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# Yields of the Field Experiments 1982

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## 82/R/WW/1 and 82/W/WW/1 - Winter Wheat

### Rothamsted Research

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82/R/WW/1 and 82/W/WW/1

WINTER WHEAT

VARIETIES

Object: To study a selection of the newer varieties of w. wheat and the effects of nitrogen, growth regulator and fungicide on them on land in rotation (pathogen free) and after wheat and barley (pathogen infected) - Rothamsted White Horse I (pathogen free RH) and West Barnfield II (pathogen infected RD), Woburn Horsepool (pathogen free WH).

Sponsors: R. Moffitt, R.J. Gutteridge, N. Magan.

Design: Single replicate of 4 whole plots split into 10 (8 for WH).

Whole plot dimensions: (RH, RD) 3.0 x 12 (WH) 6.0 x 12.

Treatments: All combinations of:-

Whole plots

1. GROWREG      Growth regulator:  
    NONE            None  
    CHLORMEQ      Chlormequat at 1.7 l in 250 l (RH, RD), 2.0 l in 280 l (WH)
2. FUNGCIDE      Fungicides:  
    NONE  
    APPLIED

Sub plots

3. VARIETY      Varieties:  
    AQUILA          Aquila  
    AVALON          Avalon  
    FENMAN          Fenman  
    FLANDERS        Flanders  
    GUARDIAN        Guardian  
    LONGBOW        Longbow  
    NORMAN          Norman  
    RAPIER          Rapier  
    M HUNT O        Maris Huntsman once-grown at Rothamsted, given no foliar fungicide in 1981  
    M HUNT F        Maris Huntsman once-grown at Rothamsted, given foliar fungicide in 1981

NOTES: (1) Maris Huntsman was sown on the Rothamsted sites only.  
(2) The fungicides were prochloraz at 0.4 kg in 250 l (RH, RD), 280 l (WH). Carbendazim with maneb and tridemorph (as 'Cosmic' at 4 kg) in 250 l on all sites. Captafol at 1.2 kg in 250 l on all sites.

Basal applications:

White Horse I (RH): Manures: N at 125 kg as 'Nitro-Chalk'. Weedkillers: Mecoprop with bromoxynil and ioxynil (as 'Brittox' at 3.5 l) in 250 l, glyphosate at 1.4 kg in 250 l.

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West Barnfield II (RD): Manures: N at 190 kg as 'Nitro-Chalk'.  
Weedkillers: Paraquat at 0.56 kg ion in 220 l, methabenzthiazuron at 1.6 kg in 250 l.

Horsepool (WH): Manures: N at 125 kg as 'Nitro-Chalk'. Weedkillers: Mecoprop with bromoxynil and ioxynil (as 'Brittox' at 3.5 l) in 280 l. Insecticide: Pirimicarb at 0.14 kg in 280 l.

Seed: White Horse I (RH), West Barnfield II (RD): Varieties sown at 210 kg.  
Horsepool (WH): Varieties sown at 200 kg.

Cultivations, etc.:-

White Horse I (RH): Spring-tine cultivated: 16 Oct, 1981. Heavy spring-tine cultivated: 22 Oct, 24 Oct. Rotary harrowed, seed sown: 27 Oct. 'Brittox' applied: 16 Apr, 1982. N applied: 23 Apr. Prochloraz, chlormequat applied: 5 May. 'Cosmic' and captafol applied: 14 June. Glyphosate applied: 10 Aug. Combine harvested: 22 Aug.

West Barnfield II (RD): Discd: 23 Sept, 1981. Paraquat applied: 23 Oct. Rotary harrowed, seed sown: 24 Oct. Methabenzthiazuron applied: 26 Oct. N applied: 23 Apr, 1982. Prochloraz, chlormequat applied: 5 May. 'Cosmic' and captafol applied: 14 June. Combine harvested: 22 Aug.

Horsepool (WH): Deep-tine cultivated three times: Once 29 Oct, 1981, twice 30 Oct. Rotary cultivated, seed sown: 3 Nov. 'Brittox' applied: 16 Apr, 1982. N applied: 27 Apr. Prochloraz, chlormequat applied: 8 May. 'Cosmic' captafol and pirimicarb applied: 15 June. Combine harvested: 19 Aug.

NOTE: Two plots on Horsepool (WH) were sprayed in error, those with treatment combinations:

| GROWREG | FUNGCIDE | VARIETY  |
|---------|----------|----------|
| NONE    | NONE     | FLANDERS |
| NONE    | NONE     | FENMAN   |

Estimated values were used in the analysis

82/R/WW/1 WHITE HORSE I (R)  
HEALTHY SITE  
GRAIN TONNES/HECTARE

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

| FUNGCIDE VARIETY | NONE | APPLIED | MEAN |
|------------------|------|---------|------|
| AQUILA           | 7.96 | 8.82    | 8.39 |
| AVALON           | 7.02 | 7.49    | 7.25 |
| FENMAN           | 6.78 | 7.54    | 7.16 |
| FLANDERS         | 7.06 | 7.90    | 7.48 |
| GUARDIAN         | 7.86 | 9.36    | 8.61 |
| Longbow          | 7.46 | 8.65    | 8.06 |
| NORMAN           | 6.53 | 7.80    | 7.16 |
| RAPIER           | 8.32 | 9.26    | 8.79 |
| M HUNT O         | 7.76 | 8.06    | 7.91 |
| M HUNT F         | 7.62 | 8.10    | 7.86 |

MEAN 7.44 8.30 7.87

| GROWREG VARIETY | NONE | CHLORMEQ | MEAN |
|-----------------|------|----------|------|
| AQUILA          | 8.50 | 8.28     | 8.39 |
| AVALON          | 7.19 | 7.32     | 7.25 |
| FENMAN          | 7.07 | 7.26     | 7.16 |
| FLANDERS        | 7.34 | 7.62     | 7.48 |
| GUARDIAN        | 8.47 | 8.75     | 8.61 |
| Longbow         | 8.17 | 7.94     | 8.06 |
| NORMAN          | 7.13 | 7.20     | 7.16 |
| RAPIER          | 8.70 | 8.87     | 8.79 |
| M HUNT O        | 7.69 | 8.13     | 7.91 |
| M HUNT F        | 7.44 | 8.27     | 7.86 |

MEAN 7.77 7.96 7.87

| GROWREG FUNGCIDE | NONE | CHLORMEQ | MEAN |
|------------------|------|----------|------|
| NONE             | 7.34 | 7.53     | 7.44 |
| APPLIED          | 8.20 | 8.40     | 8.30 |

MEAN 7.77 7.96 7.87

| FUNGCIDE GROWREG VARIETY | NONE | CHLORMEQ | APPLIED |          |
|--------------------------|------|----------|---------|----------|
|                          | NONE | CHLORMEQ | NONE    | CHLORMEQ |
| AQUILA                   | 7.81 | 8.11     | 9.19    | 8.46     |
| AVALON                   | 7.00 | 7.03     | 7.37    | 7.60     |
| FENMAN                   | 6.87 | 6.68     | 7.26    | 7.83     |
| FLANDERS                 | 7.14 | 6.98     | 7.54    | 8.25     |
| GUARDIAN                 | 7.63 | 8.09     | 9.31    | 9.41     |
| Longbow                  | 7.56 | 7.36     | 8.78    | 8.52     |
| NORMAN                   | 6.35 | 6.71     | 7.91    | 7.69     |
| RAPIER                   | 8.13 | 8.50     | 9.27    | 9.24     |
| M HUNT O                 | 7.58 | 7.95     | 7.81    | 8.31     |
| M HUNT F                 | 7.33 | 7.91     | 7.56    | 8.64     |

GRAIN MEAN DM% 84.5

SUB PLOT AREA HARVESTED 0.00245

82/R/WW/1 W.BARNFIELD II (R)  
 DISEASED SITE  
 GRAIN TONNES/HECTARE

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

| FUNGCIDE VARIETY | NONE | APPLIED | MEAN |
|------------------|------|---------|------|
| AQUILA           | 7.28 | 8.44    | 7.86 |
| AVALON           | 6.90 | 8.00    | 7.45 |
| FENMAN           | 7.03 | 8.23    | 7.63 |
| FLANDERS         | 7.42 | 8.71    | 8.07 |
| GUARDIAN         | 6.65 | 9.30    | 7.98 |
| LONGBOW          | 7.31 | 9.72    | 8.51 |
| NORMAN           | 6.58 | 8.62    | 7.60 |
| RAPIER           | 6.81 | 9.36    | 8.09 |
| M HUNT O         | 7.69 | 9.02    | 8.36 |
| M HUNT F         | 7.63 | 8.69    | 8.16 |
| MEAN             | 7.13 | 8.81    | 7.97 |

| GROWREG VARIETY | NONE | CHLORMEQ | MEAN |
|-----------------|------|----------|------|
| AQUILA          | 8.19 | 7.53     | 7.86 |
| AVALON          | 7.32 | 7.58     | 7.45 |
| FENMAN          | 7.86 | 7.40     | 7.63 |
| FLANDERS        | 8.17 | 7.97     | 8.07 |
| GUARDIAN        | 7.74 | 8.22     | 7.98 |
| LONGBOW         | 8.74 | 8.29     | 8.51 |
| NORMAN          | 7.42 | 7.78     | 7.60 |
| RAPIER          | 8.38 | 7.79     | 8.09 |
| M HUNT O        | 7.90 | 8.82     | 8.36 |
| M HUNT F        | 7.63 | 8.69     | 8.16 |
| MEAN            | 7.94 | 8.01     | 7.97 |

| GROWREG FUNGCIDE | NONE | CHLORMEQ | MEAN |
|------------------|------|----------|------|
| NONE             | 6.95 | 7.32     | 7.13 |
| APPLIED          | 8.92 | 8.70     | 8.81 |
| MEAN             | 7.94 | 8.01     | 7.97 |

| FUNGCIDE GROWREG VARIETY | NONE |          | APPLIED |          |
|--------------------------|------|----------|---------|----------|
|                          | NONE | CHLORMEQ | NONE    | CHLORMEQ |
| AQUILA                   | 7.14 | 7.43     | 9.25    | 7.63     |
| AVALON                   | 6.72 | 7.09     | 7.93    | 8.07     |
| FENMAN                   | 7.16 | 6.90     | 8.56    | 7.89     |
| FLANDERS                 | 7.18 | 7.67     | 9.15    | 8.28     |
| GUARDIAN                 | 6.45 | 6.86     | 9.03    | 9.58     |
| LONGBOW                  | 7.55 | 7.07     | 9.92    | 9.51     |
| NORMAN                   | 6.35 | 6.81     | 8.50    | 8.74     |
| RAPIER                   | 6.94 | 6.68     | 9.82    | 8.91     |
| M HUNT O                 | 7.09 | 8.30     | 8.70    | 9.33     |
| M HUNT F                 | 6.90 | 8.36     | 8.36    | 9.03     |

GRAIN MEAN DM% 83.9

SUB PLOT AREA HARVESTED 0.00244

82/W/WW/1 HORSEPOOL (W)

GRAIN TONNES/HECTARE

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

| FUNGCIDE VARIETY | NONE | APPLIED | MEAN |
|------------------|------|---------|------|
| AQUILA           | 7.81 | 9.41    | 8.61 |
| AVALON           | 8.87 | 8.26    | 8.56 |
| FENMAN           | 9.33 | 8.94    | 9.13 |
| FLANDERS         | 8.44 | 10.90   | 9.67 |
| GUARDIAN         | 7.05 | 8.94    | 8.00 |
| LONGBOW          | 7.97 | 8.91    | 8.44 |
| NORMAN           | 7.63 | 8.85    | 8.24 |
| RAPIER           | 8.67 | 9.23    | 8.95 |
| MEAN             | 8.22 | 9.18    | 8.70 |

| GROWREG VARIETY | NONE | CHLORMEQ | MEAN |
|-----------------|------|----------|------|
| AQUILA          | 9.35 | 7.87     | 8.61 |
| AVALON          | 7.86 | 9.26     | 8.56 |
| FENMAN          | 9.48 | 8.79     | 9.13 |
| FLANDERS        | 9.10 | 10.24    | 9.67 |
| GUARDIAN        | 7.47 | 8.52     | 8.00 |
| LONGBOW         | 8.58 | 8.30     | 8.44 |
| NORMAN          | 9.17 | 7.31     | 8.24 |
| RAPIER          | 9.48 | 8.42     | 8.95 |
| MEAN            | 8.81 | 8.59     | 8.70 |

| GROWREG FUNGCIDE | NONE | CHLORMEQ | MEAN |
|------------------|------|----------|------|
| NONE             | 8.94 | 7.51     | 8.22 |
| APPLIED          | 8.69 | 9.67     | 9.18 |
| MEAN             | 8.81 | 8.59     | 8.70 |

| FUNGCIDE GROWREG VARIETY | NONE  |          | APPLIED |          |
|--------------------------|-------|----------|---------|----------|
|                          | NONE  | CHLORMEQ | NONE    | CHLORMEQ |
| AQUILA                   | 9.41  | 6.21     | 9.28    | 9.53     |
| AVALON                   | 9.14  | 8.60     | 6.59    | 9.92     |
| FENMAN                   | *     | 8.39     | 8.68    | 9.19     |
| FLANDERS                 | *     | 8.40     | 9.73    | 12.07    |
| GUARDIAN                 | 7.35  | 6.75     | 7.59    | 10.29    |
| LONGBOW                  | 7.85  | 8.10     | 9.32    | 8.50     |
| NORMAN                   | 8.97  | 6.29     | 9.37    | 8.33     |
| RAPIER                   | 10.04 | 7.30     | 8.92    | 9.54     |

GRAIN MEAN DM% 83.7

SUB PLOT AREA HARVESTED 0.00330