

FOR OFFICIAL USE ONLY

ANNUAL RESEARCH REPORT
ALL INDIA COORDINATED RESEARCH
PROJECT ON SUGARCANE
(AGRONOMY)
(2015 - 2016)



RESEARCH SCIENTIST (SUGARCANE)
MAIN SUGARCANE RESEARCH STATION
NAVSARI AGRICULTURAL UNIVERSITY
NAVSARI - 396 450

Index

Sr. No.	Name of Experiment	Page No.
1. AS 42	Agronomic evaluation of promising new sugarcane genotypes – Early group (Ratoon crop)	03-07
2. AS 42	Agronomic evaluation of promising new sugarcane genotypes- Midlate group (Ratoon crop)	08-11
3. AS 42	Agronomic evaluation of promising new sugarcane genotypes – Early group (2 nd Plant crop)	12-15
4. AS 42	Agronomic evaluation of promising new sugarcane genotypes- Midlate group (2 nd Plant crop)	16-19
5. AS 68	Impact of integrated application of organics and inorganics in improving soil health and sugarcane (Ratoon crop)	20-26
6. AS-69	Use of plant growth regulators (PGRs) for enhanced yield and quality of sugarcane	27-32

ALL INDIA COORDINATED RESEARCH PROJECT ON SUGARCANE

CENTRE: NAVSARI

ANNUAL REPORT 2015-16

1	Project No.	AS 42												
2	Title	Agronomic evaluation of promising new sugarcane genotypes (Ratoon crop) (early group)												
3	Objectives	To work out agronomy of sugarcane genotypes of advanced varietal trial (AVT)												
4	Details of the treatment	<ul style="list-style-type: none"> ➤ Variety <li style="padding-left: 20px;">V₁ – Co 08001 <li style="padding-left: 20px;">V₂ – CoVSI 08121 <li style="padding-left: 20px;">V₃ – CoN 09071 <li style="padding-left: 20px;">V₄ – CoN 10071 ➤ Fertilizer levels: <li style="padding-left: 20px;">F₁ - 75 % of recommended dose of N kg/ha <li style="padding-left: 20px;">F₂ - 100 % of recommended dose of N kg/ha <li style="padding-left: 20px;">F₃ - 125 % of recommended dose of N kg/ha ➤ Recommended dose : 300-62.5-125 kg NPK/ha ➤ Spacing : 100 cm ➤ Seed rate : Ratoon plant ➤ Date of Ratooning : 02-02-2015 ➤ Fertilizer applied : As per treatment <table style="margin-left: 40px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Nutrient</th> <th style="text-align: left;">Basal</th> <th style="text-align: left;">Top dressing</th> </tr> </thead> <tbody> <tr> <td style="padding-left: 20px;">N</td> <td>25 %</td> <td>75% (In 2 splits 50 & 25 % of RDN)</td> </tr> <tr> <td style="padding-left: 20px;">P</td> <td>100%</td> <td>-</td> </tr> <tr> <td style="padding-left: 20px;">K</td> <td>100%</td> <td>-</td> </tr> </tbody> </table> ➤ Date of harvesting : 23-02-2016 	Nutrient	Basal	Top dressing	N	25 %	75% (In 2 splits 50 & 25 % of RDN)	P	100%	-	K	100%	-
Nutrient	Basal	Top dressing												
N	25 %	75% (In 2 splits 50 & 25 % of RDN)												
P	100%	-												
K	100%	-												
5	Design	RBD (Factorial)												
6	Replications	Three												
7	Plot size	Gross : 6.00m x 6.00m												

		Net : 4.00m x 4.00m																																																																																																																																																											
8	Climatic parameters	Meteorological observations recorded at Main Sugarcane Research Station, NAU, and Navsari from Jan. 2014 to Feb-2016.																																																																																																																																																											
		<table border="1"> <thead> <tr> <th rowspan="2">Sr. No.</th> <th rowspan="2">Month</th> <th colspan="2">Temp.⁰c.</th> <th colspan="2">R.H. %</th> <th rowspan="2">Rainfall (mm)</th> <th rowspan="2">Rainy days</th> </tr> <tr> <th>Max</th> <th>Min.</th> <th>A.M.</th> <th>P.M.</th> </tr> </thead> <tbody> <tr><td>1.</td><td>Nov 2014</td><td>33.6</td><td>19.2</td><td>85.5</td><td>42.6</td><td>67.0</td><td>3</td></tr> <tr><td>2.</td><td>Dec. 2014</td><td>30.4</td><td>14.0</td><td>72.8</td><td>40.5</td><td>-</td><td>-</td></tr> <tr><td>3.</td><td>Jan. 2015</td><td>28.9</td><td>12.9</td><td>79.5</td><td>36.8</td><td>-</td><td>-</td></tr> <tr><td>4.</td><td>Feb. 2015</td><td>30.9</td><td>14.1</td><td>83.4</td><td>38.9</td><td>-</td><td>-</td></tr> <tr><td>5.</td><td>Mar. 2015</td><td>32.5</td><td>18.2</td><td>85.5</td><td>44.8</td><td>10</td><td>2</td></tr> <tr><td>6.</td><td>April 2015</td><td>33.6</td><td>22.9</td><td>88.1</td><td>52.6</td><td>0.5</td><td>1</td></tr> <tr><td>7.</td><td>May 2015</td><td>35.1</td><td>26.4</td><td>83.3</td><td>57.4</td><td>0</td><td>0</td></tr> <tr><td>8.</td><td>June 2015</td><td>31.9</td><td>25.7</td><td>87.1</td><td>71.2</td><td>379.5</td><td>13</td></tr> <tr><td>9.</td><td>July 2015</td><td>30.7</td><td>26.2</td><td>86.8</td><td>77.4</td><td>321</td><td>20</td></tr> <tr><td>10.</td><td>Aug. 2015</td><td>30.6</td><td>25.5</td><td>90.2</td><td>73.7</td><td>65</td><td>16</td></tr> <tr><td>11.</td><td>Sept 2015</td><td>31.1</td><td>23.4</td><td>91.7</td><td>68.4</td><td>440</td><td>11</td></tr> <tr><td>12.</td><td>Oct. 2015</td><td>35.6</td><td>22.9</td><td>86.3</td><td>43.0</td><td>3.0</td><td>1</td></tr> <tr><td>13.</td><td>Nov 2015</td><td>33.1</td><td>20.3</td><td>77.7</td><td>39.7</td><td>0</td><td>0</td></tr> <tr><td>14.</td><td>Dec. 2015</td><td>31.4</td><td>13.6</td><td>71.3</td><td>27.9</td><td>0</td><td>0</td></tr> <tr><td>15.</td><td>Jan. 2016</td><td>30.5</td><td>11.8</td><td>81.4</td><td>29.5</td><td>0</td><td>0</td></tr> <tr><td>16.</td><td>Feb. 2016</td><td>30.3</td><td>13.8</td><td>85.4</td><td>33.9</td><td>0</td><td>0</td></tr> <tr> <td colspan="4"></td> <td colspan="2" style="text-align: center;">Total</td> <td>1286</td> <td>67</td> </tr> </tbody> </table>								Sr. No.	Month	Temp. ⁰ c.		R.H. %		Rainfall (mm)	Rainy days	Max	Min.	A.M.	P.M.	1.	Nov 2014	33.6	19.2	85.5	42.6	67.0	3	2.	Dec. 2014	30.4	14.0	72.8	40.5	-	-	3.	Jan. 2015	28.9	12.9	79.5	36.8	-	-	4.	Feb. 2015	30.9	14.1	83.4	38.9	-	-	5.	Mar. 2015	32.5	18.2	85.5	44.8	10	2	6.	April 2015	33.6	22.9	88.1	52.6	0.5	1	7.	May 2015	35.1	26.4	83.3	57.4	0	0	8.	June 2015	31.9	25.7	87.1	71.2	379.5	13	9.	July 2015	30.7	26.2	86.8	77.4	321	20	10.	Aug. 2015	30.6	25.5	90.2	73.7	65	16	11.	Sept 2015	31.1	23.4	91.7	68.4	440	11	12.	Oct. 2015	35.6	22.9	86.3	43.0	3.0	1	13.	Nov 2015	33.1	20.3	77.7	39.7	0	0	14.	Dec. 2015	31.4	13.6	71.3	27.9	0	0	15.	Jan. 2016	30.5	11.8	81.4	29.5	0	0	16.	Feb. 2016	30.3	13.8	85.4	33.9	0	0					Total		1286	67
Sr. No.	Month	Temp. ⁰ c.		R.H. %		Rainfall (mm)	Rainy days																																																																																																																																																						
		Max	Min.	A.M.	P.M.																																																																																																																																																								
1.	Nov 2014	33.6	19.2	85.5	42.6	67.0	3																																																																																																																																																						
2.	Dec. 2014	30.4	14.0	72.8	40.5	-	-																																																																																																																																																						
3.	Jan. 2015	28.9	12.9	79.5	36.8	-	-																																																																																																																																																						
4.	Feb. 2015	30.9	14.1	83.4	38.9	-	-																																																																																																																																																						
5.	Mar. 2015	32.5	18.2	85.5	44.8	10	2																																																																																																																																																						
6.	April 2015	33.6	22.9	88.1	52.6	0.5	1																																																																																																																																																						
7.	May 2015	35.1	26.4	83.3	57.4	0	0																																																																																																																																																						
8.	June 2015	31.9	25.7	87.1	71.2	379.5	13																																																																																																																																																						
9.	July 2015	30.7	26.2	86.8	77.4	321	20																																																																																																																																																						
10.	Aug. 2015	30.6	25.5	90.2	73.7	65	16																																																																																																																																																						
11.	Sept 2015	31.1	23.4	91.7	68.4	440	11																																																																																																																																																						
12.	Oct. 2015	35.6	22.9	86.3	43.0	3.0	1																																																																																																																																																						
13.	Nov 2015	33.1	20.3	77.7	39.7	0	0																																																																																																																																																						
14.	Dec. 2015	31.4	13.6	71.3	27.9	0	0																																																																																																																																																						
15.	Jan. 2016	30.5	11.8	81.4	29.5	0	0																																																																																																																																																						
16.	Feb. 2016	30.3	13.8	85.4	33.9	0	0																																																																																																																																																						
				Total		1286	67																																																																																																																																																						
		<ul style="list-style-type: none"> ➤ Monsoon of 2015 remained favorable for good crop harvest. ➤ The whole Sept. remained wet with the highest rainfall of 440 mm in 11 rainy days. ➤ Total rainfall received was 1286 in 67 rainy days which was higher than the average (1250 mm). ➤ Disease pest incidence did not affect the crop considerably. 																																																																																																																																																											
9	Soil health (Initial)	<ul style="list-style-type: none"> ➤ Organic carbon : 0.57 % ➤ Available N : 315 kg/ha ➤ Available P₂O₅ : 49.78 kg/ha ➤ Available K₂O : 362 kg/ha 																																																																																																																																																											
10	Summary of results:	The results are given in table AS 42. 1 & 2. Germination % were not																																																																																																																																																											

significantly influenced due to different varieties & fertilizer levels at 45 DAP. Number of tillers were not significantly influenced due to different varieties at 90 DAP; while fertilizer level F₃ (125 % RDN) count highest number of tillers (128.23 000 ha⁻¹) over F₁ and at par with F₂ (100 % RDN). At 120 and 180 DAP, variety V₄ (CoN 10071) recorded significantly higher number of tillers over variety V₁ and V₃ and at par with variety V₂ (CoVSI 08121). The fertilizer level F₃ (125 % RDN) and F₂ (100 % RDN) were equally effective in counting higher number of tillers and remained at par with each other over F₁. Variety V₄ (CoN 10071) and V₃ (CoN 09071) recorded significantly highest NMC (104.65 & 99.79 000 ha⁻¹) respectively over V₁ and V₂. The NMC were not significantly influenced due to different fertilizer level at harvest.

Significantly highest cane yield (124.10 t ha⁻¹) was noticed with variety V₄ (CoN 10071) but remained at par with V₃ and V₂ over V₁; however it was not significantly influenced due to different fertilizer level. CCS yield was not significantly influenced due to different varieties and fertilizer level.

Among various quality parameters, pol % juice, pol % cane and CCS % were recorded highest with V₁ and V₂ and remained at par with each other; fiber % was not significantly influenced due to varieties: Fertilizer levels did not show any significant effect on various quality parameters.

Interaction between variety and fertilizer level was failed to show significant results for above all the parameters.

Table AS 42. 1: Growth, yield parameters, cane and CCS yields of sugarcane as influenced by sugarcane varieties and various fertilizer levels

Treatment	Germination % at 45 DAP	No. of tillers at 90 DAP (000/ha ⁻¹)	No. of tillers at 120 DAP (000/ha ⁻¹)	No. of tillers at 180 DAP (000/ha ⁻¹)	NMC (000/ha ⁻¹) at harvest	Cane yield (t/ha ⁻¹)	CCS yield (t/ha ⁻¹)
Variety							
V ₁ -Co 08001	39.44	117.36	143.40	105.56	88.54	106.32	14.68
V ₂ - CoVSI 08121	42.37	126.67	154.44	114.72	91.39	113.26	15.51
V ₃ - CoN 09071	42.26	117.64	148.05	103.54	99.79	118.61	15.02
V ₄ -CoN 10071	42.62	127.85	160.70	117.85	104.65	124.10	15.29
S.Em.±	1.56	4.54	4.19	3.96	3.09	4.34	0.52
C.D. at 5%	NS	NS	12.28	11.63	9.05	12.73	NS
Fertilizer levels							
F ₁ -75 % of RDN	40.06	113.70	142.55	102.65	91.25	111.98	14.56
F ₂ -100 % of RDN	42.22	125.21	153.28	113.49	95.94	114.17	14.83
F ₃ -125 % RDN	42.74	128.23	159.11	115.10	101.09	120.57	15.98
S. Em. ±	1.35	3.93	3.63	3.43	2.67	3.75	0.45
C.D. at 5%	NS	11.52	10.64	10.07	NS	NS	NS
C.V. %	11.25	11.12	8.29	10.78	9.63	11.26	10.50
Interaction	NS	NS	NS	NS	NS	NS	NS

Table AS 42. 2: Juice quality parameters of sugarcane as influenced by sugarcane varieties and various fertilizer levels

Treatment	Pol (%) juice	Purity (%)	Fibre (%)	Pol (%) cane	C.C.S. (%)
Variety					
V ₁ -Co 08001	19.81	90.19	14.01	15.06	13.84
V ₂ - CoVSI 08121	19.56	90.72	14.13	14.84	13.69
V ₃ - CoN 09071	17.96	92.26	13.91	13.67	12.67
V ₄ -CoN 10071	17.58	91.15	14.14	13.34	12.34
S.Em.±	0.21	0.66	0.07	0.15	0.15
C.D. at 5%	0.62	NS	NS	0.46	0.46
Fertilizer levels					
F ₁ -75 % of RDN	18.57	91.07	14.01	14.11	13.02
F ₂ -100 % of RDN	18.65	90.76	14.11	14.15	13.06
F ₃ -125 % RDN	18.96	91.41	14.00	14.41	13.32
S. Em. ±	0.18	0.5	0.06	0.13	0.13
C.D. at 5%	NS	NS	NS	NS	NS
C.V. %	3.39	2.20	1.67	3.37	3.57
Interaction	NS	NS	NS	NS	NS

1	Project No.	AS 42												
2	Title	Agronomic evaluation of promising new sugarcane genotypes (Ratoon crop) (midlate group)												
3	Objectives	To work out agronomy of sugarcane genotypes of advanced varietal trial (AVT)												
4	Details of the treatment	<ul style="list-style-type: none"> ➤ Variety (Genotypes) V₁ – CoSnk 08101 V₂ – Co 08009 V₃ – CoN 11073 V₄ – CoN 13073 ➤ Fertilizer levels F₁ - 75 % of recommended dose of N kg/ha F₂ - 100 % of recommended dose of N kg/ha F₃ - 125 % of recommended dose of N kg/ha ➤ Recommended dose : 300-62.5-125 kg NPK/ha ➤ Spacing : 100 cm ➤ Seed rate : Ratoon Plant ➤ Date of Ratooning : 02-02-2015 ➤ Fertilizer applied : As per treatment <table style="margin-left: 40px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Nutrient</th> <th style="text-align: left;">Basal</th> <th style="text-align: left;">Top dressing</th> </tr> </thead> <tbody> <tr> <td>N</td> <td>25 %</td> <td>75% (In 2splits 50 & 25 % of RDN)</td> </tr> <tr> <td>P</td> <td>100%</td> <td>-</td> </tr> <tr> <td>K</td> <td>100%</td> <td>-</td> </tr> </tbody> </table> ➤ Date of harvesting : 23-02-2016 	Nutrient	Basal	Top dressing	N	25 %	75% (In 2splits 50 & 25 % of RDN)	P	100%	-	K	100%	-
Nutrient	Basal	Top dressing												
N	25 %	75% (In 2splits 50 & 25 % of RDN)												
P	100%	-												
K	100%	-												
5	Design	RBD (Factorial)												
6	Replications	Three												
7	Plot size	<ul style="list-style-type: none"> ➤ Gross : 6.00m x 6.00m ➤ Net : 4.00m x 4.00m 												
8	Climatic parameters	Given in project no. AS 42 (Early ratoon crop)												
9	Soil health (Initial)	<p>Previous crop i.e. plant crop soil data:</p> <ul style="list-style-type: none"> ➤ Organic carbon : 0.57 % ➤ Available N : 315 kg/ha ➤ Available P₂O₅ : 49.78 kg/ha ➤ Available K₂O : 362 kg/ha 												

10	Summary of results:	<p>The results are given in table AS 42. 1 & 2. Germination % at 45 DAP were recorded significantly highest with variety V₄ (CoN 13073) over other varieties and at par with V₃ (CoN 11073); however it was not significantly influenced due to fertilizer levels. Number of tillers were recorded significantly highest with variety V₄ (CoN 13073) over V₁ (CoSnk 08101) and V₂ (Co 08009) and at par with V₃ (CoN 11073) at all the three growth stages. The various fertilizer level failed to show significant effect at 90 & 120 DAP; however at 180 DAP number of tillers were recorded significantly highest with F₃ (125 % RDN) over F₁ and at par with F₂ (100 % RDN).</p> <p>Significantly highest NMC (108.15 000 ha⁻¹) and cane yield (117.92 t ha⁻¹) were recorded with V₄ (CoN 13073) over V₁ and V₂ however NMC remained at par with variety V₃. Significantly highest CCS yield was recorded with variety V₄ (CoN 13073) over V₁ and at par with V₂ & V₃; the fertilizer level F₃ (125 % RDN) failed to reach the level of significance on NMC and CCS yield while cane yield (113.74 t ha⁻¹) recorded significantly highest with F₃ over F₁ and remained at par with F₂.</p> <p>Almost all the quality parameters were not significantly influenced due to different varieties except pol % juice and cane which recorded highest with variety V₂ (Co 08009) over other varieties. The various fertilizer levels failed to show significant effect on quality parameters except purity %. Which was recorded highest with fertilizer levels F₃.</p> <p>Interaction between various varieties & fertilizer levels were observed non significant for all these parameters.</p>
----	---------------------	--

Table AS 42. 1: Growth, yield parameters, cane and CCS yield of sugarcane as influenced by sugarcane varieties and various fertilizers levels

Treatment	Germination % at 45 DAP	No. of tillers at 90 DAP (000/ha⁻¹)	No. of tillers at 120 DAP (000/ha⁻¹)	No. of tillers at 180 DAP (000/ha⁻¹)	NMC (000/ha⁻¹) at harvest	Cane yield (t/ha⁻¹)	CCS yield (t/ha⁻¹)
Variety							
V ₁ -CoSnk 08101	43.08	132.95	141.27	124.71	90.63	101.53	12.60
V ₂ - Co 08009	48.83	136.70	151.70	129.10	95.44	107.66	13.93
V ₃ - CoN 11073	53.14	145.24	160.09	139.05	103.89	110.20	13.84
V ₄ -CoN 13073	57.78	151.01	168.54	151.53	108.15	117.92	14.70
S.Em.±	1.72	4.68	5.54	4.79	3.56	2.59	0.43
C.D. at 5%	5.07	13.71	16.24	14.04	10.44	7.60	1.28
Fertilizer levels							
F ₁ -75 % of RDN	49.94	133.48	148.64	127.78	94.27	104.78	13.06
F ₂ -100 % of RDN	51.10	143.92	155.51	137.52	99.67	109.45	13.87
F ₃ -125 % RDN	51.07	147.02	162.06	142.99	104.64	113.74	14.36
S. Em. ±	1.49	4.05	4.80	4.15	3.08	2.24	0.37
C.D. at 5%	NS	NS	NS	12.16	NS	6.58	NS
C.V. %	10.23	9.91	10.69	10.55	10.73	7.10	9.51
Interaction	NS	NS	NS	NS	NS	NS	NS

Table AS 42. 2: Juice quality parameters of sugarcane as influenced by sugarcane varieties and various fertilizer levels

Treatment	Pol (%) juice	Purity (%)	Fibre (%)	Pol (%) cane	C.C.S. (%)
Variety					
V ₁ -Co Snk 08101	17.87	89.07	13.85	13.62	12.38
V ₂ - Co 08009	19.03	88.69	14.06	14.56	12.92
V ₃ - CoN 11073	17.82	89.35	14.00	13.57	12.54
V ₄ -CoN 13073	18.24	89.47	13.96	13.63	12.49
S.Em.±	0.30	0.59	0.11	0.21	0.28
C.D. at 5%	0.88	NS	NS	0.61	NS
Fertilizer levels					
F ₁ -75 % of RDN	17.89	88.68	13.93	13.64	12.43
F ₂ -100 % of RDN	18.29	88.49	14.03	13.72	12.70
F ₃ -125 % RDN	18.53	90.26	13.93	14.16	12.62
S. Em. ±	0.26	0.51	0.09	0.18	0.24
C.D. at 5%	NS	1.51	NS	NS	NS
C.V. %	4.95	2.01	2.3	4.56	6.79
Interaction	NS	NS	NS	NS	NS

1	Project No.	AS 42												
2	Title	Agronomic evaluation of promising new sugarcane genotypes (2 nd plant crop) (early group)												
3	Objectives	To work out agronomy of sugarcane genotypes of advanced varietal trial (AVT)												
4	Details of the treatment	<ul style="list-style-type: none"> ➤ Variety V₁ – Co 08001 V₂ – CoVSI 08121 V₃ – CoN 09071 V₄ – CoN 10071 ➤ Fertilizer levels: F₁ - 75 % of recommended dose of N kg/ha F₂ - 100 % of recommended dose of N kg/ha F₃ - 125 % of recommended dose of N kg/ha ➤ Recommended dose : 250-125-125 kg NPK/ha ➤ Spacing : 100 cm ➤ Seed rate : 50000 two eye bud setts ha⁻¹ ➤ Date of Planting : 28-11-2014 ➤ Fertilizer applied : As per treatment <table style="margin-left: 40px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Nutrient</th> <th style="text-align: left;">Basal</th> <th style="text-align: left;">Top dressing</th> </tr> </thead> <tbody> <tr> <td>N</td> <td>15 %</td> <td>85% (In 3 splits 30, 20 & 35 % of RDN)</td> </tr> <tr> <td>P</td> <td>100%</td> <td>-</td> </tr> <tr> <td>K</td> <td>100%</td> <td>-</td> </tr> </tbody> </table> <ul style="list-style-type: none"> ➤ Date of harvesting : 29-01-2016 	Nutrient	Basal	Top dressing	N	15 %	85% (In 3 splits 30, 20 & 35 % of RDN)	P	100%	-	K	100%	-
Nutrient	Basal	Top dressing												
N	15 %	85% (In 3 splits 30, 20 & 35 % of RDN)												
P	100%	-												
K	100%	-												
5	Design	RBD (Factorial)												
6	Replications	Three												
7	Plot size	Gross : 6.00m x 6.00m Net : 4.00m x 4.00m												
8	Climatic parameters	Given in project no. AS 42 (Early ratoon crop)												
9	Soil health (Initial)	<ul style="list-style-type: none"> ➤ Organic carbon : 0.62% ➤ Available N : 508 kg/ha ➤ Available P₂O₅ : 69.52 kg/ha ➤ Available K₂O : 606 kg/ha 												

10	Summary of results:	<p>The results are given in table AS 42. 1 & 2. Germination % at 45 DAP were recorded significantly highest with variety V₂ (CoVSI 08121) over other varieties. Germination was not significantly influenced due to different fertilizer levels at 45 DAP. Number of tillers were not significantly influenced due to different varieties at 90, 120 and 180 DAP; significantly highest number of tiller was recorded with F₃ (125 % RDN) and F₂ (100 % RDN) were equally effective in counting higher tillers and remained at par with each other over F₁ at all the three growth stage. Variety V₄ (CoN 10071) recorded significantly highest NMC (111.53 000 ha⁻¹) respectively over V₁ & remained at par with V₂ and V₃. The fertilizer level F₃ recorded significantly highest NMC (112.60 000 ha⁻¹) over F₁ and F₂.</p> <p>Significantly highest cane yield (135.97 t ha⁻¹) was noticed with variety V₄ (CoN 10071) but remained at par with V₃ over V₁ and V₂. The fertilizer level F₃ recorded significantly higher cane yield (133.65 t ha⁻¹) over F₁ but at par with F₂. CCS yield was not influenced significantly due to varieties and fertilizer levels.</p> <p>Among various quality parameters, pol % juice, pol % cane and CCS % were recorded highest with V₁ (Co 08001) and V₂ and remained at par with each other; purity % was highest with V₃ while fibre % was not influenced significantly due to varieties. Fertilizer levels did not show any significant effect on quality parameters.</p> <p>Interaction between variety and fertilizer level was failed to show significant results for above all the parameters.</p>
----	---------------------	--

Table AS 42. 1: Growth, yield parameters, cane and CCS yields of sugarcane as influenced by sugarcane varieties and various fertilizer levels

Treatment	Germination % at 45 DAP	No. of tillers at 90 DAP (000/ha⁻¹)	No. of tillers at 120 DAP (000/ha⁻¹)	No. of tillers at 180 DAP (000/ha⁻¹)	NMC (000/ha⁻¹) at harvest	Cane yield (t/ha⁻¹)	CCS yield (t/ha⁻¹)
Variety							
V ₁ -Co 08001	46.03	127.15	154.12	113.40	93.75	117.57	16.12
V ₂ - CoVSI 08121	55.07	135.41	162.37	121.04	102.29	123.33	16.75
V ₃ - CoN 09071	48.01	127.00	157.09	115.63	109.58	129.03	16.26
V ₄ -CoN 10071	45.30	133.50	170.45	127.29	111.53	135.97	16.31
S.Em.±	1.70	4.99	4.87	3.57	3.79	4.19	0.60
C.D. at 5%	5.00	NS	NS	NS	11.11	12.30	NS
Fertilizer levels							
F ₁ -75 % of RDN	46.34	121.46	151.38	112.24	98.33	120.26	15.57
F ₂ -100 % of RDN	49.12	133.36	162.33	120.99	101.93	125.52	16.15
F ₃ -125 % RDN	50.36	137.17	169.30	124.79	112.60	133.65	17.34
S. Em. ±	1.47	4.32	4.22	3.09	3.28	3.63	0.52
C.D. at 5%	NS	12.67	12.37	9.07	9.63	10.65	NS
C.V. %	10.53	11.46	9.07	8.97	10.90	9.95	11.07
Interaction	NS	NS	NS	NS	NS	NS	NS

Table AS 42. 2: Juice quality parameters of sugarcane as influenced by sugarcane varieties and various fertilizer levels

Treatment	Pol (%) juice	Purity (%)	Fibre (%)	Pol (%) cane	C.C.S. (%)
Variety					
V ₁ -Co 08001	19.76	89.19	13.93	15.03	13.72
V ₂ - CoVSI 08121	19.57	89.00	14.12	14.85	13.57
V ₃ - CoN 09071	17.92	91.84	13.94	13.63	12.62
V ₄ -CoN 10071	17.26	89.68	14.03	13.11	12.02
S.Em.±	0.25	0.66	0.07	0.18	0.19
C.D. at 5%	0.73	1.94	NS	0.53	0.57
Fertilizer levels					
F ₁ -75 % of RDN	18.55	89.98	14.02	14.09	12.94
F ₂ -100 % of RDN	18.53	90.13	14.01	14.07	12.92
F ₃ -125 % RDN	18.79	89.67	13.97	14.28	13.07
S. Em. ±	0.21	0.57	0.06	0.15	0.17
C.D. at 5%	NS	NS	NS	NS	NS
C.V. %	4.00	2.21	1.66	3.87	4.55
Interaction	18.55	NS	NS	NS	NS

1	Project No.	AS 42												
2	Title	Agronomic evaluation of promising new sugarcane genotypes (2 nd plant crop) (midlate group)												
3	Objectives	To work out agronomy of sugarcane genotypes of advanced varietal trial (AVT)												
4	Details of the treatment	<ul style="list-style-type: none"> ➤ Variety (Genotypes) V₁ – CoSnk 08101 V₂ – Co 08009 V₃ – CoN 11073 V₄ – CoN 13073 ➤ Fertilizer levels F₁ - 75 % of recommended dose of N kg/ha F₂ - 100 % of recommended dose of N kg/ha F₃ - 125 % of recommended dose of N kg/ha ➤ Recommended dose : 250-125-125 kg NPK/ha ➤ Spacing : 100 cm ➤ Seed rate : 50000 two eye bud setts ha⁻¹ ➤ Date of planting : 27-01-2015 ➤ Fertilizer applied : As per treatment <table style="margin-left: 40px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Nutrient</th> <th style="text-align: left;">Basal</th> <th style="text-align: left;">Top dressing</th> </tr> </thead> <tbody> <tr> <td>N</td> <td>15 %</td> <td>85% (In 3 splits 30, 20 & 35 % of RDN)</td> </tr> <tr> <td>P</td> <td>100%</td> <td>-</td> </tr> <tr> <td>K</td> <td>100%</td> <td>-</td> </tr> </tbody> </table> ➤ Date of harvesting : 29-01-2016 	Nutrient	Basal	Top dressing	N	15 %	85% (In 3 splits 30, 20 & 35 % of RDN)	P	100%	-	K	100%	-
Nutrient	Basal	Top dressing												
N	15 %	85% (In 3 splits 30, 20 & 35 % of RDN)												
P	100%	-												
K	100%	-												
5	Design	RBD (Factorial)												
6	Replications	Three												
7	Plot size	<ul style="list-style-type: none"> ➤ Gross : 6.00m x 6.00m ➤ Net : 4.00m x 4.00m 												
8	Climatic parameters	Given in project no. AS 42 (Early ratoon crop)												
9	Soil health (Initial)	<ul style="list-style-type: none"> ➤ Organic carbon : 0.54 % ➤ Available N : 372 kg/ha ➤ Available P₂O₅ : 35.44 kg/ha ➤ Available K₂O : 410 kg/ha 												

10	Summary of results:	<p>The results are given in table AS 42. 1 & 2. Germination % at 45 DAP were recorded significantly highest with variety V₄ (CoN 13073) over other varieties and remained at par with V₃. Germination % was not significantly influenced due to different fertilizer level at 45 DAP. Number of tillers were recorded significantly highest with variety V₄ (CoN 13073) over V₁ (CoSnk 08101) and V₂ (Co 08009) and at par with V₃ (CoN 11073) & remained at par with each other at all the three growth stages. The fertilizer level F₃ (125 % RDN) recorded significantly higher number of tillers over F₁ & remained at par with F₂ (100 % RDN) at all the three growth stages.</p> <p>Significantly highest NMC (117.19 000 ha⁻¹) were recorded with V₄ (CoN 13073) over V₁ & V₂ remained at par with V₃ (CoN 11073). Significantly highest NMC (111.41 000 ha⁻¹) were recorded with F₂ (100 % RDN) at par with F₃ over F₁; Cane yield (129.34 t ha⁻¹) were recorded with V₄ (CoN 13073) over V₁ and remained at par with V₂ & V₃. Different fertilizer level observed then significantly highest Cane yield (127.48 t ha⁻¹) was recorded with F₂ (100 % RDN) over F₁ & remained at par with F₃ (125 % RDN). CCS yield was not significantly influenced due to different varieties and fertilizer level.</p> <p>Almost all the quality parameters were not significantly influenced due to varieties except pol % juice and pol % cane which recorded highest with variety V₂ (Co 08009) over other varieties. The various fertilizer levels failed to show significant effect on juice quality except purity % which was recorded significantly highest with fertilizer levels F₃ (125 % RDN) over F₁ and F₂.</p> <p>Interaction between various varieties & fertilizer levels was observed non significant for above all the parameters.</p>
----	---------------------	---

Table AS 42. 1: Growth, yield parameters, cane and CCS yield of sugarcane as influenced by sugarcane varieties and various fertilizers levels

Treatment	Germination % at 45 DAP	No. of tillers at 90 DAP (000/ha⁻¹)	No. of tillers at 120 DAP (000/ha⁻¹)	No. of tillers at 180 DAP (000/ha⁻¹)	NMC (000/ha⁻¹) at harvest	Cane yield (t/ha⁻¹)	CCS yield (t/ha⁻¹)
Variety							
V ₁ -CoSnk 08101	49.69	142.51	162.64	133.84	97.45	116.75	14.57
V ₂ - Co 08009	55.93	148.50	167.32	136.94	100.80	122.82	16.02
V ₃ - CoN 11073	58.21	158.05	173.56	144.86	112.91	124.50	15.55
V ₄ -CoN 13073	61.96	162.07	183.15	153.95	117.19	129.34	16.13
S.Em.±	1.86	4.43	4.59	4.20	3.25	2.56	0.48
C.D. at 5%	5.45	12.99	13.45	12.32	9.53	7.51	NS
Fertilizer levels							
F ₁ -75 % of RDN	55.85	144.45	162.05	132.94	101.28	119.17	14.92
F ₂ -100 % of RDN	57.11	156.08	173.88	147.023	111.41	127.48	16.18
F ₃ -125 % RDN	56.37	157.82	179.07	147.22	108.56	123.39	15.58
S. Em. ±	1.61	3.83	3.97	3.64	2.81	2.21	0.42
C.D. at 5%	NS	11.25	11.65	10.67	8.25	6.50	NS
C.V. %	9.90	8.69	8.01	8.85	9.09	6.23	9.41
Interaction	NS	NS	NS	NS	NS	NS	NS

Table AS 42. 2: Juice quality parameters of sugarcane as influenced by sugarcane varieties and various fertilizer levels

Treatment	Pol (%) juice	Purity (%)	Fibre (%)	Pol (%) cane	C.C.S. (%)
Variety					
V ₁ -Co Snk 08101	17.94	89.07	13.92	13.65	12.46
V ₂ - Co 08009	19.29	88.69	14.16	14.62	13.02
V ₃ - CoN 11073	17.83	89.35	14.04	13.54	12.49
V ₄ -CoN 13073	18.05	89.47	13.98	13.72	12.50
S.Em.±	0.31	0.59	0.10	0.23	0.29
C.D. at 5%	0.90	NS	NS	0.68	NS
Fertilizer levels					
F ₁ -75 % of RDN	17.85	88.68	13.98	13.56	12.50
F ₂ -100 % of RDN	18.3	88.49	14.07	13.89	12.72
F ₃ -125 % RDN	18.68	90.26	14.01	14.19	12.61
S. Em. ±	0.26	0.51	0.08	0.20	0.25
C.D. at 5%	NS	1.51	NS	NS	NS
C.V. %	5.03	2.01	2.21	5.02	6.94
Interaction	NS	NS	NS	NS	NS

1	Project No.	AS 68												
2	Title	Impact of integrated application of organics and inorganics in improving soil health and sugarcane (1 st Ratoon Crop)												
3	Objectives	➤ To study the differential response of sugarcane crop to different nutrients												
4	Details of the treatment	<ul style="list-style-type: none"> ➤ T₁: Application of trash at 10 tonnes/ha + 50 % RDF ➤ T₂: Application of trash at 10 tonnes/ha + 100 % RDF ➤ T₃: Application of trash at 10 tonnes /ha + soil test basis (NPK application) ➤ T₄: Application of FYM/Compost@ 20 tonnes/ha + 50 % RDF (inorganic source) ➤ T₅: Application of FYM/Compost@20 tonnes /ha + 100 % RDF (inorganic source) ➤ T₆: Application of FYM/Compost@20 tonnes /ha + inorganic nutrient application based on soil test (NPK application) ➤ T₇: Application of FYM/Compost@10 tonnes /ha +biofertilizer (Azotobacter / Acetobacter + PSB) + 50 % RDF ➤ T₈: Application of FYM/Compost@10 tonnes /ha +biofertilizer (Azotobacter / Acetobacter + PSB) + 100 % RDF ➤ T₉: Application of FYM/Compost@10 tonnes /ha +biofertilizer (Azotobacter / Acetobacter + PSB) + soil test basis (NPK application) ➤ Date of Ratooning : 15-02-2015 ➤ Variety : CoN 05071 ➤ Spacing : 90 cm ➤ Seed rate : Ratoon plant crop ➤ Fertilizer applied : As per treatment ➤ Recommended dose : 300-62.5-125 kg NPK ha⁻¹ <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Nutrient</th> <th style="text-align: left;">Basal</th> <th style="text-align: left;">Top dressing</th> </tr> </thead> <tbody> <tr> <td>N</td> <td>25 %</td> <td>75% (In 2 splits 50 & 25 % of RDN)</td> </tr> <tr> <td>P</td> <td>100%</td> <td>-</td> </tr> <tr> <td>K</td> <td>100%</td> <td>-</td> </tr> </tbody> </table> <ul style="list-style-type: none"> ➤ Date of harvesting : 25-02-2016 	Nutrient	Basal	Top dressing	N	25 %	75% (In 2 splits 50 & 25 % of RDN)	P	100%	-	K	100%	-
Nutrient	Basal	Top dressing												
N	25 %	75% (In 2 splits 50 & 25 % of RDN)												
P	100%	-												
K	100%	-												

5	Design	RBD
6	Replications	Three
7	Plot size	<ul style="list-style-type: none"> ➤ Gross : 6.00 m x 5.40 m ➤ Net : 4.00 m x 3.6 m
8	Climatic parameters	Given in project no. AS 42 (Early ratoon crop)
9	Soil health (Initial)	<ul style="list-style-type: none"> ➤ Organic carbon : 0.24% ➤ Available N : 301 kg/ha ➤ Available P₂O₅ : 83.84 kg/ha ➤ Available K₂O : 282 kg/ha
10	Summary of results:	<p>The data pertaining to initial soil fertility status, growth, yield parameters and after harvest soil status are given in table AS 68. 1 to 4. Significantly higher germination % was recorded with application of FYM/Compost@10 tonnes /ha +biofertilizer (<i>Azotobacter</i> / <i>Acetobacter</i> + <i>PSB</i>) + soil test basis (NPK application) (T₉) over application of trash at 10 tonnes/ha + 50 % RDF (T₁) at 30 and 45 DAP however it remained at par with T₆ and T₈ at 30 DAP. Significantly higher numbers of tillers were recorded with treatment T₉ over T₁. However it remained at par with T₃, T₆ at 120 & 150 DAP.</p> <p>NMC (106.57 000 ha⁻¹) was recorded significantly higher with treatment T₉ over T₁ and at par with T₃, T₅, T₆ and T₇. Millable cane length and girth was significantly highest with T₉ over T₁ however cane length remained at par with almost all the treatments except T₁. Significantly highest single cane weight was observed with T₉ over T₁.</p> <p>Cane yield (123.36 t ha⁻¹) was recorded significantly highest with T₉ over T₁ and remained at par with T₅ and T₆. CCS yield (13.61 t ha⁻¹) was also counted highest with T₉ over T₁ and remained at par with all the treatments except T₃. Various quality parameters were influenced significantly due to different nutrient management treatments at 10 month. Almost, all the treatment round equally effective over T₁. While at 12 month, treatment T₆ counted significantly highest brix, CCS %, Pol % juice and Purity % (22.28, 13.78, 19.84, 89.06) respectively, while lowest Fibre % was recorded with T₁ and remained at par with all the treatments except T₃, T₅, & T₉.</p> <p>There was no significant difference observed due to various inorganic and organic treatments on soil pH, EC (1:2.5) dsm⁻¹, available nitrogen,</p>

		available K_2O and BD g/cc. Available phosphorus recorded significantly highest with T4 and remained at par with all the treatment except T ₁ and T ₂ OC % was observed significantly highest in T ₅ over other treatment.
--	--	---

Trial series: AS-68 Impact of integrated application of organics and inorganics in improving soil health and sugarcane

Table AS 68. 1: Initial Soil Analysis:

Parameter	Soil value
pH (1:10)	8.67
EC (1:10) dsm ⁻¹	0.280
Organic carbon (%)	0.240
Available N (kg/ha)	301
Available P ₂ O ₅ (kg/ha)	83.84
Available K ₂ O (kg/ha)	282
Bulk density (Mg M ⁻³)	1.22
Infiltration rate (cm h ⁻¹)	1

Application of Soil test based fertilizer:

RDF-300-62.5-125 kg NPK/ha for ratoon crop

1. N - Recommended dose (RD) of nitrogen only i.e. 250 kg N/ha
2. P - Decrease RDP by 50 % i.e. apply 62.5 kg P₂O₅/ha
3. K - Decrease RDK by 25 % i.e. apply 93.75 kg K₂O/ha

Table AS 68.2 Growth and yield parameters of sugarcane as influenced by different organic and inorganic treatments

Treatment	Germination at 30 DAP	Germination at 45 DAP	No. of tillers at 120 DAP (000/ha⁻¹)	No. of tillers at 150 DAP (000/ha⁻¹)	Number of Millable cane at harvest (000/ha⁻¹)	Millable cane length (cm) at harvest	Millable Girth (cm) at harvest	Single cane weight (kg)	Cane yield (t/ha⁻¹)	CCS yield (t/ha⁻¹) at harvest
T ₁	40.23	39.98	180.91	188.61	80.63	185.85	2.43	1.01	97.29	10.37
T ₂	44.47	46.85	185.30	193.33	92.85	226.16	2.51	1.20	105.43	11.91
T ₃	44.27	45.37	217.18	221.77	95.53	222.02	2.53	1.24	94.34	11.16
T ₄	42.53	48.35	197.99	206.02	91.27	227.68	2.47	1.13	107.51	11.81
T ₅	43.10	47.71	182.39	190.23	93.49	216.50	2.46	1.32	108.67	12.69
T ₆	44.67	46.85	220.44	228.78	102.78	234.93	2.41	1.40	114.55	13.32
T ₇	43.23	46.14	195.75	203.76	96.54	233.79	2.49	1.43	108.22	13.06
T ₈	44.54	47.23	187.71	195.68	92.48	225.03	2.51	1.33	107.46	12.33
T ₉	52.11	55.37	242.09	255.04	106.57	250.70	2.54	1.67	123.36	13.60
S.Em ±	2.53	2.27	12.11	13.57	4.49	12.37	0.08	0.07	5.01	0.63
C.D.at 5%	7.61	6.84	36.32	40.70	13.45	37.10	0.26	0.23	15.03	1.90
C.V.%	9.91	8.38	10.43	11.23	8.21	9.53	6.11	10.18	8.08	8.96

Table AS 68.3 Juice quality parameters of sugarcane as influenced by different organic and inorganic treatments

Treatment	At 10 month						At 12 month					
	Brix	CCS %	Pol % juice	Purity %	Pol % cane	Fibre %	Brix	CCS %	Pol % juice	Purity %	Pol % cane	Fibre %
T ₁	18.13	10.63	15.57	85.78	12.13	12.03	22.13	13.67	19.69	88.93	15.14	13.08
T ₂	19.00	11.27	16.46	86.63	12.75	12.55	21.56	13.23	19.10	88.53	14.62	13.47
T ₃	19.72	11.83	17.21	87.26	13.28	12.85	22.25	13.76	19.81	89.04	15.08	13.90
T ₄	18.76	11.10	16.22	86.35	12.55	12.60	21.40	13.11	18.94	88.42	14.43	13.76
T ₅	19.51	11.67	17.00	87.04	13.08	12.98	21.57	13.24	19.11	88.59	14.52	13.99
T ₆	19.46	11.63	16.94	87.03	13.12	12.50	22.28	13.78	19.84	89.06	15.20	13.44
T ₇	20.01	12.05	17.51	87.48	13.59	12.38	21.91	13.50	19.46	88.82	14.90	13.48
T ₈	19.28	11.50	16.76	86.83	12.93	12.80	21.84	13.45	19.40	88.76	14.78	13.80
T ₉	18.67	11.03	16.12	86.32	12.39	13.18	21.55	13.22	19.09	88.55	14.50	14.03
S.Em ±	0.57	0.43	0.58	0.51	0.46	0.28	0.76	0.58	0.78	0.52	0.59	0.26
C.D.at 5%	1.71	1.30	1.76	1.53	1.38	0.86	2.28	1.74	2.35	1.56	1.79	0.80
C.V.%	5.15	6.59	6.12	1.02	6.21	3.94	6.04	7.48	7.02	1.02	6.99	3.38

Table AS 68.4: Soil properties after harvest of crop as influenced by different organic and inorganic treatments

Treatment	pH	EC (1:2.5) dsm⁻¹	OC%	Available N (kg/ha)	Available P₂O₅ (kg/ha)	Available K₂O (kg/ha)	BD g/cc
T ₁	8.30	0.18	0.53	204	44.33	577.67	1.68
T ₂	8.13	0.17	0.53	204	47.67	574.33	1.69
T ₃	8.20	0.18	0.54	212	59	570	1.67
T ₄	8.10	0.16	0.57	244.33	67	621	1.68
T ₅	8.30	0.17	0.73	231	59	568	1.68
T ₆	8.10	0.19	0.70	244.67	57.33	498.66	1.63
T ₇	8.03	0.16	0.58	263.33	56.33	522.67	1.63
T ₈	8.07	0.17	0.60	257	62	527	1.64
T ₉	8.17	0.17	0.54	238	66.33	585	1.63
S.Em ±	0.12	0.009	0.03	14.98	4.27	33.00	0.26
C.D.at 5%	NS	NS	0.09	NS	12.80	NS	NS
C.V.%	2.71	9.70	8.62	11.13	12.83	10.20	2.66
Initial	8.67	0.280	0.240	301	83.84	282	1.22

1	Project No.	AS-69												
2	Title	Use of plant growth regulators (PGRs) for enhanced yield and quality of sugarcane												
3	Objectives	<ul style="list-style-type: none"> ➤ To accelerate rate and extent of sugarcane germination through the use of PGRs ➤ To assess the effect of PGRs on sugarcane growth, yield and juice quality 												
4	Details of the treatment	<ul style="list-style-type: none"> ➤ T₁: Conventional planting/Farmers' practice (3-bud setts) ➤ T₂: Planting of setts after overnight soaking in water ➤ T₃: Planting of setts after overnight soaking in 50 ppm ethrel solution ➤ T₄: Planting of setts after overnight soaking in 100 ppm ethrel solution ➤ T₅: T₁+ GA3 (35 ppm) spray at 90, 120 and 150 DAP ➤ T₆: T₂ + GA3 (35 ppm) spray at 90, 120 and 150 DAP ➤ T₇: T₃ + GA3 (35 ppm) spray at 90, 120 and 150 DAP ➤ T₈: T₄ + GA3 (35 ppm) spray at 90, 120 and 150 DAP ➤ Date of planting : 24-03-2015 ➤ Variety : CoN 05071 ➤ Spacing : 90 cm ➤ Seed rate : 50,000 two eye bud except treatment T₁ & T₅ ➤ Fertilizer applied : 250-125-125 kg NPK ha⁻¹ <table style="margin-left: 40px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Nutrient</th> <th style="text-align: left;">Basal</th> <th style="text-align: left;">Top dressing</th> </tr> </thead> <tbody> <tr> <td>N</td> <td>15 %</td> <td>85% (In 3 splits 30, 20 & 35 % of RDN)</td> </tr> <tr> <td>P</td> <td>100%</td> <td>-</td> </tr> <tr> <td>K</td> <td>100%</td> <td>-</td> </tr> </tbody> </table> <ul style="list-style-type: none"> ➤ Date of harvesting : 29-03-2016 	Nutrient	Basal	Top dressing	N	15 %	85% (In 3 splits 30, 20 & 35 % of RDN)	P	100%	-	K	100%	-
Nutrient	Basal	Top dressing												
N	15 %	85% (In 3 splits 30, 20 & 35 % of RDN)												
P	100%	-												
K	100%	-												
5	Design	RBD												
6	Replications	Three												
7	Plot size	<ul style="list-style-type: none"> ➤ Gross : 6.00 m x 5.40 m ➤ Net : 4.00 m x 3.6 m 												
8	Climatic parameters	Given in project no. AS 42 (Early ratoon crop)												
9	Soil health (Initial)	<ul style="list-style-type: none"> ➤ Organic carbon : 0.31% ➤ Available N : 356 kg/ha 												

		<ul style="list-style-type: none"> ➤ Available P₂O₅ : 72.78 kg/ha ➤ Available K₂O : 305 kg/ha
10	Summary of results:	<p>The results are given in table AS 69. 1 to 6. Germination % at 10 and 50 DAP were recorded significantly highest with treatment T₄ (Planting of setts after overnight soaking in 100 ppm ethrel solution) over other treatments and remained at par with treatment T₃ and T₈; Germination % at 20, 30 and 40 DAP was recorded significantly highest with treatment T₃ and remained at par with T₄ and T₈ (Germination % 40 DAP only).</p> <p>Tiller population at 90 DAP were recorded significantly highest with treatment T₈ (T₄ + GA₃ (35 ppm) spray at 90, 120 and 150 DAP) and remained at par with almost all the treatment except treatment T₁ and T₃. Tiller population were not significantly influenced due to different treatment at 120, 150 and 180 DAP; however highest and lowest tiller population was recorded with treatment T₈ and T₁.</p> <p>Leaf area at 90, 120, 180, and 270 DAP were recorded significantly highest with treatment T₈ (T₄ + GA₃ (35 ppm) spray at 90, 120 and 150 DAP) and remained at par with almost all the treatments except T₁, T₅ and T₃. Leaf area was not significantly influenced due to different treatments at 150, 210, 240, 300, 330 and 360 DAP.</p> <p>Biomass accumulation at 90 DAP were recorded significantly highest with treatment T₂ and remained at par with above all the treatments except T₁; Significantly highest biomass accumulation at 120 DAP was noticed with treatment T₂ and remained at par with treatment T₃, T₄, T₆, T₇ and T₈; at 180 and 210 DAP, it was recorded significantly highest with treatment T₂ over other treatments and statically similar to the treatment T₈, T₃ and T₄; at 150, 240, 270, 300, 330 and 360 DAP it was failed to show any significant effect, however highest biomass accumulation was recorded with treatment T₂ (Planting of setts after overnight soaking in water).</p> <p>Plant height at 60, 90, 120, 150 180 DAP was recorded significantly highest with treatment T₈ over other treatment and remained at par with T₆, T₇ and T₄ at above all the growth stage was not significantly influenced due to different plant growth treatment at 240, 270, 300, 330 and 360 DAP; however highest plant height was noticed with treatment T₈.</p> <p>Root dry weight at 50 and 120 DAP were recorded significantly highest</p>

with treatment T₈ over other treatment and remained at par with T₂ and T₇ however T₄ also found equally effective at 120 DAP. 180 DAP it was not significantly influenced due to different treatments but highest and lowest root dry weight was observed in treatment T₈ and T₅ respectively.

NMC (110.19 000 ha⁻¹) was significantly higher recorded with treatment T₂ and remain at par with almost all the treatments except T₁ & T₃. Cane length at harvest was recorded significantly highest with treatment T₂ over other treatments and remained at par with T₈, T₆, T₃ and T₇. Cane girth at harvest is failed to show any significant effect due to different treatment. Single Cane weight was recorded significantly highest with treatment T₂ over other treatment and remained at par with T₆ and T₈ yield.

Significantly highest Cane yield (126.03 t ha⁻¹) was noticed with treatment T₂ (planting of setts after overnight soaking in water) but remained at par with T₄, T₈, T₇, and T₆ over T₁, T₃ and T₅.

Almost all the quality parameters were not significantly influenced due to different treatments except Pol % cane which recorded significantly highest with treatment T₁ and remain at par with all the treatment except T₃.

Table AS 69. 1: Effect of plant growth regulator on growth parameter (Germination % and Tiller population) of pl. S'cane

Treatment	Germination % at 10 DAP	Germination % at 20 DAP	Germination % at 30 DAP	Germination % at 40 DAP	Germination % at 50 DAP	Tiller population at 90 DAP (000/ha ⁻¹)	Tiller population at 120 DAP (000/ha ⁻¹)	Tiller population at 150 DAP (000/ha ⁻¹)	Tiller population at 180 DAP (000/ha ⁻¹)
T1	26.89	31.52	37.36	44.40	52.62	145.22	153.57	159.20	133.53
T2	29.49	34.47	39.66	45.62	53.39	158.82	168.40	171.26	147.71
T3	34.23	46.99	51.62	56.40	64.47	150.07	159.01	161.86	138.96
T4	36.41	41.59	46.68	53.98	66.58	164.11	173.65	176.64	144.28
T5	29.66	34.29	39.29	45.03	53.42	156.55	164.42	167.77	145.17
T6	24.93	32.25	38.41	45.25	58.81	159.94	166.97	170.12	142.40
T7	30.26	35.48	40.33	47.03	56.84	168.15	177.50	180.29	145.93
T8	33.32	37.87	43.63	50.86	59.88	170.37	180.06	184.45	149.94
SEM.±	1.92	2.52	2.08	2.26	2.53	5.13	6.64	7.07	6.73
C.D. at 5%	5.83	7.64	6.31	6.85	7.68	15.56	NS	NS	NS
C.V.%	10.86	11.85	8.55	8.06	7.53	5.58	6.85	7.14	8.12

Table AS 69. 2: Effect of plant growth regulator on leaf area of plant sugarcane

Treatment	Leaf area at 90 DAP	Leaf area at 120 DAP	Leaf area at 150 DAP	Leaf area at 180 DAP	Leaf area at 210 DAP	Leaf area at 240 DAP	Leaf area at 270 DAP	Leaf area at 300 DAP	Leaf area at 330 DAP	Leaf area at 360 DAP
T1	0.28	0.50	1.04	2.04	2.61	3.45	3.79	3.85	3.67	3.43
T2	0.40	0.72	1.29	2.72	3.12	3.67	4.99	4.44	4.21	3.93
T3	0.36	0.64	1.12	2.40	2.74	3.26	4.41	3.93	3.89	3.63
T4	0.37	0.65	1.16	2.45	2.82	3.34	4.51	4.02	3.85	3.60
T5	0.33	0.58	1.03	2.29	2.63	3.30	4.20	3.74	3.79	3.54
T6	0.39	0.69	1.24	2.64	3.04	3.51	4.85	4.31	4.09	3.82
T7	0.38	0.68	1.19	2.54	2.92	3.44	4.67	4.15	3.93	3.68
T8	0.42	0.74	1.31	2.77	3.18	3.71	5.07	4.51	4.30	4.02
SEM.±	0.023	0.030	0.066	0.11	0.133	0.160	0.217	0.215	0.219	0.226
C.D. at 5%	0.068	0.091	NS	0.32	NS	NS	0.657	NS	NS	NS
C.V.%	10.697	8.009	9.733	7.47	7.962	8.011	8.224	9.029	9.552	10.57

Table AS 69. 3: Effect of plant growth regulator on biomass accumulation of plant sugarcane

Treatment	Biomass accumulation at 90 DAP (t/ha ⁻¹)	Biomass accumulation at 120 DAP (t/ha ⁻¹)	Biomass accumulation at 150 DAP (t/ha ⁻¹)	Biomass accumulation at 180 DAP (t/ha ⁻¹)	Biomass accumulation at 210 DAP (t/ha ⁻¹)	Biomass accumulation at 250 DAP (t/ha ⁻¹)	Biomass accumulation at 280 DAP (t/ha ⁻¹)	Biomass accumulation at 300 DAP (t/ha ⁻¹)	Biomass accumulation at 330 DAP (t/ha ⁻¹)	Biomass accumulation at 360 DAP (t/ha ⁻¹)
T1	1.86	3.66	5.62	15.16	22.2	30.56	39.30	44.64	46.55	52.26
T2	2.55	4.31	6.27	20.37	27.0	34.88	44.07	49.41	54.96	60.49
T3	2.39	4.21	6.21	17.84	24.5	32.34	41.17	46.51	52.06	56.27
T4	2.49	4.28	6.25	17.46	24.1	31.96	40.92	46.26	51.81	56.43
T5	2.50	3.70	5.66	14.63	21.3	29.14	38.14	43.48	49.02	52.96
T6	2.52	4.28	6.25	15.84	22.5	30.34	39.23	44.57	50.11	55.16
T7	2.49	4.26	6.23	16.66	23.3	31.17	39.99	45.33	50.87	56.28
T8	2.51	4.24	6.25	19.92	26.6	33.21	43.20	48.54	54.09	58.58
SEM.±	0.14	0.16	0.28	1.05	1.14	1.47	1.97	1.97	2.39	3.12
C.D. at 5%	0.41	0.49	NS	3.20	3.46	NS	NS	NS	NS	NS
C.V.%	9.68	6.86	8.02	10.59	8.25	8.01	8.37	7.40	8.07	9.63

Table AS 69. 4: Effect of plant growth regulator on plant height of plant sugarcane

Treatment	Plant height (cm) at 60 DAP	Plant height (cm) at 90 DAP	Plant height (cm) at 120 DAP	Plant height (cm) at 150 DAP	Plant height (cm) at 180 DAP	Plant height (cm) at 210 DAP	Plant height (cm) at 240 DAP	Plant height (cm) at 270 DAP	Plant height (cm) at 300 DAP	Plant height (cm) at 330 DAP	Plant height (cm) at 360 DAP
T1	109.89	128.86	143.10	152.81	167.29	192.99	210.66	224.97	235.60	244.50	260.65
T2	116.10	132.07	146.36	156.36	175.03	188.81	221.98	240.70	249.77	260.60	274.33
T3	120.34	136.51	150.71	159.89	170.81	188.00	204.06	221.89	229.54	241.92	255.56
T4	127.53	143.65	158.27	167.73	178.17	193.07	208.97	227.32	236.78	250.50	264.26
T5	112.84	129.95	144.06	154.15	164.52	182.10	197.34	228.98	237.77	251.81	265.50
T6	138.57	154.99	169.15	178.93	189.78	203.59	218.68	236.66	248.46	247.39	260.96
T7	133.87	151.35	165.32	175.58	188.38	201.74	223.99	240.52	246.99	257.38	270.10
T8	143.05	160.62	174.40	184.62	201.41	216.03	231.71	246.81	258.38	268.51	282.08
SEM.±	7.06	7.27	7.29	7.22	7.52	10.17	11.40	11.80	9.89	14.42	13.33
C.D. at 5%	21.43	22.06	22.12	21.91	22.81	NS	NS	NS	NS	NS	NS
C.V.%	9.77	8.85	8.07	7.52	7.26	8.99	9.20	8.75	7.05	9.88	8.66

Table AS 69. 5: Effect of plant growth regulator on root dry wt. and yield parameter (NMC, cane length, cane girth, single cane wt. and cane yield of plant sugarcane

Treatment	Root Dry wt. at 50 DAP (t/ha ⁻¹)	Root Dry wt. at 120 DAP (t/ha ⁻¹)	Root Dry wt. at 180 DAP (t/ha ⁻¹)	NMC at harvest (000/ha ⁻¹)	Cane length (cm) at harvest	Cane girth (cm) at harvest	Single cane wt at harvest (kg)	Cane yield (t/ha ⁻¹)
T1	0.24	0.39	0.44	89.31	196.17	2.68	1.09	103.88
T2	0.34	0.49	0.52	110.19	258.54	2.76	1.38	126.03
T3	0.29	0.44	0.46	94.12	238.81	2.52	1.08	108.78
T4	0.31	0.46	0.47	107.55	224.04	2.70	1.04	123.76
T5	0.26	0.41	0.43	99.21	228.48	2.59	1.13	111.19
T6	0.30	0.45	0.46	103.73	240.11	2.54	1.26	114.96
T7	0.34	0.49	0.51	105.00	235.17	2.63	1.15	121.72
T8	0.38	0.53	0.55	109.47	254.99	2.76	1.22	123.50
SEM.±	0.02	0.025	0.028	4.52	9.46	0.10	0.07	4.87
C.D. at 5%	0.06	0.076	NS	13.71	28.69	NS	0.20	14.76
C.V.%	10.20	9.480	10.062	7.65	6.99	6.24	9.76	7.22

Table AS 69. 6: Effect of plant growth regulator on juice quality parameter of plant sugarcane

Treatment	Brix %	Pol % Juice	Purity %	CCS%	Fibre %	Pol % Cane
T1	21.33	18.84	88.33	13.03	14.47	14.23
T2	20.13	18.31	91.09	12.83	14.68	13.79
T3	19.27	17.35	90.73	12.11	14.61	13.08
T4	20.57	18.45	89.75	12.85	14.59	13.91
T5	21.27	18.88	88.91	13.09	14.69	14.22
T6	19.87	18.68	94.23	13.30	14.43	14.12
T7	20.57	18.65	90.88	13.06	14.59	14.06
T8	21.20	18.69	88.24	12.92	14.61	14.09
SEM.±	0.73	0.29	3.16	0.31	0.22	0.22
C.D. at 5%	NS	NS	NS	NS	NS	0.66
C.V.%	6.16	2.80	6.07	4.25	2.63	2.73