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# Yields of the Field Experiments 1986

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## 86/S/CS/1 Factors Affecting Yield - W. Wheat

### Rothamsted Research

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86/S/CS/1

FACTORS AFFECTING YIELD

Object: To study the effects of a range of factors on the yield of w. wheat - Saxmundham.

Sponsors: F.V. Widdowson, A. Penny.

The 21st year, w. wheat.

For previous years see 66/C/30(t), 67/C/23(t), 68/C/39, 69-85/S/CS/1.

Design: The experiment was on two sites, one after beans and one after wheat. On each site the design was a single replicate of 8 whole plots split into 5 sub-plots.

Whole plot dimensions: Wheat after wheat: 8.5 x 18.3.  
Wheat after beans: 6.3 x 30.

Treatments: On each site, combinations of:-

Whole plots

1. VARIETY Varieties:

GALAHAD  
MOULIN

2. MARCH N Nitrogen fertilizer (kg N) as urea on 25 Mar, 1986 in addition to a basal application of 50 kg N as (13:13:20) to the seedbed:

0  
60

3. PATHCONT Pest and pathogen control:

NONE None  
FULL Prochloraz at 0.40 kg with benomyl at 0.28 kg in 220 l on 30 Apr, 1986  
Propiconazole at 0.13 kg with captafol at 1.0 kg in 220 l on 13 June  
Carbendazim at 0.15 kg, maneb at 1.6 kg, tridemorph at 0.37 kg, captafol at 1.0 kg and pirimicarb at 0.14 kg in 220 l on 3 July

Sub plots

4. APRIL N Total nitrogen fertilizer applied in spring (kg N) as 'Nitro-Chalk' (26% N) on 23 Apr:

After beans	After wheat
0	0
100	160
130	190
160	220
190	250

86/S/CS/1

Basal applications: Manures: (13:13:20) at 380 kg. Weedkillers: Isoproturon at 2.5 kg in 220 l. Mecoprop, bromoxynil and ioxynil (as 'Brittox' at 1.8 l), fluroxypyr at 0.14 kg applied with the growth regulator in 220 l. Growth regulator: Chlormequat at 1.6 kg.

Seed: Varieties, sown at 400 seeds per square metre.

Cultivations, etc.: - Ploughed between 28 Aug, 1985 and 8 Oct, date not recorded. Seedbed NPK applied, power harrowed, seed sown: 8 Oct. Isoproturon applied: 10 Oct. Remaining weedkillers applied with the growth regulator: 7 May, 1986. Combine harvested: 2 Sept.

NOTE: Mineral N content of soil to 90 cm depth and the nitrate content of the crop were assessed in autumn and spring. N content of grain was measured.

WHEAT AFTER BEANS

GRAIN TONNES/HECTARE

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

MARCH N	0	60	MEAN			
VARIETY						
GALAHAD	8.95	9.27	9.11			
MOULIN	8.72	9.12	8.92			
MEAN	8.84	9.20	9.02			
PATHCONT	NONE	FULL	MEAN			
VARIETY						
GALAHAD	8.71	9.52	9.11			
MOULIN	8.40	9.44	8.92			
MEAN	8.55	9.48	9.02			
PATHCONT	NONE	FULL	MEAN			
MARCH N						
0	8.34	9.33	8.84			
60	8.77	9.63	9.20			
MEAN	8.55	9.48	9.02			
APRIL N	0	100	130	160	190	MEAN
VARIETY						
GALAHAD	7.59	9.19	9.43	9.59	9.77	9.11
MOULIN	7.46	9.24	9.25	9.27	9.39	8.92
MEAN	7.52	9.22	9.34	9.43	9.58	9.02
APRIL N	0	100	130	160	190	MEAN
MARCH N						
0	6.80	8.92	9.35	9.44	9.68	8.84
60	8.24	9.51	9.33	9.42	9.49	9.20
MEAN	7.52	9.22	9.34	9.43	9.58	9.02

86/S/CS/1 WHEAT AFTER BEANS

GRAIN TONNES/HECTARE

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

APRIL N PATHCONT	0	100	130	160	190	MEAN
NONE	7.48	8.63	8.82	8.81	9.03	8.55
FULL	7.57	9.80	9.85	10.05	10.14	9.48
MEAN	7.52	9.22	9.34	9.43	9.58	9.02

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

TABLE	APRIL N	VARIETY* APRIL N	MARCH N* APRIL N	PATHCONT* APRIL N
SED	0.088	0.125	0.125	0.125

\* WITHIN THE SAME LEVEL OF VARIETY, MARCH N OR PATHCONT ONLY

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

STRATUM	DF	SE	CV%
WP.SP	16	0.177	2.0

GRAIN MEAN DM% 84.4

SUB PLOT AREA HARVESTED 0.00186

WHEAT AFTER WHEAT

GRAIN TONNES/HECTARE

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

MARCH N VARIETY	0	60	MEAN
GALAHAD	6.71	7.83	7.27
MOULIN	6.21	7.49	6.85
MEAN	6.46	7.66	7.06
PATHCONT VARIETY	NONE	FULL	MEAN
GALAHAD	7.31	7.23	7.27
MOULIN	6.78	6.91	6.85
MEAN	7.05	7.07	7.06
PATHCONT MARCH N	NONE	FULL	MEAN
0	6.58	6.33	6.46
60	7.51	7.81	7.66
MEAN	7.05	7.07	7.06

86/S/CS/1 WHEAT AFTER WHEAT

GRAIN TONNES/HECTARE

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

APRIL N	0	160	190	220	250	MEAN
VARIETY						
GALAHAD	3.56	8.04	7.97	8.23	8.55	7.27
MOULIN	3.64	7.51	7.91	7.39	7.79	6.85
MEAN	3.60	7.77	7.94	7.81	8.17	7.06
APRIL N	0	160	190	220	250	MEAN
MARCH N						
0	2.22	7.25	7.59	7.38	7.84	6.46
60	4.98	8.29	8.28	8.25	8.50	7.66
MEAN	3.60	7.77	7.94	7.81	8.17	7.06
APRIL N	0	160	190	220	250	MEAN
PATHCONT						
NONE	3.64	7.89	7.73	8.01	7.96	7.05
FULL	3.56	7.65	8.14	7.61	8.38	7.07
MEAN	3.60	7.77	7.94	7.81	8.17	7.06

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

TABLE	APRIL N	VARIETY* APRIL N	MARCH N* APRIL N	PATHCONT* APRIL N
SED	0.239	0.338	0.338	0.338

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

STRATUM	DF	SE	CV%
WP.SP	16	0.477	6.8

GRAIN MEAN DM% 83.5

SUB PLOT AREA HARVESTED 0.00126