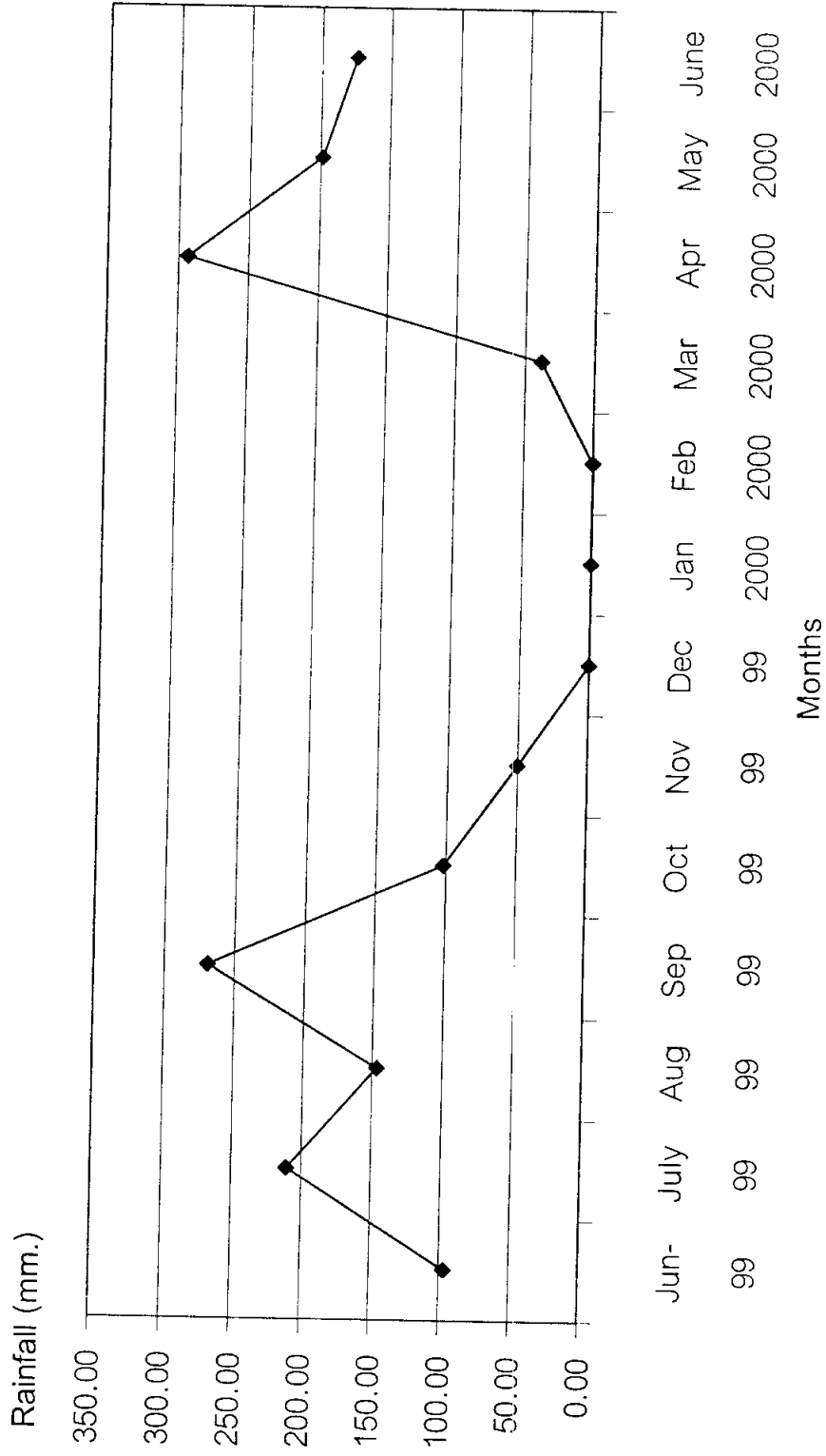


APPENDICES

Appendix 1: Monthly rainfall during June 1999 to June 2000



Appendix 2 Physical and chemical properties of soil before planting

Replication	Level below ground (cm.)	pH		EC soil:water 1:5 (mmhos/cm)	CEC	Organic matter %OM	Total N %N	Available P ppm	Exchangeable K ppm	Exchangeable Ca ppm	Mg ppm	Textural class
		Soil : water (1:2.5)	soil:water 1:5									
R1	0 - 15	5.89	0.04	12.84	0.87	0.04	1.09	73.95	162.40	90.88	Sandy loam	
	15 - 30	5.97	0.04	24.08	0.64	0.03	1.41	35.35	156.65	92.75	Sandy loam	
	30 - 60	5.74	0.05	23.27	0.47	0.02	0.91	49.20	164.15	81.13	Sandy clay loam	
	60 - 90	6.09	0.04	22.82	0.41	0.02	0.92	41.20	171.85	90.88	Sandy clay loam	
R2	0 - 15	5.68	0.04	12.13	0.96	0.05	2.33	35.25	153.55	131.75	Loam	
	15 - 30	5.95	0.03	17.52	0.61	0.03	1.70	38.60	170.00	66.13	Sandy clay loam	
	30 - 60	6.01	0.03	32.80	0.50	0.02	1.21	50.05	188.45	63.25	Sandy clay loam	
	60 - 90	6.10	0.03	29.76	0.44	0.02	1.22	38.25	159.80	71.00	Sandy clay loam	
R3	0 - 15	6.14	0.05	20.94	1.03	0.05	1.85	50.45	179.80	90.38	Sandy clay loam	
	15 - 30	6.50	0.07	26.80	0.84	0.04	1.14	45.85	192.00	123.25	Sandy clay loam	
	30 - 60	6.58	0.11	34.21	0.58	0.03	0.82	47.15	184.00	148.75	Sandy clay loam	
	60 - 90	7.90	0.09	31.40	0.45	0.02	0.86	49.30	182.45	190.75	Sandy clay loam	

Appendix 2 Physical and chemical properties of soil before planting (cont.)

Replication	Level below ground (cm.)	pH		EC soil:water 1:5 (mmhos/cm)	CEC (me/100g)	%OM	Total N %N	Available P ppm	Exchangeable K ppm	Exchangeable Ca ppm	Mg ppm	Textural class
		Soil : water (1:2.5)	Soil : water (1:2.5)									
R4	0 - 15	5.97	5.97	0.04	18.06	0.98	0.05	2.08	51.05	191.90	221.25	Sandy loam
	15 - 30	5.90	5.90	0.03	23.46	0.62	0.03	1.56	38.80	180.60	91.25	Sandy clay loam
	30 - 60	5.91	5.91	0.04	29.98	0.52	0.03	1.74	49.90	203.35	89.38	Sandy clay loam
	60 - 90	6.19	6.19	0.04	32.11	0.45	0.02	1.01	49.95	205.60	87.88	Sandy clay loam

Appendix 3 Analysis of variance on dry matter during three to ten months after planting

Source	df	Mean sum of squares								
		3	4	5	6	7	8	9	10	
Block	3	25,229**	7,162*	24,311 ^{ns}	22,908 ^{ns}	35,945 ^{ns}	46,835 ^{ns}	58,457 ^{ns}	133,343 ^{ns}	
Treatment	11	17,147**	39,981**	85,116**	146,859**	231,344**	316,773**	400,742**	477,080**	
V	2	7,478**	13,239**	41,250*	87,732**	151,216**	227,054**	303,768**	389,140**	
P	3	54,518**	132,307**	263,733**	430,270**	658,798**	879,622**	1,088,126*	1,235,206*	
V*P	6	1,684 ^{ns}	2,732 ^{ns}	10,430 ^{ns}	24,862 ^{ns}	44,326*	65,254*	89,375*	127,330 ^{ns}	
Error	33	1,874	2,002	11,140	7,841	13,062	15,839	26,704	59,490	
Total	47									
C.V.		24.65	15.45	22.78	14.28	15.03	13.84	15.15	19.15	

** significant at 1% level

* significant at 5% level

ns not significant at 5% level

Appendix 4 Analysis of variance on crop growth rate during three to ten months after planting

Source	df	Mean sum of squares						
		3-4	4-5	5-6	6-7	7-8	8-9	9-10
Block	3	22,065**	12,043 ^{ns}	164 ^{ns}	13,654 ^{ns}	8,133 ^{ns}	26,353 ^{ns}	51,210 ^{ns}
Treatment	11	13,752 ^{ns}	24,689 ^{ns}	21,633 ^{ns}	23,566 ^{ns}	16,869 ^{ns}	12,274 ^{ns}	11,191 ^{ns}
V	2	1,970 ^{ns}	26,155 ^{ns}	20,789 ^{ns}	21,007 ^{ns}	19,546 ^{ns}	13,289 ^{ns}	12,830 ^{ns}
P	3	44,795**	53,870 ^{ns}	48,816*	57,518 ^{ns}	38,334 ^{ns}	26,673 ^{ns}	11,666 ^{ns}
V*P	6	2,158 ^{ns}	9,610 ^{ns}	8,322 ^{ns}	7,442 ^{ns}	5,245 ^{ns}	4,735 ^{ns}	10,406 ^{ns}
Error	33	4,321	24,451	15,019	27,178	14,059	25,726	53,556
Total	47							
C.V.		37.45	10.99	50.76	76.55	51.77	61.36	77.29

** significant at 1% level

* significant at 5% level

ns not significant at 5% level

Appendix 5 Analysis of variance on leaf area index during three to ten months after planting

Source	df	Mean sum of squares							
		3	4	5	6	7	8	9	10
Block	3	1.22**	0.35 ^{ns}	1.27**	0.62**	1.05**	0.29 ^{ns}	0.07 ^{ns}	0.12 ^{ns}
Treatment	11	0.79**	1.37**	1.18*	0.87**	0.58*	0.49 ^{ns}	0.46 ^{ns}	0.41 ^{ns}
V	2	0.38*	0.96**	0.30 ^{ns}	0.33 ^{ns}	0.36 ^{ns}	0.16 ^{ns}	0.10 ^{ns}	0.49 ^{ns}
P	3	2.51**	4.15**	3.48**	2.47**	1.75**	1.52**	1.32**	0.82 ^{ns}
V*P	6	0.07 ^{ns}	0.11 ^{ns}	0.33 ^{ns}	0.25 ^{ns}	0.07 ^{ns}	0.08 ^{ns}	0.15 ^{ns}	0.18 ^{ns}
Error	33	0.10	0.17	0.30	0.15	0.16	0.25	0.21	0.43
Total	47								
C.V.		26.29	25.18	28.09	20.08	20.34	21.50	19.31	22.33

** significant at 1% level

* significant at 5% level

ns not significant at 5% level

Appendix 6 Analysis of variance on leaf area duration during three to ten months after planting

Source	df	Mean sum of squares						
		3-4	4-5	5-6	6-7	7-8	8-9	9-10
Block	3	0.19**	0.31**	0.33**	0.34**	0.20*	0.05 ^{ns}	0.03 ^{ns}
Treatment	11	0.44**	0.52**	0.43**	0.29**	0.21*	0.19 ^{ns}	0.18 ^{ns}
V	2	0.24**	0.23*	0.12 ^{ns}	0.11 ^{ns}	0.05 ^{ns}	0.05 ^{ns}	0.11 ^{ns}
P	3	1.38**	1.61**	1.25**	0.88**	0.69**	0.60**	0.44**
V*P	6	0.03 ^{ns}	0.08 ^{ns}	0.12 ^{ns}	0.06 ^{ns}	0.02 ^{ns}	0.04 ^{ns}	0.07 ^{ns}
Error	33	0.04	0.07	0.07	0.05	0.06	0.06	0.10
Total	47							
C.V.		22.17	23.37	20.73	16.94	17.57	15.99	18.37

** significant at 1% level

* significant at 5% level

ns not significant at 5% level

Appendix 7 Analysis of variance on net assimilation rate during three to ten months after planting

Source	df	Mean sum of squares						
		3-4	4-5	5-6	6-7	7-8	8-9	9-10
Block	3	25,685**	7,526 ^{ns}	13,357 ^{ns}	2,681 ^{ns}	1,900 ^{ns}	4,695 ^{ns}	6,457 ^{ns}
Treatment	11	4,507 ^{ns}	13,464 ^{ns}	5,591 ^{ns}	2,600 ^{ns}	1,917 ^{ns}	1,552 ^{ns}	980 ^{ns}
V	2	8,090 ^{ns}	29,291*	13,552 ^{ns}	6,617 ^{ns}	7,062 ^{ns}	3,963 ^{ns}	3,097 ^{ns}
P	3	7,078 ^{ns}	19,852 ^{ns}	5,370 ^{ns}	2,784 ^{ns}	1,136 ^{ns}	926 ^{ns}	88 ^{ns}
V*P	6	2,027 ^{ns}	4,994 ^{ns}	3,047 ^{ns}	1,169 ^{ns}	593 ^{ns}	1,062 ^{ns}	719 ^{ns}
Error	33	3,850	7,678	9,496	5,213	2,872	5,164	6,812
Total	47							
C.V.		43.18	52.92	68.57	66.67	49.79	63.29	73.38

** significant at 1% level

* significant at 5% level

ns not significant at 5% level

Appendix 8 Analysis of variance on sucrose accumulation during six to ten months after planting

Source	df	Mean sum of squares				
		6	7	8	9	10
Block	3	0.63 ^{ns}	3.92 ^{ns}	1.76 ^{ns}	6.98*	1.15 ^{ns}
Treatment	11	3.90 ^{ns}	6.30 ^{ns}	6.16 ^{ns}	6.76*	9.37*
V	2	11.41**	24.66**	21.69**	20.08**	34.08**
P	3	5.72**	4.16 ^{ns}	4.78 ^{ns}	9.08**	6.63 ^{ns}
V*P	6	0.49 ^{ns}	1.25 ^{ns}	1.67 ^{ns}	1.16 ^{ns}	2.51 ^{ns}
Error	33	1.38	1.88	1.84	1.81	2.56
Total	47					
C.V.		14.64	15.60	14.74	13.87	19.82

** significant at 1% level

* significant at 5% level

ns not significant at 5% level

Appendix 9 Analysis of variance on phosphate in juice during six to ten months after planting

Source	df	Mean sum of squares				
		6	7	8	9	10
Block	3	20,744**	9,993**	28,372**	11,257**	31,288**
Treatment	11	8,207 ^{ns}	4,010 ^{ns}	2,388 ^{ns}	3,652 ^{ns}	2,889 ^{ns}
V	2	4,453 ^{ns}	4,144*	9,025**	2,416**	1,642 ^{ns}
P	3	25,844**	10,874**	1,939 ^{ns}	10,117 ^{ns}	6,528 ^{ns}
V*P	6	640 ^{ns}	534 ^{ns}	400 ^{ns}	832 ^{ns}	1,485 ^{ns}
Error	33	2,605	1,382	716	2,283	2,205
Total	47					
C.V.		19.05	12.41	10.39	17.16	16.37

** significant at 1% level

* significant at 5% level

ns not significant at 5% level

Appendix 10 Analysis of variance on tillering during three to ten months after planting

Source	df	Mean sum of squares								
		3	4	5	6	7	8	9	10	
Block	3	1.91 ^{ns}	1.34 ^{ns}	1.20 ^{ns}	0.12 ^{ns}	0.56 ^{ns}	1.13 ^{**}	1.13 ^{ns}	2.98 ^{**}	
Treatment	11	8.20 ^{**}	4.23 ^{**}	2.30 [*]	0.69 ^{ns}	0.49 ^{ns}	0.64 ^{ns}	1.20 ^{ns}	3.12 ^{**}	
V	2	2.91 ^{ns}	2.03 [*]	2.14 ^{**}	0.70 ^{ns}	0.56 ^{ns}	1.35 [*]	4.73 ^{**}	13.65 ^{**}	
P	3	26.08 ^{**}	13.46 ^{**}	5.81 ^{**}	0.70 ^{ns}	0.08 ^{ns}	0.83 [*]	1.01 ^{ns}	1.57 ^{**}	
V*P	6	1.03 ^{ns}	0.35 ^{ns}	0.60 ^{ns}	0.68 ^{ns}	0.66 ^{ns}	0.30 ^{ns}	0.12 ^{ns}	0.38 ^{ns}	
Error	33	1.37	0.60	0.53	0.43	0.29	0.24	0.45	0.32	
Total	47									
C.V.		24.57	16.95	16.76	16.06	19.05	11.64	15.04	10.99	

** significant at 1% level

* significant at 5% level

ns not significant at 5% level

Appendix 11 Analysis of variance on stalk height during three to ten months after planting

Source	df	Mean sum of squares								
		3	4	5	6	7	8	9	10	
Block	3	129.49 ^{ns}	288.92 ^{ns}	520.93*	830.99**	1,134.51**	1,346.64**	1,378.69**	1,472.83**	
Treatment	11	2,604.89**	3,689.85**	4,588.87**	5,326.82**	5,941.95**	6,415.83**	6,588.49**	7,044.42**	
V	2	5,223.75**	7,359.91**	9,663.94**	11,884.80**	13,728.52**	15,050.72**	17,202.33**	18,848.98**	
P	3	5,288.72**	7,692.02**	9,273.50**	10,417.06**	11,392.07**	12,161.43**	11,352.88**	11,469.80**	
V*P	6	390.02*	465.41**	554.86*	595.70*	621.36*	664.73 ^{ns}	668.35 ^{ns}	896.88*	
Error	33	90.50	105.42	135.18	153.34	182.60	215.92	231.28	267.21	
Total	47									
C.V.		12.14	10.45	10.37	10.10	10.34	10.70	10.53	10.26	

** significant at 1% level

* significant at 5% level

ns not significant at 5% level

Appendix 12 Analysis of variance on phosphorus in index leaf during one to ten months after planting

Source	df	Mean sum of squares									
		1	2	3	4	5	6	7	8	9	10
Block	3	0.00076 ^{ns}	0.00233 ^{ns}	0.00059 ^{ns}	0.00255 ^{**}	0.00164 ^{**}	0.00101 ^{**}	0.00137 ^{**}	0.00083 ^{ns}	0.00028 ^{ns}	0.00004 ^{ns}
Treatment	11	0.02172 ^{**}	0.01120 ^{**}	0.00191 [*]	0.00185 [*]	0.00106 [*]	0.00026 ^{ns}	0.00071 ^{ns}	0.00045 ^{ns}	0.00072 [*]	0.00171 ^{**}
V	2	0.00018 ^{ns}	0.00051 ^{ns}	0.00304 ^{**}	0.00348 ^{**}	0.00077 ^{ns}	0.00054 ^{ns}	0.00003 ^{ns}	0.00077 ^{ns}	0.00151 ^{**}	0.00315 ^{**}
P	3	0.07603 ^{**}	0.03766 ^{**}	0.00303 ^{**}	0.00199 ^{**}	0.00226 ^{**}	0.00041 ^{ns}	0.00164 ^{**}	0.00078 ^{ns}	0.00126 ^{**}	0.00332 ^{**}
V*P	6	0.00175 ^{ns}	0.00153 ^{ns}	0.00098 ^{ns}	0.00123 ^{ns}	0.00055 ^{ns}	0.00009 ^{ns}	0.00047 ^{ns}	0.00018 ^{ns}	0.00019 ^{ns}	0.00042 [*]
Error	33	0.00165	0.00146	0.00046	0.00043	0.00028	0.00020	0.00029	0.00034	0.00018	0.00012
Total	47										
C.V.		17.09	19.02	12.79	12.80	10.99	11.63	12.47	13.48	10.19	8.99

** significant at 1% level

* significant at 5% level

ns not significant at 5% level

Appendix 13 Analysis of variance on yield, yield components, harvest index of cane and sugar yields at harvesting

Source	df	Mean sum of squares							
		Yield	No. of stalk	Stalk weight	CCS	Sugar yield	Harvest index of yield	Harvest index of sugar yield	
Block	3	3.79 ^{ns}	1,011,486.85 ^{ns}	0.04 ^{ns}	2.05 ^{ns}	39,122.27 ^{ns}	0.001 ^{ns}	0.01 ^{ns}	
Treatment	11	16.84 ^{**}	2,745,392.32 ^{ns}	0.13 ^{**}	9.22 ^{**}	261,121.10 ^{**}	0.019 ^{**}	0.08 ^{**}	
	2	21.84 ^{**}	8,116,695.25 ^{**}	0.12 ^{**}	32.30 ^{**}	662,195.34 ^{**}	0.083 ^{**}	0.31 ^{**}	
	3	42.52 ^{**}	4,561,251.52 ^{**}	0.35 ^{**}	4.07 ^{**}	380,517.80 ^{**}	0.014 ^{**}	0.05 ^{**}	
V*P	6	2.34 ^{ns}	47,028.42 ^{ns}	0.03 ^{ns}	4.11 [*]	67,731.33 [*]	0.001 ^{ns}	0.02 ^{ns}	
Error	33	1.59	954,738.01	0.02	0.95	16,485.99	0.003	0.01	
Total	47								
C.V.		16.82	11.50	14.15	13.46	22.61	8.67	23.06	

** significant at 1% level

* significant at 5% level

ns not significant at 5% level

Appendix 14 Analysis of variance on nutrients in various sugarcane parts at harvesting

Source	df	K						N						P					
		Stalk	Leaf sheath	Green leaf	Dry leaf	Stalk	Leaf sheath	Green leaf	Dry leaf	Stalk	Leaf sheath	Green leaf	Dry leaf	Stalk	Leaf sheath	Green leaf	Dry leaf		
Block	3	0.02 ^{ns}	0.001 ^{ns}	0.01 ^{ns}	0.006 ^{ns}	0.0008 ^{ns}	0.010 [*]	0.044 [*]	0.008 [*]	0.00042 ^{**}	0.0004 ^{ns}	0.0001 ^{ns}	0.00073 ^{**}						
Treatment	11	0.01 ^{ns}	0.003 ^{ns}	0.01 ^{ns}	0.004 ^{ns}	0.0003 ^{ns}	0.006 ^{ns}	0.022 ^{ns}	0.005 ^{ns}	0.00013 ^{ns}	0.0005 ^{ns}	0.0017 [*]	0.00018 ^{ns}						
V	2	0.03 [*]	0.000 ^{ns}	0.03 ^{**}	0.013 [*]	0.0005 ^{ns}	0.030 ^{**}	0.115 ^{**}	0.020 ^{**}	0.00060 ^{**}	0.0003 ^{ns}	0.0024 ^{**}	0.00079 ^{**}						
P	3	0.00 ^{ns}	0.002 ^{ns}	0.01 ^{ns}	0.001 ^{ns}	0.0002 ^{ns}	0.002 ^{ns}	0.002 ^{ns}	0.001 ^{ns}	0.00002 ^{ns}	0.0014 ^{**}	0.0043 ^{**}	0.00007 ^{ns}						
V*P	6	0.00 ^{ns}	0.004 ^{ns}	0.00 ^{ns}	0.002 ^{ns}	0.0003 ^{ns}	0.001 ^{ns}	0.001 ^{ns}	0.003 ^{ns}	0.00002 ^{ns}	0.0001 ^{ns}	0.0001 ^{ns}	0.00003 ^{ns}						
Error	33	0.01	0.002	0.01	0.004	0.0018	0.003	0.012	0.002	0.00007	0.0002	0.0005	0.00011						
Total	47																		
C.V.		17.96	6.39	8.16	17.27	21.02	11.30	13.04	12.67	58.31	17.68	21.19	26.47						

** significant at 1% level

* significant at 5% level

ns not significant at 5% level