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# Yields of the Field Experiments 1980

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## 80/R/B/8 and 80/W/B/8 Spring Barley Physiological Study on Contrasted Sites

### Rothamsted Research

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80/R/B/8 and 80/W/B/8

SPRING BARLEY

PHYSIOLOGICAL STUDY ON CONTRASTED SITES

Object: To study the effects of a range of nitrogen fertiliser dressings and two contrasted sites on the grain physiology and yield of two varieties of s. barley - Rothamsted (R) Delafield and Woburn (W) Lansome III.

Sponsor: J.N. Gallagher.

Design: 3 randomised blocks of 12 plots.

Whole plot dimensions: 3.0 x 16.2.

Treatments: All combinations of:-

1. VARIETY Varieties:

|          |           |
|----------|-----------|
| ARKROYAL | Ark Royal |
| PORTHOS  | Porthos   |

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

|     |     |
|-----|-----|
| R   | W   |
| 0   | 0   |
| 25  | 30  |
| 50  | 60  |
| 75  | 90  |
| 100 | 120 |
| 125 | 150 |

NOTE: Ark Royal was sown at 140 kg and Porthos at 160 kg. These seed rates each gave 350 seeds per square metre.

Basal applications:

Delafield (R): Manures: (0:20:20) at 310 kg. Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.0 l) in 250 l applied with the fungicide. Fungicide: Tridemorph at 0.53 kg.

Lansome III (W): Manures: FYM at 50 t, (0:20:20) at 310 kg. Weedkillers Mecoprop with bromoxynil and ioxynil ('Brittox' at 3.5 l) in 280 l applied with the tridemorph. Fungicides: Tridemorph at 0.53 kg; triadimefon 0.13 kg in 220 l applied with the insecticide. Insecticide: Demeton-s-methyl at 0.24 l.

Cultivations, etc.:-

Delafield (R): Subsoiled, tines 160 cm apart and 40 cm deep: 12 Nov, 1979. Chisel ploughed twice: 3 Dec, 4 Dec. Spring-tine cultivated: 6 Apr, 1980. PK and N applied: 7 Apr. Spring-tine cultivated, seed sown: 8 Apr. Weedkiller and fungicide applied: 27 May. Combine harvested: 1 Sept. Previous crops: Beans and kale 1978, potatoes 1979.

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Lansome III (W): Subsoiled, tines 140 cm apart and 50 cm deep: 12 Aug, 1979. FYM applied, ploughed: 21 Aug. Heavy spring-tine cultivated: 29 Feb, 1980. PK applied: 13 Mar. Heavy spring-tine cultivated: 4 Apr. N applied, spring-tine cultivated with crumbler attached: 5 Apr. Seed sown: 10 Apr. Weedkiller with tridemorph applied: 30 May. Triadimefon with insecticide applied: 3 July. Combine harvested: 28 Aug. Previous crops: S. barley 1978, grass 1979.

- NOTES: (1) Plant populations were counted at Rothamsted and Woburn and crop cover and growth were assessed at Woburn.  
 (2) Because of rabbit damage the yield from one plot at Rothamsted was lost with treatment combination, VARIETY ARKROYAL N 50. An estimated value was used in the analysis.

80/R/B/8 DELAFIELD (R)

GRAIN TONNES/HECTARE

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

| N        | 0    | 25   | 50   | 75   | 100  | 125  | MEAN |
|----------|------|------|------|------|------|------|------|
| VARIETY  |      |      |      |      |      |      |      |
| ARKROYAL | 4.53 | 5.60 | 5.65 | 6.65 | 6.63 | 6.27 | 5.89 |
| PORTHOS  | 4.83 | 5.39 | 6.28 | 6.37 | 6.63 | 6.97 | 6.08 |
| MEAN     | 4.68 | 5.50 | 5.96 | 6.51 | 6.63 | 6.62 | 5.98 |

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

| TABLE | VARIETY | N     | VARIETY<br>N |
|-------|---------|-------|--------------|
| ----- |         |       |              |
| SED   | 0.105   | 0.183 | 0.258        |

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

| STRATUM  | DF | SE    | CV% |
|----------|----|-------|-----|
| BLOCK.WP | 21 | 0.316 | 5.3 |

GRAIN MEAN DM% 77.1

PLOT AREA HARVESTED 0.00229

80/W/B/8 LANSOME III (W)

GRAIN TONNES/HECTARE

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

| N        | 0    | 30   | 60   | 90   | 120  | 150  | MEAN |
|----------|------|------|------|------|------|------|------|
| VARIETY  |      |      |      |      |      |      |      |
| ARKROYAL | 4.07 | 5.01 | 6.42 | 6.49 | 7.23 | 7.80 | 6.17 |
| PORTHOS  | 4.02 | 4.61 | 5.99 | 6.30 | 6.88 | 6.90 | 5.78 |
| MEAN     | 4.04 | 4.81 | 6.20 | 6.40 | 7.06 | 7.35 | 5.98 |

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

| TABLE | VARIETY | N     | VARIETY<br>N |
|-------|---------|-------|--------------|
| ----- |         |       |              |
| SED   | 0.177   | 0.307 | 0.434        |

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

| STRATUM  | DF | SE    | CV% |
|----------|----|-------|-----|
| BLOCK.WP | 22 | 0.532 | 8.9 |

GRAIN MEAN DM% 77.4

PLOT AREA HARVESTED 0.00228