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## Yields of the Field Experiments 1990

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### 90/W/NB/1 Seedbed and Late N - Navy Beans

#### Rothamsted Research

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90/W/NB/1

NAVY BEANS

SEEDBED AND LATE N

**Object:** To study the effects of seedbed and late nitrogen fertilizer on the growth and yield of navy beans inoculated with Rhizobium - Woburn, Great Hill Bottom I.

**Sponsors:** J.M. Day, M.L. Lovell.

**Design:** 3 randomised blocks of 18 plots.

**Whole plot dimensions:** 1.5 x 6.0.

**Treatments:** All combinations of:-

1. **SD BED N** Nitrogen fertilizer (kg N) as 'Nitro-Chalk' (27% N), applied to seedbed:

20  
40  
60

2. **APP METH** Methods of applying seedbed nitrogen fertilizer:

BCAST Broadcast by hand after drilling  
COM DRLL Combine drilled with seed

3. **FLOWR N** Nitrogen fertilizer (kg N) as 'Nitro-Chalk', applied at flowering on 28 June, 1990:

0  
120

plus four extra treatments :

**EXTRA**

0 0 0 No nitrogen fertilizer (duplicated)  
0 0 120F 120 kg N at flowering (duplicated)  
120S 0 0 120 kg N broadcast to seedbed  
120S 120F 120 kg broadcast to seedbed, repeated at flowering

**Basal applications:** Manures: (0:24:24) at 200 kg. Weedkillers: Paraquat at 0.80 kg ion in 220 l. Trifluralin at 0.84 kg in 220 l. Monolinuron at 0.56 kg in 220 l. Fungicide: Benomyl at 0.55 kg in 220 l. Irrigation: 24 mm (12 mm applied on two occasions).

**Seed:** Albion, sown at 40 seeds per square metre.

**Cultivations, etc.:-** Ploughed: 22 Nov, 1989. Paraquat applied: 3 May, 1990. PK applied: 18 May. Spring-tine cultivated: 21 May. Trifluralin applied and cultivated: 22 May. Seed sown and seedbed N treatments applied: 24 May. Monolinuron applied: 31 May. Irrigation applied: 1 and 20 June. Remaining N treatments applied: 28 June. Fungicide applied 22 Aug. Hand harvested and threshed by stationary combine harvester: 27 Oct. Previous crops: S. wheat 1988, s. barley 1989.

90/W/NB/1

NOTE: Times of flowering were noted:

**GRAIN (AT 85% DRY MATTER) TONNES/HECTARE**

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

APP METH SD BED N	BCAST	COM DRLL	Mean	
20	2.19	2.30	2.25	
40	1.99	1.99	1.99	
60	2.16	2.02	2.09	
Mean	2.11	2.10	2.11	
<b>FLOWR N</b> SD BED N	0	120	Mean	
20	2.17	2.33	2.25	
40	2.19	1.78	1.99	
60	2.21	1.97	2.09	
Mean	2.19	2.03	2.11	
<b>FLOWR N</b> APP METH	0	120	Mean	
BCAST	2.13	2.09	2.11	
COM DRLL	2.25	1.96	2.10	
Mean	2.19	2.03	2.11	
<b>APP METH</b> SD BED N	BCAST	COM DRLL		
	0	120	0	
20	1.97	2.41	2.36	
40	2.17	1.81	2.22	
60	2.26	2.06	2.17	
			1.88	
<b>EXTRA</b>	0 0 0	0 0 120F	120S 0 0 120S 120F	Mean
	2.29	2.11	2.32	2.39
				2.25
<b>GRAND MEAN</b>	2.16			

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

SD BED N	APP METH	FLOWR N	SD BED N	APP METH
0.173	0.141	0.141	0.245	
SD BED N	APP METH	SD BED N	EXTRA	
FLOWR N	FLOWR N	APP METH	FLOWR N	
0.245	0.200	0.347	0.347	min.rep
			0.300	max-min
			0.245	max.rep
<b>EXTRA</b>				
min.rep	120S 0 0 v 120S 120F			
max-min	0 0 0 or 0 0 120F v 120S 0 0 or 120S 120F			
max.rep	0 0 0 v 0 0 120F			

GRAIN MEAN DM% \* PLOT AREA HARVESTED 0.00045