

6.1 WINTER OILSEED RAPE - THE RATE AND TIMING OF NITROGEN AND
THE EFFECT OF GROWTH REGULATORS, 1987NAS 925 MA
1st Year**Summary**

Three varieties of oilseed rape, Bienvenu, Mikado and Ariana were sown on 31 August. Ariana was slow to establish. The other two had 3-5 leaves by early October.

The yield of all three varieties was increased by 0.3 t/ha when 40 kg/ha of nitrogen was applied in the autumn and decreased by 0.75 t/ha when growth regulators was used in the spring.

Object

To determine the effect of autumn applied nitrogen, different rates of spring applied nitrogen and growth regulators on three varieties of oilseed rape. This trial was one of a series co-ordinated by ADAS.

Treatments (all combinations of)	Varieties	Ariana Bienvenu Mikado
	Nitrogen kg/ha autumn	Spring
	-	160
	-	200
	-	240
	40	240
	-	240 + Growth regulator
	-	280
	-	320

Site. Heron Farm, Besthorpe.

Soil type. Beccles series - sandy clay loam

*NOT FOR PUBLICATION WITHOUT THE DIRECTOR'S CONSENT. This report deals primarily with only one year's work, so any conclusions given are only provisional.

RESULTS 1987 (first year)

Nitrogen kg/ha		Variety			
Autumn	Spring	Ariana	Bienvenu	Mikado	Mean
(ESE)			(0.11)		(0.06)
-	160	2.56	3.43	2.61	2.87
-	200	2.68	3.57	2.58	2.94
-	240	2.79	3.57	2.76	3.04
40	240	3.10	3.84	3.02	3.32
-	240 + GR*	1.85	2.90	2.11	2.29
-	280	2.70	3.69	2.84	3.08
-	320	2.92	3.60	2.68	3.07
(ESE)			(0.04)		
Mean		2.66	3.51	2.66	2.94

SE per plot (40 df) = +0.19 t/ha or 6.5% of GM.

* Experimental growth Regulator applied on 30 March at early stem extension.

1. Bienvenu, with a mean yield of 3.51 t/ha (28 cwt/acre) gave 0.85 t/ha or 7 cwt/acre above Ariana and Mikado.
2. 40 kg/ha of autumn nitrogen increased the yield of all three varieties by approximately 0.3 t/ha.
3. The growth regulator reduced yield by 0.75 t/ha.

Thousand grain weight (g at 91% dm)

Nitrogen kg/ha		Variety			
Autumn	Spring	Ariana	Bienvenu	Mikado	Mean
(LSD)			(+0.09)		(+0.05)
-	160	4.70	4.21	4.37	4.43
-	200	4.31	4.14	4.13	4.19
-	240	4.42	4.12	4.16	4.22
40	240	4.44	4.42	4.21	4.36
-	240 + GR*	4.16	3.78	3.77	3.90
-	280	4.34	4.18	3.96	4.16
-	320	4.41	4.26	3.86	4.18
(LSD)			(0.03)		
Mean		4.40	4.16	4.07	4.21

SE per plot (40 df) = +0.16g or 4% of GM.

* Experimental growth regulator applied on 30 March at early stem extension.

Growth regulator reduced the thousand grain weight of all varieties.

APPENDIX - NAS 925 MA 1987

Winter oilseed rape - rate and timing of nitrogen and the effect of growth regulators.

Effect of growth regulator on crop structure - variety: Ariana

Nitrogen kg/ha		plant	height	No of	No of	No's of	% Pods	
Autumn	spring	height	of first	branches	flowers	Pods per	set	
(selected treatments)		cm	branch	per plant	per plant	plant		
(ESE)		(+4.28)	(+3.52)	(+0.223)	(+13.48)	(+7.44)	(+1.99)	
-	160	-	139.8	71.2	6.17	273.7	85.6	31.8
-	240	-	140.6	69.2	5.90	291.6	99.5	34.3
40	240	-	136.9	71.3	7.00	322.7	119.9	37.8
-	240	+ GR	104.3	32.6	5.90	331.8	74.4	22.9
-	320	-	132.2	66.5	6.50	303.4	100.8	33.1
SE per plot (8 df)		+7.42	+6.10	+0.386	+23.36	+12.69	+3.45	
% of V.		5.7	9.8	6.1	7.7	13.2	10.8	

* Experimental growth regulator applied on 30 March at early stem extension.

1. Increasing the rate of spring nitrogen appeared to increase the number of flowers and pods, but these trends were not statistically significant.
2. Autumn nitrogen increased the number of branches and pod numbers also appeared to be increased, but not significantly.
3. Growth regulator decreased plant height, height to first branch and reduced pod numbers.

Crop Diary

31 August Following a crop of winter barley Bienvenu was sown into a moist but trashy seedbed.

1 September Rolled across plots with Cambridge roll applied 40 kg/ha of nitrogen on the seedbed.

8 September 25% plant emergence.

1 October Good regular plant establishment with all varieties. Ariana growing very slow.

6 February 70 kg/ha of nitrogen applied.

6 March 70 kg/ha of nitrogen applied.

3 April Balance of spring nitrogen rates to all plots.

30 March Growth regulator applied at 0.7 l/ha to appropriate plots - Bienvenu and Mikado at 2-3 cm crop growth stage. Ariana at early stem extension.

1 May Plots treated with growth regulator prostrate and slow growing.

28 July Crop harvested in good condition.