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## Yields of the Field Experiments 1993

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### 93/R/WW/3 Sowing Date and N - W. Wheat

#### Rothamsted Research

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93/R/WW/3

WINTER WHEAT

SOWING DATE AND N

**Object:** To study the effects of a range of amounts of nitrogen fertilizer applied in different ways to w. wheat sown on different dates - Fosters Corner.

**Sponsors:** R.J. Darby.

**Design:** 3 blocks of 2 x 8 plots.

**Plot dimensions:** 3.0 x 18.0.

**Treatments:**

1. **SOW DATE**                      Date of sowing:  
  
    EARLY                              Second week in September  
    LATE                                Third week in October
  
2. **SPRING N**                      Rate, form and timing of nitrogen fertilizer applied in spring to achieve different green area indices (GAI):  
  
    N0                                  None  
    CONV S                            GAI6. Solid conventional split application, 60 plus 160 kg N  
    G3 S                                GAI3. Solid multiple applications of 30 kg N from mid-March  
    G5-S                                GAI5. Solid multiple applications of 30 kg N from mid-March  
    G5 F                                GAI5. Foliar multiple applications of 30 kg N from mid-March  
    G5 S2F3                            GAI5. Multiple applications of solid and foliar, each 30 kg N  
    G5 S3F2                            GAI5. Multiple applications of solid and foliar, each 30 kg N  
    G5 S1F2                            GAI5. Single application of solid at stem elongation, 90 kg, foliar applications from mid May, each 30 kg N

- NOTES:** (1) Solid fertilizer applied as 'Nitro-Chalk' (27% N), foliar nitrogen as urea (46% N) in 450 l water.  
(2) **SPRING N** codes refer to the N required to produce an equivalent green area index (e.g. G5 S3F2 to give GAI5, three from solid, two from foliar N).

**Experimental diary:**

- 02-Oct-92 : B : Ploughed.  
07-Oct-92 : T : **SOW DATE EARLY:** Rotary harrowed, Mercia, dressed Cerevax, drilled at 380 seeds per square metre.  
31-Oct-92 : T : **SOW DATE LATE:** Rotary harrowed, Mercia, dressed Cerevax, drilled at 380 seeds per square metre.

93/R/WW/3

**Experimental diary:**

25-Mar-93 : T : **SPRING N:** CONV S, G3 S, G5 S, G5 F, G5 S2F3, G5 S3F2: N applied.  
06-Apr-93 : T : **SPRING N:** G5 S, G5 F, G5 S2F3, G5 S3F2: N applied.  
16-Apr-93 : B : Ally at 30 g and Starane 2 at 1.0 l in 300 l.  
20-Apr-93 : T : **SPRING N:** CONV S, G5 S, G5 F, G5 S2F3, G5 S3F2, G5 S1F2: N applied.  
05-May-93 : T : **SPRING N:** G3 S, G5 S, G5 F, G5 S2F3, G5 S3F2: N applied.  
19-May-93 : T : **SPRING N:** G5 S, G5 F, G5 S2F3, G5 S3F2, G5 S1F2: N applied.  
28-May-93 : B : Corbel at 1.0 l and Halo at 2.0 l in 300 l.  
02-Jun-93 : T : **SPRING N** G5 S1F2: N applied.  
02-Jul-93 : B : Bombardier at 2.0 l and Radar at 0.50 l in 300 l.  
18-Aug-93 : B : Combine harvested.

Previous crops: S. beans 1991, linseed 1992.

**NOTE:** Soils were sampled to 90 cm depth for ammonium and nitrate contents on three occasions between early November and late February. Stem nitrate concentrations were measured at fortnightly intervals from early December until early July. Plants were sampled for growth and N content and soil samples taken at regular intervals between March and August. Components of yield were measured after hand harvesting in mid-August.

93/R/WW/3

GRAIN TONNES/HECTARE

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

SOW DATE SPRING N	EARLY	LATE	Mean
N0	6.20	5.14	5.67
CONV S	10.17	10.32	10.24
G3 S	7.95	7.98	7.96
G5 S	9.80	10.07	9.94
G5 F	9.74	9.71	9.73
G5 S2F3	9.55	9.91	9.73
G5 S3F2	9.54	9.79	9.67
G5 S1F2	9.42	9.79	9.61
Mean	9.05	9.09	9.07

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

SOW DATE	SPRING N	SOW DATE SPRING N
0.099	0.198	0.281

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	30	0.344	3.8
GRAIN MEAN DM%	85.6		
PLOT AREA HARVESTED	0.00230		