

SOUTH AFRICAN SUGAR INDUSTRY AGRONOMISTS' ASSOCIATION

CODE: N32 x Ripening 75/02/Sw/Sim 'R'

Cat. No. : 2185

CHEMICAL RIPENING OF N32 WITH ETHREL AND FUSILADE SUPER

1. PARTICULARS OF PROJECT

This crop : 1 st ratoon	Age : 11.5 months															
Site : Simunye Sugar Estate	Dates : 31/7/01 – 16/7/02															
Field : 604 Panel 14	Rainfall : 748 mm															
Region : Northern Irrigated (Swd)	Irrigation : Fully irrigated (surface drip)															
Soil Set : 'R'	Fertilizer : N P K															
Design : Randomized blocks, 5 reps	kg/ha 160 0 0															
Variety : N32	Ripener application details:															
Plot size : 4 rows x 1.5m x 17m (gross) 2 rows x 1.5m x 13m (net)	<table border="1"> <thead> <tr> <th></th> <th>Date</th> <th>Age(m)</th> <th>Weeks</th> <th>Purity%</th> </tr> </thead> <tbody> <tr> <td>Ethrel</td> <td>04/4/02</td> <td>8.1</td> <td>14.7</td> <td>83</td> </tr> <tr> <td>Fusilade</td> <td>08/5/02</td> <td>9.2</td> <td>9.8</td> <td>89</td> </tr> </tbody> </table>		Date	Age(m)	Weeks	Purity%	Ethrel	04/4/02	8.1	14.7	83	Fusilade	08/5/02	9.2	9.8	89
	Date	Age(m)	Weeks	Purity%												
Ethrel	04/4/02	8.1	14.7	83												
Fusilade	08/5/02	9.2	9.8	89												

2. OBJECTIVE

- To determine the response of variety N32 to Ethrel and Fusilade Super applied either alone or as a combination treatment

3. TREATMENTS

- Control
- Ethrel 1.5 l/ha 15 weeks pre-harvest
- Ethrel 1.5 l/ha at 15 weeks + Fusilade 0.2 l/ha 10 weeks pre harvest
- Fusilade Super. 0.2 l/ha 10 weeks pre harvest
- Ethrel 1.5 l/ha at 15 weeks + Fusilade 0.3 l/ha 10 weeks pre harvest
- Fusilade Super 0.3 l/ha 10 weeks pre harvest
- Ethrel 1.5 l/ha at 15 weeks + Fusilade S. 0.45 l/ha 10 weeks pre harvest
- Fusilade Super 0.45 l/ha 10 weeks pre harvest

Ethrel and Fusilade were applied with a CO₂ constant pressure knapsack sprayer and a hand held 'T' boom fitted with two TK 1.5 flood nozzles, delivering ± 52 l/ha over a swath width of 6m at 200kPa.

4. SAMPLING PROCEDURE

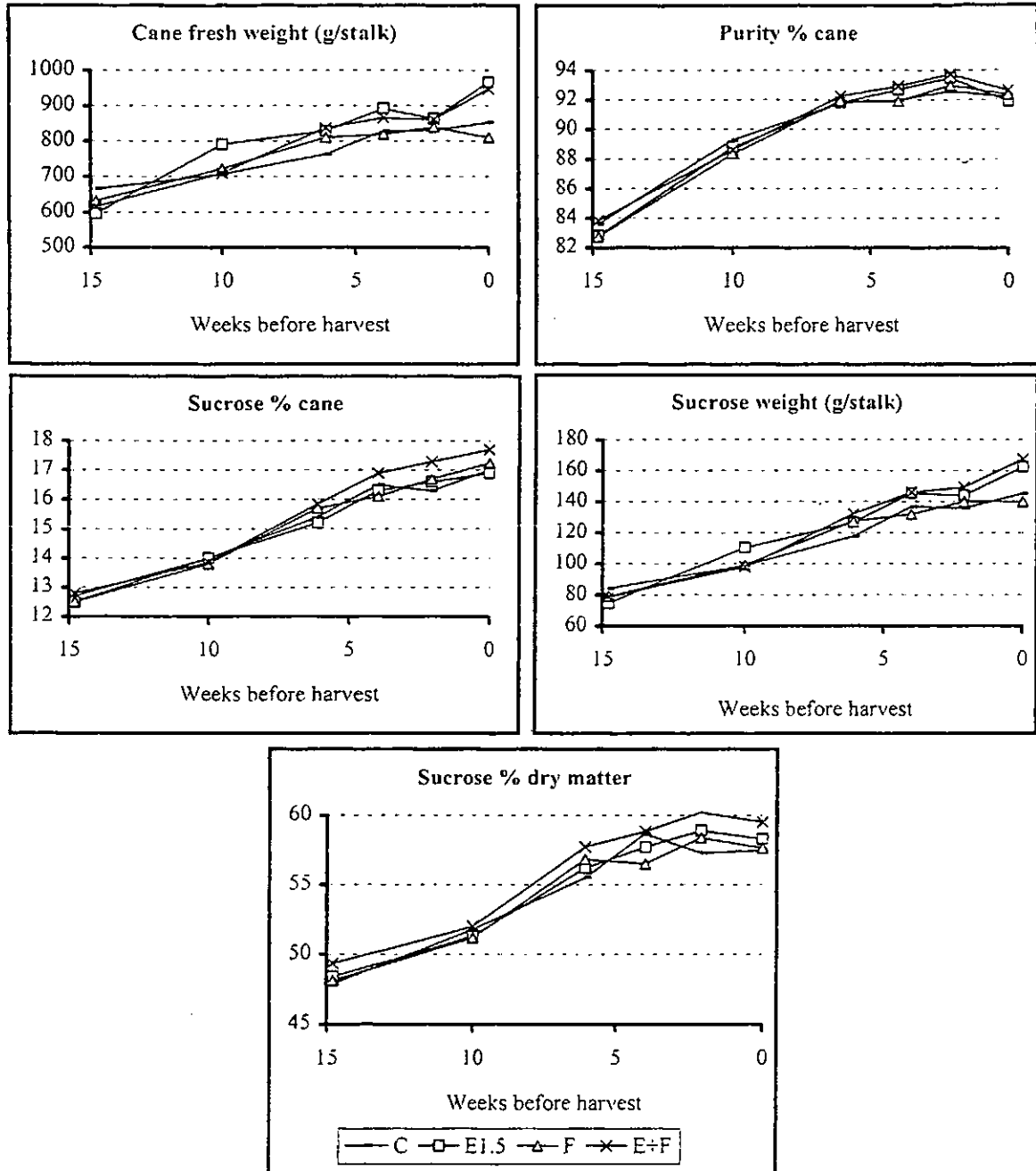
Groups of 4 stalks were taken from the net plot rows in a systematic manner on each sampling occasion to give a total of 16 stalks per plot. On subsequent occasions, sampling started one pace further into the plot and the same sequence of sampling was followed.

5. RESULTS AND DISCUSSION

Sample data

Juice purity averaged 83% when Ethrel was applied in April and 89% when Fusilade was applied in May. A strong response to chemical ripeners could not be expected in such mature cane, contrasting with results from the previous crop, which was harvested at less than 10 months of age (Appendix 1, Figure 1).

Figure 1: Sample data (see notes)



Notes: F = mean of 0.3 l Fusilade/ha and 0.45 l Fusilade/ha
 E+F = mean of Ethrel plus 0.3 l Fusilade/ha and Ethrel plus 0.45 l Fusilade/ha

There were small but statistically significant increases in juice purity, sucrose % cane and suc % cane (cane quality) two weeks before harvest (8 weeks after Fusilade application), in response to ripener treatments. The most effective treatments were combinations of Fusilade (at all rates) and Ethrel. Individual ripeners were not as consistently effective as the combination treatments

and only the combination treatments produced significant increases in sucrose % dry matter, reflecting a true ripener response. The ripener response to the combination treatments was still evident at harvest although it was no longer statistically significant in terms of juice purity or sucrose % dry matter.

Trends in the sucrose sample data up to harvest suggest that Ethrel may have had a growth stimulus effect by slightly increasing cane fresh weight and stalk moisture content (NS), with no associated increase in cane quality (Figure 1, Appendix 1). Fusilade treatments appeared to have the opposite effect, so that neither treatment on its own produced a net increase in sucrose % dry matter.

5.2 Harvest data

Treatments had no statistically significant effect on cane yield and there was no indication that Fusilade caused a reduction in yields (Table 1). Improvements in sucrose and erc % cane were significant in the combination treatments but were not significant for any of the treatments applied alone (see above).

Ripeners did not significantly increase yields of sucrose and erc, although the highest yields were produced by Ethrel combined with Fusilade at 0.3 and 0.45 l/ha (NS).

Table 1: Yield and quality at harvest

Treatment	Tc/ha	Purity	Moist %	S% ^{c*}	Ts/ha [*]	Erc% ^c	Terc/ha
Control	112.9	92.2	70.4	17.0	19.2	15.7	17.8
Ethrel 1.5 l/ha @ 15w	118.4	91.9	71.1	16.9	19.9	15.6	18.4
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 10w	119.5	92.7	70.8	17.5	20.9	16.3	19.4
Fusilade 0.2 l/ha @ 10w	120.3	92.0	70.5	17.2	20.7	15.9	19.1
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 10w	121.1	92.4	70.4	17.7	21.4	16.4	19.9
Fusilade 0.3 l/ha @ 10w	120.1	92.3	70.0	17.2	20.7	15.9	19.2
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 10w	120.0	92.9	70.1	17.7	21.2	16.5	19.7
Fusilade 0.45 l/ha @ 10w	116.0	92.4	70.1	17.3	20.1	16.0	18.6
Mean	118.5	92.4	70.4	17.3	20.5	16.0	19.0
LSD (P=0.05)	NS	NS	NS	0.6	NS	0.6	NS
LSD (P=0.01)	-	-	-	NS	-	NS	-
CV (%)	8.3	0.6	1.0	2.6	9.0	2.8	9.0

* = Sucrose measured as pol

6 CONCLUSIONS

- The results show that the quality of relatively mature N32 can be increased significantly by the combination treatment of Ethrel plus Fusilade, with no effect on cane yield.
- There were no statistical differences amongst yields of sucrose or erc, but the combination of 1.5 l Ethrel/ha and 0.3 l Fusilade/ha appeared to produce the highest yields. This agrees with results of the previous crop, which was extremely immature when sprayed.

DZ/DB/avm

11/04/2003

7 APPENDICES

Appendix 1: Sample data

Cane fresh weight (g/ stalk)	Date of sample (weeks before harvest)						Incr. 0 - 14.8 wks
	Treatment	3 Apr. (14.8)	7 May (10.0)	3 Jun. (6.1)	18 Jun. (4.0)	1 Jul. (2.1)	
Control	666	707	763	829	831	853	187
Ethrel 1.5 l/ha @ 15w	596	791	829	892	864	966	370
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 10w	633	713	815	788	867	909	276
Fusilade 0.2 l/ha @ 10w	631	729	756	853	799	905	274
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 10w	623	726	836	827	857	943	320
Fusilade 0.3 l/ha @ 10w	630	691	836	828	853	809	179
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 10w	609	693	837	904	866	950	341
Fusilade 0.45 l/ha @ 10w	634	755	786	809	827	810	176
Mean	628	725	807	841	845	893	265
LSD (P=0.05)	NS	NS	NS	NS	NS	NS	
CV (%)	11.6	10.1	8.6	10.4	7.1	10.8	
Moisture % cane							
Control	73.4	72.9	72.2	71.9	71.5	70.4	-3
Ethrel 1.5 l/ha @ 15w	74.2	72.8	72.9	71.7	71.7	71.1	-3
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 10w	74.1	73.8	72.9	71.7	71.6	70.8	-3
Fusilade 0.2 l/ha @ 10w	74.6	73.0	72.5	71.4	71.4	70.5	-4
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 10w	74.3	73.6	72.5	71.5	71.4	70.4	-4
Fusilade 0.3 l/ha @ 10w	74.3	73.1	72.4	71.6	71.5	70.0	-4
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 10w	73.8	73.2	72.7	71.0	71.1	70.1	-4
Fusilade 0.45 l/ha @ 10w	73.8	73.1	72.4	71.2	71.4	70.1	-4
Mean	74.1	73.2	72.6	71.5	71.4	70.4	-4
LSD (P=0.05)	NS	NS	NS	NS	NS	NS	
CV (%)	1.3	0.9	1.0	1.0	0.9	1.0	
Cane dry weight (g/ stalk)							
Control	177	191	212	233	237	253	76
Ethrel 1.5 l/ha @ 15w	154	216	225	253	244	280	126
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 10w	164	186	221	223	246	265	102
Fusilade 0.2 l/ha @ 10w	160	197	208	244	228	267	107
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 10w	159	192	230	235	245	279	120
Fusilade 0.3 l/ha @ 10w	162	185	231	235	243	243	81
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 10w	160	186	228	262	250	284	124
Fusilade 0.45 l/ha @ 10w	166	203	217	233	236	242	76
Mean	163	195	221	240	241	264	101
LSD (P=0.05)	NS	NS	NS	NS	NS	NS	
CV (%)	11.0	10.8	8.3	10.0	6.8	10.1	

Appendix 1: Sample data (cont.)

Purity % cane	Date of sample (weeks before harvest)						Incr. 14.1 - 0 weeks	
	Treatment	3 Apr. (14.8)	7 May (10.0)	3 Jun. (6.1)	18 Jun. (4.0)	1 Jul. (2.1)		16 Jul. (0)
Control		83.6	89.3	91.8	92.0	92.6	92.2	8.6
Ethrel 1.5 l/ha @ 15w		82.8	88.8	91.8	92.7	93.5	91.9	9.1
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 10w		82.8	87.9	91.6	92.2	93.1	92.7	9.9
Fusilade 0.2 l/ha @ 10w		82.3	89.2	92.6	91.8	92.8	92.0	9.7
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 10w		83.8	88.3	92.5	92.7	93.9	92.4	8.6
Fusilade 0.3 l/ha @ 10w		82.0	88.5	92.1	92.1	92.8	92.3	10.3
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 10w		83.9	88.9	92.0	93.2	93.6	92.9	9.0
Fusilade 0.45 l/ha @ 10w		83.5	88.2	91.8	91.7	93.2	92.4	8.9
Mean		83.1	88.6	92.0	92.3	93.2	92.4	9.3
LSD (P=0.05)		NS	NS	NS	0.8	0.7	NS	
LSD (P=0.01)		-	-	-	1.1	0.9	-	
CV (%)		2.4	1.0	0.9	0.7	0.5	0.6	
Sucrose % cane*								
Control		12.7	14.0	15.4	16.5	16.3	17.0	4.30
Ethrel 1.5 l/ha @ 15w		12.5	14.0	15.2	16.3	16.6	16.9	4.40
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 10w		12.6	13.7	15.5	16.5	17.1	17.5	4.90
Fusilade 0.2 l/ha @ 10w		12.3	14.0	15.8	16.1	16.5	17.2	4.90
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 10w		12.7	13.7	15.8	16.8	17.4	17.7	5.00
Fusilade 0.3 l/ha @ 10w		12.3	13.8	15.7	16.2	16.6	17.2	4.90
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 10w		12.9	14.0	15.9	17.0	17.2	17.7	4.80
Fusilade 0.45 l/ha @ 10w		12.7	13.8	15.7	16.0	16.8	17.3	4.60
Mean		12.6	13.9	15.6	16.4	16.8	17.3	4.73
LSD (P=0.05)		NS	NS	NS	0.6	0.6	0.6	
LSD (P=0.01)		-	-	-	NS	NS	NS	
CV (%)		5.8	3.5	3.7	2.7	2.8	2.6	
Erc % cane								
Control		11.0	12.7	14.2	15.2	15.1	15.7	4.70
Ethrel 1.5 l/ha @ 15w		10.7	12.6	14.1	15.1	15.5	15.6	4.90
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 10w		10.8	12.3	14.3	15.3	15.9	16.3	5.50
Fusilade 0.2 l/ha @ 10w		10.5	12.7	14.6	14.9	15.3	15.9	5.40
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 10w		11.0	12.3	14.6	15.6	16.3	16.4	5.40
Fusilade 0.3 l/ha @ 10w		10.5	12.3	14.5	15.0	15.4	15.9	5.40
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 10w		11.1	12.6	14.7	15.9	16.1	16.5	5.40
Fusilade 0.45 l/ha @ 10w		11.0	12.4	14.5	14.8	15.7	16.0	5.00
Mean		10.8	12.5	14.4	15.2	15.7	16.0	5.21
LSD (P=0.05)		NS	NS	NS	0.6	0.6	0.6	
LSD (P=0.01)		-	-	-	0.8	0.8	NS	
CV (%)		7.5	4.1	4.1	2.9	3.1	2.8	

* = Sucrose measured as pol

Appendix 1: Sample data (cont.)

Sucrose weight (g/stalk)*	Date of sample (weeks before harvest)						Incr. 14.1 - 0 weeks
	Treatment	3 Apr. (14.8)	7 May (10.0)	3 Jun. (6.1)	18 Jun. (4.0)	1 Jul. (2.1)	
Control	84.2	98.9	117.6	136.9	135.7	145.2	61.0
Ethrel 1.5 l/ha @ 15w	74.6	110.5	126.7	145.5	144.0	162.6	88.0
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 10w	79.7	97.5	126.2	130.2	148.0	159.1	79.4
Fusilade 0.2 l/ha @ 10w	77.5	102.1	119.3	137.7	131.6	155.8	78.3
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 10w	79.0	99.3	131.7	138.8	149.2	167.2	88.2
Fusilade 0.3 l/ha @ 10w	77.5	94.7	131.4	134.5	141.2	139.6	62.1
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 10w	78.3	96.6	132.6	153.3	149.4	168.1	89.8
Fusilade 0.45 l/ha @ 10w	80.6	104.0	123.7	129.4	138.8	140.3	59.7
Mean	78.9	100.4	126.1	138.3	142.2	154.7	75.8
LSD (P=0.05)	NS	NS	NS	NS	NS	NS	
CV (%)	12.3	10.2	9.3	9.7	7.3	11.3	
Eric weight (g/stalk)							
Control	72.6	89.4	108.4	126.6	125.8	134.2	61.6
Ethrel 1.5 l/ha @ 15w	64.1	99.4	116.8	135.0	134.3	150.2	86.1
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 10w	68.3	87.2	116.3	120.5	137.9	147.8	79.5
Fusilade 0.2 l/ha @ 10w	66.2	92.1	110.5	126.9	122.1	144.0	77.8
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 10w	68.5	89.1	122.0	128.9	139.6	155.0	86.5
Fusilade 0.3 l/ha @ 10w	66.1	85.0	121.4	124.4	131.0	129.1	63.0
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 10w	67.8	87.0	122.5	142.7	139.5	156.3	88.5
Fusilade 0.45 l/ha @ 10w	69.5	93.2	114.0	119.1	129.2	129.9	60.4
Mean	67.9	90.3	116.5	128.0	132.4	143.3	75.4
LSD (P=0.05)	NS	NS	NS	NS	NS	NS	
CV (%)	13.2	10.4	9.5	9.7	7.4	11.4	
Suc % dry weight*							
Control	47.9	51.8	55.5	58.7	57.3	57.5	9.6
Ethrel 1.5 l/ha @ 15w	48.4	51.3	56.2	57.7	58.9	58.3	9.9
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 10w	48.6	52.3	57.4	58.5	60.2	60.1	11.5
Fusilade 0.2 l/ha @ 10w	48.4	51.9	57.4	56.4	57.6	58.3	9.9
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 10w	49.6	51.8	57.3	59.1	60.8	59.9	10.3
Fusilade 0.3 l/ha @ 10w	47.8	51.2	56.7	57.3	58.0	57.4	9.6
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 10w	49.1	52.2	58.2	58.6	59.7	59.2	10.1
Fusilade 0.45 l/ha @ 10w	48.5	51.2	57.0	55.7	58.8	57.9	9.4
Mean	48.6	51.7	57.0	57.7	58.9	58.6	10.0
LSD (P=0.05)	NS	NS	NS	2.0	2.1	NS	
LSD (P=0.01)	-	-	-	NS	NS	-	
CV (%)	5.9	3.3	3.3	2.7	2.7	2.8	

* = Sucrose measured as pol

Appendix 2: Growth measurements at various ages

Treatment	Eldana % Intern. Damaged
Control	0.72
Ethrel 1.5 l/ha 14w	0.41
Ethrel 1.5 l/ha 14w + Fusilade 0.2 l/ha 10w	0.61
Fusilade 0.2 l/ha 10w	0.90
Ethrel 1.5 l/ha 14w + Fusilade 0.3 l/ha 10w	0.85
Fusilade 0.3 l/ha 10w	0.75
Ethrel 1.5 l/ha 14w + Fusilade 0.45 l/ha 10w	1.02
Fusilade 0.45 l/ha 10w	0.67
Mean	0.74
LSD (P=0.05)	NS
CV (%)	83.0

SOUTH AFRICAN SUGAR INDUSTRY AGRONOMISTS ASSOCIATION

CODE: N32 x Ripening 78/03/Sw/Sim 'R'

CAT: 2185

CHEMICAL RIPENING OF N32 WITH ETHREL AND FUSILADE SUPER

1. PARTICULARS OF PROJECT

This crop : 2 nd Ratoon	Age : 11.4 months
Site : Simunye Sugar Estate	Dates : 16/7/2002 – 27/6/2003
Field : 604 Panel 14	Irrigation : Fully irrigated (surface drip)
Region : Northern Irrigated (Swd)	Ripener application details:
Soil Set : 'R'	Date Age(m) Weeks Purity%
Design : Random. blocks, 5 reps	Ethrel 18/3/03 8.0 14.4 75.2
Variety : N32	Fusilade 22/4/03 9.2 9.4 84.3
Plot size : 4 rows x 17m x 1.5m (gross) 2 rows x 13m x 1.5m (net)	

2. OBJECTIVE

- To determine the response of variety N32 to Ethrel and Fusilade Super applied either alone or as a combination treatment.

3. TREATMENTS

1. Control
2. Ethrel 1.5 l/ha 14 weeks pre-harvest
3. Ethrel 1.5 l/ha at 14 weeks + Fusilade 0.2 l/ha at 9 weeks
4. Fusilade S. 0.2 l/ha 9 weeks pre-harvest
5. Ethrel 1.5 l/ha at 14 weeks + Fusilade 0.3 l/ha at 9 weeks
6. Fusilade S. 0.3 l/ha 9 weeks pre-harvest
7. Ethrel 1.5 l/ha at 14 weeks + Fusilade S. 0.45 l/ha 9 weeks pre-harvest
8. Fusilade S. 0.45 l/ha 9 weeks pre-harvest

Ethrel and Fusilade were applied with a CO₂ constant pressure knapsack sprayer and a hand held 'T' boom fitted with two TK 1.5 flood nozzles, delivering ± 52 l/ha over a swath width of 6m at 200kPa.

4. SAMPLING PROCEDURE

Groups of 4 stalks were taken from the net plot rows in a systematic manner on each sampling occasion to give a total of 16 stalks per plot. On subsequent occasions, sampling started one pace further into the plot and the same sequence of sampling was followed.

5. RESULTS AND DISCUSSION

Sample data

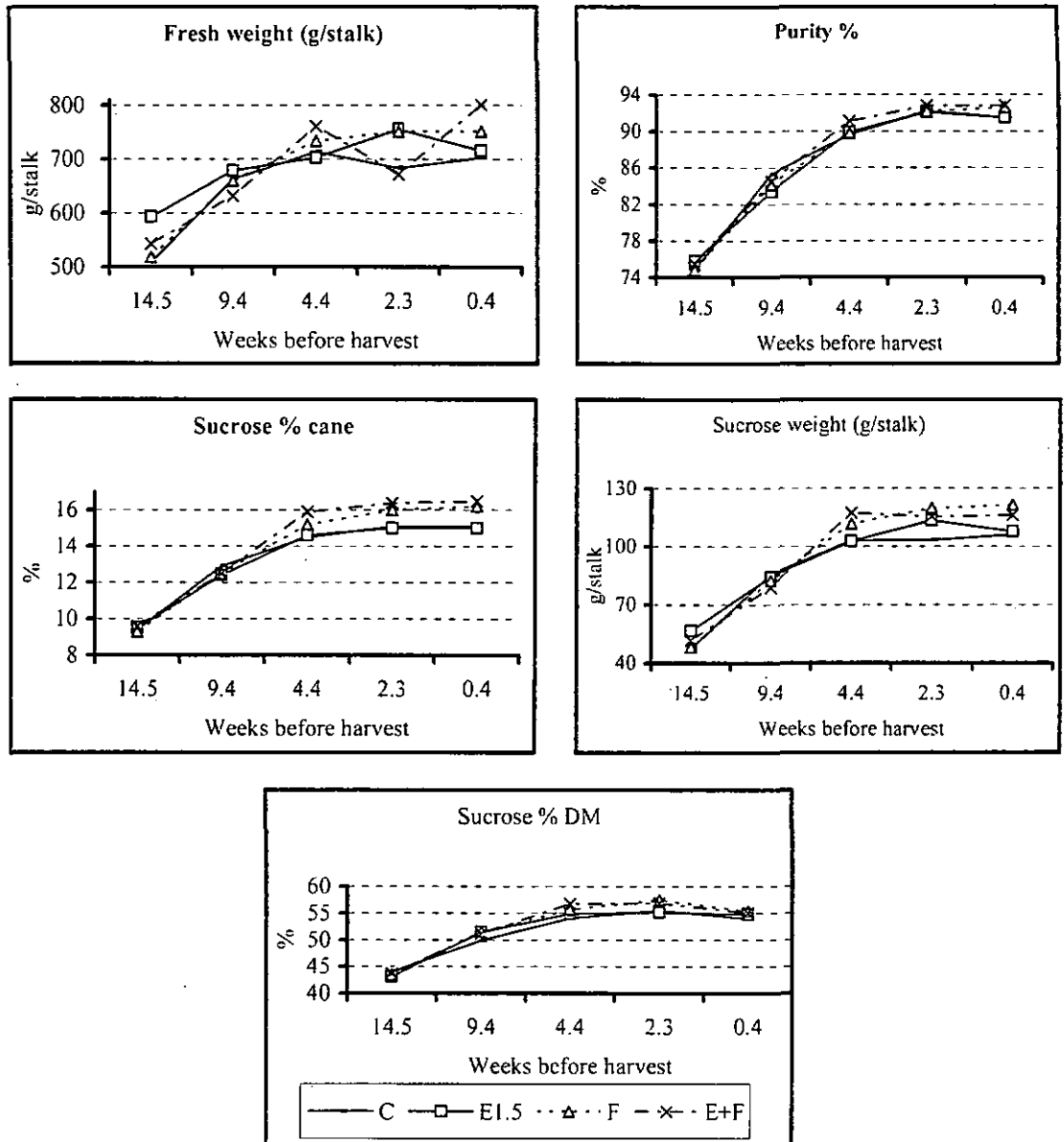
Juice purity averaged 75% when Ethrel was applied in March and 84% when fusilade was applied in April, which suggests that the cane was sufficiently immature to respond to both Ethrel and Fusilade (Appendix 1, Figure 1).

There were small but significant increases in juice purity, sucrose % cane and erc % cane (cane quality) a week before harvest and at harvest, in response to ripener treatments. As in previous observations, the most effective treatments were combinations of Ethrel and Fusilade (at all rates).

Individual ripeners were not as consistently effective as the combination treatments. All combinations, except Ethrel and Fusilade at the lower rate increased sucrose % dry matter. Individual treatments of Fusilade at 0.45 l/ha compared similarly to combinations with the two higher rates of Fusilade, *outperforming the combination with Fusilade at 0.2 l/ha.*

Trends in sucrose sample data up to harvest indicate that Ethrel may have had a growth stimulus effect by increasing stalk moisture content and stalk fresh weight at harvest (NS), with no associated increase in cane quality (Figure 1, Appendix 1). Fusilade treatments appeared to have the opposite effect, so that neither treatment on its own produced a net increase in sucrose % dry matter.

Figure 1: Sample data (see notes)



Notes: F = mean of 0.3 l Fusilade/ha and 0.45 l Fusilade/ha
 E+F = mean of Ethrel plus 0.3 l Fusilade/ha and Ethrel plus 0.45 l Fusilade/ha.

Harvest Results

Treatments had no statistically significant effect on cane yield and there was no indication that Fusilade caused a reduction in yields (Table 1). Improvements in sucrose and erc % cane were significant in the combination treatments and in Fusilade applied at 0.45 l/ha otherwise not significant for any other treatment applied alone. (see above).

Ripeners did not significantly increase yields of sucrose and erc, although highest yields were produced by Fusilade at 0.3 l/ha (NS).

Table 1: Yield and quality at harvest

Treatment	Tc/ha	Purity	Moist %	S% ^{c*}	Ts/ha [*]	Erc% ^c	Ferc/ha
Control	102	91.0	72.5	14.2	14.5	13.0	13.3
Ethrel 1.5 l/ha @ 14w	113	91.6	73.0	14.3	16.2	13.1	14.8
Fusilade 0.2 l/ha @ 9w	101	91.5	71.4	14.8	14.9	13.5	13.7
Fusilade 0.3 l/ha @ 9w	114	91.8	71.8	15.1	17.2	13.9	15.8
Fusilade 0.45 l/ha @ 9w	103	92.0	72.0	15.3	15.8	14.1	14.6
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 9w	109	91.7	72.3	14.9	16.4	13.7	15.0
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 9w	102	92.4	71.8	15.7	16.0	14.5	14.8
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 9w	102	92.7	71.6	15.9	16.2	14.7	15.0
Mean	106	91.8	72.1	15.0	15.9	13.8	14.6
LSD (P=0.05)	NS	0.82	NS	0.60	NS	0.61	NS
LSD (P=0.01)	-	1.10	-	0.81	-	0.82	-
CV (%)	9.2	0.7	1.2	3.1	10.0	3.4	10.1

* = Sucrose measured as pol

6. CONCLUSIONS

- The results show that the quality of sufficiently immature N32 can be improved significantly by the combination treatment of Ethrel plus Fusilade and Fusilade at 0.45 l/ha, with no effect on cane yield.
- There were no statistical differences among yields of sucrose or erc. But Fusilade at 0.3 l/ha appeared to produce the highest yields, which is contrary to previous observation.

BMS/DB

2/04/2004

6. APPENDICES

Appendix 1: Sample data

Cane fresh weight (g/ stalk)	Date of sample (weeks before harvest)						Incr. 14.5 - 0 wks
	Treatment	17 Mar. (14.5)	22 Apr (9.4)	27 May (4.4)	11 Jun. (2.3)	24 Jun. (0.4)	
Control	509	663	714	684	703	799	290
Ethrel 1.5 l/ha @ 14w	593	679	703	756	716	871	278
Fusilade 0.2 l/ha @ 9w	471	655	719	751	776	826	355
Fusilade 0.3 l/ha @ 9w	507	641	759	776	743	808	301
Fusilade 0.45 l/ha @ 9w	530	678	709	727	760	807	277
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 9w	577	727	761	672	801	748	171
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 9w	538	631	738	718	684	796	258
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 9w	548	633	741	693	724	721	173
Mean	534	663	731	722	738	797	263
LSD (P=0.05)	51.07	NS	NS	NS	NS	NS	
LSD (P=0.01)	NS	-	-	-	-	-	
CV (%)	9.6	9.0	10.1	10.2	12.1	13.9	
Moisture % cane							
Control	78.7	74.1	73.2	72.8	72.0	72.5	-6
Ethrel 1.5 l/ha @ 14w	78.1	76.0	73.5	72.8	72.6	73.0	-5
Fusilade 0.2 l/ha @ 9w	78.2	74.8	72.0	71.5	71.3	71.4	-7
Fusilade 0.3 l/ha @ 9w	79.0	76.4	72.8	72.4	70.7	71.8	-7
Fusilade 0.45 l/ha @ 9w	78.4	75.2	72.6	72.1	70.7	72.0	-6
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 9w	78.4	75.5	72.7	72.1	71.5	72.3	-6
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 9w	78.5	74.8	71.9	71.9	71.5	71.9	-7
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 9w	78.4	75.7	72.6	72.3	70.5	71.6	-7
Mean	78.5	75.3	72.7	72.2	71.4	72.1	-6
LSD (P=0.05)	NS	NS	NS	NS	NS	NS	
CV (%)	1.2	1.6	1.2	0.9	1.5	1.2	
Cane dry weight (g/ stalk)							
Control	108	171	191	187	196	220	112
Ethrel 1.5 l/ha @ 14w	130	164	186	206	196	235	105
Fusilade 0.2 l/ha @ 9w	103	165	201	215	223	237	134
Fusilade 0.3 l/ha @ 9w	106	151	207	214	219	228	122
Fusilade 0.45 l/ha @ 9w	115	169	194	203	222	226	111
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 9w	125	179	208	188	228	207	82
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 9w	116	159	207	201	195	224	108
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 9w	119	154	203	192	214	205	86
Mean	115	164	200	201	212	223	108
LSD (P=0.05)	14.52	NS	NS	NS	NS	NS	
LSD (P=0.01)	19.55	-	-	-	-	-	
CV (%)	9.7	10.0	10.0	10.8	13.2	15.1	

Appendix 1: Sample data (cont.)

Cane fresh weight (g/ stalk)	Date of sample (weeks before harvest)						Incr. 14.5 - 0 wks
	Treatment	17 Mar. (14.5)	22 Apr (9.4)	27 May (4.4)	11 Jun. (2.3)	24 Jun. (0.4)	
Control	509	663	714	684	703	799	290
Ethrel 1.5 l/ha @ 14w	593	679	703	756	716	871	278
Fusilade 0.2 l/ha @ 9w	471	655	719	751	776	826	355
Fusilade 0.3 l/ha @ 9w	507	641	759	776	743	808	301
Fusilade 0.45 l/ha @ 9w	530	678	709	727	760	807	277
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 9w	577	727	761	672	801	748	171
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 9w	538	631	738	718	684	796	258
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 9w	548	633	741	693	724	721	173
Mean	534	663	731	722	738	797	263
LSD (P=0.05)	51.07	NS	NS	NS	NS	NS	
LSD (P=0.01)	NS	-	-	-	-	-	
CV (%)	9.6	9.0	10.1	10.2	12.1	13.9	
Moisture % cane							
Control	78.7	74.1	73.2	72.8	72.0	72.5	-6
Ethrel 1.5 l/ha @ 14w	78.1	76.0	73.5	72.8	72.6	73.0	-5
Fusilade 0.2 l/ha @ 9w	78.2	74.8	72.0	71.5	71.3	71.4	-7
Fusilade 0.3 l/ha @ 9w	79.0	76.4	72.8	72.4	70.7	71.8	-7
Fusilade 0.45 l/ha @ 9w	78.4	75.2	72.6	72.1	70.7	72.0	-6
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 9w	78.4	75.5	72.7	72.1	71.5	72.3	-6
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 9w	78.5	74.8	71.9	71.9	71.5	71.9	-7
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 9w	78.4	75.7	72.6	72.3	70.5	71.6	-7
Mean	78.5	75.3	72.7	72.2	71.4	72.1	-6
LSD (P=0.05)	NS	NS	NS	NS	NS	NS	
CV (%)	1.2	1.6	1.2	0.9	1.5	1.2	
Cane dry weight (g/ stalk)							
Control	108	171	191	187	196	220	112
Ethrel 1.5 l/ha @ 14w	130	164	186	206	196	235	105
Fusilade 0.2 l/ha @ 9w	103	165	201	215	223	237	134
Fusilade 0.3 l/ha @ 9w	106	151	207	214	219	228	122
Fusilade 0.45 l/ha @ 9w	115	169	194	203	222	226	111
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 9w	125	179	208	188	228	207	82
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 9w	116	159	207	201	195	224	108
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 9w	119	154	203	192	214	205	86
Mean	115	164	200	201	212	223	103
LSD (P=0.05)	14.52	NS	NS	NS	NS	NS	
LSD (P=0.01)	19.55	-	-	-	-	-	
CV (%)	9.7	10.0	10.0	10.8	13.2	15.1	

Appendix 1: Sample data (cont.)

Sucrose weight (g/stalk)*	Date of sample (weeks before harvest)						Incr. 14.5 - 0 wks
	Treatment	17 Mar. (14.5)	22 Apr (9.4)	27 May (4.4)	11 Jun. (2.3)	24 Jun. (0.4)	
Control	47.7	85.4	103.1	103.3	106.0	113.4	66
Ethrel 1.5 l/ha @ 14w	56.7	84.3	102.6	113.4	107.6	124.7	68
Fusilade 0.2 l/ha @ 9w	43.6	81.9	107.9	120.0	122.4	121.9	78
Fusilade 0.3 l/ha @ 9w	45.2	78.4	112.7	121.2	117.8	122.0	77
Fusilade 0.45 l/ha @ 9w	51.4	86.4	110.6	118.2	125.1	123.5	72
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 9w	54.7	91.7	117.8	106.5	125.5	112.0	57
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 9w	53.1	81.0	117.5	116.4	110.7	124.6	72
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 9w	50.4	76.8	117.3	114.4	121.5	114.6	64
Mean	50.4	83.2	111.2	114.2	117.1	119.6	69
LSD (P=0.05)	NS	NS	NS	NS	NS	NS	
CV (%)	14.0	9.9	10.6	10.4	11.5	14.4	
Eric weight (g/stalk)							
Control	37.6	74.8	93.4	95.3	97.3	103.6	66
Ethrel 1.5 l/ha @ 14w	45.4	73.1	93.3	104.6	98.8	114.4	69
Fusilade 0.2 l/ha @ 9w	34.2	71.4	98.4	110.6	113.2	111.7	78
Fusilade 0.3 l/ha @ 9w	35.2	68.1	102.1	111.8	108.8	112.2	77
Fusilade 0.45 l/ha @ 9w	41.2	75.4	100.9	109.5	115.9	113.8	73
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 9w	43.8	79.9	107.7	98.8	115.8	103.0	59
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 9w	42.7	71.0	107.9	108.0	102.5	115.3	73
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 9w	39.7	66.6	107.6	106.1	112.8	106.2	67
Mean	40.0	72.5	101.4	105.6	108.1	110.0	70
LSD (P=0.05)	NS	NS	NS	NS	NS	NS	
CV (%)	16.7	10.6	10.7	10.4	11.3	14.4	
Suc % dry weight*							
Control	44.0	49.9	54.1	55.5	54.0	51.7	8
Ethrel 1.5 l/ha @ 14w	43.1	51.5	54.9	55.2	54.8	53.1	10
Fusilade 0.2 l/ha @ 9w	42.6	49.4	53.7	56.0	55.1	51.6	9
Fusilade 0.3 l/ha @ 9w	42.3	51.9	54.5	56.6	54.4	53.6	11
Fusilade 0.45 l/ha @ 9w	44.6	51.0	56.9	58.3	56.3	54.7	10
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 9w	43.7	51.2	56.8	56.9	55.1	53.9	10
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 9w	46.0	50.8	56.8	57.8	56.8	55.7	10
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 9w	42.5	49.8	57.8	59.7	56.8	56.1	14
Mean	43.6	50.7	55.7	57.0	55.4	53.8	10
LSD (P=0.05)	NS	NS	2.66	2.41	NS	2.51	
LSD (P=0.01)	-	-	NS	3.25	-	3.38	
CV (%)	7.2	4.9	3.7	3.3	3.8	3.6	

* = Sucrose measured as pol

Appendix 2: Growth measurements at various ages

Treatment	Population ('000/ha)			Height (cm to TVD)		
	Mar. (8.1m)	Apr. (8.9m)	Jun. (11.1m)	Mar. (8.1m)	Apr. (8.9m)	Jun. (11.1m)
Control	129	106	118	165	205	238
Ethrel 1.5 l/ha @ 14w	143	108	111	187	220	245
Fusilade 0.2 l/ha @ 9w	139	114	112	184	214	234
Fusilade 0.3 l/ha @ 9w	143	115	118	170	217	225
Fusilade 0.45 l/ha @ 9w	138	113	115	188	214	222
Ethrel 1.5 l/ha + Fusilade 0.2 l/ha @ 9w	136	109	114	165	217	231
Ethrel 1.5 l/ha + Fusilade 0.3 l/ha @ 9w	131	105	115	184	212	226
Ethrel 1.5 l/ha + Fusilade 0.45 l/ha @ 9w	126	108	108	168	220	225
Mean	136	110	114	176	215	231
LSD (P=0.05)	NS	NS	NS	NS	NS	9.24
LSD (P=0.01)	-	-	-	-	-	12.44
CV (%)	7.6	7.9	5.7	13.2	4.9	3.1