SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

IRRIGATION EXPERIMENT V

Catalogue No.: 80
This crop: 1st Ratoon
Site: Sewraj, Tongaat.
Altitude: 311'
Soil series: Clansthal
Design: Random Block
Variety: NCo 376
Fertilizer: 1.0.1. = 500 lb./a
Saaifos = 100 lb./a
Water regime: Irrigated

Soil Analysis:

pH	OM%	Clay%
5.90		

p.p.m.

P	K	Ca	Mg
44	45	188	45

Age: 15 mths. Sept'67 - Jan'69.
Rainfall:) See Results.
Irrigation:)

Object:

Treatments:
Wo = Dryland - Control.
W1 = FC - 3" Irrigation when 3" evaporates till harvest.
W2 = FC - 1½" Irrigation when 1½" evaporates and then 3" irrigation when 3" evaporates till harvest.
W3 = FC - 1" Irrigation when 3" evaporates = FC till harvest.
W4 = 1" irrigation every 12 days till harvest.
W5 = 1" Irrigation every 18 days till harvest.

Results:

TREATMENTS	T.C.A.	% SUCROSE	T.S.A.	TOTAL IRRIGATION	TOTAL RAINFALL
Wo	37.6	13.44	5.05	1"	48.18"
W1	43.4	13.67	5.93	53½"	48.18"
W2	43.8	13.69	6.01	50¾"	48.18"
W3	36.1	13.82	4.99	17½"	48.18"
W4	45.1	14.10	6.37	28"	48.18"
W5	44.3	13.78	6.10	20"	48.18"
S.E. single yield	6.20	0.28	0.87		
C.V. % =	14.87%	2.04%	15.15%		
L.S.D. 5%	9.33	0.42	1.31		
L.S.D. 1%	12.91	0.58	1.81		

Comment: It is obvious from the results that the plot-size in this experiment is a limiting factor. Some lateral movement of ground water supplies must occur as reflected by the relatively high yield of the dryland control and low responses to irrigation. This experiment will be abandoned.

SOUTH AFRICAN SUGAR INDUSTRY.

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IRRIGATION EXPERIMENT V.

Catalogue No: 80
This crop. Plant Cane.
Site: Sewraj. Tongaat
Altitude: 311 ft.
Soil series: Clansthal
Design: Random block - 4 reps.
Variety: N.Co 376
Fertilizer: N. P. K.
Urea 200 D/S 100 250
Water regime: Irrigated.

Soil Analysis:

	pH	OM%	Clay%
Plant Cane	5.87	1.19	-

p.p.m.			
P	K.	Ca	Mg
56	65	243	47

Age: 13 mths. Sept'66 - Sept'67
Rainfall: 33.90"
Irrigation: Wo, Nil; W1, 31.0"; W2, 13.0"; W3, 12.0"; W4, 10.0"; W5. 5.0"

Treatments:
Wo = Dry Land Control
W1 = 1" irrigation when 0.75" evaporates.
W2 = 1" " every 10 days.
W3 = 2" " every 28 days
W4 = 1" " " 14 days
W5 = 1" " " 18 days

Results:

TREATMENTS	T.C.A.	% SUCROSE	T.S.A.
Wo	20.2	14.4	2.91
W1	29.7	13.9	4.13
W2	26.0	14.3	3.73
W3	20.2	14.4	2.91
W4	26.0	14.3	3.72
W5	29.2	14.2	4.16
S.E. single yield	3.47	0.56	4.92
C.V.	13.77%	3.92%	13.70%
L.S.D. between treatments @ 5%	5.23	0.84	0.74
L.S.D. @ 1%	7.24	1.16	1.03

Comment: The excellent summer rains on this young crop growing in deep soils have had the effect of masking treatment differences.

SOUTH AFRICAN SUGAR INDUSTRY

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Irrigation Trial V.

Catalogue No.: 80
This crop: P, 1R.
Site: Hospital, Tongaat.
Altitude: 311'
Soil: Clansthal.
Design: Random block.
Variety: N:Co.382

Fertilizer:

		N	P	K
Plant:	LAN	550	-	250
1R:	"	900	300	300

Soil Analysis:

	pH.	OM %	Clay	P	K	Ca	Mg
Plant	-	-	-	-	-	-	-
1R	5.99	4.94	7.0	90	90	224	53

Age:
Plant = 11 mths. Sept. 1963 - Aug. 1964.
1R = 11 mths. Aug. 1964 - July 1965.

Objects:

Treatments:

Control = No irrigation. Dryland.
F.C. = ½ Inch irrigation when soil moisture deficit = ½ inch.
WP2 = 2 " " " " " " = 2 inch.
WP4 = 4 " " " " " " = 4 inch.
W6 = 6 " " " " " " = 6 inch.

Mean Results:

Tons Cane per Acre.

Crops	Control	F.C.	WP2	WP4	WP6
Plant	32.3	38.8	39.3	37.6	35.2
1R	44.3	53.3	52.1	54.3	51.3

Sucrose % Cane.

Crops	Control	F.C.	WP2	WP4	WP6
Plant	13.2	12.1	12.4	12.6	13.0
1R	12.0	11.5	11.5	11.4	11.7

Tons Sucrose per Acre.

	Crops	Control	F.C.	WP2	WP4	WP6
63/4	Plant	4.26	4.71	4.87	4.75	4.58
64/5	1R	5.31	6.14	5.99	6.19	6.59

6th May, 1966.

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Note: Water treatments shown on page 1 refer to plant crop only.

Treatments for 1st ratoon were:

W_0 : Dryland

W_1 : 1" irrigation when soil moisture deficit = 1"

W_2 : 2" " " " " " = 2"

W_3 : 3" " " " " " = 3"

W_4 : 4" " " " " " = 4"