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## Numerical Results of the Field Experiments 1970

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### 70/R&W/CS/49 Fumigant and N - W. Wheat, S. Wheat

#### Rothamsted Research

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FUMIGANT AND N

(70/R&W/CS/49)

Winter and spring wheat, Rothamsted (R) Furzeffield and Woburn (W) Butt Close 1970 the first year.

Design: 2 replicates of 4 x 4 x 2 in 4 blocks of 4 plots split into 4, certain 3 factor interactions confounded with blocks.

Area of each sub-plot: 0.0024. Area harvested: 0.0016.

Treatments: All combinations of:-

Whole plots: 1. Crops, sowing dates and times of application of formalin: Cappelle winter wheat sown in autumn, formalin applied early autumn (WwA), Cappelle sown in spring, formalin applied early autumn (WwS), Kolibri spring wheat sown in spring, formalin applied in early autumn (WsS) or in early spring (WsS\*).

Sub-plots: 2. Nitrogen: 0.6 (N1), 1.0 (N2), 1.4 (N3), 1.8 (N4) cwt N as 'Nitro-Chalk'.  
3. Formalin: None (O), formalin (F) at 266 gals of 38% formaldehyde in 4840 gals.\*\*

\*\* For the spring applications 3620 gals were used on Furzeffield (R) and 2420 gals on Butt Close (W).

Standard applications: Autumn sowing, 290 lb (0:20:20), spring sowing, 320 lb (0:20:20) each broadcast. Weedkiller: 2,4-D at 0.5 lb plus dichlorprop at 2.0 lb in 35 gals.

Cultivations, etc.:-

Furzeffield (R): Ploughed: 18 Sept, 1969. Formalin applied (WwA, WwS and WsS): 2 Oct. WwA plots rotary cultivated, winter wheat drilled at 180 lb, PK applied: 28 Oct. Formalin applied (WsS\*): 5 Feb, 1970. Spring sown wheat drilled at 180 lb, PK applied: 22 Apr. N applied: 6 May. Weedkiller applied: Winter wheat, 19 May, spring wheat, 1 June. Combine harvested: 29 Aug. Previous crops: Winter wheat 1968 and 1969.

Butt Close (W): Ploughed: 11 Sept, 1969. Formalin applied (WwA, WwS and WsS): 23 Sept. Winter wheat drilled at 180 lb, PK applied: 29 Sept. Remaining plots ploughed second time: 11 Feb, 1970. Formalin applied (WsS\*): 25 Feb. Spring sown wheat drilled at 168 lb, PK applied: 18 Apr. N applied: 7 May. Weedkiller applied: 29 May. Combine harvested: 27 Aug. Previous crops: Barley 1968, fallow 1969.

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- NOTES: (1) Because of very late sowing the spring sown winter wheat (wWS) failed to come into ear properly. No yields were recorded from this treatment.
- (2) Incidence of root pathogens was recorded in spring and at harvest.

Standard errors per plot. Grain, cwt:

Furzefield (R): Whole plot: 3.57 or 12.8% (5 d.f.)  
Sub plot: 4.51 or 16.2% (18 d.f.)  
Pooled (used for calculation of standard errors in the summary): 5.19 or 18.6% (23 d.f.)

Butt Close (W): Whole plot: 1.83 or 31.5% (5 d.f.)  
Sub plot: 1.90 or 32.8% (18 d.f.)  
Pooled (used for calculation of standard errors in the summary): 2.40 or 41.4% (23 d.f.)

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SUMMARY OF RESULTS

FURZEFIELD (R)

GRAIN: CWT

|      | N1           | N2   | N3   | N4   | O       | F    | Mean    |
|------|--------------|------|------|------|---------|------|---------|
|      | (±2.60)      |      |      |      | (±1.83) |      | (±0.92) |
| WwA  | 34.2         | 37.2 | 35.9 | 32.4 | 31.1    | 38.8 | 34.9    |
| WwS  | 21.1         | 24.2 | 25.1 | 23.9 | 23.1    | 24.1 | 23.6    |
| WwS* | 24.2         | 22.7 | 25.7 | 28.0 | 24.7    | 25.6 | 25.1    |
|      |              |      |      |      | (±2.12) |      | (±1.50) |
|      |              |      | N1   |      | 25.2    | 27.8 | 26.5    |
|      |              |      | N2   |      | 25.5    | 30.6 | 28.0    |
|      |              |      | N3   |      | 29.5    | 28.4 | 28.9    |
|      |              |      | N4   |      | 24.9    | 31.3 | 28.1    |
|      | Mean (±1.06) |      |      |      | 26.3    | 29.5 | 27.9    |

Mean D.M. %: 83.7

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BUTT CLOSE (W)

GRAIN: CWT

|      | N1      | N2  | N3           | N4  | O       | F    | Mean    |
|------|---------|-----|--------------|-----|---------|------|---------|
|      | (±1.20) |     |              |     | (±0.85) |      | (±0.42) |
| WwA  | 3.4     | 6.0 | 4.5          | 4.5 | 3.1     | 6.1  | 4.6     |
| WwS  | 6.5     | 4.8 | 5.2          | 4.0 | 4.0     | 6.2  | 5.1     |
| WwS* | 7.3     | 6.7 | 8.2          | 8.6 | 5.3     | 10.0 | 7.7     |
|      |         |     |              |     | (±0.98) |      | (±0.69) |
|      |         |     | N1           |     | 3.9     | 7.5  | 5.7     |
|      |         |     | N2           |     | 3.9     | 7.7  | 5.8     |
|      |         |     | N3           |     | 4.6     | 7.3  | 6.0     |
|      |         |     | N4           |     | 4.2     | 7.2  | 5.7     |
|      |         |     | Mean (±0.49) |     | 4.2     | 7.4  | 5.8     |

Mean D.M.  $\bar{x}$ : 80.7