ANNUAL REPORT OF AICRP (S) FOR THE YEAR 2011-2012

Sugarcane Research Station, Cuddalore (East Coast Zone)

Discipline: Agronomy

1. Serial No. and Title

AS 42. Agronomic evaluation of promising sugarcane genotypes

2. Location

Sugarcane Research Station, Cuddalore

3. Objective

To workout the Agronomy of sugarcane genotypes of Advanced Varietal Trials (AVT)

4. Details of technical programme

Place of the technical project	:	Sugarcane Research Station, Cuddalore
Irrigated / Rainfed	:	Irrigated
Design	:	RBD
Replications	:	Three
Treatments:		
i. Seasons	:	(Two) 1. Spring (Early) 2. Autumn (Special)
ii. Genotypes	:	(Three) C20038, C260628 and C260764
iii. Varieties	:	(Two) CoC 23 and Co 86032
iv. Levels of fertilizers	:	Three (75, 100 and 125 % of recommended N)

5. Technical summary of the project

The second year experiments on agronomic evaluation of promising sugarcane genotypes were conducted during spring and autumn seasons of 2011-2012. In both the seasons, this experiment was conducted with three elite AVT sugarcane genotypes viz., C20038, C260628 and C260764 in comparison with the standards CoC 23 and Co 86032 under three levels of N fertilization viz., 75, 100 and 125 per cent of recommended dose.

The experiment was conducted at Sugarcane Research Station, Cuddalore and soil of the experimental sites was sandy clay loam with pH of 6.8 and 7.2 in the respective experimental field. The initial nutrient status of the experimental soil in the first site was low

in available nitrogen (87.5 kg ha^{-1}), medium in phosphorus (45 kg ha^{-1}) and high in potassium (313 kg ha^{-1}). The second site soil was also low in available nitrogen (190 kg ha^{-1}), medium in phosphorus (28 kg ha^{-1}) and high in potassium (238 kg ha^{-1}). The field trials were laid out in randomized block design with three replications. The recommended dose of P and K for east coast zone was 63:113 kg ha^{-1} respectively. The entire dose of phosphorus was applied in basal and the potassium was applied in equal three splits along with nitrogen 206 kg ha^{-1} (75 %), 275 kg ha^{-1} (100 %) and 344 kg ha^{-1}ha (125 %). The documented data on varied growth, yield and quality parameters for the respective cropping seasons are presented in Tables1& and 2.

Among the genotype C 260628 significantly recorded the maximum tiller (1,86,800 ha^{-1} and 1,73,700 ha^{-1}), millable cane population (1,25,900 ha^{-1} and 1,23,700 ha^{-1}) and individual cane weight (1.39 kg and 1.42 kg) in the respective seasons. The same entry C260628 significantly registered the maximum cane yield of 130.7 and 131.3 t ha^{-1} respectively in spring and autumn season and it was comparable with the clone C20038 with a cane yield of 126.9 t ha^{-1} in spring season and 124.6 t ha^{-1} in autumn season. The standard Co 86032 and the clone C 260764 recorded the lowest cane yield of 114.6 and 118.4 t ha^{-1} in spring and 121.4 and 116.4 t ha^{-1} in autumn season respectively. Regarding the juice quality, the sugarcane variety Co 86032 significantly registered the highest commercial cane sugar (CCS) of 13.55 and 13.09 per cent and was on par with the genotype C 260628 with 13.33 and 12.95 per cent in spring and autumn seasons respectively. Among the levels of nitrogen, the prescription of 125 per cent (344 kg ha^{-1}) of the recommended dose of N significantly registered higher values of yield components, cane and sugar yield compared to 75 and 100 per cent of recommended dose of nitrogen which recorded tillers of 1,88,900 ha^{-1}, millable cane population of 1,26,500 ha^{-1}, individual cane weight of 1.28 kg and cane yield of 129.4 t ha^{-1} in spring season. In the autumn season the same treatment registered significantly the maximum of tillers of 1,59,700 ha^{-1}, millable cane population of 1,20,900 ha^{-1}, individual cane weight of 1.25 kg and cane yield of 130.9 t ha^{-1}. Regarding commercial cane sugar does not show significant differences among the treatments in both seasons. The data on sugar yield indicated that 125 per cent nitrogen application resulted significantly maximum of 15.88 t ha^{-1} in spring season and 16.23 t ha^{-1} in autumn season and was on par with the 100 percent nitrogen application with 15.05 and 15.38 t ha^{-1} in the respective seasons.

Table -1 Performance of sugarcane genotypes under varied levels of N (Spring season) – (2011-12)

Treatments	Tillers ('000 ha^{1})	Millable canes ('000 ha^{-1})	Individual cane weight (kg)	Cane yield (t ha^{-1})	CCS (%)	Sugar yield (t ha^{-1})
Genotypes						
C 20038	181.6	119.6	1.32	126.9	11.78	14.96
C 260628	186.8	125.9	1.39	130.7	12.23	15.98
C 260764	162.5	116.2	1.04	118.4	10.87	12.87
Co 86032	165.3	114.6	1.12	114.6	12.43	14.25
CoC 23	185.9	122.4	1.23	121.2	10.78	13.07
CD (p=0.05)	5.38	7.05	0.07	8.20	0.67	1.23
N Levels						
75% RD N	162.9	109.7	1.15	111.8	11.63	13.01
100% RD N	177.5	123.1	1.24	125.9	11.95	15.05
125% RD N	188.9	126.5	1.28	129.4	12.27	15.88
CD (p=0.05)	12.00	8.22	0.09	9.32	NS	1.46

Table -2 Performance of sugarcane genotypes under varied levels of N (Autumn season) – (2011-12)

Treatments	Tillers ('000 ha^{1})	Millable canes ('000 ha^{-1})	Individual cane weight (kg)	Cane yield (t ha^{-1})	CCS (%)	Sugar yield (t ha^{-1})
Genotypes						
C 20038	152.9	115.7	1.14	124.6	11.86	14.77
C 260628	173.7	123.7	1.42	131.3	12.34	16.20
C 260764	157.3	108.6	1.09	116.4	10.87	12.65
Co 86032	143.3	110.6	1.15	121.4	12.47	15.13
CoC 23	160.4	113.7	1.21	126.4	11.12	14.05
CD (p=0.05)	9.25	7.08	0.06	7.18	0.71	0.85
N Levels						
75% RD N	144.4	104.8	1.15	113.5	11.74	13.33
100% RD N	158.7	117.7	1.21	127.5	12.06	15.38
125% RD N	159.7	120.9	1.25	130.9	12.39	16.23
CD (p=0.05)	11.26	9.62	0.08	8.21	NS	1.02

1.Serial No. and Title

AS 61. Optimizing irrigation schedule in sugarcane under different planting methods

2.Location

Sugarcane Research Station, Cuddalore

3.Objective

To enhance water use efficiency and crop productivity in sugarcane

4.Details of Technical programme

Place of the technical project: Sugarcane Research Station, Cuddalore

Irrigated / Rainfed **:** Irrigated

Design **:** Strip plot

Replications **:** Three

Treatments

A. Planting methods

1. Conventional planting (at 90 cm row spacing)
2. Paired row planting (at 30:150 cm row spacing)
3. Paired row cum trench planting (at 30:150 cm row spacing)

B. Irrigation schedule (IW/CPE ratio)

1. IW/CPE ratio 0.6
2. IW/CPE ratio 0.9
3. IW/CPE ratio 1.2

Note: IW = 8.0 cm

5. Technical summary of the project

As per the AICRP technical programme, the second year experiment was laidout during 2011-12 cropping season in strip plot design with three replications. In main plot different types of sugarcane planting systems *viz*,. P_1- Conventional planting with 90 cm row spacing, P_2- Paired row planting (150:30cm) and P_3 - Paired row cum trench planting (150:30cm) were allocated. In sub plot varied irrigation regimes viz., IW/CPE ratio of 0.6, 0.9 and 1.2 were accommodated. The variety CoC 24 was selected as test crop. All the recommended package of practices were adopted uniformly in all the plots. The bio metric data on varied bio metrics are presented in Table 1 and soil phsico chemical characteristics are presented in table 2. The initial soil studies were taken up and the experimental soil recorded available nitrogen 195 kg ha^{-1}, available phosphorus 35 kg ha^{-1} and available potassium 163 kg ha^{-1}. The texture of the soil was clay loam with bulk density 1.38 g cm^3,

infiltration rate 1.27 cm hr^{-1}, field capacity 28.32 per cent and permanent wilting point 11.43 per cent. The observation on water application was also recorded; the number of irrigation was 22 in IW/CPE 0.6, 33 in IW/CPE 0.9 and 44 in IW/CPE 1.2. Total water applied in this experiment measured 110 cm in IW/CPE 0.6, 164 cm in IW/CPE 0.9 and 220 cm in IW/CPE 1.2. The irrigation interval was recorded 17, 11 and 8 days in IW/CPE 0.6, IW/CPE 0.9 and IW/CPE 1.2 respectively.

Result revealed that regarding systems of planting, the paired row trench planting with 150:30 cm spacing significantly registered the maximum tiller population (1,81,600 ha^{-1}), millable cane (1,24,300 ha^{-1}), cane length (278.21 cm), individual cane weight (1.34 kg), cane yield (138.6 t ha^{-1}) and sugar yield (17.27 t ha^{-1}) and was on par with paired row planting with 150:30 cm spacing which recorded tiller population 1,731,300 ha^{-1}, millable cane 1,18,300 ha^{-1}, cane length 272.34 cm, individual cane weight 1.28 kg, cane yield 132.5 t ha^{-1} and sugar yield 16.18 t ha^{-1}. The data on commercial cane sugar does not showed significant results. The water use efficiency was recorded maximum in paired row cum trench method of planting with 0.90. The data on soil physico chemical characteristics at harvest showed that the paired row cum trench method of planting recorded bulk density 1.50 g cm^3, infiltration rate 1.84 cm hr^{-1}, field capacity 30.25 per cent, permanent wilting point 12.29 per cent, organic carbon 0.44 per cent, electrical conductivity 0.72 ds m^{-1} and pH 7.62. The available nitrogen at harvest was recorded 202 kg ha^{-1}, available phosphorus 45 kg ha^{-1} and available potassium 184 kg ha^{-1}.

The result indicated with regard to varied irrigation regimes, scheduling of irrigation water under 1.2 IW/CPE ratio significantly registered the maximum millable cane (1,22,700 ha^{-1}), cane length (276.69 cm), individual cane weight (1.31 kg), cane yield (136.8 t ha^{-1}) and sugar yield (16.81 t ha^{-1}) and was comparable with 0.9 IW/CPE ratio which recorded millable cane 1,19,200 ha^{-1}, cane length 272.08 cm, individual cane weight 1.29 kg, cane yield 132.6 t ha^{-1} and sugar yield 16.28 t ha^{-1}. The data on germination, tiller population and commercial cane sugar does not showed significant results. The water use efficiency was recorded significantly the maximum in 0.6 IW/CPE ratio with 1.17. The soil physico chemical characteristics at harvest indicated that IW/CPE ratio 1.2 recorded bulk density 1.42 g cm^3, infiltration rate 1.89 cm hr^{-1}, field capacity 32.25 per cent, permanent wilting point 12.75 per cent, organic carbon 0.494 per cent, electrical conductivity 0.75 ds m^{-1} and pH 7.58. Available nitrogen, phosphorus and potassium at harvest were recorded 208, 46 and 188 kg ha^{-1} respectively.

Table 1: Effect of planting systems and irrigation regimes on growth, yield characteristics and juice quality of sugarcane (2011 – 12)

Treatments	Germination (%) 35 DAP	Tiller population ('000/ha) 90 DAP	Millable cane population ('000/ha)	Individual cane weight (kg)	Cane length (cm)	Cane yield (t/ha)	CCS (%)	Sugar yield (t/ha)	Water Use Efficiency
A. Planting systems									
P1 – 90 cm row spacing	81.3	168.40	114.70	1.21	265.32	126.5	12.14	15.36	0.83
P2 – Paired row (150:30)	84.2	173.30	118.30	1.28	272.34	132.5	12.21	16.18	0.86
P3 – Paired cum trench (150:30)	87.2	181.60	124.30	1.34	278.21	138.6	12.46	17.27	0.90
CD (P=0.05)	5.50	8.41	7.52	0.11	11.26	8.76	NS	1.29	NS
B. Irrigation regimes									
I1 – 0.6 IW/CPE	83.2	170.90	115.5	1.23	267.10	128.2	12.16	15.72	1.17
I2 – 0.9 IW/CPE	84.3	174.50	119.2	1.29	272.08	132.6	12.27	16.28	0.80
I3 – 1.2 IW/CPE	85.3	177.90	122.7	1.31	276.69	136.8	12.38	16.81	0.63
CD (P=0.05)	NS	NS	6.59	0.07	15.04	7.33	NS	0.90	0.046

Table -2: Effect of planting systems and irrigation regimes on soil physico chemical characteristics

Treatments	Bulk density (g/cm^3) (0-30cm)		Infiltration rate ($cm\ hr^{-1}$)		Field Capacity (%)		Permanent Wilting Point (%)		Organic carbon (%)		Electrical conductivity ($ds\ m^{-1}$)		pH		Available soil nutrients ($kg\ ha^{-1}$)					
															Nitrogen		Phosphorus		Potassium	
	In.	Har.	In.	Har.	In.	Har.	In.	Har.	In.	Har.	In.	Har.	In.	Har.	In.	Har	In.	Har.	In.	Har.
A. Planting systems																				
P1 – 90 cm row spacing	1.38	1.43	1.27	1.55	28.32	29.12	11.43	12.22	0.41	0.42	0.85	0.73	7.10	7.71	195	198	35	41	163	171
P2 – Paired row (150:30)	1.39	1.48	1.28	1.65	28.53	29.23	11.45	12.26	0.43	0.45	0.82	0.71	7.68	7.64	196	200	36	42	178	185
P3 – Paired cum trench (150:30)	1.42	1.50	1.29	1.82	28.65	30.25	11.46	12.29	0.42	0.44	0.83	0.72	7.68	7.62	193	202	36	45	178	184
B. Irrigation regimes																				
I1 – 0.6 IW/CPE	1.32	1.35	1.28	1.59	28.53	29.21	11.48	12.23	0.44	0.48	0.84	0.80	7.68	7.63	199	201	35	42	172	178
I2 – 0.9 IW/CPE	1.33	1.38	1.28	1.69	28.58	30.12	11.49	12.56	0.46	0.49	0.85	0.78	7.62	7.60	198	205	34	44	174	180
I3 – 1.2 IW/CPE	1.35	1.42	1.32	1.89	28.63	32.25	11.52	12.75	0.47	0.49	0.83	0.75	7.61	7.58	197	208	36	46	178	188

In. – Initial
Har. - Harvest

1. Serial No. and Title:

AS. 62. Management of binding weeds in Sugarcane crop

2. Location:

Sugarcane Research Station, Cuddalore

3. Objective:

To control binding weeds in Sugarcane

4. Details of technical programme:

Place of the technical project : Sugarcane Research Station, Cuddalore

Irrigated / Rainfed	: Irrigated
Design	: RBD
Replication	: Three
Treatments	: 10
Variety	: CoC 24

5. Technical summary of the project:

As per the technical programme the third year plant crop was raised during 2011-2012 cropping season in randomized block design, replicated three times. The predominant weed flora observed in the experimental site were *Cardiospermum helicacabum, Convolvulus arvensis, Ipomea sepiaria, Merrimia emerginata, Rinchosia minima, Cyperus rotundus, Cyndon dactylon, Digitaria sanquinails, Amaranthus viridis, Trianthema portulacastrum, Convolvulus arvensis, Euphorbia hirta, Tridax procumbens, Acalypha indica* and *Gynandropsis pentaphylla*, etc. The treatments include pre–emergence application of herbicides viz., Atrazine and Metribuzine in combination with the post emergence herbicides viz., 2,4-D sodium salt, Ethoxysulphuron, Almix and Dicamba. The Variety CoC (SC) 24 was selected as test crop. All other recommended crop management practices were adopted. The data recorded varied weed characteristics, growth, yield and quality parameters of sugarcane are presented in Tables 1&2.

A significant difference in germination per cent on 35 DAP was not observed with regard to varied weed management treatments. The pre-emergence application of Atrazine @ 2.0 kg a.i. ha^{-1} one hoeing on 30 DAP followed by 2,4-D @ 1.0 kg a.i. on 75 DAP (T_4) registered the maximum tillers of 1,89,600 ha^{-1} and was on par with the treatments T_2, T_5 and T_6. The same treatment (T_4) significantly resulted with highest millable cane population (1,24,400 ha^{-1}), individual cane weight (1.36 kg) and cane yield (144.3 ha^{-1}). However, it was on par with the treatments viz., pre-emergence application of Metribuzine @ 1.25 kg a.i. ha^{-1} + 2,4 – D sodium salt @1.0 kg a.i./ha on 75 DAP (T_5), and pre –emergence application of Atrazine @ 2.0 kg a.i. ha^{-1} + post – emergence application of 2,4-D sodium salt @ 1.0 kg a.i. ha^{-1} on 60 DAP (T_3). The pre-emergence application of Atrazine @ 2.0 kg a.i. ha^{-1} one hoeing on 30 DAP followed by 2,4-D @ 1.0 kg a.i. on 75 DAP (T_4) registered the maximum weed control efficiency of 83.14 per cent and resulted higher sugar yield of 17.65 t ha^{-1} and was on par with three hand hoeings on 30, 60 and 90 DAP (T_2) which recorded lowest weed count (90 m^2), weed dry matter production (36 g m^2) and highest weed control efficiency (82.95).

Table 1. Effect of binding weed control treatments on weed characteristics (2011-12)

Treatments	Weed No/m^2 120 DAP	Weed dry weight (g)	Weed flora/m^2 (120 DAP)				Weed Control Efficiency (%)
			Sedges	Monocots	Dicots	Creepers	
T1 – Control	528	169	304	126	59	26	-
T2 – Hoeing on 30, 60, 90 DAP	90	29	36	46	14	18	82.95
T3 – Atrazine 2kg a.i/ha + 2, 4D 1 kg a.i/ha on 60 DAP	116	37	82	35	10	9	78.03
T4 – Atrazine 2 kg a.i/ha on 3DAP + Hoeing 30 DAP + 2, 4D 1 kg a.i/ha on 75 DAP	89	29	73	34	5	3	83.14
T5 – Metribuzine 1.25 kg a.i/ha + 2,4D on 75 DAP	114	37	79	32	12	7	78.41
T6 – Atrazine 2kg a.i/ha + Almix 20g/ha on 75 DAP	152	49	85	41	11	11	71.21
T7 – Metribuzine 1.25kg a.i/ha + Almix on 75 DAP	168	54	78	38	21	13	68.18
T8 – Atrazine 2kg a.i/ha + Ethoxysulfuron 50g a.i/ha on 75 DAP	198	63	86	46	38	15	62.50
T9 – Atrazine 2 kg a.i/ha + Dicamba 350g a.i/ha on75 DAP	173	55	93	42	32	10	67.23
T10 – Metribuzine 1.25kg a.i/ha + Dicamba on 75 DAP	206	66	82	40	41	14	60.98
CD (P=0.05)	9.8	5.6	6.2	2.5	1.9	0.9	4.1.5

Table 2. Effect of binding weed control treatments on growth, yield parameters, cane and juice quality of sugarcane

Treatment	Tillers ('000/ha) 90 DAP	Econom shoots (210 DAP)	Millable canes ('000/ha)	Cane yield (t/ha)	Indi. Cane Wt. (kg)	CCS (%)	Sugar Yield (t/ha)
T1 – Control	128.6	94.4	76.4	67.4	0.87	11.36	7.65
T2 – Hoeing on 30, 60, 90 DAP	185.8	160.2	123.7	143.6	1.34	12.22	16.55
T3 – Atrazine 2kg a.i/ha + 2, 4D 1 kg a.i/ha on 60 DAP	172.4	151.9	120.4	136.5	1.26	12.12	16.55
T4 – Atrazine 2 kg a.i/ha on 3DAP + Hoeing 30 DAP + 2, 4D 1 kg a.i/ha on 75 DAP	189.6	158.9	124.4	144.3	1.36	12.23	17.65
T5 – Metribuzine 1.25 kg a.i/ha + 2,4D on 75 DAP	185.9	153.7	122.6	138.6	1.28	12.13	16.82
T6 – Atrazine 2kg a.i/ha + Almix 20g/ha on 75 DAP	178.7	145.2	112.3	125.4	1.12	11.98	15.02
T7 – Metribuzine 1.25kg a.i/ha + Almix on 75 DAP	172.4	147.4	116.4	128.6	1.20	11.86	15.26
T8 – Atrazine 2kg a.i/ha + Ethoxysulfuron 50g a.i/ha on 75 DAP	165.3	135.2	104.9	119.7	1.15	11.68	13.98
T9 – Atrazine 2 kg a.i/ha + Dicamba 350g a.i/ha on 75 DAP	165.7	126.6	106.9	116.2	1.16	11.78	13.69
T10 – Metribuzine 1.25kg a.i/ha + Dicamba on 75DAP	172.8	120.4	110.4	120.4	1.15	12.03	14.48
CD (P=0.05)	11.2	7.25	9.3	8.9	0.08	NS	1.44

1. Serial No. and Title:

AS. 64. Response of sugarcane crop to different plant nutrients in varied agro ecological situations

2. Location:

Sugarcane Research Station, Cuddalore

3. Objective:

To study differential response of sugarcane crop to different nutrients

4. Details of technical programme:

Place of the technical project	: Sugarcane Research Station, Cuddalore
Irrigated / Rainfed	: Irrigated
Design	: RBD
Replication	: Three
Treatments	: 12
Variety	: CoC 24

5. Technical summary of the project:

As per the AICRP technical programme, the first year experiment was laid out during 2011-12 cropping season in Randomized Block Design with three replications. The experiment was conducted in field number 31 and initial soil samples were collected and analyzed. The soil of the experimental filed is classified under sandy clay loam structure with pH 6.8, EC 0.26, organic carbon 0.28, low nitrogen (88 kg/ha), medium phosphorus (45 kg/ha), high potassium (313 kg/ha), iron 7.23 ppm, magnesium 10.86 ppm, zinc 0.92 ppm and sulphur 70.89 ppm were recorded. In this experiments 12 treatments are included viz., T_1 - Control (No fertilizer), T_2 - N, T_3 - NP, T_4 - NPK, T_5 - NPK + S, T_6 - NPK + Zn, T_7 - NPK + Fe, T_8 - NPK + Mn, T_9 - NPK + S + Zn, T_{10} - NPK + S + Zn + Fe, T_{11} - NPK + S + Zn + Fe + Mn and T_{12} -Soil test based fertilizer application. All the recommended package of practices was adopted uniformly for all the plots. The FYM applied @ 20 t ha^{-}1 as common to all the treatments. The sulphur was applied as elemental sulphur @ 60 kg ha^{-1}. Zinc was applied 50 kg ha-1 as ZnSo4. Iron was foliar sprayed with 1 per cent FeSo4 thrice in weekly interval at vegetative stage. Magnesium was applied 100 kg of MnSo4. The NPK was applied as per the recommended dose. The data on growth and yield parameters and post harvest soil analysis data are presented in table 1 and 2.

The result revealed that data on germination resulted non significant among the treatments. Application of NPK + S + Zn + Fe + Mn through inorganic fertilizers recorded significantly the maximum of 1,93,700 ha^{-1} tiller population. The same treatment produced the

maximum millable cane population of 1,29,600 ha^{-1} and was on par with the treatment (T_{12}) soil test based fertilizer application which recorded 1,26,400 ha^{-1}. Regarding cane yield and sugar yield the treatment (T_{11}) NPK + S + Zn + Fe + Mn recorded the maximum of 156.4 t ha^{-1} and 19.64 t ha^{-1} and was on par with the treatment (T_{12}) with 152.4 t ha^{-1} and 19.07 t ha^{-1} respectively. Regarding commercial cane sugar the treatment (T_{11}) NPK + S + Zn + Fe + Mn numerically recorded 12.56 per cent. The post harvest soil analysis indicated the treatment (T_{11}) NPK + S + Zn + Fe + Mn increase the available NPK content of 189, 44 and 189 kg ha^{-1} respectively and was comparable with soil test based fertilizer application (T_{12}). The micro nutrient content in the soil was increased with treatment (T_{11}) NPK + S + Zn + Fe + Mn which recorded 75.63, 2.13, 15.65 and 15.63 ppm of S, Zn, Fe and Mn respectively.

Table 1. Effect of different plant nutrients on growth and yield of sugarcane (2011-12)

Treatments	**Tillers ('000/ha) 90 DAP**	**Millable canes ('000/ha)**	**Indi. Cane Wt. (kg)**	**Cane Length (cm)**	**Cane yield (t/ha)**	**CCS (%)**	**Sugar Yield (t/ha)**
Control	102.3	51.3	0.75	178.23	48.7	11.12	5.41
N	135.7	73.9	1.21	228.56	93.6	11.35	10.63
NP	142.6	98.4	1.32	234.65	118.6	11.46	13.59
NPK	172.4	102.5	1.35	256.34	129.3	12.06	15.60
NPK+S	173.7	112.4	1.39	265.34	130.7	12.09	15.80
NPK+Zn	174.9	112.9	1.41	267.35	132.5	12.11	16.05
NPK+Fe	174.8	112.4	1.44	270.12	136.6	12.13	16.57
NPK+Mn	174.6	114.7	1.43	273.62	142.1	12.22	17.37
NPK+S+Zn	175.9	118.6	1.45	282.26	145.3	12.24	17.79
NPK+Zn+Fe	138.7	114.3	1.35	254.37	131.3	12.02	15.78
NPK+S+Zn+Fe+Mn	193.7	129.6	1.59	298.36	156.4	12.56	19.64
Soil Test Based Fertiliser application	182.8	126.4	1.52	294.25	152.4	12.52	19.07
CD (p=0.05)	6.23	5.60	0.07	13.71	6.70	0.64	1.11

Table 2. Effect of different plant nutrients on post harvest soil status of sugarcane (2011-12)

Treatments	Organic carbon (%)	pH	EC	Available N (Kg/ha)	Available P (Kg/ha)	Available K (Kg/ha)	Available Fe (ppm)	Available Mn (ppm)	Available Zn (ppm)	Available S (ppm)
Control	0.22	6.80	0.36	55.32	16.25	124.36	5.36	7.23	0.63	65.36
N	0.25	7.10	0.34	61.25	19.56	162.34	6.12	10.98	0.75	68.25
NP	0.27	7.30	0.35	72.56	43.02	178.63	6.32	11.12	0.91	70.12
NPK	0.28	7.20	0.35	159.86	43.12	215.36	7.45	11.26	0.88	73.26
NPK+S	0.30	7.40	0.34	163.56	43.26	213.89	7.63	12.35	0.89	73.68
NPK+Zn	0.32	7.60	0.34	164.24	43.28	212.70	7.98	11.89	1.82	74.26
NPK+Fe	0.34	7.30	0.33	163.25	43.65	214.53	7.26	11.62	0.91	73.56
NPK+Mn	0.37	7.20	0.33	165.87	43.68	216.23	8.12	12.42	0.92	73.86
NPK+S+Zn	0.38	7.60	0.33	174.35	42.65	226.68	8.68	11.25	1.88	74.65
NPK+Zn+Fe	0.28	7.60	0.35	160.35	43.26	216.58	8.78	11.38	0.93	68.26
NPK+S+Zn+Fe+Mn	0.46	7.80	0.32	189.33	43.78	249.23	15.65	15.63	2.13	75.63
Soil Test Based Fertiliser application	0.45	7.70	0.32	186.52	43.29	244.56	14.89	12.12	1.98	74.89
CD (p=0.05)	0.02	0.39	0.02	7.58	0.90	10.93	0.46	0.62	0.06	3.82