

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

ROW WIDTH X FERTILIZER EXPERIMENT

Catalogue No: 151
This crop: Plant
Site: Stoney Hill - Illovo.
Altitude: + 2,500'
Soil Series: T.M.S. Mist Belt
Design: 3 x 3 x 3
Variety: N:Co.293
Fertilizer See treatments
Water regime: Dryland

Soil Analysis:

pH	OM%	Clay%	ppm			
			P	K	Ca	Mg
<u>Age:</u> 22½ months (12/57 - 10/59)						
<u>Rainfall:</u> 82.90"						
<u>Irrigation:</u> -						

Object:

To test the effect on yield of different row-widths at different levels of fertilizer.

Treatments:

<u>Row Widths</u>	<u>Fertilizer</u>
1' 9"	N1P1K1 200, 400, 200 lbs/acre.
3' 6"	N2P2K2 400, 800, 400 "
7' 0"	N3P3K3 600, 1200, 800 "

1. Tons Cane per acre

	Low	Medium	High	Means
Spacing: 1' 9"	54.16	59.52	78.63	64.10
3' 6"	52.39	64.24	66.92	61.18
7' 0"	53.82	51.24	60.15	55.07
Means	53.45	58.33	68.57	

General Mean = 60.12 t.c.a.
 S.E. of single plot yield = +9.22 "
 C.V. % = 15.3%
 S.E. of Marginal mean = +2.66 t.c.a.
 L.S.D. between 2 Marginal
 Means : (5%) = 7.77 t.c.a.
 (1%) = 10.53 "

2. Tons Sucrose per Acre

	Low	Medium	High	Means
Spacing: 1' 9"	8.98	10.42	13.68	11.03
3' 6"	8.16	12.35	12.51	11.01
7' 0"	8.59	8.52	9.65	8.92
Means	8.58	10.43	11.95	

2. Tons Sucrose per acre Contd.

General Mean		= 10.32 t.s.a.
S.E. of single plot yield		= + 1.56 "
C.V. %		= 15.1%
S.E. of <u>Marginal</u> mean		= + 0.45 t.s.a.
S.E. Body of Table		= + 0.78 "
L.S.D. between:		
2 <u>Marginal</u> Means:	(5%)	= 1.31 t.s.a.
	(1%)	= 1.78 "
2 Means in Body of		
Table	(5%)	= 2.27 t.s.a.
	(1%)	= 3.08 "

151
18/19

Comments:

1. Tons Cane per acre:

From the Analyses of Variance, the response to fertilizer is highly significant, there being no significant difference between the low and Medium fertilizer applications, but the High level of fertilizer is significantly superior to both the low and Medium applications at the (1%) and (5%) respectively. Although not significant in the overall test the increase in yield at the narrow row spacings is quite marked. C.F. (1'9" vs 7'0" = 9.03 t.c.a.). There is no significant interaction.

2. Tons Sucrose per acre:

The results in terms of Tons Sucrose per acre are somewhat different from those in terms of Tons Cane per acre, in that there is a significant response to both fertilizer and spacing as well as a significant interaction. With respect to the average response to spacing the two "narrow row" spacings are both superior to the wide 7' rows. These responses vary, however, over the different fertilizer levels, there being no significant differences at the low level of fertiliz application. As for Tons Cane the response to fertilizer is highly significant, in this case both the medium and high level of fertilizer are significantly superior to the low level. (c.f. Interaction tables on previous page).

30th November, 1966.