

(45)

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

N.K. FACTORIAL EXPERIMENT

Catalogue No: 180
This crop: Plant cane
Site: Langespruit Section, L8a(X)
Altitude: 2,000 ft.
Soil series: Inanda
Design: Factorial (4x4) x 5 reps.
Variety: N:Co.376
Fertilizer (lb. p.a.)
 furrow : 102 P.
 topdressings: as per treatments
Water regime: Dryland

Soil Analysis: 1st Ratoon.

pH	OM%	Clay%	p.p.m.			
			P	K	Ca	Mg
6.15	7.3	-	43	302	457	118

Age: P : 25 months; 10.64 - 10.66

Rainfall: 75.77 inches

Object: To compare the effects of various levels of nitrogen and potash applications with the object of obtaining the optimum combination under these conditions.

Treatments:

	Plant Nutrient (lb. p.a.)			
	1	2	3	4
N	0	60	120	180
K	0	67	133	200

Results:

Tons cane per acre

Treatment	K1	K2	K3	K4	Mean
N1	46.9	50.4	54.3	54.3	51.5
N2	46.9	52.5	54.0	55.0	52.1
N3	47.7	60.7	53.1	62.1	55.9
N4	57.1	49.7	65.8	63.7	59.1
Mean	49.7	53.3	56.8	58.8	-
S.E. table means = 3.69					
S.E. N or K level mean = 1.84					
L.S.D. (0.05) = 5.2					
(0.01) = 6.9					
C.V.% = 15.1					

Comments:

- There is significant evidence of a response to both N & K. No significant deviation from linear response over the range applied is apparent.
 Average N response per 60 lb. N applied = 2.66 ± 0.824
 " K " " 67 lb. K " = 3.08 ± 0.824
- There is some significant evidence of an N & K interaction but it does not seem easily interpretable.
- Sucrose analysis was not done as no effects were apparent.

45

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

N & K FACTORIAL EXPERIMENT

Catalogue No: 180
This crop : 1 Ratoon
Site : Langspruit, Doornkop
Altitude : 2,000 ft.
Soil series : Inanda
Design : Factorial (4x4) x 5 reps
Variety : N:Co.376
Fertilizer : See treatments
Water regime: Dryland

Soil Analysis:

<u>pH</u>	<u>OM%</u>	<u>Clay%</u>	
6.15	7.3	-	
<u>p.p.m.</u>			
<u>P</u>	<u>K</u>	<u>Ca</u>	<u>Mg</u>
43	302	457	118

Age: P : 25 mths (10/64 - 10/66)
 1R 22 mths (10/66 - 8/68)
 Rainfall: ?

Object: To study the effects of N & K alone and in combination.

Treatments:	N1	60 lb N/ac	K1	0 lb K/ac
	2	120	2	100
	3	180	3	200
	4	240	4	300

Results:

		K1	Ka	K3	K4	Mean	SE. N & K Table means	L.S D (.05) (.01)
T.C.A	N1	56.4	62.5	69.0	63.2	62.8	± 3.61	10.2 13.6
	N2	56.3	63.7	66.8	66.7	63.4		
	N3	63.0	64.7	63.9	73.4	66.2		
	N4	61.7	62.6	71.8	70.1	66.6		
	Mean	59.3	63.4	67.9	68.3	64.7		
Suc.%	N1	15.4	15.8	15.3	15.5	15.5	± 0.23	0.7 0.9
	N2	15.1	15.2	15.4	15.4	15.3		
	N3	15.0	15.2	15.1	14.8	15.0		
	N4	14.6	15.4	15.1	15.0	15.0		
	Mean	15.0	15.4	15.2	15.2	15.2		
T.S.A.	N1	8.67	9.83	10.49	9.78	9.69	± 0.512	1.45 1.92
	N2	8.50	9.66	10.30	10.23	9.67		
	N3	9.46	9.76	9.62	10.88	9.93		
	N4	8.99	9.60	10.81	10.48	9.97		
	Mean	8.90	9.71	10.31	10.34	9.82		

Comments N - response for T C A & T S A small and non-significant
 5% C significantly depressed.
 K - response significant for T C.A & T S.A., averaging
 3.1 ± 0.81 T C.A.)
 0.49 ± 0.114 T S A) per 100 lb K applied.
 Response appears to level off at 200 lb K application.
 Interaction - no significant evidence of any.

SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS ASSOCIATION

(47)

VARIETY TRIAL

Catalogue No : 180
This crop : R2
Site : Langespruit Section;
 L8a(X) Doornkop
Altitude : 595 m
Soil series : Inanda
Design : 4 x 4 Factorial
 (5 Reps.)
Variety : NCo 376
Fertilizer : See Treatments
Water regime : Dryland

Soil Analysis:
pH OM% Clay %
 6.15 7.3 -

p.p.m.
P K Ca Mg
 43 302 457 118
Age: R2 - 23 mths; 8/68 - 7/70
Rainfall: 1 755 mm
Irrigation: -

Object: To compare various levels of nitrogen and potash on this ratoon crop

Treatments:

	kg/ha			
	1	2	3	4
N	67	134	202	269
K	0	112	224	336

Results:

T/HA CANE.

	K1	K2	K3	K4	MEAN
N1	107	122	137	119	121
N2	110	125	127	127	122
N3	104	116	117	129	116
N4	104	121	132	124	120
MEAN	106	121	128	125	120

S.E. 6.4

L.S.D. (0.05) 18.1

E.R.S.

	K1	K2	K3	K4	MEAN
N1	14.8	15.1	15.3	15.4	15.2
N2	15.0	15.2	15.0	15.2	15.1
N3	14.6	15.1	14.4	14.5	14.6
N4	14.9	15.1	15.1	15.2	15.1
MEAN	14.8	15.1	14.9	15.1	15.0

S.E. 0.28

L.S.D. (0.05) 0.8

T/HA E.R.S.

K	K1	K2	K3	K4	MEAN
N1	17.3	20.3	22.9	19.9	20.1
N2	18.2	20.9	21.1	21.2	20.3
N3	16.8	19.1	19.1	20.8	19.0
N4	17.0	20.0	21.9	20.8	20.0
MEAN	17.3	20.1	21.2	20.7	19.8

S.E. 1.06

L.S.D.(0.05) 3.0

Remarks

Other than a response to potash for tons cane and tons E.R.S., no other factors were significant.