SOUTH AFRICAN SUGAR INDUSTRY AGRONOMISTS ASSOCIATION

CODE: VAR 43/02/Sw/Mhl 'T'
CAT: 2191

RELEASED VARIETIES ON AN 'T' SET SOIL HARVESTED EARLY SEASON

1. PARTICULARS OF PROJECT

This crop	:	Plant
Trial crop	:	1st ratoon
Site	:	Mhlume Sugar Company
Field	:	428 Panel 2
Region	:	Northern Irrigated (Swd)
Soil Set	:	'T/K'
Design	:	Split plot, 5 replication
Variety	:	NCo376, N32, N36, N38
Fertilizer kg/ha	:	N 120, P 50, K 200

Soil Analysis: April, 2002

pH	OM %	Clay %	Silt %	Sand %
6.29	-	-	-	-

ppm

P	K	Ca	Mg	(Ca+Mg)/K
20	204	2603	827	17

Age : 12.2 months
Date : 10/5/2002 – 16/5/2003

Rainfall : 397 mm
Irrigation : 1040 mm
Total : 1437 mm

2. OBJECTIVES

- To compare the performance of varieties N32, N36 and N38 with that of NCo376 for an early season cycle on a 'T' set soil.
- To determine the ripening response of each variety to Fusilade Super and ethephon.
- To compare the resistance/susceptibility of NCo376, N32, N36 and N38 to smut and eldana.
- To compare the third leaf nutrient contents of N32, N36 and N38 with established NCo376 thresholds.

3. TREATMENTS

- Varieties and ripening treatments in this trial were as follows:

Ripeners (main plots)	Varieties (sub plots)
Control	NCo376
Ethrel @ 1.5 l/ha	N32
Fusilade @ 0.45 l/ha	N36
	N38

- Fusilade was not applied in this crop because of high juice purity one week before intended application date.

4. FERTILIZERS

- 120kg N/ha (as Urea 46 % N), applied at planting (44kg/ha) and 18 weeks after planting (66kg/ha)
- 50kg/ P/ha (as single superphosphate, 10.5%P) at planting.
- 200kg K/ha (as KCl, 50% K) at planting.

5. RESULTS AND DISCUSSION

Leaf Analysis

- Levels of N, P, K. Ca and Mg were satisfactory and above their respective thresholds (Table 1).
- There were statistically significant differences in levels of N, P, K, Ca and Mg among varieties.

Table 1: Third leaf nutrient content (% dm) at 8.1 months of age in January

Variety	% dm				
	N	P	K	Ca	Mg
NCo376	2.03	0.24	1.38	0.21	0.19
N32	2.05	0.22	1.16	0.22	0.20
N36	2.05	0.23	1.33	0.23	0.20
N38	2.02	0.23	1.15	0.30	0.28
Mean	2.04	0.23	1.26	0.24	0.22
LSD (0.05)	0.02	0.009	0.09	0.01	0.010
LSD (0.01)	NS	0.012	0.13	0.02	0.020
CV %	1.5	5.1	10.2	7.5	7.2

Table 2: Variety differences in third leaf nutrient content (% NCo376)

Variety	N	P	K	Ca	Mg
N32	101*	92**	84**	105*	105*
N36	101*	96*	96	110**	105*
N38	100	96*	83**	143**	147**

* = statistically significant (P=0.05)

** = statistically significant (P=0.01)

Growth Measurements

- There was no significant difference in stalk population among varieties at harvest (Table 3). Previous sampling indicates that the stalk population of N36 was significantly lower than that of the other varieties.

- N32 produced the shortest stalks throughout, with statistical significance on three out of four sampling occasions (Table 3). At harvest, NCo376 produced significantly taller stalks than all the other varieties. N36 and N38 were intermediate and statistically similar.

Table 3: Growth measurements at various ages

Variety	Stalk population ('000/ha)				Stalk height (cm to TVD)			
	Nov. (6.5m)	Jan. (8.1m)	Mar. (10.6m)	May (12.1m)	Nov. (6.5m)	Jan. (8.1m)	Mar. (10.6m)	May (12.1m)
NCo376	152	123	114	105	76	181	294	293
N32	153	132	118	106	64	162	254	264
N36	119	94	97	100	89	184	283	279
N38	152	124	117	103	80	176	260	269
Mean	144	118	112	104	77	176	273	276
LSD (0.05)	9	8	9	NS	8	7	8	13
LSD (0.01)	13	11	12	-	11	9	11	17
CV %	8.9	9.3	10.5	11.8	14.1	5.3	4.1	6.3

Pests and Diseases

- All varieties were affected by at harvest. N36 and N38 were statistically similar and had significantly a higher incidence than N32 and NCo376, which were statistically similar (Table 4).

- Levels of smut were extremely low and absent in N38 (Table 4).

Table 4: Eldana damage at harvest and smut levels from December to February

Variety	Eldana	% Smut whips	
	% Int. damaged	Sep. (4.7m)	Nov. (6.5m)
NCo376	0.41	0.14	0.03
N32	0.60	0.15	0.06
N36	1.59	0.00	0.04
N38	1.96	0.00	0.00
Mean	1.14	0.07	0.03
LSD (P=0.05)	0.78	NS	NS
LSD (P=0.01)	1.04	-	-
CV %	92.7	319.4	391.6

Harvest Results

- Cane yield for N38 and NCo376 was statistically similar and significantly higher than that of N32 and N36, which were also statistically similar (Table 5).
- Mean sucrose and erc% cane for N32 and N36 was statistically similar and significantly higher than that of N38 and NCo376, which were also statistically similar.
- There was no significant difference in sucrose and erc yields among varieties.

Table 5: Harvest Data

Variety		Tcane/ha	Suc. % cane*	Tsuc/ha*	Erc % cane	Terc/ha
NCo376		165	12.6	20.8	10.7	17.6
N32		141	13.7	19.3	11.9	16.8
N36		142	14.2	20.1	12.5	17.7
N38		169	12.2	20.7	10.5	17.8
Mean		154	13.2	20.2	11.4	17.5
LSD	(0.05)	10	0.69	NS	0.76	NS
LSD	(0.01)	13	0.93	-	1.01	-
CV%		8.4	7.2	10.9	9.0	12.4

* sucrose measured as pol

6. CONCLUSIONS

- The cane yield of N38 and NCo376 was significantly higher than that of N32 and N36 while the cane quality of N32 and N36 was significantly higher than that of N38 and NCo376.
- Although all varieties were affected by Eldana at harvest, N36 and N38 had significantly a higher incidence. Smut infection was extremely low and absent in N38.
- Varietal differences in third leaf nutrient concentrations indicate that thresholds established for NCo376 may not be appropriate for the new N varieties.
- This trial has been continued and is now in its 1st ratoon.

BMS/DB
11/3/2004

7. APPENDIX

Appendix 1: Sample data

Variety	18/02/2003 (12.4 wks before harvest)								
	Fresh wt. (g/stalk)	Moisture (% cane)	Dry wt. (g/stalk)	Purity (% cane)	Sucrose* (% cane)	Erc (% cane)	Sucrose wt.* (g/stalk)	Erc wt. (g/stalk)	Sucrose* (% dm)
NCo376	839	82.3	148.3	50.1	4.5	2.0	38.0	16.6	25.6
N32	614	81.1	116.2	59.1	6.2	3.7	38.0	22.9	32.6
N36	1239	81.2	231.4	63.5	6.8	4.5	83.3	55.2	36.0
N38	923	83.3	153.4	57.6	5.6	3.3	51.7	29.8	33.7
Mean	904	82.0	162.3	57.6	5.8	3.4	52.7	31.1	32.0
LSD (0.05)	77	0.85	15.94	2.31	0.44	0.46	6.06	5.20	2.10
LSD (0.01)	103	1.14	21.3	3.09	0.59	0.61	8.10	6.96	2.80
CV%	11.6	1.4	13.3	5.5	10.3	18.4	15.6	22.7	8.9
Variety	25/03/2003 (7.4 wks before harvest)								
	Fresh wt. (g/stalk)	Moisture (% cane)	Dry wt. (g/stalk)	Purity (% cane)	Sucrose* (% cane)	Erc (% cane)	Sucrose wt.* (g/stalk)	Erc wt. (g/stalk)	Sucrose* (% dm)
NCo376	1015	80.0	203.0	68.0	8.1	5.8	82.3	59.3	40.5
N32	757	79.0	159.1	72.4	9.5	7.3	72.0	55.5	45.2
N36	1447	76.9	334.4	78.2	11.0	9.1	159.3	130.9	47.6
N38	1093	80.1	216.4	71.2	8.8	6.6	95.3	72.0	44.1
Mean	1078	79.0	228.2	72.5	9.4	7.2	102.2	79.4	44.4
LSD (0.05)	72	0.62	16.36	1.68	0.49	0.52	8.31	7.65	1.91
LSD (0.01)	96	0.82	21.87	2.25	0.65	0.70	11.11	10.22	2.56
CV%	9.1	1.1	9.7	3.2	7.0	9.8	11.0	13.1	5.9
Variety	28/04/2003 (7.0 wks before harvest)								
	Fresh wt. (g/stalk)	Moisture (% cane)	Dry wt. (g/stalk)	Purity (% cane)	Sucrose* (% cane)	Erc (% cane)	Sucrose wt.* (g/stalk)	Erc wt. (g/stalk)	Sucrose* (% dm)
NCo376	1100	75.6	269.3	75.9	11.3	9.1	124.6	100.0	46.3
N32	830	75.3	204.9	80.4	13.0	11.0	107.9	91.0	52.6
N36	1582	73.1	424.8	84.9	14.6	12.8	230.0	201.7	54.2
N38	1124	77.2	255.2	76.5	11.4	9.2	127.6	103.5	49.9
Mean	1159	75.3	288.6	79.4	12.6	10.5	147.5	124.1	50.8
LSD (0.05)	100	0.90	28.53	1.59	0.58	0.64	15.72	14.28	1.72
LSD (0.01)	134	1.21	38.14	2.12	0.78	0.85	21.01	19.08	2.30
CV%	11.7	1.6	13.4	2.7	6.3	8.2	14.5	15.6	4.6
Variety	14/05/2003 (0.3 wks before harvest)								
	Fresh wt. (g/stalk)	Moisture (% cane)	Dry wt. (g/stalk)	Purity (% cane)	Sucrose* (% cane)	Erc (% cane)	Sucrose wt.* (g/stalk)	Erc wt. (g/stalk)	Sucrose* (% dm)
NCo376	1101	75.0	275.0	81.2	12.8	10.9	141.0	119.6	51.4
N32	885	74.5	226.5	82.4	13.6	11.7	120.2	103.3	53.2
N36	1598	72.5	438.6	86.5	14.9	13.3	237.4	210.4	54.3
N38	1241	76.6	290.0	81.6	12.3	10.5	152.7	130.1	52.6
Mean	1206	74.7	307.5	82.9	13.4	11.6	162.8	140.9	52.9
LSD (0.05)	102	0.76	28.52	1.44	0.58	0.63	13.09	11.62	NS
LSD (0.01)	137	1.02	38.12	1.92	0.77	0.84	17.49	15.53	-
CV%	11.5	1.4	12.6	2.4	5.8	7.4	10.9	11.2	5.3

Appendix 2: Sample data – Commercial topping height

Variety	16/05/2003 (0 wks before harvest - commercial topping height)								
	Fresh wt. (g/stalk)	Moisture (% cane)	Dry wt. (g/stalk)	Purity (% cane)	Sucrose* (% cane)	Erc (% cane)	Sucrose wt.* (g/stalk)	Erc wt. (g/stalk)	Sucrose* (% dm)
NCo376	1137	75.4	279.1	81.0	12.6	10.7	143.4	121.3	51.3
N32	931	74.4	238.5	84.0	13.7	11.9	127.5	111.1	53.4
N36	1449	73.9	379.1	85.5	14.2	12.5	205.5	181.0	54.3
N38	1075	77.5	242.4	81.9	12.2	10.5	131.8	113.0	54.3
Mean	1148	75.3	284.8	83.1	13.2	11.4	152.1	131.6	53.3
LSD (0.05)	96	1.10	27.87	1.97	0.69	0.76	15.34	14.28	NS
LSD (0.01)	129	1.46	37.25	2.64	0.93	1.01	20.50	19.08	-
CV%	11.4	2.0	13.3	3.2	7.2	9.0	13.7	14.7	6.3

* Sucrose measured as pol

SOUTH AFRICAN SUGAR INDUSTRY AGRONOMISTS' ASSOCIATION

CODE: VAR 43/02/Sw/Mhl 'T'
CAT : 2191

RELEASED VARIETIES ON A 'T' SET SOIL HARVESTED EARLY SEASON

1. PARTICULARS OF PROJECT

This crop	:	1st Ratoon
Trial crop	:	2nd
Site	:	RSS (Mhlume)
Field	:	428 Panel 2
Region	:	Northern Irrigated (Swd)
Soil Set	:	'T'
Design	:	Randomized blocks with Split Plots, 5 reps
Variety	:	NCo376, N32, N36, N38
Fertilizer kg/ha	:	N 160, P 0, K 0

Soil Analysis: June, 2003

pH	OM %	Clay %	Silt %	Sand %
7.08	2.1	>30	-	-

ppm

P	K	Ca	Mg	(Ca+Mg)/K
19	224	2215	675	13

Age : 12.1 months
Date : 25/4/2003 – 18/5/2004

Rainfall : 667 mm
Irrigation : 1040 mm
Total : 1707 mm

2. OBJECTIVES

- To compare the performance of varieties N32, N36 and N38 with that of NCo376 for an early season cycle on a 'T' set soil.
- To determine the ripening response of each variety to Fusilade Super and ethephon.
- To compare the resistance/susceptibility of NCo376, N32, N36 and N38 to smut and eldana.
- To compare the third leaf nutrient concentrations of N32, N36 and N38 with established NCo376 thresholds.

3. TREATMENTS

- Varieties and ripening treatments in this trial were as follows:

Ripeners (main plots)	Varieties (sub plots)
Control	NCo376
Ethrel @ 1.5 l/ha	N32
Fusilade @ 0.45 l/ha	N36
	N38

- Ethrel and Fusilade Super (Fusilade) were applied with a CO_2 constant pressure knapsack sprayer and a hand held 'T' boom fitted with two TK 1.5 nozzles, delivering ± 52 l/ha.

The weather was cloudy, warm and calm when both Ethrel and Fusilade were applied. Details of ripener treatments are given in Table 1.

Table 1: Details of ripening treatments

Detail	Ethrel	Fusilade
Date applied	3/4/2004	4/2/2004
Age (months)	9.6	10.6
Spray to harvest (weeks)	10.7	6.5
Juice purity at spraying %		
NCo376	73	78
N32	75	80
N36	82	86
N38	73	76

4. FERTILIZERS

- 160kgN/ha (as Urea 46%N), applied 1 week after harvest (80kg/ha) and 14 weeks after harvest (80kg/ha).
- No P was applied.
- No K was applied.

5. RESULTS AND DISCUSSION

Leaf Analysis

- Levels of N, P, K, Ca and Mg were satisfactory and above their respective thresholds (Table 1).
- There were statistically significant differences in levels of Ca and Mg among varieties (Table 2).

Table 1: Third leaf nutrient content (% dm) at 5.4 months of age in October

Variety	% dm				
	N	P	K	Ca	Mg
NCo376	2.13	0.22	1.12	0.29	0.23
N32	2.11	0.22	1.02	0.33	0.24
N36	2.15	0.22	1.08	0.31	0.25
N38	2.14	0.22	1.13	0.36	0.28
Mean	2.13	0.22	1.09	0.32	0.25
LSD (0.05)	NS	NS	NS	0.02	0.025
LSD (0.01)	-	-	-	0.03	0.034
CV %	2.0	5.5	12.6	8.1	13.5

Table 2: Variety differences in third leaf nutrient content (% NCo376)

Variety	N	P	K	Ca	Mg
N32	99	100	91	114**	104
N36	101	100	96	107*	109
N38	100	100	101	124**	87**

* = Significant (P=0.05)

** = Significant (P=0.01)

Growth Measurements

- Although the stalk population of N36 was lower than that of the other varieties at 10 months, there were no statistical differences amongst the varieties (Table 3).
- The stalk height of N36 was significantly taller that that of the other varieties (Table 3). N38 had significantly the shortest stalks. NCo376 was significantly taller than N32.

Table 3: Growth measurements at various ages

Variety	Stalk population ('000/ha)		Stalk height (cm to TVD)	
	Jan (8.0m)	Mar (9.9m)	Jan (8.0m)	Mar (9.9m)
NCo376	132	111	163	258
N32	134	116	146	239
N36	122	109	186	276
N38	136	115	151	229
Mean	131	113	162	251
LSD (0.05)	9	NS	8.0	8
LSD (0.01)	NS	-	11.0	10
CV %	9.0	9.9	7.0	4.1

Pests and Diseases

- All varieties were affected by Eldana at harvest. Damage was significantly higher in N38 than in the other varieties (Table 4).
- Levels of smut were extremely low, except in NCo376 and none was detected in N36 and N38 (Table 4).

Table 4: Eldana damage at harvest and smut levels between August and September

Variety	Eldana	% Smut whips	
	% Int. damaged	Aug (2.9m)	Sep (4.3m)
NCo376	1.52	1.93	0.70
N32	1.86	0.00	0.01
N36	2.26	0.00	0.00
N38	3.32	0.00	0.00
Mean	2.24	0.48	0.18
LSD (P=0.05)	0.78	0.79	0.24
LSD (P=0.01)	1.04	1.06	0.32
CV %	46.9	221.5	184.7

Sucrose samples

- Juice purity measurements at the time of ripener application, except for N36 indicated that all varieties were immature to respond to both Ethrel and Fusilade.
- Both Ethrel and Fusilade did not significantly improve sucrose and erc % cane. Mean sucrose and erc % cane was significantly higher in N36 than in the other varieties. N38 had significantly the lowest. N32 was statistically higher than NCo376.
- N36 had significantly the lowest moisture % cane at harvest hence the highest sucrose and erc % cane. N32 and NCo376 were intermediate and statistically similar.
- The stalk weight of N36 and N38 was statistically similar at harvest. N36 was significantly higher than that of N32 and NCo376. N32 had significantly the lightest stalks. Ethrel appeared to increase stalk weight.
- Sucrose and erc mass of N36 was significantly higher than that of all the other varieties. N38 and NCo376 were intermediate and statistically similar, while N32 had significantly the lowest mass.
- Sucrose % dry matter was statistically similar amongst all varieties.

Figure 1: Sample data at harvest

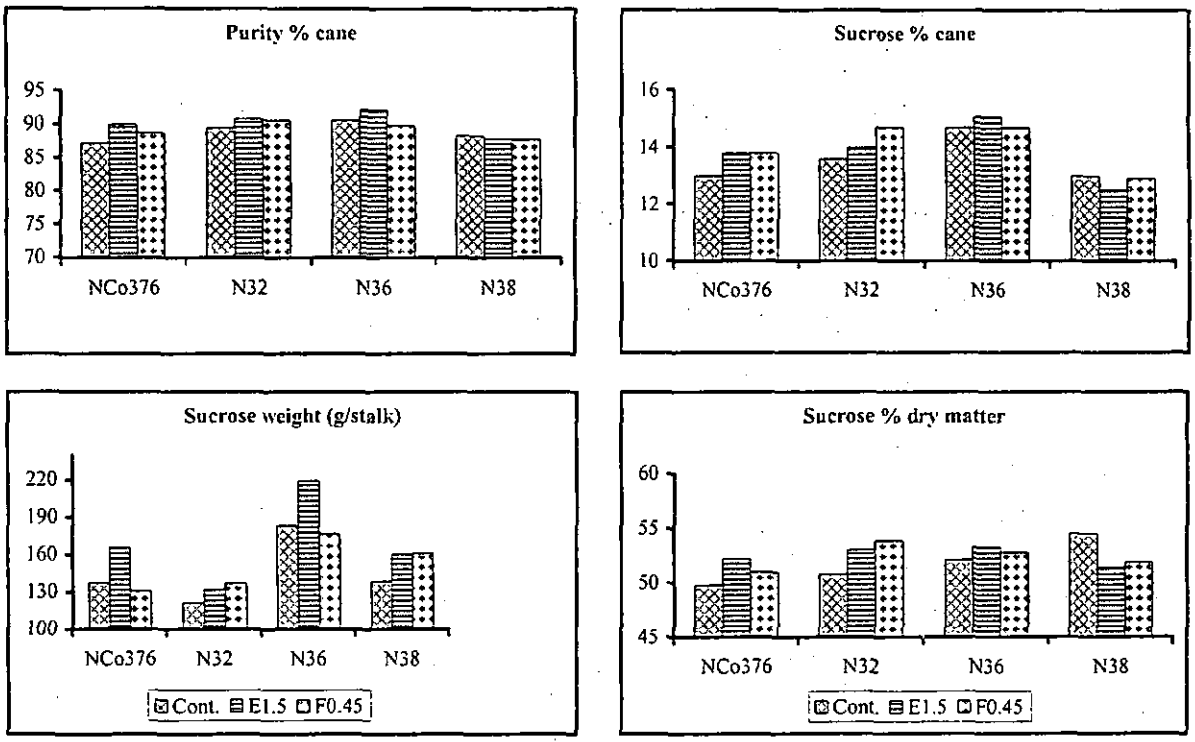
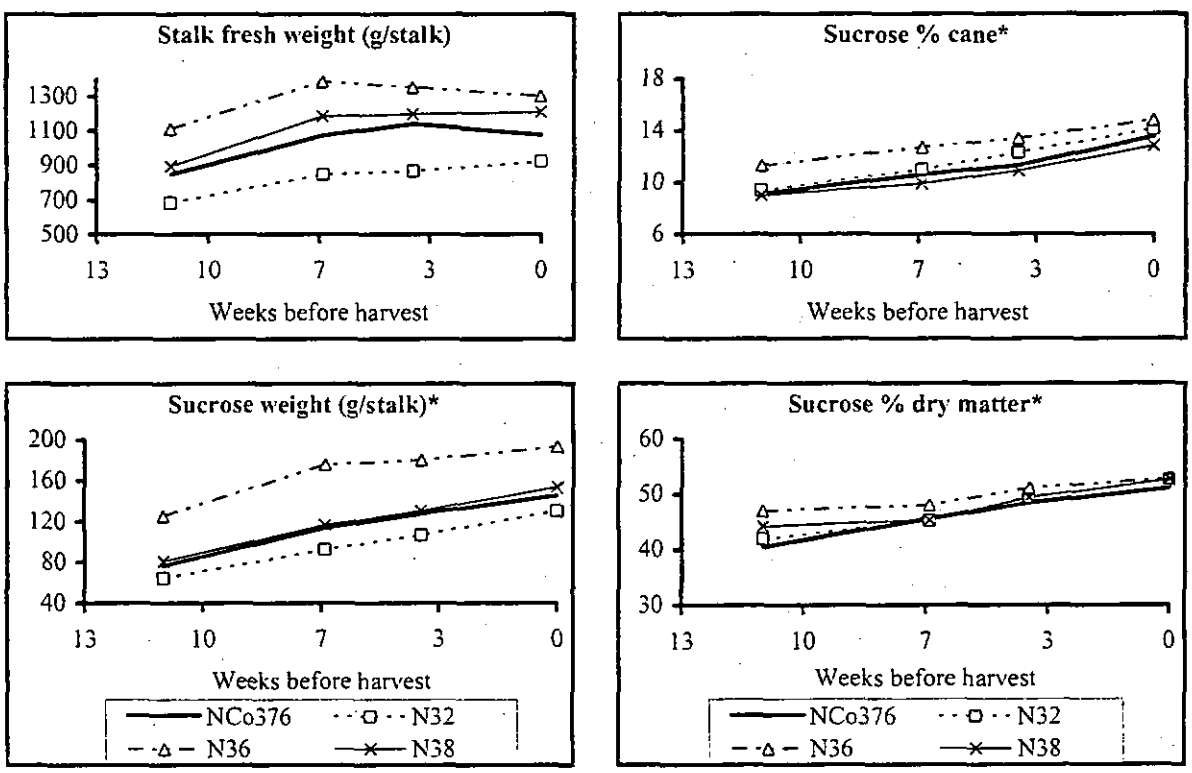


Figure 2: Sample graphs (variety means)



Harvest Results

- N38 yielded significantly more cane than the other varieties. NCo376 was significantly higher than N32 and N36 (Table 6).
- Mean sucrose and erc % cane was significantly higher in N36 than in all the other varieties. N38 had significantly the lowest. N32 was significantly higher than NCo376 (see sucrose samples above).
- Both ripeners did not significantly improve sucrose and erc yields of all the varieties. The interaction was significant.
- Mean sucrose and erc yields were statistically similar amongst all varieties

Table 6: Harvest results

Treatment	Tcane/ha				Suc. % cane				Tsuc/ha				Erc % cane				Terc/ha			
	Cont.	E 1.5	F 0.45	Var. Mean	Cont.	E 1.5	F 0.45	Var. Mean	Cont.	E 1.5	F 0.45	Var. Mean	Cont.	E 1.5	F 0.45	Var. Mean	Cont.	E 1.5	F 0.45	Var. Mean
NCo376	145	157	139	147	13.0	13.8	13.8	13.5	18.8	21.7	19.1	19.9	11.5	12.5	12.4	12.1	16.7	19.7	17.2	17.9
N32	131	128	131	130	13.6	14.0	14.7	14.1	17.7	17.9	19.3	18.3	12.3	12.8	13.5	12.9	16.0	16.3	17.7	16.7
N36	135	133	126	131	14.7	15.1	14.7	14.8	19.8	20.1	18.5	19.5	13.4	13.9	13.3	13.5	18.1	18.5	16.8	17.8
N38	159	162	156	159	13.0	12.5	12.9	12.8	20.7	20.2	20	20.3	11.7	11.2	11.5	11.5	18.6	18.1	17.9	18.2
Mean	143	145	138	142	13.6	13.9	14.0	13.8	19.3	20.0	19.2	19.5	12.2	12.6	12.7	12.5	17.4	18.2	17.4	17.6
Interaction	NS				NS				NS				NS				NS			
LSD Ripener (0.05)	NS				NS				NS				NS				NS			
(0.01)	-				-				-				-				-			
LSD Variety (0.05)	8				0.55				NS				0.58				NS			
(0.01)	11				0.74				-				0.77				-			
LSD subplot in same whole plot (0.05)	NS				NS				NS				NS				NS			
LSD subplot in diff. whole plot (0.05)	NS				NS				NS				NS				NS			
CV%	7.6				5.4				10.6				6.2				11.3			

6. CONCLUSIONS

- N38 yielded significantly more cane than all the other varieties. The cane quality of N36 was significantly higher than that of the other varieties.
- Sucrose and erc yields at harvest indicate that both ripeners did not significantly improve yields.
- Eldana damage at harvest was significantly higher in N38 than in the other varieties. N36 and N38 were free from smut.
- Varietal differences in third leaf nutrient concentrations indicate that thresholds established for NCo376 may not be appropriate for the new N varieties.
- This trial has been continued and is now in its 2nd ratoon.

BMS

21/9/2005

6. APPENDICES

Appendix 1: Sample Data

	Date of sample (weeks before harvest)															
Stalk fresh wt (g/stalk)	2 Mar 2004 (11.0)				2 Apr 2004 (6.5)				21 Apr 2004 (3.8)				18 May 2004 (0)			
Ripener Treatment	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean
NCo376	810	908	825	848	1151	1031	1033	1072	1153	1079	1187	1140	1061	1205	963	1076
N32	701	666	681	683	837	806	900	847.7	803	819	979	867	893	945	930	923
N36	1120	1092	1122	1111	1420	1400	1335	1385	1409	1378	1269	1352	1249	1446	1211	1302
N38	903	916	866	895	1137	1188	1225	1183	1084	1240	1263	1196	1073	1284	1268	1208
Mean	884	896	874	884	1136	1106	1123	1122	1112	1129	1175	1139	1069	1220	1093	1127
Interaction	NS				NS				NS				NS			
Ripener (0.05)	NS				NS				NS				NS			
Variety (0.05)	66				83				142				140			
(0.01)	88				111				190				188			
LSD subplot in same whole plot (0.05)	NS				NS				NS				NS			
(0.01)	-				-				-				-			
LSD subplot in diff. whole plot (0.05)	NS				NS				NS				NS			
(0.01)	-				-				-				-			
CV%	10.1				9.9				16.8				16.8			
Moisture % cane																
Ripener Treatment	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean
NCo376	77.0	78.5	77.1	77.5	75.9	77.3	76.5	76.6	77.0	76.4	76.6	76.7	74.0	73.6	73.0	73.5
N32	77.9	76.8	77.7	77.5	76.3	76.4	74.5	75.7	75.8	75.6	74.2	75.2	73.2	73.6	72.6	73.1
N36	75.6	76.6	75.6	75.9	73.7	74.0	72.7	73.5	73.6	73.8	74.0	73.8	71.8	71.6	72.2	71.9
N38	78.9	79.8	80.2	79.6	77.9	77.9	78.6	78.1	78.3	77.4	77.8	77.8	76.0	75.6	75.2	75.6
Mean	77.4	77.9	77.7	77.6	76.0	76.4	75.6	76.0	76.2	75.8	75.7	75.9	73.8	73.6	73.3	73.5
Interaction	NS				NS				NS				NS			
Ripener (0.05)	NS				NS				NS				NS			
(0.01)	-				-				-				-			
Variety (0.05)	0.88				0.82				0.80				0.74			
(0.01)	1.18				1.09				1.07				0.98			
LSD subplot in same whole plot (0.05)	NS				NS				NS				NS			
LSD subplot in diff. whole plot (0.05)	NS				NS				NS				NS			
CV%	1.5				1.5				1.4				1.4			
Stalk dry wt (g/stalk)																
Ripener Treatment	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean
NCo376	186	195	188	190	277	234	243	251	264	253	277	265	277	319	260	285
N32	154	153	152	153	198	190	229	206	194	200	256	217	239	250	255	248
N36	273	256	272	267	374	363	364	367	371	361	328	353	352	415	337	368
N38	190	185	171	182	251	263	262	259	235	280	281	265	257	312	314	294
Mean	201	197	196	198	275	263	275	271	266	274	286	275	281	324	292	299
Interaction	NS				NS				NS				NS			
Ripener (0.05)	NS				NS				NS				NS			
Variety (0.05)	16				21				38				44			
(0.01)	22				28				50				58			
LSD subplot in same whole plot (0.05)	NS				NS				NS				NS			
(0.01)	-				-				-				-			
LSD subplot in diff. whole plot (0.05)	NS				NS				NS				NS			
(0.01)	-				-				-				-			
CV%	11.1				10.5				18.4				19.7			

Appendix 1: Sample data (continued)

Juice Purity %	Date of sample (weeks before harvest)															
	2 Mar 2004 (11.0)				2 Apr 2004 (6.5)				21 Apr 2004 (3.8)				18 May 2004 (0)			
Ripener Treatment	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean
NCo376	72.4	74.7	72.4	73.2	77.9	79.6	76.7	78.1	80.5	82.4	80.4	81.1	87.2	90.0	88.7	88.6
N32	74.6	75.0	74.4	74.7	79.6	80.1	80.1	79.9	80.6	83.3	83.7	82.5	89.5	90.8	90.6	90.3
N36	82.3	81.6	81.9	81.9	87.0	82.8	86.9	85.6	85.1	85.0	85.1	85.1	90.6	92.2	89.9	90.9
N38	75.3	74.4	69.9	73.2	79.5	76.1	73.2	76.3	79.1	79.3	79.8	79.4	88.3	87.9	87.8	88.0
Mean	76.2	76.4	74.7	75.7	81.0	79.7	79.2	80.0	81.3	82.5	82.3	82.0	88.9	90.2	89.3	89.5
Interaction	NS				NS				NS				NS			
Ripener (0.05)	NS				NS				NS				NS			
(0.01)	-				-				-				-			
Variety (0.05)	2.67				3.25				2.12				0.99			
(0.01)	3.57				4.35				2.83				1.33			
LSD subplot in same whole plot (0.05)	NS				NS				NS				NS			
LSD subplot in diff. whole plot (0.05)	NS				NS				NS				NS			
CV%	4.8				5.5				3.5				1.5			
Sucrose % cane																
Ripener Treatment	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean
NCo376	8.9	9.4	8.9	9.1	10.6	11.4	9.9	10.6	10.9	12.0	11.0	11.3	13.0	13.8	13.8	13.5
N32	9.1	9.6	9.5	9.4	10.6	11.2	11.0	10.9	11.4	12.4	13.0	12.3	13.6	14.0	14.7	14.1
N36	11.4	11.1	11.4	11.3	13.2	12.1	12.8	12.7	13.5	13.7	12.9	13.4	14.7	15.1	14.7	14.8
N38	9.7	9.3	8.1	9.0	10.6	10.0	9.0	9.9	11.1	10.9	10.7	10.9	13.0	12.5	12.9	12.8
Mean	9.8	9.9	9.5	9.7	11.3	11.2	10.7	11.0	11.7	12.3	11.9	12.0	13.6	13.9	14.0	13.8
Interaction	NS				NS				*				NS			
Ripener (0.05)	NS				NS				NS				NS			
(0.01)	-				-				-				-			
Variety (0.05)	0.65				0.83				0.52				0.55			
(0.01)	0.87				1.11				0.70				0.74			
LSD subplot in same whole plot (0.05)	NS				NS				0.90				NS			
(0.01)	-				-				NS				-			
LSD subplot in diff. whole plot (0.05)	NS				NS				0.84				NS			
(0.01)	-				-				NS				-			
CV%	9.1				10.2				5.9				5.4			
Erc % cane																
Ripener Treatment	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean
NCo376	6.8	7.4	6.8	7.0	8.6	9.5	8.0	8.7	9.1	10.3	9.2	9.5	11.5	12.5	12.4	12.1
N32	7.2	7.6	7.5	7.4	8.9	9.4	9.2	9.2	9.5	10.7	11.2	10.5	12.3	12.8	13.5	12.9
N36	9.7	9.4	9.7	9.6	11.8	10.4	11.3	11.2	11.8	12.0	11.3	11.7	13.4	13.9	13.3	13.5
N38	7.7	7.3	6.0	7.0	8.9	8.0	6.9	7.9	9.2	9.1	8.9	9.1	11.7	11.2	11.5	11.5
Mean	7.9	7.9	7.5	7.8	9.6	9.3	8.9	9.2	9.9	10.5	10.2	10.2	12.2	12.6	12.7	12.5
Interaction	NS				NS				*				NS			
Ripener (0.05)	NS				NS				NS				NS			
(0.01)	-				-				-				-			
Variety (0.05)	0.75				0.97				9.60				0.58			
(0.01)	1.01				1.30				10.50				0.77			
LSD subplot in same whole plot (0.05)	NS				NS				1.05				NS			
(0.01)	-				-				NS				-			
LSD subplot in diff. whole plot (0.05)	NS				NS				0.85				NS			
(0.01)	-				-				NS				-			
CV%	13.1				14.2				8.0				6.2			

Appendix 1: Sample data (continued)

	Date of sample (weeks before harvest)															
Sucrose wt (g/stalk)	2 Mar 2004 (11.0)				2 Apr 2004 (6.5)				21 Apr 2004 (3.8)				18 May 2004 (0)			
Ripener Treatment	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean
NCo376	70.6	85.5	73.8	76.6	121.9	116.4	102.6	113.6	124.6	129.4	129.0	127.7	137.7	165.8	130.9	144.8
N32	64.1	63.9	64.9	64.3	89.6	89.9	97.8	92.4	90.7	101.4	127.7	106.6	121.1	131.9	137.0	130.0
N36	128.3	120.4	126.8	125.2	187.2	170.3	170.0	175.8	190.0	187.6	162.9	180.2	183.5	219.1	176.7	193.1
N38	87.2	84.7	69.6	80.5	121.2	118.5	109.9	116.5	120.4	134.1	135.4	130.0	138.6	160.1	161.3	153.3
Mean	87.6	88.6	83.8	86.7	130.0	123.8	120.1	124.6	131.4	138.1	138.8	136.1	145.2	169.2	151.5	155.3
Interaction	NS				NS				NS				NS			
LSD Ripene (0.05)	*NS*				*NS*				*NS*				*NS*			
Variety (0.05)	7.80				11.64				18.59				21.03			
(0.01)	10.45				15.60				24.90				28.18			
LSD subplot in same whole plot (0.05)	NS				NS				NS				NS			
(0.01)	-				-				-				-			
LSD subplot in diff. whole plot (0.05)	NS				NS				NS				NS			
(0.01)	-				-				-				-			
CV%	12.2				12.6				18.4				18.3			
Ere weight (g/stalk)																
Ripener Treatment	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean	Cont.	E1.5	F0.45	Var. Mean
NCo376	53.4	67.5	56.4	59.1	99.5	96.9	82.7	93.0	104.6	110.5	107.7	107.6	122.5	150.5	117.6	130.2
N32	50.5	50.5	50.8	50.6	74.8	75.1	81.2	77.0	76.1	87.5	110.9	91.5	109.5	120.5	125.1	118.4
N36	109.6	102.0	107.6	106.4	166.1	145.9	150.1	154.0	166.4	164.3	142.4	157.7	167.4	202.0	160.5	176.6
N38	69.5	66.7	51.4	62.5	101.0	95.0	84.9	93.6	100.0	111.3	113.0	108.1	124.3	143.0	144.1	137.1
Mean	70.8	71.7	66.6	69.7	110.4	103.2	99.7	104.4	111.8	118.4	118.5	116.2	130.9	154.0	136.8	140.6
Interaction	NS				NS				NS				NS			
LSD Ripene (0.05)	NS				NS				NS				NS			
(0.01)	-				-				-				-			
Variety (0.05)	7.72				11.87				16.78				19.52			
(0.01)	10.35				15.91				22.48				26.16			
LSD subplot in same whole plot (0.05)	NS				NS				NS				NS			
(0.01)	-				-				-				-			
LSD subplot in diff. whole plot (0.05)	NS				NS				NS				NS			
(0.01)	-				-				-				-			
CV%	15.0				15.3				19.5				18.7			
Sucrose % dm																
Ripener *Treatment*	Cont.	E1.5	F0.45	Var. *Mean*	Cont.	E1.5	F0.45	Var. *Mean*	Cont.	E1.5	F0.45	Var. *Mean*	Cont.	E1.5	F0.45	Var. *Mean*
NCo376	38.6	43.8	39.1	40.5	44.0	50.5	42.1	45.5	47.2	51.0	47.0	48.4	49.8	52.2	51.0	51.0
N32	41.4	41.6	42.9	42.0	44.8	47.6	43.3	45.2	46.8	50.9	50.3	49.3	50.8	53.0	53.9	52.6
N36	47.0	47.5	46.6	47.0	50.3	46.8	46.8	48.0	51.2	52.4	49.7	51.1	52.1	53.3	52.8	52.7
N38	46.0	45.8	40.9	44.2	48.3	45.5	42.0	45.3	51.2	48.5	48.3	49.3	54.5	51.4	51.9	52.6
Mean	43.3	44.7	42.4	43.4	46.9	47.6	43.6	46.0	49.1	50.7	48.8	49.5	51.8	52.5	52.4	52.2
Interaction	NS				NS				NS				NS			
Ripener (0.05)	NS				1.98				1.34				NS			
(0.01)	-				2.88				NS				-			
Variety (0.05)	3.02				NS				NS				NS			
(0.01)	4.04				-				-				-			
LSD subplot in same whole plot (0.05)	NS				NS				NS				NS			
(0.01)	-				-				-				-			
LSD subplot in diff. whole plot (0.05)	NS				NS				NS				NS			
(0.01)	-				-				-				-			
CV%	9.4				9.3				5.6				6.3			

NB: Sucrose measured as pol