ROTHAMSTED RESEARCH

# Yields of the Field Experiments 1997

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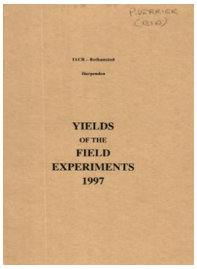


## Annuals - Winter Wheat

### Rothamsted Research

Rothamsted Research (1998) *Annuals - Winter Wheat ;* Yields Of The Field Experiments 1997, pp 102 - 122 **- DOI: https://doi.org/10.23637/ERADOC-1-53**

# 97/R/WW/1

## WINTER WHEAT

## PREDICTION OF WEED COMPETITION

**Object**: To predict the yield response of winter wheat to competition from three contrasting weed species - Great Harpenden I.

**Sponsors**: J.W. Cussans, P.J.W. Lutman.

**Design**: 3 randomised blocks of 3 x 6 plots.

**Whole plot dimensions**: 3.0 x 8.0.

**Treatments**: All combinations of:-

1. **WEED SP** Weed species:

| | |
|---|---|
| SM | *Stellaria media* (chickweed) |
| AM | *Alopecurus myosuroides* (black-grass) |
| GA | *Galium aparine* (cleavers) |

2. **WEED DEN** Average weed density, plants per $m^2$:

| | SM | AM | GA |
|---|---|---|---|
| 0 | 0 | 0 | 0 |
| 2 | 62.7 | 93.8 | 8.3 |
| 4 | 124.2 | 126.9 | 13.7 |
| 8 | 245.6 | 175.7 | 28.0 |
| 16 | 500.6 | 447.2 | 53.8 |
| 32 | 737.2 | 666.4 | 99.0 |

**NOTE**: Target weed densities, plants per $m^2$: SM, AM: 0, 40, 80, 160, 320 and 640, GA: 0, 3, 6, 12, 24 and 48 respectively.

**Experimental diary**:

28-Aug-96 : B : PK as (0:20:32) at 1400 kg.
23-Sep-96 : B : Roundup at 1.5 l with Vassgro Non-ionic at 0.5 l in 200 l.
02-Oct-96 : B : Ploughed and furrow pressed.
08-Oct-96 : B : Harrowed.
: **T** : Weeds broadcast.
: B : Rotary harrowed, Mercia, dressed Sibutol, drilled at 380 seeds per $m^2$.
16-Dec-96 : **T** : **WEED SP** AM, **WEED SP** SM **WEED DEN** 0, **WEED SP** GA **WEED DEN** 0: Starane 2 at 1.0 l in 200 l.
24-Jan-97 : **T** : **WEED SP** SM, **WEED SP** GA, **WEED SP** AM **WEED DEN** 0: Topik 240 EC at 0.25 l in 220 l.
11-Mar-97 : B : 34.5% N at 118 kg.
14-Apr-97 : B : 34.5% N at 463 kg. Clayton Turret at 1.5 l in 200 l.
16-Jun-97 : B : Folicur at 0.5 l with Mallard 750 EC at 0.3 l and Pointer at 0.5 l in 300 l.
13-Aug-97 : B : Hand harvested.



*https://doi.org/10.23637/ERADOC-1-53* 

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**NOTE:** Weed and crop densities were assessed at emergence, in autumn and in spring. Biomass of crop and weeds was assessed on five occasions. Nitrogen content of grain and straw was measured.

**GRAIN TONNES/HECTARE**

***** Tables of means *****

| WEED DEN / WEED SP | 0 | 2 | 4 | 8 | 16 | 32 | Mean |
|---|---|---|---|---|---|---|---|
| SM | 6.69 | 7.15 | 6.92 | 6.48 | 6.17 | 5.85 | 6.54 |
| AM | 7.74 | 6.60 | 5.35 | 5.62 | 4.73 | 3.46 | 5.58 |
| GA | 7.72 | 6.50 | 6.33 | 5.94 | 5.31 | 4.46 | 6.04 |
| Mean | 7.38 | 6.75 | 6.20 | 6.02 | 5.40 | 4.59 | 6.06 |

*** Standard errors of differences of means ***

| WEED SP | WEED DEN | WEED SP WEED DEN |
|---|---|---|
| 0.177 | 0.251 | 0.435 |

***** Stratum standard errors and coefficients of variation *****

| Stratum | d.f. | s.e. | cv% |
|---|---|---|---|
| BLOCK.WP | 32 | 0.532 | 8.8 |

GRAIN MEAN DM% 89.4

PLOT AREA HARVESTED 0.00020



*https://doi.org/10.23637/ERADOC-1-53* 

# 97/W/WW/1

## WINTER WHEAT

## SULPHUR, VARIETY AND QUALITY

**Object**: To measure yield and quality response to sulphur fertilizer on three varieties of wheat - Woburn, Butt Close.

**Sponsors**: S.P. McGrath, F. Zhao.

**Design**: 3 randomised blocks of 3 x 2 x 3 plots

**Plot dimensions**: 3.0 x 12.0.

**Treatments**: All combinations of:-

1. **VARIETY**

| | |
|---|---|
| H | Hereward dressed Sibutol |
| S | Spark dressed Sibutol |
| R | Rialto dressed Panoctine |

2. **NITROGEN** Nitrogen fertilizer (kg N) as 27.5% N:

| | |
|---|---|
| N1 | 180 |
| N2 | 230 |

3. **SULPHUR** Sulphur fertilizer (kg S) as gypsum (17.5% S):

| | |
|---|---|
| S- | None |
| S1 | 20 |
| S2 | 100 |

**Experimental diary**:

01-Oct-96 : B : Ploughed.
02-Oct-96 : B : Rolled. Rotary harrowed.
03-Oct-96 : **T** : **VARIETY** H, S, R: Varieties drilled at 350 seeds per $m^2$.
06-Dec-96 : B : Panther at 2.0 l in 200 l.
20-Mar-97 : **T** : **SULPHUR** S1, S2: Gypsum applied at 114 and 571 kg respectively.
20-Mar-97 : B : 27.5% N at 145 kg.
03-Apr-97 : **T** : **NITROGEN** N1, N2: 27.5% N applied at 509 and 691 kg respectively.
23-May-97 : B : Standon Fluroxypyr at 0.75 l with Halo at 2.0 l in 300 l.
08-Aug-97 : B : Barclay Gallup at 2.0 l in 300 l.
14-Aug-97 : B : Combine harvested.

Previous crops: Potatoes 1995, s. barley 1996.

**NOTE**: Plant samples were taken in May and June for measurement of sulphur and nitrogen content. Harvest samples of straw and grain were also analysed for sulphur and nitrogen. Grain samples from selected plots were tested for bread making quality.



*https://doi.org/10.23637/ERADOC-1-53* 

97/W/WW/1

GRAIN TONNES/HECTARE

***** Tables of means *****

| VARIETY / NITROGEN | H | S | R | Mean |
|---|---|---|---|---|
| N1 | 3.30 | 5.15 | 3.89 | 4.12 |
| N2 | 3.94 | 4.09 | 4.29 | 4.11 |
| Mean | 3.62 | 4.62 | 4.09 | 4.11 |

| SULPHUR / NITROGEN | S- | S1 | S2 | Mean |
|---|---|---|---|---|
| N1 | 4.21 | 3.99 | 4.15 | 4.12 |
| N2 | 3.27 | 4.29 | 4.77 | 4.11 |
| Mean | 3.74 | 4.14 | 4.46 | 4.11 |

| SULPHUR / VARIETY | S- | S1 | S2 | Mean |
|---|---|---|---|---|
| H | 3.34 | 3.66 | 3.86 | 3.62 |
| S | 4.20 | 5.18 | 4.49 | 4.62 |
| R | 3.67 | 3.58 | 5.03 | 4.09 |
| Mean | 3.74 | 4.14 | 4.46 | 4.11 |

| NITROGEN | SULPHUR / VARIETY | S- | S1 | S2 |
|---|---|---|---|---|
| N1 | H | 3.46 | 3.17 | 3.28 |
| | S | 5.24 | 5.03 | 5.18 |
| | R | 3.92 | 3.76 | 3.99 |
| N2 | H | 3.23 | 4.14 | 4.44 |
| | S | 3.16 | 5.32 | 3.79 |
| | R | 3.41 | 3.40 | 6.07 |

*** Standard errors of differences of means ***

| VARIETY | NITROGEN | SULPHUR | VARIETY NITROGEN |
|---|---|---|---|
| 0.383 | 0.313 | 0.383 | 0.542 |

| VARIETY SULPHUR | NITROGEN SULPHUR | VARIETY NITROGEN SULPHUR |
|---|---|---|
| 0.664 | 0.542 | 0.939 |

***** Stratum standard errors and coefficients of variation *****

| Stratum | d.f. | s.e. | cv% |
|---|---|---|---|
| BLOCK.WP | 34 | 1.150 | 28.0 |

GRAIN MEAN DM% 87.9 PLOT AREA HARVESTED 0.00220



*https://doi.org/10.23637/ERADOC-1-53* 

## 97/R/WW/2

## WINTER WHEAT

## WEED GROWTH AND DEVELOPMENT

**Object:** To study the growth and seed production of weeds in the presence and absence of a wheat crop with irrigation to avoid water stress - Great Harpenden I.

**Sponsors:** J.W. Cussans, P.J.W. Lutman.

**Design:** 4 randomised blocks of 7 plots.

**Whole plot dimensions:** 6.0 x 10.0.

**Treatments:**

| **CRP WEED** | Crop and/or weed species: |
|---|---|
| WW | W. wheat |
| WCH | W. wheat and chickweed (*Stellaria media*) |
| WBG | W. wheat and black-grass (*Alopecurus myosuroides*) |
| WCL | W. wheat and cleavers (*Galium aparine*) |
| CH | Chickweed |
| BG | Black-grass |
| CL | Cleavers |

**Experimental diary:**

28-Aug-96 : B : PK as (0:20:32) at 1400 kg.
23-Sep-96 : B : Roundup at 1.5 l with Vassgro Non-ionic at 0.5 l in 200 l.
02-Oct-96 : B : Ploughed and furrow pressed.
08-Oct-96 : **T** : All plots except WW: Weeds broadcast.
: B : Harrowed.
08-Oct-96 : **T** : **CRP WEED** WW, WCH, WBG, WCL: Rotary harrowed, Mercia, dressed Sibutol, drilled at 380 seeds per $m^2$.
16-Dec-96 : **T** : **CRP WEED** WW, WBG, BG: Starane 2 at 1.0 l in 220 l.
24-Jan-97 : **T** : **CRP WEED** WW, WCH, WCL, CH, CL: Topik 240 EC at 0.25 l in 220 l.
11-Mar-97 : B : 34.5% N at 118 kg.
14-Apr-97 : B : 34.5% N at 463 kg. Clayton Turret at 1.5 l in 200 l.
25-Apr-97 : B : Irrigated 25 mm.
13-May-97 : B : Irrigated 30 mm.
04-Jun-97 : B : Irrigated 25 mm.
16-Jun-97 : B : Folicur at 0.5 l with Mallard 750 EC at 0.3 l and Pointer at 0.5 l in 300 l.
12-Aug-97 : B : Hand harvested.

Previous crops: S. wheat 1995, s. barley 1996.

**NOTE:** Weed and crop densities were assessed at emergence, in autumn and in spring. Biomass of crop and weeds was assessed on five occasions. Nitrogen content of grain and straw was measured.



*https://doi.org/10.23637/ERADOC-1-53* 

**97/R/WW/2**

**GRAIN TONNES/HECTARE**

***** Tables of means *****

| CRP | WEED | |
|---|---|---|
| | WW | 6.76 |
| | WCH | 6.31 |
| | WBG | 4.89 |
| | WCL | 3.26 |
| | Mean | 5.31 |

*** Standard errors of differences of means ***

| CRP | WEED |
|---|---|
| | 0.451 |

***** Stratum standard errors and coefficients of variation *****

| Stratum | d.f. | s.e. | cv% |
|---|---|---|---|
| BLOCK.WP | 9 | 0.638 | 12.0 |

GRAIN MEAN DM% 87.8

PLOT AREA HARVESTED 0.00020



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# 97/R/WW/3

## WINTER WHEAT

## PLANT N INDICATORS

**Object**: To relate chlorophyll concentrations in individual leaves of two varieties of w. wheat to nitrogen supply and crop yield - Fosters.

**Sponsors**: P.B. Barraclough.

**Design**: 3 randomised blocks of 14 plots.

**Whole plot dimensions**: 3.0 x 20.0.

**Treatments**:

1. **N** Nitrogen (kg N):

| |
|---|
| - |
| 50 |
| 100 |
| 150 |
| 200 |
| 250 |
| 300 |

2. **VARIETY**

| | |
|---|---|
| H | Hereward dressed Beret Gold |
| R | Riband dressed Sibutol |

**Experimental diary**:

| | | |
|---|---|---|
| 04-Sep-96 | B | Ploughed and furrow pressed. |
| 26-Sep-96 | B | Rolled, spring-tine cultivated. |
| | **T** | Rotary harrowed, varieties drilled at 380 seeds per $m^2$. |
| 27-Sep-96 | B | Rolled. |
| 01-Oct-96 | B | Stefes Tiger 90 at 40 kg. |
| 27-Nov-96 | B | Stefes IPU at 2.6 l with Stomp 400 SC at 3.1 l and Cyperkill 10 at 250 ml in 200 l. |
| 11-Mar-97 | **T** | **N** 50, 100, 150, 200, 250, 300: 34.5% N at 118 kg. |
| 10-Apr-97 | **T** | **N** 50, 100, 150, 200, 250, 300: 34.5% N at 27, 172, 317, 462, 607 and 752 kg respectively. |
| 18-Apr-97 | B | Starane 2 at 0.75 l with Barclay Holdup at 2.3 l in 300 l. |
| 30-May-97 | B | Folicur at 0.5 l with Mallard 750 EC at 0.3 l and Pointer at 0.5 l in 300 l. |
| 18-Aug-97 | B | Combine harvested. |

Previous crops: Set-aside 1995, w. rape 1996.

**NOTES**: (1) Stefes Tiger 90 is a sulphur fertilizer.
(2) Plants were sampled periodically for growth and chemical analysis. Chlorophyll was measured in the field with an experimental meter. Grain and straw was analysed for nitrogen content.



*https://doi.org/10.23637/ERADOC-1-53* 

97/R/WW/3

GRAIN TONNES/HECTARE

***** Tables of means *****

| VARIETY N | H | R | Mean |
|---|---|---|---|
| - | 4.73 | 4.95 | 4.84 |
| 50 | 6.34 | 7.03 | 6.68 |
| 100 | 7.87 | 8.40 | 8.14 |
| 150 | 9.24 | 9.87 | 9.55 |
| 200 | 9.36 | 10.18 | 9.77 |
| 250 | 10.04 | 10.57 | 10.30 |
| 300 | 9.70 | 10.68 | 10.19 |
| Mean | 8.18 | 8.81 | 8.50 |

*** Standard errors of differences of means ***

| N | VARIETY | N VARIETY |
|---|---|---|
| 0.204 | 0.109 | 0.289 |

***** Stratum standard errors and coefficients of variation *****

| Stratum | d.f. | s.e. | cv% |
|---|---|---|---|
| BLOCK.WP | 26 | 0.354 | 4.2 |

GRAIN MEAN DM% 85.7

PLOT AREA HARVESTED 0.00360



*https://doi.org/10.23637/ERADOC-1-53* 

## 97/W/WW/3

## WINTER WHEAT

## FUNGICIDES AND TAKE-ALL

**Object**: To test fungicides to control take-all (*Gaeumannomyces graminis*) - Woburn, Stackyard C.

**Sponsors**: G.L. Bateman, R.J. Gutteridge.

**Design**: 4 randomised blocks of 6 x 2 plots.

**Plot dimensions**: 3.0 x 10.0.

**Treatments**: All combinations of:-

1. **SEED TRT** Seed Treatment:

| | |
|---|---|
| - | None |
| F1R1 | Fungicide 1 rate 1 |
| F1R2 | Fungicide 1 rate 2 |
| F2R1 | Fungicide 2 rate 1 |
| F2R2 | Fungicide 2 rate 1 |
| B | Fuberidazole and triadimenol (Baytan Flowable) |

2. **SPORTAK** Eyespot control

| | |
|---|---|
| O | None |
| S | Prochloraz (Sportak 45) |

**NOTE**: Fungicide 1 and 2 are under commercial development, composition undisclosed.

**Experimental diary**:

30-Sep-96 : B : Ploughed.
16-Oct-96 : B : Rotary harrowed, Brigadier, dressed as treatment, drilled at 400 seeds per $m^2$.
06-Dec-96 : B : Panther at 2.0 l in 200 l.
21-Mar-97 : B : 27.5% N at 145 kg.
14-Apr-97 : **T** : **SPORTAK** S: Sportak 45 at 0.9 l in 200 l.
15-Apr-97 : B : 34.5% N at 348 kg.
16-May-97 : B : Halo at 2.0 l in 300 l.
04-Jun-97 : B : Alto 100 SL at 0.8 l with Mistral at 1.0 l in 300 l.
17-Aug-97 : B : Combine harvested.

Previous crops: W.wheat 1995 and 1996.

**NOTE**: In April plant populations were estimated, shoot dry weight measured and take-all assessed. In June take-all and stem base diseases were measured.



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**97/W/WW/3**

**GRAIN TONNES/HECTARE**

***** Tables of means *****

| SPORTAK | O | S | Mean |
|---|---|---|---|
| SEED TRT | | | |
| - | 3.58 | 3.94 | 3.76 |
| F1R1 | 4.09 | 4.50 | 4.30 |
| F1R2 | 4.24 | 5.53 | 4.89 |
| F2R1 | 4.96 | 4.23 | 4.59 |
| F2R2 | 4.65 | 5.03 | 4.84 |
| B | 3.54 | 3.86 | 3.70 |
| Mean | 4.18 | 4.51 | 4.35 |

*** Standard errors of differences of means ***

| SEED TRT | SPORTAK | SEED TRT SPORTAK |
|---|---|---|
| 0.580 | 0.335 | 0.821 |

***** Stratum standard errors and coefficients of variation *****

| Stratum | d.f. | s.e. | cv% |
|---|---|---|---|
| BLOCK.WP | 33 | 1.161 | 26.7 |

GRAIN MEAN DM% 89.5

PLOT AREA HARVESTED 0.00236



*https://doi.org/10.23637/ERADOC-1-53* 

# 97/R/WW/5

## WINTER WHEAT

## SEMIOCHEMICALS AND APHIDS

**Object**: To test semiochemicals on cereal aphids in autumn and spring migratory periods - Great Harpenden I.

**Sponsors**: L.E. Smart, B.J. Pye, L.J. Wadhams.

**Design**: 5 x 5 quasi-complete Latin square.

**Whole plot dimensions**: 6.0 x 6.0.

**Treatments**:

| **SEMIOCHM** | Semiochemicals: |
|---|---|
| - | None |
| A | Polygodial applied by electrostatic sprayer |
| B | Methylsalicylate |
| C | Neptalactone |
| D | Methylsalicylate and neptalactone |

**SEMIOCHM** B, C and D were released from point sources at the plot centres from 24-Oct-96.

**Experimental diary**:

28-Aug-96 : B : PK as (0:20:32) at 1400 kg.
23-Sep-96 : B : Roundup at 1.5 l with Vassgro Non-ionic at 0.5 l in 200 l.
01-Oct-96 : B : Ploughed and furrow pressed.
08-Oct-96 : B : Spring-tine cultivated. Rotary harrowed, Mercia, dressed Sibutol, drilled at 380 seeds per $m^2$.
14-Nov-96 : **T** : **SEMIOCHM** A: Polygodial at 50 g a.i. in 10.4 l.
05-Dec-96 : B : Isoproturon 500 at 2.6 l with Stomp 400 SC at 3.1 l in 200 l.
11-Mar-97 : B : 34.5% N at 118 kg.
11-Apr-97 : B : 34.5% N at 464 kg. Clayton Turret at 1.5 l with Barclay Holdup at 2.3 l in 300 l.
09-Jun-97 : **T** : **SEMIOCHM** A: Polygodial at 50 g a.i. in 10.4 l.
16-Jun-97 : B : Folicur at 0.5 l with Mallard 750 EC at 0.3 l and Pointer at 0.5 l in 300 l.
17-Jun-97 : **T** : **SEMIOCHM** A: Polygodial at 50 g a.i. in 10.4 l.
12-Aug-97 : B : Combine harvested.

Previous crops: S. wheat 1995 and 1996.

**NOTES**: Aphid populations were assessed frequently in November and May to July.



*https://doi.org/10.23637/ERADOC-1-53* 

**97/R/WW/5**

**GRAIN TONNES/HECTARE**

***** Tables of means *****

**SEMIOCHM**

| | |
|---|---|
| - | 8.23 |
| A | 8.35 |
| B | 8.37 |
| C | 8.12 |
| D | 8.18 |
| Mean | 8.25 |

*** Standard errors of differences of means ***

**SEMIOCHM**
0.146

***** Stratum standard errors and coefficients of variation *****

| Stratum | d.f. | s.e. | cv% |
|---|---|---|---|
| ROW.COL | 12 | 0.231 | 2.8 |

GRAIN MEAN DM% 87.1

PLOT AREA HARVESTED 0.00144



*https://doi.org/10.23637/ERADOC-1-53* 

## 97/R/WW/6

## WINTER WHEAT

## HERBICIDE RESISTANT BLACK-GRASS

**Object**: To evaluate the efficacy of different herbicides on a herbicide-resistant black-grass (*Alopecurus myosuroides*) population and to determine any changes in the degree of resistance in the progeny of surviving plants - Claycroft.

**Sponsor**: S.R. Moss.

**Design**: 2 blocks of 15 plots duplicated.

**Whole plot dimensions**: 3.0 x 12.0.

**Treatments**:

| HERBCIDE | Herbicide type, rate of active ingredient and timing (black-grass growth stage): |
|---|---|
| A | Isoproturon 500 at 2.5 kg post emergence |
| B | Isoproturon 500 at 1.5 kg post emergence |
| C | Tri-allate at 2.25 kg pre-emergence and isoproturon at 1.5 kg at two leaf stage |
| D | Trifluralin at 0.96 kg pre-emergence and isoproturon at 1.5 kg at two leaf stage |
| E | Trifluralin at 0.96 kg at two leaf stage and isoproturon at 1.5 kg at two leaf stage |
| F | Pendimethalin at 1.32 kg at two leaf stage and isoproturon at 1.5 kg at two leaf stage |
| G | Trifluralin at 0.96 kg at one leaf stage and isoproturon at 1.5 kg at two leaf stage |
| H | Clodinafop-propargyl at 0.5 kg with trifluralin at 1.2 kg at two leaf stage |
| J | Fenoxaprop-P-ethyl at 0.069 kg at two leaf stage |
| K | Clodinafop-propargyl at 0.03 kg with adjuvant at two leaf stage |
| L | JV485 pre-emergence |
| M | Agent X at two leaf stage |
| N | JV485 pre-emergence and Agent X at two leaf stage |
| O | None |
| P | None |

**NOTE**: Herbicides JV485 and Agent X are under commercial development, composition undisclosed

**Experimental diary**:

15-Sep-96 : B : Roundup at 1.5 l with Vassgro Non-ionic at 300 ml in 200 l.
23-Sep-96 : B : Harrowed.
25-Sep-96 : B : Ploughed and furrow pressed.
30-Sep-96 : B : Harrowed.
17-Oct-96 : B : Rotary harrowed, Mercia, dressed Sibutol, drilled at 380 seeds per $m^2$.



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**97/R/WW/6**

**Experimental diary:**

17-Oct-96 : B : Scythe LC at 2.0 l with Vassgro Non-ionic at 100 ml in 200 l.
22-Oct-96 : **T** : **HERBCIDE** C: Avadex BW Granular at 22.5 kg.
: **T** : **HERBCIDE** L, N: JV485 at 0.35 l in 220 l.
: **T** : **HERBCIDE** D: MTM Trifluralin at 2.0 l in 220 l.
23-Oct-96 : B : Draza at 5.5 kg.
08-Nov-96 : **T** : **HERBCIDE** G: MTM Trifluralin at 2.0 l in 220 l.
03-Mar-97 : **T** : **HERBCIDE** J: Cheetah Super at 1.25 l in 220 l.
: **T** : **HERBCIDE** H: Hawk at 2.5 l with Actipron at 1.0 l in 220 l.
: **T** : **HERBCIDE** B, C, D, E, F, G: MSS Iprofile at 3.0 l in 220 l.
: **T** : **HERBCIDE** A: MSS Iprofile at 5.0 l in 220 l.
: **T** : **HERBCIDE** M, N: Agent X at 20 g in 220 l.
: **T** : **HERBCIDE** F: Stomp 400 SC at 3.3 l in 220 l.
: **T** : **HERBCIDE** K: Topik at 0.125 l with Actipron at 1.0 l in 220 l.
11-Apr-97 : B : 34.5% N at 568 kg.
04-Jun-97 : B : Folicur at 0.5 l with Mallard 750 EC at 0.3 l and Pointer at 0.5 l in 300 l.
14-Aug-97 : B : Combine harvested.

Previous crops: W. wheat 1995 and 1996.

**NOTE:** Black-grass plant populations were assessed in December 1996 and heads were counted in June 1997.



*https://doi.org/10.23637/ERADOC-1-53* 

96/R/WW/6

GRAIN TONNES/HECTARE

***** Tables of means *****

| HERBCIDE | |
|---|---|
| A | 5.53 |
| B | 5.13 |
| C | 6.41 |
| D | 6.26 |
| E | 5.67 |
| F | 5.26 |
| G | 5.99 |
| H | 6.50 |
| J | 4.99 |
| K | 6.43 |
| L | 6.66 |
| M | 5.67 |
| N | 6.17 |
| NIL | 4.27 |
| Mean | 5.68 |

*** Standard errors of differences of means ***

| HERBCIDE | |
|---|---|
| 0.264 | min.rep |
| 0.229 | max-min |

| | HERBCIDE |
|---|---|
| min.rep | Any of the remainder |
| max-min | NIL v any of the remainder |

***** Stratum standard errors and coefficients of variation *****

| Stratum | d.f. | s.e. | cv% |
|---|---|---|---|
| BLOCK.WP | 45 | 0.374 | 6.6 |

GRAIN MEAN DM% 86.2

PLOT AREA HARVESTED 0.00230



*https://doi.org/10.23637/ERADOC-1-53* 

# 97/R/WW/8

## WINTER WHEAT

## FUNGICIDES AND TAKE-ALL

**Object:** To test fungicides to control take-all (*Gaeumannomyces graminis*) and eyespot (*Tapesia yallundae*) - Stubbings.

**Sponsors:** G.L. Bateman, R.J. Gutteridge.

**Design:** 4 randomised blocks of 6 x 2 plots.

**Whole plot dimensions:** 3.0 x 10.0.

**Treatments:**

| | | |
|---|---|---|
| 1. | **SEED TRT** | Seed treatment: |
| | - | None |
| | F1R1 | Fungicide 1 rate 1 |
| | F1R2 | Fungicide 1 rate 2 |
| | F2R1 | Fungicide 2 rate 1 |
| | F2R2 | Fungicide 2 rate 2 |
| | B | Fuberidazole and triadimenol (Baytan Flowable) |
| 2. | **SPORTAK** | Eyespot control: |
| | O | None |
| | S | Prochloraz (Sportak 45) |

**NOTE:** Fungicide 1 and 2 are under commercial development, composition undisclosed.

**Experimental diary:**

28-Aug-96 : B : PK as (0:20:32) at 1400 kg.
05-Oct-96 : B : Ploughed and furrow pressed.
14-Oct-96 : **T** : Rotary harrowed, Brigadier, dressed as treatment, drilled at 380 seeds per $m^2$.
28-Nov-96 : B : Auger at 2.5 l with Stomp 400 SC at 3.1 l in 200 l.
10-Mar-97 : B : 34.5% N at 118 kg.
01-Apr-97 : **T** : **SPORTAK** S: Sportak 45 at 0.9 l in 220 l.
07-Apr-97 : B : 34.5% N at 464 kg.
04-Jun-97 : B : Folicur at 0.5 l with Mallard 750 EC at 0.3 l and Pointer at 0.5 l in 300 l.
09-Jun-97 : B : Mistral at 1.0 l in 300 l.
12-Aug-97 : B : Combine harvested.

Previous crops: W. wheat 1995 and 1996.

**NOTE:** Plant samples were taken in April and July to assess take-all and stem base diseases, Septoria (*Septoria tritici*) was also assessed in July.



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97/R/WW/8

GRAIN TONNES/HECTARE

***** Tables of means *****

| SPORTAK<br>SEED TRT | O | S | Mean |
|---|---|---|---|
| - | 7.60 | 8.08 | 7.84 |
| F1R1 | 8.63 | 8.70 | 8.67 |
| F1R2 | 8.29 | 8.34 | 8.31 |
| F2R1 | 8.05 | 7.88 | 7.97 |
| F2R2 | 8.28 | 8.27 | 8.28 |
| B | 7.88 | 8.02 | 7.95 |
| Mean | 8.12 | 8.21 | 8.17 |

*** Standard errors of differences of means ***

| SEED TRT | SPORTAK | SEED TRT<br>SPORTAK |
|---|---|---|
| 0.174 | 0.100 | 0.246 |

***** Stratum standard errors and coefficients of variation *****

| Stratum | d.f. | s.e. | cv% |
|---|---|---|---|
| BLOCK.WP | 33 | 0.347 | 4.3 |

GRAIN MEAN DM% 86.5

PLOT AREA HARVESTED 0.00237



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# 97/R/WW/10

## WINTER WHEAT

## STEM BASE DISEASES AND FUNGICIDES

**Object:** To evaluate sampling methods and molecular diagnostics for assessing risk of stem base diseases and the effects of fungicides - Highfield IV/ Road Piece East.

**Sponsors:** G.L. Bateman.

**Design:** 4 randomised blocks of 4 x 5 plots.

**Whole plot dimensions:** 3.0 x 10.0.

**Treatments:** All combinations of:-

1. **CULTIVAR** Variety:

| | |
|---|---|
| L | Lynx |
| B | Brigadier |
| M | Mercia |
| S | Soissons |

2. **FUNGCIDE** Fungicides:

| | |
|---|---|
| - | None |
| PR | Prochloraz |
| CY | Cyprodinil |
| ST | Strobilurin |
| FL | Flusilazole |

**Experimental diary:**

27-Aug-96 : B : PK as (0:20:32) at 1400 kg.
05-Oct-96 : B : Ploughed and furrow pressed.
09-Oct-96 : **T** : **CULTIVAR** L, B, M, S: Lynx, Brigadier and Mercia, undressed, drilled at 380 seeds per $m^2$, Soissons, undressed, drilled at 400 seeds per $m^2$.
28-Nov-96 : B : Auger at 2.6 l with Stomp 400 SC at 3.1 l in 200 l.
10-Mar-97 : B : 34.5% N at 118 kg.
03-Apr-97 : B : 34.5% N at 463 kg.
08-Apr-97 : **T** : **FUNGCIDE** ST: Amistar at 1.0 l in 220 l.
: **T** : **FUNGCIDE** CY: Unix at 1.0 kg in 220 l.
: **T** : **FUNGCIDE** FL: Sanction at 0.5 l in 220 l.
: **T** : **FUNGCIDE** PR: Sportak 45 at 0.889 l in 220 l.
30-May-97 : B : Clayton Epoxicon at 1.0 l in 300 l.
09-Jun-97 : B : Mistral at 1.0 l in 300 l.
20-Aug-97 : B : Combine harvested.

Previous crops: W. and s. rape 1995, w. wheat 1996.



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**NOTES:** (1) Because of a combine error the yield of one plot with **CULTIVAR** M **FUNGCIDE** CY was lost. An estimated value was used in the analysis.

(2) Plant samples were taken in March, April, May and July to assess stem base diseases and extract DNA to identify stem base pathogens.

**GRAIN TONNES/HECTARE**

***** Tables of means *****

| **FUNGCIDE** | - | PR | CY | ST | FL | Mean |
|---|---|---|---|---|---|---|
| **CULTIVAR** | | | | | | |
| L | 9.83 | 9.20 | 9.89 | 10.29 | 9.58 | 9.76 |
| B | 8.53 | 9.11 | 8.65 | 10.58 | 9.35 | 9.24 |
| M | 8.07 | 7.94 | 8.37 | 7.86 | 7.95 | 8.04 |
| S | 7.97 | 7.85 | 8.32 | 8.53 | 8.17 | 8.17 |
| Mean | 8.60 | 8.53 | 8.81 | 9.31 | 8.76 | 8.80 |

*** Standard errors of differences of means ***

| **CULTIVAR** | **FUNGCIDE** | **CULTIVAR FUNGCIDE** |
|---|---|---|
| 0.212 | 0.237 | 0.474 |

***** Stratum standard errors and coefficients of variation *****

| Stratum | d.f. | s.e. | cv% |
|---|---|---|---|
| BLOCK.WP | 56 | 0.670 | 7.6 |

GRAIN MEAN DM% 88.0

PLOT AREA HARVESTED 0.00240



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# 97/R/WW/11

## WINTER WHEAT

## CHEMICAL CONTROL OF TAKE-ALL

**Object:** To test a 'plant activator' to control take-all (*Gaeumannomyces graminis*) - Highfield IV/Road Piece East.

**Sponsors:** R. Gutteridge.

**Design:** 2 randomised blocks of 2 treatments duplicated.

**Whole plot dimensions:** 3.0 x 10.0.

**Treatments:**

**CHEMICAL**

| | |
|---|---|
| - | None |
| S | Benzo (1,2,3) thiadiazole-7-carbothionic acid-S-methyl ester (CGA 245704) |

**NOTE:** CGA 245704 contains 50% active ingredient.

**Experimental diary:**

27-Aug-96 : B : PK as (0:20:32) at 1400 kg.
05-Oct-96 : B : Ploughed, and furrow pressed.
10-Oct-96 : B : Rotary harrowed, Rialto, dressed Panoctine, drilled at 380 seeds per $m^2$.
28-Nov-96 : B : Auger at 2.6 l with Stomp 400 SC at 3.1 l in 200 l.
10-Mar-97 : B : 34.5% N at 118 kg.
03-Apr-97 : B : 34.5% N at 463 kg.
14-Apr-97 : **T** : **CHEMICAL** S: CGA 245704 at 60 g in 200 l.
30-May-97 : B : Clayton Epoxicon at 1.0 l in 300 l.
20-Aug-97 : **T** : Combine harvested.

Previous crops: W. and s. rape 1995, w. wheat 1996.

**NOTE:** Plant samples were taken in May and July to assess root and stem base diseases.



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**97/R/WW/11**

**GRAIN TONNES/HECTARE**

***** Tables of means *****

| CHEMICAL | |
|---|---|
| - | 9.89 |
| S | 9.86 |
| Mean | 9.87 |

*** Standard errors of differences of means ***

| CHEMICAL |
|---|
| 0.334 |

***** Stratum standard errors and coefficients of variation *****

| Stratum | d.f. | s.e. | cv% |
|---|---|---|---|
| BLOCK.WP | 5 | 0.472 | 4.8 |

GRAIN MEAN DM% 89.2

PLOT AREA HARVESTED 0.00240



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