

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

NPK X IRRIGATION EXPERIMENT

Catalogue No: 156
This crop: Plant
Site: Umzimkulu Section, I.S.E.
Altitude: 300'
Soil series: Milkwood
Design: 3 x 2 x 3 NPK x 3 Irr.
Variety: N:Co.310
Fertilizer:

N	P	K
100	87	0
200	174	166
300		332

Soil Analysis: No samples taken

Age: 24 months (8/57 - 7/59)

Rainfall: 79.81"

Irrigation: W1 = 27.93"
W2 = 41.23"

Water regimes:

W0 = Dryland

W1 = Irrigated

W2 = Irrigated

Object:

To compare three levels of water on a 3 x 2 x 3 factorial layout.

Treatments:

N1 : 100 lb. N/ac.

N2 : 200 lb. N/ac.

N3 : 300 lb. N/ac.

Results:

Treatment	T.C.A.	% Sucrose	T.S.A.
N1	40.4	16.74	6.82
N2	40.3	16.81	6.85
N3	40.5	17.43	7.17
S.E.	0.81	0.274	0.170
C.V. %	8.5	6.8	10.4
L.S.D. (.05)	2.4	0.80	0.49
(.01)	3.2	1.07	0.67

30th November, 1966.

SOUTH AFRICAN SUGAR INDUSTRY

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Irrigation x Fertilizer Experiment

Catalogue No: 156

This Crop: Plant

Site: Umzimbazi Section, Illovo

Altitude: 300 ft.

Soil series: Milkwood

Design: 3 x 2 x 3 NPK x 3 Irr.

Variety: N:Co.310

Fertilizer:

N	P	K
100	87	0
200	174	166
300		332

Water regime: See treatments

Soil Analysis: No samples taken

Age: 24 mths (8/57 - 7/59)

Rainfall: 79.81"

Irrigation: See results

Object:

To compare three levels of water imposed on a 3 x 2 x 3 NPK factorial layout.

Treatments:

- W0 - No irrigation
W1 - Irrigated when 50% available water used.
W2 - Irrigated when 1.00" available water used.

Results:

Treatment	Ins. Irr.	T.C.A.	Suc. %	T.S.A.
W0	0	29.2	15.8	4.62
W1	27.93	45.5	16.9	7.73
W2	41.23	46.5	18.2	8.49
S.E. single plot		3.44	1.16	0.721
L.S.D. (0.05)		2.4		0.49
(0.01)		3.2		0.67
C.V. %		8.5	6.8	10.4

Comments:

For detailed report refer to: Thompson, G.D. (1960) Irrigation Control and experimentation at Illovo, Proc. S.A. Sugar Techn. 34th Annual Congress, pp. 161-169.

17th May, 1966.

SOUTH AFRICAN SUGAR INDUSTRY

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NPK x IRRIGATION EXPERIMENT

Catalogue No: 156
This crop: Plant
Site: Umzimbazi Section, I.S.E.
Altitude: 300'
Soil series: Milkwood
Design: 3 x 2 x 3 NPK x 3 Irr.
Variety: N:Co.310
Fertilizer: N P K
 100 87 0
 200 174 166
 300 332
Water regime: W0 = Dryland
 W1 = Irrigated
 W2 = Irrigated

Soil Analysis: No samples taken.
Age: 24 months (8/57 - 7/59)
Rainfall: 79.81"
Irrigation: W1 27.93"
 W2 41.23"

Object: To compare three levels of water on a 3 x 2 x 3 factorial layout.

Treatments: K1 = 0 lb. K/ac.
 K2 = 166 lb. K/ac.
 K3 = 332 lb. K/ac.

Results:

Treatment	T.C.A.	Suc. %	T.S.A.
K1	34.9	16.76	5.89
K2	41.6	17.18	7.24
K3	44.6	17.05	7.71
S.E.	1.41	0.475	0.295
CV %	8.5	6.8	10.4
L.S.D.(0.05)	4.1	1.38	0.86
(0.01)	5.5	1.87	1.16

Comment:

For additional details refer to paper by Thompson; G.D. (1960)
Proc. S.A. Sugar Techn. 34th Annual Congress, pp. 161 - 169.

30th November, 1966.

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SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

N P K x IRRIGATION EXPERIMENT

Catalogue No.: 156
This crop: 1st Ratoon
Site: Umzimbazi Section, I.S.E.
Altitude: 300'
Soil series: Milkwood
Design: 3 x 2 x 3 NPK x 3 Irr.
Variety: N:Co.310
Fertilizer: N P K
 100 44 0
 200 88 166
 300 332
Water regime: W0 = Dryland
 W1 = Irrigated
 W2 = Irrigated

Soil Analysis: No samples taken

Age: 24 months (8/59 - 9/61)

Rainfall: Data not available

Irrigation:

Object: To compare three levels of water on a 3 x 2 x 3 factorial layout.

Treatments: N1 = 100 lb. N/ac.
 N2 = 200 lb. N/ac.
 N3 = 300 lb. N/ac.

Results:

Treatment	T.C.A.	Suc. %	T.S.A.
N1	57.2	16.54	9.46
N2	60.6	16.04	9.72
N3	61.0	16.23	9.90
S.E.	±7.90	-	±0.94
C.V.%	13.2	-	9.7
L.S.D. (.05)	5.42	-	0.64
(.01)	7.32	-	0.87

29th November, 1966.

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

Irrigation x Fertilizer Experiment

Catalogue No: 156
This crop: 1st Ratoon
Site: Umzimbazi Section, Illovo
Altitude: 300 ft.
Soil series: Milkwood
Design: 3 x 2 x 3 NPK, x 3 Irr.
Variety: N:Co.310
Fertilizer: N P K
 100 44 0
 200 88 166
 300 332
Water Regime: See treatments

Soil Analysis: No samples taken
Age: P : 24 mths. (8/57 - 7/59)
 R1 : 24 mths. (8/59 - 9/61)

Rainfall:
Irrigation: Data not available

Object:

To compare three levels of water imposed on a 3 x 2 x 3 NPK factorial layout.

Treatments: W0 - No Irrigation
 W1 - Irrigated when 50% available water used.
 W2 - Irrigated when 1.00" available water used.

Results;

Treatment	T.C.A.	Suc. %	T.S.A.
W0	49.3	16.61	3.18
W1	64.9	16.13	10.43
W2	64.6	16.19	10.48
S.E. single plot	± 7.90	± 1.15	± 0.94
L.S.D. (0.05)	5.42		0.64
(0.01)	7.32		0.87
C.V. %	13.2	7.0	9.7

Comments:

Composite samples from the 3 water treatments were taken for a period of 12 months for sucrose determinations. The results were as follows:

Catalogue No: 156
1st Ratoon

Date	Age (mths)	Sucrose per cent cane		
		W0	W1	W2
31/8/60	13	14.52	15.58	16.86
7/10	14	16.53	16.53	17.38
2/11	15	13.27	15.90	16.73
6/12	16	14.45	15.45	15.89
5/1/61	17	14.78	15.74	15.20
30/1	18	13.03	14.01	13.32
28/3	20	13.99	14.73	12.51
2/5	21	13.12	13.67	12.39
3/6	22	12.87	14.34	14.47
4/7	23	15.01	15.21	15.53
9/8	24	17.14	16.68	17.12
17/9/61	24½	16.61	16.13	16.19

17th May, 1966.

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This crop: 1st Ratoon
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Altitude: 300'
Soil series: Milkwood
Design: 3 x 2 x 3 NPK x 3 Irr.
Variety: N:Co.310
Fertilizer: N P K
 120 44 0
 200 88 166
 300 332
Water regime: W0 Dryland
 W1 Irrigated
 W2 Irrigated

Soil Analysis: No samples taken
Age: 24 months (8/59 - 9/61)
Rainfall:
Irrigation: Data not available.

Object: To compare three levels of water on a 3 x 2 x 3 factorial layout.

Treatments: K1 0 lb. K/ac.
 K2 166 lb. K/ac.
 K3 332 lb. K/ac.

Results:

Treatment	T.C.A.	Suc. %	T.S.A.
K1	54.7	16.20	8.86
K2	62.4	16.35	10.20
K3	61.7	16.26	10.03
S.E.	±7.90	-	±0.94
C.V.%	13.2	-	9.7
L.S.D. (.05)	5.42	-	0.64
(.01)	7.32	-	0.87

28th November, 1966.