ROTHAMSTED RESEARCH

Yields of the Field Experiments 1979

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79/R/B/5 N and Growth Regulator - Barley

Rothamsted Research

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79/R/B/5

WINTER BARLEY

N & GROWTH REGULATOR

Object: To study the effects of a growth regulator and rates and times of applying nitrogen on the yield of winter barley - Long Hoos I/II.

Sponsors: F.V. Widdowson, J.F. Jenkyn.

Design: 4 randomised blocks of 13 plots.

Whole plot dimensions: 2.13 x 9.14.

Treatments: All combinations of:-

1. E N TIME — Times of applying early nitrogen:

FEB/MAR	30 kg of total early N applied 1 Mar, 1979, remainder 2 Apr.
MAR	All early N applied 2 Apr.

2. E N RATE — Total early nitrogen rate (kg N):

60
90

3. L N G — Late nitrogen (kg N) and growth regulator:

NONE	None
30 APR	30 kg applied 25 Apr. No growth regulator
30 APR+G	30 kg applied 25 Apr. Mepiquat chloride + ethephon (as 'Terpal' applied at 2.5 l) in 280 l

plus one extra plot:

90F/M+G	90 kg N total applied: 30 kg N 1 Mar, 60 kg N 2 Apr. Mepiquat chloride + ethephon applied at above rate on 25 May

NOTES: (1) Planned dates of applying early nitrogen treatments were not achieved because of wet weather.
(2) The guard areas between sides of each plot were sown to winter barley, variety Hoppel, and used for the experiment 'Sowing Dates, Mildew Control and Growth Study' (see 79/R/B/1).

Basal applications: Manures: (0:20:20) at 310 kg. Weedkillers: Mecoprop at 2.5 l in 220 l. Irrigation: 25 mm water.

Seed: Athene, sown at 160 kg.

Cultivations, etc.:- Ploughed: 22 Sept, 1978. Rolled: 27 Sept. PK applied, rotary harrowed: 4 Oct. Seed sown: 6 Oct. Irrigated: 9 Nov. Weedkiller applied: 9 May, 1979. Harvested: 6 Aug. Previous crops: Spring barley 1977, Winter beans 1978.

NOTE: Soil samples were taken in spring to a depth of 90 cm to determine mineral N content. Nitrogen percentages of grain were measured. Leaf disease and crop height were assessed in late June.

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79/R/B/5

GRAIN TONNES/HECTARE

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

E N RATE	60	90	MEAN
E N TIME			
FEB/MAR	8.30	8.67	8.49
MAR	8.46	8.98	8.72
MEAN	8.38	8.82	8.60

L N G	NONE	30 APR	30 APR+G	MEAN
E N TIME				
FEB/MAR	7.90	8.63	8.93	8.49
MAR	8.44	8.65	9.05	8.72
MEAN	8.17	8.64	8.99	8.60

L N G	NONE	30 APR	30 APR+G	MEAN
E N RATE				
60	7.77	8.44	8.93	8.38
90	8.57	8.84	9.06	8.82
MEAN	8.17	8.64	8.99	8.60

	L N G	NONE	30 APR	30 APR+G
E N TIME	E N RATE			
FEB/MAR	60	7.58	8.45	8.88
	90	8.23	8.80	8.99
MAR	60	7.97	8.42	8.98
	90	8.92	8.88	9.13

90F/M+G 8.62

GRAND MEAN 8.60

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

TABLE	E N TIME	E N RATE	L N G	E N TIME E N RATE
SED	0.119	0.119	0.146	0.168

TABLE	E N TIME L N G	E N RATE L N G	E N TIME E N RATE L N G & 90F/M+G
SED	0.206	0.206	0.291

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

STRATUM	DF	SE	CV%
BLOCK.WP	36	0.412	4.8

GRAIN MEAN DM% 86.3

PLOT AREA HARVESTED 0.00195

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