

# SOUTH AFRICAN SUGAR INDUSTRY AGRONOMISTS' ASSOCIATION

CODE: N23 x Gallant 82/04/Sw/Sim 'R'

CAT : 2201

## EARLY SEASON CHEMICAL RIPENING OF NC0376 WITH GALLANT SUPER

### 1. PARTICULARS OF PROJECT

This crop	: Plant	Age	: 11.0 months			
Site	: RSSC (Simunye)	Dates	: 19/8/2003 – 20/7/2004			
Field	: 604 Panel 23	Irrigation	: Fully irrigated (surface drip)			
Region	: Northern Irrigated (Swd)	Ripener application details:				
Soil Set	: 'R'	Date	Age(m)	Weeks	Purity%	
Design	: Random. blocks, 8 reps	Gallant	5/5/04	8.5	10.8	66
Variety	: N23	Fusilade	5/5/04	8.5	10.8	66
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 N23 to treatment with Gallant Super and Fusilade Super.
- To refine the recommended application rate for Gallant Super.

### 3. TREATMENTS

- Control
- Fusilade 0.33 l/ha 11 weeks pre harvest
- Fusilade 0.45 l/ha 11 weeks pre harvest
- Gallant 0.165 l/ha 11 weeks pre harvest
- Gallant 0.200 l/ha 11 weeks pre harvest
- Gallant 0.225 l/ha 11 weeks pre harvest
- Gallant 0.270 l/ha 11 weeks pre-harvest
- Gallant 0.450 l/ha 11 weeks pre harvest

Gallant and Fusilade were applied with a CO<sub>2</sub> 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

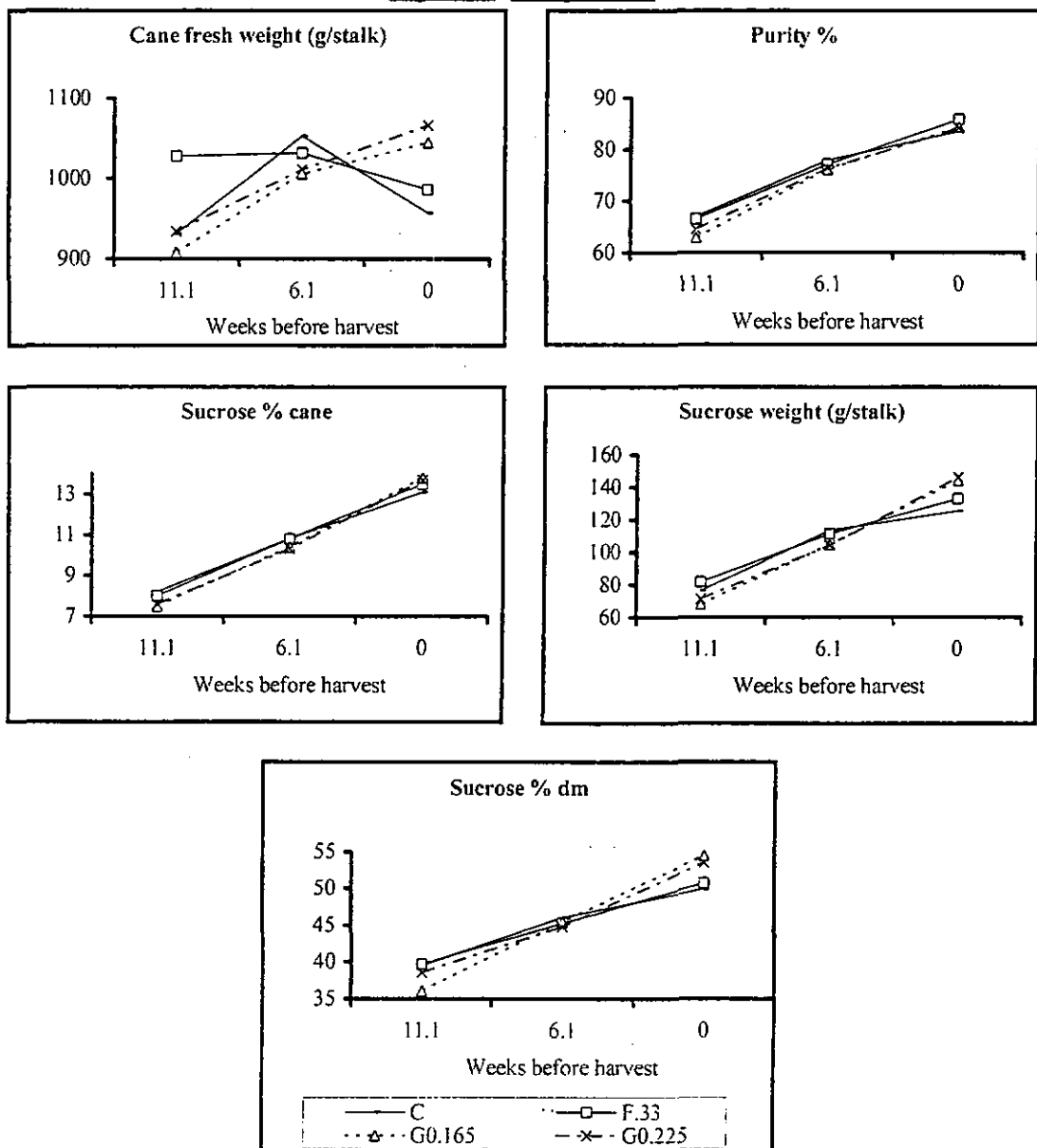
Groups of 4 stalks were taken from the net plot rows in a systematic manner on each sampling occasion to give a total of 16 stalks per plot. On subsequent occasions, sampling started one pace further into the plot and the same sequence of sampling was followed.

5. RESULTS AND DISCUSSION

Sample data

Juice purity averaged 66% when Gallant and Fusillade were applied in May, which suggests that the cane was sufficiently immature to respond to both chemicals (Appendix 1, Figure 1).

Figure 1: Sample data



Following the application of Fusilade and Gallant, there were noticeable increases in cane quality (juice purity, sucrose % cane and erc % cane). Fusilade at 0.33 l/ha gave higher purities than the other treatments. Although Fusilade at 0.45 l/ha gave the highest cane quality (sucrose and erc % cane), there were no significant differences between Fusilade and Gallant treatments. Both ripeners did not significantly improve cane quality.

Although, Gallant super at 0.165 l/ha had the highest sucrose % dry matter, there were no significant differences, except when compared to the Control and Fusilade at 0.33 l/ha.

### Harvest Results

Treatments had no significant effect on cane yield (Table 1). There were no significant differences in the performance of both Fusilade super and Gallant super for cane quality (sucrose % cane and erc % cane), even though Fusilade at 0.45 l/ha had the highest cane quality. Both ripeners did not significantly improve cane quality.

Although Fusilade at both rates appeared to outperform Gallant in terms of sucrose and erc yields, there were no statistical differences among treatments and both ripeners did not significantly improve yields.

**Table 1: Yield and quality at harvest**

Treatment	Tc/ha	Purity	Moist %	Suc% <sup>c*</sup>	Ts/ha <sup>*</sup>	Erc% <sup>c</sup>	Terc/ha
Control	146.2	83.5	73.7	13.1	19.2	11.3	16.5
Fusilade 0.33 l/ha @ 11w	158.3	85.8	73.4	13.5	21.3	11.9	18.7
Fusilade 0.45 l/ha @ 11w	155.2	84.9	73.4	14.0	21.6	12.2	19.0
Gallant 0.165 l/ha @ 11w	141.2	84.3	74.7	13.8	19.5	12.0	17.0
Gallant 0.2 l/ha @ 11w	138.6	84.1	73.8	13.6	18.8	11.8	16.4
Gallant 0.225 l/ha @ 11w	136.0	84.1	74.4	13.7	18.6	11.9	16.2
Gallant 0.27 l/ha @ 11w	144.8	84.2	74.6	13.5	19.5	11.8	17.0
Gallant 0.45 l/ha @ 11 w	146.6	85.0	74.3	13.7	19.9	12.0	17.4
Mean	145.9	84.5	74.0	13.6	19.8	11.9	17.3
LSD (P=0.05)	NS	NS	NS	NS	NS	NS	NS
LSD (P=0.01)	-	-	-	-	-	-	-
CV (%)	9.7	2.5	1.2	4.7	9.1	6.0	9.8

\* = Sucrose measured as pol

## 6. CONCLUSIONS

- The results show that the quality of sufficiently immature N23 can be improved by treatments of Fusilade super and Gallant super with no significant effect on cane yield.
- There were no statistical differences in the performance of both Fusilade and Gallant with regard to sucrose and ERC yields. Both did not significantly improve yields.
- The results show that Gallant super is inferior to Fusilade super, even though differences were not significant. Since the cane was quite young at ripener application, there is need to investigate this further.

BMS

18/10/2005

## 6. APPENDICES

## Appendix I: Sample data

Cane fresh weight (g/ stalk)	Date of sample (weeks before harvest)			Incr. 11.1 - 0 wks
	Treatment	3 May (11.1)	7 Jun (6.1)	
Control	931	1053	957	26
Fusilade 0.33 l/ha @ 11w	1028	1032	986	-42
Fusilade 0.45 l/ha @ 11w	989	1033	1029	40
Gallant 0.165 l/ha @ 11w	908	1006	1045	137
Gallant 0.2 l/ha @ 11w	878	1050	960	82
Gallant 0.225 l/ha @ 11w	934	1011	1066	132
Gallant 0.27 l/ha @ 11w	981	1024	1042	61
Gallant 0.45 l/ha @ 11 w	1009	993	1073	64
Mean	957	1025	1020	63
LSD (P=0.05)	NS	NS	NS	
LSD (P=0.01)	-	-	-	
CV (%)	9.1	7.6	7.2	
<b>Moisture % cane</b>				
Control	79.2	76.6	73.7	-6
Fusilade 0.33 l/ha @ 11w	80.0	76.2	73.4	-7
Fusilade 0.45 l/ha @ 11w	80.4	76.8	73.4	-7
Gallant 0.165 l/ha @ 11w	79.0	77.0	74.7	-4
Gallant 0.2 l/ha @ 11w	80.0	77.0	73.8	-6
Gallant 0.225 l/ha @ 11w	80.2	77.0	74.4	-6
Gallant 0.27 l/ha @ 11w	79.4	76.8	74.6	-5
Gallant 0.45 l/ha @ 11 w	79.8	77.0	74.3	-6
Mean	79.8	76.8	74.0	-6
LSD (P=0.05)	NS	NS	NS	
LSD (P=0.01)	-	-	-	
CV (%)	1.3	1.2	1.2	
<b>Cane dry weight (g/ stalk)</b>				
Control	194	246	252	58
Fusilade 0.33 l/ha @ 11w	206	246	263	57
Fusilade 0.45 l/ha @ 11w	194	240	274	80
Gallant 0.165 l/ha @ 11w	192	231	265	73
Gallant 0.2 l/ha @ 11w	176	242	251	75
Gallant 0.225 l/ha @ 11w	185	233	273	88
Gallant 0.27 l/ha @ 11w	202	237	264	62
Gallant 0.45 l/ha @ 11 w	204	228	276	72
Mean	194	238	265	71
LSD (P=0.05)	NS	NS	NS	
LSD (P=0.01)	-	-	-	
CV (%)	12.2	8.7		

## Appendix 1: Sample data (cont.)

Purity % cane Treatment	Date of sample (weeks before harvest)			Incr. 11.1 - 0 wks
	3 May (11.1)	7 Jun (6.1)	20 Jul (0)	
Control	66.9	77.9	83.5	16.6
Fusilade 0.33 l/ha @ 11w	66.5	77.1	85.8	19.3
Fusilade 0.45 l/ha @ 11w	65.5	77.9	84.9	19.4
Gallant 0.165 l/ha @ 11w	62.9	76.1	84.3	21.4
Gallant 0.2 l/ha @ 11w	64.3	77.0	84.1	19.8
Gallant 0.225 l/ha @ 11w	64.5	76.3	84.1	19.6
Gallant 0.27 l/ha @ 11w	65.6	76.7	84.2	18.6
Gallant 0.45 l/ha @ 11 w	68.2	76.8	85.0	16.8
Mean	65.6	77.0	84.5	18.9
LSD (P=0.05)	NS	NS	NS	
LSD (P=0.01)	-	-	-	
CV (%)	4.2	1.9	2.5	
<b>Sucrose % cane*</b>				
Control	8.2	10.8	13.1	5
Fusilade 0.33 l/ha @ 11w	8.0	10.8	13.5	6
Fusilade 0.45 l/ha @ 11w	7.8	10.9	14.0	6
Gallant 0.165 l/ha @ 11w	7.5	10.4	13.8	6
Gallant 0.2 l/ha @ 11w	7.7	10.7	13.6	6
Gallant 0.225 l/ha @ 11w	7.6	10.3	13.7	6
Gallant 0.27 l/ha @ 11w	8.0	10.6	13.5	6
Gallant 0.45 l/ha @ 11 w	7.8	10.7	13.7	6
Mean	7.8	10.7	13.6	6
LSD (P=0.05)	NS	NS	NS	
LSD (P=0.01)	-	-	-	
CV (%)	5.9	1.5	4.7	
<b>Erc % cane</b>				
Control	5.8	8.8	11.3	6
Fusilade 0.33 l/ha @ 11w	5.6	8.7	11.9	6
Fusilade 0.45 l/ha @ 11w	5.4	8.9	12.2	7
Gallant 0.165 l/ha @ 11w	4.9	8.4	12.0	7
Gallant 0.2 l/ha @ 11w	5.2	8.7	11.8	7
Gallant 0.225 l/ha @ 11w	5.2	8.3	11.9	7
Gallant 0.27 l/ha @ 11w	5.5	8.6	11.8	6
Gallant 0.45 l/ha @ 11 w	5.6	8.6	12.0	6
Mean	5.4	8.6	11.9	6
LSD (P=0.05)	NS	NS	NS	
LSD (P=0.01)	-	-	-	
CV (%)	9.9	5.8	6.0	

## Appendix 1: Sample data (cont.)

Sucrose weight (g/stalk)*	Date of sample (weeks before harvest)			Incr. 11.1 - 0 wks
	Treatment	3 May (11.1)	7 Jun (6.1)	
Control	76.5	113.4	125.5	49.0
Fusilade 0.33 l/ha @ 11w	81.7	111.3	132.9	51.2
Fusilade 0.45 l/ha @ 11w	77.9	112.5	144.0	66.1
Gallant 0.165 l/ha @ 11w	68.0	104.8	144.2	76.2
Gallant 0.2 l/ha @ 11w	67.3	112.6	131.2	63.9
Gallant 0.225 l/ha @ 11w	71.2	104.1	146.1	74.9
Gallant 0.27 l/ha @ 11w	78.7	108.2	140.7	62.0
Gallant 0.45 l/ha @ 11 w	79.7	105.9	146.7	67.0
Mean	75.1	109.1	138.9	63.8
LSD (P=0.05)	NS	NS	NS	
CV (%)	12.1	8.5	10.7	
<b>Erc weight (g/stalk)</b>				
Control	54.0	92.7	108.4	54.4
Fusilade 0.33 l/ha @ 11w	57.4	90.2	116.9	59.5
Fusilade 0.45 l/ha @ 11w	54.0	92.1	126.0	72.0
Gallant 0.165 l/ha @ 11w	44.3	84.0	125.7	81.4
Gallant 0.2 l/ha @ 11w	45.3	91.2	113.9	68.6
Gallant 0.225 l/ha @ 11w	48.1	83.6	127.3	79.2
Gallant 0.27 l/ha @ 11w	54.4	87.2	122.5	68.1
Gallant 0.45 l/ha @ 11 w	57.2	85.7	128.5	71.3
Mean	51.8	88.3	121.2	69.3
LSD (P=0.05)	NS	NS	NS	
CV (%)	14.8	9.0	11.4	
<b>Suc % dry weight*</b>				
Control	39.5	46.1	49.9	10.4
Fusilade 0.33 l/ha @ 11w	39.7	45.3	50.7	11.0
Fusilade 0.45 l/ha @ 11w	40.0	47.0	52.4	12.4
Gallant 0.165 l/ha @ 11w	36.1	45.5	54.5	18.4
Gallant 0.2 l/ha @ 11w	38.5	46.7	52.1	13.6
Gallant 0.225 l/ha @ 11w	38.6	44.8	53.4	14.8
Gallant 0.27 l/ha @ 11w	38.9	45.8	53.2	14.3
Gallant 0.45 l/ha @ 11 w	38.9	46.4	53.2	14.3
Mean	38.8	46.0	52.4	13.7
LSD (P=0.05)	NS	NS	2.56	
LSD (P=0.01)	-	-	NS	
CV (%)	7.8	4.2	3.8	

\* = Sucrose measured as pol

## Appendix 2: Growth measurements at various ages

Treatment	Population (' 000/ha)	Height (cm. to TVD)
	Jun. (10.3m)	Jun. (10.3m)
Control	117	310
Fusilade 0.33 l/ha @ 11w	107	301
Fusilade 0.45 l/ha @ 11w	113	295
Gallant 0.165 l/ha @ 11w	116	296
Gallant 0.2 l/ha @ 11w	114	302
Gallant 0.225 l/ha @ 11w	111	293
Gallant 0.27 l/ha @ 11w	112	297
Gallant 0.45 l/ha @ 11 w	117	281
Mean	113	297
LSD (P=0.05)	NS	NS
LSD (P=0.01)	-	-
CV (%)	8.7	5.9