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Yields of the Field Experiments 1975

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75/ R&w/B/4 - Varieties, N & Fungicides - Barley

Rothamsted Research

Rothamsted Research (1976) 75/ R&w/B/4 - Varieties, N & Fungicides - Barley ; Yields Of The Field Experiments 1975, pp 309 - 313 - DOI: <https://doi.org/10.23637/ERADOC-1-141>

75/R/B/4 and 75/W/B/4

SPRING BARLEY

VARIETIES, N AND FUNGICIDES

Object: To study the yields of some of the newer varieties of barley. The effects of fungicides and a range of nitrogen rates are also studied - Rothamsted (R) Gt Knott II and Woburn (W) Far Field II.

Sponsors: R. Moffitt, J.F. Jenkyn.

Design: 2 randomised blocks of 18 plots split into 3.

Whole plot dimensions: 4.27 x 24.7.

Treatments: All combinations of:-

| | |
|--|-----------|
| Whole plots: 1. Varieties and mildew control: | VARIETY |
| Julia - no fungicide | JU O |
| Julia - seed dressed ethirimol | JU E |
| Julia - tridemorph spray at 0.53 kg in 220 l, early with weedkiller | JU TW |
| Julia - seed dressed MEB 6447 | JU M |
| Julia) | JU T |
| Aramir) | AR T |
| Hassan) sprayed tridemorph at 0.53 kg in | HA T |
| Lofa Abed) 450 l at recommended stage | LA T |
| Maris Mink) | MM T |
| 2. Rust fungicide: | FUNGICIDE |
| None | NONE |
| Benodanil at 1.12 kg in 450 l | BENODANI |
| Sub plots: 3. Nitrogen fertiliser (kg N): | N |
| 38 | 38 |
| 75 | 75 |
| 113 | 113 |

NOTE: At Woburn the planned FUNGICIDE treatment was not applied i.e. VARIETY treatments were duplicated in each block.

Basal applications:-

Great Knott II (R): Manures: (0:20:20) at 310 kg. Weedkiller: Dicamba, mecoprop and MCPA ('Tetralax Plus' at 7.0 l in 220 l).

Far Field II (W): Manures: (0:20:20) at 310 kg. Weedkiller: Ioxynil at 0.52 kg and mecoprop at 1.6 kg in 280 l.

Seed: Both sites varieties sown at 160 kg.

75/R/B/4 and 75/W/B/4

Cultivations, etc.:-

Great Knott II (R): Ploughed: 4-6 Nov, 1974. Spring-tine cultivated twice: 14 Apr, 21 Apr, 1975. Rotary harrowed: 22 Apr. Seed sown: 23 Apr. N applied: 30 Apr. Weedkiller applied to all plots tridemorph treatment applied with weedkiller: 6 June. Tridemorph applied: 20 June. Benodanil applied: 21 July. Combine harvested: 22 Aug. Previous crops: Beans 1973, winter wheat 1974.

Far Field II (W): Ploughed: 10-13 Jan, 1975. Spring-tine cultivated with crumbler twice: 21 Mar, 25 Mar. Seed sown: 25 Mar. N applied: 1 Apr. Weedkiller applied to all plots, tridemorph treatment applied with weedkiller: 20 May. Tridemorph applied: 20 June. Combine harvested: 11 Aug. Previous crops: Fallow 1973, barley 1974.

- NOTES: (1) Estimates of mildew (*Erysiphe graminis*) and other leaf diseases were made during the season.
- (2) GREAT KNOTT II (R). There was evidence of a linear fertility trend across the site and yields adjusted for this trend are presented.

75/R/B/4 GREAT KNOTT (R)

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

| FUNGCIDE | NONE | BENODANI | MEAN |
|----------|------|----------|------|
| VARIETY | | | |
| JU O | 3.45 | 3.68 | 3.57 |
| JU E | 3.93 | 3.87 | 3.90 |
| JU TW | 3.99 | 4.13 | 4.06 |
| JU M | 3.54 | 3.65 | 3.60 |
| JU T | 3.62 | 4.16 | 3.89 |
| AR T | 3.44 | 3.26 | 3.35 |
| HA T | 3.13 | 3.41 | 3.27 |
| LA T | 4.26 | 4.30 | 4.28 |
| MM T | 3.41 | 3.78 | 3.59 |
| MEAN | 3.64 | 3.80 | 3.72 |

| N | 38 | 75 | 113 | MEAN |
|---------|------|------|------|------|
| VARIETY | | | | |
| JU O | 3.16 | 3.71 | 3.83 | 3.57 |
| JU E | 3.37 | 3.95 | 4.38 | 3.90 |
| JU TW | 3.44 | 4.23 | 4.51 | 4.06 |
| JU M | 3.04 | 3.76 | 3.99 | 3.60 |
| JU T | 3.40 | 3.81 | 4.48 | 3.89 |
| AR T | 2.93 | 3.49 | 3.63 | 3.35 |
| HA T | 2.80 | 3.29 | 3.72 | 3.27 |
| LA T | 3.81 | 4.31 | 4.72 | 4.28 |
| MM T | 2.95 | 3.77 | 4.05 | 3.59 |
| MEAN | 3.21 | 3.81 | 4.15 | 3.72 |

| N | 38 | 75 | 113 | MEAN |
|----------|------|------|------|------|
| FUNGCIDE | | | | |
| NONE | 3.15 | 3.71 | 4.07 | 3.64 |
| BENODANI | 3.27 | 3.92 | 4.22 | 3.80 |
| MEAN | 3.21 | 3.81 | 4.15 | 3.72 |

| FUNGCIDE | NONE | BENODANI | | | | |
|----------|------|----------|------|------|------|------|
| N | 38 | 75 | 113 | 38 | 75 | 113 |
| VARIETY | | | | | | |
| JU O | 3.11 | 3.60 | 3.66 | 3.22 | 3.83 | 4.00 |
| JU E | 3.35 | 3.92 | 4.52 | 3.39 | 3.97 | 4.25 |
| JU TW | 3.23 | 4.15 | 4.60 | 3.65 | 4.30 | 4.43 |
| JU M | 2.91 | 3.79 | 3.92 | 3.17 | 3.72 | 4.06 |
| JU T | 3.18 | 3.56 | 4.12 | 3.61 | 4.05 | 4.83 |
| AR T | 3.11 | 3.55 | 3.65 | 2.74 | 3.43 | 3.60 |
| HA T | 2.85 | 2.99 | 3.56 | 2.75 | 3.59 | 3.88 |
| LA T | 3.84 | 4.29 | 4.64 | 3.77 | 4.33 | 4.80 |
| MM T | 2.74 | 3.52 | 3.97 | 3.16 | 4.03 | 4.14 |

75/R/B/4 GREAT KNOTT (R)

GRAIN TONNES/HECTARE

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

| TABLE | VARIETY | FUNGCIDE | N | VARIETY FUNGCIDE |
|-------|---------|----------|-------|---------------------|
| REP | 12 | 54 | 36 | 6 |
| SED | 0.196 | 0.090 | 0.063 | 0.278 |

| TABLE | VARIETY N | FUNGCIDE N | VARIETY FUNGCIDE N |
|--|--------------|---------------|--------------------------|
| REP | 4 | 18 | 2 |
| SED | 0.247 | 0.116 | 0.350 |
| EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF: | | | |
| VARIETY | 0.190 | | |
| FUNGCIDE | | 0.089 | |
| VARIETY.FUNGCIDE | | | 0.269 |

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

| STRATUM | DF | SE | CV% |
|-------------|----|-------|-----|
| BLOCK.WP | 16 | 0.270 | 7.3 |
| BLOCK.WP.SP | 36 | 0.267 | 7.2 |

GRAIN MEAN DM% 81.7

SUB PLOT AREA HARVESTED 0.00163

75/W/B/4 FAR FIELD II (W)

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

| VARIETY | N | 38 | 75 | 113 | MEAN |
|---------|---|------|------|------|------|
| JU O | | 4.15 | 5.33 | 5.59 | 5.02 |
| JU E | | 4.10 | 5.29 | 5.81 | 5.07 |
| JU TW | | 4.09 | 5.57 | 5.82 | 5.16 |
| JU M | | 4.30 | 5.36 | 5.75 | 5.14 |
| JU T | | 4.13 | 5.43 | 5.80 | 5.12 |
| AR T | | 3.95 | 5.43 | 6.12 | 5.16 |
| HA T | | 4.07 | 5.37 | 5.86 | 5.10 |
| LA T | | 4.25 | 5.66 | 6.64 | 5.52 |
| MM T | | 4.64 | 4.91 | 5.99 | 5.18 |
| MEAN | | 4.19 | 5.37 | 5.93 | 5.16 |

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

| TABLE | VARIETY | N | VARIETY | N |
|--|---------|-------|---------|---|
| SED | 0.188 | 0.085 | 0.282 | |
| EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF: | | | | |
| VARIETY | | | 0.256 | |

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

| STRATUM | DF | SE | CV% |
|-------------|----|-------|-----|
| BLOCK.WP | 26 | 0.267 | 5.2 |
| BLOCK.WP.SP | 54 | 0.362 | 7.0 |

GRAIN MEAN DM% 89.3

SUB PLOT AREA HARVESTED 0.00217