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# Yields of the Field Experiments 1987

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87/R/B/2 Sowing Dates, Aphids and Bydv - W. Barley  
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Printed: Rothamsted, 1988.  
Rothamsted 1988

## 87/R/B/2 Sowing Dates, Aphids and Bydv - W. Barley

### Rothamsted Research

Rothamsted Research (1988) *87/R/B/2 Sowing Dates, Aphids and Bydv - W. Barley* ; Yields Of The Field Experiments 1987, pp 183 - 186 - DOI: <https://doi.org/10.23637/ERADOC-1-37>

87/R/B/2

WINTER BARLEY

SOWING DATES, APHIDS AND BYDV

Object: To study the relationship of aphid numbers in suction trap samples to crop populations and the incidence of BYDV on winter barley sown on a range of dates - Great Field II.

Sponsors: N. Carter, R.T. Plumb.

Design: 4 randomised blocks of 10 plots.

Whole plot dimensions: 3.0 x 18.0.

Treatments: All combinations of:-

- |             |                                                   |
|-------------|---------------------------------------------------|
| 1. SOWDATE  | Dates of sowing:                                  |
| 12 SEPT     | 12 September, 1986                                |
| 22 SEPT     | 22 September                                      |
| 1 OCT       | 1 October                                         |
| 10 OCT      | 10 October                                        |
| 24 OCT      | 24 October                                        |
| 2. APHICIDE | Aphicide:                                         |
| NONE        | None                                              |
| CYPERMET    | Cypermethrin at 0.025 kg in 380 l on 12 Nov, 1986 |

- NOTES: (1) All SOWDATE treatments were rotary harrowed on the day of sowing.  
(2) The crop was netted against birds from late June until maturity.

Basal applications: Manures: 'Nitram' at 460 kg. Weedkillers: Paraquat at 0.60 kg ion in 200 l. Isoproturon at 2.5 kg with clopyralid at 0.07 kg, bromoxynil at 0.34 kg and mecoprop at 2.5 kg in 200 l. Fungicides: Prochloraz at 0.40 kg and carbendazim at 0.15 kg in 200 l. Triadimenol at 0.12 kg in 200 l.

Seed: Igri, sown at 150 kg.

Cultivations, etc.: - Cultivated by rotary grubber: 13 Aug, 1986. Heavy spring-tine cultivated: 28 Aug. Paraquat applied: 10 Sept. Heavy spring-tine cultivated, rotary harrowed: 11 Sept. N applied: 21 Mar, 1987. Remaining weedkillers applied: 16 Apr. Prochloraz and carbendazim applied: 21 Apr. Triadimenol applied: 27 May. Combine harvested: 7 Aug. Previous crops: S. barley 1985, w. barley 1986.

NOTE: Aphids were counted from late September to January and again in May. Visual estimates of BYDV were made at the end of April. Components of yield were measured. Take-all was assessed in summer.

87/R/B/2

GRAIN TONNES/HECTARE

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

| APHICIDE | NONE | CYPERMET | Mean |
|----------|------|----------|------|
| SOWDATE  |      |          |      |
| 12 SEPT  | 5.28 | 5.20     | 5.24 |
| 22 SEPT  | 5.14 | 5.46     | 5.30 |
| 1 OCT    | 5.54 | 5.63     | 5.58 |
| 10 OCT   | 5.47 | 5.39     | 5.43 |
| 24 OCT   | 5.61 | 5.64     | 5.63 |
| Mean     | 5.41 | 5.46     | 5.44 |

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

| Table  | SOWDATE | APHICIDE | SOWDATE<br>APHICIDE |
|--------|---------|----------|---------------------|
| s.e.d. | 0.159   | 0.101    | 0.225               |

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

| Stratum  | d.f. | s.e.  | cv% |
|----------|------|-------|-----|
| BLOCK.WP | 27   | 0.319 | 5.9 |

GRAIN MEAN DM% 86.3

PLOT AREA HARVESTED 0.00230

87/R/B/3

WINTER BARLEY

ANTI-FEEDANTS AND BYDV

Object: To study the effects of insecticides and insect anti-feedants and their interaction with control of autumn volunteers on the incidence of BYDV - Scout N.

Sponsors: D.C. Griffiths, R.T. Plumb.

Design: 3 blocks of 2 whole plots, split into 6 sub-plots.

Whole plot dimensions: 15.0 x 30.0.

Treatments: All combinations of:-

Whole plots

- |             |                                               |
|-------------|-----------------------------------------------|
| 1. VOLNTEER | Control of volunteers prior to sowing:        |
| KILLED      | Control of all green plant matter             |
| PRESENT     | Volunteer germination and survival encouraged |

Sub plots

- |             |                                                                                     |
|-------------|-------------------------------------------------------------------------------------|
| 2. SPRY INS | Sprays of insecticides and pheromone derivatives applied electrostatically in 10 l: |
| NONE        | None                                                                                |
| CYP         | Cypermethrin at 25 g on 29 Oct, 1986                                                |
| POLYG R1    | Polygodial, racemic, one spray on 29 Oct                                            |
| POLYG R2    | Polygodial, racemic, two sprays, on 15 Oct and 29 Oct                               |
| POLYG R3    | Polygodial, racemic, three sprays, on 3 Oct, 15 Oct and 29 Oct                      |
| POLYG N3    | Polygodial, normal, three sprays, on 3 Oct, 15 Oct and 29 Oct                       |

NOTE: VOLNTEER KILLED plots were sprayed with paraquat at 0.60 kg ion in 280 l on 9 Sept, 1986.

Basal applications: Manures: (0:18:36) at 690 kg. 'Nitram' at 460 kg. Weedkillers: Isoproturon at 2.5 kg with clopyralid at 0.07 kg, bromoxynil at 0.34 kg and mecoprop at 2.5 kg in 500 l. Fungicides: Carbendazim at 0.15 kg and prochloraz at 0.40 kg in 200 l. Propiconazole at 0.25 kg in 200 l. Desiccant: Diquat at 0.80 kg ion with a wetting agent ('Agral' at 0.20 l) in 200 l.

Seed: Igri, sown at 150 kg.

Cultivations, etc.: PK applied, cultivated by rotary grubber: 7 Aug, 1986. Spring-tine cultivated: 11 Sept. Rotary harrowed, seed sown: 12 Sept. N applied: 20 Mar, 1987. Weedkillers applied: 15 Apr. Carbendazim and prochloraz applied: 29 Apr. Propiconazole applied: 27 May. Diquat with wetting agent applied: 31 July. Combine harvested: 7 Aug. Previous crops: W. barley 1985 and 1986.

87/R/B/3

NOTES: (1) Aphid counts were made in early November 1986, late November and early April, 1987.  
 (2) VOLNTEER PRESENT plots were severely infested with blackgrass.

GRAIN TONNES/HECTARE

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

| SPRY INS<br>VOLNTEER<br>KILLED<br>PRESENT | NONE | CYP  | POLYG R1 | POLYG R2 | POLYG R3 | POLYG N3 | Mean |
|-------------------------------------------|------|------|----------|----------|----------|----------|------|
|                                           | 6.96 | 7.35 | 7.14     | 7.24     | 7.27     | 7.38     | 7.22 |
|                                           | 4.75 | 4.19 | 4.71     | 2.43     | 5.10     | 4.25     | 4.24 |
| Mean                                      | 5.85 | 5.77 | 5.92     | 4.83     | 6.19     | 5.81     | 5.73 |

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

| Table  | SPRY INS | VOLNTEER*<br>SPRY INS |
|--------|----------|-----------------------|
| s.e.d. | 0.657    | 0.930                 |

\* Within the same level of VOLNTEER only

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

| Stratum     | d.f. | s.e.  | cv%  |
|-------------|------|-------|------|
| BLOCK.WP.SP | 20   | 1.139 | 19.9 |

GRAIN MEAN DM% 85.9

SUB PLOT AREA HARVESTED 0.00163