

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

NITROGEN x IRRIGATION TRIAL

Catalogue No: 4  
This crop: P 1R 2R 3R  
Site: Ramugas, Inyaninga  
Altitude: 280'  
Soil series: L.E. Shale  
Design: Random block, 3 reps.  
Variety: N:Co.310  
Fertilizer: See below  
Water regime: Irrigated

Soil Analysis:

	pH	OM%	Clay%
2R	5.14	2.73	-
3R	5.18	3.71	-
4R	5.61	5.60	28.1

	p.p.m.			
	P	K	Ca	Mg
2R	12	167	5430	381
3R	17	194	1398	473
4R	36	226	998	506

<u>Age:</u>				
P	21 months:	11/58	-	8/60
1R	16 months:	8/60	-	12/61
2R	14 months:	12/61	-	2/63
3R	17 months:	2/63	-	7/64

Object: To compare two levels of N under irrigated conditions.

Fertilizer:

		<u>N<sub>0</sub></u>	<u>N<sub>1</sub></u>	<u>Supers</u>	<u>Potash</u>
P	AN	-	450	500	300
1R	Urea	225	450	300	330
2R	Urea	225	450	500	250
3R	LAN	450	900		
	Urea	225	450	1000	500

Treatments:

		<u>lb N/ac.</u>			
	<u>Plant</u>	<u>1R</u>	<u>2R</u>	<u>3R</u>	
N <sub>0</sub>	Nil	103	103	200	
N <sub>1</sub>	117	206	206	400	

Results:

	<u>Treatment</u>	<u>T.C.A.</u>	<u>Suc. %</u>	<u>T.S.A.</u>
Plant	N <sub>0</sub>	45.0	15.80	7.31
	N <sub>1</sub>	48.0	15.50	7.47
1R	N <sub>0</sub>	43.7	15.01	6.57
	N <sub>1</sub>	48.2	14.65	7.07
2R	N <sub>0</sub>	27.7	13.51	3.76
	N <sub>1</sub>	27.7	12.86	3.57
3R	N <sub>0</sub>	42.5	14.51	6.18
	N <sub>1</sub>	46.1	14.42	6.66

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION.

Dunder Irrigation Trial.

Catalogue No.: 4  
This crop: P, 1R, 2R, 3R, 4R.  
Site: Ramugas, Inyaninga.  
Altitude: 280'  
Soil: L.E. Shale  
Design: Random Block.  
Variety: N:Co.310  
Fertilizer:

Soil Analysis:

	pH.	OM%	Clay %	ppm.			
				P	K	Ca	Mg
Plant	-	-	-	-	-	-	-
1R	-	-	-	-	-	-	-
2R	5.14	2.73	-	12	167	5430	381
3R	5.18	3.71	-	17	194	1398	473
4R	5.61	5.60	28.1	36	226	998	506

	No	N1	Supers	Potash
Plant A/N	-	450	500	300
1R Urea	225	450	300	330
2R Urea	225	450	500	250
3R LAN	450	900		
Urea	225	450	1000	500
4R LAN	500	1000	500	300

Age:

Plant = 21m. Nov. 1958 - Aug. 1960.  
 1R = 16m. Aug. 1960 - Dec. 1961.  
 2R = 14m. Dec. 1961 - Feb. 1963.  
 3R = 17m. Feb. 1963 - July 1964.  
 4R = 11m. July 1964 - June 1965.

Objects:

Treatments: Plant - 1R - 2R.

- W0 = No irrigation. Dryland.
- W1 = Weekly irrigation 1 inch.
- W2 = 2 " " 2 "
- W3 = 3 " " 3 "
- W4 = Same as W2 only summer irrigation.
- NO = No nitrates for plant cane only.)
- N1 = Applied nitrates. ) See fertiliser application.
- 3rd - 4th Ratoon.
- W0 = No irrigation. Dryland.
- W1 = 1 Inch irrigation when 1 inch below F.C.
- W2 = 1 " " " 3 " " "
- W3 = As for W1 except no irrigation between 30th May and 30th September.
- W4 = 1 Inch irrigation when 2 inches below F.C.
- N1 = Applied nitrates.)
- N2 = Applied nitrates.) See fertiliser application.

Mean Results:

Tons cane per acre

Crops	W0	W1	W2	W3	W4	NO	N1
P	32.3	50.4	48.3	48.7	52.9	45.0	48.0
1R	43.3	49.1	46.7	46.2	44.5	43.7	48.2
	W0	W1	W2	W3	W4	N1	N2
2R	11.0	37.1	31.0	30.5	29.0	27.7	27.7
3R	32.5	52.0	42.0	47.9	47.4	42.5	46.1
4R	6.0	26.0	21.4	21.9	14.7	17.0	19.0
Trash 4R	7.5	25.4	20.8	20.9	15.3	-	-
No Trash 4R	4.5	26.6	21.9	23.0	14.1		

Sucrose % Cane

Crops	W0	W1	W2	W3	W4	NO	N1
P	15.5	15.6	15.8	15.8	15.5	15.8	15.5
1R	14.6	14.9	14.9	15.1	14.7	15.0	14.6
	W0	W1	W2	W3	W4	N1	N2
2R	12.9	13.4	13.1	13.1	13.4	13.5	12.9
3R	14.2	14.9	14.4	14.2	14.7	14.5	14.4
Trash 4R	12.4	14.2	14.6	14.3	13.1	-	-
No Trash 4R	12.6	14.9	14.6	14.6	13.2	-	-

Tons Sucrose per Acre

Crops	W0	W1	W2	W3	W4	NO	N1
9/60 P	5.01	7.83	7.65	7.77	8.69	7.31	7.47
60/61 1R	6.32	7.33	6.94	6.97	6.53	6.57	7.07
	W0	W1	W2	W3	W4	N1	N2
67/2 2R	1.42	4.97	4.06	3.99	3.89	3.76	3.57
63/64 3R	4.61	7.74	6.03	6.78	6.96	6.18	6.66
Trash 4R	0.92	3.62	3.04	3.00	2.00	-	-
No Trash 4R	0.58	3.95	2.96	3.39	1.88	-	-

Note: Water treatments shown on Page 1 for 3rd and 4th ratoons refer to 3rd ratoon only.

Treatments for 4th ratoon were:

W<sub>0</sub> : Dryland

W<sub>1</sub> : 1" irrigation when soil moisture deficit = 1"

W<sub>2</sub> : 2" " " " " " = 2"

W<sub>3</sub> : 3" " " " " " = 3"

W<sub>4</sub> : 1" " " " " " = 1½", except  
in winter.