

Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readable, or you suspect there are some problems, please let us know and we will correct that.



ROTHAMSTED
RESEARCH

Yields of the Field Experiments 1976

[Full Table of Content](#)



Barley

Rothamsted Research

Rothamsted Research (1977) *Barley* ; Yields Of The Field Experiments 1976, pp 294 - 320 - DOI: <https://doi.org/10.23637/ERADOC-1-15>

76/R/B/1

WINTER BARLEY

FACTORS AFFECTING MILDEW CONTROL AND YIELD

Object: To study the effects and interactions of sowing date, seed rate, mildew control and timing of spring nitrogen on the incidence of mildew and yield of winter barley - Gt. Knott 1.

Sponsors: A. Bainbridge, M.E. Finney, J.F. Jenkyn.

Design: Single replicate of 2 x 2 x 2 x 2 x 2 x 2.

Whole plot dimensions: 2.13 x 6.10.

Treatments: All combinations of:-

1. SOW DATE Sowing Dates:

| | |
|---------|--------------|
| 24 SEPT | 24 September |
| 6 NOV | 6 November |

2. SEEDRATE Seed Rates (kg):

| | |
|-----|-----|
| 78 | 78 |
| 156 | 156 |

3. TRIDEMOR(1) Tridemorph foliar spray to early growth:

| | |
|---------|--|
| NONE | None |
| SPRAYED | Sprayed (14 Nov to SOW DATE 24 SEPT, 25 Feb to SOW DATE 6 NOV) |

4. TRIDEMOR(2) Tridemorph foliar spray in April:

| | |
|---------|-----------------|
| NONE | None |
| SPRAYED | Sprayed (9 Apr) |

5. TRIDEMOR(3) Tridemorph foliar spray in May:

| | |
|---------|------------------|
| NONE | None |
| SPRAYED | Sprayed (13 May) |

6. N TIME Time of applying nitrogen (at 75 kg):

| | |
|-------|---------------------|
| MARCH | Early March (9 Mar) |
| APRIL | Late April (27 Apr) |

NOTE: Tridemorph applied at 0.53 kg in 340 l.

Basal applications: Weedkillers: Mecoprop at 1.7 kg in 340 l.

Seed: Astrix.

Cultivations, etc.: - Ploughed: 16 Sept, 1975. Spring-tine cultivated twice: 16, 17 Sept. Rotary harrowed for early sowing: 22 Sept. Power harrowed for late sowing: 6 Nov. Weedkiller applied: 13 Nov. Combine harvested: 8 July, 1976. Previous crops: Winter wheat 1974, beans 1975.

NOTE: Seedling emergence counts were made. Leaf diseases were assessed on six occasions. Ear counts were made in early July.

76/R/B/1

GRAIN TONNES/HECTARE

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

| | | | |
|-------------|------|---------|------|
| SEEDRATE | 78 | 156 | MEAN |
| SOW DATE | | | |
| 24 SEPT | 7.78 | 8.02 | 7.90 |
| 6 NOV | 4.41 | 4.44 | 4.42 |
| MEAN | 6.09 | 6.23 | 6.16 |
| TRIDEMOR(1) | NONE | SPRAYED | MEAN |
| SOW DATE | | | |
| 24 SEPT | 7.66 | 8.14 | 7.90 |
| 6 NOV | 4.27 | 4.57 | 4.42 |
| MEAN | 5.97 | 6.35 | 6.16 |
| TRIDEMOR(1) | NONE | SPRAYED | MEAN |
| SEEDRATE | | | |
| 78 | 5.90 | 6.28 | 6.09 |
| 156 | 6.03 | 6.43 | 6.23 |
| MEAN | 5.97 | 6.35 | 6.16 |
| TRIDEMOR(2) | NONE | SPRAYED | MEAN |
| SOW DATE | | | |
| 24 SEPT | 7.66 | 8.14 | 7.90 |
| 6 NOV | 4.25 | 4.60 | 4.42 |
| MEAN | 5.95 | 6.37 | 6.16 |
| TRIDEMOR(2) | NONE | SPRAYED | MEAN |
| SEEDRATE | | | |
| 78 | 5.98 | 6.20 | 6.09 |
| 156 | 5.93 | 6.54 | 6.23 |
| MEAN | 5.95 | 6.37 | 6.16 |
| TRIDEMOR(2) | NONE | SPRAYED | MEAN |
| TRIDEMOR(1) | | | |
| NONE | 5.78 | 6.15 | 5.97 |
| SPRAYED | 6.12 | 6.59 | 6.35 |
| MEAN | 5.95 | 6.37 | 6.16 |
| TRIDEMOR(3) | NONE | SPRAYED | MEAN |
| SOW DATE | | | |
| 24 SEPT | 7.80 | 8.00 | 7.90 |
| 6 NOV | 4.35 | 4.49 | 4.42 |
| MEAN | 6.08 | 6.24 | 6.16 |
| TRIDEMOR(3) | NONE | SPRAYED | MEAN |
| SEEDRATE | | | |
| 78 | 5.99 | 6.19 | 6.09 |
| 156 | 6.17 | 6.29 | 6.23 |
| MEAN | 6.08 | 6.24 | 6.16 |

76/R/B/1

GRAIN TONNES/HECTARE

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

| | | | |
|-------------|-------|---------|------|
| TRIDEMOR(3) | NONE | SPRAYED | MEAN |
| TRIDEMOR(1) | | | |
| NONE | 5.96 | 5.98 | 5.97 |
| SPRAYED | 6.20 | 6.51 | 6.35 |
| MEAN | 6.08 | 6.24 | 6.16 |
| TRIDEMOR(3) | NONE | SPRAYED | MEAN |
| TRIDEMOR(2) | | | |
| NONE | 5.78 | 6.13 | 5.95 |
| SPRAYED | 6.38 | 6.36 | 6.37 |
| MEAN | 6.08 | 6.24 | 6.16 |
| N TIME | MARCH | APRIL | MEAN |
| SOW DATE | | | |
| 24 SEPT | 7.69 | 8.11 | 7.90 |
| 6 NOV | 4.25 | 4.59 | 4.42 |
| MEAN | 5.97 | 6.35 | 6.16 |
| N TIME | MARCH | APRIL | MEAN |
| SEEDRATE | | | |
| 78 | 5.88 | 6.31 | 6.09 |
| 156 | 6.06 | 6.40 | 6.23 |
| MEAN | 5.97 | 6.35 | 6.16 |
| N TIME | MARCH | APRIL | MEAN |
| TRIDEMOR(1) | | | |
| NONE | 5.78 | 6.16 | 5.97 |
| SPRAYED | 6.16 | 6.54 | 6.35 |
| MEAN | 5.97 | 6.35 | 6.16 |
| N TIME | MARCH | APRIL | MEAN |
| TRIDEMOR(2) | | | |
| NONE | 5.84 | 6.07 | 5.95 |
| SPRAYED | 6.10 | 6.63 | 6.37 |
| MEAN | 5.97 | 6.35 | 6.16 |
| N TIME | MARCH | APRIL | MEAN |
| TRIDEMOR(3) | | | |
| NONE | 5.86 | 6.29 | 6.08 |
| SPRAYED | 6.08 | 6.41 | 6.24 |
| MEAN | 5.97 | 6.35 | 6.16 |

76/R/B/1

GRAIN TONNES/HECTARE

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

| TABLE | SOW DATE | SEEDRATE | TRIDEMOR(1) | TRIDEMOR(2) |
|-------|----------|----------|-------------|-------------|
| SED | 0.124 | 0.124 | 0.124 | 0.124 |

| TABLE | TRIDEMOR(3) | N TIME | SOW DATE SEEDRATE | SOW DATE TRIDEMOR(1) |
|-------|-------------|--------|----------------------|-------------------------|
| SED | 0.124 | 0.124 | 0.175 | 0.175 |

| TABLE | SEEDRATE TRIDEMOR(1) | SOW DATE TRIDEMOR(2) | SEEDRATE TRIDEMOR(2) | TRIDEMOR(1) TRIDEMOR(2) |
|-------|-------------------------|-------------------------|-------------------------|----------------------------|
| SED | 0.175 | 0.175 | 0.175 | 0.175 |

| TABLE | SOW DATE TRIDEMOR(3) | SEEDRATE TRIDEMOR(3) | TRIDEMOR(1) TRIDEMOR(3) | TRIDEMOR(2) TRIDEMOR(3) |
|-------|-------------------------|-------------------------|----------------------------|----------------------------|
| SED | 0.175 | 0.175 | 0.175 | 0.175 |

| TABLE | SOW DATE N TIME | SEEDRATE N TIME | TRIDEMOR(1) N TIME | TRIDEMOR(2) N TIME |
|-------|--------------------|--------------------|-----------------------|-----------------------|
| SED | 0.175 | 0.175 | 0.175 | 0.175 |

| TABLE | TRIDEMOR(3) N TIME |
|-------|-----------------------|
| SED | 0.175 |

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

| STRATUM | DF | SE | CV% |
|---------|----|-------|-----|
| WP | 22 | 0.495 | 8.0 |

GRAIN MEAN DM% 89.0

PLOT AREA HARVESTED 0.00130

76/R/B/3 and 76/W/B/3

SPRING BARLEY

VARIETIES AND N

Object: To study the yields of some of the newer varieties of barley.
Three nitrogen rates are included and on one variety the effects of
mildew control are also studied - Rothamsted (R) Pastures and
Woburn (W) Horsepool Lane Close E.

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

Design: 4 randomised blocks of 11 plots split into 3.

Whole plot dimensions: Pastures (R): 4.27 x 24.7.
Horsepool Lane Close (W): 4.27 x 20.1.

Treatments: All combinations of:-

Whole plots

1. VARIETY Varieties and mildew control:

| | | |
|--------|---|---------------------------|
| JU H - | Julia, home-grown seed, no fungicide | |
| JU H E | Julia, home-grown seed, dressed ethirimol | |
| JU H T | Julia, home-grown seed, crop sprayed tridemorph (2 plots/block) | |
| JU M T | Julia, multiplication stock, crop sprayed tridemorph | |
| AM T | Aramir |) |
| AR T | Ark Royal |) |
| GE T | Georgie |) crop sprayed tridemorph |
| LA T | Lofa Abed |) |
| PO T | Porthos |) |
| SU T | Sundance |) |

Sub plots

2. N Nitrogen fertiliser (kg N):

| | |
|-----|-----|
| 38 | 38 |
| 75 | 75 |
| 113 | 113 |

- NOTES: (1) Pastures (R): Tridemorph applied at 0.53 kg in 450 l: 27 May.
(2) Horsepool Lane Close (W): Tridemorph applied at 0.53 kg in 280 l:
27 May.
(3) On Pastures (R) all sub plots of one plot of (JU H -)
received tridemorph in error. Estimated values were used in
the analysis.

Basal applications: Pastures (R): Manures: (0:20:20) at 310 kg, combine
drilled. Weedkillers: Paraquat at 0.42 kg ion in 220 l. Dicamba with
mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l).
Horsepool Lane Close (W): Manures: (0:20:20) at 310 kg, combine drilled.
Weedkiller: Ioxynil at 0.5³ kg and mecoprop at 1.6 kg in 280 l. Ioxynil at 0.42 kg
and mecoprop at 1.3 kg in 280 l.

NOTE: The second application of weedkiller on Horsepool Lane Close was applied
with tridemorph where this was applied as a treatment, and separately to
remaining plots.

Seed: Pastures (R): Varieties sown at 150 kg.
Horsepool Lane Close (W): Varieties sown at 160 kg.

76/R/B/3 and 76/W/B/3

Cultivations, etc.:-

Pastures (R): Paraquat applied: 6 Nov, 1975. Ploughed: 24 Nov. Spring-tine cultivated twice: 2 Mar, 12 Mar, 1976. Seed sown: 22 Mar. N applied: 1 Apr. 'Banlene Plus' applied: 14 May. Combine harvested: 27 July. Previous crops: Potatoes 1974, winter wheat 1975.

Horsepool Lane Close (W): Deep-tine cultivated four times: 21 Sept, 22 Sept, 23 Oct, 18 Dec, 1975. Spring-tine cultivated: 27 Feb, 1976. Spring-tine cultivated with crumbler: 22 Mar. Seed sown: 24 Mar. N applied: 29 Mar. Weedkiller applied to all plots: 3 May. Tridemorph treatment applied with weedkiller: 27 May. Combine harvested: 29 July. Previous crops: Beans 1974, winter wheat 1975.

76/R/B/3 PASTURES (R)

GRAIN TONNES/HECTARE

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

| VARIETY | N | 38 | 75 | 113 | MEAN |
|---------|---|------|------|------|------|
| JU H - | | 4.58 | 4.55 | 4.45 | 4.53 |
| JU H E | | 4.63 | 4.71 | 4.79 | 4.71 |
| JU H T | | 4.65 | 4.95 | 5.15 | 4.92 |
| JU M T | | 4.48 | 4.62 | 4.74 | 4.61 |
| AM T | | 4.68 | 5.02 | 5.14 | 4.95 |
| AR T | | 4.90 | 5.31 | 5.20 | 5.14 |
| GE T | | 5.05 | 5.41 | 5.59 | 5.35 |
| LA T | | 4.67 | 5.22 | 5.16 | 5.02 |
| PO T | | 4.90 | 5.46 | 5.33 | 5.23 |
| SU T | | 5.19 | 5.32 | 5.58 | 5.36 |
| MEAN | | 4.76 | 5.05 | 5.12 | 4.98 |

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

| TABLE | VARIETY | N | VARIETY | N |
|-------|---------|-------|---------|---------|
| SED | 0.123 | | 0.187 | MIN REP |
| | 0.107 | 0.052 | 0.162 | MAX-MIN |

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:
 VARIETY 0.172 MIN REP
 0.149 MAX-MIN
 0.121 MAX REP

VARIETY
 MAX REP JU H T
 MAX-MIN JU H T V ANY OF REMAINDER
 MIN REP ANY OF REMAINDER

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

| STRATUM | DF | SE | CV% |
|-------------|----|-------|-----|
| BLOCK.WP | 30 | 0.174 | 3.5 |
| BLOCK.WP.SP | 66 | 0.243 | 4.9 |

GRAIN MEAN DM% 87.1

SUB PLOT AREA HARVESTED 0.00163

76/R/B/4

SPRING BARLEY

N AND FOLIAR DISEASES

Object: To study the effects of mildew and brown rust on response to a range of nitrogen rates applied at different times - Pastures.-

Sponsors: J.F. Jenkyn, M.E. Finney.

Design: Single replicate of 6 x 3 x 2 x 2.

Whole plot dimensions: 4.27 x 9.14.

Treatments: All combinations of:-

1. N RATE Amounts of nitrogen fertiliser (kg N):

| | |
|-----|-----|
| 25 | 25 |
| 50 | 50 |
| 70 | 70 |
| 90 | 90 |
| 110 | 110 |
| 135 | 135 |

2. N TIME Times of applying N:

| | |
|-------|-----------------------------------|
| SB | Seedbed (1 Apr, 1976) |
| TD | Top dressed (21 May) |
| SB/TD | Half to seedbed, half top dressed |

3. MILDEW F Mildew fungicide:

| | |
|----------|---------------------------------|
| NONE | None |
| TRIDEMOR | Tridemorph on 21 May and 7 June |

4. RUST F Rust fungicide:

| | |
|----------|----------------------|
| NONE | None |
| BENODANI | Benodanil on 17 June |

NOTE: Fungicides were applied in 340 l:-

- (a) Tridemorph at 0.53 kg
- (b) Benodanil at 1.12 kg with 175 ml 'Citowett'

Basal applications: Manures: (0:20:20) at 310 kg, combine drilled.

Weedkillers: Paraquat at 0.42 kg ion in 220 l in autumn. Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l) in spring.

Seed: Zephyr, sown at 160 kg.

Cultivations, etc.: - Autumn weedkiller applied: 6 Nov, 1975.

Ploughed: 18-24 Nov. Spring-tine cultivated: 2, 12 Mar, 1976.

Seed sown: 22 Mar. Spring weedkiller applied: 11 May. Combine harvested: 26 July. Previous crops: Potatoes 1974, wheat 1975.

NOTE: Seedling emergence counts were made. Leaf diseases were assessed on three occasions and ear counts made in early July.

75/R/B/4

GRAIN TONNES/HECTARE

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

| | | | | | | | | |
|----------|----------|----------|------|------|------|------|------|--|
| MILDEW F | NONE | TRIDEMOR | | | | | MEAN | |
| N TIME | | | | | | | | |
| SB | 4.04 | 4.85 | | | | | 4.45 | |
| TD | 3.93 | 4.47 | | | | | 4.20 | |
| SB/TD | 4.11 | 4.81 | | | | | 4.46 | |
| MEAN | 4.03 | 4.71 | | | | | 4.37 | |
| RUST F | NONE | BENODANI | | | | | MEAN | |
| N TIME | | | | | | | | |
| SB | 4.43 | 4.46 | | | | | 4.45 | |
| TD | 4.21 | 4.19 | | | | | 4.20 | |
| SB/TD | 4.41 | 4.51 | | | | | 4.46 | |
| MEAN | 4.35 | 4.39 | | | | | 4.37 | |
| RUST F | NONE | BENODANI | | | | | MEAN | |
| MILDEW F | | | | | | | | |
| NONE | 3.99 | 4.06 | | | | | 4.03 | |
| TRIDEMOR | 4.70 | 4.72 | | | | | 4.71 | |
| MEAN | 4.35 | 4.39 | | | | | 4.37 | |
| N RATE | 25 | 50 | 70 | 90 | 110 | 135 | MEAN | |
| N TIME | | | | | | | | |
| SB | 3.85 | 4.38 | 4.25 | 4.64 | 4.79 | 4.77 | 4.45 | |
| TD | 3.96 | 4.01 | 4.09 | 4.46 | 4.41 | 4.27 | 4.20 | |
| SB/TD | 4.18 | 4.41 | 4.59 | 4.50 | 4.62 | 4.45 | 4.46 | |
| MEAN | 4.00 | 4.26 | 4.31 | 4.53 | 4.61 | 4.50 | 4.37 | |
| N RATE | 25 | 50 | 70 | 90 | 110 | 135 | MEAN | |
| MILDEW F | | | | | | | | |
| NONE | 3.77 | 3.96 | 3.91 | 4.02 | 4.24 | 4.25 | 4.03 | |
| TRIDEMOR | 4.22 | 4.56 | 4.71 | 5.05 | 4.97 | 4.75 | 4.71 | |
| MEAN | 4.00 | 4.26 | 4.31 | 4.53 | 4.61 | 4.50 | 4.37 | |
| N RATE | 25 | 50 | 70 | 90 | 110 | 135 | MEAN | |
| RUST F | | | | | | | | |
| NONE | 3.90 | 4.29 | 4.25 | 4.59 | 4.56 | 4.50 | 4.35 | |
| BENODANI | 4.10 | 4.23 | 4.37 | 4.48 | 4.65 | 4.50 | 4.39 | |
| MEAN | 4.00 | 4.26 | 4.31 | 4.53 | 4.61 | 4.50 | 4.37 | |
| N TIME | N RATE | 25 | 50 | 70 | 90 | 110 | 135 | |
| SB | MILDEW F | | | | | | | |
| | NONE | 3.65 | 3.96 | 4.06 | 4.04 | 4.31 | 4.22 | |
| | TRIDEMOR | 4.06 | 4.79 | 4.44 | 5.23 | 5.27 | 5.31 | |
| TD | NONE | 3.72 | 4.02 | 3.62 | 4.01 | 3.96 | 4.27 | |
| | TRIDEMOR | 4.21 | 4.00 | 4.56 | 4.91 | 4.86 | 4.28 | |
| SB/TD | NONE | 3.95 | 3.91 | 4.05 | 4.01 | 4.46 | 4.26 | |
| | TRIDEMOR | 4.41 | 4.90 | 5.13 | 4.99 | 4.79 | 4.65 | |

76/R/B/4 GRAIN TONNES/HECTARE

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

| | N RATE | 25 | 50 | 70 | 90 | 110 | 135 |
|----------|----------|------|------|------|------|------|------|
| N TIME | RUST F | | | | | | |
| SB | NONE | 3.82 | 4.28 | 4.11 | 4.54 | 4.78 | 5.04 |
| | BENODANI | 3.89 | 4.47 | 4.39 | 4.73 | 4.81 | 4.50 |
| TD | NONE | 3.77 | 4.18 | 3.99 | 4.63 | 4.55 | 4.12 |
| | BENODANI | 4.15 | 3.83 | 4.18 | 4.29 | 4.26 | 4.43 |
| SB/TD | NONE | 4.10 | 4.42 | 4.65 | 4.59 | 4.36 | 4.35 |
| | BENODANI | 4.26 | 4.39 | 4.53 | 4.41 | 4.88 | 4.56 |
| | | | | | | | |
| | N RATE | 25 | 50 | 70 | 90 | 110 | 135 |
| MILDEW F | RUST F | | | | | | |
| | NONE | 3.59 | 3.85 | 3.85 | 4.05 | 4.33 | 4.29 |
| | BENODANI | 3.96 | 4.07 | 3.98 | 3.99 | 4.15 | 4.20 |
| TRIDEMOR | NONE | 4.21 | 4.74 | 4.66 | 5.13 | 4.79 | 4.70 |
| | BENODANI | 4.24 | 4.39 | 4.76 | 4.96 | 5.15 | 4.79 |

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

| TABLE | N TIME | MILDEW F | RUST F | N RATE |
|-------|--------|----------|--------|--------|
| SED | 0.076 | 0.062 | 0.062 | 0.108 |

| TABLE | N TIME MILDEW F | N TIME RUST F | MILDEW F RUST F | N TIME N RATE |
|-------|--------------------|------------------|--------------------|------------------|
| SED | 0.108 | 0.108 | 0.088 | 0.187 |

| TABLE | MILDEW F N RATE | RUST F N RATE | N TIME MILDEW F RUST F | N TIME MILDEW F N RATE |
|-------|--------------------|------------------|------------------------------|------------------------------|
| SED | 0.153 | 0.153 | 0.153 | 0.264 |

| TABLE | N TIME RUST F N RATE | MILDEW F RUST F N RATE |
|-------|----------------------------|------------------------------|
| SED | 0.264 | 0.216 |

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

| STRATUM | DF | SE | CV% |
|---------|----|-------|-----|
| WP | 10 | 0.264 | 6.1 |

GRAIN MEAN DM% 88.2

PLOT AREA HARVESTED 0.00195

76/R/E/5

SPRING BARLEY

SOWING DATES AND PATHOGEN CONTROL

Object: To study the effects of aphid, virus and fungus control on pathogens and yield of barley sown on two dates - Gt. Harpenden II.

Sponsors: R.T. Plumb, J.F. Jenkyn.

Design: 3 blocks of 2 x 2 x 2 x 2, randomisation restricted.

Whole plot dimensions: 6.40 x 15.2.

Treatments: All combinations of:-

1. SOW DATE Dates of sowing:

| | |
|--------|---------------|
| 4 MAR | 4 March, 1976 |
| 13 APR | 13 April |

2. FUNGCIDE Fungicide:

| | |
|-------|--|
| NONE | None |
| E+T+B | Ethirimol seed dressing; tridemorph and benodanil sprays |

3. APHCIDE(1) Aphicide to seedbed:

| | |
|---------|-----------------------------|
| NONE | None |
| PHORATE | Phorate at 5 kg as granules |

4. APHCIDE(2) Aphicide on 4 June:

| | |
|---------|---|
| NONE | None |
| MENAZON | Merazon ('Saphi-col' at 0.7 l in 450 l) |

NOTES: (1) Fungicides applied:-

Tridemorph at 0.53 kg in 450 l on 27 May and with benodanil on 7 July. Benodanil at 1.12 kg with 175 ml 'Citowett' in 450-l.

(2) The second application of fungicides was applied to SOW DATE 13 APR only.

Basal applications: Manures: (20:14:14) at 310 kg, combine drilled. Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l).

Seed: Julia, sown at 160 kg.

Cultivations, etc.: - Heavy spring-tine cultivated twice: 4 Nov, 1975. Deep-tine cultivated twice: 13, 14 Nov. Heavy spring-tine cultivated: 1 Mar, 1976. Power harrowed for early sowing: 4 Mar. Power harrowed for late sowing: 13 Apr. Weedkiller applied: 10 May. Combine harvested: 23 July. Previous crops: Beans 1974, potatoes 1975.

NOTE: Emergence counts were made for both sowings. Mildew was assessed on two occasions, aphids on five and viruses once. Tiller counts were made on two occasions in July.

76/R/B/5

GRAIN TONNES/HECTARE

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

| | | | | |
|-------------|------|---------|-------|---------|
| FUNGCIDE | NONE | E+T+B | MEAN | |
| SOW DATE | | | | |
| 4 MAR | 4.82 | 5.47 | 5.15 | |
| 13 APR | 3.06 | 3.55 | 3.30 | |
| MEAN | 3.94 | 4.51 | 4.23 | |
| APHICIDE(1) | NONE | PHORATE | MEAN | |
| SOW DATE | | | | |
| 4 MAR | 4.87 | 5.42 | 5.15 | |
| 13 APR | 3.17 | 3.44 | 3.30 | |
| MEAN | 4.02 | 4.43 | 4.23 | |
| APHICIDE(1) | NONE | PHORATE | MEAN | |
| FUNGCIDE | | | | |
| NONE | 3.71 | 4.17 | 3.94 | |
| E+T+B | 4.33 | 4.69 | 4.51 | |
| MEAN | 4.02 | 4.43 | 4.23 | |
| APHICIDE(2) | NONE | MENAZON | MEAN | |
| SOW DATE | | | | |
| 4 MAR | 4.98 | 5.31 | 5.15 | |
| 13 APR | 3.06 | 3.55 | 3.30 | |
| MEAN | 4.02 | 4.43 | 4.23 | |
| APHICIDE(2) | NONE | MENAZON | MEAN | |
| FUNGCIDE | | | | |
| NONE | 3.70 | 4.18 | 3.94 | |
| E+T+B | 4.34 | 4.68 | 4.51 | |
| MEAN | 4.02 | 4.43 | 4.23 | |
| APHICIDE(2) | NONE | MENAZON | MEAN | |
| APHICIDE(1) | | | | |
| NONE | 3.76 | 4.28 | 4.02 | |
| PHORATE | 4.28 | 4.58 | 4.43 | |
| MEAN | 4.02 | 4.43 | 4.23 | |
| FUNGCIDE | NONE | | E+T+B | |
| APHICIDE(1) | NONE | PHORATE | NONE | PHORATE |
| SOW DATE | | | | |
| 4 MAR | 4.55 | 5.09 | 5.19 | 5.75 |
| 13 APR | 2.86 | 3.25 | 3.47 | 3.63 |
| FUNGCIDE | NONE | | E+T+B | |
| APHICIDE(2) | NONE | MENAZON | NONE | MENAZON |
| SOW DATE | | | | |
| 4 MAR | 4.61 | 5.03 | 5.35 | 5.59 |
| 13 APR | 2.78 | 3.33 | 3.33 | 3.77 |

76/R/B/5

GRAIN TONNES/HECTARE

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

| APHICIDE(1) | NONE | MENAZON | PHORATE | NONE | MENAZON |
|-------------|------|---------|---------|---------|---------|
| APHICIDE(2) | NONE | MENAZON | NONE | MENAZON | |
| SOW DATE | | | | | |
| 4 MAR | 4.63 | 5.12 | 5.34 | 5.51 | |
| 13 APR | 2.90 | 3.44 | 3.22 | 3.66 | |

| APHICIDE(1) | NONE | MENAZON | PHORATE | NONE | MENAZON |
|-------------|------|---------|---------|---------|---------|
| APHICIDE(2) | NONE | MENAZON | NONE | MENAZON | |
| FUNGCIDE | | | | | |
| NONE | 3.44 | 3.98 | 3.96 | 4.39 | |
| E+T+B | 4.09 | 4.58 | 4.60 | 4.78 | |

| APHICIDE(1) | NONE | MENAZON | PHORATE | NONE | MENAZON |
|-------------------|-------|---------|---------|---------|---------|
| APHICIDE(2) | NONE | MENAZON | NONE | MENAZON | |
| SOW DATE FUNGCIDE | | | | | |
| 4 MAR | NONE | 4.31 | 4.80 | 4.92 | 5.27 |
| | E+T+B | 4.95 | 5.44 | 5.75 | 5.74 |
| 13 APR | NONE | 2.57 | 3.15 | 2.99 | 3.51 |
| | E+T+B | 3.22 | 3.72 | 3.45 | 3.81 |

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

| TABLE | SOW DATE | FUNGCIDE | APHICIDE(1) | APHICIDE(2) |
|-------|----------|----------|-------------|-------------|
| SED | 0.075 | 0.075 | 0.075 | 0.075 |

| TABLE | SOW DATE | SOW DATE | FUNGCIDE | SOW DATE |
|-------|----------|-------------|-------------|-------------|
| | FUNGCIDE | APHICIDE(1) | APHICIDE(1) | APHICIDE(2) |
| SED | 0.106 | 0.106 | 0.106 | 0.106 |

| TABLE | FUNGCIDE | APHICIDE(1) | SOW DATE | SOW DATE |
|-------|-------------|-------------|-------------|-------------|
| | APHICIDE(2) | APHICIDE(2) | FUNGCIDE | FUNGCIDE |
| | | | APHICIDE(1) | APHICIDE(2) |
| SED | 0.106 | 0.106 | 0.150 | 0.150 |

| TABLE | SOW DATE | FUNGCIDE | SOW DATE |
|-------|-------------|-------------|-------------|
| | APHICIDE(1) | APHICIDE(1) | FUNGCIDE |
| | APHICIDE(2) | APHICIDE(2) | APHICIDE(1) |
| | | | APHICIDE(2) |
| SED | 0.150 | 0.150 | 0.212 |

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

| STRATUM | DF | SE | CV% |
|---------------------|---------|-------|-----|
| BLOCK.WP | 30 | 0.260 | 6.2 |
| GRAIN MEAN DM% | 85.0 | | |
| PLOT AREA HARVESTED | 0.00260 | | |

76/R/B/6

SPRING BARLEY

EFFECTS OF MILDEW SOURCES ON DISEASE CONTROL

Object: To study the effects of nearby sources of mildew on control by fungicides applied at a range of times - Drapers.

Sponsors: J.F. Jenkyn, A. Bainbridge.

Design: 3 randomised blocks of 3 plots split into 6.

Whole plot dimensions: 22.9 x 29.9.

Treatments: All combinations of:-

Whole plots

1. MILDSRCE Mildew source:
- | | |
|-------|---|
| NONE | None (seed treated ethirimol, crop sprayed tridemorph, on 27 May, 1976, 7 June, |
| EARLY | Early (tridemorph only on 27 May, 7 June) |
| FULL | Full (no mildew control) |

Sub plots

2. MILDCONT Times of applying mildew control:
- | | |
|-------|---|
| ED | Ethirimol seed dressing Tridemorph spray on: |
| T S 1 | 18 May |
| T S 2 | 21 May |
| T S 3 | 27 May |
| T S 4 | 2 June |
| T S 5 | 7 June |

NOTE: The whole plot treatments were applied to a strip of crop 6.5 m wide at the ends of all sub plots. There were no discards between sub plots (0.6 m fallow paths only). Whole plots and the sides of sets of six sub plots were separated by strips of crop 17 m wide, seed treated ethirimol, crop sprayed tridemorph at 0.53 kg in 450 l on 27 May.

Basal applications: Manures: Chalk at 7.5 t. (20:14:14) at 380 kg, combine drilled. Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l).

Seed: Julia, sown at 160 kg.

Cultivations, etc.: - Chalk applied: 16 Sept, 1975. Heavy spring-tine cultivated: 20 Oct. Ploughed: 12 Nov. Spring-tine cultivated: 9 Mar, 1976. Seed sown: 11 Mar. Weedkiller applied: 11 May. Combine harvested: 22 July. Previous crops: Potatoes 1974, barley 1975.

NOTES: (1) Seedling counts were made and mildew assessed on two occasions.
(2) Five plots in one block were affected by gravel bands, those with treatment combinations

| | | | | | |
|----------|-------|-------|------|-------|-------|
| MILDSRCE | EARLY | EARLY | FULL | FULL | FULL |
| MILDCONT | T S 5 | T S 4 | E D | T S 3 | T S 5 |

Estimated values were used in the analysis.

76/R/B/6

GRAIN TONNES/HECTARE

SUB PLOTS

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

| MILDCONT MILDSRCE | E D | T S 1 | T S 2 | T S 3 | T S 4 | T S 5 | MEAN |
|----------------------|------|-------|-------|-------|-------|-------|------|
| NONE | 4.72 | 5.16 | 4.87 | 4.56 | 4.46 | 4.53 | 4.71 |
| EARLY | 3.66 | 3.94 | 3.75 | 3.94 | 3.62 | 3.77 | 3.78 |
| FULL | 4.11 | 4.66 | 4.66 | 4.50 | 4.13 | 4.24 | 4.38 |
| MEAN | 4.16 | 4.58 | 4.42 | 4.33 | 4.07 | 4.18 | 4.29 |

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

| TABLE | MILDSRCE | MILDCONT | MILDSRCE MILDCONT |
|--|----------|----------|----------------------|
| SED | 0.309 | 0.173 | 0.413 |
| EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF: | | | |
| MILDSRCE | | | 0.300 |

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

| STRATUM | DF | SE | CV% |
|-------------|----|-------|-----|
| BLOCK.WP | 4 | 0.378 | 8.8 |
| BLOCK.WP.SP | 25 | 0.368 | 8.6 |

GRAIN MEAN DM% 85.8

SUB PLOT AREA HARVESTED 0.00163

WHOLE PLOTS

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

| MILDSRCE | NONE | EARLY | FULL | MEAN |
|----------|------|-------|------|------|
| | 5.00 | 3.54 | 3.66 | 4.07 |

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

| TABLE | MILDSRCE |
|-------|----------|
| SED | 0.398 |

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

| STRATUM | DF | SE | CV% |
|----------|----|-------|------|
| BLOCK.WP | 4 | 0.487 | 12.0 |

GRAIN MEAN DM% 85.4

PLOT AREA HARVESTED 0.00624

76/R/B/7

SPRING BARLEY

MILDEW CONTROL IN SYSTEMATIC AND BALANCED DESIGNS

Object: To study the effects of tridemorph sprays, applied at different times, in systematic and balanced designs and to assess the magnitude of interference between plots - Little Hoos.

Sponsors: J.F. Jenkyn, A. Bainbridge, G.V. Dyke.

Designs: Systematic: 4 'blocks' of 7 plots.
Serially balanced: 9 'blocks' of 4 plots (+ 2 flanking plots).

Whole plot dimensions: 4.27 x 9.14.

Treatments:

TRIDEMOR To systematic design: Times of applying tridemorph:

| | |
|---|--|
| 0 | None |
| 1 | Once, on 18 May |
| 2 | Once, on 21 May |
| 3 | Once, on 27 May |
| 4 | Once, on 2 June |
| R | Repeated, 3 times 18 May, 27 May, 7 June |

Plots arranged in linear sequence:

ROR1234 ROR4321 1234ROR 4321ROR

Serially balanced design:

Fungicide sprays as above but omitting levels 2 and 4. These were applied to 38 plots in one line on the field in an order such that each of the 36 possible sets of 3 adjacent treatments occurred exactly once (but omitting sets with the same treatment on 2 successive plots). The effects of treatments to neighbouring plots (lefthand neighbour - LHN, righthand neighbour - RHN) are estimated in the analysis.

In this experiment, 'left' was west, 'right' was east.

The analysis presented assumes a Fourier curve with 4 terms, 2 sine and 2 cosine to represent positional variation.

NOTE: Tridemorph applied at 0.53 kg in 340 l.

Basal applications: Manures: (20:14:14) at 310 kg, combine drilled. Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l).

Seed: Julia, sown at 160 kg.

Cultivations, etc.: - Heavy spring-tine cultivated: 4 Nov, 1975. Deep-tine cultivated twice: 13, 14 Nov. Heavy spring-tine cultivated: 1 Mar, 1976. Seed sown: 5 Mar. Weedkiller applied: 11 May. Combine harvested: 23 July. Previous crops: Beans 1974, potatoes 1975.

NOTE: Seedling emergence counts were made. Mildew was assessed on two occasions.

76/R/B/7

SYSTEMATIC DESIGN

GRAIN TONNES/HECTARE

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

| TRIDEMOR | 0 | 1 | 2 | 3 | 4 | R | MEAN |
|----------|------|------|------|------|------|------|------|
| | 4.61 | 5.22 | 5.17 | 5.10 | 5.03 | 5.09 | 5.05 |

GRAIN MEAN DM% 87.0

SERIALLY BALANCED DESIGN

GRAIN TONNES/HECTARE

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

GRAND MEAN 4.62

| TRIDEMOR | 0 | 1 | 3 | R |
|----------|------|------|------|------|
| | 4.22 | 4.78 | 4.58 | 4.89 |

| LHN | 0 | 1 | 3 | R |
|----------|------|------|------|------|
| TRIDEMOR | | | | |
| 0 | | 4.25 | 4.15 | 4.25 |
| 1 | 4.74 | | 4.82 | 4.79 |
| 3 | 4.28 | 4.72 | | 4.73 |
| R | 4.86 | 5.01 | 4.80 | |

| RHN | 0 | 1 | 3 | R |
|----------|------|------|------|------|
| TRIDEMOR | | | | |
| 0 | | 4.20 | 4.26 | 4.20 |
| 1 | 4.48 | | 4.77 | 5.10 |
| 3 | 4.40 | 4.72 | | 4.61 |
| R | 4.67 | 5.00 | 4.99 | |

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

| TABLE | TRIDEMOR | TRIDEMOR LHN | TRIDEMOR RHN |
|-------|----------|-----------------|-----------------|
| SED | 0.061 | 0.166 | 0.165 |

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

| STRATUM | DF | SE | CV% |
|---------|----|-------|-----|
| WP | 12 | 0.125 | 2.7 |

GRAIN MEAN DM% 86.7

PLOT AREA HARVESTED 0.00195

76/R/B/8

SPRING BARLEY

MIXED VARIETIES AND MILDEW

Object: To study the effects of mixing varieties on the incidence of mildew and the yield of spring barley - Whittlocks.

Sponsor: J.F. Jenkyn.

Design: 4 randomised blocks of 6 plots.

Whole plot dimensions: 8.53 x 11.0.

Treatments

| VARIETY | Varieties: |
|----------|---|
| HASSAN | Hassan |
| LOFAABED | Lofa Abed |
| MIDAS | Midas |
| WING | Wing |
| MIXED | Equal mixture of the above four varieties (2 plots/block) |

NOTES: (1) All varieties were separated and surrounded by 18 m of variety Proctor, seed dressed ethirimol, sprayed tridemorph at 0.53 kg in 450 l on 27 May. Yields were taken from this crop, adjacent to treatment plots, for covariance analysis.

(2) There was also a systematic difference between the yields recorded from even and odd plots in the order of harvesting; an adjustment-by-covariance analysis has also been made for this in the yields presented. An explanation is being sought.

Basal applications: Manures: (20:14:14) at 380 kg combine drilled.
Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l).

Seed: All varieties sown at 160 kg.

Cultivations, etc.: - Ploughed: 6 Nov, 1975. Spring-tine cultivated: 1 Mar, 1976. Seed sown: 10 Mar. Weedkiller applied: 7 May. Combine harvested: 28 July. Previous crops: Beans and oats 1974, wheat 1975.

NOTE: Seedling emergence counts were made. Mildew was assessed on three occasions and ear counts were made in July.

76/R/B/3

GRAIN TONNES/HECTARE

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

| VARIETY | HASSAN | LOFAABED | MIDAS | WING | MIXED | MEAN |
|---------|--------|----------|-------|------|-------|------|
| | 3.74 | 3.71 | 3.89 | 3.95 | 4.01 | 3.88 |

***** STANDARD ERRORS OF DIFFERENCES OF MEAN *****

| TABLE | VARIETY | |
|-------|---------|---------|
| SED | 0.159 | MIN REP |
| | 0.137 | MAX-MIN |

| VARIETY | |
|---------|--------------------------|
| MAX-MIN | MIXED V ANY OF REMAINDER |
| MIN REP | ANY OF REMAINDER |

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

| STRATUM | DF | SE | CV% |
|----------|----|-------|-----|
| BLOCK.WP | 14 | 0.193 | 5.0 |

MEAN DM% 87.0

PLOT AREA HARVESTED 0.00312

76/B/E/9

SPRING BARLEY

INSECTICIDES AND BENEFICIAL INSECTS

Object: To study the effects of different rates of a selective and a non-selective aphicide on pests, beneficial insects and yield of barley-Whittlocks.

Sponsor: J.H. Stevenson.

Design: 5 randomised blocks of 7 plots.

Whole plot dimensions: 18.7 x 18.3.

Treatments:

INS RATE Insecticides and rates:-

| | |
|-------|--|
| NONE | None |
| DEM 1 | Demeton-s-methyl (non-selective) at 25.7 g |
| DEM 3 | Demeton-s-methyl (non-selective) at 77.1 g |
| DEM 9 | Demeton-s-methyl (non-selective) at 231 g |
| PIR 1 | Pirimicarb (selective) at 15.6 g |
| PIR 3 | Pirimicarb (selective) at 46.7 g |
| PIR 9 | Pirimicarb (selective) at 140 g |

NOTE: Treatments were applied in 450 l on 25 June 1976.

Basal applications: Manures: (20:14:14) at 380 kg combine drilled. Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l).

Seed: Julia, dressed ethirimol, sown at 160 kg.

Cultivations, etc.: - Ploughed: 6 Nov, 1975. Spring-tine cultivated: 1 Mar, 1976. Seed sown: 10 Mar. Weedkiller applied: 7 May. Combine harvested: 23 July. Previous crops: Beans and oats 1974, winter wheat 1975.

NOTE: Aphid counts were made on plants. Other insects were sampled by sweep nets, water traps and pitfall traps.

GRAIN TONNES/HECTARE

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

| INS RATE | NONE | DEM 1 | DEM 3 | DEM 9 | PIR 1 | PIR 3 | PIR 9 | MEAN |
|----------|------|-------|-------|-------|-------|-------|-------|------|
| | 3.96 | 3.96 | 3.92 | 4.07 | 4.09 | 4.00 | 4.02 | 4.00 |

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

| TABLE | INS RATE |
|-------|----------|
| SED | 0.118 |

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

| STRATUM | DF | SE | CV% |
|----------|----|-------|-----|
| BLOCK.WP | 24 | 0.186 | 4.7 |

GRAIN MEAN DM% 86.1 PLOT AREA HARVESTED 0.00195

76/R/B/10

SPRING BARLEY

COMPARISON OF SPRAYERS

Object: To study the performance of an electrostatic spraying system on distribution of spray material and on yield of barley - Pastures.

Sponsor: A.J. Arnold.

Design: 3 blocks of 9 plots (DATE 14 MAY on 1 block; DATE 27 MAY on 2 blocks).

Whole plot dimensions: 2.13 x 9.14.

Treatments: All combinations of:-

1. SPRAYER Sprayer:

| | |
|----|--|
| EC | Electrostatic sprayer with charged particles |
| EU | Electrostatic sprayer with uncharged particles |

2. TRI RATE Rate of applying tridemorph (in 38 l):

| | |
|------|---------|
| 0.02 | 0.02 kg |
| 0.04 | 0.04 kg |
| 0.17 | 0.17 kg |

3. DATE Dates of spraying:

| | |
|--------|--------|
| 14 MAY | 14 May |
| 27 MAY | 27 May |

EXTRA plus two extra treatments:

F Standard farm sprayer applying 0.17 kg tridemorph in 340 l on 27 May (1 plot/block)
- Untreated (2 plots/block on 2 blocks, 1 plot on 1 block)

Basal applications: Manures: (20:14:14) at 380 kg, combine drilled.
Weedkillers: Paraquat at 0.42 kg ion in 220 l to barley stubble autumn 1975. Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l), in spring.

Seed: Julia, sown at 160 kg.

Cultivations, etc.:- Autumn weedkiller applied: 6 Nov, 1975. Ploughed: 24 Nov. Spring-tine cultivated: 2 Mar, 1976. Seed sown: 12 Mar. Spring weedkiller applied: 11 May. Combine harvested: 27 July. Previous crops: Potatoes 1974, barley 1975.

NOTE: Mildew was assessed once. Observations were made on patterns of spray deposition.

76/R/B/10

GRAIN TONNES/HECTARE

DATE 14 MAY

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

| SPRAYER TRI RATE | EC | EU | MEAN |
|---------------------|------|------|------|
| 0.02 | 4.51 | 4.77 | 4.64 |
| 0.04 | 5.06 | 4.69 | 4.87 |
| 0.17 | 5.51 | 5.03 | 5.27 |
| MEAN | 5.02 | 4.83 | 4.93 |

DATE 27 MAY AND EXTRA

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

| SPRAYER TRI RATE | EC | EU | MEAN |
|---------------------|-----------|-----------|--------------|
| 0.02 | 4.95 | 4.58 | 4.77 |
| 0.04 | 4.72 | 4.73 | 4.73 |
| 0.17 | 4.64 | 4.59 | 4.62 |
| MEAN | 4.77 | 4.64 | 4.70 |
| EXTRA | F 4.77 | - 4.58 | MEAN 4.65 |

GRAND MEAN 4.68

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

| TABLE | EXTRA | SPRAYER | TRI RATE | SPRAYER TRI RATE |
|-------|-------|---------|----------|---------------------|
| SED | 0.176 | 0.133 | 0.163 | 0.231 |

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

| STRATUM | DF | SE | CV% |
|----------|----|-------|-----|
| BLOCK.WP | 9 | 0.231 | 4.9 |

GRAIN MEAN DM% 87.2

PLOT AREA HARVESTED 0.00130

76/R/B/11

SPRING BARLEY

MILDEW TOLERANCE TO ETHIRIMOL

Object: To study the effects of a range of rates of ethirimol seed dressing on mildew tolerance and yield of barley - Long-Hoos VI/VII 3.

Sponsor: D.W. Hollomon.

Design: 3 randomised blocks of 4 plots.

Whole plot dimensions: 2.40 x 5.18.

Treatments:

ETHIRIMO Ethirimol seed dressing (g/kg of seed):

| | |
|---|------|
| 0 | None |
| 1 | 0.92 |
| 2 | 4.80 |
| 3 | 17.9 |

NOTE: Surrounds sown to Proctor sprayed with tridemorph at 0.53 kg in 340 l on 14 May and 21 June.

Basal applications: Manures: (0:14:28) at 850 kg. 'Nitro-Chalk' at 450 kg.

Seed: Proctor, sown at 160 kg.

Cultivations, etc.: - PK applied: 9 Dec, 1975. Ploughed: 16-23 Dec. Spring-tine cultivated twice: 10 Mar, 1976. Seed sown, N applied: 11 Mar. Combine harvested: 26 July. Previous crops: Barley 1974, potatoes 1975.

NOTES: (1) Plots were inoculated with an ethirimol-sensitive strain of powdery mildew on two occasions.
(2) Mildew was assessed at four growth stages. The race composition and ethirimol tolerance of mildew on the plots was assessed.

GRAIN TONNES/HECTARE

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

| ETHIRIMO | 0 | 1 | 2 | 3 | MEAN |
|----------|------|------|------|------|------|
| | 2.92 | 3.49 | 3.39 | 3.67 | 3.37 |

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

| TABLE | ETHIRIMO |
|-------|----------|
| SED | 0.407 |

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

| STRATUM | DF | SE | CV% |
|----------|----|-------|------|
| BLOCK.WP | 6 | 0.498 | 14.8 |

GRAIN MEAN DM% 87.8

PLOT AREA HARVESTED 0.00050

76/S/B/1

SPRING BARLEY

VARIETIES, N AND FUNGICIDES

Object: To study the effects of rates, times and forms of nitrogen and of fungicides on the incidence of foliar diseases and yields of two varieties of barley - Saxmundham, Grove Plot.

Sponsors: F.V. Widdowson, J.F. Jenkyn, A. Penny.

Design: Single replicate of 32 plots split into 2.

Whole plot dimensions: 2.43 x 12.2.

Treatments: All combinations of:-

Whole plots

1. VARIETY Varieties:

| | |
|-------|-------|
| JULIA | Julia |
| WING | Wing |

2. S N Solid nitrogen fertiliser (kg N):

| | |
|-----|-----|
| 50 | 50 |
| 100 | 100 |

3. S N TIME Time of applying solid nitrogen fertiliser:

| | |
|----------|-----------------------|
| SEEDBED | Seedbed on 16 Mar |
| TOPDRESS | Top dressed on 18 May |

4. L N Liquid nitrogen fertiliser (kg N):

| | |
|----|-------------------------------------|
| 0 | None |
| 50 | 50, half on 15 June, half on 8 July |

5. MILD CON Mildew control:

| | |
|----------|--|
| NONE | None |
| ETH/TRID | Seed dressed eithirimol, crop sprayed tridemorph at 0.53 kg in 280 l on 18 May |

Sub plots

6. RUST CON Rust control:

| | |
|----------|---|
| NONE | None |
| BENODANI | Crop sprayed benodanil at 1.12 kg in 280 l on 15 June, 8 July |

NOTE: 'Nitro-Chalk' was used as solid fertiliser, 'Agsol N26' as liquid fertiliser in 75.

76/S/B/1

Basal applications: Manures: (0:20:20) at 315 kg. Weedkillers: Dichlorprop plus MCPA ('Mephetol Plus' at 8.4 l in 340 l).

Seed: Varieties sown at 190 kg.

Cultivations, etc.: - PK applied: 29 Sept, 1975. Ploughed: 20 Oct. Seed sown: 15 Mar, 1976. Weedkillers applied: 18 May. Combine harvested: 19 July. Previous crops: Barley 1974 and 1975.

NOTE: Brown rust and mildew were assessed in early July.

GRAIN TONNES/HECTARE

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

| | | | |
|----------|---------|----------|------|
| S N | 50 | 100 | MEAN |
| VARIETY | | | |
| JULIA | 3.40 | 3.31 | 3.35 |
| WING | 3.44 | 3.59 | 3.51 |
| MEAN | 3.42 | 3.45 | 3.43 |
| S N TIME | SEEDBED | TOPDRESS | MEAN |
| VARIETY | | | |
| JULIA | 3.51 | 3.19 | 3.35 |
| WING | 3.42 | 3.61 | 3.51 |
| MEAN | 3.46 | 3.40 | 3.43 |
| S N TIME | SEEDBED | TOPDRESS | MEAN |
| S N | | | |
| 50 | 3.34 | 3.49 | 3.42 |
| 100 | 3.59 | 3.31 | 3.45 |
| MEAN | 3.46 | 3.40 | 3.43 |
| L N | 0 | 50 | MEAN |
| VARIETY | | | |
| JULIA | 3.19 | 3.51 | 3.35 |
| WING | 3.40 | 3.63 | 3.51 |
| MEAN | 3.29 | 3.57 | 3.43 |
| L N | 0 | 50 | MEAN |
| S N | | | |
| 50 | 3.28 | 3.55 | 3.42 |
| 100 | 3.30 | 3.59 | 3.45 |
| MEAN | 3.29 | 3.57 | 3.43 |
| L N | 0 | 50 | MEAN |
| S N TIME | | | |
| SEEDBED | 3.14 | 3.78 | 3.46 |
| TOPDRESS | 3.44 | 3.36 | 3.40 |
| MEAN | 3.29 | 3.57 | 3.43 |

76/S/B/1

GRAIN TONNES/HECTARE

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

| | | | |
|----------|------|----------|------|
| MILD CON | NONE | ETH/TRID | MEAN |
| VARIETY | | | |
| JULIA | 3.48 | 3.22 | 3.35 |
| WING | 3.55 | 3.48 | 3.51 |
| MEAN | 3.51 | 3.35 | 3.43 |
| MILD CON | NONE | ETH/TRID | MEAN |
| S N | | | |
| 50 | 3.43 | 3.40 | 3.42 |
| 100 | 3.60 | 3.30 | 3.45 |
| MEAN | 3.51 | 3.35 | 3.43 |
| MILD CON | NONE | ETH/TRID | MEAN |
| S N TIME | | | |
| SEEDBED | 3.55 | 3.38 | 3.46 |
| TOPDRESS | 3.48 | 3.33 | 3.40 |
| MEAN | 3.51 | 3.35 | 3.43 |
| MILD CON | NONE | ETH/TRID | MEAN |
| L N | | | |
| 0 | 3.44 | 3.14 | 3.29 |
| 50 | 3.59 | 3.56 | 3.57 |
| MEAN | 3.51 | 3.35 | 3.43 |
| RUST CON | NONE | BENODANI | MEAN |
| VARIETY | | | |
| JULIA | 3.33 | 3.37 | 3.35 |
| WING | 3.44 | 3.58 | 3.51 |
| MEAN | 3.39 | 3.48 | 3.43 |
| RUST CON | NONE | BENODANI | MEAN |
| S N | | | |
| 50 | 3.43 | 3.40 | 3.42 |
| 100 | 3.34 | 3.56 | 3.45 |
| MEAN | 3.39 | 3.48 | 3.43 |
| RUST CON | NONE | BENODANI | MEAN |
| S N TIME | | | |
| SEEDBED | 3.41 | 3.51 | 3.46 |
| TOPDRESS | 3.36 | 3.44 | 3.40 |
| MEAN | 3.39 | 3.48 | 3.43 |
| RUST CON | NONE | BENODANI | MEAN |
| L N | | | |
| 0 | 3.26 | 3.32 | 3.29 |
| 50 | 3.51 | 3.63 | 3.57 |
| MEAN | 3.39 | 3.48 | 3.43 |

76/S/B/1

GRAIN TONNES/HECTARE

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

| RUST CON | NONE | BENODANI | MEAN |
|----------|------|----------|------|
| MILD CON | | | |
| NONE | 3.37 | 3.65 | 3.51 |
| ETH/TRID | 3.40 | 3.30 | 3.35 |
| MEAN | 3.39 | 3.48 | 3.43 |

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

| TABLE | VARIETY | S N | S N TIME | L N |
|-------|---------|-------|----------|-------|
| SED | 0.126 | 0.126 | 0.126 | 0.126 |

| TABLE | MILD CON | RUST CON | VARIETY S N | VARIETY S N TIME |
|-------|----------|----------|----------------|---------------------|
| SED | 0.126 | 0.113 | 0.179 | 0.179 |

| TABLE | S N S N TIME | VARIETY L N | S N L N | S N TIME L N |
|-------|-----------------|----------------|------------|-----------------|
| SED | 0.179 | 0.179 | 0.179 | 0.179 |

| TABLE | VARIETY MILD CON | S N MILD CON | S N TIME MILD CON | L N MILD CON |
|-------|---------------------|-----------------|----------------------|-----------------|
| SED | 0.179 | 0.179 | 0.179 | 0.179 |

| TABLE | VARIETY RUST CON | S N RUST CON | S N TIME RUST CON | L N RUST CON |
|-------|---------------------|-----------------|----------------------|-----------------|
| SED | 0.170 | 0.170 | 0.170 | 0.170 |

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:
 VARIETY 0.160
 S N 0.160
 S N TIME 0.160
 L N 0.160

TABLE MILD CON
 RUST CON
 SED 0.170
 EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:
 MILD CON 0.160

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

| STRATUM | DF | SE | CV% |
|---------|----|-------|------|
| WP | 6 | 0.357 | 10.4 |
| WP.SP | 16 | 0.454 | 13.2 |

GRAIN MEAN DM% 84.0

SUB PLOT AREA HARVESTED 0.00089