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ALL INDIA CO-ORDINATED RESEARCH PROJECT  
ON  
**SUGARCANE BREEDING**

**ANNUAL REPORT**

(2013-14)

COMPILED  
BY

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PADEGAON – 415 521, TAL. PHALTAN,  
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**CENTRAL SUGARCANE RESEARCH STATION, PADEGAON**

**SUGARCANE BREEDING**

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# **INTRODUCTION**

# INTRODUCTION

Sugarcane is the most important cash crop of Maharashtra. Sugar industry plays a pivotal role in the socio-economic and educational development in rural areas of Maharashtra. During 2012-13, the area of sugarcane in the state was 8.45 lakh hectares with 700.0 lakh tons of Sugarcane production. The average sugarcane productivity was 83.0 t/ha while the average sugar recovery attained 11.41 % (Table 1).

Due to severe drought conditions in Maharashtra during 2012-13, there was reduction in sugarcane area compared to 2011-12 i.e. from 10.22 to 8.45 lakh hectares. However during 2013-14, the rainfall was good and hence the area was slightly increased (9.37 lakh ha). Because of good management of the crop by the farmers and due to increasing sugarcane prices and also the cultivation of drought tolerant sugarcane variety CoM 0265, the sugarcane productivity has increased from 81.6 to 83.0 t/ha with a slight decrease in the recovery compared to the earlier year i.e. from 11.55 to 11.41 % during 2012-13. The same trend was also observed during 2013-14. However, the productivity has slightly decreased, which might be due to hailstorm in the last crushing period.

For providing the high yielding and high sugar varieties and new agrotechniques for increasing yield, the Central Sugarcane Research Station, Padegaon is conducting research on varietal improvement along with development of new techniques especially planting systems, intercropping, ratoon management, IPM and INM, drought and salinity management and use of drip irrigation system with fertigation. The need-based future research strategies are development of extra-early sugarcane varieties maturing in 10 to 12 months, development of varieties for better juice quality, identification of varieties for specific characteristics i.e. drought and salt tolerance, woolly aphid tolerance /resistance, rust, brown spot, pokka boeng disease tolerant, higher production of fiber for co-generation, higher percentage of brix in early age of crop for higher ethanol production, etc. The efforts are also being made to develop non-flowering varieties with higher cane yield, CCS yield and sugar recovery. Similarly, the attention will be paid for development of anti-inversion varieties to minimize recovery losses in the delayed crushing. Special emphasis is being given for varietal development considering the global warming and the climate change. The soil test based yield target equations have been developed for the high yielding variety CoM 0265 (Phule 265) for achieving the target yield of 200 t/ha for recommendation to the farmers growing preseasonal sugarcane with and without FYM in medium deep black soils of Western Maharashtra. A number of outreach programmes were organized to transfer various technologies developed by the CSRS, Padegaon to the farmers and extension agencies through “Rashtriya Krishi Vikas Yojana” project for increasing sugarcane productivity.

**Table 1. The area, production, productivity, sugar production and sugarcane recovery in Maharashtra from 2000-01 to 2013-14**

Year	Area ('000' ha)	Sugarcane production (Lakh ton)	Sugarcane productivity (t /ha)	Sugar production (Lakh ton)	Sugar recovery (%)
2000-01	595	495.89	83.3	67.05	11.64
2001-02	578	451.4	78.1	56.13	11.6
2002-03	599	370.15	61.8	65.19	11.66
2003-04	443	256.68	57.9	30.39	10.91
2004-05	324	204.75	63.2	22.62	11.45
2005-06	501	388.53	77.6	51.98	11.68
2006-07	1049	785.68	74.9	90.95	11.4
2007-08	1093	884.37	80.9	87.63	11.91
2008-09	768	606.48	79.0	46	11.46
2009-10	756	641.59	84.9	70.66	11.54
2010-11	964	788.38	81.8	90.52	11.31
2011-12	1022	834.16	81.6	78.03	11.55
2012-13	845	700	83.0	77.8	11.41
2013-14 (Tentative)	937	750	80.0	77.0	11.40

Seed is the most important basic input in crop production. Quality seed increases crop productivity by 10-15 per cent. Therefore, along with research, this research station is producing the healthy and quality breeder seed of released sugarcane varieties. In the year 2013-14, **57.66 ha** area was under seed production of different varieties and **61.68 Lakhs** of **two-eye budded setts** as well as **5.88 Lakhs** of **single eye bud polytray seedlings** were distributed to the Sugar Factories, State Department of Agriculture, farmers and other research organizations.

# **SEASON AND CLIMATE**

# **CENTRAL SUGARCANE RESEARCH STATION, PADEGAON.**

## **SEASON & CLIMATE**

**(2012-14)**

The Central Sugarcane Research Station, Padegaon is located in tropical zone, geographically at an elevation of 556 m above mean sea level on 18°-12"N latitude and 74°-10"E longitude.

The total rainfall received during July, 2012 to March, 2014 (21 months) was 795.9 mm in 61 rainy days as against the normal rainfall of 1082.0 mm (21 months) indicating that the rainfall received during the season was 26.4 % less than normal. The data on climatic parameters during the crop season (July, 2012 to March, 2014 ) along with averages based on last 80 years (1932-33 to 2013-14 ) recorded at the meteorological observatory located at this research station are presented in Table 2 and graphically shown in Fig.1. The effect of the season on sugarcane at various growth phases has been elucidated below.

### **1) Germination phase for Adsali crop (July. to Sept., 2012)**

The rainfall received during germination phase was 112.9 mm in 12 rainy days as against the normal of 301.0 mm. The average maximum temperature during this period was 30.2oC and minimum temperature was 22.7oC. The average relative humidity (morning) during this phase was 94.3 % which was 6.3 % more than the normal.

Evenly distributed rainfall, optimum temperature and high humidity resulted in good germination of Adsali crop of sugarcane.

### **2) Tillering phase (Oct-Dec., 2012) for *Adsali* and Germination phase for Preseason crop:**

Total rainfall received during tillering phase was 67.6 mm which was 55 % less than the normal of last 80 years. The average maximum and minimum temperatures during this phase were 30.8 °C and 16.9 °C, respectively. The morning relative humidity was 97.7 % as against the normal 86 %. High humidity and low rainfall was not favorable for the tillering of *Adsali* sugarcane hence the productivity of *Adsali* sugarcane crushed during 2013-14 was slightly decreased. However, high humidity was also favorable for good germination of preseason sugarcane.

### **3) Early growth (*Adsali*)/Tillering (Preseason) and Germination phase (*Suru*) (Jan-Mar.2013)**

During this phase the average maximum temperature was 33.0°C and average minimum temperature was 14.5°C, which was more than the normal i.e 15.07 °C. These temperatures were favourable for *Adsali* crop growth. Due to higher humidity (97.7 %) than the average (78

%), tillering of preseasonal sugarcane and germination/tillering of Suru sugarcane was also satisfactory.

#### **4) Desiccation phase (April to May, 2013)**

The mean maximum temperature was lower (38.2°C) than the normal (39.8°C) while the mean minimum temperature (22.7°C) was more than the normal (21.2°C). No rainfall was received during this phase. All these meteorological parameters were favorable for crop growth and sugar recovery.

#### **5) Grand growth (*Adsali*)/Early growth phase (Preseason and *Suru*) (June to Sept., 2013)**

During this phase, the average maximum and minimum temperatures were 29.4°C and 21.4°C, respectively i.e. optimum for crop growth. The total rainfall received during this phase was 524 mm in 32 rainy days as against the normal rainfall of 369.1 mm. The grand growth of *Adsali*, preseasonal and *Suru* sugarcane was good due to 41 % more rainfall than the normal during this growth phase.

#### **6) Flowering and Maturity (*Adsali* and Preseason) Grand growth phase (*Suru*) (Oct-Dec., 2013)**

During this phase, the mean maximum and minimum temperatures were 30.0°C and 15.9 °C, respectively. Total rainfall received during this phase was 40.4 mm in 2 rainy days as against 37 mm average of last 80 years. The high humidity and optimum temperatures favored early and profuse flowering for all season planted crop. The 9 % more rainfall was received than the normal.

During Jan 2014 to March 2014, the mean maximum and minimum temperatures were 31.6oC and 14.9oC, respectively. The optimum maximum and minimum temperatures and dry season favored maturity and sugar recovery of sugarcane crop.

At tillering and early grand growth phase for *Adsali* sugarcane, the low rainfall (67.6 mm) was not favorable for the tillering of *Adsali* season. At maturity of *Adsali*, preseasonal and *Suru* sugarcane, the minimum temperature was (15.9oC) which was as good as the average minimum temperature (15.5oC) hence sugarcane maturity and accumulation of sugar resulted in almost same sugar recovery. The overall crop growth during this year was satisfactory. However, due to less number of cooler days, cloudy season during crushing period, and hail storm in last crushing period, the productivity during 2013-14 was slightly decreased as compared to last year (2012-13). However, due to the best crop management and better sugarcane prices the productivity and sugar recovery are maintained around 80t/ha and 11.40% , respectively.



**Table 2. Average weather parameters at CSRS, Padegaon during June 2012 to March 2014**

Sr. No.	Temperature (°C)		Humidity (%)		Sunshine Hrs.	Rainfall (mm)	Rainy days
	Max.	Min.	Mor.	Eve.			
June 12	32.9	24.3	83	62	6.9	35.3	2
<b>1. Germination phase for <i>Adsali</i> crop (Jul. to Sept., 2012)</b>							
July 12	30.7	23.7	92	74	3.5	23.8	2
Aug 12	29.6	22.4	95	76	4.5	48.1	5
Sept 12	30.2	21.9	96	70	4.7	41.0	5
<b>Average</b>	<b>30.2</b>	<b>22.7</b>	<b>94.3</b>	<b>73.3</b>	<b>4.2</b>	<b>37.6</b>	<b>4.0</b>
<b>Last 80 yrs avg</b>	<b>29.2</b>	<b>21.8</b>	<b>88</b>	<b>64</b>	<b>4.9</b>	<b>298.3</b>	<b>-</b>
<b>2. Tillering phase (Oct-Dec., 2012) for <i>Adsali</i>/Germination phase for Preseason crop</b>							
Oct 12	31.1	19.9	98	68	6.8	57.4	6
Nov 12	30.8	17.2	97	65	7.8	10.2	1
Dec 12	30.5	13.7	98	57	8.5	00.0	-
<b>Average</b>	<b>30.8</b>	<b>16.9</b>	<b>97.7</b>	<b>63.3</b>	<b>7.7</b>	<b>22.5</b>	<b>3.5</b>
<b>Last 80 yrs avg</b>	<b>31.6</b>	<b>15.5</b>	<b>86</b>	<b>40</b>	<b>9.6</b>	<b>150.1</b>	<b>-</b>
<b>3. Early growth (<i>Adsali</i>)/Tillering (Preseason) and Germination phase (<i>Suru</i>) (Jan-Mar, 2013)</b>							
Jan 13	31.1	12.3	97	41	8.1	00.0	-
Feb 13	32.4	14.6	94	42	8.0	00.0	-
Mar 13	35.6	16.6	90	45	8.0	0.5	-
<b>Average</b>	<b>33.0</b>	<b>14.5</b>	<b>93.7</b>	<b>42.7</b>	<b>8.0</b>	<b>0.2</b>	<b>3.5</b>
<b>Last 80 yrs avg</b>	<b>32.4</b>	<b>12.6</b>	<b>78</b>	<b>46</b>	<b>11.5</b>	<b>69</b>	<b>-</b>
<b>4. Desiccation phase (April to May, 2013)</b>							
April 13	37.9	20.9	89	51	9.1	00.0	-
May 13	38.5	24.5	86	57	8.1	00.0	-
<b>Average</b>	<b>38.2</b>	<b>22.7</b>	<b>87.5</b>	<b>54.0</b>	<b>8.6</b>	<b>00.0</b>	<b>-</b>
<b>Last 80 yrs avg</b>	<b>39.8</b>	<b>21.2</b>	<b>69</b>	<b>56</b>	<b>11.5</b>	<b>69</b>	<b>-</b>
<b>5. Grand growth (<i>Adsali</i>)/Early growth phase (Preseason and <i>Suru</i>) (June to Sept., 2013)</b>							
June 13	30.9	22.0	93	68	4.0	154.4	10
July 13	27.8	21.4	95	81	1.9	67.1	8
Aug 13	28.7	21.6	96	82	4.0	49.9	4
Sept 13	30.3	20.9	97	83	5.3	252.6	10
<b>Average</b>	<b>29.4</b>	<b>21.4</b>	<b>95.2</b>	<b>78.5</b>	<b>3.8</b>	<b>524</b>	<b>8</b>
<b>Last 80 yrs avg</b>	<b>30.8</b>	<b>21.9</b>	<b>87</b>	<b>61.2</b>	<b>5.2</b>	<b>369.1</b>	<b>-</b>
<b>6. Flowering and Maturity (<i>Adsali</i> and Preseason)/Grand growth phase (<i>Suru</i>) (Oct-Dec., 2013)</b>							
Oct 13	31.1	20.9	97	82	7.3	37.0	2
Nov 13	30.0	15.3	97	74	8.1	00.0	-
Dec 13	29.0	11.6	95	65	7.9	03.4	-
<b>Average</b>	<b>30.0</b>	<b>15.9</b>	<b>96.3</b>	<b>73.6</b>	<b>7.7</b>	<b>13.4</b>	<b>2.0</b>
<b>Last 80 yrs avg</b>	<b>31.6</b>	<b>15.5</b>	<b>86</b>	<b>40</b>	<b>9.6</b>	<b>164.3</b>	<b>-</b>
Jan 14	29.4	12.7	96	48	7.1	-	-
Feb 14	31.1	12.5	88	48	8.5	4.3	1
Mar 14	34.3	19.4	90	55	7.3	10.9	2
<b>Average</b>	<b>31.6</b>	<b>14.9</b>	<b>91.3</b>	<b>50.3</b>	<b>7.6</b>	<b>15.2</b>	<b>3</b>
<b>Last 80 yrs avg</b>	<b>32.4</b>	<b>12.6</b>	<b>78</b>	<b>28</b>	<b>10.0</b>	<b>12.7</b>	<b>--</b>

**The incidence of pests and diseases, in general, was as under.**

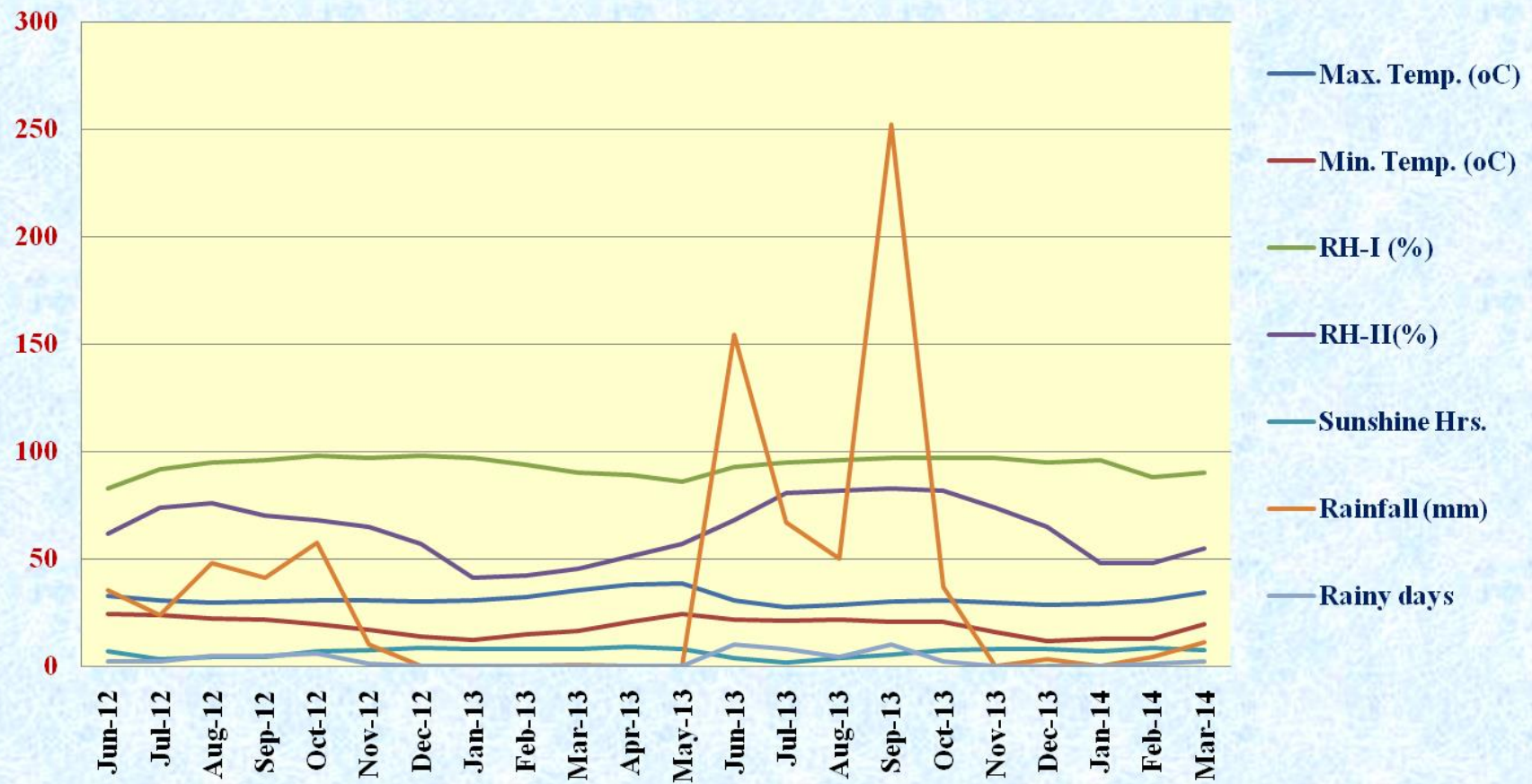
**Table 3. Incidence of insect pests on sugarcane during 2012-14**

<b>Sr. No.</b>	<b>Name of pest</b>	<b>Extent of incidence (%)</b>
1	Early shoot borer	17-21
2	Internodes borer	20-22
3	Top shoot borer	In trace to low
4	Mealy bugs	20-30
5	Wooly aphids	In traces to high
6	Scale insect	In trace to low
7	White fly	In traces
8	Sugarcane Pyrilla	In trace

**Table 4. Incidence of diseases on sugarcane during 2012-14**

<b>Sr.No.</b>	<b>Name of disease</b>	<b>Extent of incidence (%)</b>
1	Rust	2-20%
2	G.S.D	1-3%
3	Smut	1-10%
4	Brown spot	10-60%
5	Pokka Boeing	2-15%

**Fig. 1 Weather Parameter 2012-14  
Central Sugarcane Research Station, Padegaon**



# **STAFF POSITION**

**ALL INDIA CO-ORDINATED RESEARCH PROJECT ON SUGARCANE  
CENTRAL SUGARCANE RESEARCH STATION, PADEGAON**

**DR. SURESH M. PAWAR  
Sugarcane Specialist**

**Staff Position: 2013-14**

**A) AICRP(S) Scheme**

<b>Sr. No.</b>	<b>Name</b>	<b>Designation</b>
<b>Sugarcane Breeder</b>		
1	Dr.D.E.Kadam	Sugarcane Breeder
<b>Sugarcane Agronomist</b>		
2. i.	Dr. P.M. Chaudhari	Agronomist SRS Additional charge of Asstt. Agronomist AICRP (Since 07.03.2014 )
2. ii.	Prof. R.M.Dixit	Assistant Agronomist (Till 28.02.2014)
<b>Assistant Entomologist</b>		
3	Dr. M.P. Badgujar	Assistant Entomologist
<b>Assistant Pathologist</b>		
4	Dr. D. V. Indi	Sugarcane Pathologist
<b>Technical Assistant (04)</b>		
1	Shri. S. U. Deshmukh	Technical Assistant
2	Shri. K. C. Ombase	---,,---
3	Vacant	---,,---
4	Vacant	---,,---
<b>Lab. Assistant (02)</b>		
1	Shri. A. M. Dubal	Lab. Assistant
2	Shri. L. P. Sawant	---,,---

**B) STATE SCHEME**

1	Shri. D. S. Thorave	Junior Research Assistant
2	Shri. A.B.Bhosale	Agril. Assistant
3	Shri. M M. Bhuse	Agril. Assistant

# **SANCTIONED GRANTS AND EXPENDITURE**

**Table: 5. Year wise sanctioned grants and expenditure of last 5 years of AICRP (S)**

Sr. No.	Year	Sanctioned grants (Rs. Lakhs)				Expenditure Rs. (lakhs)			
		Recurring with T.A.	Non recurring	Pay and Allowances	Total	Recurring with T.A.	Non recurring	Pay and Allowances	Total
1	2009-10	4.60	28.80	25.52	58.92	3.66	--	21.48	25.14
2	2010-11	4.60	--	25.52	30.12	3.81	--	30.79	34.60
3	2011-12	4.60	--	25.52	30.12	3.35	25.31	59.23	62.83
4	2012-13	8.00	--	118.69	126.79	7.17	--	52.46	59.63
5	2013-14	8.00	--	72.72	80.72	7.00	--	61.25	68.25

# **DECISION & ACTION TAKEN REPORT**



## **SUGARCANE BREEDING SECTION**

**2013-14**

Central Sugarcane Research Station, Padegaon

### **Decision and Action Taken Report**

AICRP Sugarcane Group Meeting held at Regional Agril. Research Station, Anakapalle, Andhrapradesh. Minutes of Technical session on varietal improvement held on 25<sup>th</sup> - 26<sup>th</sup> October, 2013.

<b>Sr.No.</b>	<b>Decision</b>	<b>Action taken</b>
1.	The fluff receiving centres must take proper care to ensure higher number of seedlings. The scientists who are not having experience may visit the facilities at SBI, Coimbatore for familiarizing with fluff handling, storage and seedling raising.	Care is taken to increase the seedlings; fluff received from Sugarcane Breeding Institute Coimbatore February 2013 was stored in deep freezer to maintain seed viability and 14297 seedlings were planted in field. This year 1833.32 gram fluff is received and is stored in deep freezer.
2.	Scientists from fluff receiving centres must attend the crossing programme positively and should not send technical staff/ research fellows for participating in the crossing programme	Scientists were sent for the crossing programme.
3.	Data on all zonal standards must be included when new entries for IVT are proposed. The proposals should also include data on fibre% and pol% cane wherever facilities are available	Action was taken while presenting the data. Fiber and pol % in cane are being reported by this centre.
4.	The presentation of new proposals may be made in the format provided by the PI (CI)	Care was taken while proposing new entries as per the format provided by the PI.

# **RESEARCH HIGHLIGHTS**

**RESEARCH HIGHLIGHTS**  
**PROGRAMME: SB – III**  
**AICRP (S) PROGRAMME**  
**(2013-14)**

**1) Name of Trial: Initial Varietal Trial – (Early)**

The cane yield and CCS yield differences, CCS% and Sucrose % differences due to different cultures were found to be statistically significant. However, the culture CoM 10082 (134.58 t/ha) was recorded significantly highest cane yield over all the cultures and checks except CoM 10081(130.00 t/ha), Co 10004 (128.75 t/ha), Co 10026 (125.69 t/ha), CoT 10366 (124.17 t/ha) and Co 10024 (123.19 t/ha) which were at par with it. The same culture CoM 10082 (22.63 t/ha) out yielded in case of CCS yield over all other cultures and checks.

As far as quality is concerned the same culture CoM 10082 was recorded highest CCS % (16.81 %) and Sucrose % (23.18 %). Both checks Co 85004 (CCS % 16.52 % and Sucrose % 22.75 %) and CoC 671 (CCS % 16.66 % and Sucrose % 22.96 %) were at par with it.

**2) Advanced Varietal Trial (Early) –II Plant :**

The differences due to various genotypes in respect of cane yield and CCS yield, CCS % and sucrose % were found to be statistically significant. The culture VSI 08121 was reported significantly superior cane yield (135.92 t/ha) and CCS yield (20.96 t/ha) over the checks except the check CoC 671 (Cane yield 120.93 t/ha and CCS yield 19.51 t/ha) and the culture Co 8001 (Cane yield 126.26 t/ha and CCS yield 20.36 t/ha) which were at par with it.

As far as quality is concerned the highest CCS % (16.60 %) and Sucrose % (23.27 %) was recorded by the same culture VSI 08121. The check CoC 671 (CCS % 16.13 %) and Sucrose % (21.75 %) was at par with it.

**3) Advanced Varietal Trial (Early)- Ratoon :**

The yield differences due to various genotypes in respect of cane yield, CCS yield, CCS % and sucrose % were found to be statistically significant. The genotype VSI 08121 reported significantly superior cane yield (111.55 t/ha) over all other genotypes and checks except the standard check Co 94008 (105.20 t/ha) which was at par with it. However the genotype Co 08001 (14.79 t/ha) out yielded in regard of CCS yield over all standard except genotype VSI 08121 (13.74 t/ha) which was at par with it.

#### **4) Initial Varietal Trial – (Midlate) :**

The yield differences due to various genotypes in respect of cane yield, CCS yield, CCS % and sucrose % were found to be statistically significant. The genotype Co 10033 was recorded significantly highest cane yield (138.82 t/ha) than all other genotypes and check except high yielding check Co 86032 (135.79 t/ha), PI 10131 (127.98 t/ha), Co 10015 (122.28 t/ha) and MS 10083 (121.60 t/ha) which were at par with it.

The standard check Co 86032 out yielded the CCS yield (19.76 t/ha) over all other cultures and check except Co 10015 (18.64 t/ha), Co 10033 (17.94 t/ha), MS 10083 (17.46 t/ha) and PI 10132 (17.32 t/ha) which were at par with it.

As far as quality is concerned the highest CCS % (15.25%) and highest Sucrose % (21.28 %). was recorded by the culture Co 10015 followed the check Co 99004 (CCS % 15.23 and sucrose 21.11%).

#### **5) Advanced Varietal Trial – (Midlate) II plant:**

The yield differences due to various genotypes in respect of cane yield, CCS yield were found to be statistically significant. Statistically the highest cane yield (139.62 t/ha) and CCS yield (20.42 t/ha) was recorded by Co 08020 over all other genotypes and standards except genotype Co 08009 (Cane yield 134.00 t/ha and CCS yield 20.38 t/ha) which was found at par with it.

As far as quality is concerned the standard Co 99004 reported highest CCS % (15.22 %) followed by Co 08009 (15.21 %) than all other genotypes and standards. However genotype Co 08009 was recorded the highest Sucrose % (21.18 %) followed by Co 08016 (21.16 %) and standard Co 99004 (21.15 %) than all other genotypes and standards.

#### **6) Advanced Varietal Trial – (Midlate) Ratoon:**

The yield differences due to various genotypes in respect of cane yield, CCS yield, CCS % and sucrose % were found to be statistically significant. The significantly superior cane yield (120.43 t/ha) and CCS yield (16.53 t/ha) were recorded by the genotype Co 08020 followed by the genotype Co 08009 cane yield (111.18 t/ha) and CCS yield (16.53 t/ha) which was at par with it. In case of CCS yield the standard check Co 86032 (15.03 t/ha) was also at par with Co 08020.

As far as quality is concerned, the highest CCS % (14.88%) was reported by both genotypes C 08009 and Co 08016. The genotype Co 8009 was recorded highest sucrose % (20.75 %) followed by Co 08016 (20.71 %) than checks and other genotypes.

#### **7) Advanced Varietal Trial – (Early) Pooled Results:**

The yield differences in pooled result of I Plant, II Plant and Ratoon due to various genotypes in respect of cane yield, CCS % and sucrose % were found to be statistically

significant. However in case of CCS yield difference were found to be statistically non significant. The significantly highest cane yield was recorded by the genotype VSI 08121 (118.18 t/ha) over the all genotypes and standard. The numerically highest CCS yield (17.25 t/ha) than all other genotypes and standards.

As far as quality is concerned, the genotype VSI 08121 recorded highest CCS % (15.08 %) and sucrose % (21.13 %) than all other genotypes and standards.

#### **8) Advanced Varietal Trial – (Midlate) Pooled Results:**

The yield differences in pooled result of I Plant, II Plant and Ratoon due to various genotypes in respect of cane yield, CCS yield, CCS % and sucrose % were found to be statistically significant. The significantly highest cane yield was recorded by the genotype Co 08020 (120.80 t/ha) than all other genotypes and check except genotype Co 08009 (117.14 t/ha) and check Co 86032 (116.95 t/ha).

The significantly highest CCS yield was recorded by the genotype Co 08009 (17.42 t/ha) over all the genotypes and standards except the genotype Co 08020 (17.07 t/ha) and standard Co 86032 (16.45 t/ha) which were found at par with it.

In respect of CCS % significantly highest CCS % was recorded by the genotype Co 08016 (15.01 %) and sucrose % (21.04%) over all other genotypes and standards except Co 08009 (CCS% 14.84% and sucrose % 20.82 %) which was at par with it.

# **AICRP TRIALS**

**APPROVED TECHNICAL PROGRAMME FOR THE YEAR  
(2013-14)**

*Sugarcane Breeding, Central Sugarcane Research Station, Padegaon,  
Technical Programme for the year 2013-14*

**A) State Programme:**

- i) Sugarcane Hybridization at Padegaon and Radhanagari.
- ii) Raising seedlings in ground nursery.
- iii) Evaluation of promising genotypes.

**Objectives**

1. To develop the sugarcane varieties with high cane and CCS yield.
2. To develop the sugarcane varieties suitable for planting in three seasons i.e.  
Suru, Preseason and Adsali
3. To develop sugarcane varieties tolerant/resistant to biotic and abiotic stresses.
4. To develop sugarcane varieties suitable for jaggery
5. To develop sparse flowering sugarcane varieties.

**B) All India Coordinated Research Project on Sugarcane (AICRP):**

- i. Sugarcane Hybridization at Coimbatore, Raising seedling in ground nursery and evaluation of promising genotypes in IVT.
- ii. Initial Varietal Trial Early
- iii. Advanced Varietal Trial Early I plant
- iv. Initial Varietal Trial Midlate
- v. Seed multiplication and distribution of IVT early & midlate trials to the testing centers of Peninsular Zone-II.

## SUGARCANE BREEDING

### I) State Programme: SB -I

#### A) Germplasm:

#### \* Maintenance of sugarcane germplasm resources for hybridization at Padegaon.

Total 550 different sugarcane genotypes including following sugarcane species are maintained in germplasm block at CSRS, Padegaon.

Sr.No.	Species	Variety
1	<i>Saccharum officinarum</i>	1. Gungera
		2. IJ 76-564
2	<i>Saccharum robustum</i>	1. NG 77-57
		2. IJ 79-436
3	<i>Saccharum sinense</i>	1. Kalkya
		2. Uba seedlings
4	<i>Saccharum barberi</i>	1. Khari
		2. Mungo 237
5	<i>Saccharum spontaneum</i>	1. SES 72
		2. SES 113B
		3. SES 114
		4. SES 147B

### B) Sugarcane Hybridization Programme made at SBI, Coimbatore during 2013 - 14

Sr. No.	Cross			Fluff weight (gm)
1	Co 8747	X	Co 775	73
2	Co 8371	X	Co 775	26
3	Co 8371	X	Co 94008	17.5
4	MS 6847	X	Co 94008	41
5	ISH 100	X	Co A 7602	16
6	Q 63	X	Co 775	32
7	CoA 7602	X	Co 88025	38.5
8	CoH 70	X	Co775	62.5
9	Co 94012	X	Co 1148	26
10	Co 94012	X	Co 8371	30
11	Co 98010	X	Co 94012	23
12	85 R 186	X	Co 775	31
13	CoA 90081	X	Co 88025	25
14	CoC 671	X	Co 97015	24
15	Co 2000-10	X	CoC 671	13
16	CoM 0265	X	CoC 671	30
17	Co 2000-10	X	Co 88025	15.5
18	CoA 99081	X	CoC 671	37.5
19	CoOr 03152	X	Co 94008	39
20	Co 86010	X	Co 92008	9
21	MS6847	X	Co 94008	27.5
22	CoC 671	X	SP 80-185	16
23	Co 2000-10	X	Co 8340	13.5



24	CoC 671	X	85 R 186	28.5
25	Co 7219	X	CoV 92102	8.5
26	Co 0239	X	Co 88013	20.5
27	Co 94007	X	ISH 139	39
28	ISH 307	X	Co 94005	10
29	Co 8208	X	98R278	24.5
30	ISH 110	X	CoT 8201	22.5
31	Co 86032	X	Co 94008	39.5
32	Co 92007	X	ISH 2	20
33	CoA 7602	X	ISH 139	20
<b>Total</b>				<b>899.5</b>

<b>Zonal crosses</b>				
<b>Sr.No.</b>	<b>Cross</b>			<b>Fluff weight (gm)</b>
1	Co 86002		Co 1148	10.5
2	Co 85002		Co 62174	20
3	Co 8213		Co 86011	22
4	Co 8213		CoT 8201	17
5	CoV 94101		Co 97015	10.5
6	Co 8371		CoT 8201	11
7	CoC 671		CoT 8201	14
8	CoC 671		Co 94008	11
9	Co 740		Co 775	8
10	CoM 0265		Co 99006	8.5
11	Co 86032		Co 86250	10.5
12	Co 8371		Co 86011	11
13	CoM 0265		Co 775	6.5
<b>Total</b>				<b>160.5</b>

<b>Polycrosses</b>		
<b>Sr.No.</b>	<b>Female</b>	<b>Fluff weight (gm)</b>
1	CoM 0265	10
2	ISH 100	18.5
3	Co 94012	34
4	Co 85002	41.5
5	CoA 7602	13.5
6	86V46	8
7	CoC 671	8.5
8	CP 52-68	8.5
9	Co 2000-10	23.5
10	CoC 90063	4
11	Co 7201	15.5
12	Co 8371	4.3
<b>Total</b>		<b>189.8</b>

<b>General collection</b>		
<b>Sr. No.</b>	<b>Clone</b>	<b>Fluff weight (gm)</b>
1	Co 7424	35
2	Co 87271	50
3	CoM 6806	42
4	Co 87267	14.5
5	CoA 7602	53.5
6	CoM 9220	50.5
7	CoN 05071	21
8	Co 99006	6
9	CoM 9206	20.5
10	CoTl 85118	4.5
<b>Total</b>		<b>297.5</b>

#### **Hybridization programme at Padegaon during 2013 - 14**

<b>Sr.No.</b>	<b>Cross</b>			<b>Fluff weight (gm)</b>
1	MS 6847	X	MS 0602	16.20
2	MS 6847	X	Co 94008	15.16
3	CoM 0265	X	MS 0602	10.09
4	Co 94012	X	CoM 0265	16.15
5	CoM 0265	X	CoC671	11.15
6	CoC 671	X	MS 6847	17.20
7	CoM 0261	X	Co 94012	9.30
8	CoM 0261	X	CoC671	16.12
<b>Total</b>				<b>111.37</b>

#### **Hybridization programme at ARS, Radhanagari during 2013 - 14**

<b>Sr. No.</b>	<b>Cross</b>			<b>Fluff weight (gm)</b>
1	MS 10001	X	CoM 0238	11.67
2	C M 94012	X	Co 8371	9.52
3	Co 62175	X	CoM 0254	9.20
4	CoM 91010	X	CoC 671	16.15
5	MS 9601	X	Co7219	10.09
6	MS 9601	X	CoM 94012	5.84
7	C M 11001	X	TC 434	13.30
8	85 R186	X	CoC 671	5.85
9	MS 0219	X	Co 91010	12.79

10	CoM 11001	X	MS 0602	16.18
11	MS 10001	X	CoM 11001	8.99
12	CoM 0272	X	MS 9601	19.52
13	CoM 0272 PC	X	CoM 11001/CoC 671/ MS 9601	14.16
14	CoM0265 GC			10.30
15	CoC 671 GC			11.09
<b>Total</b>				<b>174.65</b>
<b>Total</b>				<b>1833.32 gram</b>

<b>Seedlings raised from different crosses during 2013 -14</b>				
<b>A) Station crosses - SBI, Coimbatore</b>				
<b>Cross</b>				<b>Seedling transplanted in the field</b>
1	CoM 9220	X	Co 85002	30
2	MS 68/47	X	Co Se 92423	180
3	Co 83741	X	Co 86002	00
4	MS 6847	X	Co 8213	120
5	Co 91019	X	Co 1148	30
6	Co 98008	X	Co62198	50
7	Co 6304	X	Co 86002	270
8	Co 8371	X	Co 1148	360
9	Co 1148	X	CoS 8436	30
10	CoH102	X	Co Pant 97222	80
11	Co 98010	X	Co 86002	06
12	Co 92007	X	CoA7602	01
13	Co H 70	X	Co8210	90
14	Co 98010	X	Co 775	270
15	MS 6847	X	97 R 129	210
16	Co 6304	X	97 R 129	120
17	Co C 8201	X	Co1148	360
18	Co 85002	X	Co 86249	120
19	C 79218	X	Co Se 95422	012
20	Co88025	X	Co M 9217	014
21	Co8371	X	Co Se 01268	300
<b>Total</b>				<b>2572</b>
<b>Zonal Crosses</b>				
<b>Sr. No.</b>	<b>Female</b>	<b>Male</b>		<b>Seedling transplanted in the field</b>
1	Co86002	X	Co1148	80
2	Co 8213	X	Co 86011	60
3	Co 8213	X	Co T 8201	840
4	Co 85002	X	Co 62174	09

5	Co 8371	X	Co 86011	90
6	Co 8371	X	Co T 8201	60
7	Co 7201	X	Co C 671	00
8	Co C 671	X	Co 94008	90
9	Co V94101	X	Co 97012	90
10	Co C 671	X	Co T 8201	06
11	Co 740	X	Co 775	01
12	Co M 0265	X	Co 99006	00
13	Co M 0265	X	Co 775	00
<b>Total</b>				<b>1326</b>

**Poly Crosses**

Sr. No.	Female		Male	Seedlings transplanted in the field
1	CoM 0265	X	Co 775,	02
2	ISH 100	X	Co 99006,	230
3	Co 94012	X	Co 86011,	220
4	Co 85002	X	ISH 69,	260
5	CoA 7601	X	Co 94008,	00
6	CoC 671	X	CoT 8201,	00
7	81 V 48	X	CoV 92102,	00
8	CP52-68	X	Co 93009	00
9	Co2000-01	X		60
10	Co 7201	X		04
11	Co 8371	X		160
			<b>Total</b>	<b>936</b>

**General Collection**

Sr. No.	Female GC	Seedlings transplanted in the field
1	Co98008	24
2	Co 98010	100
3	Co 05011	03
4	Co 88025	00
5	Co 92006	1110
6	CoA 92082	00
7	Co 92008	04
8	Co 8318	540
9	Co 92007	300
10	ISH135	00
11	Co 92002	00
12	Co 7224	00
13	Co 976	04
14	Co 98007	24
15	CP44-101	80
16	Co 87012	300
17	Co 89036	640
18	Co Jn 80141	60

19	Co 8316	00
20	Co Jn 862072	20
21	Co 8208	20
22	Co 7704	04
23	Co M 9217	970
24	ISH 228	1000
25	Co 87004	20
26	Co 87271	240
27	Co M 6806	1720
28	Co 98006	144
29	Co 94007	00
30	Co 89029	20
31	Co 94005	60
32	Co 98010	40
33	Co 89012	180
34	Co Jn 80151	20
35	Co Or 05546	01
36	Co M 9220	200
37	MS 68/47	40
<b>Total</b>		<b>7402</b>

<b>Crosses made at SBIRC, Agali.</b>				
<b>Sr. No.</b>	<b>Female</b>	<b>Male</b>		<b>Seedlings transplanted in the field</b>
1	IK 76-81	X	CoC671	840
2	Co C 671	X	IK76-91	150
3	CoC671	X	Co8371	00
4	Avela Green Spot	X	5/43	30
5	Co 8371	X	SES 92-340	00
6	Co 419	X	SES92-340	04
7	Co C 671	X	ISH 128	00
8	ISH 100	X	Co 775	00
9	Co 419	X	IK 76-81	08
10	ISH 139	X	Co775	270
11	Co 7201	X	Co97015	00
12	Co C671	X	IK76-81	00
13	Co 419	X	IK76-81	00
14	Co C 671	X	ISH 128	00
<b>Total</b>				<b>1302</b>

<b>Padegaon Crosses</b>				
<b>Sr. No.</b>	<b>Male</b>		<b>Female</b>	<b>Seedlings transplanted in the field</b>
1	CoM 0265	X	Co 94008	360
2	Co M 0265	X	Co C671	00
3	CoVSI9805	X	Co C 671	00
4	Co 99004	X	Co 775	40

5	Co 92020	X	Co94012	00
6	Co 419	X	Co 8371	04
7	Co 8371	X	Co M 0265	120
8	Co C 671	X	Co M 0265	80
9	Co 94012	X	Co 419	00
10	Co 94012	X	CoM 0265	120
<b>Total</b>				<b>724</b>

<b>General collection (G.C)</b>		
<b>Sr. No.</b>	<b>G. C.</b>	<b>Seedlings transplanted in the field</b>
1	Co 8371	00
2	CoC 671	02
3	Co 99004	06
4	Co 94012	20
	<b>Total</b>	<b>28</b>

<b>ARS, Radhanagari</b>				
<b>Sr. No.</b>	<b>Cross</b>			<b>Seedlings transplanted in the field</b>
1	MS 219	X	527/85	05
2	Co M 0238	X	Co 6304	00
3	Co 91010	X	Co 419	00
4	Co M 0238	X	Co 775	02
5	Co M 0254	X	Co 91010	00
6	MS 0602	X	Co 91010	00
7	Co M 9318	X	Co SNK 3044	02
8	Co 6304	X	Co 775	00
9	Co 8371	X	Co62174	00
10	Co M 9318	X	85 R 186	00
11	MS 0602	X	Co 62175	00
12	Co 7125	X	Co M 9810	00
13	Co M 0254	X	Co 775	00
14	Co M 0254	X	Co 62175	00
15	Co VSI 5179	X	Co 62198	00
16	Co 94008	X	Co 7219	00
17	Co M 9318	X	527/85	00
18	Co 94008	X	Co 8371	00
19	Co M 7125	X	Co 92020	00
			<b>Total</b>	<b>07</b>
			<b>Grand Total</b>	<b>14,297</b>

## Programme SB- (AICRP on Sugarcane) 2013-14

### 1) Name of Trial: Initial Varietal Trial – (Early)

<b>Details</b>	<b>Padegaon</b>
<b>Design</b>	RBD
<b>Replications</b>	2
<b>Treatments</b>	12 + 3 = 15
<b>Plot Size:</b>	
<b>Gross</b>	6 M X 6 R
<b>Net</b>	5 M x 4 R
<b>Planting date</b>	01.02.2013
<b>Harvesting date</b>	13.11.2013
<b>Table No.</b>	6

### Results: Table: - 6

The cane yield and CCS yield differences, CCS% and Sucrose % differences due to different cultures were found to be statistically significant. However, the culture CoM 10082 (134.58 t/ha) was recorded significantly highest cane yield over all the cultures and checks except CoM 10081(130.00 t/ha), Co 10004 (128.75 t/ha), Co 10026 (125.69 t/ha), CoT 10366 (124.17 t/ha) and Co 10024 (123.19 t/ha) which were at par with it. The same culture CoM 10082 (22.63 t/ha) out yielded in case of CCS yield over all other cultures and checks.

As far as quality is concerned the same culture CoM 10082 was recorded highest CCS % (16.81 %) and Sucrose % (23.18 %). Both checks Co 85004 (CCS % 16.52 % and Sucrose % 22.75 %) and CoC 671 (CCS % 16.66 % and Sucrose % 22.96 %) were at par with it.

2) Name of Trial: Advanced Varietal Trial (Early) –II Plant

Details	Padegaon
Design	RBD
Replications	4
Treatments	2 + 3 = 5
Plot Size:	
Gross	6 m x 8R
Net	5 m x 6R
Planting date	01.02.2013
Harvesting date	12.11.2013
Table. No.	7

**Results: Table. : 7**

The differences due to various genotypes in respect of cane yield and CCS yield, CCS % and sucrose % were found to be statistically significant. The culture VSI 08121 was reported significantly superior cane yield (135.92 t/ha) and CCS yield (20.96 t/ha) over the checks except the check CoC 671 (Cane yield 120.93 t/ha and CCS yield 19.51 t/ha) and the culture Co 8001 (Cane yield 126.26 t/ha and CCS yield 20.36 t/ha) which were at par with it.

As far as quality is concerned the highest CCS % (16.60 %) and Sucrose % (23.27 %) was recorded by the same culture VSI 08121. The check CoC 671 (CCS % 16.13 %) and Sucrose % (21.75 %) was at par with it.



### 3) Name of Trial: Advanced Varietal Trial (Early) –Ratoon

<b>Details</b>	<b>Padegaon</b>
<b>Design</b>	RBD
<b>Replications</b>	4
<b>Treatments</b>	2 + 3 = 5
<b>Plot Size:</b> <b>Gross</b> <b>Net</b>	6 M x 8 R 5 M x 6 R
<b>Ratooning date</b>	07.02.2013
<b>Harvesting date</b>	07.11.2013
<b>Table. No.</b>	8

#### **Results: Table: - 8**

The yield differences due to various genotypes in respect of cane yield, CCS yield, CCS % and sucrose % were found to be statistically significant. The genotype VSI 08121 reported significantly superior cane yield (111.55 t/ha) over all other genotypes and checks except the standard check Co 94008 (105.20 t/ha) which was at par with it. However the genotype Co 08001 (14.79 t/ha) out yielded in regard of CCS yield over all standard except genotype VSI 08121 (13.74 t/ha) which was at par with it.

#### 4) Name of Trial: Initial Varietal Trial – (Midlate)

Details	Padegaon
Design	RBD
Replications	2
Treatments	14 + 2 = 16
Plot Size:	
Gross	6 M x 6 R
Net	5 M x 4 R
Planting date	01.02.2013
Harvesting date	12.02.2014
Table. No.	9

#### Results: Table: - 9

The yield differences due to various genotypes in respect of cane yield, CCS yield, CCS % and sucrose % were found to be statistically significant. The genotype Co 10033 was recorded significantly highest cane yield (138.82 t/ha) than all other genotypes and check except high yielding check Co 86032 (135.79 t/ha), PI 10131 (127.98 t/ha), Co 10015 (122.28 t/ha) and MS 10083 (121.60 t/ha) which were at par with it.

The standard check Co 86032 out yielded the CCS yield (19.76 t/ha) over all other cultures and check except Co 10015 (18.64 t/ha), Co 10033 (17.94 t/ha), MS 10083 (17.46 t/ha) and PI 10132 (17.32 t/ha) which were at par with it.

As far as quality is concerned the highest CCS % (15.25%) and highest Sucrose % (21.28 %). was recorded by the culture Co 10015 followed the check Co 99004 (CCS % 15.23 and sucrose 21.11%).

#### 5) Name of Trial: Advanced Varietal Trial – II Plant (Midlate)

<b>Details</b>	Padegaon
<b>Design</b>	RBD
<b>Replications</b>	3
<b>Treatments</b>	5 + 2 = 7
<b>Plot Size:</b> <b>Gross</b> <b>Net</b>	6 M x 8 R 5 M x 6 R
<b>Planting date</b>	30.01.2013
<b>Harvesting date</b>	1.01.2014
<b>Table. No.</b>	10

#### Results: Table: - 10

The yield differences due to various genotypes in respect of cane yield, CCS yield were found to be statistically significant. Statistically the highest cane yield (139.62 t/ha) and CCS yield (20.42 t/ha) was recorded by Co 08020 over all other genotypes and standards except genotype Co 08009 (Cane yield 134.00 t/ha and CCS yield 20.38 t/ha) which was found at par with it.

As far as quality is concerned the standard Co 99004 reported highest CCS % (15.22 %) followed by Co 08009 (15.21 %) than all other genotypes and standards. However genotype Co 08009 was recorded the highest Sucrose % (21.18 %) followed by Co 08016 (21.16 %) and standard Co 99004 (21.15 %) than all other genotypes and standards.

**6) Name of Trial: Advanced Varietal Trial – Midlate (Ratoon)**

<b>Details</b>	<b>Padegaon</b>
<b>Design</b>	RBD
<b>Replications</b>	3
<b>Treatments</b>	5 + 2 = 7
<b>Plot Size:</b> <b>Gross</b>	6 M x 8 R
<b>Net</b>	5 M x 6 R
<b>Ratooning date</b>	07.02.2013
<b>Harvesting date</b>	02.01.2014
<b>Table. No.</b>	11

**Results: Table: - 11**

The yield differences due to various genotypes in respect of cane yield, CCS yield, CCS % and sucrose % were found to be statistically significant. The significantly superior cane yield (120.43 t/ha) and CCS yield (16.82 t/ha) were recorded by the genotype Co 08020 followed by the genotype Co 08009 cane yield (111.18 t/ha) and CCS yield (16.53 t/ha) which was at par with it. In case of CCS yield the standard check Co 86032 (15.03 t/ha) was also at par with Co 08020.

As far as quality is concerned, the highest CCS % (14.88%) was reported by both genotypes Co 08009 and Co 08016. The genotype Co 8009 was recorded highest sucrose % (20.75 %) followed by Co 08016 (20.71 %) than checks and other genotypes.

**7) Name of Trial: Advanced Varietal Trial (Early) – I Plant, II Plant and Ratoon  
Pooled results.**

<b>Details</b>	<b>Padegaon</b>
<b>Design</b>	RBD
<b>Replications</b>	4
<b>Treatments</b>	02+3=05
<b>Plot Size:</b>	
<b>Gross</b>	6 m x 8R
<b>Net</b>	5 m x 6R
<b>Table. No.</b>	12

**Results: Table. : 12**

The yield differences in pooled result of I Plant, II Plant and Ratoon due to various genotypes in respect of cane yield, CCS % and sucrose % were found to be statistically significant. However in case of CCS yield difference were found to be statistically non significant. The significantly highest cane yield was recorded by the genotype VSI 08121 (118.18 t/ha) over the all genotypes and standard. The numerically highest CCS yield (17.25 t/ha) than all other genotypes and standards.

As far as quality is concerned, the genotype VSI 08121 recorded highest CCS % (15.08 %) and sucrose % (21.13 %) than all other genotypes and standards.

**8) Name of Trial: Advanced Varietal Trial – Midlate I Plant, II Plant and Ratoon  
Pooled Results**

<b>Details</b>	Padegaon
<b>Design</b>	RBD
<b>Replications</b>	3
<b>Treatments</b>	05+02 = 07
<b>Plot Size:</b>	
<b>Gross</b>	6 M x 8R
<b>Net</b>	5 m x 6 R
<b>Table. No.</b>	13

**Results: Table: - 13**

The yield differences in pooled result of I Plant, II Plant and Ratoon due to various genotypes in respect of cane yield, CCS yield, CCS % and sucrose % were found to be statistically significant. The significantly highest cane yield was recorded by the genotype Co 08020 (120.80 t/ha) than all other genotypes and check except genotype Co 08009 (117.14 t/ha) and check Co 86032 (116.95 t/ha).

The significantly highest CCS yield was recorded by the genotype Co 08009 (17.42 t/ha) over all the genotypes and standards except the genotype Co 08020 (17.07 t/ha) and standard Co 86032 (16.45 t/ha) which were found at par with it.

In respect of CCS % significantly highest CCS % was recorded by the genotype Co 08016 (15.01 %) and sucrose % (21.04%) over all other genotypes and standards except Co 08009 (CCS% 14.84% and sucrose % 20.82 %) which was at par with it.

**TECHNICAL  
PROGRAMME  
2014-15 &  
SEED MULTIPLICATION**

## **AICRP on Sugarcane Technical Programme: (2014-15)**

### **1. Initial Varietal Trial - Early**

Entries (13)	:	Co 11001, Co 11004, Co 11016, Co 11017, Co 11018, CoM 11081, CoM 11082, CoM 11083, CoM 11084, CoN 11071, CoN 11072, CoT 11366 and PI 11131
Standards (3)	:	Co 85004, Co 94008 and CoC 671
Design	:	Randomised Block Design
Replications	:	Two
Plot size	:	Gross: 6m x 6r x 1.2 m Net : 5m x 4r x 1.2 m
Seed rate	:	12 buds per metre
Planting date	:	15.01.2014
Crop duration	:	10 months
Data to be recorded	:	As per Annexure - I

### **2. Advanced Varietal Trial ( Early) – I Plant**

Entries (3)	:	Co 09004, Co 09007 and CoN 09072
Standards (3)	:	Co 85004, Co 94008 and CoC 671
Design	:	Randomised Block Design
Replications	:	Four
Plot size	:	Gross: 6m x 8r x 1.2 m Net : 5m x 6r x 1.2 m
Seed rate	:	12 buds per metre
Planting date	:	17.01.2014
Crop duration	:	10 months
Data to be recorded	:	As per Annexure – I



### **3. Initial Varietal Trial – Midlate**

Entries (14)	:	Co 11005, Co 11007, Co 11012, Co 11019, Co 11020, Co 11021, Co 11022, Co 11023, Co 11024, CoM 11085, CoM 11086, CoM 11087, CoN 11073 and CoN 11074
Standards (2)	:	Co 86032 and Co 99004
Design	:	Randomised Block Design
Replications	:	Two
Plot size	:	Gross : 6m x 6r x 1.2 m Net : 5m x 4r x 1.2 m
Seed rate	:	12 buds per metre
Planting date	:	07.01.2014
Crop duration	:	12 months
Data to be recorded	:	As per Annexure III

### **4. Advanced Varietal Trial (Midlate) – I Plant**

As per decision taken during Breeders Meet held at NAU, Navsari on 26<sup>th</sup> Nov., 2013, this trial is deferred for 2015-16 and its planting time will be in 2<sup>nd</sup> fortnight of November to end of December. Only one entry Co 09009 is promoted for AVT and therefore the seed of this entry will be multiplied during 2014-15.

### **SEED MULTIPLICATION**

**Multiplication of IVT (2013-14) entries at the centres:** The following entries will be multiplied at the centres during 2014-15:

Early (12)	:	Co 10004, Co 10005, Co 10006, Co 10024, Co 10026, Co 10027, CoM 10081, CoM 10082, CoN 10071, CoN 10072, CoT 10366 and CoT 10367
Midlate (14)	:	Co 10015, Co 10017, Co 10031, Co 10033, CoM 10083, CoM 10084, CoN 10073, CoT 10368, CoT 10369, CoVC 10061, CoVSI 10121, CoVSI 10122, PI 10131 and PI 10132.

**Note: Along with this set, Co 09009 of IVT (2012-13) will also be multiplied for inclusion in AVT (Midlate)-I Plant of 2015-16.**

The following entries accepted in the Workshop of AICRP(S) held at TNAU, Coimbatore in 2012 are under multiplication at Sugarcane Breeding Institute, Coimbatore and Central Sugarcane Research Station, Padegaon. On prior intimation the centers should depute their staff and lift the material for one year multiplication.

**S.B.I, Coimbatore (Multiplication centre):**

Mandya, Perumalapalle, Powarkheda, Pugalur, Rudrur, Sameerwadi, Sirugamani and Thiruvalla.

**C S R S, Padegaon (Multiplication centre):**

Akola, Basmathnagar, Kolhapur, Navsari, Pravaranagar, Pune, Raipur and Sankeshwar.

**Early (12) :** Co 12001, Co 12003, Co 12006, Co 12007, Co 12008, CoM 12081, CoM 12082, CoM 12083, CoN 12071, CoN 12072, CoT 12366 and CoT 12367

**Midlate (15) :** Co 12009, Co 12012, Co 12014, Co 12016, Co 12017, Co 12019, Co 12021, Co 12024, CoM 12084, CoM 12085, CoM 12086, CoN 12073, CoN 12074, CoT 12368 and VSI 12121.

**New Entries accepted**

The following entries were accepted in the Group Meeting of AICRP(S) held at the Andhra University Campus, Visakhapatnam / RARS, Anakapalle (A.P.) in 2013. The concerned breeders are requested to supply two sets of seed material of the accepted entries; one set is to be sent to SBI, Coimbatore and the other set to CSRS, Padegaon for one year multiplication.

**Early (8) :** Co 13002, Co 13003, Co 13004, CoN 13071, CoN 13072, CoSnk 13101, CoSnk 13102 and MS 13081

**Midlate (20) :** Co 13005, Co 13006, Co 13008, Co 13009, Co 13011, Co 13013, Co 13014, Co 13016, Co 13018, Co 13020, CoM 13082, CoN 13073, CoN 13074, CoSnk 13103, CoSnk 13104, CoSnk 13105, CoSnk 13106, CoT 13366, PI 13131 and PI 13132

**New entries for drought trial:**

The following entries will be multiplied during 2014-15:

PG 9869137, SA04-406, SA 98-13, GU 07-3774, AS04-254, MA5/99, AS04-1687, AS04-2097, MA5/22, SA04-454, BM 1003143, SA04-409, BM 1005149, CYM07-986, SA04-390, AS04-635, MA5/5, BM 1010168, MA5/37 3R, GU07-3849, MA5/51, SA04-472, BM 1009163, SA04-458, BM 1022173, AS04-1689, GU07-2276.

## **ALL INDIA COORDINATED RESEARCH PROJECT ON SUGARCANE**

### **Characters on which data to be recorded in Initial Varietal Trial (IVT) and Advance Varietal Trial (AVT)**

#### **Crop: Sugarcane (Early – Plant)**

1. Germination % at 30 days for tropics and 45 days for sub-tropics
2. No. of tillers (thousand/ha) at 120 days
3. No. of shoots (thousand/ha) at 240 days
4. Cane yield (t/ha) after 10 months at harvest
5. Number of millable canes (thousand/ha) after 10 months at harvest
6. Stalk length (cm) after 10 months at harvest
7. Stalk diameter (cm) after 10 months at harvest
8. Single cane weight (kg) after 10 months at harvest
9. Brix % at 8 and 10 months
10. Sucrose % in juice at 8 and 10 months
11. Purity % at 8 and 10 months
12. CCS % at 8 and 10 months
13. CCS t/ha after 10 months at harvest
14. Extraction % after 10 months at harvest
15. Fibre % after 10 months at harvest
16. Pol % cane after 10 months at harvest
17. Jaggery quality after 10 months at harvest (if facility available)
18. Jaggery yield (t/ha) after 10 months at harvest (if facility available)

#### **Morphological characters**

1. Lodging : Erect, lodging, snapping, heavy lodging
2. Leaf sheath spines : Absent (A), present (P), medium (M), heavy (H)
3. Flowering : Absent (A), present (P)
4. Canopy structure and colour : Green, light green, yellowish green, dark green
5. Bud size : Big (B), small (S), medium (M)
6. Pithiness : Absent (A), present (P), less (L), heavy (H)
7. Internode splits : Absent (A), present (P), low (L), moderate (M), heavy (H)
8. Natural incidence of diseases and pests

**ALL INDIA COORDINATED RESEARCH PROJECT ON SUGARCANE**  
**Characters on which data to be recorded in ratoon crop**

**Crop: Sugarcane (Early – Ratoon)**

- Note :**
1. No gap filling should be done.
  2. Ratooning operation should be completed within 15 days after harvesting plant crop.
- 
1. Number of tillers (thousand/ha) before giving full earthing up (90 days)
  2. Number of cane formed tillers (thousand/ha) after 180 days
  3. Number of millable canes (thousand/ha) after 270 days at harvest
  4. Cane yield (t/ha) after 270 days at harvest
  5. Stalk length (cm) after 270 days at harvest
  6. Stalk diameter (cm) after 270 days at harvest
  7. Single cane weight (kg) after 270 days at harvest
  8. Brix % after 270 days at harvest
  9. Sucrose % in juice after 270 days at harvest
  10. Purity % after 270 days at harvest
  11. CCS % after 270 days at harvest
  12. CCS t/ha after 270 days at harvest
  13. Extraction % after 270 days at harvest
  14. Fibre % after 270 days at harvest
  15. Pol % cane after 270 days at harvest
  16. Jaggery quality after 270 days at harvest (if facility available)
  17. Jaggery yield (t/ha) after 270 days at harvest (if facility available)

## **ALL INDIA COORDINATED RESEARCH PROJECT ON SUGARCANE**

### **Characters on which data to be recorded in Initial Varietal Trial (IVT) and Advance Varietal Trial (AVT)**

#### **Crop : Sugarcane (Midlate – Plant)**

1. Germination % at 30 days for tropics and 45 days for sub-tropics
2. No. of tillers (thousand/ha) at 120 days
3. No. of shoots (thousand/ha) at 240 days
4. Cane yield (t/ha) after 12 months at harvest
5. Number of millable canes (thousand/ha) after 12 months at harvest
6. Stalk length (cm) after 12 months at harvest
7. Stalk diameter (cm) after 12 months at harvest
8. Single cane weight (kg) after 12 months at harvest
9. Brix % at 10 and 12 months
10. Sucrose % in juice at 10 and 12 months
11. Purity % at 10 and 12 months
12. CCS % at 10 and 12 months
13. CCS t/ha after 12 months at harvest
14. Extraction % after 12 months at harvest
15. Fibre % after 12 months at harvest
16. Pol % cane after 12 months at harvest
17. Jaggery quality after 12 months at harvest (if facility available)
18. Jaggery yield (t/ha) after 12 months at harvest (if facility available)

#### **Morphological characters**

1. Lodging : Erect, lodging, snapping, heavy lodging
2. Leaf sheath spines : Absent (A), present (P), medium (M), heavy (H)
3. Flowering : Absent (A), present (P)
4. Canopy structure and colour : Green, light green, yellowish green, dark green
5. Bud size : Big (B), small (S), medium (M)
6. Pithiness : Absent (A), present (P), less (L), heavy (H)
7. Internode splits : Absent (A), present (P), low (L), moderate (M), heavy (H)
8. Natural incidence of diseases and pests

# ALL INDIA COORDINATED RESEARCH PROJECT ON SUGARCANE

## Characters on which data to be recorded in ratoon crop

### Crop : Sugarcane (Midlate – Ratoon)

- Note :**
1. No gap filling should be done.
  2. Ratooning operation should be completed within 15 days after harvesting plant crop.
- 
1. Number of tillers (thousand/ha) before giving full earthing up (90 days)
  2. Number of cane formed tillers (thousand/ha) after 180 days
  3. Number of millable canes (thousand/ha) after 330 days at harvest
  4. Cane yield (t/ha) after 330 days at harvest
  5. Stalk length (cm) after 330 days at harvest
  6. Stalk diameter (cm) after 330 days at harvest
  7. Single cane weight (kg) after 330 days at harvest
  8. Brix % after 330 days at harvest
  9. Sucrose % in juice after 330 days at harvest
  10. Purity % after 330 days at harvest
  11. CCS % after 330 days at harvest
  12. CCS (t/ha) after 330 days at harvest
  13. Extraction % after 330 days at harvest
  14. Fibre % after 330 days at harvest
  15. Pol % cane after 330 days at harvest
  16. Jaggery quality after 330 days at harvest (if facility available)
  17. Jaggery yield (t/ha) after 330 days at harvest (if facility available)