

## Annual Report 2013-14

### All India Coordinated Research Project on Sugarcane

(i) **Period under report:** 1.4.2013 to 31.3.2014

(ii) **Staff position:** 4 (2 Scientists & 2 Technical assistants)

Name of the sanctioned Post	Name of incumbent	Date of joining
Senior Breeder	Dr. R.S.Singh	10.10.2002
Agronomist	Dr. Kuldeep Singh	28.04.1998
Technical Assistants	Sh. Sukhdev Singh	01.03.2004
	Sh. Beant Singh	01.02.2011

(iii) **Details of Financial allocation and expenditure 2013-14**

Particulars	Amount(Rs.)
Total Expenditure 2013-14	51,47,571
ICAR Share (75%)	38,60,678
<b>Opening Balance</b> (as on 01.04.2013)	(+) 9,34,472
Expenditure 2013-14 (ICAR Share)	38,60,678
Total Expenditure	47,95,150
Total grant received from ICAR (2013-14)	38,02,000+900 income
<b>Closing balance</b> ( as on 31.03.2014)	(+) 8,76,694

**All India Coordinated Research Project on Sugarcane**  
**ANNUAL REPORT 2013-14**  
**FARIDKOT CENTRE**

**INTRODUCTION**

Sugarcane is an important agro industrial crop, which occupied about 83 thousand hectares in Punjab during 2012-13. The average cane yield was 71.25 tonnes per hectare. The average sugar recovery was 9.1 per cent.

Realizing the importance of sugarcane crop in the State Indian Council of Agricultural Research sanctioned sugarcane research station, Faridkot under the All India Coordinated Research Project on Sugarcane during 1995. Faridkot Station is working as coordinating Centre for conducting Zonal trials in breeding and agronomy disciplines in North West Zone.

The major thrust area is to develop sugarcane varieties and production technologies suitable for North West Zone with special emphasis to the local needs of Punjab state. During the year 2013-14, Sugarcane variety CoPb 09181 (CoPb 91) has been released for general cultivation in Punjab. A total of 232 q. Sugarcane Breeder Seed of newly released variety CoPb 09181 has been produced and distributed to sugar mills and progressive cane growers. The centre contributed three entries CoPb 13181(Early), CoPb 13182 and CoPb 13183 (Mid late) for testing in Zonal Varietal Trials of North West Zone. Three parental stocks (CoPb 10181, CoPb 10182 and CoPb 10183) have also been contributed to the National Hybridization Garden to give impetus to sugarcane crop improvement programme. A new project entitled “Evaluation and identification of climate resilient ISH genetic stocks” has been initiated to identify elite ISH clones tolerant to drought in Faridkot location. Dr. R S Singh, Senior Sugarcane Breeder & Team Leader accomplished AICRP(S) monitoring work in North West Zone and Dr. Kuldeep Singh, Agronomist & member of monitoring team did monitoring work in East Coast Zone. Organized AICRP(S) Inter Zonal Sugarcane Breeders and Pathologists’ Meet at PAU Regional Station, Faridkot on January 17&18, 2013 and Regional Kisan Melas on September , 2013 and March 4, 2014.

Two agronomic recommendations viz garlic intercropping in autumn sugarcane and sub soiling before sugarcane planting has been made by Faridkot Centre during 2013-14. A competitive research project entitled “Resource use efficiency and biomass production in sugarcane under low nitrogen conditions” funded by University Grants Commission with a budget of Rs.8, 05,000/- has been granted and taken up for three years duration ( 2012-13 to 2014-15).

## WEATHER AT FARIDKOT

Data on weather parameters recorded at Faridkot center during 2013-14 are presented in **Table 1**. It received 883 mm annual rainfall spread over 36 days. Mean maximum temperature was 39.6<sup>0</sup>C during May 2013. The lowest mean minimum temperature of 6.1<sup>0</sup>C was recorded during December 2013. Crop attained good growth. Early shoot borer, Top borer, Root borer, termite and wilt incidence was noticed under field conditions.

**Table 1. Meteorological Data for 2013-2014**  
**North West Zone**  
**Location – FARIDKOT**

Month/Year	Temperature <sup>0</sup> C		R.H. %		Rainfall mm	No. of rainy days	Pest/Disease incidence
	MAX	MIN	F.N.	A. N.			
February 2013	21.3	9.6	86.7	54.6	36.8	3	Termite, wilt
March 2013	28.7	14.2	75.8	36.5	9.2	1	Termite, wilt
April 2013	33.0	21.6	NA	NA	16.5	3	Shoot borer
May 2013	39.6	25.7	40.8	24.5	8.7	1	Shoot borer
June 2013	37.9	28.1	78.9	58.9	171.2	6	Top borer
July 2013	35.0	28.3	87.7	79.3	140.2	6	Top borer
August 2013	32.5	24.5	81.0	77.8	372.8	9	Top borer
September 2013	32.9	24.4	73.7	73.8	29.0	2	Top borer
October 2013	31.0	21.5	73.7	62.7	38.0	2	Termite
November 2013	26.2	10.0	84.9	50.8	11.4	1	Root borer
December 2013	19.9	7.2	93.1	64.3	1.8	Nil	Root borer
January 2014	17.7	6.1	97.0	70.9	7.4	2	Termite, wilt
Total					<b>843.00</b>	<b>36</b>	

R.H. - Relative Humidity; F.N. - Fore Noon; A.N. – After Noon

## **BREEDING**

### **A. ZONAL VARIETAL TRIALS**

#### **1. Initial Varietal Trial (Early)**

The experiment was conducted with three entries and two checks viz; Co 10035, CoH 10261, CoS 10231 checks- CoJ 64, CoPant 84211 in RBD with four replications. None of the entries was significantly superior to the best check CoJ 64 (70.28 t/ha and 8.06 t/ha) in cane and sugar yield (Table 2). However, the highest cane (73.33 t/ha) and sugar yield (8.65 t/ha) was recorded in CoS 10231 which was at par with the best standard CoJ 64.

**Conclusion:** CoS 10231 was found promising in cane and sugar yield.

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

The experiment was conducted with five entries and two checks viz; CoH 09262, CoH 09263, CoLk 09202, CoPb 09181, CoS 09246 checks- CoJ 64, CoPant 84211 in RBD with three replications. Test entry CoPb 09181 (110 t/ha and 12.50 t/ha) was significantly superior to the best check CoJ 64 (75.56 t/ha and 8.71 t/ha) in cane and sugar yield (Table 3). However, the highest sucrose in Juice was recorded in CoH 09262 (17.03%) at harvest which was at par with the best check CoJ 64.

**Conclusion:** CoPb 09181 was found promising in cane and sugar yield.

#### **3. Advanced Varietal Trial (Early) II Plant**

The experiment was conducted with three entries and two checks viz; CoPb 08211, CoPb 08212, CoS 08233 checks- CoJ 64, CoPant 84211 in RBD with four replications. Test entry CoPb 08212 (87.50 t/ha and 10.95 t/ha) was significantly superior to the best check CoJ 64 (73.06 t/ha & 8.93 t/ha) in cane and sugar yield (Table 4).

**Conclusion:** CoPb 08212 was found promising in cane and sugar yield.

#### **4. Advanced Varietal Trial (Early) Ratoon**

Three entries (CoPb 08211, CoPb 08212, CoS 08233) were tested for their ratooning ability against two checks (CoJ 64, CoPt 84211) in RBD with four replications. Test entry CoPb 08212 (75.15t/ha and 9.14 t/ha) was significantly superior to the best check CoJ 64 (66.21 t/ha and 7.85 t/ha) in cane and sugar yield (Table 5).

**Conclusion:** CoPb 08212 had good ratooning ability and was found promising in cane and sugar yield.

**Table 2. Initial Varietal Trial (Early) 2013-14**

**Location – FARIDKOT (North West Zone)**

**Design: RBD, Replications: 4, Date of Planting: 09.02.2013, Plot Size: 6 rows X 6m X 75cm**

Sl.	Variety	Ger (%)	No. of shoots 000/ha	NMC 000/ha	Cane yield t/ha	Stalk length (cm)	Stalk dia. (cm)	Single Cane wt (Kg)	November				January				CCS (t/ha)	Ext. (%)
									Brix (%)	Sucr. (%)	Purity (%)	CCS (%)	Brix (%)	Sucr. (%)	Purity (%)	CCS (%)		
1	Co 10035	27.50	172.89	97.17	68.33	232.0	2.04	0.78	19.05	16.90	88.67	11.75	19.83	17.72	89.13	12.23	8.36	41.29
2	CoH 10261	36.50	206.22	87.00	69.72	180.8	2.75	1.04	17.08	14.99	87.55	10.29	18.38	16.28	88.43	11.32	7.89	49.39
3	CoS 10231	36.63	192.89	98.83	73.33	197.8	2.72	1.09	18.53	16.40	88.56	11.39	19.50	17.30	88.43	11.79	8.65	45.50
Standards																		
1	CoJ 64	39.88	207.56	128.33	70.28	229.3	2.36	0.80	18.15	16.21	89.23	11.28	18.70	16.59	88.56	11.46	8.06	49.35
2	CoPt 84211	51.13	220.00	117.17	68.06	217.8	2.50	0.98	18.30	16.08	87.70	11.04	18.23	16.13	88.20	11.11	7.56	47.00
	CD (5%)	6.56	18.12	11.36	6.41	31.04	0.21	0.19	0.64	0.73	1.06	0.50	0.72	0.69	NS	0.44	0.83	3.91
	CV%	11.66	6.44	7.67	5.88	9.72	5.61	12.22	2.41	3.09	0.81	3.10	2.61	2.81	0.45	2.60	6.63	5.72

**Table 3. Advanced Varietal Trial (Early) I Plant 2013-14**

**Location – FARIDKOT (North West Zone), Design: RBD, Replications: 3,  
Date of Planting: 13.02.2013, Plot Size: 8 rows X 6m X 75cm**

Sl .	Variety	Ger. (%)	No. of shoots 000/ha	NMC 000 /ha	Cane yield t/ha	Stalk length h (cm)	Stalk dia. (cm)	Single Cane wt. (Kg)	November				January				CCS (t/ha)	Ext. (%)
									Brix (%)	Sucr. (%)	Purity (%)	CCS (%)	Brix (%)	Sucr. (%)	Purity (%)	CCS (%)		
1	CoH 09262	30.00	81.30	67.41	64.44	201.3	2.70	1.06	17.13	14.84	86.66	10.17	19.13	17.03	88.98	11.81	7.61	48.32
2	CoH 09263	26.11	101.67	96.11	84.44	175.0	2.53	0.92	14.60	12.56	86.01	8.58	18.50	16.50	89.19	11.46	9.68	42.27
3	CoLk 09202	41.11	142.04	119.07	87.78	193.3	2.26	0.77	15.47	13.20	85.41	8.98	17.40	15.57	89.46	10.83	9.51	47.19
4	CoPb 09181	46.94	118.52	81.11	110.00	243.0	2.89	1.46	15.70	13.80	87.85	9.52	18.00	16.28	90.43	11.38	12.50	48.66
5	CoS 09246	33.75	135.74	108.70	75.93	176.7	2.29	0.72	16.77	14.65	87.40	10.08	17.80	15.86	89.08	11.01	8.36	50.82
	Standards																	
1	CoJ 64	30.97	127.96	98.70	75.56	200.0	2.40	0.82	17.07	14.97	87.71	10.32	18.37	16.51	89.88	11.51	8.71	45.87
2	CoPt 84211	40.69	106.30	88.15	67.78	197.0	2.14	0.79	16.50	14.48	87.73	9.98	18.43	16.50	89.49	11.48	7.77	41.26
	CD (5%)	5.05	20.54	13.70	13.23	23.6	0.27	0.19	1.49	1.32	1.58	0.92	0.56	0.62	NS	0.50	1.55	3.12
	CV%	8.43	10.60	8.55	9.60	6.98	6.20	11.85	5.27	5.34	1.04	5.45	1.75	2.17	1.12	2.51	9.92	3.83

**Table 4. Advanced Varietal Trial (Early) II Plant 2013-14**

**Location – FARIDKOT (North West Zone)**

**Design: RBD, Replications: 4, Date of Planting: 08.02.2013, Plot Size: 8 rows X 6m X 75cm**

Sl .	Variety	Ger (%)	No. of shoots 000/ha	NMC 000/ha	Cane yield t/ha	Stalk length (cm)	Stalk dia. (cm)	Single Cane wt (Kg)	November				January				CCS (t/ha)	Ext. (%)
									Brix (%)	Sucr. (%)	Purity (%)	CCS (%)	Brix (%)	Sucr. (%)	Purity (%)	CCS (%)		
1	CoPb 08211	28.13	104.17	73.75	68.06	208.3	2.67	1.087	18.13	15.99	87.92	10.82	19.68	17.53	89.17	12.23	8.32	51.04
2	Co Pb 08212	35.73	131.53	107.08	87.50	262.3	2.18	1.104	18.00	15.87	88.12	10.87	19.98	17.84	89.39	12.52	10.95	51.10
3	CoS 08233	41.56	158.06	110.14	79.72	223.0	2.17	0.894	18.90	16.74	88.63	11.66	19.58	17.38	88.81	12.04	9.59	52.93
Standards																		
1	CoJ 64	32.40	128.61	103.33	73.06	205.0	2.46	0.909	18.13	16.05	88.68	11.18	19.68	17.56	89.33	12.23	8.93	49.83
2	CoPt 84211	43.54	152.22	91.67	66.11	237.5	2.15	0.893	17.40	15.40	87.94	10.66	18.33	16.20	88.34	11.22	7.42	44.40
	CD (5%)	4.85	14.94	8.50	8.98	18.8	0.15	0.11	0.81	0.80	NS	0.47	0.84	0.82	NS	0.58	1.05	2.89
	CV%	9.20	7.72	6.17	8.08	5.6	4.06	7.33	2.97	3.34	0.56	2.84	2.87	3.15	0.64	3.20	7.89	3.86

**Table 5. Advanced Varietal Trial (Early) Ratoon 2013-14**

**Location – FARIDKOT (North West Zone)**

**Design: RBD, Replications: 4, Date of Ratooning: 06.03.2013, Plot Size: 8 rows X 6m X 75cm**

Sl .	Variety	No. of shoots 000/ha	NMC 000/ha	Cane yield t/ha	Stalk length (cm)	Stalk dia. (cm)	Single Cane wt (Kg)	December (270 days)				CCS (t/ha)	Ext. (%)
								Brix (%)	Sucr. (%)	Purity (%)	CCS (%)		
1	CoPb 08211	148.75	75.00	55.76	204.0	2.74	0.943	18.90	17.26	88.91	11.63	6.49	44.30
2	Co Pb 08212	175.97	109.44	75.15	240.5	2.47	0.949	19.30	17.48	89.38	12.16	9.14	45.31
3	CoS 08233	204.03	116.39	66.97	192.8	2.33	0.696	19.10	17.31	89.57	11.93	7.99	43.59
Standards													
1	CoJ 64	183.75	111.67	66.21	205.0	2.62	0.937	19.23	17.14	89.34	11.86	7.85	48.77
2	CoPt 84211	157.08	100.00	62.12	203.8	2.42	0.733	18.63	16.46	88.30	11.35	7.05	41.24
	CD (5%)	18.84	9.21	8.74	15.06	0.13	0.132	NS	NS	0.41	0.37	1.12	3.75
	CV%	7.03	5.75	8.69	4.67	3.32	10.06	2.44	2.73	0.30	2.03	9.44	5.45



## **5. Initial Varietal Trial (Mid late)**

The experiment was conducted with ten entries and three checks viz; Co 10036, Co 10037, Co 10039, CoH 10262, CoH 10263, CoPt 10221, CoPb 10181, CoPb 10182, CoPb 10183, CoPb 10211 checks- CoS 767, CoS 8436 and CoPant 97222 in RBD with three replications. Test entry CoPb 10181 (96.67 t/ha & 13.41 t/ha) was significantly superior to the best check CoS 767 (72.96 t/ha & 8.95 t/ha) in cane yield and sugar yield (Table 6).

**Conclusion:** CoPb 10181 was found promising in cane and sugar yield.

## **6. Advanced Varietal Trial (Mid late) I Plant**

The experiment was conducted with five entries and three checks viz; Co 09022, CoH 09264, CoLk 09204, CoPb 09214, CoS 09232 checks- CoS 767, CoS 8436 and CoPant 97222 in RBD with three replications. Test entries CoPb 09214 (109.63 t/ha & 12.97 t/ha) was significantly superior to the best check CoS 767 (82.96 t/ha & 10.08 t/ha) in cane and sugar yield (Table 7).

**Conclusion:** CoPb 09214 was found promising in cane and sugar yield.

## **7. Advance Varietal Trial (Mid late) II Plant**

The experiment was conducted with six entries and three checks viz; CoH 08262, CoH 08263, CoH 08264, CoPb 08217, CoS 08234, CoS 08235, checks- CoS 767, CoS 8436 and CoPant 97222 in RBD with three replications. Test entry CoPb 08217 (93.70 t/ha & 12.82 t/ha) was significantly superior to the best check CoPant 97222 (78.52t/ha & 11 t/ha) in cane and sugar yield. Detailed data pertaining to yield and quality are presented in Table 8.

**Conclusion:** CoPb 08217 was found promising in cane and sugar yield.

## **8. Advanced Varietal Trial (Mid late) Ratoon**

Six entries viz; CoH 08262, CoH 08263, CoH 08264, CoPb 08217, CoS 08234, CoS 08235 were tested for their ratooning ability against three checks viz; CoS 767, CoS 8436 and CoPt 97222 in RBD with three replications. Test entries CoH 08263 (83.52 t/ha & 8.84 t/ha) and CoPb 08217 (74.44 t/ha & 8.70 t/ha) were significantly superior to the best check CoS 767 (63.70 t/ha & 6.79 t/ha) in cane and sugar yield (Table 9).

**Conclusion:** CoH 08263 followed by CoPb 08217 had good ratooning ability and were found promising in cane and sugar yield.

**Table 6. Initial Varietal Trial (Mid late) 2013-2014**  
**Location – FARIDKOT (North West Zone)**  
**Design: RBD, Replications: 3, Date of Planting: 16.03.2013, Plot Size: 6 rows X 6m**

Sl.	Variety	Ger (%)	No. of shoots 000/ha	NMC 000/ha	Cane yield t/ha	Stalk length (cm)	Stalk dia. (cm)	Single Cane wt (Kg)	January				March				CCS (t/ha)	Ext. (%)
									Brix (%)	Sucr. (%)	Purity (%)	CCS (%)	Brix (%)	Sucr. (%)	Purity (%)	CCS (%)		
1	Co 10036	27.83	133.33	84.89	74.81	263.3	2.15	0.99	17.23	14.95	86.74	10.25	19.77	17.74	89.72	12.36	9.29	42.50
2	Co 10037	18.33	61.93	40.00	42.22	221.3	2.53	1.08	18.70	16.62	88.87	11.53	21.47	19.14	89.11	13.29	5.63	49.64
3	Co 10039	33.50	130.37	82.22	63.70	242.0	2.17	0.83	17.03	14.94	87.73	10.30	20.30	17.99	88.60	12.45	7.94	48.89
4	CoH 10262	27.33	148.15	79.56	74.81	248.3	2.40	1.07	17.17	15.09	87.88	10.41	20.53	18.42	89.68	12.83	9.60	51.72
5	CoH 10263	30.50	136.89	69.56	68.52	232.7	2.30	1.23	17.70	15.49	87.53	10.67	21.27	19.15	90.06	13.36	9.14	46.78
6	CoPt10221	32.50	170.07	91.78	83.70	224.0	2.62	1.16	17.30	14.92	86.26	10.20	20.13	17.65	87.66	12.16	10.19	43.83
7	CoPb 10181	32.33	173.93	84.67	96.67	224.3	2.69	1.33	17.80	15.52	87.19	10.66	21.67	19.77	91.23	13.87	13.41	51.92
8	CoPb 10182	32.17	150.81	89.78	80.74	239.7	2.39	1.05	17.67	15.50	87.71	10.68	20.23	18.21	89.99	12.70	10.25	49.63
9	CoPb 10183	27.00	109.93	89.33	69.26	210.0	2.29	0.78	17.13	15.06	87.90	10.39	19.47	17.38	89.28	12.08	8.36	45.79
10	CoPb 10211	28.33	107.85	78.89	60.00	152.0	2.49	0.79	18.83	16.76	88.99	11.63	21.57	19.22	89.13	13.35	8.04	49.99
Standards																		
1	CoS 767	30.00	126.52	85.78	72.96	221.7	2.28	0.88	17.77	15.53	87.42	10.69	19.80	17.63	89.07	12.24	8.95	50.07
2	CoS 8436	28.33	112.59	64.67	55.19	170.3	2.71	0.96	17.97	15.77	87.76	10.87	21.23	19.23	90.57	13.46	7.43	48.37
3	CoPt 97222	28.50	107.56	70.67	66.67	211.7	2.63	1.17	17.50	15.41	88.05	10.64	21.37	19.25	90.07	13.43	8.94	50.32
	CD (5%)	4.45	16.34	11.27	11.21	25.14	0.16	0.19	0.67	0.72	1.13	0.55	0.97	1.05	NS	0.81	1.64	4.41
	CV %	9.02	7.46	8.59	9.35	6.75	3.97	10.66	2.25	2.74	0.77	3.02	2.80	3.36	1.23	3.74	10.56	5.43

**Table 7. Advanced Varietal Trial (Mid late) I Plant 2013-2014**  
**Location–FARIDKOT (North West Zone) Design: RBD, Replications: 3,**  
 Date of Planting: 14.02.2013, Plot Size: 8 rows X 6m

Sl.	Variety	Ger (%)	No. of shoots 000/ha	NMC 000/ha	Cane yield t/ha	Stalk length (cm)	Stalk dia. (cm)	Single Cane wt (Kg)	January				March				CCS (t/ha)	Ext. (%)
									Brix (%)	Sucr. (%)	Purity (%)	CCS (%)	Brix (%)	Sucr. (%)	Purity (%)	CCS (%)		
1	Co 09022	35.97	118.15	98.15	93.33	248.3	2.40	1.05	17.47	15.31	87.67	10.55	20.50	17.86	87.13	12.26	11.45	44.82
2	CoH 09264	34.72	116.67	100.74	95.19	277.0	2.57	1.25	16.93	14.92	88.13	10.31	20.07	17.37	86.63	11.90	11.31	44.62
3	CoLk 09204	25.28	99.44	82.41	77.78	233.7	2.72	0.98	17.97	15.86	88.27	10.96	19.63	17.01	86.75	11.65	9.06	47.38
4	CoPb 09214	36.25	151.30	113.52	109.63	252.3	2.31	1.00	17.03	15.02	88.19	10.38	19.80	17.23	87.14	11.83	12.97	40.69
5	CoS 09232	34.86	91.85	68.15	63.70	209.0	2.52	1.06	17.57	15.52	88.32	10.73	20.20	17.51	86.78	12.00	7.64	50.75
Standards																		
1	CoS 767	31.25	129.81	85.19	82.96	208.0	2.60	0.98	17.90	15.76	88.03	10.88	19.83	17.56	88.53	12.15	10.08	49.72
2	CoS 8436	29.03	90.74	73.15	60.37	183.0	2.86	1.05	18.17	16.20	89.15	11.25	20.50	17.93	87.47	12.34	7.44	48.36
3	CoPt 97222	27.78	100.19	83.52	81.48	232.0	2.78	1.14	17.67	15.64	88.50	10.82	19.87	17.49	88.06	12.07	9.79	46.63
	CD (5%)	4.95	13.72	10.42	14.85	17.5	0.20	0.13	0.92	0.93	NS	0.69	NS	1.20	NS	0.86	1.88	5.20
	CV %	9.28	7.04	6.72	10.02	4.39	4.60	7.22	3.02	3.46	0.62	3.69	4.80	3.95	2.54	4.11	10.45	6.41

**Table 8. Advanced Varietal Trial (Mid late) II Plant 2013-2014**  
**Location–FARIDKOT (North West Zone) Design: RBD, Replications: 3,**  
 Date of Planting: 07.2.2013, Plot Size: 8 rows X 6m

Sl.	Variety	Ger (%)	No. of shoots 000/ha	NMC 000/ha	Cane yield t/ha	Stalk length (cm)	Stalk dia. (cm)	Single Cane wt (Kg)	January				March				CCS (t/ha)	Ext. (%)
									Brix (%)	Sucr. (%)	Purity (%)	CCS (%)	Brix (%)	Sucr. (%)	Purity (%)	CCS (%)		
1	CoH 08262	29.86	104.26	85.74	92.59	239.7	2.70	1.22	17.73	15.60	87.95	10.76	20.97	18.86	89.94	13.15	12.15	49.86
2	CoH 08263	34.31	140.56	110.56	94.07	207.7	2.80	1.07	19.03	16.84	88.47	11.65	20.97	19.02	90.69	13.32	12.53	49.29
3	CoH 08264	25.14	94.63	73.70	81.48	209.0	2.92	1.20	17.93	15.80	88.10	10.91	21.77	19.85	91.19	13.93	11.34	54.65
4	CoPb 08217	37.64	114.81	97.22	93.70	251.3	2.47	1.02	19.17	16.92	88.25	11.70	21.57	19.54	90.59	13.67	12.82	48.43
5	CoS 08234	35.97	118.52	86.48	82.59	216.7	2.54	1.01	19.03	16.93	88.93	11.74	21.20	19.20	90.55	13.43	11.10	43.80
6	CoS 08235	30.83	113.70	81.30	71.85	259.3	2.69	1.16	17.87	15.74	88.07	10.87	20.63	18.58	90.05	12.96	9.32	48.38
Standards																		
1	CoS 767	35.28	142.41	104.63	75.56	228.3	2.37	0.82	18.03	15.96	88.48	11.04	20.73	18.64	89.88	13.00	9.77	50.15
2	CoS 8436	33.19	102.04	81.11	68.15	190.0	2.62	0.95	18.57	16.39	88.26	11.33	21.93	19.95	90.95	13.98	9.53	52.57
3	CoPt 97222	30.83	113.15	87.41	78.52	240.3	2.50	0.92	17.80	15.72	88.30	10.86	21.90	19.96	91.20	14.01	11.00	50.12
	CD (5%)	3.56	13.01	12.92	12.82	18.1	0.23	0.13	0.72	0.73	NS	0.54	NS	NS	NS	NS	1.62	5.36
	CV %	6.36	6.47	8.26	9.09	4.60	5.20	7.18	2.27	2.61	0.55	2.79	3.21	3.56	1.26	3.86	8.54	6.27

**Table 9. Advanced Varietal Trial (Mid late) Ratoon 2013-2014**  
**Location–FARIDKOT (North West Zone) Design: RBD, Replications: 3**  
 Date of Ratooning: 01.03.2013, Plot Size: 8rows X 6m

Sl.	Variety	No. of shoots 000/ha	NMC 000/ha	Cane yield t/ha	Stalk length (cm)	Stalk dia. (cm)	Single Cane wt (Kg)	January (330 days)				CCS (t/ha)	Ext. (%)
								Brix (%)	Sucr. (%)	Purity (%)	CCS (%)		
1	CoH 08262	102.78	64.81	55.00	176.67	2.74	0.98	16.47	14.38	87.31	9.88	5.44	46.01
2	CoH 08263	155.56	106.67	83.52	202.67	2.89	1.04	17.43	15.33	87.95	10.58	8.84	47.26
3	CoH 08264	132.96	84.63	62.22	192.67	2.79	0.95	18.43	16.33	88.57	11.30	7.03	50.40
4	CoPb 08217	135.19	86.67	74.44	227.33	2.54	1.16	19.00	16.85	88.69	11.68	8.70	48.48
5	CoS 08234	68.15	51.11	40.37	167.33	2.65	0.91	17.53	15.50	88.38	10.72	4.33	41.25
6	CoS 08235	133.33	93.70	68.33	191.67	2.65	0.94	17.30	15.18	87.77	10.47	7.15	46.82
Standards													
1	CoS 767	165.19	96.85	63.70	217.33	2.36	0.96	17.53	15.43	88.02	10.65	6.79	47.83
2	CoS 8436	70.19	50.00	41.48	133.67	2.52	0.84	17.80	15.79	88.67	10.94	4.54	45.75
3	CoPt 97222	128.70	84.63	62.41	179.67	2.50	0.91	16.93	14.84	87.65	10.23	6.39	47.54
	CD (5%)	11.56	12.83	8.93	20.13	0.13	0.13	0.51	0.54	0.82	0.41	1.05	3.61
	CV %	5.50	9.28	8.42	6.20	2.96	7.97	1.69	2.00	0.54	2.18	9.18	4.45

## B. FLUFF SUPPLY PROGRAMME

1500 g fluff obtained from 19 Bi- parental crosses, 10 Zonal Crosses, 8 Poly Crosses and 29 GC's attempted at NHG Coimbatore and 9 Bi- parental crosses of introgressed clones at National Distant Hybridization facility (SBI Research centre) during November 2013. The fluff has been stored at -20<sup>0</sup>C and seedlings will be raised in September 2014.

**Seedling 2013-14:** Sugarcane Crosses attempted at NHG of SBI Coimbatore & National Distant Hybridization Facility, Agali during November 2012 for Faridkot centre.

Cross No	Sr No	Pistil Parent	Pollen Parent	Fluff wt.(g)	Seedling raised
241	1	CoJ 88	ISH 69	18.0	13
283	2	Co 98008	CoS 8436	18.5	460
340	3	Co 98008	CoSe 92423	18.0	414
341	4	Co 98010	CoSe 92423	16.5	161
342	5	Co 98010	CoS 8436	18.5	375
369	6	Co 8371	CoSe 92423	12.0	27
370	7	ISH 100	Co 8213	33.5	30
380	8	CoH 110	Co 8213	17.0	434
381	9	CoH 119	CoS 8436	37.5	342
382	10	Co 8213	CoSe 92423	30.5	606
383	11	CoV 89101	Co 1148	10.0	17
399	12	ISH 100	CoSe 92423	14.0	20
400	13	CoH 110	CoS 8436	11.5	32
401	14	CoJ 88	Co 1148	11.5	28
407	15	CoH 110	ISH 69	16.0	16
408	16	Co 85002	Co 1148	20.5	141
419	17	CoJ 72	Co 97015	11.0	46
420	18	Co 2000-10	Co 1148	35.0	24
432	19	CoH 110	Co 97015	15.0	105
433	20	CoH 119	Co 97015	34.0	171
434	21	Co 2000-10	CoSe 92423	21.0	5
449	22	Co 2000-10	CoS 8436	23.0	104
450	23	Co 85002	CoSe 92423	14.0	33
			Sub Total	<b>456.5</b>	<b>3604</b>
<b>Zonal Cross</b>					
151	1	LG 95053	BO 91	7.5	22
190	2	CoS 8436	Co Pant 97222	11.5	280
230	3	BO 91	Co 453	8.5	11
231	4	Co 98008	Co 775	11.0	318
247	5	Co 98010	Co 775	9.0	97
315	6	Co 0238	CoSe 92423	8.0	44
446	7	MS 6847	CoV 92102	15.5	282
	8	Co 7201 PC		6.0	194
	9	CoS 8436	Co 89003	11.0	158
			Sub Total	<b>88.0</b>	<b>1406</b>
<b>Poly Crosses</b>					
	1	CoS 8436	CoS 767,	23.0	179

	2	CoSe 92423	Co 7314,	14.5	249
	3	81V48	CoPant 97222	10.5	19
	4	CoSe 95422	Co 89003,	4.0	34
	5	CoJ 83	ISH 229,	1.0	4
	6	ISH 100	Co 775	7.5	15
			BO 91,		
			CoSe 92423		
			Sub Total	<b>60.5</b>	<b>500</b>
<b>Crosses attempted at SBI RC Agali</b>					
	1	5/22	CoSe 92423	8.0	123
	2	CoC 671	Co 89003	14.5	20
	3	CoC 671	CoSe 92423	16.0	61
	4	CoC 671	Co 62198	19.0	12
	5	CoC 671	IK 76-81	25.0	0
	6	5/22	CoT 8201	5.0	11
	7	CoC 671	Co 1148	18.8	13
	8	CoC 671	Co 419	23.0	11
			Sub Total	<b>128.5</b>	<b>251</b>
<b>General Collections GCs</b>					
	1	CoJ 88		43.0	132
	2	CoPb 10183		35.5	485
	3	CoJ 82191		5.0	11
	4	CoH 92		16.0	72
	5	CoJ 89		17.0	91
	6	CoH 106		8.0	184
	7	CoH 110		9.0	14
	8	Co 8213		19.0	207
	9	CoLk 94184		11.0	17
	10	CoS 8436		9.0	51
	11	ISH 128		6.0	12
	12	CoPant 92226		7.0	11
	13	CoLk 8002		12.5	22
	14	CoPb 10182		18.5	22
	15	Co 2000-10		68.0	21
	16	Co 8371		11.5	22
	17	BO 96		27.0	58
	18	CoLk 8102		45.5	72
	19	CoPant 88219		7.0	138
	20	Co 86002		1.5	13
	21	CoJ 87		14.5	21
	22	CoJ 83		17.5	25
	23	CoSe 92423		31.0	91
	24	CoH 114		25.0	254
	25	ISH 287		14.5	67
	26	CoPant 90224		34.0	51
	27	CoH 119		65.0	17
	28	ISH 175		9.5	11
	29	BO 91		10.0	115

	30	BO 108		18.5	116
	31	CoS 88216		13.5	56
	32	CoJ 46		32.5	205
	33	ISH 100		19.0	50
	34	CoJ 80		107.0	150
	35	CoS 92263		50.5	91
			Sub Total	<b>839.0</b>	<b>2975</b>
			<b>Grand Total</b>	<b>1572.5</b>	<b>8,736</b>

### Year wise progress of fluff supply programme

SI	Year	Cross	GC	ZC+ PC	Seedlings Raised	Present Stage				
						CI	CII	CIII	PVT	MLT
1	2013-14	28	29	10+8	Stored	-	-	-	11	3
2	2012-13	31	35	9+6	8,736	451	149	60	9	2
3	2011-12	23	28	9+8	8,916	1183	147	43	26	2
4	2010-11	24	16	10+7	11,441	909	124	35	12	3
5	2009-10	25	23	6+8	7,786	803	84	26	10	1
6	2008-09	28	20	10+3	10,026	1161	202	31	17	--
7	2007-08	13	47	9+2	9,376	1500	70	48	--	--
8	2006-07	39	25	8+3	2,385	742	242	--	--	--
9	2005-06	24	38	3	871	4772	--	--	--	--
10	2004-05	25	43	-	6,312	--	--	--	--	--

Ten clones viz; CoPb 09181(AVT Early II Plant& Ratoon), CoPb 10181, CoPb 10182, (AVT Midlate I Plant), CoPb 11181, CoPb 11182 (IVT Mid), CoPb12181, CoPb 12182(Multiplication at different Centres), CoPb 13181, CoPb 13182 and CoPb 13183 (Zonal Multiplication at Karnal) are being tested in Zonal Varietal Trials of North West Zone/in multiplication stages during 2014-15. These improved clones have also been included as parental stock in National Hybridization Garden.