

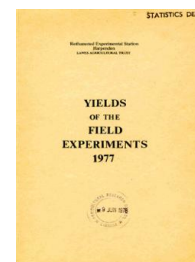
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Yields of the Field Experiments 1977

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77/S/C/1 Varieties, N and Ccc - Barley

Rothamsted Research

Rothamsted Research (1978) *77/S/C/1 Varieties, N and Ccc - Barley* ; Yields Of The Field Experiments 1977, pp 302 - 311 - DOI: <https://doi.org/10.23637/ERADOC-1-29>

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VARIETIES, N AND CCC

Object: To study the effects of varieties, fungicides, and rates and times of applying nitrogen fertiliser on the incidence of foliar diseases and on yield of barley - Saxmundham, Oldershaw's and Garner's plots.

Sponsors: F.V. Widdowson, A.E. Johnston

The 12th year, barley.

For previous years see 66/C/30(t), 67/C/23(t), 68/C/39, 69-70/S/CS/1, 71/S/CS/1(t), 72/S/CS/1(t) and 73-76/S/CS/1.

Design: A single replicate of 2^6 in 4 blocks of 4 plots each split into half and quarter plots, plus one additional plot per block similarly split. Treatments to wheat 1966-1976 have been ignored.

Whole plot dimensions: 5.49 x 40.2.

Treatments: All combinations of:-

Whole plots

1. VARIETY Varieties:-

JULIA
WING

2. MILDFUNG Fungicides to control mildew:

NONE None
ETH+TRI Ethirimol seed dressing + tridemorph foliar spray

Half plots

3. S N RATE Rates of solid nitrogen fertiliser (kg N):

50
100

4. S N TIME Times of applying solid nitrogen fertiliser:

SEEDBED Seedbed on 7 Apr, 1977
TOPDRESS Top dressed on 19 May

Quarter plots

5. L N RATE Rates of liquid nitrogen fertiliser (kg N):

0
50 (half 15 June, half 6 July)

6. RUSTFUNG Fungicide to control rust:

NONE None
BENODANI Benodanil foliar spray

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XTRA WMR Plus one additional whole plot per block sown to variety Wing, seed dressed ethirimol, given foliar sprays of tridemorph and benodanil and testing all combinations of:

Half plots

1. S N Rates of solid nitrogen fertiliser (kg N):

25+25 25 to seedbed + 25 top dressed
50+50 50 to seedbed + 50 top dressed

Quarter plots

2. L N Rates of liquid nitrogen fertiliser (kg N):

0 None
25+25 25 on 15 June + 25 on 6 July

NOTES: (1) Tridemorph at 0.53 kg applied with the weedkillers on 25 May.
(2) Benodanil applied at 1.12 kg in 340 l on 15 June and 6 July.

Basal applications: Manures: P_2O_5 at 50 kg with K_2O at 50 kg applied as (0:20:20).
Weedkillers: Ioxynil at 0.42 kg with mecoprop at 1.3 kg applied in 340 l.

Seed: Sown at 190 kg.

Cultivations, etc.: - Ploughed: 23 Nov, 1976. Seed sown, PK applied: 6 Apr, 1977.
Weedkillers applied: 25 May. Combine harvested: 8 Sept.

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GRAIN TONNES/HECTARE

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

| MILDFUNG VARIETY | NONE | ETH+TRI | MEAN |
|------------------|------|---------|------|
| JULIA | 4.34 | 4.56 | 4.45 |
| WING | 4.35 | 4.62 | 4.48 |
| MEAN | 4.34 | 4.59 | 4.46 |

| S N RATE VARIETY | 50 | 100 | MEAN |
|------------------|------|------|------|
| JULIA | 4.02 | 4.87 | 4.45 |
| WING | 4.13 | 4.83 | 4.48 |
| MEAN | 4.08 | 4.85 | 4.46 |

| S N RATE MILDFUNG | 50 | 100 | MEAN |
|-------------------|------|------|------|
| NONE | 4.06 | 4.62 | 4.34 |
| ETH+TRI | 4.09 | 5.08 | 4.59 |
| MEAN | 4.08 | 4.85 | 4.46 |

| S N TIME VARIETY | SEEDBED | TOPDRESS | MEAN |
|------------------|---------|----------|------|
| JULIA | 4.86 | 4.03 | 4.45 |
| WING | 4.80 | 4.16 | 4.48 |
| MEAN | 4.83 | 4.09 | 4.46 |

| S N TIME MILDFUNG | SEEDBED | TOPDRESS | MEAN |
|-------------------|---------|----------|------|
| NONE | 4.80 | 3.89 | 4.34 |
| ETH+TRI | 4.87 | 4.30 | 4.59 |
| MEAN | 4.83 | 4.09 | 4.46 |

| S N TIME S N RATE | SEEDBED | TOPDRESS | MEAN |
|-------------------|---------|----------|------|
| 50 | 4.26 | 3.89 | 4.08 |
| 100 | 5.40 | 4.30 | 4.85 |
| MEAN | 4.83 | 4.09 | 4.46 |

| L N RATE VARIETY | 0 | 50 | MEAN |
|------------------|------|------|------|
| JULIA | 4.38 | 4.52 | 4.45 |
| WING | 4.42 | 4.54 | 4.48 |
| MEAN | 4.40 | 4.53 | 4.46 |

| L N RATE MILDFUNG | 0 | 50 | MEAN |
|-------------------|------|------|------|
| NONE | 4.28 | 4.40 | 4.34 |
| ETH+TRI | 4.52 | 4.65 | 4.59 |
| MEAN | 4.40 | 4.53 | 4.46 |

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GRAIN TONNES/HECTARE

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

| | | | | |
|----------|------|----------|---------|------|
| L N RATE | 0 | 50 | MEAN | |
| S N RATE | | | | |
| 50 | 3.92 | 4.23 | 4.08 | |
| 100 | 4.88 | 4.83 | 4.85 | |
| MEAN | 4.40 | 4.53 | 4.46 | |
| L N RATE | 0 | 50 | MEAN | |
| S N TIME | | | | |
| SEEDBED | 4.72 | 4.95 | 4.83 | |
| TOPDRESS | 4.08 | 4.11 | 4.09 | |
| MEAN | 4.40 | 4.53 | 4.46 | |
| RUSTFUNG | NONE | BENODANI | MEAN | |
| VARIETY | | | | |
| JULIA | 4.36 | 4.53 | 4.45 | |
| WING | 4.34 | 4.62 | 4.48 | |
| MEAN | 4.35 | 4.58 | 4.46 | |
| RUSTFUNG | NONE | BENODANI | MEAN | |
| MILDFUNG | | | | |
| NONE | 4.26 | 4.42 | 4.34 | |
| ETH+TRI | 4.44 | 4.73 | 4.59 | |
| MEAN | 4.35 | 4.58 | 4.46 | |
| RUSTFUNG | NONE | BENODANI | MEAN | |
| S N RATE | | | | |
| 50 | 3.99 | 4.16 | 4.08 | |
| 100 | 4.71 | 4.99 | 4.85 | |
| MEAN | 4.35 | 4.58 | 4.46 | |
| RUSTFUNG | NONE | BENODANI | MEAN | |
| S N TIME | | | | |
| SEEDBED | 4.75 | 4.92 | 4.83 | |
| TOPDRESS | 3.95 | 4.24 | 4.09 | |
| MEAN | 4.35 | 4.58 | 4.46 | |
| RUSTFUNG | NONE | BENODANI | MEAN | |
| L N RATE | | | | |
| 0 | 4.31 | 4.49 | 4.40 | |
| 50 | 4.39 | 4.67 | 4.53 | |
| MEAN | 4.35 | 4.58 | 4.46 | |
| MILDFUNG | NONE | | ETH+TRI | |
| S N RATE | 50 | 100 | 50 | 100 |
| VARIETY | | | | |
| JULIA | 4.02 | 4.66 | 4.02 | 5.09 |
| WING | 4.11 | 4.59 | 4.15 | 5.08 |

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GRAIN TONNES/HECTARE

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

| | | | | |
|----------|---------|----------|----------|----------|
| MILDFUNG | NONE | | ETH+TRI | |
| S N TIME | SEEDBED | TOPDRESS | SEEDBED | TOPDRESS |
| VARIETY | | | | |
| JULIA | 4.92 | 3.75 | 4.80 | 4.31 |
| WING | 4.67 | 4.02 | 4.93 | 4.30 |
| S N RATE | 50 | | 100 | |
| S N TIME | SEEDBED | TOPDRESS | SEEDBED | TOPDRESS |
| VARIETY | | | | |
| JULIA | 4.20 | 3.84 | 5.53 | 4.22 |
| WING | 4.33 | 3.93 | 5.28 | 4.39 |
| S N RATE | 50 | | 100 | |
| S N TIME | SEEDBED | TOPDRESS | SEEDBED | TOPDRESS |
| MILDFUNG | | | | |
| NONE | 4.39 | 3.74 | 5.20 | 4.04 |
| ETH+TRI | 4.14 | 4.03 | 5.60 | 4.57 |
| MILDFUNG | NONE | | ETH+TRI | |
| L N RATE | 0 | 50 | 0 | 50 |
| VARIETY | | | | |
| JULIA | 4.29 | 4.39 | 4.46 | 4.65 |
| WING | 4.28 | 4.42 | 4.57 | 4.66 |
| S N RATE | 50 | | 100 | |
| L N RATE | 0 | 50 | 0 | 50 |
| VARIETY | | | | |
| JULIA | 3.89 | 4.15 | 4.86 | 4.89 |
| WING | 3.95 | 4.31 | 4.90 | 4.76 |
| S N RATE | 50 | | 100 | |
| L N RATE | 0 | 50 | 0 | 50 |
| MILDFUNG | | | | |
| NONE | 3.90 | 4.22 | 4.66 | 4.58 |
| ETH+TRI | 3.94 | 4.24 | 5.10 | 5.07 |
| S N TIME | SEEDBED | | TOPDRESS | |
| L N RATE | 0 | 50 | 0 | 50 |
| VARIETY | | | | |
| JULIA | 4.75 | 4.98 | 4.00 | 4.06 |
| WING | 4.69 | 4.91 | 4.15 | 4.17 |
| S N TIME | SEEDBED | | TOPDRESS | |
| L N RATE | 0 | 50 | 0 | 50 |
| MILDFUNG | | | | |
| NONE | 4.72 | 4.88 | 3.85 | 3.92 |
| ETH+TRI | 4.73 | 5.01 | 4.31 | 4.30 |
| S N TIME | SEEDBED | | TOPDRESS | |
| L N RATE | 0 | 50 | 0 | 50 |
| S N RATE | | | | |
| 50 | 4.06 | 4.47 | 3.78 | 3.99 |
| 100 | 5.39 | 5.42 | 4.37 | 4.24 |

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GRAIN TONNES/HECTARE

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

| MILDFUNG | NONE | | ETH+TRI | |
|----------|------|----------|---------|----------|
| RUSTFUNG | NONE | BENODANI | NONE | BENODANI |
| VARIETY | | | | |
| JULIA | 4.28 | 4.40 | 4.45 | 4.66 |
| WING | 4.24 | 4.45 | 4.43 | 4.80 |

| S N RATE | 50 | | 100 | |
|----------|------|----------|------|----------|
| RUSTFUNG | NONE | BENODANI | NONE | BENODANI |
| VARIETY | | | | |
| JULIA | 3.98 | 4.06 | 4.75 | 5.00 |
| WING | 4.00 | 4.26 | 4.68 | 4.99 |

| S N RATE | 50 | | 100 | |
|----------|------|----------|------|----------|
| RUSTFUNG | NONE | BENODANI | NONE | BENODANI |
| MILDFUNG | | | | |
| NONE | 3.98 | 4.14 | 4.54 | 4.70 |
| ETH+TRI | 4.00 | 4.18 | 4.88 | 5.28 |

| S N TIME | SEEDBED | | TOPDRESS | |
|----------|---------|----------|----------|----------|
| RUSTFUNG | NONE | BENODANI | NONE | BENODANI |
| VARIETY | | | | |
| JULIA | 4.81 | 4.92 | 3.92 | 4.14 |
| WING | 4.69 | 4.91 | 3.99 | 4.33 |

| S N TIME | SEEDBED | | TOPDRESS | |
|----------|---------|----------|----------|----------|
| RUSTFUNG | NONE | BENODANI | NONE | BENODANI |
| MILDFUNG | | | | |
| NONE | 4.73 | 4.86 | 3.79 | 3.99 |
| ETH+TRI | 4.77 | 4.97 | 4.11 | 4.49 |

| S N TIME | SEEDBED | | TOPDRESS | |
|----------|---------|----------|----------|----------|
| RUSTFUNG | NONE | BENODANI | NONE | BENODANI |
| S N RATE | | | | |
| 50 | 4.24 | 4.29 | 3.74 | 4.03 |
| 100 | 5.26 | 5.54 | 4.16 | 4.44 |

| L N RATE | 0 | | 50 | |
|----------|------|----------|------|----------|
| RUSTFUNG | NONE | BENODANI | NONE | BENODANI |
| VARIETY | | | | |
| JULIA | 4.33 | 4.42 | 4.40 | 4.64 |
| WING | 4.30 | 4.55 | 4.38 | 4.70 |

| L N RATE | 0 | | 50 | |
|----------|------|----------|------|----------|
| RUSTFUNG | NONE | BENODANI | NONE | BENODANI |
| MILDFUNG | | | | |
| NONE | 4.21 | 4.36 | 4.32 | 4.49 |
| ETH+TRI | 4.42 | 4.61 | 4.46 | 4.85 |

| L N RATE | 0 | | 50 | |
|----------|------|----------|------|----------|
| RUSTFUNG | NONE | BENODANI | NONE | BENODANI |
| S N RATE | | | | |
| 50 | 3.92 | 3.92 | 4.06 | 4.40 |
| 100 | 4.71 | 5.05 | 4.71 | 4.94 |

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GRAIN TONNES/HECTARE

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

| L N RATE | 0 | | 50 | |
|----------|---------------|------|---------------|------|
| RUSTFUNG | NONE BENODANI | | NONE BENODANI | |
| S N TIME | | | | |
| SEEDBED | 4.72 | 4.73 | 4.79 | 5.11 |
| TOPDRESS | 3.91 | 4.25 | 3.99 | 4.23 |

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

| TABLE | VARIETY | MILDFUNG | S N RATE | S N TIME |
|-------|---------|----------|----------|----------|
| SED | 0.158 | 0.158 | 0.087 | 0.087 |

| TABLE | L N RATE | RUSTFUNG | VARIETY MILDFUNG | VARIETY S N RATE |
|---|----------|----------|---------------------|---------------------|
| SED | 0.062 | 0.062 | 0.224 | 0.181 |
| EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF: VARIETY | | | | 0.123 |

| TABLE | MILDFUNG S N RATE | VARIETY S N TIME | MILDFUNG S N TIME | S N RATE S N TIME |
|---|----------------------|---------------------|----------------------|----------------------|
| SED | 0.181 | 0.181 | 0.181 | 0.123 |
| EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF: VARIETY | | | | 0.123 |
| MILDFUNG | 0.123 | | 0.123 | |
| S N RATE | | | | 0.181 |
| S N TIME | | | | 0.181 |

| TABLE | VARIETY L N RATE | MILDFUNG L N RATE | S N RATE L N RATE | S N TIME L N RATE |
|---|---------------------|----------------------|----------------------|----------------------|
| SED | 0.170 | 0.170 | 0.107 | 0.107 |
| EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF: VARIETY | | | | 0.088 |
| MILDFUNG | | 0.088 | | |
| S N RATE | | | 0.088 | |
| S N TIME | | | | 0.088 |

| TABLE | VARIETY RUSTFUNG | MILDFUNG RUSTFUNG | S N RATE RUSTFUNG | S N TIME RUSTFUNG |
|---|---------------------|----------------------|----------------------|----------------------|
| SED | 0.170 | 0.170 | 0.107 | 0.107 |
| EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF: VARIETY | | | | 0.088 |
| MILDFUNG | | 0.088 | | |
| S N RATE | | | 0.088 | |
| S N TIME | | | | 0.088 |

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GRAIN TONNES/HECTARE

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

| TABLE | L N RATE RUSTFUNG | VARIETY MILDFUNG S N RATE | VARIETY MILDFUNG S N TIME | VARIETY S N RATE S N TIME |
|-------|----------------------|---------------------------------|---------------------------------|---------------------------------|
|-------|----------------------|---------------------------------|---------------------------------|---------------------------------|

| | | | | |
|--|-------|-------|-------|-------|
| SED | 0.088 | 0.256 | 0.256 | 0.256 |
| EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF: | | | | |
| VARIETY | | | | 0.174 |
| L N RATE | 0.107 | | | |
| RUSTFUNG | 0.107 | | | |
| VARIETY.MILDFUNG | | 0.174 | 0.174 | |

| TABLE | MILDFUNG S N RATE S N TIME | VARIETY MILDFUNG L N RATE | VARIETY S N RATE L N RATE | MILDFUNG S N RATE L N RATE |
|-------|----------------------------------|---------------------------------|---------------------------------|----------------------------------|
|-------|----------------------------------|---------------------------------|---------------------------------|----------------------------------|

| | | | | |
|--|-------|-------|-------|-------|
| SED | 0.256 | 0.241 | 0.201 | 0.201 |
| EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF: | | | | |
| VARIETY | | | 0.151 | |
| MILDFUNG | 0.174 | | | 0.151 |
| VARIETY.MILDFUNG | | 0.124 | | |
| VARIETY.S N RATE | | | 0.124 | |
| MILDFUNG.S N RATE | | | | 0.124 |

| TABLE | VARIETY S N TIME L N RATE | MILDFUNG S N TIME L N RATE | S N RATE S N TIME L N RATE | VARIETY MILDFUNG RUSTFUNG |
|-------|---------------------------------|----------------------------------|----------------------------------|---------------------------------|
|-------|---------------------------------|----------------------------------|----------------------------------|---------------------------------|

| | | | | |
|--|-------|-------|-------|-------|
| SED | 0.201 | 0.201 | 0.151 | 0.241 |
| EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF: | | | | |
| VARIETY | 0.151 | | | |
| MILDFUNG | | 0.151 | | |
| S N RATE | | | 0.201 | |
| S N TIME | | | 0.201 | |
| VARIETY.MILDFUNG | | | | 0.124 |
| VARIETY.S N TIME | 0.124 | | | |
| MILDFUNG.S N TIME | | 0.124 | | |
| S N RATE.S N TIME | | | 0.124 | |

| TABLE | VARIETY S N RATE RUSTFUNG | MILDFUNG S N RATE RUSTFUNG | VARIETY S N TIME RUSTFUNG | MILDFUNG S N TIME RUSTFUNG |
|-------|---------------------------------|----------------------------------|---------------------------------|----------------------------------|
|-------|---------------------------------|----------------------------------|---------------------------------|----------------------------------|

| | | | | |
|--|-------|-------|-------|-------|
| SED | 0.201 | 0.201 | 0.201 | 0.201 |
| EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF: | | | | |
| VARIETY | 0.151 | | 0.151 | |
| MILDFUNG | | 0.151 | | 0.151 |
| VARIETY.S N RATE | 0.124 | | | |
| MILDFUNG.S N RATE | | 0.124 | | |
| VARIETY.S N TIME | | | 0.124 | |
| MILDFUNG.S N TIME | | | | 0.124 |

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GRAIN TONNES/HECTARE

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

| TABLE | S N RATE S N TIME RUSTFUNG | VARIETY L N RATE RUSTFUNG | MILDFUNG L N RATE RUSTFUNG | S N RATE L N RATE RUSTFUNG |
|--|----------------------------------|---------------------------------|----------------------------------|----------------------------------|
| SED | 0.151 | 0.201 | 0.201 | 0.201 |
| EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF: | | | | |
| VARIETY | | 0.124 | | |
| MILDFUNG | | | 0.124 | |
| S N RATE | 0.201 | | | 0.124 |
| S N TIME | 0.201 | | | |
| L N RATE | | | | 0.151 |
| RUSTFUNG | | | | 0.151 |
| S N RATE.S N TIME | 0.124 | | | |
| VARIETY.L N RATE | | 0.151 | | |
| MILDFUNG.L N RATE | | | 0.151 | |
| VARIETY.RUSTFUNG | | 0.151 | | |
| MILDFUNG.RUSTFUNG | | | 0.151 | |

| TABLE | S N TIME L N RATE RUSTFUNG |
|--|----------------------------------|
| SED | 0.201 |
| EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF: | |
| S N TIME | 0.124 |
| L N RATE | 0.151 |
| RUSTFUNG | 0.151 |

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

| STRATUM | DF | SE | CV% |
|----------------|----|-------|-----|
| BLOCK.WP | 4 | 0.317 | 7.1 |
| BLOCK.WP.HP | 5 | 0.246 | 5.5 |
| BLOCK.WP.HP.QP | 10 | 0.249 | 5.6 |

GRAIN MEAN DM% 84.2

SUB PLOT AREA HARVESTED 0.00479

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XTRA WMR

GRAIN TONNES/HECTARE

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

| S N | 25+25 | 50+50 | MEAN |
|-------|-------|-------|------|
| L N | | | |
| 25+25 | 4.47 | 5.45 | 4.96 |
| 50+50 | 4.74 | 5.45 | 5.10 |
| MEAN | 4.60 | 5.45 | 5.03 |

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

| TABLE | S N | L N | S N L N |
|--|-------|-------|------------|
| SED | 0.116 | 0.100 | 0.154 |
| EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF: | | | |
| S N | | | 0.142 |

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

| STRATUM | DF | SE | CV% |
|-------------------------|---------|-------|-----|
| BLOCK.WP.HP.QP | 6 | 0.201 | 4.0 |
| GRAIN MEAN DM% | 83.9 | | |
| SUB PLOT AREA HARVESTED | 0.00479 | | |