<br>GRWTHREG | IRRIGTN*<br>N<br>LODGING | IRRIGTN*<br>N<br>GRWTHREG | IRRIGTN*<br>LODGING<br>GRWTHREG |
|---|---|---|---|---|
| SED | 0.092 | 0.129 | 0.129 | 0.129 |

| TABLE | N<br>LODGING<br>GRWTHREG | IRRIGTN*<br>N<br>LODGING<br>GRWTHREC | | |
|---|---|---|---|---|
| SED | 0.129 | 0.183 | | |

* WITHIN THE SAME LEVEL OF IRRIGTN ONLY

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

BLOCK.WP.SP          14          0.183          7.4

GRAIN MEAN DM%   76.0

SUB PLOT AREA HARVESTED   0.00087

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