SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

FORMS OF PHOSPHATE EXPERIMENT

Catalogue No.: 152
This crop: Plant, 1R, 2R, 3R.
Site: Stoney Hill - Illovo.
Altitude: ± 2500
Soil series: T.M.S. Mist Belt
Design: 6 x 6 Latin Square
Variety: N:Co.293
Fertilizer: See treatments
Water Regime: Dryland.

Soil Analysis:

	pH.	OM%	Clay %	p.p.m. P	K	Ca	Mg
Age:							
P = 23 months (11/57 - 10/59)							
1R = 23 months (10/59 - 9/61)							
2R = 29 months (9/61 - 2/64)							
3R = 23 months (2/64 - 1/66)							
Rainfall:							
P = 83.5"							
1R = 75.2"							
2R = 79.1"							
3R = 68.4"							

Object: To study the effects of different types of phosphate carrier.

Treatments: P (Plant cane only)

C = Control (No Phosphate)
P = 1000 lbs. Supers/Acre
P.L. = 2000 lbs. Lime + 690 lbs. Supers/Acre.
B.S. = 905 lbs. Basic slag/Acre.
R = 954 lbs. Raw Phosphate/Acre.
F.C. = 5 Tons Filter Cake/Acre.

Note: Phosphate treatments are based on a standard cost of R10.42½ per acre.

Top dressings

	Lb. N/ac.	Lb. K/ac.
Plant	100	200
1R	66	100
2R	66	100
3R	0	0

Results:

Treatment	P		1R		2R*		3R	
	T.C.A.	T.S.A.	T.C.A.	T.S.A.	T.C.A.	T.S.A.	T.C.A.	T.S.A.
C =	52.1	7.80	49.5	8.28	54.0	8.12	22.6	3.20
P =	60.6	9.14	60.5	9.41	53.1	6.92	29.3	4.23
P.L. =	61.9	9.20	56.8	9.56	57.4	8.19	24.9	3.52
B.S. =	62.0	9.08	58.4	8.80	53.7	7.96	29.7	4.20
R =	60.7	8.89	59.4	9.69	50.7	7.56	28.1	4.01
F.C. =	63.2	9.39	62.6	10.13	52.0	7.65	23.8	3.40
Mean	60.1	8.92	57.8	9.31	53.5	7.73	26.4	3.76
C.V. %	5.0	5.0	6.4	6.6				
L.S.D. 0.05	3.87	0.57	4.46	0.74				
0.01	5.27	0.78	6.08	1.01				

* 2nd Ratoon data incomplete - 12 plots damaged.

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TYPES OF PHOSPHATE TRIAL

Tons Cane Per Acre

C. =	Fertilizer	Mean.
C.	= No Phosphate	52.12
P.	= 1000 lbs. Superphosphate	60.58
R.	= 954 lbs. Raw Phosphate	60.71
P.L.	= 690 Superphosphate + 2000 Lime	61.91
B.S.	= 905 lbs. Basic Slag	61.99
F.C.	= 5 Tons Filter Cake	63.18
	Mean	60.08

S.E. of a treatment mean = 1.31
Least significant difference between 2 treatment means = 3.87 at 5% level
5.27 at 1% level.

S.E. as % of mean = 5%
All forms of phosphate give a highly significant increase over No phosphate.

There are no significant differences between phosphate treatments.

Tons Sucrose per Acre.

Fertilizer	Mean.
C.	7.80
R.	8.89
B.S.	9.08
P.	9.14
P.L.	9.20
F.C.	9.39
Mean	8.92

S.E. of a treatment mean = 0.19
Least significant difference between 2 treatment means = 0.57 at 5% level
0.78 at 1% level.

S.E. as % of mean = 5%
All forms of phosphate give a highly significant increase over No phosphate.

There are no significant differences between the forms of phosphate.

30th November, 1966.