

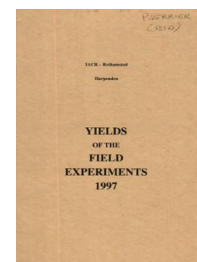
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97/W/WW/1 Sulphur, Variety and Nitrogen - W. Wheat

Rothamsted Research

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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 m².
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.

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 |