

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

Crop Improvement Report
2016-17

&

Technical Programme
2017-18



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ANNUAL REPORT [CROP IMPROVEMENT]

All the 8 research trials programmed for the year 2016-17 conveyed by the Project Coordinator, AICRP(S), Lucknow were laid down as per the technical programme and monitored by the team constituted by the Project Coordinator during Sept, 2016. The results of various trials received under crop improvement are detailed below:

1. Initial Varietal Trial Early (IVT-E)

Nine test clones and two standards were evaluated in this trial for different cane yield and quality traits and data generated is appended in Table 1. The top three clones for cane yield in this trial were CoPb 13181(90.99 t/ha), CoH 13034 (89.01 t/ha) and CoPant 13231 (88.64 t/ha) that were comparable to high scoring standards Co 0238 (89.65 t/ha). The promising clones for stalk length were CoPant 13121, CoLk 13202, CoPant 13222 and Co 13034 while for stalk diameter and single cane weight were CoLk 13202, Co 13033, CoPant 13222. The standard Co 0238 was superior for these traits in comparison to test clones. For CCS (t/ha), three clones CoS 13231, CoPb 13181 and Co 13034 recorded higher values for this trait and are in comparison with both the standards. Sucrose (%) among test entries ranged from 14.87 -18.63. Two clones Cos 13231 (18.63%) and Co 13033 (17.63%) were better than CoJ 64 (17.22 %). Both these clones exhibited higher CCS % (10 months) than the best standard CoJ 64.

2. Advance Varietal Trial Early I Plant (AVT-E I Plant)

In this trial, four test clones along with two standards were evaluated at for cane yield and quality traits (Table 2). None of the clone surpassed the best standard CO 0238 (91.19 t/ha) for cane yield. However, two clones namely Co 12027 (90.24 t/ha) and CoPant 12221(87.79 t/ha) were at par with Co 0238 for this trait. For quality traits viz: CCS % (10 months) and Sucrose % (10 months), and Pol % cane , two clones Co 12026 (17.46,11.68,12.85) and Co 12027(18.15,12.59,13.44) respectively reflected better/ comparable performance with both the standards.

3. Advance Varietal Trial Early II Plant (AVT-E II Plant)

Among four test clones and two standards evaluated for cane yield and component traits in this trial, clone CoLk 11203 (88.92 t/ha) performed slightly better than Co 0238 (87.59

t/ha) and clone CoLk 11202(87.33 t/ha) was at par with this standard for cane yield. Both these clones showed desirable traits like stalk length and stalk diameter (Table 3). Clone CoLk 11203 ranked first for quality traits Sucrose at 10 month (18.0%), CCS% at 10 months (12.69) , Pol % cane ,10 month (14.28) and Fibre % 10 month (13.31) closely followed by CoLk 11202 for these traits, that is comparable to both the standards.

4. Advance Varietal Trial Early Ratoon

In advance varietal trial early ratoon, none of the test clones surpassed the best standard CO 0238 (83.24 t/ha) for cane yield. However clone CoLk 11203 (79.17 t/ha), was found at par closely followed by CoLk 11202 (75.35 t/ha).The cane characteristics like NMC (000/ha), stalk length (m), stalk diameter (cm) of clone CoLk 11203 were comparable with high yielding standard Co 0238 (Table 4). For quality traits, CoLk 11202 recorded the highest CCS (t/ha) (10.01) followed by CoLk 11201 (9.65) and CoLk 11203 (9.63) which is comparable to both the standards. The clone CoLk 11201 was found promising for sucrose per cent (19.37 %), Pol % cane (14.08 %) and CoH 11262 fo CCs % at harvest. (13.87 %).

MID LATE TRIALS

5. Initial Varietal Trial Mid-Late (IVT-M/L)

Thirteen test clones along with three standards were evaluated for cane yield and component traits in this trial. Among the test clones, the top four promising clones for cane yield were CoH 13263 (97.22 t/ha), CoLk 13204 (93.02 t/ha), CoPant 13224 (91.26 t/ha) and CoPb 13182 (91.78 t/ha.) that were superior to all the standards. Two clones Co 13035 (2.83 cm) and Co 13261 (2.68 cm) for stalk diameter and seven clones were superior for single cane weight than high scoring standards (Table 5).Six clones exhibited higher CCS (t/ha) than best standard CoPant 97222 (9.10 t/ha) and among the top three clones for CCS (t/ha) , CoPb 13182 (10.57) ranked first followed by CoH 13262 (10.45) and Co 13035 (10.12) .For sucrose and CCS %, clones CoH 13261 (19.31,13.58), Co 13036 (18.70, 13.13), Co 13035 (18.66, 13.10) and CoH 13262 (18.59 ,13.01) were top performers.

6. Advance Varietal Trial Mid-Late I Plant (AVT-M/L I Plant)

This trial consisted of six test clones and three standards which were evaluated for cane yield and quality attributes. The data appended in table 6 showed that all test clones were superior to high yielding standards CoS 8436 (72.56) for this trait, however top three clones for cane yield were Co 12029 (86.40 t/ha), CoLk 12205 (84.28 t/ha) and CoPant 12226 (83.02 t/ha). High stalk length, stalk diameter and single cane weight were recorded for clone CoH 12263 (2.95 m, 2.67 cm and 1.66 kg respectively). Top three significantly superior clones for CCS% and sucrose per cent were CoPant 12226 (12.87, 18.52), CoLk 12205 (12.71, 18.25) and CoS 12232 (12.38, 17.94). Similar trends were observed for CCS (t/ha) for these clones. Among test clones, Pol % cane and Fibre % was highest for clone CoLk 12205 which is comparable with standards CoS 8436 having Pol % cane (14.40) and Fibre % (14.46).

7. Advance Varietal Trial Mid-Late II Plant (AVT-M/L II Plant)

In advance varietal trial mid-late II Plant, nine clones including six test and three standards were assessed for cane yield and quality parameters during 2016-17. The most promising clones for cane yield were CoS 11232 (89.45 t/ha) followed by CoLk 11206 (83.18 t/ha) and CoPb 11214 (82.23 t/ha) and all these clones were significantly superior to the standards for cane yield t/ha. The top three clones for single cane weight were Co 11027 (1.34 kg), CoH 11263 (1.23 kg) and CoLk 11204 (1.10 kg) (Table 7). For CCS (t/ha) clone CoLk 11204 ranked first (9.60) followed by CoS 11232 and CoPb 11214. All are comparable with Standard CoS 767 (8.40). All the test clones were comparable with standards for stalk diameter. The highest CCS % were recorded for CoPb 11214 (12.59) and clone CoH 11263 (12.29). CoH 11263 (17.90 %) recorded highest sucrose % among the test clones followed by CoPb 11214 (17.78) and CoLk 11204 (17.57). While standard CoPant 97222 recorded the highest Sucrose % at 12 months in this trial.

8. Advance Varietal Trial Mid-Late Ratoon (AVT-M/L Ratoon)

Advance varietal trial mid-late ratoon conducted with six test clones along with three standards showed that cane yield among clones ranged from 57.30 t/ha to 76.47 t/ha. The promising clones for cane yield were CoPb 11214 (76.47 t/ha) followed by CoS 11232 (74.31 t/ha) and CoLk 11204 (70.46 t/ha) and were comparable with standards.

Two clones viz: Co 11027 (2.62, 1.27) and CoH 11263(2.90, 1.10) were found promising for cane diameter and single cane weight, while Co 11027 and CoS 11232 were superior for stalk length among the test clones.. Clones CoPb, 11214 (9.38), CoS 11232 (9.04) and CoLk 11204 (8.46) were found superior to CoS 767 (8.17) for CCs (t/ha). Clone CoLk 11204 excelled for CCS % (12.52 %) and other three clones CoPb 11214 , CoS 11232 and CoLk 11204 were comparable with all the standards (Table 8). None of the test clones surpassed the high scoring standards CoS 8436 and CoPant 97222 for Sucrose % at harvest. (Table 8). CCS % of the clone CoLk 11204 (12.52) was found to be comparable with the standards.

9. Fluff supply programme

9.1 Sowing of Fluff

From 2016 crossing programme, fluff of 62 cross combinations (Bips. PCs, GCs and Selfs) was received from SBI, Coimbatore in March and was sown in April, 2017. Thirty seven cross combinations exhibited good germination while 14 crosses did not germinate. Remaining eleven crosses showed 4-5% germination. Final count of seedlings (Table 9) and their survival in the field after transplanting will be communicated in due course of time.

9.2 Ratooning of seedling

From fluff of 2015 hybridization programme, 8530 seedlings were transplanted in field during July, 2016 and were ratooned in December, 2016. These seedlings are showing good sprouting and shoot formation. Their cane characteristics and Brix data will be recorded in October-November, 2017 and selection will be made for their advancement to clonal stage I.

9.3 Clonal Stage 1

During 2016, 433 clones selected from (C0) seedlings of different cross combinations were scored for different cane traits and brix using hand refractometer. The range of data recorded is appended in Table 10. Based on brix and cane traits 119 clones were selected and advanced to clonal stage I for further evaluation in 2016-17 crop season.

9.4 Clonal Stage II

One hundred seventy two clones (172) advanced from Clonal stage I were evaluated in Clonal stage II for cane traits and brix during crop season 2016-17. Data revealed sufficient variability among and within cross combinations for these traits (Table 11). Seventeen clones

(17) were selected for earliness and thirty (30) for midlate maturity groups and put in preliminary yield trial (PYT) for their evaluation to cane yield, its components, quality traits and disease resistance in station trials.

10. Technical programme 2017 – 2018

During 2017-2018, eight (8) research trials programmed for the year conveyed by the Project Coordinator, AICRP(S), Lucknow were laid down as per the technical programme in the month of Feb-March, 2017. All trials are in progress and data on germination, tiller count has been recorded. The various trials received under crop improvement are detailed below:

S. No.	AICRP(S) Trial	No of entries
1.	Initial Varietal trial- Early	7+3
2.	Advance Varietal Trial –Early I Plant	3+3
3.	Advance Varietal Trial –Early II Plant	4+2
4.	Advance Varietal Trial – Early Ratoon	4+2
5.	Initial Varietal Trial-Mid late	13+4
6.	Advance Varietal Trial – Mid late I Plant	5+4
7.	Advance Varietal Trial – Mid late II Plant	6+3
8.	Advance Varietal Trial – Mid late Ratoon	6+3

ZVT Multiplication

Cane seed of 10 early and 11 mid/late clones as per proceedings of annual group meeting of AICRP(S) at VSI, Pune, 2016, was collected from SBI, Regional centre, Karnal and has been planted for their multiplication except one clone i.e CoS 15231..

North West Zone, RRS, Kapurthala Centre

Table1 Initial Varietal Trial (Early)

S.N.	Clone	CCS t/ha	Cane yield t/ha	Brix % 10 months	Sucrose % 10 Months	Purity % 10 Months	CCS % 10 Months	Pol % Cane 10 Months	Extraction % 10 Months	Fiber % 10 Months	NMC at 10 Months (000/ha)
1	Co 13033	9.23	73.95	19.01	17.63	92.76	12.47		59.09		78.33
2	Co 13034	10.16	89.01	18.70	16.53	88.33	11.44		56.12		92.14
3	CoLk 13201	8.40	75.68	18.23	16.08	88.20	11.11		55.81		93.59
4	CoLk 13202	7.85	72.59	16.69	15.35	91.97	10.81		54.57		86.71
5	CoLk 13203	9.09	81.11	17.88	16.08	89.93	11.21		54.03		115.24
6	CoPant 13221	7.88	78.02	17.45	14.87	85.23	10.10		57.55		83.57
7	CoPant 13222	7.75	71.85	16.60	15.31	92.26	10.80		57.13		82.97
8	CoPb 13181	10.51	90.99	18.94	16.72	88.26	11.55		56.32		100.49
9	CoS 13231	11.65	88.64	20.22	18.63	92.17	13.14		50.29		94.85
Stds											
1	CoJ 64	9.30	76.30	18.56	17.22	92.80	12.18		55.86		122.31
2	Co 0238	10.31	89.65	17.50	16.25	92.88	11.50		59.20		96.30
	CD %	0.86	6.48	0.84	0.99	3.06	0.81		Ns		7.68
	CV %	5.49	4.72	2.72	3.56	1.99	4.18		6.48		4.75

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S.N.	Clone	Stalk Length (m)	Stalk diameter (cm)	Single cane weight (kg)	Brix % 8 Months	Sucrose % 8 Months	Purity % 8 Months	CCS % 8 Months	No. of Shoots (000/ha) 240 days	No. of Tillers (000/ha) 120 days	Germination % 45 Days
1	Co 13033	2.72	2.31	1.31	17.65	15.62	88.51	10.81	84.20	86.71	45.45
2	Co 13034	2.90	2.12	1.22	17.34	15.21	87.72	10.48	99.06	101.96	44.06
3	CoLk 13201	2.42	2.20	1.21	17.13	14.40	84.04	9.71	100.60	103.55	47.99
4	CoLk 13202	3.00	2.40	1.61	15.90	13.62	85.71	9.28	93.21	95.96	48.92
5	CoLk 13203	2.88	2.03	1.05	16.32	13.78	84.44	9.31	123.86	127.51	42.36
6	CoPant 13221	3.42	2.07	1.34	14.87	11.88	79.86	7.80	89.83	92.50	45.60
7	CoPant 13222	2.92	2.23	1.21	16.07	13.07	81.34	8.67	89.18	91.81	48.69
8	CoPb 13181	2.82	2.07	1.02	17.17	14.85	86.50	10.16	108.04	111.19	53.70
9	CoS 13231	2.72	1.85	0.70	20.28	17.16	84.64	11.62	119.89	123.41	51.54
Stds											
1	CoJ 64	2.68	2.07	0.87	17.79	15.65	88.02	10.80	131.47	135.37	49.31
2	Co 0238	3.20	2.43	1.48	17.76	14.68	82.64	9.82	103.51	106.56	55.56
	CD %	0.31	0.21	0.28	0.84	1.04	4.88	0.91	8.73	8.99	Ns
	CV %	6.36	5.86	13.98	2.91	4.22	3.38	5.48	4.94	4.94	9.51

Table2 Advanced Varietal Trial (Early – I Plant)

S.N.	Clone	CCS t/ha	Cane yield t/ha	Brix % 10 months	Sucrose % 10 Months	Purity % 10 Months	CCS % 10 Months	Pol % Cane 10 Months	Extraction % 10 Months	Fiber % 10 Months	NMC at 10 Months (000/ha)
1	Co 12026	9.64	82.58	21.13	17.46	82.65	11.68	12.85	56.59	15.01	96.18
2	Co 12027	11.35	90.24	20.39	18.15	89.02	12.59	13.44	52.28	12.68	84.05
3	CoLk 12203	8.40	74.25	18.46	16.34	88.49	11.31	12.43	53.80	15.07	111.38
4	CoPant 12221	9.79	87.79	18.50	16.19	87.58	11.15	12.06	54.83	12.02	113.30
Stds											
1	CoJ 64	9.42	75.54	19.54	17.78	91.01	12.46	13.54	58.22	11.79	105.69
2	Co 0238	11.01	91.19	19.29	17.33	89.85	12.08	13.51	56.22	12.95	99.90
	CD %	0.987	7.508	0.438	0.453	1.704	0.384	0.573	Ns	0.725	15.3
	CV %	6.6	5.97	1.49	1.75	1.28	2.15	2.94	8.12	3.63	9.99

S.N.	Clone	Stalk Length (m)	Stalk diameter (cm)	Single cane weight (kg)	Brix % 8 Months	Sucrose % 8 Months	Purity % 8 Months	CCS % 8 Months	No. of Shoots (000/ha) 240 days	No. of Tillers (000/ha) 120 days	Germination % 45 Days
1	Co 12026	3.02	2.20	1.19	18.72	16.38	87.35	11.27	104.22	110.65	43.64
2	Co 12027	2.91	2.23	1.23	18.31	16.54	90.30	11.55	91.03	96.26	46.48
3	CoLk 12203	2.68	2.11	1.08	15.34	13.48	87.87	9.29	120.66	124.36	47.68
4	CoPant 12221	2.65	2.01	1.13	15.84	13.10	82.33	8.74	130.84	146.18	46.01
Stds											
1	CoJ 64	2.84	2.09	0.98	18.48	16.32	88.29	11.28	114.50	121.59	49.53
2	Co 0238	2.99	2.38	1.39	18.35	15.39	83.84	10.37	108.22	118.46	48.64
	CD %	ns	0.21	ns	1.2	1.4	3.25	1.1	17.71	21.06	Ns
	CV %	7.81	6.46	14.3	4.58	6.13	2.49	7.03	10.54	11.69	10.21

Table3 Advanced Varietal Trial (Early II Plant)

S.N.	Clone	CCS t/ha	Cane yield t/ha	Brix % 10 months	Sucrose % 10 Months	Purity % 10 Months	CCS % 10 Months	Pol % Cane 10 Months	Extraction % 10 Months	Fiber % 10 Months	NMC at 10 Months (000/ha)
1	CoH 11262	9.89	80.31	18.64	16.90	90.68	11.82	12.78	58.42	12.18	87.43
2	CoLk 11201	9.20	74.88	19.29	17.54	90.90	12.29	13.48	60.67	10.94	96.17
3	CoLk 11202	10.61	87.33	19.70	17.80	90.41	12.44	12.69	58.68	11.13	80.53
4	CoLk 11203	11.28	88.92	19.54	18.00	92.09	12.69	14.28	51.08	13.31	89.25
Stds											
1	CoJ 64	9.38	74.72	19.47	17.89	91.35	12.57	13.02	60.35	11.88	99.16
2	Co 0238	10.65	87.59	18.97	17.09	90.06	11.92	13.76	58.51	10.95	83.04
	CD %	0.838	6.628	ns	0.664	ns	0.455	0.583	Ns	0.569	7.76
	CV %	4.53	4.43	2.65	2.08	1.2	2.04	2.41	6.13	2.67	4.78

S.N.	Clone	Stalk Length (m)	Stalk diameter (cm)	Single cane weight (kg)	Brix % 8 Months	Sucrose % 8 Months	Purity % 8 Months	CCS % 8 Months	No. of Shoots (000/ha) 240 days	No. of Tillers (000/ha) 120 days	Germination % 45 Days
1	CoH 11262	3.00	2.07	1.28	16.42	14.26	86.87	9.78	97.37	106.07	50.58
2	CoLk 11201	2.42	2.13	1.02	19.17	16.91	88.21	11.68	89.69	95.94	50.98
3	CoLk 11202	2.83	2.23	1.31	17.04	14.62	85.82	9.97	93.10	108.26	49.13
4	CoLk 11203	3.00	1.90	1.22	19.39	17.39	89.70	12.11	101.45	115.25	47.63
Stds											
1	CoJ 64	2.58	2.17	0.94	18.81	16.51	88.20	11.41	102.04	114.76	47.97
2	Co 0238	3.02	2.53	1.84	16.68	14.27	85.54	9.71	92.97	98.62	49.36
	CD %	0.211	0.306	0.3954	0.59	0.7	ns	0.63	5.6	ns	Ns
	CV %	4.15	7.77	17.14	1.82	2.48	2.01	3.22	3.21	7.74	3.16

Table 4 Advanced Varietal Trial (Early Ratoon)

S.N.	Clone	CCS t/ha	Cane yield t/ha	Brix % at harvest	Sucrose % at harvest	Purity % at harvest	CCS % at harvest	Pol % Cane at harvest
1	CoH 11262*	8.19	59.04	20.22	17.57	86.88	13.87	12.21
2	CoLk 11201	9.65	70.39	20.82	19.37	93.02	13.72	14.08
3	CoLk 11202	10.01	75.35	20.29	18.80	92.65	13.29	12.43
4	CoLk 11203	9.63	79.17	21.13	17.94	84.93	12.16	12.56
Stds								
1	CoJ 64	8.63	64.91	20.92	18.99	90.78	13.30	13.46
2	Co 0238	10.36	83.24	19.73	17.81	90.26	12.44	13.70
	CD %	0.59	4.622	0.82	0.64	2.45	0.46	1.3
	CV %	3.48	3.52	2.22	1.93	1.51	1.96	5.47

- Incidence of red rot

S.N.	Clone	Extraction % at harvest	Fiber % at harvest	NMC at 9 Months (000/ha)	Stalk length (m)	Stalk diameter (cm)	Single cane weight (kg)
1	CoH 11262	51.63	13.71	67.87	1.77	2.39	0.90
2	CoLk 11201	47.94	13.67	60.74	1.97	2.52	1.48
3	CoLk 11202	52.76	11.15	71.30	2.22	2.38	1.13
4	CoLk 11203	49.82	15.34	90.74	2.07	2.10	0.81
Stds							
1	CoJ 64	56.14	10.43	82.50	2.13	2.26	0.87
2	Co 0238	57.86	13.12	83.80	2.60	2.53	1.57
	CD %	4.9	0.73	12.55	0.19	0.2	0.311
	CV %	5.12	3.13	9.07	5.16	4.88	15.17

Table 5 Initial Varietal Trial (Midlate)

S.N.	Clone	CCS t/ha	Cane yield t/ha	Brix % 12 months	Sucrose % 12 Months	Purity % 12 Months	CCS % 12 Months	Pol % Cane 12 Months	Extraction % 12 Months	Fiber % 12 Months	NMC at 12 Months (000/ha)
1	Co 13035	10.12	87.96	20.43	18.66	91.37	13.10		55.60		82.95
2	Co 13036	9.61	82.77	20.46	18.70	91.38	13.13		53.37		75.09
3	CoH 13261	9.87	81.93	21.08	19.31	91.62	13.58		56.86		82.14
4	CoH 13262	10.45	87.79	20.51	18.59	90.63	13.01		57.51		85.91
5	CoH 13263	9.32	97.22	20.26	18.27	90.17	12.76		56.71		91.25
6	CoLk 13204	8.41	93.02	20.04	17.80	88.83	12.34		51.72		90.88
7	CoLk 13205	8.62	82.10	19.82	17.43	87.92	12.02		54.90		88.81
8	CoPant 13223	7.95	83.70	18.55	16.18	87.20	11.11		55.56		98.92
9	CoPant 13224	9.81	91.26	20.11	17.50	87.04	12.01		53.03		79.06
10	CoPb 13182	10.57	91.78	19.28	17.22	89.31	11.97		57.40		85.08
11	CoPb 13183*										
12	CoS 13232	8.37	72.10	20.05	18.11	90.31	12.65		57.73		71.13
13	CoS 13233	8.91	79.20	18.75	16.89	90.10	11.79		60.91		80.68
Stds											
1	CoS 767	8.94	76.02	19.50	17.44	89.44	12.13		56.79		80.22
2	CoS 8436	8.12	71.92	18.43	16.62	90.17	11.60		54.89		70.79
3	CoPant 97222	9.10	78.87	19.25	16.77	87.20	11.52		56.39		88.10
	CD %	Ns	14.12	1.1	0.91	ns	0.69		3.05		13.02
	CV %	9.85	7.85	2.68	2.4	1.59	2.62		2.55		7.28

- Failed due to red rot and included in data analysis

Cont...

S.N.	Clone	Stalk Length (m)	Stalk diameter (cm)	Single cane weight (kg)	Brix % 10 Months	Sucrose % 10 Months	Purity % 10 Months	CCS % 10 Months	No. of Shoots (000/ha) 240 days	No. of Tillers (000/ha) 120 days	Germination % 45 Days
1	Co 13035	2.85	2.83	1.79	18.88	16.63	88.03	11.48	89.97	98.61	51.39
2	Co 13036	2.93	2.24	1.26	18.88	16.71	88.47	11.56	86.88	97.22	46.18
3	CoH 13261	2.55	2.68	1.60	19.40	17.36	89.50	12.08	92.90	104.78	40.51
4	CoH 13262	2.51	2.40	1.36	18.97	17.08	90.02	11.91	94.29	100.62	52.08
5	CoH 13263	2.56	2.45	1.20	16.68	14.16	84.88	9.60	97.38	100.77	53.24
6	CoLk 13204	2.63	2.00	0.89	16.00	13.46	83.95	9.08	98.61	102.78	51.50
7	CoLk 13205	2.72	2.10	1.11	17.61	15.33	87.05	10.52	99.07	103.70	53.13
8	CoPant 13223	2.93	2.20	1.29	15.87	13.82	87.11	9.49	96.45	100.46	55.56
9	CoPant 13224	2.74	2.35	1.40	16.92	15.39	90.95	10.79	91.20	98.46	55.21
10	CoPb 13182	2.65	2.50	1.51	18.26	16.51	90.41	11.54	86.88	102.47	57.99
11	CoPb 13183										
12	CoS 13232	2.28	2.38	1.02	19.13	16.80	87.82	11.58	77.16	93.06	54.86
13	CoS 13233	2.65	2.28	1.67	17.39	15.96	91.78	11.23	82.10	101.85	50.69
Stds											
1	CoS 767	2.73	2.50	1.02	19.32	17.04	88.20	11.77	84.88	87.35	53.47
2	CoS 8436	2.15	2.23	0.92	17.47	16.05	91.86	11.30	91.36	101.39	51.27
3	CoPant 97222	2.88	2.23	1.20	18.68	16.65	89.13	11.56	78.70	85.03	54.40
	CD %	Ns	0.36	0.4	1	1.36	3.86	1.13	8.86	10.09	7.13
	CV %	7.86	7.16	14.74	2.62	3.99	2.03	4.78	4.6	4.77	6.39

Table 6 Advanced Varietal Trial (Midlate I Plant)

S.N.	Clone	CCS t/ha	Cane yield t/ha	Brix % 12 months	Sucrose % 12 Months	Purity % 12 Months	CCS % 12 Months	Pol % Cane 12 Months	Extraction % 12 Months	Fiber % 12 Months	NMC at 12 Months (000/ha)
1	Co 12029	9.94	86.40	19.28	17.20	89.21	11.95	13.19	58.50	10.95	96.61
2	CoH 12263	8.49	80.40	20.02	17.76	88.71	12.30	13.85	55.33	10.86	82.82
3	CoLk 12205	9.16	84.28	20.35	18.25	89.69	12.71	14.15	58.57	14.94	94.26
4	CoPant 12226	9.25	83.02	20.75	18.52	89.25	12.87	13.30	54.23	11.08	91.28
5	CoPb 12211	8.47	79.78	20.35	17.55	86.21	11.99	12.76	57.50	12.42	84.45
6	CoS 12232	8.59	73.10	20.37	17.94	88.13	12.38	13.90	60.19	14.05	82.88
Stds											
1	CoS 767	8.14	69.63	20.62	18.54	89.95	12.93	13.95	56.29	13.81	89.31
2	CoS 8436	8.50	72.56	20.65	18.58	89.99	12.96	14.40	57.46	14.46	80.12
3	CoPant 97222	8.06	68.13	19.69	17.66	89.69	12.30	13.96	56.26	13.49	95.50
	CD %	0.93	7.48	0.87	0.65	2.01	0.47	0.76	Ns	0.7	6.87
	CV %	6.2	5.59	2.49	2.1	1.31	2.19	3.21	5.14	3.17	4.48

Cont...

S.N.	Clone	Stalk Length (m)	Stalk diameter (cm)	Single cane weight (kg)	Brix % 10 Months	Sucrose % 10 Months	Purity % 10 Months	CCS % 10 Months	No. of Shoots (000/ha) 240 days	No. of Tillers (000/ha) 120 days	Germination % 45 Days
1	Co 12029	2.63	2.32	1.31	18.60	16.56	88.96	11.49	104.46	125.46	59.38
2	CoH 12263	2.95	2.67	1.66	17.14	15.24	88.94	10.57	89.53	107.72	53.24
3	CoLk 12205	2.85	2.37	1.39	17.92	15.78	88.12	10.89	101.91	122.45	50.81
4	CoPant 12226	2.90	2.47	1.58	17.70	15.95	90.16	11.14	98.69	118.60	49.59
5	CoPb 12211	3.02	2.33	1.32	17.36	15.36	88.18	10.61	91.29	109.80	49.54
6	CoS 12232	2.77	2.50	1.12	19.02	16.94	89.06	11.76	88.88	106.87	44.68
Stds											
1	CoS 767	2.65	2.17	1.04	18.68	16.78	89.85	11.70	96.92	116.51	46.76
2	CoS 8436	2.27	2.20	0.94	18.56	16.78	90.41	11.73	86.63	104.17	38.60
3	CoPant 97222	2.83	2.20	1.10	18.98	17.00	89.57	11.83	104.34	125.39	43.11
	CD %	0.31	Ns	0.33	1	0.89	ns	0.69	6.69	7.76	7.69
	CV %	6.65	8.96	15.31	3.19	3.18	1.91	3.53	4.03	3.9	9.19

Table 7 Advanced Varietal Trial (Midlate II Plant)

S.N.	Clone	CCS t/ha	Cane yield t/ha	Brix % 12 months	Sucrose % 12 Months	Purity % 12 Months	CCS % 12 Months	Pol % Cane 12 Months	Extraction % 12 Months	Fiber % 12 Months	NMC at 12 Months (000/ha)
1	Co 11027	7.89	71.37	19.98	17.36	86.92	11.91	12.67	53.45	14.96	76.70
2	CoH 11263	8.81	75.06	20.56	17.90	87.08	12.29	14.65	58.81	11.16	88.68
3	CoLk 11204	9.60	81.49	19.74	17.57	89.00	12.19	13.14	56.19	14.19	98.25
4	CoLk 11206	8.64	83.18	20.36	17.17	84.30	11.60	12.64	52.98	12.09	101.34
5	CoPb 11214	8.86	82.23	19.13	17.78	92.96	12.59	12.92	52.57	11.94	100.29
6	CoS 11232	9.42	89.45	18.70	16.50	88.25	11.41	12.62	59.91	11.55	99.57
Std											
1	CoS 767	8.40	78.98	18.54	16.82	90.69	11.77	13.65	61.65	11.21	95.10
2	Cos 8436	7.60	74.59	18.63	16.52	88.65	11.44	13.75	60.70	11.51	88.17
3	CoPant 97222	8.04	71.56	20.81	18.64	89.57	12.97	13.78	59.16	11.38	98.98
	CD %	ns	8.6	0.33	0.32	1.24	0.27	0.76	3.2	0.45	12.4
	CV %	11.01	6.32	1	1.08	0.81	1.3	3.3	3.24	2.14	7.62

Cont...

S.N.	Clone	Stalk Length (m)	Stalk diameter (cm)	Single cane weight (kg)	Brix % 10 Months	Sucrose % 10 Months	Purity % 10 Months	CCS % 10 Months	No. of Shoots (000/ha) 240 days	No. of Tillers (000/ha) 120 days	Germination % 45 Days
1	Co 11027	2.72	2.50	1.34	18.48	16.07	86.96	11.03	88.66	104.35	41.99
2	CoH 11263	2.33	2.57	1.23	17.86	16.59	92.88	11.74	86.64	103.44	43.45
3	CoLk 11204	2.56	2.35	1.10	18.66	16.86	90.35	11.78	104.80	125.32	51.96
4	CoLk 11206	2.55	2.20	1.00	16.77	14.91	88.62	10.34	116.36	131.10	59.62
5	CoPb 11214	2.52	2.25	0.91	17.74	15.63	88.05	10.79	117.19	132.02	63.08
6	CoS 11232	2.78	1.95	0.90	16.86	15.13	89.70	10.54	106.41	108.04	43.70
Stds											
1	CoS 767	2.73	2.10	1.00	17.14	15.29	89.16	10.62	102.64	115.66	50.82
2	Cos 8436	2.52	2.14	0.80	16.46	14.66	89.04	10.17	95.16	107.18	56.74
3	CoPant 97222	2.61	2.17	1.08	18.19	16.18	88.90	11.22	104.07	118.02	49.69
	CD %	ns	0.18	0.28	1.31	ns	ns	ns	9.12	9.12	7.23
	CV %	8.06	4.72	15.76	4.34	6.5	2.63	7.6	5.15	4.54	8.16

Table 8 Advanced Varietal Trial (Midlate - Ratoon)

S.N.	Clone	CCS t/ha	Cane yield t/ha	Brix % at harvest	Sucrose % at harvest	Purity % at harvest	CCS % at harvest	Pol % Cane at harvest
1	Co 11027	7.14	61.66	19.51	17.01	85.85	11.60	12.33
2	CoH 11263	6.90	57.30	19.14	17.28	90.20	12.07	13.55
3	CoLk 11204	8.86	70.46	17.36	17.21	99.48	12.52	12.74
4	CoLk 11206	8.05	67.65	19.16	17.10	89.26	11.88	12.80
5	CoPb 11214	9.38	76.47	18.07	17.15	94.97	12.25	13.57
6	CoS 11232	9.04	74.31	19.37	17.43	89.97	12.15	12.76
Stds								
1	CoS 767	8.17	66.76	19.22	17.46	90.85	12.23	13.23
2	Cos 8436	7.95	64.24	19.40	17.66	91.05	12.38	14.42
3	CoPant 97222	7.46	60.79	19.77	17.66	89.31	12.27	12.63
	CD %	1.59	10.64	0.7	ns	6.64	ns	ns
	CV %	11.35	9.23	2.16	3.46	4.21	5.01	11.56

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S.N.	Clone	Extraction % at harvest	Fiber % at harvest	NMC at harvest (000/ha)	Stalk Length (m)	Stalk diameter (cm)	Single cane weight (kg)
1	Co 11027	52.69	16.30	56.70	2.58	2.62	1.27
2	CoH 11263	53.10	13.10	62.44	1.85	2.90	1.10
3	CoLk 11204	53.60	13.48	81.72	1.91	2.20	0.89
4	CoLk 11206	48.83	16.05	71.16	2.24	2.25	0.94
5	CoPb 11214	57.19	16.54	87.64	2.17	2.20	0.77
6	CoS 11232	58.75	14.28	68.60	2.50	2.28	1.00
Stds							
1	CoS 767	56.13	13.51	71.70	2.30	2.10	0.92
2	Cos 8436	57.55	13.22	79.20	1.92	2.27	0.87
3	CoPant 97222	55.56	13.57	70.05	2.27	2.22	0.99
	CD %	2.47	1.71	7.04	0.23	0.17	0.2
	CV %	2.61	6.86	5.65	6.24	4.45	12.15

Table 9 Number of seedlings raised from fluff supplied during Feb 2017 by SBI, Coimbatore

S. No.	Cross Number	Number of seedlings
1	454	135
2	39	6
3	465	13
4	358	1126
5	371	308
6	369	21
7	81	59
8	82	584
9	93	546
10	56	336
11	69	31
12	95	30
13	171	10
14	158	1096
15	159	9
16	348	45
17	368	82
18	25	199
19	184	108
20	185	706
21	186	6
22	206	496
23	83	85
24	94	254
25	146	22
26	147	1349
27	436	34
28	70	274
29	41	256
30	21	337
31	48	920

32	71	15
33	110	6
34	111	5
35	357	191
36	170	133
37	403	221
38	404	36
39	370	798
40	408	16
41	435	1133
	GCs, PCs and crosses attempted at Agali	
42		4
43		8
44		159
45		5
46		6
47		1
48		26
49		21
50		11
51		1
52		0
53		0
54		30
55		254
56		110
57		8
58		189
59		0
60		1
61		22
62	207	280
	Total	13175

Table 10 Range of data for cane trait and brix in C0 stage

Cross. No	Cane length(m)	Cane girth (cm)	Cane no.	Brix Oct
1	1.0-3.0	1.2-3.10	1-12	7.2-21.0
2	1.6-2.80	1.4-3.1	1-20	5.0-20.5
3	1.70-2.90	1.5-2.8	2-16	9.0-21.0
4	1.10-2.90	1.8-3.10	3-18	9.0-20.3
5	1.50-2.90	1.5-2.8	2-17	10.1-20.2
6	1.40-2.80	1.5-3.2	2-16	8.0-19.0
7	1.10-2.65	1.5-3.1	2-13	11.0-19.4
8	1.50-2.50	1.45-2.40	4-7	14.3-19.0
9	1.2-2.05	1.5-2.2	3-9	15.0-19.4
12	1.0-1.90	1.5-1.8	3-12	10.3-18.0
13	1.2-1.80	1.5-2.0	3-9	13.1-18.0
14	1.3-2.6	2.0-2.4	5-9	14.2-16.2

Table 11 Variability recorded for cane traits and brix per cent in clonal stage 1 during 2016-17 crop season

Cross. No	Cane length(m)	Cane girth (cm)	Single cane weight (kg)	Bricks (%) OCT	Bricks (%) NOV
1	2.48-3.15	1.80-2.47	0.827-1.455	14.07-16.87	16.87-19.37
2	2.71-3.13	1.82-2.32	0.730-1.360	11.77-17.12	13.33-19.07
3	2.23-3.31	1.92-2.85	0.756-1.900	9.02-15.27	11.3-17.0
4	2.20-2.50	1.8-2.32	0.823-1.256	14.0-17.1	14.3-20.0
5	2.40-2.80	1.8-2.20	0.890-1.654	13.0-18.0	16.3-19.3
6	2.88-2.96	1.97-2.45	1.248-1.321	9.66-16.25	11.53-17.17
7	2.96-3.30	2.35-3.37	1.610-1.250	11.42-14.1	12.75-15.32
8	2.71-3.44	1.92-2.22	0.771-1.285	11.07-15.95	14.6-18.57
9	3.08-3.41	2.15-2.97	1.242-2.472	11.1-16.15	12.5-18.07
12	3.00-3.55	1.8-2.35	1.343-2.00	10.5-11.3	13.0-14.2
13	3.05-3.40	2.1-2.81	1.115-1.685	9.6-13.4	13.07-15.00
14	3.0-3.4	1.9-2.52	1.390-1.850	9.1-10.1	11.0-15.0
15	2.40-3.80	1.8-2.70	0.96-1.670	11.2-13.2	12.2-15.0
16	3.05-3.35	1.6-3.70	1.097-1.971	11.5-18.1	15.03-19.76
18	2.60-3.70	1.7-3.65	0.941-1.653	12.25-15.1	14.32-18.2
19	2.0-2.20	1.8-2.35	0.734-1.685	14.0-16.2	16.2-17.1
22	2.10-2.80	1.6-2.52	1.028-2.225	16.2-18.0	19.1-20.0
23	2.20-2.65	1.8-2.36	0.826-1.852	17.1-18.0	18.1-19.3
26	2.0-3.60	1.9-2.58	0.885-1.075	11.05-13.4	14.75-16.77
27	2.65-3.05	1.77-2.57	0.705-1.693	12.3-17.04	15.37-18.62
28	2.70-3.10	1.6-2.00	0.705-0.865	10.0-12.0	12.2-15.0
31	1.93-2.46	2.1-2.70	0.720-1.282	13.12-16.5	15.3-19.12

32	2.10-3.50	2.0-3.35	0.658-1.462	12.13-14.87	13.53-17.35
33	2.00-2.90	1.7-2.45	0.833-1.446	13.8-16.65	16.0-20.0
34	2.85-3.20	2.1-2.40	1.163-2.225	15.0-16.1	18.4-21.0
38	2.10-3.2	2.0-2.92	1.110-1.597	14.8-17.80	17.15-19.84
39	2.90-3.40	2.1-3.08	1.202-1.693	12.3-14.1	14.1-18.0
42	2.40-3.20	1.8-2.75	0.993-1.306	11.15-14.2	12.6-20.0
43	2.20-2.5	1.5-2.05	0.558-1.456	12.2-14.0	13.0-18.0
50	3.10-4.00	1.9-2.60	1.933- 2.650	14.0-15.3	15.1-16.1
52	2.40-3.60	1.6-2.55	0.576-1.235	15.65-18.30	16.40-19.25
53	2.60-3.20	1.7-2.58	0.852-1.205	15.0-18.0	17.0-19.1
54	2.20-2.90	1.5-2.15	0.586-0.806	13.0-15.0	13.2-19.0
57	2.35-3.00	2.0-2.56	1.437-2.365	11.2-14.0	13.0-19.0
58	2.30-2.50	1.8-2.55	1.417-2.540	15.0-16.2	16.1-18.2
62	2.75-2.90	2.2-2.62	1.081-1.985	15.2-16.2	14.0-16.3
63	2.85-3.50	2.1-2.80	1.132-1.765	16.2-17.0	17.2-19.0
65	2.30-2.80	1.6-2.35	0.997-1.375	10.0-14.2	11.1-17.0
66	2.75-3.70	1.9-2.50	1.002-1.130	11.2-15.0	13.3-18.2
70	2.60-3.25	1.7-2.20	0.720-0.898	11.2-16.1	13.0-19.4
71	2.70-3.50	2.2-2.60	1.402-2.097	12.97-15.90	15.35-18.55
72	2.90-3.65	2.3-3.00	1.302-2.465	14.10-16.07	15.17-17.55

