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

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96/W/WW/1

WINTER WHEAT

VARIETY, SULPHUR AND NITROGEN

Object: To measure yield and quality response to sulphur fertilizer on two varieties of wheat - Woburn, Stackyard AI.

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

Design: 3 randomised blocks of (2 x 6) + 6 plots

Plot dimensions: 3.0 x 10.0.

Treatments: All combinations of:-

1. **NITROGEN** Nitrogen fertilizer (kg N) as 34.5% N at growth stage 32 in addition to a basal dressing of 180 kg N:

N1	None
N2	50

2. **SULPHUR** Sulphur fertilizer (kg S) as gypsum (17.5% S) at growth stage 23:

S0	0
S1	10
S2	20
S3	40
S4	70
S5	100

plus 6 extra plots

3. **EXTRA** Variety, timing (growth stage (GS)) and rates of nitrogen fertilizer as urea (kg N), sulphur as ammonium sulphate or gypsum (kg S):

	Variety	N as urea	S as (NH ₄)SO ₄	S as gypsum	Timing (GS)
EUS0	Hereward	50.0	0	0	65
EUS1	Hereward	41.2	10	0	65
EUS2	Hereward	32.6	20	0	65
EUS3	Hereward	32.6	20	20	65 (gypsum at GS 23)
RNS0	Riband	0	0	0	-
RNS2	Riband	0	0	20	23

NOTE: All treatments were sown to variety Hereward, except RNS0 and RNS2 which were sown to Riband.

Experimental diary:

14-Sep-95 : B : Ploughed.
23-Sep-95 : B : Rolled.
05-Oct-95 : B : Rotary harrowed.

96/W/WW/1

Experimental diary:

05-Oct-95 : T : All plots except RNS0, RNS2: Hereward, dressed Sibutol, drilled at 375 seeds per m².
 : T : EXTRA RNS0, RNS2: Riband, dressed Sibutol, drilled at 375 seeds per m².
13-Nov-95 : B : Panther at 2.0 l in 200 l.
08-Mar-96 : B : 34.5% N at 116 kg.
11-Mar-96 : T : SULPHUR S1-S5, EXTRA EUS3, RNS2: Gypsum applied.
16-Apr-96 : B : 34.5% N at 406 kg.
30-Apr-96 : B : Halo at 1.5 l in 200 l.
02-May-96 : T : NITROGEN N2: 34.5% N at 145 kg.
06-Jun-96 : B : Silvacur at 1.0 l in 300 l.
10-Jul-96 : T : EXTRA EUS0, EUS1, EUS2, EUS3: Urea applied.
 : T : EXTRA EUS1, EUS2, EUS3: Ammonium sulphate applied.
18-Jul-96 : T : EXTRA EUS0, EUS1, EUS2, EUS3: Urea applied.
 : T : EXTRA EUS1, EUS2, EUS3: Ammonium sulphate applied.
19-Aug-96 : B : Combine harvested.

NOTE: Plants were sampled monthly April to August for nitrogen and sulphur content. Grain was analysed for nitrogen and sulphur content and bread making quality. Soils were sampled in autumn, spring and at harvest for sulphur content.

96/W/WW/1

GRAIN TONNES/HECTARE

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

SULPHUR	S0	S1	S2	S3	S4	S5	Mean
NITROGEN							
N1	6.24	7.43	6.71	6.86	6.32	6.76	6.72
N2	7.13	6.47	7.02	6.68	6.27	7.07	6.77
Mean	6.68	6.95	6.86	6.77	6.30	6.91	6.74
EXTRA	EUS0	EUS1	EUS2	EUS3	RNS0	RNS2	Mean
	6.52	7.08	6.30	7.14	7.87	8.19	7.18

Grand mean 6.89

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

NITROGEN	SULPHUR	NITROGEN SULPHUR & EXTRA
0.212	0.367	0.519

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	34	0.636	9.2

GRAIN MEAN DM% 90.1

PLOT AREA HARVESTED 0.00176