

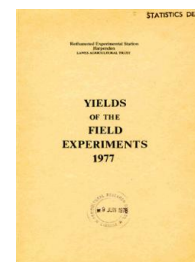
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77/R/WS/2 Irrigation, Lodging, N, Ccc and Microflora - S. Wheat

Rothamsted Research

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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 ('Tetralax 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.

77/R/WS/2

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 |

77/R/WS/2

GRAIN TONNES/HECTARE

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

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

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

| IRRIGTN | LODGING GRWTHREG N | NONE | | LODGED | |
|---------|--------------------------|------|----------|--------|----------|
| | | NONE | CHLORMEQ | NONE | CHLORMEQ |
| 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* N |
|-------|---|---------|----------|---------------|
|-------|---|---------|----------|---------------|

| | | | | |
|-----|-------|-------|-------|-------|
| SED | 0.065 | 0.065 | 0.065 | 0.092 |
|-----|-------|-------|-------|-------|

| TABLE | IRRIGTN* LODGING | N LODGING | IRRIGTN* GRWTHREG | N GRWTHREG |
|-------|---------------------|--------------|----------------------|---------------|
|-------|---------------------|--------------|----------------------|---------------|

| | | | | |
|-----|-------|-------|-------|-------|
| SED | 0.092 | 0.092 | 0.092 | 0.092 |
|-----|-------|-------|-------|-------|

| TABLE | LODGING GRWTHREG | IRRIGTN* N LODGING | IRRIGTN* N GRWTHREG | IRRIGTN* LODGING GRWTHREG |
|-------|---------------------|--------------------------|---------------------------|---------------------------------|
|-------|---------------------|--------------------------|---------------------------|---------------------------------|

| | | | | |
|-----|-------|-------|-------|-------|
| SED | 0.092 | 0.129 | 0.129 | 0.129 |
|-----|-------|-------|-------|-------|

| TABLE | N LODGING GRWTHREG | IRRIGTN* N LODGING GRWTHREG |
|-------|--------------------------|--------------------------------------|
|-------|--------------------------|--------------------------------------|

| | | |
|-----|-------|-------|
| 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