

SOUTH AFRICAN SUGAR INDUSTRY  
AGRONOMISTS' ASSOCIATION

POTASH TRIAL

<p><u>Catalogue No.:</u> 104  <u>This Crop:</u> Plant  <u>Site:</u> Holwood Est. Kearsney,  Mango Field.  <u>Altitude:</u> 900'  <u>Soil Series:</u> T.M.S. Travonian  <u>Design:</u> Random Block  <u>Variety:</u> N:Co.376  <u>Fertilizer:</u> See below.  <u>Water Regime:</u> Dry land.</p>	<p><u>Soil Analysis:</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><u>pH</u></td> <td style="text-align: center;"><u>OM%</u></td> <td style="text-align: center;"><u>Clay%</u></td> </tr> <tr> <td style="text-align: center;">4.3</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> </table> <hr/> <p style="text-align: center;">p.p.m.</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">P</td> <td style="text-align: center;">K</td> <td style="text-align: center;">Ca</td> <td style="text-align: center;">Mg</td> </tr> <tr> <td style="text-align: center;">9</td> <td style="text-align: center;">60</td> <td style="text-align: center;">500</td> <td style="text-align: center;">100</td> </tr> </table> <p><u>Age:</u> 16 months (12/65 - 5/67)  <u>Rainfall:</u> 64.39"  <u>Irrigation:</u> Nil</p>	<u>pH</u>	<u>OM%</u>	<u>Clay%</u>	4.3	-	-	P	K	Ca	Mg	9	60	500	100
<u>pH</u>	<u>OM%</u>	<u>Clay%</u>													
4.3	-	-													
P	K	Ca	Mg												
9	60	500	100												

Object: To test the response of plant cane to potash.

Treatments:

1.	K	0 lbs/a	= M.P.	0 lbs/a.
2.	K	75 "	= "	150 "
3.	K	150 "	= "	300 "
4.	K	225 "	= "	450 "

All Plots

Amm. Supers 800 lbs/a  
L.A.N. 26% 450 "

Results:

TREATMENT	T.C.A.	% SUCROSE	T.S.A.	A		B		RANK		
				T.C.A.M.	LBS. S.A.M.	LBS. S.A.M.		A	B	
1.	43.11	15.56	6.707	2.694	838	848	874	946	4	4
2.	44.10	15.38	6.783	2.756	848	874	946	946	2	3
3.	43.71	15.98	6.985	2.732	874	946	946	946	3	2
4.	46.13	16.41	7.569	2.883	946	946	946	946	1	1

S.E. =  $\pm$  3.520  
C.V. = 7.9%

Difference between treatments not statistically significant.

A good trial with a low C.V.% and progressive increase in sucrose yield with additional potash dressings, however increased yields do not attain significant levels.

SOUTH AFRICAN SUGAR INDUSTRY  
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POTASH TRIAL

Catalogue No.: 104  
This Crop: 1st Ratoon  
Site: Holwood, Kearsney,  
Mango Field.  
Altitude: 900'  
Soil Series: T.M.S. Trevanian  
Design: Random Block  
Variety: N:Co.376  
Fertilizer: See below  
Water Regime: Dry Land

Leaf Analysis:

	<u>N%</u>	<u>P%</u>	<u>K%</u>	<u>Mg%</u>	<u>Ca%</u>
1.	2.16	0.25	0.93	0.35	0.32
2.	2.10	0.26	1.14	0.31	0.29
3.	2.04	0.25	1.23	0.29	0.32
4.	2.18	0.24	1.28	0.28	0.31

Soil Analysis:

<u>pH</u>	<u>OM%</u>	<u>Clay%</u>
4.6	-	-
p.p.m.		

P	K	Ca	Mg
7	40	663	145

Age: 18 months (5/67 - 11/68).  
Rainfall: 48.74"

Object: To test the response of a 1st ratoon crop to potassium.

Treatments:

1.	K - 0 lbs/A = M.P.	0 lbs/A	
2.	K - 100 lbs/A = M.P.	200 lbs/A	<u>All Plots</u>
3.	K - 200 lbs/A = M.P.	400 lbs/A	Urea 46% 300 lbs/A
4.	K - 300 lbs/A = M.P.	600 lbs/A	Supers 8.3% 300 lbs/A

Results:

Treatment	T.C.A.	% Sucrose	T.S.A.	A T.C.A.M.	B Lbs S.A.M.	Ranks	
						A	B
1	33.12	14.80	4.902	1.840	545	4	4
2	34.22	15.10	5.167	1.901	574	3	3
3	40.64	14.50	5.893	2.257	655	1	1
4	38.22	14.40	5.504	2.123	612	2	2

S.E. = ± 6.34  
C.V. = 17.3%

Difference between treatments not statistically significant.

As in the previous crop a steady increase in cane and sucrose yield can be observed up to the 200 lbs/ac K level. However, responses are not significant even though reference to the leaf analysis of zero treatments and also the soil analysis would indicate that a significant response could be expected.

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

POTASH TRIAL

Catalogue No.: 104  
This Crop: 1st Ratoon  
Site: Holwood, Kearsney,  
 Mango Field.  
Altitude: 900'  
Soil Series: T.M.S. Trevanian  
Design: Random Block  
Variety: N:Co.376  
Fertilizer: See below  
Water Regime: Dry Land

Leaf Analysis:

	<u>N%</u>	<u>P%</u>	<u>K%</u>	<u>Mg%</u>	<u>Ca%</u>
1.	2.16	0.25	0.93	0.35	0.32
2.	2.10	0.26	1.14	0.31	0.29
3.	2.04	0.25	1.23	0.29	0.32
4.	2.18	0.24	1.28	0.28	0.31

Soil Analysis:

<u>pH</u>	<u>OM%</u>	<u>Clay%</u>
4.6	-	-
p.p.m.		

P	K	Ca	Mg
7	40	663	145

Age: 18 months (5/67 - 11/68)

Rainfall: 48.74"

Object: To test the response of a 1st ratoon crop to potassium.

Treatments:

1.	K - 0 lbs/A = M.P. 0 lbs/A	
2.	K - 100 lbs/A = M.P. 200 lbs/A	<u>All Plots</u>
3.	K - 200 lbs/A = M.P. 400 lbs/A	Urea 46% 300 lbs/A
4.	K - 300 lbs/A = M.P. 600 lbs/A	Supers 8.3% 300 lbs/A

Results:

Treatment	T.C.A.	% Sucrose	T.S.A.	A T.C.A.M.	B Lbs S.A.M.	Ranks	
						A	B
1	33.12	14.80	4.902	1.840	545	4	4
2	34.22	15.10	5.167	1.901	574	3	3
3	40.64	14.50	5.893	2.257	655	1	1
4	38.22	14.40	5.504	2.123	612	2	2

S.E. = ± 6.34  
 C.V. = 17.3%

Difference between treatments not statistically significant.

As in the previous crop a steady increase in cane and sucrose yield can be observed up to the 200 lbs/ac K level. However, responses are not significant even though reference to the leaf analysis of zero treatments and also the soil analysis would indicate that a significant response could be expected.

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

POTASH TRIAL

Catalogue Nos. 104  
This crop: 2nd Ratoon  
Site: Sinkwazi Estate  
 Darnall  
 Field No. 41  
Altitude: 200'  
Soil series: Dwyka Williamson  
Design: Random Block  
Variety: N:Co. 376  
Fertilizer: see treatments  
Water regime: Dry Land

Leaf Analysis

	<u>N%</u>	<u>P%</u>	<u>K%</u>	<u>Mg%</u>	<u>Ca%</u>
1.	2.23	0.28	1.46	0.21	0.34
2.	2.24	0.25	1.42	0.21	0.32
3.	2.24	0.27	1.46	0.22	0.32
4.	2.28	0.28	1.45	0.22	0.30

Soil Analysis:

pH 4.84      OM% -      Clay% -

P.P.M.

P 17      K 111      Ca 660      Mg 225

Age: 16 months (6/67 - 10/68)

Rainfall: 42.13"

Object: To test potash responses in ratoon cane on Dwyka Williamson soil series.

Treatments:

1.	M.P. - 0 lbs/a = K. - 0 lbs/a	All Plots.
2.	M.P. - 100 lbs/a = K. - 50 lbs/a	Urea 46% 300 lbs/a
3.	M.P. - 200 lbs/a = K. - 100 lbs/a	Supers 8.3% 200 lbs/a
4.	M.P. - 400 lbs/a = K. - 200 lbs/a	

Results:

Treatment	T.C.A.	%	Sucrose	T.S.A.	A	B lbs	Rank	
							T.C.A.M.	S.A.M.
1	42.55	13.60	5.787	2.659	723	1	1	
2	39.40	14.60	5.752	2.463	719	4	2	
3	40.05	14.10	5.647	2.503	708	2	3	
4	39.61	12.80	5.070	2.476	634	3	4	

S.E. = ± 2.03  
 C.V. = 5.0%

Differences between treatments not statistically significant.

This is the first season the crop has been treated as a fertilizer trial. No response to potash or trend can be detected. Lack of response was to be expected in view of the high soil and leaf potash analysis.

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SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

POTASH TRIAL

<u>Catalogue No</u> : 104	<u>Soil Analysis:</u>
<u>This crop</u> : 3rd ratoon	<u>pH</u> <u>OM%</u> <u>Clay%</u>
<u>Site</u> : Holwood Kearsney Mango	4.6            -            -
<u>Altitude</u> : 900'	
<u>Soil series</u> : T.M.S. Trevanian	
<u>Design</u> : Random Block	<u>p.p.m.</u>
<u>Variety</u> : N:Co.376	<u>P</u> <u>K</u> <u>Ca</u> <u>Mg</u>
<u>Fertilizer</u> : See below	7    40            663            145
<u>Water regime</u> : Dry land	<u>Age</u> : 13 months (11/68 - 1/70)
	<u>Rainfall</u> : 52.22"
	<u>Irrigation</u> : Nil

Object: To test the response of Ratoon cane to Potash.

Treatments:  
1. K - 0 lbs/A = M.P. 0 lbs/A  
2. K - 100 lbs/A = M.P. 200 lbs/A  
3. K - 200 lbs/A = M.P. 400 lbs/A  
4. K - 300 lbs/A = M.P. 600 lbs/A

All Plots

Results: L.A.N. 26% 550 lbs/A

Treatment	T.C.A.	% Sucrose	T.S.A.	1	2	Rank	
				T.C.A.M.	Lbs. S.A.M.	1	2
1	35.60	12.8	4.557	2.738	701	4	4
2	38.52	12.7	4.892	2.963	753	3	3
3	43.50	12.3	5.351	3.346	823	2	2
4	43.70	12.3	5.375	3.362	827	1	1

S.E. =  $\pm$  6.939

C.V. = 17.201%

Differences between treatments not  
statistically significant

This trial confirms previous results that a steady increase in cane and sucrose yield can be expected up to the 200 lbs/A K level. Even though results are not significant, differences are noteworthy.

SOUTH AFRICAN SUGAR INDUSTRY

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Potash Trial

Catalogue No. : 104  
This crop : 4th Ratoon  
Site : Holwood Kearsney Mango Field  
Altitude : 274 Metres  
Soil series : T.M.S. Trevanian  
Design : Random Block  
Variety : N Co. 376  
Fertilizer : See Below  
  
Water regime : Dry Land

Soil Analysis :

<u>pH</u>	<u>OM%</u>	<u>Clay %</u>
5,9	--	--

  

D.P.M.			
<u>P</u>	<u>K</u>	<u>Ca</u>	<u>Mg</u>
19	83	491	V.H.

Age : 15 Months (6/71 - 10/72)  
Rainfall : 1339 mm  
Irrigation : Nil

Object : To test the response of ratoon cane to potash.

- Treatments :
1. K - 0 Kg/Ha = M.P. 0 Kg/Ha.
  2. K - 112 Kg/Ha = M.P. 224 Kg/Ha
  3. K - 224 Kg/Ha = M.P. 448 Kg/Ha.
  4. K - 336 Kg/Ha = M.P. 673 Kg/Ha.

Results :

All Plots : Urea 46% 336 Kg/Ha.

	TREATMENT	T.C.H.	% SUCROSE	T.S.H.	1.	2. Kg	Rank	
					T.C.H.M.	S.H.M.	1	2
	1	69,90	15,63	10,925	4,660	728	4	4
	2	83,52	15,82	13,213	5,568	881	2	2
	3	88,63	15,37	13,622	5,909	908	1	1
	4	82,29	15,41	12,681	5,486	845	3	3

S.E. = ± 5,933      Differences between treatments not statistically significant.  
C.V. = .16,398%

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SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

POTASH TRIAL

Catalogue No.: 104  
This crop: ~~374~~ Ratoon  
Site: Holwood Kearsney Mango  
Altitude: 274 metres  
Soil series: T.M.S. Trevanian  
Design: Random Block  
Variety: NCo 376  
Fertilizer: See below  
Water regime: Dryland

Soil Analysis:

<u>pH</u>	<u>OM%</u>	<u>Clay%</u>	
4,6			
<u>p.p.m.</u>			
P	K	Ca	Mg
7	40	663	145

Age: 17 months (1/70 - 6/71)  
Rainfall: 1484 mm  
Irrigation: Nil.

Object: To test the response of ratoon cane to Potash.

Treatments:

1.	K - 0	kg/ha =	M.P. 0	kg/ha
2.	K - 112	kg/ha =	M.P. 224	kg/ha
3.	K - 224	kg/ha =	M.P. 448	kg/ha
4.	K - 336	kg/ha =	M.P. 673	kg/ha

Results: All plots: Urea 46% 336 kg/ha

Treatment	T.C.H.	% Sucrose	T.S.H.	1		2 Kg.		Rank	
				T.C.H.M.	S.H.M.	S.H.M.	S.H.M.	1	2
1	69,4	13,14	9,12	4,08	536	4	4	4	4
2	80,0	14,68	11,74	4,70	691	3	3	3	3
3	100,0	13,78	13,78	5,88	810	1	2	1	2
4	94,0	14,78	13,89	5,53	817	2	1	2	1

Differences between treatments not statistically significant.

S.E. of a single yield = 78 kg

C.V. = 27,17%

S.E. of a single treatment total = 156 kg.

L.S.D. (2 treatment totals) = 498 kg @ 5%  
 717 kg @ 1%