SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION.

FILTER CAKE EXPERIMENT.

Catalogue No.: 154
This Crop: 3rd Ratoon
Site: Gorge Section, Illovo Sugar Estato,
Altitude: ± 2,300 ft.
Soil Type: T.M.S. (Mst Belt)
Design: Latin Square
Variety: 293
Fertiliser for this crop:
250 Urea, 200 Supers,
300 Muriate.

Soil Analysis: None
Age: 20 months.
Rainfall: 76.14 inches.
This Harvest: 21.6.67

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Object: In this instance to compare the rcsidual. effect of different levels of filter Press Cake.

Treatments: 0, 10, 20, 40 and 80 tons of filter press cake at planting in June 1959.

Results:

Plot No.1 80 Tons T.C.A. = 61.11 Suc, % = 10.79 Purity % = 81.95	Plot No.2 40 Tons T.C.A. = 64.13 Sue. % = 11.81 Purity % = 85.42	Plot No.3 10 Tons T.C.A. = 55.53 Sue. % = 11.83 (Purity % = 87.08	Plot No.4 20 Tons T.C.A. = 54.78 Sue. % = 11.84 Purity % = 86.68	Plot No.5 cantrall T.C.A. = 1+8.24 Sùe. % = 12.21 Purity % = 86.99
(6) 40 Tons T.C.A. = 67.82 .ic, % = 11.77 Purity % = 85.15	(7) 80 Tons T.C.A. = 66.90 Sue. % = 11.94 Purity % = 85.48	(8) Control T.C.A. = 28.48 Sue. % = 12.49 Pur-Lty % = 87.12	(9) 10 Tons T.C.A. = 57.67 Sue. % = 11.54 Purity % = 86.30	(10) 20 Tons T.C.A. = 66.94 Suc, % = 11.30 Purity % = 84.95
(11) 10 Tons T.G.A. = 62.12 Suc. % = 12.35 Purity % = 79.00	(12) 20 Toris T.G.A. = 77.1+3 Sue. % = 11.64 Purity % = 84.60	(13) 80 Tons T.G.A. = 45.31 Sue. % = 12.38 Purity % = 88.27	(14) Control T.G.A. = 44.33 Sue. % = 12.55 Purity % = 87.54	(15) 40 Tons T.G.A. = 61.87 Suc. % = 12.47 Purity % = 87.88
(16) 20 Tons T.G.A. = 60.15 Sue. % = 11.79 Purity % = 86.80	(17) Gontrol T.G.A. = 49.58 Sue. % = 12.22 Purity % = 86.07	(18) 40 Tons T.G.A. = 71.81 Sue. % = 11.79 Purity % = 86.30	(19) 80 Tons T.C.A. = 71.47 Sue. % = 11.12 Purity % = 81.03	(20) 10 Torie T.C.A. = 65.43 Suc. % = 11.60 Purity % = 84.32
(21) Gontrol T.G.A. = 79.65 Sue. % = 11.84 Purity % = 85.69	(22) 10 Tons T.C.A. = 72.35 Sue. % = 11.97 Purity % = 86.62	(23) 20 Tons T.C.A. = 82.59 Suc. % = 11.69 Purity % = 86.02	(24) 40 Tons T.C.A. = 88.33 Sue. % = 10.68 Purity % = 82.58	(25) 80 Tons T.C.A. = 80.45 Suc. % = 11.03 Purity % = 83.34

Table of Means:

TREATMENTS	T.e•A	T.S.A.	SUC. %	%
Control	50.06	6.14	12.26	86.68
10 Tona F.P.C.	62.68	7.43	11.86	84.66
20 " "	68.38	7.94	11.61	85.81
40 " "	70.79	8.28	11.70	85.47
80 " "	65.05	7.45	11.45	84.61

Note: These results are of 3rd Ratoon Crop, the 2nd Ratoon Crop was cut with the field in error. It should also be noted that plots 8, 13 and 14, appeared to be poor plots having suffered, especially 8, from severe grass weed competition at one stage of crop.

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FILTER CAKE TRIAL

Catalogue No	154	Soil Analysis	See below
I.S.E. Code	Expt o Plot 28		
This crop	4 Ratoon		
Site	Gorge P/ Court	Age	24 months
Altitude	700 m		6067 - 6.69
Soil Type	r,X.S, Mist Belt		
Design	Latin Square	Rainfall	1 578,1 mm
Variety	293		
Fertilizer this crop	ToDo 250 Urea, 200 Supers, 300 Mop		

Object: To compare the residual effect of furrow treatment.

Treatment:

Control	No filter cake in furrow	
F.C. 1	22 t/ha filter cake in furrow	
F.C. 2	45 t/ha	" " " "
FoCo 3	90 t/ha	" " " "
FoCo 4	180 t/ha	" " " "

Results:

a) Yield, Population and Height.

Treatments	t/ha Cane	Suco %	Stalks 10-3/ha	Stalk length em.
Control	66,1	13,2	95,0	166
F.Co 1	96,4	13,1	111,2	185
FoC. 2	81,7	13,2	98,7	191
FoC. 3	113,9	13,0	110,7	202
F.C. 4	119,2	12,9	110,9	191
Mean	95,5	13,1	105,3	187
t/ha L.SoDo 0,05			26,4	
0,01			37,1	
CV %			20,1	

The obvious response to filter cake is statistically significanto

However, the results obtained from some plots and from one of the replications are so much out of tune with the rest of the experiment, that the results of the stato analysis, above, probably have little meaning.

b) Weed Rating

The experiment was weeded with the field. Plots with low populations hence became heavily infested with weeds. The means of the weed rating at harvest are as follows 1 = no weeds, 9 = heavily infested.

Treatment	Rating
Control	6,4
FoC. 1	4,8
F.C, 2	4,6
F.C. 3	4,4
F.C. 4	4,2

It appears that plots which received filter cake, controlled weeds better than other plots.

c) Soil Analysis - Chemical and Eelworm

Samples taken at harvest - means of 5 plots/treatment.

	p.p.m.					Nematodes"	
Treatment	P	K	Ca	Na	pH	Parasitic	Harmless
Control	18,0	168	454	114	5,1	63,4	414
FoCo 1	17,6	162	482	84	5,1	62,4	575
FoCo 2	15,8	126	470	112	5,1	60,5	501
FoC. 3	15,0	146	446	86	5,1	48,9	546
FoCo 4	37,8	133	570	82	5,2	55,9	383

*Nematodes

1. Harmless = Actual numbers in 20 mls of soil.
2. Parasitic scored with indexo

1 per 20 mls Soil	Index
Xiphinema	20
Trichodorus	17
Meloidogyne larve	10
Pratylenchus	10
Tylenchorhynchus	10
Hoplolaims	8
Rotylenchus	5

Comments

10 The high level of filter cake seems to have increased the P and Ca status of the soil, even after 10 years.

20 Potash levels appear to have fallen with increasing levels of filter cake. This could be the result of higher removal by the increased tonnages.

3. There would appear to be a reduction of parasitic nematode populations with higher levels of filter cakeo