

SOUTH AFRICAN SUGAR INDUSTRY AGRONOMISTS ASSOCIATION

CODE: Ripening 79/03/Sw/Sim 'R'

CAT: 2193

CHEMICAL RIPENING OF VARIETIES WITH GALLANT SUPER AND FUSILADE SUPER

1. PARTICULARS OF PROJECT

This crop : 1 st Ratoon	Age : 11.9 months
Site : Simunye Sugar Estate	Dates : 9/5/2002 – 7/5/2003
Field : 604 Panel 2	Irrigation : Fully irrigated (surface drip)
Region : Northern Irrigated (Swd)	Ripener application details:
Soil Set : 'R'	Variety Date Age(m) Weeks Purity%
Design : Random. blocks, 4 reps	NCo376 27/2/03 9.7 9.8 67.0
Variety : N23, N25, NCo376	N23 27/2/03 9.7 9.8 71.0
Plot size : 5rows x 10.5m x 1.5m (gross) 3rows x 8.5m x 1.5m (net)	N25 27/2/03 9.7 9.8 70.0

2. OBJECTIVE

- To compare the response of varieties NCo376, N23 and N25 to treatment with Fusilade Super and Gallant Super.
- To validate the spray to harvest intervals recommended for Fusilade Super and Gallant Super.

3. TREATMENTS

- Control
- Fusilade @ 0.30 l/ha at 10 weeks
- Fusilade @ 0.45 l/ha at 10 weeks
- Gallant @ 0.15 l/ha at 10 weeks
- Gallant @ 0.225 l/ha at 10 weeks

Fusilade and gallant 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

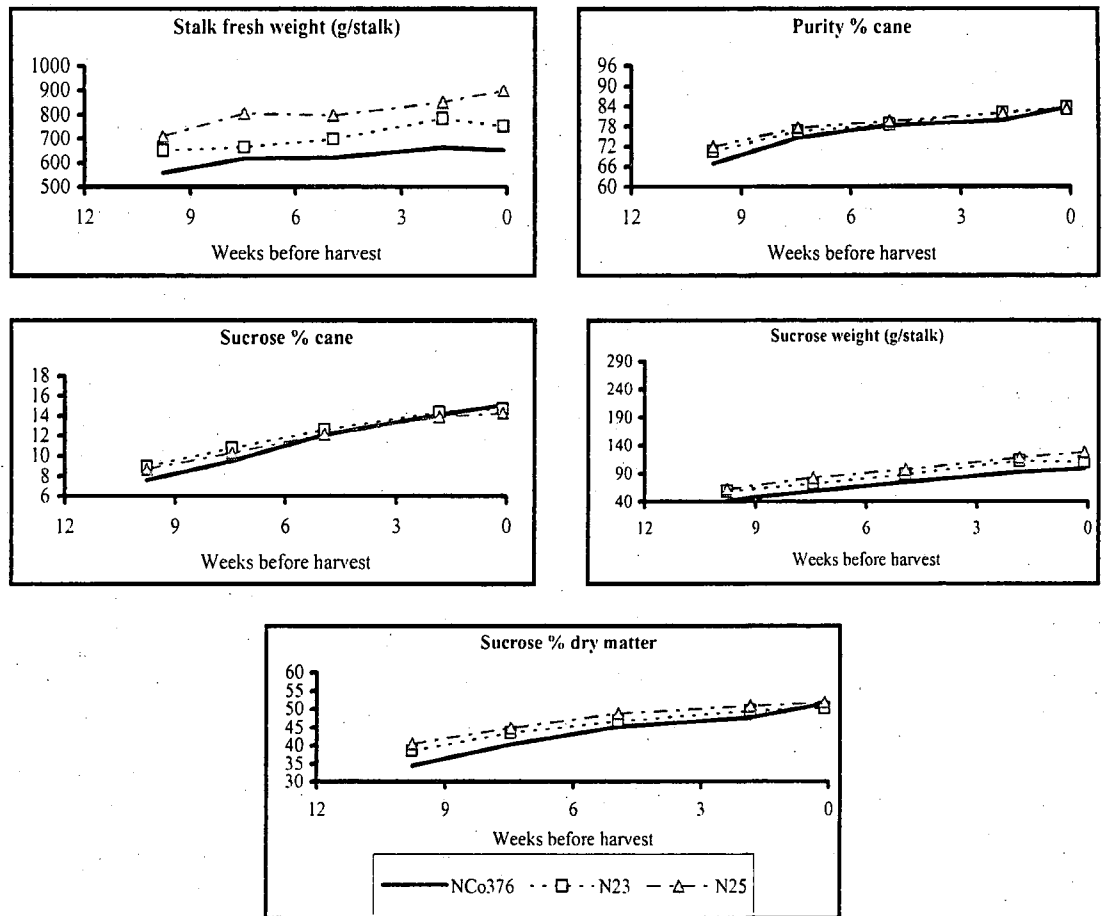
Juice purity averaged 67%, 71% and 70% for NCo376, N23 and N25 respectively when Fusilade and Gallant were applied in February. This suggests that the cane was too immature and should have, therefore, responded significantly to the ripeners.

Both ripeners, at all rates, increased juice purity, sucrose and erc % cane at harvest. Both rates of Fusilade outperformed the lower rate of Gallant Super but there was no significant difference when Fusilade was compared with the higher rate of Gallant Super. NCo376 yielded significantly more sucrose and erc % cane than N23 and N25, which yielded statistically similar.

Ripeners did not increase sucrose and erc weight at all sampling periods. N25 yielded significantly more sucrose and erc than NCo376 and N23 while N23 was intermediate and significantly better than NCo376.

Ripeners increased significantly the sucrose % dry matter of varieties at harvest. Both rates of Fusilade Super yielded statistically similar to the higher rate of Gallant Super. There was no significant difference between the lower rate of Gallant Super and the higher rate of Fusilade.

Figure 1: Sample data (see notes)



Harvest Results

Treatments had no significant effect on cane yield (Table 1). Improvements in sucrose and etc % cane were significant for all treatments, with the lower rate of Gallant Super performing poorly when compared with Fusilade and the higher rate of Gallant Super.

Ripeners did not significantly increase yields of sucrose and etc.

Table 1: Yield and quality at harvest

Treatment	Tonne/ha					Suc % cane					Tuscha					Erc % cane					Tercbe									
	Cont.	F0.5	F0.45	G0.15	G0.225	Var.	Cont.	F0.5	F0.45	G0.15	G0.225	Var.	Cont.	F0.5	F0.45	G0.15	G0.225	Var.	Cont.	F0.5	F0.45	G0.15	G0.225	Var.						
NCo376	96	89	90	91	89	92	13.19	15.92	15.54	15.80	14.95	14.76	13.16	14.17	14.36	12.56	13.42	13.52	11.15	14.15	14.10	11.80	13.05	12.88	11.1	12.6	12.7	10.7	11.7	11.8
N23	105	108	104	94	103	102	13.48	14.46	14.85	14.67	13.96	14.28	13.89	15.57	15.46	13.85	14.30	14.61	11.46	12.64	12.97	12.72	12.91	12.36	11.8	13.6	13.5	12.0	12.3	12.6
N25	114	116	105	105	104	106	13.34	13.76	14.15	14.05	13.95	13.86	15.29	13.94	14.82	14.89	14.53	15.98	11.37	11.83	12.15	12.14	12.99	11.92	13.1	13.5	12.5	12.8	12.6	13.0
Mean	105	104	100	97	99	101	13.32	14.21	14.85	14.37	14.30	14.30	14.09	12.23	14.88	13.72	14.08	14.40	11.33	12.87	13.07	12.22	12.38	12.58	11.90	13.30	12.97	11.83	12.20	12.46
Interaction	NS					NS					NS					NS														
LSD Ripener (0.05)	NS					0.66					NS					0.78														
(0.01)	-					0.93					-					1.09														
LSD Variety (0.05)	4.66					6.58					0.92					0.68														
(0.01)	6.28					NS					1.22					NS														
CV%	7.1					6.3					9.0					8.5														

NS: sucrose measured as pol

6. CONCLUSIONS

- The results show that the quality of sufficiently immature cane can be improved significantly by all rates of either Fusilade Super or Gallant Super, with no effect on cane yield.
- There were no statistical differences among yields of sucrose or etc.

BMS/DB

17/5/2004

6. APPENDICES

Appendix 1: Sample data

Stalk fresh wt (g/stalk)	Date of sample (weeks before harvest)																							
	2/25/2003(10.1)						3/14/2003(7.7)						4/24/2003(1.9)						5/6/2003(0.1)					
	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean
NC6376	531	574	555	531	605	559	555	715	629	656	534	618	683	563	657	739	676	664	706	584	645	691	640	653
N23	609	648	672	656	672	651	621	705	709	617	678	666	758	805	773	780	800	783	738	845	698	719	759	752
N25	641	770	711	715	719	711	787	930	836	680	793	805	902	870	809	968	711	852	970	986	827	864	848	899
Mean	594	664	646	634	665	641	654	783	725	651	668	696	781	746	746	829	729	766	805	805	723	758	749	768
Interaction	NS						NS						NS						NS					
LSD Ripener (0.05)	NS						96						NS						NS					
LSD Ripener (0.01)	-						NS						-						NS					
LSD Variety (0.05)	45						60						63						67					
LSD Variety (0.01)	60						81						85						90					
CV%	10.8						13.4						12.8						13.5					
Moisture % cane																								
Ripener Treatment	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean
NC6376	78.6	78.3	78.1	77.7	77.7	78.1	76.7	76.6	75.8	76.5	76.7	76.3	71.8	70.0	70.1	70.8	70.2	70.6	72.1	70.9	69.6	70.7	70.0	70.7
N23	77.3	77.9	76.4	75.9	76.7	76.8	75.2	75.8	75.1	74.9	75.4	75.3	71.8	71.0	70.9	70.7	70.5	71.0	71.8	70.1	69.5	71.3	71.2	70.8
N25	77.8	79.3	78.3	79.2	78.0	78.5	77.4	77.7	76.6	77.0	76.7	77.1	73.6	72.6	71.2	73.6	72.0	72.6	73.1	72.7	71.7	72.4	72.7	72.5
Mean	77.9	78.5	77.6	77.6	77.5	77.8	76.4	76.7	75.8	76.1	76.3	76.3	72.4	71.2	70.7	71.7	70.9	71.4	72.3	71.2	70.3	71.5	71.3	71.3
Interaction	NS						NS						NS						NS					
LSD Ripener (0.05)	NS						NS						0.68						1.24					
LSD Ripener (0.01)	-						-						0.95						NS					
LSD Variety (0.05)	0.61						0.58						0.72						0.48					
LSD Variety (0.01)	0.83						0.78						0.97						0.65					
CV%	1.2						1.2						1.6						1.1					
Stalk dry wt (g/stalk)																								
Ripener Treatment	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean
NC6376	114	124	122	119	136	123	129	167	153	155	125	146	193	169	196	215	202	198	197	169	196	202	192	191
N23	138	143	159	159	156	151	154	171	177	155	166	165	213	234	225	227	236	227	209	252	214	206	218	220
N25	141	159	155	148	159	152	178	207	195	157	185	184	238	238	233	255	200	233	262	268	234	238	231	247
Mean	131	142	145	142	150	142	154	182	175	156	159	165	215	214	218	232	213	218	223	230	215	215	214	219
Interaction	NS						NS						NS						NS					
LSD Ripener (0.05)	NS						NS						NS						NS					
LSD Ripener (0.01)	-						-						-						-					
LSD Variety (0.05)	10.30						14.74						17.40						19.09					
LSD Variety (0.01)	13.89						19.86						23.46						25.73					
CV%	11.2						13.8						12.4						13.5					

Appendix 1: Sample data (cont.)

Juice Purity %	Date of sample (weeks before harvest)																							
	2/25/2003(10.1)						3/14/2003(7.7)						4/24/2003(1.9)						5/6/2003(0.1)					
	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean
NC0376	65.5	67.4	67.1	65.4	68.9	66.86	73.0	76.4	75.9	74.4	73.9	74.7	77.2	81.1	81.5	78.9	80.5	79.8	80.9	84.5	85.3	83.4	84.4	83.7
N23	69.5	68.7	71.2	72.2	71.2	70.56	75.6	76.4	78.0	77.2	75.9	76.6	80.3	82.5	83.8	82.8	81.8	82.2	81.2	84.9	85.9	82.4	83.9	83.7
N25	73.2	70.8	72.7	69.3	74.2	72.04	78.2	76.9	79.3	73.7	78.4	77.7	81.6	82.9	83.3	80.2	81.8	82.0	82.0	84.4	84.2	82.7	83.2	83.3
Mean	69.4	69.0	70.3	69.0	71.4	69.8	75.6	76.6	77.7	75.8	76.1	76.3	79.7	82.2	82.9	80.6	81.4	81.3	81.4	84.6	85.1	82.8	83.8	83.6
Interaction	NS						NS						NS						NS					
LSD Ripener (0.05)	NS						NS						1.66						1.97					
Ripener (0.01)	-						-						NS						2.75					
LSD Variety (0.05)	2.01						1.41						1.25						NS					
Variety (0.01)	2.72						1.90						1.68						-					
CV%	4.5						2.9						2.4						1.8					
Sucrose % cane	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean
NC0376	7.3	7.6	7.5	7.4	8.0	7.6	9.0	9.9	9.9	9.4	9.5	9.5	12.4	14.8	14.7	13.9	14.6	14.1	13.6	15.8	16.1	14.7	15.5	15.1
N23	8.8	8.3	9.1	9.5	9.1	9.0	10.5	10.7	11.0	11.1	10.6	10.8	13.4	14.4	15.4	14.4	14.3	14.4	13.4	15.4	15.5	14.5	14.8	14.7
N25	9.0	8.3	8.9	8.3	9.2	8.7	10.5	9.9	10.8	9.9	10.3	10.3	13.5	14.2	14.2	13.7	14.0	13.9	13.7	14.5	14.5	14.2	14.4	14.3
Mean	8.2	8.1	8.5	8.4	8.8	8.4	9.9	10.2	10.6	10.1	10.2	10.2	13.1	14.5	14.8	14.0	14.3	14.1	13.6	15.2	15.3	14.5	14.9	14.7
Interaction	NS						NS						NS						NS					
LSD Ripener (0.05)	NS						NS						0.65						0.51					
Ripener (0.01)	-						-						0.91						0.72					
LSD Variety (0.05)	0.43						0.37						NS						0.41					
Variety (0.01)	0.58						0.50						-						0.55					
CV%	8.0						5.6						4.3						4.3					
Erc % cane	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean
NC0376	5.0	5.4	5.3	5.0	5.8	5.3	6.9	7.9	7.9	7.3	7.4	7.5	10.0	12.5	12.5	11.3	12.2	11.7	11.5	13.8	14.1	12.7	13.5	13.1
N23	6.5	6.0	6.8	7.2	6.9	6.7	8.4	8.6	9.0	9.0	8.5	8.7	11.2	12.3	13.4	12.4	12.1	12.3	11.3	13.4	13.6	12.4	12.9	12.7
N25	6.9	6.2	6.9	6.1	7.2	6.6	8.4	8.0	9.0	8.0	8.6	8.4	11.5	12.3	12.2	11.5	12.0	11.9	11.7	12.6	12.6	12.2	12.4	12.3
Mean	6.1	5.9	6.3	6.1	6.6	6.2	5.9	6.1	6.5	6.1	6.1	6.1	8.2	9.3	9.5	8.9	9.1	9.0	8.6	10.0	10.1	9.3	9.7	9.5
Interaction	NS						NS						NS						NS					
LSD Ripener (0.05)	NS						NS						0.71						0.63					
Ripener (0.01)	-						-						1.00						0.89					
LSD Variety (0.05)	0.50						0.42						NS						0.45					
Variety (0.01)	0.67						0.56						-						0.60					
CV%	12.4						7.9						7.8						7.3					

Appendix 1: Sample data (cont.)

Sucrose wt (g/stalk)		Date of sample (weeks before harvest)																						
		2/25/2003(10.1)					3/14/2003(7.7)					4/24/2003(1.9)					5/6/2003(0.1)							
Ripener Treatment	Cont.	F0.3	F0.45	G0.15	G0.225	Var Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean
NC0376	38.6	43.7	42.1	39.5	48.8	42.5	49.5	70.0	62.1	61.5	50.8	58.7	84.5	82.8	95.6	102.1	98.5	92.7	96.8	95.3	105.7	101.9	99.1	98.7
N23	53.4	54.3	60.7	62.2	61.7	58.5	65.2	75.7	78.5	68.3	72.2	72.0	101.4	116.0	119.3	112.6	113.8	112.6	98.9	129.9	108.5	103.7	112.3	110.6
N25	57.6	63.8	63.5	59.3	65.8	62.0	81.4	91.4	90.2	67.2	83.5	82.7	121.9	123.0	114.5	132.4	100.0	118.4	134.0	142.0	119.9	123.0	121.7	128.1
Mean	49.9	53.9	55.4	53.7	58.8	54.3	65.4	79.0	76.9	65.6	68.8	71.1	102.6	107.3	109.8	115.7	104.1	107.9	109.8	121.4	116.6	109.5	111.0	112.5
Interaction	NS					NS					NS					NS								
LSD Ripener (0.05)	NS					NS					NS					NS								
LSD Ripener (0.01)	-					-					-					-								
LSD Variety (0.05)	5.07					6.10					9.09					10.07								
LSD Variety (0.01)	6.84					8.23					12.26					13.57								
CV%	14.5					13.3					13.1					13.9								
Fibre weight (g/stalk)																								
		Cont.	F0.3	F0.45	G0.15	G0.225	Var Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225
NC0376	26.3	30.9	29.7	27.1	35.4	29.9	37.9	55.9	49.5	48.0	39.6	46.2	68.4	69.9	80.9	84.5	82.9	77.3	81.6	86.8	91.2	88.0	86.3	85.6
N23	39.1	39.4	45.5	47.4	46.5	43.6	51.8	61.0	64.2	55.4	57.8	58.0	85.0	99.3	103.6	96.8	96.7	96.3	83.8	113.7	95.6	88.7	97.3	95.8
N25	44.6	47.8	48.7	43.4	51.3	47.2	66.8	75.7	74.9	53.4	68.5	67.5	103.8	105.7	98.6	111.3	85.3	100.9	115.1	123.9	104.4	105.8	105.0	110.8
Mean	36.7	39.4	41.3	39.3	44.4	40.2	39.13	47.65	47.15	39.2	41.475	42.9	64.3	68.7	70.8	73.2	66.2	68.6	70.1	79.6	72.8	70.6	72.2	73.1
Interaction	NS					NS					NS					NS								
LSD Ripener (0.05)	NS					NS					NS					NS								
LSD Ripener (0.01)	-					-					-					-								
LSD Variety (0.05)	4.62					5.30					8.05					9.22								
LSD Variety (0.01)	6.23					7.15					10.86					12.44								
CV%	17.8					14.4					18.2					19.6								
Sucrose % dm																								
		Cont.	F0.3	F0.45	G0.15	G0.225	Var Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225
NC0376	34.0	35.1	34.5	33.1	36	34.5	38.6	42.2	40.7	39.8	40.9	40.4	43.9	49.2	49.1	47.5	48.9	47.7	48.8	54.2	52.9	50.3	51.7	51.6
N23	38.7	37.8	38.4	39.2	39.1	38.6	42.3	44.0	44.3	44.0	43.2	43.6	47.5	49.6	53.2	49.2	48.3	49.6	47.5	51.3	50.6	50.5	51.5	50.3
N25	40.5	40	40.9	40.0	41.8	40.6	45.7	44.3	46.2	45.1	45.0	44.9	51.3	51.9	49.3	51.8	50.1	50.9	51.0	52.9	51.2	51.5	52.7	51.9
Mean	37.7	37.6	37.9	37.4	39.0	37.9	42.2	43.5	43.7	42.3	43.0	43.0	47.6	50.2	50.5	49.5	49.1	49.4	49.1	52.8	51.6	50.8	52.0	51.2
Interaction	NS					NS					-					NS								
LSD Ripener (0.05)	NS					NS					1.71					1.38								
LSD Ripener (0.01)	-					-					NS					1.95								
LSD Variety (0.05)	1.89					1.51					1.56					NS								
LSD Variety (0.01)	2.55					2.03					2.11					-								
LSD subplot in same whole plot (0.05)	NS					NS					3.50					NS								
LSD subplot in same whole plot (0.01)	-					-					NS					-								
LSD subplot in diff. whole plot (0.05)	NS					NS					2.66					NS								
LSD subplot in diff. whole plot (0.01)	-					-					NS					-								
CV%	7.7					5.4					4.9					4.2								

Appendix 2: Sample data (Commercially topped)

Sample data - commercially topped																		
Ripener Treatment	Stalk fresh wt (g/stalk)						Moisture % cane						Stalk dry wt (g/stalk)					
	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean
NCo376	749	641	641	710	673	683	72.2	69.6	69.4	71.1	70.3	70.5	208	195	196	206	200	201
N23	790	770	706	717	792	755	71.0	70.8	70.8	71.3	71.4	71.1	229	225	207	206	226	219
N25	922	958	823	828	859	878	73.4	72.4	72.7	72.3	72.3	72.6	245	264	222	230	238	240
Mean	820	790	723	752	775	772	72.2	70.9	71.0	71.6	71.3	71.4	227	228	208	214	221	220
Interaction	NS						NS						NS					
LSD Ripener (0.05)	NS						NS						NS					
LSD Ripener (0.01)	-						-						-					
LSD Variety (0.05)	59						0.80						15.33					
LSD Variety (0.01)	79						1.08						20.67					
CV%	11.8						1.7						10.8					
Juice purity %																		
Ripener Treatment	Juice purity %						Sucrose % cane						Erc % cane					
	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean
NCo376	81.3	86.7	86.3	82.5	84.6	84.3	13.2	15.9	15.9	13.8	15.0	14.8	11.2	14.1	14.1	11.8	13.1	12.9
N23	82.0	85.0	84.8	83.8	83.1	83.7	13.5	14.5	14.9	14.7	14.0	14.3	11.5	12.6	13.0	12.7	12.0	12.4
N25	81.8	83.0	82.4	83.5	83.6	82.9	13.3	13.8	14.2	14.1	14.0	13.9	11.4	11.8	12.2	12.1	12.1	11.9
Mean	81.7	84.9	84.5	83.3	83.8	83.6	13.3	14.7	15.0	14.2	14.3	14.3	8.5	9.6	9.8	9.2	9.3	9.3
Interaction	NS						NS						NS					
LSD Ripener (0.05)	2.12						0.66						0.78					
LSD Ripener (0.01)	NS						0.93						1.09					
LSD Variety (0.05)	NS						0.58						0.68					
LSD Variety (0.01)	-						NS						NS					
CV%	3.3						6.3						8.5					
Sucrose wt (g/stalk)																		
Ripener Treatment	Sucrose wt (g/stalk)						Erc weight (g/stalk)						Sucrose % dm					
	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean	Cont.	F0.3	F0.45	G0.15	G0.225	Var. Mean
NCo376	98.8	102.2	102	97.9	101.2	100.5	83.5	90.8	90.5	83.7	88.5	87.4	47.4	52.4	52.1	47.7	50.4	50.0
N23	106.3	111.3	105	105.6	110.7	107.8	90.3	97.4	92.0	91.7	95.2	93.3	46.5	49.5	50.8	51.1	48.9	49.4
N25	122.7	131.7	115.1	116.8	119.5	121.2	104.4	113.4	98.4	101.1	103.2	104.1	50.2	49.9	51.9	50.6	50.4	50.6
Mean	109.3	115.1	107.5	106.8	110.5	109.8	69.6	75.4	70.2	69.1	71.7	71.2	48.0	50.6	51.6	49.8	49.9	50.0
Interaction	NS						NS						NS					
LSD Ripener (0.05)	NS						NS						NS					
LSD Ripener (0.01)	-						-						-					
LSD Variety (0.05)	8.58						8.27						NS					
LSD Variety (0.01)	11.57						11.15						-					
CV%	12.1						18.0						4.3					

Appendix 3: Growth measurements at various ages

Variety	Stalk population ('000/ha)			Stalk height (cm to TVD)		
	Mar. 5 (9.9)	Apr. 17 (11.3)	Apr. 30 (11.7)	Mar. 5 (9.9)	Apr. 17 (11.3)	Apr. 30 (11.7)
NCo376	119.88	108.86	105.96	182.20	207.20	206.35
N23	116.75	103.61	104.55	183.10	212.85	211.70
N25	116.86	103.45	104.12	185.00	218.35	217.50
Mean	117.83	105.31	104.88	183.43	212.80	211.85
LSD (0.05)	NS	5	NS	NS	6	8
LSD (0.01)	-	NS	-	-	8	NS
CV %	4.0	7.0	16.8	3.5	4.5	5.6

* = statistically significant (P=0.05)

** = statistically significant (P=0.01)