

Effects of Nitrogen Fertilization and Seed Piece Applied Fungicides on Establishment, Tiller Dynamics and Sucrose Yields in Successively Planted Sugarcane

Supplemental Material

Table S1. Critical and optimum ranges for sugarcane leaf nutrient concentrations for TVD leaf (without mid veins) during June-July months.

Nutrient	Critical value	Optimum range
Macro-nutrients	-----g kg ⁻¹ -----	
Nitrogen (N)	18.0	20.0-26.0
Phosphorus (P)	1.9	2.2-3.0
Potassium (K)	9.0	10.0-16.0
Calcium (Ca)	2.0	2.0-4.5
Magnesium (Mg)	1.2	1.5-3.2
Micro-nutrients	-----mg kg ⁻¹ -----	
Iron (Fe)	-	50-105
Manganese (Mn)	-	12-100
Zinc (Zn)	15	16-32
Copper (Cu)	3	4-8

Source: [1,2]

Table S2. Main effects of nitrogen and fungicides on DRIS indices at different months in plant crop.

Main effects	Month	N	P	K	Ca	Mg	Fe	Mn	Zn	Cu	NBI
N ₀	Apr	10.55	3.54	-12.85	26.58	-16.16	3.09	-2.09	-5.11	-7.54	99.31
	May	9.13	0.15	-2.74	24.24	-13.36	0.97	-3.30	-9.30	-5.78	91.55
	June	-0.50	-1.27	-14.56	40.91	-11.10	1.47	-2.01	-7.78	-5.15	95.83
N ₅₀	Apr	10.72	1.75	-12.65	24.15	-14.57	2.01	-1.26	-5.86	-4.30	85.35
	May	9.65	1.48	-1.28	24.56	-11.13	-2.00	-4.58	-12.84	-3.86	90.35
	June	4.29	-0.84	-12.57	37.33	-13.30	2.05	-2.58	-8.65	-5.72	104.25
N ₁₀₀	Apr	8.25	1.61	-14.70	24.08	-13.53	3.43	-1.09	-4.44	-3.63	84.25
	May	5.62	-1.16	-5.13	26.18	-11.51	-2.04	-0.82	-3.10	-8.03	75.64
	June	4.35	0.02	-12.94	35.61	-10.75	2.31	-2.26	-8.72	-7.63	99.00
N ₅₀₊₅₀	Apr	10.58	4.31	-12.95	25.44	-11.72	0.18	-1.53	-5.78	-8.52	97.97
	May	6.80	1.67	-3.62	28.20	-12.51	0.77	-4.47	-11.89	-4.95	99.04
	June	2.86	-0.43	-15.10	38.01	-10.43	2.46	-2.53	-8.56	-6.26	97.15
Untreated	Apr	10.65	3.90	-12.84	24.71	-15.77	3.52	-1.73	-6.34	-6.10	94.47
	May	17.80	4.61	1.48	29.72	-12.19	1.33	-10.07	-28.73	-3.94	134.29
	June	1.77	0.16	-13.83	37.28	-13.12	2.94	-2.20	-7.81	-5.21	95.94
Mancozeb	Apr	9.99	1.92	-14.70	25.69	-14.46	0.77	-0.96	-3.89	-4.37	86.86
	May	7.80	-0.97	-2.90	20.11	-14.95	-0.93	-0.99	-2.57	-4.59	69.20
	June	2.31	0.52	-12.41	36.02	-12.36	3.22	-2.66	-8.77	-5.87	100.04
Mefenoxam	Apr	8.64	2.47	-10.99	24.86	-13.23	0.84	-1.80	-5.02	-5.76	93.20
	May	0.67	0.91	-4.11	25.29	-10.90	-1.70	-1.11	-3.11	-5.94	75.10
	June	5.99	-1.88	-14.65	35.05	-10.57	2.11	-2.03	-8.09	-5.93	95.96
Azoxystrobin	Apr	10.82	2.91	-14.62	24.99	-12.52	3.58	-1.47	-5.94	-7.76	92.36
	May	4.92	-2.40	-7.24	28.05	-10.47	-1.00	-1.00	-2.71	-8.14	78.00
	June	0.92	-1.33	-14.30	43.52	-9.54	0.02	-2.50	-9.04	-7.74	104.30

Table S3. Main effects of nitrogen on DRIS indices at different months in ratoon crops.

Nitrogen	Month	N	P	K	Ca	Mg	Fe	Mn	Zn	Cu	NBI
Ratoon crop 2016											
N ₀	May	31.85	-4.08	-11.65	40.73	-17.75	-13.95	0.00	-14.02	-11.14	145.16
	June	36.39	-10.23	-19.53	44.10	-16.36	-15.10	0.00	-11.10	-8.17	162.48
	July	24.94	1.34	3.47	16.45	-22.35	-2.99	0.00	-5.26	-15.59	93.69
N ₅₀	May	32.37	-0.11	-12.21	33.10	-16.21	-13.69	0.00	-11.31	-11.94	132.79
	June	52.43	-11.35	-12.61	33.68	-15.05	-17.31	0.00	-21.07	-8.71	173.59
	July	36.61	0.60	3.63	12.35	-28.17	-3.95	-0.69	-3.67	-16.71	112.46
N ₁₀₀	May	33.98	-2.82	-12.00	24.09	-14.78	-14.01	0.00	-13.01	-11.45	126.71
	June	32.25	-9.23	-11.77	29.02	-13.87	-12.75	0.00	-14.46	-9.19	112.54
	July	27.26	3.56	4.32	14.17	-15.36	-2.88	0.00	-4.59	-16.48	105.43
N ₅₀₊₅₀	May	33.44	3.27	-10.23	25.63	-12.12	-10.76	3.82	-13.69	-9.36	122.54
	June	35.84	-12.98	-20.77	22.55	-17.90	-13.57	0.00	-16.39	-6.79	136.78
	July	27.42	6.55	5.01	25.88	-16.54	0.62	2.00	-14.69	-6.25	104.96
Ratoon crop 2017											
N ₀	Apr	10.93	12.46	-3.03	31.87	-23.82	2.47	-5.91	-9.06	-15.92	137.37
	May	17.83	11.65	-17.45	27.77	-27.53	1.81	0.35	15.15	-29.56	153.66
	June	24.25	16.96	-18.72	29.96	-18.40	6.68	-1.90	4.00	-22.83	157.81
N ₅₀	Apr	19.02	20.79	-2.14	33.70	-24.35	4.90	-6.56	-12.29	-23.08	152.94
	May	28.87	24.33	-6.36	44.88	-26.94	15.46	-8.35	-6.91	-24.98	156.77
	June	19.76	18.63	-14.55	28.28	-22.00	1.99	-0.88	3.57	-34.79	155.32
N ₁₀₀	Apr	14.94	17.71	-13.78	37.74	-21.14	3.35	-4.34	-7.86	-16.63	108.38
	May	15.56	11.44	-18.98	35.47	-19.31	2.82	-2.76	6.50	-20.73	111.32
	June	15.14	11.97	-14.67	24.39	-18.31	2.98	-0.43	7.39	-18.46	99.99
N ₅₀₊₅₀	Apr	17.58	16.70	-5.89	39.79	-19.30	-1.79	-6.27	-7.51	-13.30	118.82
	May	12.04	5.22	-22.59	29.87	-15.85	10.66	0.00	11.91	-11.26	109.40
	June	12.65	12.08	-11.41	22.55	-19.19	3.02	0.58	5.06	-15.34	101.88

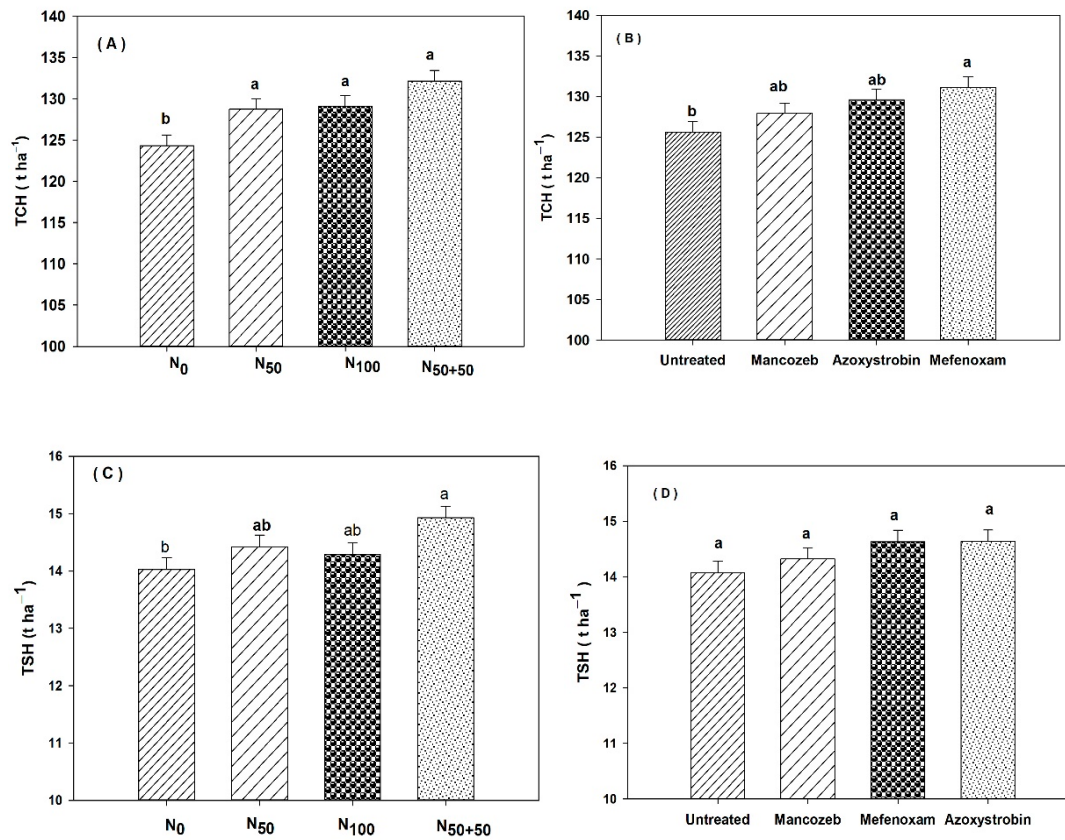


Figure S1. Overall effects of nitrogen fertilization and seed piece application of fungicides on Tons of cane per hectare (TCH) yields (A) Nitrogen fertilization (B) Fungicides; Tons of sucrose per hectare (TSH) yields (C) Nitrogen fertilization (D) Fungicides; Bars with different letters are significant according to Tukey HSD test at $P \leq 0.1$; Error bars represents standard error of the mean.

References

1. Anderson, D.; Bowen, J. *Sugarcane nutrition.*; Potash and Phosphate Institute, Atlanta, Georgia, USA., 1990;
2. McCray, J.; Ji, S.; Powell, G.; Montes, G.; Perdomo, R.; Luo, Y. Seasonal concentrations of leaf nutrients in Florida sugarcane. *Sugar Cane Int.* **2009**, *27*, 17–24.