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79/R/B/21 Drills and Methods of Applying Fertiliser - Barley

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79/R/B/21

SPRING BARLEY

DRILLS AND METHODS OF APPLYING FERTILISER

Object: To study the effects of different drills and rates and times of applying nitrogen fertiliser on the growth and yield of barley - Bylands.

Sponsor: R. Moffitt.

Design: 3 randomised blocks of 16 plots.

Whole plot dimensions:

DRILLS MF	5.33 x 10.1
DRILLS NIAE	4.27 x 10.1
EXTRA	3.05 x 10.1

Treatments: All combinations of:-

1. DRILLS	Drills:
MF	'Massey Ferguson 30' drill, sowing rows 18 cm (7 in) apart
NIAE	'NIAE' drill, sowing rows 18 cm (7 in) apart

2. TOTAL N	Total nitrogen fertiliser (kg N):
60	
120	

3. N METHOD	Method of applying nitrogen fertiliser:
CDE	Combine drilled at sowing
BCL	Broadcast by machine 17 days after sowing
CDE/BCL	Half total combine drilled, half broadcast by machine 17 days after sowing

plus four extra treatments

EXTRA

F60 BCE	'Fiona' drill, sowing rows 15 cm (6 in) apart, 60 kg N broadcast by machine at sowing
F120 BCE	As previously but using 120 kg N
F60 BCL	'Fiona' drill, 60 kg N broadcast by machine 17 days after sowing
F120 BCL	As previously but using 120 kg N

Basal applications: Weedkillers: Bromoxynil and ioxynil (as 'Oxytril CM' at 1.4 kg) with mecoprop at 1.7 kg in 220 l. Fungicide: Tridemorph at 0.53 kg in 220 l.

Seed: Porthos, sown at 160 kg.

Cultivations, etc.: Subsoiled, tines 100 cm apart and 45 cm deep: 15 Nov, 1978.
Ploughed: 21 Dec. Heavy spring-tine cultivated, rotary harrowed: 27 Apr, 1979.
Seed sown: 30 Apr. Weedkillers applied: 4 June. Fungicide applied: 12 June.
Combine harvested: 29 Aug. Previous crops: Wheat 1977, barley 1978.

NOTES: (1) Observations of growth stages, evenness of growth and wheeling effects were made several times during the season.
(2) Severe grazing by rabbits, and infestations of perennial grasses may have affected yield.

79/R/B/21

GRAIN TONNES/HECTARE

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

TOTAL N	60	120	MEAN		
DRILLS					
MF	2.85	3.36	3.10		
NIAE	2.89	2.76	2.82		
MEAN	2.87	3.06	2.96		
N METHOD	CDE	BCL	CDE/BCL	MEAN	
DRILLS					
MF	3.46	2.91	2.94	3.10	
NIAE	2.68	2.70	3.08	2.82	
MEAN	3.07	2.81	3.01	2.96	
N METHOD	CDE	BCL	CDE/BCL	MEAN	
TOTAL N					
60	3.03	2.63	2.95	2.87	
120	3.12	2.98	3.07	3.06	
MEAN	3.07	2.81	3.01	2.96	
	N METHOD	CDE	BCL	CDE/BCL	
DRILLS	TOTAL N				
MF	60	3.32	2.72	2.52	
	120	3.61	3.11	3.35	
NIAE	60	2.74	2.55	3.38	
	120	2.63	2.86	2.79	
EXTRA	F60 BCE	F120 BCE	F60 BCL	F120 BCL	MEAN
	2.66	3.14	2.48	3.21	2.87

GRAND MEAN 2.94

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

TABLE	EXTRA	DRILLS	TOTAL N	N METHOD
SED	0.296	0.121	0.121	0.148
TABLE	DRILLS TOTAL N	DRILLS N METHOD	TOTAL N N METHOD	DRILLS TOTAL N N METHOD & EXTRA
SED	0.171	0.209	0.209	0.296

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

STRATUM	DF	SE	CV%
BLOCK.WP	30	0.363	12.3
GRAIN MEAN DM%	85.4		
PLOT AREA HARVESTED	0.00215		