SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION

VARIETIES : UMFOLOZI

Code	:	RVT 16/79			
Catalogue	:	1215			
This crop	:	Plant			
Site	:	Umfolozi			
Soil series	:	Dundee			
Design	:	Split-Split plot 6 sub-plot reps.			
Fertilizer	:	N	P	K	Zn
kg/ha		128	32	125	4
Water regime	:	Rainfed			
Total rain received	:	537			
Total rain expected	:	942			

Soil analysis: (22/10/79)

pH = 6,5 Clay % = 12

ppm			
P	K	Ca	Mg
58	103	910	220

Age: 11,7 months
(13/11/79 to 5/11/80)

Objectives:

To compare the growth and yield of M351/57 with varieties suited to sandy soils.

To assess the response of the varieties to Temik and Ripener application.

Treatments:

Varieties: M351/57, NCo 376, N55/805, N8, N13.

Temik: Three blocks received Temik 15G at 10 kg/ha in the furrow at planting.

Three blocks received no Temik.

Ripener: Roundup at 0,7 ℓ/ha (product) sprayed over the leaves of two adjacent rows in each plot on the 25th September, six weeks before harvest. Four rows in each plot remained untreated.

Average juice purity and sucrose content at the time of spraying = 87% and 11,1% respectively.

Rainfall (mm): Riverview

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
1979/80	88	39	106	43	110	10	26	19	10	10	20	129	15
L.T.Mean	84	78	92	133	149	109	79	67	19	30	35	60	91

Results:

Yield Component / Variety	N13	NCo 376	N55/805	N8	M351/57	Mean	LSD P=0,05	CV%
Estimated recoverable sugar (Ers) %								
14/8 9,0 months	10,0	9,7	11,7	9,3	9,1	10,0	1,8	5,1
3/10 10,7 months	12,0	10,3	12,5	9,8	19,7	11,1	1,2	3,2
5/11 11,7 months	11,8	10,6	11,6	10,5	10,7	10,9	0,9	7,0
Stalk measurements at harvest								
Height) Untopped	1,42	1,46	1,58	1,89	1,86	1,64	0,16	8,0
(m)) Topped	1,35	1,35	1,43	1,73	1,75	1,52	0,16	8,9
Population ('000/ha)	99	126	111	123	67	106	5	3,5
Lodging score 1 = none; 9 = full	1,0	1,0	1,3	2,5	2,2	1,6		
Yield data (unripened)								
Yield) Cane	84	90	79	81	82	83	NS	10,7
t/ha) Ers	9,9	9,6	9,2	8,5	8,2	9,1	NS	12,8
As % of) Cane	93	100	88	90	91	92		
NCo 376) Ers	103	100	96	88	85	95		
% response to Temik application								
Cane yield	17	12	8	- 4	16	10	)Mean response	
Ers yield	22	13	13	-11	25	12	)is significant	
							)but not the	
Stalk height	10	5	6	3	10	7	)interaction	
Population	4	5	6	2	9	5	)	
Response to ripener application								
Sucrose) linear	+1,1	+1,3	+1,7	+1,2	+1,5	+1,4	)Mean response	
content) %	9	12	15	11	15	13	)is significant	
							)but not the	
Cane yield %	+ 1	- 16	- 1	- 2	- 5	- 5	)interaction	
*Sucrose yield %	+ 4	+ 6	+ 8	+ 6	+ 9	+ 7	)	
* assuming a 5% yield loss in each variety								
3rd leaf nutrient levels (13.2.80) 3,0 months								
N% d.m.	2,30	2,51	2,49	2,64	2,44	2,48		
P% d.m.	0,24	0,25	0,26	0,28	0,24	0,25		
K% d.m.	1,22	1,22	1,26	1,40	1,64	1,34		

Comments:

1. General

This crop grew through an extremely dry period. Less than 60% of the expected rainfall was received; the autumn and winter months being the driest. The amount of cane produced per 100 mm of rain received was in excess of 15 tons/ha and was indicative of the exceptional water-holding characteristics of this deep alluvial loamy sand, or alternatively a water table may have been present. Stalk elongation proceeded fairly rapidly during summer, slowed down considerably in autumn and increased again towards spring.

2. Stalk elongation

Varieties differed appreciably in their growth rates during summer. M351/57 and N8 showed the most rapid growth and NCo 376 the least. N13 and N55/805 were intermediate.

The difference in stalk height at harvest resulted mainly from the differences in summer growth rates. Temik had a noticeable effect on tillering and stalk elongation in all varieties. These effects remained until harvest in all varieties except N8.

3. Sucrose content

Peak sucrose contents appeared to occur in early October in N55/805, N13 and M351/57 whilst the other varieties were still accumulating sucrose. The decline in sucrose content was particularly noticeable in N55/805 and M351/57. Sucrose contents of N55/805 and N13 were 1,0% units higher than those of NCo 376 and N8 and 1,5% units higher than that of M351/57.

Sucrose contents were about 0,5% units higher in blocks treated with Temik than in untreated blocks. Ripener application also increased sucrose content but to a much greater extent. The differences in response to ripener amongst the varieties were not statistically significant but the mean response of 1,4% units was so.

4. Yield

NCo 376 produced considerably more cane mass per hectare than the other varieties. Sucrose yields of N8 and M351/57 were appreciably lower than the yield of NCo 376. N13 produced slightly more sucrose per hectare than NCo 376 and N55/805 slightly less. None of these differences was statistically significant.

Cane yields were 10% higher and sucrose yields 12% higher in blocks treated with Temik than in untreated blocks. N8 appeared to show no yield response to Temik but there were no statistically significant differences in the way in which varieties responded to Temik.

The assessment of the effect of ripener on cane yield was not precise enough to reveal varietal differences. The mean decrease in cane yield due to ripener application was 5% but the net increase in sucrose yield was 7% because of the large effect of ripener on sucrose content.

Conclusions:

Although the Mauritian variety grew most rapidly and looked more vigorous than the other varieties it failed to yield as much cane as NCo 376 because of its exceptionally low stalk population. N8 while showing similar growth vigour suffered the same result despite its high population of stalks. Sucrose contents in these two varieties were low, as expected but would have been much lower in cane cut earlier in the season.

The relative yields of M351/57 and N8 may have been better if they were grown in sandier soils.

Note should be taken of the significant effect of the Temik application. However similar effects may not occur in wetter seasons.

GI-B/HDN
26/1/1981