

(27)

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

N x K FACTORIAL EXPERIMENT

Catalogue No.: 155
This Crop: Plant Crop.
Site: Klipspruit Sect. Illovo.
Altitude: 2300'
Soil Series: T.M.S. Ord.
Design: 5 x 5 N.K. Factorial
Variety: N:Co.293.
Fertilizer: 800 Lbs. Supers in
 Furrow. (See also
 treatments below)
Water regime: Dryland.

Soil Analysis:
 pH OM% Clay % p.p.m.
 P K Ca Mg
Age: 24.5 months.
Rainfall: 82.58"
Irrigation: -

Object: To test responses to N and K at different levels of application.

Treatments: No = No N, N1 = 100 Lbs. N, N2 = 200 Lbs. N, N3 = 300 Lbs. N, N4 = 400 Lbs. N. In each case, N. treatments were divided into 3 equal applications, one at planting in the furrow and two top-dressings, the first 4 months after planting, the second 6 months after planting. K treatments were: K0, K1 = 200 Lbs. K₂O, K2 = 400 Lbs. K₂O, K3 = 600 Lbs. K₂O, K4 = 800 Lbs. K₂O. These were subdivided as for N above).

Results:

Treatment	Plant		1st Ratoon	
	T.C.A.	T.S.A.	T.C.A.	T.S.A.
K0	38.05	6.33	35.5	5.68
K1	47.49	8.03	49.1	8.23
K2	50.73	8.36	47.9	7.91
K3	52.84	8.95	51.2	8.25
K4	54.14	9.07	49.8	8.28
Mean	48.65	8.15	46.72	7.67
S.E.	8.03	1.41	4.93	0.80
C.V. %	16.5	17.3	10.5	10.4
L.S.D. (.05)	7.28	1.28	4.45	0.72
(.01)	9.77	1.71	5.96	0.96

Comments:

Plant Crop: Average response to 200 lb. K₂O highly significant. No NK interaction.

First Ratoon: A highly significant response to potash at the K1 level, but no additional yield increases at higher levels of K. No significant NK interaction.

30th November, 1966.

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Soil Analysis:

pH	OM%	Clay %	p.p.m.			
			P	K	Ca	Mg
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Results:

Treatment	Plant		1st Ratoon	
	T.C.A.	T.S.A.	T.C.A.	T.S.A.
NO	44.47	7.36	42.9	7.07
N1	46.67	7.85	44.8	7.44
N2	49.09	8.29	45.9	7.50
N3	49.85	8.33	48.8	7.85
N4	53.16	8.93	51.2	8.49
Mean	48.65	8.15	46.72	7.67
S.E.	8.03	1.41	4.93	0.80
C.V. %	16.5	17.3	10.5	10.4
L.S.D. (.05)	7.28	1.28	4.45	0.72
(.01)	9.77	1.71	5.96	0.96

Comments:

Plant Crop: significant linear response to N
 Per 100 lb. N, response is:

2.06 T.C.A. \pm 1.63 (5%)
 2.18 (1%)
 0.36 T.S.A. \pm 0.29 (5%)
 0.38 (1%)

No significant interaction.

1st Ratoon: Highly significant linear response to N, being
 2.06 T.C.A. and 0.33 T.S.A. per 120 lb. increase
 in N./ac.

No significant interaction.

30th November, 1966.