

Annual Report of Crop Improvement in Sugarcane 2016-17



**Scheme
AICRP on Sugarcane
(Voluntary Centre)**

**Sugarcane Research Centre,
Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola**



**Submitted by
Senior Research Scientist (Sugarcane)
Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola (MS)**

Crop Improvement

Experiment No. :- 1

Project Title : **Zonal varietal trial**
Initial varietal trial – Early
 Period for which report submitted : 2016-2017
Total cost of the project : Within the sanctioned grants under AICRP
Principal Investigator : Dr. N. K. Patke, S.R.S. Sugarcane
Co-investigator : Shri A. B. Kandalkar, Assistant Professor
 : Dr. G. K. Lande, Assistant Professor
 : Shri S.V. Patil, Senior Research Assistant
 :

Project Technical Details

Design : RBD

Treatments (8+3=11 Genotypes)

1 Co 13002	5 CoN 13072	9 Co 85004©
2 Co 13003	6 CoSnk 13101	10 Co 94008©
3 Co 13004	7 CoSnk 13102	11 CoC 671©
4 CoN 13071	8 MS 13081	

Plot size : 6.00 x 4.50 m²

No. of replications : Three

Date of planting : 19/01/2016

Date of harvesting : 05/11/2016

Fertilizer : 175:100:100 N, P₂O₅ and K₂O kg ha⁻¹

Previous Crop : Green gram

Table 1: Cane Yield and Juice quality of Sugarcane as influenced by different genotypes

S. No.	Clone	CCS (t/ha)	Cane yield (t/ha)	CCS % (10m)	Brix % (10 m)	Purity % (10m)	Pol % cane (10m)	NMC at 10m ('000/ha)
1	Co 13002	7.44	55.07	12.34	21.62	84.66	18.25	44.06
2	Co 13003	5.30	50.52	11.96	21.39	83.27	17.82	38.35
3	Co 13004	6.97	47.15	13.11	20.46	91.39	18.67	33.18
4	CoN 13071	12.98	80.36	13.64	20.20	94.86	19.12	48.07
5	CoN 13072	12.63	87.83	13.09	20.49	91.19	18.66	45.91
6	CoSnk 13101	5.78	42.21	13.06	20.97	89.78	18.77	42.21
7	CoSnk 13102	7.08	51.89	12.83	20.02	91.69	18.27	41.51
8	MS 13081	12.74	94.75	13.15	20.07	92.76	18.60	47.38
Stds								
1	CoC 671	10.67	68.17	13.03	21.06	89.29	18.77	42.98
2	Co 94008	7.03	60.92	12.88	21.15	88.17	18.64	45.52
3	Co 85004	6.03	78.36	11.95	21.13	84.06	17.73	48.92
	SE	0.84	5.62	0.47	0.62	3.09	0.47	2.27
	CD	2.49	16.59	NS	NS	NS	NS	6.70
	CV	17.38	14.94	6.37	5.13	6.01	4.39	9.05

Results:-**Cane and Sugar yield:**

Significantly higher cane yield was recorded by Genotype MS 13081 (94.75 t/ha) followed by CoN 13072 (87.83 t/ha), CoN 13071 (80.36 t/ha) and Check variety Co 85004 (78.36). However, these genotypes were at par with each other.

Significantly higher sugar yield was recorded in genotype CON 13071 (12.98 t/ha) followed by MS 13081 (12.74 t/ha) and CoN 13072 (12.63 t/ha).

Ancillary Growth Character:-

In respect of millable canes, the genotype Co 85004 (Ch) (48920 ha⁻¹) produced significantly higher millable canes than other genotypes. The genotype CO 13004 and coN 13072 recorded significantly higher cane height (202.33 cm).

Table 2: Ancillary data of Sugarcane as influenced by different genotypes

S. No.	Clone	Stalk Length (cm)	Stalk Diameter (cm)	Single cane weight (kg)	CCS % (8 m)	Brix % (8 m)	Purity % (8 m)	No. of shoots ('000/ha) 240 days	No. of tillers ('000/ha) 120 days	Germination % (30 days)
1	Co 13002	207.00	2.59	1.25	10.58	18.41	84.81	47.84	60.11	40.63
2	Co 13003	210.00	2.78	1.33	11.38	17.01	94.08	40.51	53.24	43.02
3	Co 13004	234.33	2.95	1.42	10.96	16.32	94.31	35.34	45.76	40.87
4	CoN 13071	227.33	2.89	1.67	10.15	16.76	87.85	50.08	59.18	41.43
5	CoN 13072	234.33	2.79	1.92	10.56	15.74	94.87	46.68	57.64	41.67
6	CoSnk 13101	202.67	2.69	1.00	10.06	19.51	79.01	43.36	53.94	42.06
7	CoSnk 13102	190.00	3.02	1.25	10.60	16.52	91.75	44.68	53.78	40.87
8	MS 13081	186.00	3.02	2.00	10.75	17.89	87.44	55.25	65.97	44.76
Std										
1	CoC 671	212.00	2.89	1.58	10.35	18.01	84.92	45.83	51.39	40.78
2	Co 94008	221.67	2.91	1.33	10.70	16.52	92.27	48.30	54.78	40.79
3	Co 85004	206.00	2.59	1.58	10.61	16.84	90.30	52.62	62.27	46.75
	SE	9.59	0.08	0.08	0.29	0.51	2.89	2.21	40.63	1.43
	CD	28.28	0.23	0.24	NS	1.52	8.51	6.52	34.10	4.21
	CV	7.83	4.74	9.68	4.72	5.17	5.60	8.25	8.25	5.87

Juice quality:

The data regarding brix, Pol %, CCS % and Purity % showed non-significant results. The maximum brix reading was recorded in CO 13002 (21.62). Whereas, genotype CoN 13071 recorded higher Pol % (19.12 %), CCS % (13.64 %) and Purity % (94.86 %).

Conclusion:

Among the 11 genotypes and 2 checks, genotype MS 13081 recorded significantly higher cane yield (94.75 t/ha) and Sugar yield recorded higher in CoN 13071 (13.64 t ha⁻¹).

Experiment No. :- 2

Project Title	:	Zonal varietal trial Advanced varietal trial (Early)- I Plant
Period for which report submitted	:	2016-2017
Total cost of the project	:	Within the sanctioned grants under AICRP
Principal Investigator	:	Dr. N. K. Patke, S.R.S. Sugarcane
Co-investigator	:	Shri A. B. Kandalkar, Assistant Professor Dr. G. K. Lande, Assistant Professor Shri S.V. Patil, SRA
Project Technical Details	:	
Design	:	RBD
Treatments (5+3=8 Genotypes)	:	1. Co 11001 5. CoM 11084 2. Co 11004 6. Co 85004(ch) 3. CoM 11081 7. Co 94008(ch) 4. CoM 11082 8. CoC 671(ch)

Table 3: Cane Yield and Juice quality of Sugarcane as influenced by different genotypes

S. No.	Clone	CCS (t/ha)	Cane yield (t/ha)	CCS % (10m)	Brix % (10 m)	Purity % (10m)	Pol % cane (10m)	NMC at 10m ('000/ha)
1	Co 11001	11.90	100.66	11.86	20.23	85.97	17.38	57.95
2	Co 11004	9.64	78.55	12.32	20.53	87.98	17.92	52.47
3	CoM 11081	8.09	63.19	12.78	21.09	87.87	18.53	44.91
4	CoM 11082	9.87	84.51	11.71	21.78	81.33	17.68	43.75
5	CoM 11084	10.62	85.55	12.43	20.03	89.59	17.88	63.66
Stds								
1	CoC 671	9.84	77.87	12.54	21.67	85.22	18.47	52.16
2	Co 94008	9.20	72.51	12.62	19.13	93.15	17.81	52.08
3	Co 85004	8.29	71.05	11.78	21.98	81.00	17.81	65.43
	SE	0.91	5.94	0.46	0.49	2.80	0.44	2.58
	CD	2.75	18.03	NS	1.50	NS	NS	7.83
	CV	16.24	12.99	6.48	4.12	5.60	4.28	8.27

Cane Yield:

Significantly higher cane yield was recorded by Genotype Co 11001 (100.66 t/ha) followed by CoM 11084 (85.55 t/ha) and CoM 11082 (84.51 t/ha). However, these genotypes were at par with each other.

Genotype Co 11001 (11.90 t/ha) recorded significantly higher sugar yield followed by CoM 11084 (10.62 t/ha), CoM 11082 (9.87 t/ha), check variety CoC 671 (9.84 t/ha), Co 11004 (9.64 t/ha) and check variety Co 94008 (9.20 t/ha). However, these genotypes are at par with each other.

Table 4: Ancillary data of Sugarcane as influenced by different genotypes

S. No	Clone	Stalk Length (cm)	Stalk Diameter (cm)	Single cane weight (kg)	CCS % (8 m)	Brix % (8 m)	Purity % (8 m)	No. of shoots ('000/ha) 240 days	No. of tillers ('000/ha) 120 days	Germination % (30 days)
1	Co 11001	194.00	2.79	1.75	11.63	16.28	98.48	61.65	73.92	37.38
2	Co 11004	163.50	2.85	1.50	12.63	18.99	93.59	54.40	74.00	35.18
3	CoM 11081	159.00	2.78	1.42	12.94	19.05	95.03	47.38	73.15	39.58
4	CoM 11082	191.50	3.09	1.92	11.10	18.96	86.00	46.68	55.17	35.54
5	CoM 11084	158.50	2.56	1.33	12.40	17.85	96.51	68.21	87.96	43.99
Stds										
1	CoC 671	166.50	3.03	1.50	11.32	18.95	87.13	57.41	75.31	41.73
2	Co 94008	173.50	2.76	1.42	12.02	17.05	97.59	54.24	76.47	47.56
3	Co 85004	163.50	2.65	1.08	12.37	17.92	96.19	72.45	94.14	48.04
	SE	5.62	0.08	0.12	0.27	0.48	1.96	3.14	6.11	2.90
	CD	17.04	0.24	0.37	0.83	1.45	5.95	9.54	18.53	8.80
	CV	5.68	4.96	14.36	3.91	4.57	3.62	9.42	13.88	12.22

Ancillary Growth Character:-

Significantly higher millable canes (65432 ha^{-1}) were recorded in Co 85004 (ch) and Stalk Length (194 cm) was recorded in genotypes Co 11001. The genotype CoM 11082 (3.09 cm) recorded significantly higher cane diameter.

Juice quality:

The data regarding POL % showed non-significant results. Highest brix reading and CCS % was recorded in CoM 11081 and Purity % was recorded in genotypes CO 11001 (98.48).

Conclusion:

Among the 5 genotypes and 3 checks, genotype Co 11001 recorded significantly higher cane (100.66 t/ha) and Sugar yield (12.78 t/ha) in CoM 11081.

Experiment No. :- 3**Project Title** : **Advanced varietal trial (Early)- II Plant**

Period for which report submitted : 2016-2017

Total cost of the project : Within the sanctioned grants under AICRP**Principal Investigator** : Dr. N. K. Patke, S.R.S. Sugarcane**Co-investigators** : Shri A. B. Kandalkar, Assistant Professor

: Dr. G. K. Lande, Assistant Professor

: Shri S.V. Patil, SRA

Project Technical Details :

Design : RBD

Treatments (8+3 Genotypes)

- | | |
|------------|------------------|
| 1. Co10004 | 7. CoT10366 |
| 2. Co10005 | 8. CoT10367 |
| 3. Co10006 | 9. Co85004 (ch) |
| 4. Co10024 | 10. Co94008 (ch) |
| 5. Co10026 | 11. CoC 671 (ch) |
| 6. Co10027 | |

Plot size : 7.20 x 6.00 m²

No. of replications : Three

Date of planting : 09/01/2016

Date of harvesting : 10/11/2016

Fertilizer : 175:100:100 N, P₂O₅ and K₂O kg ha⁻¹

Previous Crop : Green gram

Table 5: Cane Yield and Juice quality of Sugarcane as influenced by different genotypes

S. No.	Clone	CCS (t/ha)	Cane yield (t/ha)	CCS % (10m)	Brix % (10 m)	Purity % (10m)	Pol % cane (10m)	NMC at 10m ('000/ha)
1	Co 10004	8.55	70.63	12.11	20.19	87.25	17.61	48.23
2	Co 10005	9.17	72.69	12.59	18.66	94.58	17.65	54.78
3	Co 10006	9.69	76.77	12.66	19.82	91.07	18.05	60.57
4	Co 10024	8.84	66.36	13.27	19.49	95.29	18.56	49.69
5	Co 10026	9.46	74.48	12.69	18.79	94.70	17.79	50.77
6	Co 10027	11.18	87.79	12.76	18.60	95.75	17.80	59.80
7	CoT 10366	9.24	74.57	12.39	17.62	97.39	17.16	56.25
8	CoT 10367	9.22	74.75	12.30	20.77	86.68	17.97	48.61
Stds								
1	Co 85004	9.67	78.56	12.31	19.52	90.38	17.63	62.19
2	Co 94008	8.72	71.99	12.05	19.69	89.03	17.42	51.54
3	CoC 671	8.83	73.35	12.06	21.64	83.21	17.98	52.39
	SE	0.46	3.67	0.29	0.56	2.37	0.29	2.19
	CD	1.36	10.82	NS	1.66	7.00	NS	6.46
	CV	8.58	8.50	3.97	4.98	4.50	2.83	7.01

Table 6: Ancillary data of Sugarcane as influenced by different genotypes

S. No.	Clone	Stalk Length (cm)	Stalk Diameter (cm)	Single cane weight (kg)	CCS % (8 m)	Brix % (8 m)	Purity % (8 m)	No. of shoots ('000/ha) 240 days	No. of tillers ('000/ha) 120 days	Germination % (30 days)
1	Co 10004	241	2.57	1.47	12.54	18.57	94.63	51.54	55.56	40.95
2	Co 10005	213	2.82	1.33	12.42	17.97	96.20	65.97	74.38	41.67
3	Co 10006	212	2.62	1.27	12.37	17.44	98.00	68.44	52.85	38.04
4	Co 10024	209	2.94	1.33	12.24	18.24	94.34	57.56	64.89	45.48
5	Co 10026	218	3.05	1.47	12.63	18.30	96.10	69.06	77.16	44.11
6	Co 10027	182	3.34	1.47	11.48	16.17	98.37	68.21	75.69	44.46
7	CoT 10366	191	2.92	1.33	11.59	16.43	97.60	59.88	60.88	40.06
8	CoT 10367	223	3.18	1.53	12.61	18.37	95.75	65.12	67.67	45.00
Stds										
1	CoC 671	197	3.10	1.40	13.17	19.10	96.01	64.20	66.20	46.31
2	Co 94008	232	2.89	1.40	12.51	17.55	98.29	56.87	59.26	45.06
3	Co 85004	212	2.99	1.27	12.06	16.92	98.35	71.76	75.69	48.75
	SE	10.38	0.10	0.07	0.39	0.62	1.18	3.98	4.65	2.61
	CD	30.63	0.28	NS	NS	NS	NS	11.75	13.71	NS
	CV	8.49	5.59	8.65	5.43	6.01	2.11	10.86	12.13	10.38

Cane Yield:-

Significantly higher cane yield was recorded by Genotype Co 10027 (87.79 t/ha) followed by check Co 85004 (78.56 t/ha). However, these genotypes were at par with each other and significantly superior than all other genotypes.

Genotype Co 10024 (13.27 t/ha) recorded significantly higher sugar yield than all other genotypes.

Ancillary Growth Character:-

Significantly higher millable canes (62191 ha^{-1}) and Stalk Length (241 cm) was recorded in genotypes Co 10004. The genotype Co10027 (3.34 cm) recorded significantly higher cane diameter.

Juice quality:

The Pol % and CCS % showed non-significant results. Highest brix reading (21.64) and Pol % (18.56%) were recorded in genotype Co 10024. Whereas, higher CCS % (13.27 %) and Purity % (97.39 %) was observed in genotype Co 10024 and CoT 10366 respectively.

Conclusion:

Among the 8 genotypes and 3 checks, significantly higher cane and sugar yield was recorded in Genotype Co 10027 (87.79 t/ha) and Co10024 (13.27 t/ha) respectively.

Experiment No. :- 4

Project Title : **Zonal varietal trial :
Advanced varietal trial (Early)- Ratoon**

Period for which report submitted : 2016-2017

Total cost of the project : Within the sanctioned grants under AICRP

Principal Investigator : Dr. N. K. Patke, S.R.S. Sugarcane
: Shri A. B. Kandalkar, Assistant Professor
: Dr. G. K. Lande, Assistant Professor
: Shri S.V. Patil, SRA

Project Technical Details

Design : RBD

Treatments (8 +3 check Genotypes)

- | | | |
|-------------|--------------|-------------------|
| 1. Co 10004 | 5. Co 10026 | |
| 2. Co 10005 | 6. Co 10027 | 9. Co 85004 (ch) |
| 3. Co 10006 | 7. CoT 10366 | 10. Co 94008 (ch) |
| 4. Co 10024 | 8. CoT 10367 | 11. CoC 671 (ch) |

- | | | | |
|----|---------------------|---|---|
| 3. | Plot size | : | 7.20 x 6.00 m ² |
| 4. | No. of replications | : | Three |
| 5. | Date of Ratooning | : | 23/02/2016 |
| 6. | Date of harvesting | : | 27/11/2016 |
| 7. | Fertilizer | : | 175:100:100 N, P ₂ O ₅ and K ₂ O kg ha ⁻¹ |
| 8. | Previous Crop | : | Sugarcane |

Table 7: Cane Yield and Juice quality of Sugarcane as influenced by different genotypes

S. No.	Clone	CCS (t/ha)	Cane yield (t/ha)	CCS % (9m)	Brix % (9 m)	Purity % (9m)	Pol % cane (9m)	NMC at ('000/ha) (9m)
1	Co 10004	5.95	60.23	9.82	20.69	75.01	15.52	50.39
2	Co 10005	3.70	40.99	9.04	18.96	75.22	14.26	51.23
3	Co 10006	4.43	45.25	9.81	18.86	79.51	14.98	56.56
4	Co 10024	7.57	81.84	9.19	19.02	76.15	14.42	55.71
5	Co 10026	4.56	47.84	9.47	19.63	75.94	14.87	47.84
6	Co 10027	8.76	83.41	10.44	19.20	81.74	15.70	65.74
7	CoT 10366	5.79	58.95	9.82	18.37	80.91	14.86	58.95
8	CoT 10367	6.90	72.50	9.51	19.70	75.82	14.94	60.42
Stds								
1	CoC 671	4.65	54.01	8.62	20.58	69.74	14.32	54
2	Co 94008	5.08	50.03	10.17	18.53	82.28	15.24	50.31
3	Co 85004	4.88	51.36	9.50	19.97	75.20	15.00	64.20
	SE	0.52	3.77	0.36	0.37	2.37	0.30	2.79
	CD	1.54	11.11	NS	1.09	7.00	NS	8.23
	CV	15.97	11.10	6.47	3.29	5.34	3.52	8.63

Table 8: Ancillary data of Sugarcane as influenced by different genotypes

S. N.	Clone	Stalk Length (cm)	Stalk Diameter (cm)	Single cane weight (kg)	No. of tillers ('000/ha) 120 days	No. of tillers ('000/ha) 90 days
1	Co 10004	185	3.00	1.20	53.16	47.15
2	Co 10005	172	2.49	0.80	65.97	59.65
3	Co 10006	163	2.35	0.80	75.08	77.78
4	Co 10024	217	2.79	1.47	88.12	84.10
5	Co 10026	195	2.45	1.00	63.04	73.77
6	Co 10027	168	2.98	1.27	91.20	96.84
7	CoT 10366	188	2.83	1.00	72.92	74.00
8	CoT 10367	173	2.87	1.20	77.39	74.31
Stds						
1	CoC 671	166	2.77	1.00	56.33	66.98
2	Co 94008	173	2.81	1.00	53.86	52.39
3	Co 85004	172	2.72	0.80	93.13	81.10
	SE	4.63	0.05	0.05	7.68	7.35
	CD	13.67	0.15	0.15	22.65	21.69
	CV	4.48	3.20	8.33	18.51	17.78

Cane Yield:-

Significantly higher cane yield was recorded by Genotype Co 10027 (83.41 t/ha) followed by Co 10024 (81.84 t/ha) and CoT 10367 (72.50 t/ha). However, these treatments were at par with each other and former genotypes recorded significantly higher cane yield than remaining genotypes.

Genotype Co 10027 (8.76 t/ha) recorded significantly higher sugar yield than all other genotypes except Co 10024 (7.57 t/ha).

Ancillary Growth Character:-

Significantly higher millable canes (65741 ha^{-1}) recorded in Co 10027 and Stalk Length in Co 10024 (217 cm). Whereas, the genotype Co 10004 recorded significantly higher cane diameter (3.00 cm).

Juice quality:

Significantly higher Brix reading was recorded in genotype Co 10004. Whereas, POL %, CCS % were found non-significant. The highest purity % was recorded (82.28%) in Co 94008 (ch)

Conclusion:

Among the 8 genotypes and 3 checks, significantly higher cane & sugar yield of sugarcane were recorded in Genotype Co 10027 (83.41 & 10.44 t/ha)

Experiment No. :- 5

Project Title : **Zonal Varietal Trial**
Initial varietal trial – Midlate
Period for which report submitted : 2016-2017
Total cost of the project : Within the sanctioned grants under AICRP
Principal Investigator : Dr. N. K. Patke, S.R.S. Sugarcane
Co-investigator : Shri A. B. Kandalkar, Assistant Professor
Name : Dr. G. K. Lande, Assistant Professor
Co-investigator : Shri S.V. Patil, SRA

Project Technical Details :

Design : RBD

Treatments (22 Genotypes)

1. Co 13005	7. Co 13014	13. CoN 13074	19. PI 13131
2. Co 13006	8. Co 13016	14. CoSnk 13103	20. PI 13132
3. Co 13008	9. Co 13018	15. CoSnk 13104	21. Co 86032 (Ch)
4. Co 13009	10. Co 13020	16. CoSnk 13105	22. Co 99004(Ch)
5. Co 13011	11. CoM 13082	17. CoSnk 13106	
6. Co 13013	12. CoN 13073	18. CoT 13366	

Plot size : 6.00 x 4.50 m²
No. of replications : Two
Date of planting : 12/01/2016
Date of harvesting : 10/01/2017
Fertilizer : 175:100:100 N, P₂O₅ and K₂O kg ha⁻¹
Previous Crop : Green gram

Cane Yield:-

Among the 22 genotypes tested, Co 13020 (120.33 t/ha) recorded significantly higher cane yield followed by Co 13013 (120.30 t/ha), CoN 13073 (110.56 t/ha), CoN 13074 (103.96 t/ha) and CoM 13082 (99.52 t/ha). However, these genotypes were at par with each other.

Significantly higher sugar yield was recorded in genotype PI 13132 (13.61 t/ha) followed by Co 13018 (13.43 t/ha) and CoN 13073 (13.33 t/ha). However, these treatments were at par with each other and significantly superior than other genotypes.

Ancillary Growth Character:-

In respect of millable canes CoSnk 13103 (85000 ha⁻¹) recorded significantly higher millable cane over all other genotypes and checks. Genotype Co 13020 recorded significantly more height (257.00 cm) over all other genotypes and checks. The genotype CoSnk 13104 (3.63 cm) recorded significantly higher cane diameter and was at par with genotypes CoN 13073, Co 13020.

Table 9: Cane Yield and Juice quality of Sugarcane as influenced by different genotypes

S. No.	Clone	CCS (t/ha)	Cane yield (t/ha)	CCS % (12m)	Brix % (12m)	Purity % (12m)	Pol % cane (12m)	NMC at 12m ('000/ha)
1	Co 13005	6.14	55.56	11.04	16.24	95.13	15.45	69.44
2	Co 13006	8.64	72.22	11.94	17.72	94.58	16.75	72.22
3	Co 13008	9.46	77.30	12.26	20.25	87.80	17.78	59.26
4	Co 13009	10.20	84.93	11.97	17.22	96.56	16.63	76.85
5	Co 13011	11.97	97.11	12.34	18.82	92.73	17.45	74.81
6	Co 13013	13.15	120.30	10.93	21.60	78.10	16.87	75.19
7	Co 13014	8.35	83.81	9.94	21.56	73.73	15.89	64.44
8	Co 13016	5.87	51.93	11.38	18.93	87.44	16.54	51.30
9	Co 13018	12.15	90.26	13.43	18.88	98.21	18.54	75.00
10	Co 13020	14.30	120.33	11.86	22.71	79.65	18.09	70.37
11	CoM 13082	12.12	99.52	12.18	17.23	97.74	16.84	76.85
12	CoN 13073	14.75	110.56	13.33	19.53	95.37	18.62	73.33
13	CoN 13074	12.80	103.96	12.32	17.76	96.43	17.13	74.26
14	CoSnk 13103	9.47	85.00	11.14	22.31	77.41	17.27	85.00
15	CoSnk 13104	11.06	87.33	12.65	18.81	94.37	17.76	72.78
16	CoSnk 13105	5.38	43.19	12.48	18.81	93.57	17.59	62.04
17	CoSnk 13106	11.52	90.81	12.52	20.01	89.74	17.97	69.26
18	CoT 13366	8.25	86.67	9.51	21.06	72.74	15.32	72.22
19	PI 13131	8.82	70.19	12.56	20.46	88.66	18.14	70.19
20	PI 13132	7.42	54.52	13.61	19.71	96.15	18.95	68.15
Stds								
1	Co 86032	11.11	91.78	12.11	22.66	80.87	18.33	76.48
2	Co 99004	10.67	93.85	11.37	21.71	79.83	17.33	67
	SE	1.24	9.30	0.22	0.30	1.17	0.26	3.11
	CD	3.73	27.87	NS	0.91	3.51	NS	9.31
	CV	17.30	15.46	2.62	2.18	1.87	2.13	6.21

Juice quality:

The data regarding Pol % and CCS % showed non-significant results. Significantly higher brix reading was recorded in Co 13020 (22.71 %) and was at par with CoSnk 13103.

Conclusion:

Among the 20 genotypes and 2 checks, genotype Co 13020 recorded significantly higher cane yield (120.33 t/ha) and Sugar yield (13.43 t/ha) in Co 13018 .

Table 10: Ancillary data of Sugarcane as influenced by different genotypes

S. No.	Clone	Stalk Length (cm)	Stalk Diameter (cm)	Single cane weight (kg)	CCS % (10 m)	Brix % (10 m)	Purity % (10 m)	No. of shoots ('000/ha) 240 days	No. of tillers ('000/ha) 120 days	Germination % (30 days)
1	Co 13005	149	3.02	0.80	10.99	17.01	91.77	79.63	67.04	37.00
2	Co 13006	208	2.71	1.00	11.71	17.66	93.45	81.11	64.44	40.57
3	Co 13008	215	3.04	1.30	10.58	16.31	92.09	63.70	60.37	39.00
4	Co 13009	161	3.33	1.10	11.56	17.68	92.72	89.07	77.41	35.57
5	Co 13011	227	3.13	1.30	11.01	17.28	91.80	81.85	71.48	37.43
6	Co 13013	250	3.20	1.60	10.46	19.81	80.21	88.33	79.26	45.86
7	Co 13014	225	3.22	1.30	11.01	15.81	96.73	72.04	60.19	34.86
8	Co 13016	127	3.31	1.00	11.05	18.83	86.24	56.30	57.22	40.57
9	Co 13018	246	2.91	1.20	10.81	16.71	92.00	84.44	83.15	39.86
10	Co 13020	257	3.50	1.70	9.84	17.96	82.19	77.22	63.33	48.14
11	CoM 13082	240	3.16	1.30	10.71	16.78	91.35	85.56	90.37	37.29
12	CoN 13073	243	3.52	1.50	10.94	18.68	86.33	81.85	67.59	34.86
13	CoN 13074	211	3.28	1.40	11.15	15.76	97.79	84.81	69.07	44.57
14	CoSnk 13103	243	2.70	1.00	9.44	18.51	78.48	89.44	85.56	38.57
15	CoSnk 13104	168	3.63	1.20	7.94	17.56	72.99	83.15	88.70	39.43
16	CoSnk 13105	141	3.42	0.70	9.64	16.36	86.04	67.04	75.37	51.14
17	CoSnk 13106	219	3.17	1.30	10.48	16.56	90.42	78.15	79.44	45.71
18	CoT 13366	173	3.25	1.20	8.94	16.96	80.12	82.78	70.19	31.14
19	PI 13131	167	3.28	1.00	9.20	17.41	80.30	77.41	76.85	31.43
20	PI 13132	156	3.19	0.80	10.63	15.51	95.65	73.70	58.52	28.43
Stds										
1	Co 86032	213	3.05	1.20	11.65	18.16	91.36	80.93	70.93	49.29
2	Co 99004	240	3.00	1.40	11.44	16.01	98.47	71.30	67.96	48.14
	SE	4.32	0.12	0.11	0.47	0.55	3.58	4.26	3.98	4.14
	CD	12.96	0.35	0.32	1.42	1.63	10.73	12.76	11.93	12.41
	CV	3.01	5.14	12.61	6.39	4.47	5.72	7.66	7.82	14.65

Experiment No. :- 6

Project Title : **Zonal varietal trial**
Advanced varietal trial (Midlate)- I Plant

Period for which report submitted : 2016-2017

Total cost of the project : Within the sanctioned grants under AICRP

Principal Investigator : Dr. N. K. Patke, S.R.S. Sugarcane

Co-investigator : Shri A. B. Kandalkar, Assistant Professor

: Dr. G. K. Lande, Assistant Professor

: Shri S.V. Patil, SRA

Project Technical Details :

Design : RBD

Treatments (08 Genotypes)

1. Co 11005 3. Co 11012 5. CoM 11085 7. Co 86032 (ch)

2. Co 11007 4. CoM 11019 6. CoM 11086 8. Co 99004 (ch)

3. Plot size : 7.20 x 6.00 m²

4. No. of replications : Three

5. Date of planting : 15/01/2016

6. Date of harvesting : 16/01/2017

7. Fertilizer : 175:100:100 N, P₂O₅ and K₂O kg ha⁻¹

8. Previous Crop : Green gram

Table 11: Cane Yield and Juice quality of Sugarcane as influenced by different genotypes

S. No.	Clone	CCS (t/ha)	Cane yield (t/ha)	CCS % (12m)	Brix % (12m)	Purity % (12m)	Pol % cane (12m)	NMC at 12m ('000/ha)
1	Co 11005	10.69	87.47	12.16	20.99	85.30	17.90	65.51
2	Co 11007	13.47	115.00	11.59	20.79	83.30	17.28	61.34
3	Co 11012	13.94	105.96	13.24	21.04	90.28	18.97	58.87
4	Co 11019	12.84	112.25	11.30	20.69	82.18	16.97	70.45
5	CoM 11085	11.67	96.54	12.09	21.89	82.65	18.08	62.65
6	CoM 11086	11.16	93.73	12.13	20.37	87.01	17.69	70.29
Stds								
1	Co 86032	11.35	91.06	12.43	21.39	85.45	18.28	68.44
2	Co 99004	10.63	88.40	12.05	21.92	82.45	18.06	60.42
	SE	1.27	8.01	0.77	0.43	4.13	0.73	2.94
	CD	NS	NS	NS	NS	NS	NS	NS
	CV	18.34	14.05	11.05	3.55	8.43	7.10	7.86

Cane Yield:-

Cane yield showed non-significant results among eight genotypes tested. However numerically higher cane yield was recorded by Genotype Co 11007 (115.00 t/ha) followed by Co 11019 (112.25 t/ha).

Higher sugar yield was recorded in genotype Co 11012 (13.94 t/ha) followed by Co 11007 (13.47 t/ha).

Ancillary Growth Character:-

The data regarding Millable canes, cane yield and sugar yield and cane diameter showed non-significant results.

Table 12: Ancillary data of Sugarcane as influenced by different genotypes

S. No.	Clone	Stalk Length (m)	Stalk Diameter (cm)	Single cane weight (kg)	CCS % (10 m)	Brix % (10 m)	Purity % (10 m)	No. of shoots ('000/ha) 240 days	No. of tillers ('000/ha) 120 days	Germination % (30 days)
1	Co 11005	193.33	2.49	1.33	12.31	17.62	96.92	73.92	86.27	46.01
2	Co 11007	227.00	2.99	1.87	11.87	18.23	92.32	67.90	85.96	49.76
3	Co 11012	244.67	3.14	1.80	12.04	17.76	94.93	65.20	88.73	41.37
4	Co 11019	243.00	2.78	1.60	11.86	18.09	92.72	75.00	92.75	42.98
5	CoM 11085	232.67	2.93	1.53	11.72	17.93	92.57	70.52	88.35	44.94
6	CoM 11086	253.67	2.75	1.33	11.45	16.16	97.95	74.38	92.67	43.99
Stds										
1	Co 86032	224.33	2.83	1.33	12.22	17.56	96.69	74.31	86.88	43.87
2	Co 99004	241.67	2.67	1.47	11.93	18.28	92.46	74.31	81.33	45.89
	SE	8.00	0.17	0.09	0.21	0.29	1.19	2.94	4.54	2.11
	CD	24.25	NS	0.28	NS	0.89	3.62	8.93	13.77	NS
	CV	5.95	10.19	10.41	3.09	2.86	2.19	7.09	8.95	8.15

Juice quality:

The data regarding brix , POL % , CCS % and purity % were found non-significant.

Conclusion:

Among the 6 genotypes and 2 checks, genotype Co 11007 recorded higher cane yield (115.00 t/ha) and Sugar yield in genotype Co 11012 (13.94 t/ha).

Experiment No. :- 7

Project Title : **Zonal varietal trial**
Advanced varietal trial (Midlate)- II Plant

Period for which report submitted : 2016-2017

Total cost of the project : Within the sanctioned grants under AICRP

Principal Investigator : Dr. N. K. Patke, S.R.S. Sugarcane

Co-investigator : Shri A. B. Kandalkar, Assistant Professor

: Dr. G. K. Lande, Assistant Professor

: Shri S.V. Patil, SRA

Project Technical Details :

Design : RBD

Treatments (13 Genotypes)

- | | | | |
|-------------|--------------|------------------|------------------|
| 1. Co 09009 | 5. Co 10033 | 9. CoVC 10061 | 13. Co 99004(ch) |
| 2. Co 10015 | 6. CoM 10083 | 10. PI 10131 | |
| 3. Co 10017 | 7. CoT 10368 | 11. PI 10132 | |
| 4. Co 10031 | 8. CoT 10369 | 12. Co 86032(Ch) | |

Plot size : 7.20 x 6.00 m²

No. of replications : Two

Date of planting : 08/01/2016

Date of harvesting : 15/12/2016

Fertilizer : 175:100:100 N, P₂O₅ and K₂O kg ha⁻¹

Previous Crop : Green gram

Table 13: Cane Yield and Juice quality of Sugarcane as influenced by different genotypes

S. No.	Clone	CCS (t/ha)	Cane yield (t/ha)	CCS % (12m)	Brix % (12m)	Purity % (12m)	Pol % cane (12m)	NMC at 12m ('000/ha)
1	Co 09009	8.06	70.83	11.39	19.98	84.54	16.85	59.03
2	Co 10015	10.20	84.26	12.11	20.03	88.56	17.57	52.66
3	Co 10017	8.62	68.45	12.61	19.28	92.93	17.85	62.38
4	Co 10031	13.16	111.44	11.81	21.53	82.28	17.71	65.28
5	Co 10033	13.33	103.33	12.91	20.88	89.13	18.60	64.58
6	CoM 10083	12.15	103.73	11.66	20.25	84.89	17.20	68.98
7	CoT 10368	10.57	90.23	11.71	20.83	83.64	17.41	69.10
8	CoT 10369	10.89	84.95	12.74	21.63	86.23	18.65	56.60
9	CoVC 10061	11.81	100.60	11.74	21.58	81.83	17.66	59.38
10	PI 10131	9.68	83.08	11.66	22.28	79.77	17.77	64.00
11	PI 10132	8.29	69.68	11.94	21.83	82.22	17.93	49.77
Stds								
1	Co 86032	10.42	83.63	12.51	21.98	84.46	18.53	64.47
2	Co 99004	9.11	79.07	11.55	21.53	81.04	17.45	63.19
	SE	0.82	7.05	0.37	0.97	3.69	0.40	2.75
	CD	2.52	21.73	NS	NS	NS	NS	8.49
	CV	11.04	11.44	4.39	6.53	6.15	3.15	6.33

Cane Yield:-

Among the 13 genotypes tested, Co 10031 (111.44 t/ha) recorded significantly higher cane yield followed by CoM 10083 (103.73 t/ha), Co 10033 (103.33 t/ha), CoVC 10061 (100.60 t/ha) and CoT 10368 (90.23 t/ha). However, these genotypes were at par with each other.

Significantly higher sugar yield was recorded in genotype Co 10033 (13.33 t/ha) followed by Co 10031 (13.16 t/ha), CoM 10083 (12.15 t/ha), CoVC 10061 (11.81 t/ha) and CoT 10369 (10.89 t/ha). However, these treatments were at par with each other and former two genotypes are significantly superior to other genotypes.

Ancillary Growth Character:-

Significantly higher millable canes (69097 ha^{-1}) recorded in CoT 10368 and Stalk Length in Co 10033 (309.00 cm). Whereas, the genotype PI 10131 recorded significantly higher cane diameter (3.25 cm).

Table 14: Ancillary data of Sugarcane as influenced by different genotypes

S. No	Clone	Stalk Length (m)	Stalk Diameter (cm)	Single cane weight (kg)	CCS % (10 m)	Brix % (10 m)	Purity % (10 m)	No. of shoots ('000/ha) 240 days	No. of tillers ('000/ha) 120 days	Germination % (30 days)
1	Co 09009	212.50	2.52	1.20	11.66	17.26	94.63	69.21	75.12	43.04
2	Co 10015	253.00	2.92	1.60	10.76	19.41	82.72	68.40	74.88	37.32
3	Co 10017	248.50	2.58	1.10	12.16	17.76	96.02	69.79	80.09	58.13
4	Co 10031	207.50	3.03	1.70	12.66	18.11	96.98	61.00	70.49	48.21
5	Co 10033	309.00	2.87	1.60	11.29	16.14	97.03	71.88	75.35	49.73
6	CoM 10083	243.50	2.69	1.50	12.01	17.23	96.85	72.69	71.76	49.11
7	CoT 10368	240.00	2.26	1.30	11.63	16.49	97.62	76.16	71.41	38.39
8	CoT 10369	202.50	3.06	1.50	12.49	18.64	94.21	68.17	63.31	46.25
9	CoVC 10061	187.50	3.17	1.70	12.92	17.19	102.23	67.25	65.63	51.88
10	PI 10131	177.50	3.25	1.30	12.56	20.44	89.22	69.68	67.94	45.09
11	PI 10132	247.00	2.67	1.40	13.11	18.84	96.68	53.47	64.47	40.71
Stds										
1	Co 86032	223.00	2.31	1.30	12.76	19.94	91.12	77.78	78.13	48.21
2	Co 99004	241.00	2.77	1.25	12.37	19.69	90.10	72.92	52.55	42.86
	SE	4.90	0.04	0.08	0.52	0.87	3.42	4.14	6.01	2.84
	CD	15.11	0.12	0.24	NS	NS	NS	12.75	18.51	8.76
	CV	3.01	1.96	7.78	6.09	6.77	5.13	8.47	12.12	8.73

Juice quality:

The data regarding brix , POL % , CCS % and purity % were found non-significant .

Conclusion:

Among the 11 genotypes and 2 checks, genotype Co 10031 recorded significantly higher cane yield (111.44 t/ha) and Sugar yield in genotype Co 10033 (13.33 t/ha).

Experiment No: 8

Project Title : **Zonal varietal trial**
Advanced varietal trial (Midlate)- Ratoon

Period for which report submitted : 2016-2017

Total cost of the project : Within the sanctioned grants under AICRP

Principal Investigator : Dr. N. K. Patke, S.R.S. Sugarcane

Co-investigators : Shri A. B. Kandalkar, Assistant Professor

: Dr. G. K. Lande, Assistant Professor

: Shri S.V. Patil, Senior Research Assistant

Technical programme :

Design : RBD

Treatments (13 Genotypes)

1. Co 09009	5. Co 10033	9. CoVC 10061	13. Co 99004(ch)
2. Co 10015	6. CoM 10083	10. PI 10131	
3. Co 10017	7. CoT 10368	11. PI 10132	
4. Co 10031	8. CoT 10369	12. Co 86032(Ch)	

Plot size : 7.20 x 6.00 m²

No. of replications : Two

Date of planting : 15/01/2016

Date of harvesting : 16/11/2016

Fertilizer : 175:100:100 N, P₂O₅ and K₂O kg ha⁻¹

Previous Crop : Green gram

Table 15: Cane Yield and Juice quality of Sugarcane as influenced by different genotypes

S. No.	Clone	CCS (t/ha)	Cane yield (t/ha)	CCS % (11m)	Brix % (11 m)	Purity % (11m)	Pol % cane (11m)	NMC at ('000/ha) (11m)
1	Co 09009	6.35	59.05	10.72	19.06	83.81	15.94	65.97
2	Co 10015	8.68	86.92	9.98	19.41	78.92	15.32	86.92
3	Co 10017	6.57	68.63	9.58	18.16	80.22	14.56	68.63
4	Co 10031	8.86	83.59	10.65	18.32	85.94	15.65	64.47
5	Co 10033	10.24	99.72	10.26	16.91	87.99	14.88	76.85
6	CoM 10083	4.40	48.15	9.14	19.08	75.48	14.40	60.19
7	CoT 10368	6.70	69.63	9.64	18.74	78.96	14.79	77.66
8	CoT 10369	8.08	70.14	11.52	19.63	86.02	16.88	70.14
9	CoVC 10061	7.75	76.44	10.13	18.33	82.67	15.15	70.02
10	PI 10131	6.25	66.50	9.45	20.58	73.65	15.13	60.42
11	PI 10132	7.04	77.08	9.13	21.24	70.62	15.01	51.62
Stds								
1	Co 86032	8.55	88.19	9.68	19.88	76.23	15.16	68.06
2	Co 99004	7.38	76.91	9.60	20.18	75.12	15.16	62.15
	SE	0.41	3.26	0.38	0.40	2.74	0.34	3.04
	CD	1.26	10.05	1.17	1.24	8.45	1.04	9.37
	CV	7.76	6.17	5.40	2.97	4.87	3.15	6.33

Cane Yield:-

Among the 13 genotypes tested, **Co 10033** (99.72 t/ha) recorded significantly higher cane yield than all other genotypes.

Significantly higher sugar yield over all other genotypes was recorded in genotype **Co 10033** (10.24 t/ha).

Ancillary Growth Character:-

In respect of millable canes **Co 10015** (86921 ha⁻¹) recorded significantly higher millable cane over all other genotypes and checks. Genotype Co 10033 recorded significantly more height (252.00 cm) over all other genotypes and checks. The genotype Co 10031 (3.05 cm) recorded significantly higher cane diameter and was at par with genotypes PI 10131.

Table 16: Ancillary data of Sugarcane as influenced by different genotypes

S. No.	Clone	Stalk Length (m)	Stalk Diameter (cm)	Single cane weight (kg)	No. of tillers ('000/ha) 120 days	No. of tillers ('000/ha) 90 days
1	Co 09009	178	2.64	0.90	74.54	63.66
2	Co 10015	213	2.37	1.00	108.10	84.72
3	Co 10017	200	2.64	1.00	71.88	72.45
4	Co 10031	206	3.05	1.30	69.91	75.69
5	Co 10033	252	2.66	1.30	101.97	90.39
6	CoM 10083	178	2.22	0.80	68.17	67.48
7	CoT 10368	204	2.47	0.90	97.92	78.36
8	CoT 10369	179	2.58	1.00	78.59	79.05
9	CoVC 10061	201	2.63	1.10	83.45	78.47
10	PI 10131	147	3.02	1.10	65.63	77.66
11	PI 10132	205	2.94	1.50	52.78	72.45
Stds						
1	Co 86032	185	2.64	1.30	79.28	81.37
2	Co 99004	189	2.68	1.24	74.07	69.68
	SE	13.34	0.21	0.08	8.57	7.64
	CD	41.10	NS	0.25	26.40	23.54
	CV	9.68	11.01	10.21	15.35	14.17

Juice quality:

The genotype PI 10132 recorded significantly higher brix (21.24 %). The Pol % and CCS % were significantly higher in genotype CoT 10369. Whereas, the Purity % was significantly higher in genotype Co 10033 (87.99 %).

Conclusion:

Among the 11 genotypes and 2 checks, genotype Co 10033 recorded significantly higher cane yield (99.72 t/ha) and Sugar yield (10.24 t/ha).