Acharya N.G. Ranga Agricultural University

AICRP ON SUGARCANE

Annual Report

of

Crop Improvement

2016-2017

Regional Agricultural Research Station,
Anakapalle – 531 001, Visakhapatnam District (A.P)

AICRP ON SUGARCANE

Annual Report

of

Crop improvement

2016-2017

***

CONTENTS

Crop Improvement
Detailed report on experiment wise

I.	**Project No.**	:	B IV fluff supply programme P2 – 2016/ 1 / AHD / F30 / H10 / H20 / 0230
II.	**Project Title**		Evolving improved sugarcane genotypes suitable for different agro-climatic zones of Andhra Pradesh – Seedling nursery
III.	**Serial number of the year of Experimentation**	:	I
IV.	**Location**	:	Regional Agricultural Research Station, Anakapalle
V.	**Objective**	:	To screen and isolate promising genotypes from population of true seed for further testing in settling nursery.
VI.	**Technical Programme on which the report is based.**	:	Based on location specific problems and needs of farmers and sugar industry in different agro-climatic zones of the state.
VII.	**Discipline wise – technical report**	:	
	a. Date of transplanting	:	24.6.2016 to 25.6.2016
	b. Varieties	:	6965 seedlings were transplanted from 29 crosses (station crosses and Zonal crosses) 12PCs and 10 GCs.
	c. Fertilizer application	:	100 kg P_2O_5 + 120 kg K_2O / ha basal. 112 kg N in two splits, i.e. 30 Per cent at 10 DAP and 70 Per cent at 60 DAP.
	d. Cultural practices	:	Hand weeding and hoeing : 04.7.2016 to 07.7.2016 Inter cultivation : 28.9.2016;30.9.2016; 1.10.2016 Rectification of cross channels : 10.10.2016 ; 13.10.2016 Earthing up : 25.10.2016 to 27.10.2016 Removal of flower weeds : 02.12.2016; 03.12.2016; 5.12.2016 I Tier TT propping : 8.12.2016 to 15.12.2016 II Tier TT Propping : 02.01.2017 to 05.01.2017 III Tier TT Propping : 02.02.2017 to 06-02-17
	e. Irrigations	:	Irrigation at alternate days till establishment and once in six days during formative phase and once in 18 days during maturity.
	f. Plant protection	:	Need based
	g. Date of harvest	:	22.03.2017 to 26.03.2017
	h. Plot size	:	Furrows of 10m length with 80 cm between furrow
	i. Layout	:	ARCBD

j. Replications : Non – replicated spaced planted trial.

k. Total experimental area 0.30ha

l. Name and designation of the participants :
1. Dr. A. Appalaswamy, Principal Scientist (Plant Breeding)
2. Dr.M.Charumathi, Senior Scientist (Plant Breeding)
3. Dr.D.Adilakshmi, Senior Scientist (Plant Breeding)

m. Results recorded during the previous year :

During 2015-16, a total of 2651.00 g of fluff was received from Sugarcane Breeding Institute, Coimbatore. A total of 10,397 seedlings were transplanted from 46 crosses (station crosses and zonal crosses) 13 PCs and 56 GCs. Out of which 7314 seedlings survived in the main field with an average survival per cent of 70.35.

Seven hundred and sixty genotypes were selected from seedling nursery based on desirable morphological characters and HR brix values. Maximum number of genotypes were selected in CoV 89101 GC (42), Co 86032 x Co 94008 (40) followed by ISH 100 x Co 87268 (39), CoA 7602 GC (39), CoA 93082 GC (26), Co 11001 GC (25) and CoC 671 GC (25). Number of canes / clump ranged from 1.50 (CoA 09321 GC) to 12.30 (CoV 89101 x CoA 7602). HR brix per cent ranged from 21.50 (CoC 90062 x Co 94008) to 28.00 (CoA 07321 x CoC 671). Cane length ranged from 136 cm (Co 871 GC) to 293 cm (CoV 89101 x ISH 69. Cane diameter ranged from 1.90 cm(Co 62178 x ISH 287 and Co 62178 x Co 89029) to 2.90 cm CoOr 03-152 GC. Single cane weight ranged from 0.98 kg (CoV 94101GC) to 1.40 kg(CoA 11324 GC)

n. Results obtained during the year :

During 2016-17, a total quantity of 1245g of fluff was received from Sugarcane Breeding Institute, Coimbatore. A total number of 6965 seedlings were transplanted from 29 crosses (station crosses and Zonal crosses) 12PCs and 10 GCs. Out of which 5931 seedlings survived in the main field with an average survival percent of 85.15 (Table 1&2).

Six hundred nine genotypes were selected from seedling nursery based on desirable morphological characters and HR brix values. Maximum number of genotypes were selected in CoA12321 X Co775 (77), CoV89101 X CoT8201(77),Co 88013 x Co 97015 (51) followed by CoA10321 x Co C8001 (51), CoV89101 X CoA7602(42),CoA10321 X CoS96260 (41), CoV89101 XISH69(39),CoA 13327 X CoH15 (31) and CoT8201 X Co94008(31). Number of canes / clump ranged from 3.25 (97A28 GC) to 8.72 (CoV 89101 x ISH69). HR brix per cent ranged from 22.00 (CoA13327GC) to 24.32 (Co8013 x CoC 671). Cane length ranged from 175 cm (Co A10321 X CoH128) to 245 cm (CoA12321 X Co775). Cane diameter ranged from 2.12 cm(Co A13327 x CoH15) and Co A10321 x CoH128) to 2.85 cm (CoA12321 X Co775). Single cane weight ranged from 0.85 kg (97A28GC) to 2.52 kg(Co88013 X Co97015)(Table 3).

VIII Technical programme of the year next to the reporting year:

883 g of fluff of 30 station crosses, 7 poly crosses and 5 GCs were received from Sugarcane Breeding Institute, Coimbatore will be studied during 2017-18.

IX Technical summary of the individual reporting year :

Six hundred nine genotypes were selected from seedling nursery based on desirable morphological characters and HR brix values. Maximum number of genotypes were selected in CoA12321 X Co775 (77), CoV89101 X CoT8201(77),Co 88013 x Co 97015 (51) followed by

CoA10321 x Co C8001 (51), CoV89101 X CoA7602(42),CoA10321 X CoS96260 (41), CoV89101 XISH69(39),CoA 13327 X CoH15 (31) and CoT8201 X Co94008(31). Number of canes / clump ranged from 3.62 (Co 0235 GC) to 8.72 (CoV 89101 x ISH69). HR brix per cent ranged from 22.00 (CoA13327GC) to 24.32 (Co8013 x CoC 671). Cane length ranged from 175 cm (Co A10321 X CoH128) to 245 cm (CoA12321 X Co775). Cane diameter ranged from 2.12 cm(Co A13327 x CoH15) and Co A10321 x CoH128) to 2.85 cm (CoA12321 X Co775). Single cane weight ranged from 0.85 kg (Co97A28GC) to 2.52 kg(Co88013 X Co97015)

X Salient findings.

Six hundred nine genotypes were selected from seedling nursery based on desirable morphological characters and HR brix values. Maximum number of genotypes were selected in CoA12321 X Co775 (77), CoV89101 X CoT8201(77),Co 88013 x Co 97015 (51) followed by CoA10321 x Co C8001 (51), CoV89101 X CoA7602(42),CoA10321 X CoS96260 (41), CoV89101 XISH69(39),CoA 13327 X CoH15 (31) and CoT8201 X Co94008(31).

Table 1: Details of fluff sown and per cent survival in Seedling Nursery 2016-17

S. No.	Station Crosses		Qty of Fluff received (g)	No. of seedlings obtained	No. of seedlings / gm of fluff	No. of seedlings survived	Survival %
Station crosses							
1	CoLk8102 X Co 62198		25.0	173	6.92	163	94.22
2	CoJ83 X ISH 287		25.0	Germination Failed			
3	Co Snk05103 X CoH15		23.0	6	0.26	6	100
4	Co J83 X CoH15		22.5	16	0.71	10	62.50
5	BO91 X BO32/Co89029		22.0	38	1.73	37	97.37
6	CoJ88 X Co89029		17.5	4	0.22	4	100.00
7	CoA93082 X Co 89029		18.0	9	0.50	9	100.00
8	Co 1158 X HR83-65		24.5	7	0.28	7	100.00
9	Co Snk05-103 X CoS08272		18.0	6	0.33	6	100.00
10	Co A13327 X Co H15		15.5	356	22.96	327	91.85
11	Co 06036 X Co1148		10.5	55	5.24	53	96.36
12	ISH100X CoPant97222		13.5	Germination Failed			
13	Co N98133 X Co 1158		23.5	Germination Failed			
14	Co09321 X Co H70		08.5	110	12.94	104	94.55
15	CoA10321 X ISH69		14.5	1	0.07	1	100
16	CoA 12321 X Co775		48.5	710	14.64	561	79.01
17	CoA 11324 X Co62198		13.0	4	0.31	4	100.00
18	CoA 10321 X Co C8001		13.0	530	40.77	413	77.92
19	CoA 10321 X CoS96260		17.50	337	19.26	277	82.19
20	Co Or03152 X CoS96260		46.0	191	4015	179	93.72
21	Co88013 X Co 97015		30.5	563	18.46	425	75.48
22	Co A10321 X CoH128		18.5	205	11.08	174	84.87
23	CoA11324 X Co775		22.5	36	1.6	36	100.00
24	Co T8201 X Co94008		09.0	268	29.77	181	67.54
	Sub Total		**500.0**	**3625**	**7.25**	**2977**	**82.12**
Zonal crosses							
1	ISH 100 X Co 94008		19.5	11	0.56	10	90.91
2	CoV 89101 X ISH 69		22.5	375	16.66	284	75.73
3	CoV 89101 X CoT 8201		34.0	609	17.91	548	89.98
4	CoA 92081 X CoT 8201		6.5	13	2.00	13	100.00
5	CoV 89101 X CoA 7602		21.0	358	17.04	318	88.83
6	Co 8013 X CoC 671		10.0	375	37.5	319	85.06
7	Co86032 X Co94008		13.0	25	1.92	20	80.00
8	CoA 92081 X Co 94008		04.0	6	15.00	6	100.00
	Sub Total		**130.5**	**1772**	**13.57**	**1518**	**85.67**
Poly crosses							
	Females	**Males**					
1	Co94012	Co775	12.0	37	3.08	35	94.59
2	CP52-68	Co99006	05.0	9	1.8	9	100.00
3	Co C90063	Co86011	05.0	6	1.20	6	100.00
4	Co V89101	ISH69	16.0	283	17.68	264	93.28

5	Co7201	Co94008 CoT8201 CoV92101 Co93009	08.5	25	2.94	21	84.00
6	CoA7602		10.0	20	2.00	20	100.00
7	Co 2000-10		05.0	Germination Failed			
8	ISH100		04.5	4	0.88	4	100.00
9	86V46		06.0	16	2.66	16	100.00
10	CoC 671		06.5	8	1.23	8	100.00
11	Co M0265		03.5	12	3.43	12	100.00
12	Co 85002		05.5	50	9.09	46	92.00
13	Co8371		05.5	315	57.27	290	92.06
	Sub total		**93.0**	**785**	**8.44**	**731**	**93.12**
Agali General Collections							
1	Co7202		16.0	318	19.87	283	88.99
2	CoA92081		16.5	1	0.06	1	100.00
3	Co94008		19.5	4	0.21	4	100.00
4	Co8371		12.0	2	0.16	1	50.00
	Sub Total		**64.0**	**325**	**5.07**	**289**	**88.92**
Coimbatore General Collections							
1	97A28		07.5	129	17.2	122	94.57
2	CoA92081		10.0	Germination Failed			
3	74A96		13.0	2	0.15	2	100.00
4	CoA7602		13.5	2	0.15	2	100.00
5	70A2		48.0	Germination Failed			
6	CoSnk 05-103		50.0	Germination Failed			
7	CoA13327		26.5	189	7.13	158	83.59
8	Co09022		35.5	Germination Failed			
9	Co81615		47.0	Germination Failed			
10	Co0232		45.0	Germination Failed			
11	CoA10321		46.0	Germination Failed			
12	Co7915		71.0	Germination Failed			
13	Co0235		22.0	135	6.14	131	97.04
14	Co87268		22.5	1	0.04	1	100.00
	Sub Total		**457.5**	**458**	**1.00**	**416**	**90.83**
	Total		**1245.00**	**6965**	**5.59**	**5931**	**85.15**

Table 2: Abstract of survival percent of seedling nursery 2016-17

Cross/GC/PC	Total crosses/ GCs PCs	No. of crosses GCs PCs germinated	No of crosses GCs/PCs failed to germinate	Quantity of fluff received in grams	No. of seedlings obtained	No. of seedlings/ gram of fluff	No. of seedlings survived	Survival per cent
Station crosses	24	21	03	500.00	3675	7.35	2977	81.00
Zonal crosses	08	08	-	130.50	1722	13.57	1518	85.67
GCs(Agali)	04	04	-	64.00	325	5.07	289	88.92
GCs(Coimbatore)	14	06	08	457.50	458	1.00	416	90.83
PCs	13	12	01	93.00	785	8.44	731	93.12
Total	**63**	**51**	**12**	**1245.00**	**6965**	**5.59**	**5931**	**85.15**

Table:3 Mean data of selected clones, cross/GC/PC wise in seedling nursery,2016-17

S. No.	Name of the Cross	No. of selections	Genotypes range	No. of canes/ clump	Brix (%)	Cane length (m)	Cane girth (cm)	Single cane weight (kg)
1	CoA12321 X Co775	77	2017A1 to 2017A77	7.58	22.42	2.45	2.85	2.12
2	Co88013 X Co97015	51	2017A78 to 2017A128	6.24	24.25	2.53	2.78	2.52
3	CoA10321 X CoC8001	51	2017A129 to 179	8.12	23.56	2.25	2.35	2.38
4	CoA10321 x CoS96260	41	2017A180 to 220	6.35	24.18	2.32	2.32	1.28
5	CoA13327 X CoH15	31	2017A221 to 2017A251	5.78	23.12	1.78	2.12	1.05
6	CoT8201 X Co94008	31	2017A252 to 2017A282	6.45	24.12	1.90	2.32	1.25
7	CoA10321 X CoH128	6	2017A283 to 288	5.24	23.78	1.75	2.12	0.98
8	Co09321 X CoH70	16	2017A289 to 2017A304	6.32	24.08	2.12	2.38	1.21
9	97A28GC	5	2017A305 to 2017A309	3.25	24.00	2.32	2.21	0.85
10	CoA13327GC	4	2017A310 to 2017A313	4.12	22.00	1.82	2.12	0.95
11	CoOr03152X CoS96260	8	2017A314 to 2017A321	5.28	22.12	2.13	2.21	1.05
12	CoLk8102 X Co62198	12	2017A322 to 2017A333	4.32	22.24	2.32	2.18	1.18
13	Co 0235GC	7	2017A334 to 2017A340	3.62	22.08	2.24	2.15	1.05
14	Co7202GC	12	2017A341 to 2017A352	4.18	23.12	2.18	2.24	1.17
15	CoV89101 X CoA7602	42	2017A353 to 2017A394	5.24	24.04	2.42	2.32	1.28
16	CoV89101 X CoT8201	77	2017A395 to 2017A471	6.72	24.12	2.24	2.28	1.32
17	Bo91 X Co62198	2	2017A472 to 2017A473	4.50	24.00	2.35	2.13	1.02
18	CoJ83 X CoH15	4	2017A474 to 2017A477	4.32	22.38	2.18	2.18	1.12
19	CoA11324 X Co62198	2	2017A478 to 2017A479	4.50	23.50	2.32	2.21	0.97
20	CoA7602GC	2	2017A480 to 2017A481	4.00	24.00	2.08	2.32	1.07
21	Co1158 X HR83-65	2	2017A482 to 2017A483	5.00	24.00	2.12	2.18	1.12
22	CoN05072 X Bo32/Co89029	2	2017A484 to 2017A485	4.50	23.50	2.38	2.21	1.10
23	CoSnk05103 X CoH15	2	2017A486 to	3.50	24.00	2.24	2.24	1.12

			2017A487					
24	Co06036 X Co1148	9	2017A488 to 2017A496	4.72	23.50	2.34	2.21	1.02
25	CoA11324 X Co775	7	2017A97 to 2017A503	5.24	22.62	2.35	2.32	1.13
26	CoC90063PC	2	2017A504 to 2017A505	4.00	23.00	2.18	1.97	1.02
27	CoC671PC	2	2017A506 to 2017A507	5.00	24.00	2.24	2.12	1.08
28	CoA7602PC	2	2017A508 to 2017A509	4.00	23.00	2.12	2.24	0.95
29	CoA92081 X CoT8201	2	2017A510 to 2017A511	4.50	24.00	2.35	2.28	1.12
30	Co85002PC	3	2017A512 to 2017A514	6.12	23.00	2.32	2.18	1.03
31	Co94012PC	3	2017A515 to 2017A517	5.78	24.00	2.18	2.32	1.15
32	Co8371PC	11	2017A518 to 2017A528	7.62	24.02	2.25	2.35	1.12
33	CoV89101PC	15	2017A529 to 2017A543	6.78	23.62	2.36	2.18	1.08
34	CoV89101 X ISH69	39	2017A544 to 2017A582	8.72	24.12	2.32	2.14	1.12
35	Co8013 X CoC671	22	2017A583 to 2017A604	5.32	24.32	2.38	2.32	1.12
36	Co7201PC	2	2017A605 to 2017A606	4.50	23.00	2.30	2.18	1.08
37	Co86032XCo94008	3	2017A607 to 2017A609	5.12	24.12	2.18	2.32	1.03
	Total selections	**609**	**2017A1 to 2017A609**					

I	**Project No.**	:	B IV fluff supply programme P2 – 2016 / 2 / AHD / F30 / H10 / H20 / 02301
II.	**Project Title**	:	Evolving improved sugarcane genotypes suitable for different agro-climatic zones of A.P. –Settling nursery
III.	**Serial number of the year of Experimentation**	:	II
IV.	**Location**	:	Regional Agricultural Research Station, Anakapalle
V.	**Objective**	:	To identify superior clones for further study in selection nursery.
VI.	**Technical Programme on which the report is based**	:	Based on location specific needs and problems identified in Zonal Research and Extension Advisory Council Meetings and diagnostic team visits.
VII.	**Discipline wise – technical report**	:	
	a. Date of planting	:	17.5.2016 and 22.5.2016
	b. Varieties	:	760 genotypes selected from seedling nursery raised during 2015-16
	c. Fertilizer application	:	112 kg N + 100 kg P_2O_5 + 120 kg K_2O / ha
	d. Cultural practices	:	Hand weeding and hoeing : 01.07.2016,02.07.2016 and 04.07.2016 Inter cultivation : 15.07.16 and 18.07.16 Rectification of cross channels : 23.07.2016,25.07.2016 and 26.07.2016 Earthing up : 01.11.2016,03.11.2016 and 04.11.2016 Removal of flower weeds : 21.12.2016 to 23.12.2016 15.02.2017 to 18.02.2017 I Tier TT propping : 21.01.2017,22.01.2017
	e. Irrigations	:	Once in a week during formative phase and once in 18 days during maturity phase.
	f. Plant protection	:	---
	g. Date of harvest	:	21.3.17 to 24.03.2017
	h. Plot size	:	2.5 m x 0.8 m x 2R = 4.0m^2
	i. Layout	:	ARCBD
	j. Replications	:	Non – replicated spaced planted trial.

k. Total experimental area	:	0.75 ac
l. Name and designation of the participants	:	1. Dr.M.Charumathi, Senior Scientist (Plant Breeding) 2. Dr.D.Adilakshmi, Senior Scientist (Plant Breeding) 3. Dr. A. Appalaswamy, Principal Scientist (Plant Breeding)

m. Results obtained during the previous year:

Out of 300 genotypes studied in settling nursery during 2015-16, 76 clones were selected based on desirable morphological features and HR brix per cent values. Among these clones the Cane yield (t/ha) ranged from 95.00 t/ha (2015 A 21) to 145.00 t/ha (2015 A 199). The clones 2015 A 83, 2015 183, 2015 A 201 recorded highest brix yield more than 34 t/ha. Among the selected clones the H.R Brix percent ranged from 20.20 (2015 A 153) to 26.00 (2015 A 45). Number of Millable Canes ('000/ha) ranged from 82.50 (2015 A 21) to 125.00 (2015 A 199)

n. Results obtained during the year :

Out of 760 genotypes were studied in Settling Nursery,225 Clones were selected and advanced to Selection Nursery based on desirable morphological features and HR Brix values.NMC ranged from 54.00thousands/ha(2016A14) to110.00(2016A745).Cane yield from 55.50t/ha (2016A176, 2016A385 and 2016A592) to 118.00(2016A745). HR Brix values ranged from17.80(2016A482) to 26.00(2016A122, 2016A402 and 2016A635).Brix yield ranged from 12.12(2016A3, 2016A345 and 2016A592) to27.14(2016A745)(Table.4)

VII1 Technical Programme of the year next to the reporting year

Six hundred and nine clones along with two early standards, CoA 92081 & coC01061 and two midlate standards, CoV 92102 & Co 86249 will be studied during the year 2017-18.

IX. Technical summary of the individual reporting year

Out of 760 genotypes were studied in Settling Nursery,225 Clones were selected and advanced to Selection Nursery based on desirable morphological features and HR Brix values.NMC ranged from 54.00thousands/ha2016A14) to110.00(2016A745).Cane yield from 55.50t/ha (2016A176, 2016A385 and 2016A592) to 118.00(2016A745). HR Brix values ranged from17.80(2016A482) to 26.00(2016A122, 2016A402 and 2016A635).Brix yield ranged from 12.12(2016A3, 2016A345 and 2016A592) to27.14(2016A745)

X. Salient findings.

Out of 760 genotypes were studied in Settling Nursery,225 Clones were selected and advanced to Selection Nursery based on desirable morphological features and HR Brix values.

Table 4. Performance of selected clones in Settling Nursery 2016-17

S.No	Genotype	NMC(000s/ha)	Cane yield(t/ha)	HR Brix %	Brix yield(t/ha)
1	2016A 1	58.00	60.72	22.00	13.35
2	2016A 2	62.00	63.00	21.20	13.35
3	2016A 3	64.00	60.00	20.20	12.12
4	2016A 6	65.00	58.00	24.20	14.03
5	2016A 7	60.00	62.50	23.00	14.37
6	2016A 14	54.00	62.50	24.00	15.00
7	2016A 18	66.00	63.50	22.00	13.97
8	2016A 19	67.00	62.00	23.20	14.38
9	2016A 32	64.00	63.50	22.00	13.97
10	2016A 33	67.50	62.00	22.00	13.64
11	2016A 35	62.00	62.50	22.00	13.75
12	2016A 45	63.40	58.00	22.00	12.76
13	2016A 46	65.00	60.00	22.00	13.20
14	2016A 52	66.00	60.00	21.60	12.96
15	2016A 59	63.40	63.50	21.80	13.84
16	2016A 60	62.00	60.50	22.00	13.31
17	2016A 65	62.50	58.75	21.4	12.57
18	2016A 73	60.00	58.00	22.00	12.76
19	2016A 76	62.50	55.55	23.00	12.77
20	2016A 80	62.50	58.60	23.20	13.59
21	2016A 84	67.50	60.00	25.00	15.00
22	2016A 89	68.00	63.00	23.2	14.61
23	2016A 105	65.50	63.32	24.00	15.19
24	2016A 115	67.50	60.00	23.2	13.92
25	2016A 118	72.00	58.67	24.00	14.08
26	2016A 122	76.00	58.00	26.00	15.08
27	2016A 128	70.00	64.63	25.00	16.15
28	2016A 132	72.50	66.67	23.00	15.33
29	2016A 151	74.50	63.78	25.00	15.94
30	2016A 165	75.00	64.00	22.80	14.59
31	2016A 175	78.00	65.00	22.00	14.30
32	2016A 179	76.00	69.67	21.80	15.18
33	2016A 213	81.00	75.00	23.20	17.40
34	2016A 217	60.00	75.23	20.00	15.04
35	2016A 226	76.00	72.50	21.00	15.22
36	2016A 235	78.00	75.50	21.00	15.85
38	2016A 242	82.25	76.50	22.00	16.83
39	2016A 254	86.00	80.00	23.00	18.40
40	2016A 255	75.00	72.00	24.00	17.28
41	2016A 257	76.00	71.00	25.00	17.75
42	2016A 260	78.00	72.00	25.00	18.00
43	2016A 264	76.50	72.50	24.50	17.76
44	2016A 271	72.00	67.50	23.20	15.66
45	2016A 273	86.00	78.50	23.20	18.21
46	2016A 275	91.00	87.50	22.60	19.77
47	2016A 276	92.00	85.50	22.00	18.81
48	2016A 279	82.00	78.00	21.80	17.00
49	2016A 280	78.00	72.00	21.80	15.69
50	2016A 283	81.50	80.00	22.00	17.60
51	2016A 285	82.00	74.00	23.20	17.16
52	2016A 287	83.00	75.00	24.20	18.15
53	2016A 290	91.00	75.00	25.00	18.75
54	2016A 291	92.00	76.00	23.20	17.63
55	2016A 292	94.00	86.00	22.20	19.09
56	2016A 294	92.00	86.50	24.20	20.93
57	2016A 295	87.00	72.00	23.00	16.56

58	2016A 296	88.50	76.00	23.00	17.48
59	2016A 298	86.00	76.00	22.60	17.17
60	2016A 301	83.50	78.5	22.00	17.27
61	2016A 303	82.00	78.00	20.60	16.06
62	2016A 304	80.00	78.00	22.00	17.16
63	2016A 307	82.00	78.00	22.80	17.78
64	2016A 310	80.00	75.00	22.60	16.95
65	2016A 311	91.00	78.00	23.00	17.94
66	2016A 318	85.00	76.50	23.00	17.59
67	2016A 323	86.00	76.50	24.00	18.36
68	2016A 326	88.00	80.00	23.20	18.56
69	2016A 328	86.00	80.00	24.00	19.20
70	2016A 329	88.00	80.00	23.00	18.40
71	2016A 332	75.00	72.00	23.00	16.56
72	2016A 334	76.50	72.00	22.00	15.84
73	2016A 335	58.00	60.72	22.00	13.35
74	2016A 342	62.00	63.00	21.20	13.35
75	2016A 345	64.00	60.00	20.20	12.12
76	2016A 349	65.00	58.00	24.20	14.03
77	2016A 354	60.00	62.50	23.00	14.37
78	2016A 355	55.00	62.00	24.00	14.88
79	2016A 358	80.00	83.50	22.00	18.37
80	2016A 360	67.00	80.00	23.20	18.56
81	2016A 361	64.00	73.50	22.00	16.17
82	2016A 369	67.50	62.00	22.00	13.64
83	2016A 370	80.00	83.50	22.00	18.37
84	2016A 377	63.40	58.00	22.00	12.76
85	2016A 378	65.00	60.00	22.00	13.20
85	2016A 379	66.00	60.00	23.60	14.16
87	2016A 380	63.40	63.50	21.80	13.84
88	2016A 381	62.00	60.50	22.00	13.31
89	2016A 382	62.50	58.75	21.40	12.57
90	2016A 383	60.00	75.00	22.00	16.50
91	2016A 385	62.50	55.55	23.00	12.77
92	2016A 387	62.50	58.60	23.20	13.59
93	2016A 390	67.50	60.00	25.00	15.00
94	2016A 395	68.00	73.00	23.20	16.93
95	2016A 396	65.50	63.32	24.00	15.19
96	2016A 399	67.50	60.00	23.20	13.92
97	2016A 401	72.00	78.67	24.00	18.88
98	2016A 402	76.00	68.00	26.00	17.68
99	2016A 405	70.00	64.63	25.00	16.15
100	2016A 408	72.50	66.67	23.00	15.33
101	2016A 410	74.50	70.67	25.00	17.66
102	2016A 416	75.00	84.00	22.8	19.15
103	2016A 418	78.00	65.00	22.00	14.30
104	2016A 419	76.00	69.67	21.80	15.18
105	2016A 420	81.00	75 .00	23.20	17.4 0
106	2016A 426	60.00	75.23	20.00	15.04
107	2016A 427	76.00	72.50	21.00	15.22
108	2016A 428	78.00	75.50	21.00	15.85
109	2016A 432	82.25	78.50	22.00	17.27
110	2016A 434	80.00	80.00	23.00	18.40
111	2016A 437	75.00	72.00	24.00	17.28
112	2016A 438	76.00	71.00	25.00	17.75
113	2016A 441	78.00	72.00	25.00	18.00
114	2016A 451	76.50	72.50	24.50	17.76
115	2016A 461	72 .00	70.00	23.20	16.24
116	2016A 471	86.00	78.50	23.20	18.21
117	2016A 477	91.00	87.50	22.60	19.77

118	2016A 481	92.00	88.50	22.00	19.47
119	2016A 482	82.00	78.00	17.80	13.88
120	2016A 484	78.00	72.90	21.80	15.69
121	2016A 486	81.50	80.00	22.00	17.60
122	2016A 487	82.00	74.00	23.20	17.16
123	2016A 488	83.00	75.00	24.20	18.15
124	2016A 490	91.00	89.00	25.00	22.25
125	2016A 491	92.00	76.00	23.20	17.63
126	2016A 496	94.00	86.00	22.20	19.09
127	2016A 502	92.00	86.50	24.20	20.93
128	2016A 503	87.00	72.00	23.00	16.56
129	2016A 504	88.50	82.00	23.00	18.86
130	2016A 507	86.00	76.00	22.60	17.17
131	2016A 508	83.50	78.50	22.00	17.27
132	2016A 513	82.00	78.00	20.60	16.06
133	2016A 514	82.00	78.00	22.80	17.78
134	2016A 516	80.00	75.00	22.60	16.95
135	2016A 523	91.00	88.00	23.00	20.24
136	2016A 524	85.00	76.50	23.00	17.59
137	2016A 527	86.00	76.50	24.00	18.36
138	2016A 529	88.00	85.00	23.20	19.72
139	2016A 531	86.00	80.00	24.00	19.20
140	2016A 534	88.00	80.00	23.00	18.40
141	2016A 536	75.00	72.00	23.00	16.56
142	2016A 537	76.50	75.00	22.00	16.50
143	2016A 547	58.00	60.72	24.00	14.57
144	2016A 550	62.00	63.00	21.20	13.35
145	2016A 553	64.00	60.00	22.00	13.20
146	2016A 554	65.00	67.00	24.20	16.21
147	2016A 555	60.00	62.50	23.00	14.37
148	2016A 557	55.00	62.00	24.00	14.88
149	2016A 558	66.00	63.50	22.00	13.97
150	2016A 559	67.00	70.00	23.20	16.24
151	2016A 571	64.00	63.50	22.00	13.97
152	2016A 575	67.50	62.00	22.00	13.64
153	2016A 577	62.00	62.50	22.00	13.75
154	2016A 578	63.40	60.00	22.00	13.20
155	2016A 580	65.00	60.00	22.00	13.20
156	2016A 581	66.00	72.00	21.60	15.55
157	2016A 582	63.40	63.50	21.80	13.84
158	2016A 583	62.00	60.50	22.00	13.31
159	2016A 585	62.50	73.50	21.40	15.72
160	2016A 587	60.00	58.00	22.00	12.76
161	2016A 592	62.50	55.55	23.00	12.77
162	2016A 594	62.50	58.60	23.20	13.59
163	2016A 596	67.50	60.00	25.00	15.00
164	2016A 600	68.00	73.00	23.20	16.93
165	2016A 609	65.50	63.32	24.00	15.19
166	2016A 622	67.50	60.00	23.20	13.92
167	2016A 627	72.00	68.67	24.00	16.48
168	2016A 635	76.00	78.00	26.00	20.28
169	2016A 639	70.00	68.00	25.00	17.00
170	2016A 641	72.50	66.67	23.00	15.33
171	2016A 642	74.50	70.33	25.00	17.58
172	2016A 643	75.00	71.00	22.00	16.18
173	2016A 644	78.00	75.00	22.00	16.50
174	2016A 645	76.00	69.67	24.00	16.72
175	2016A 650	81.00	75.00	23.20	17.40
176	2016A 651	60.00	68.23	20.00	13.64
177	2016A 655	72.00	71.00	22.00	15.62

178	2016A656	68.00	69.00	23.00	15.87
179	2016A657	82.00	78.00	23.20	18.09
180	2016A660	80.00	80.00	22.00	17.60
181	2016A661	78.00	75.00	23.60	17.70
182	2016A663	68.00	70.00	24.00	16.80
183	2016A664	85.00	78.00	23.60	18.41
184	2016A668	82.50	78.40	24.00	18.81
185	2016A671	66.00	64.50	23.60	15.22
186	2016A672	70.00	65.00	24.00	15.60
187	2016A673	66.00	64.60	23.00	14.86
188	2016A674	67.00	71.00	22.60	16.05
189	2016A676	63.46	58.00	23.00	13.34
190	2016A680	67.80	72.00	24.20	17.42
191	2016A684	62.00	64.00	22.00	14.08
192	2016A685	63.50	62.00	22.60	14.01
193	2016A686	82.00	79.00	23.80	18.81
194	2016A691	84.00	84.68	23.30	19.73
195	2016A698	75.00	79.00	24.00	18.96
196	2016A699	78.00	72.00	23.80	17.14
197	2016A703	82.00	79.00	23.80	18.80
198	2016A709	65.00	68.50	22.00	1507
199	2016A710	80.00	76.90	24.00	18.46
200	2016A712	79.50	72.00	23.80	17.14
201	2016A713	72.00	68.84	23.20	15.97
202	2016A 722	82.00	78.00	20.60	16.06
203	2016A 727	82.00	78.00	22.80	17.78
204	2016A 728	80.00	75.00	22.60	16.95
205	2016A 734	91.00	88.00	23.00	20.24
206	2016A 735	85.00	76.50	23.00	17.59
207	2016A 736	86.00	76.50	24.00	18.36
208	2016A 739	88.00	80.00	23.20	18.56
209	2016A 743	86.00	80.00	24.00	19.20
210	2016A 745	110.00	118.00	23.00	27.14
211	2016A 748	75.00	72.00	23.00	16.56
212	2016A 754	76.50	72.00	22 .00	15.84
213	2016A 757	58.00	60.72	22.00	13.35
214	2016A 759	62.00	63.00	21.20	13.35
215	2016A 761	64.00	60.00	20.20	12.12
216	2016A 770	65.00	68.00	24.20	16.45
217	2016A 772	60.00	62.50	23.00	14.37
218	2016A 774	55.00	62.00	24.00	14.88
219	2016A 783	66.00	63.50	22.00	13.97
220	2016A 796	67.00	62.00	23.20	14.38
221	2016A 797	64.00	63.50	22.00	13.97
222	2016A 799	67.50	72.00	22.00	15.84
223	2016A710	62.00	62.50	22.00	13.75
224	2016A 712	63.4o	66.00	22.00	14.52
225	2016A 713	65.00	68.00	24.20	16.45
Standards					
1	Co 6907	85.000	77.00	20.56	15.83
2	87A298	87.50	65.00	22.00	14.30
3	Co 7219	78.00	62.50	19.50	12.19
4	83V15	75.00	68.00	21.00	14.28

I.	Project No.	B VI Fluff supply programme P2-2016 /3 -AHD / F 30 / H10 /H20 / 0230.
II.	Project Title	Evolving improved sugarcane genotypes suitable for different Agro-climatic zones of Andhra Pradesh – **Selection Nursery**
III.	Serial number of year of expermentation	III
IV.	Location	Regional Agricultural Research Station, Anakapalle.
V.	Objective	To identify and select promising genotypes for further testing in Preliminary yield trial.
VI.	Technical Programme on which the report is based	Based on the location problems and needs identified in ZREAC and SLTP meeting
VII.	Discipline wise technical report	
a.	Date of planting	18-04-2016
b.	Varieties	Seventy six clones selected from settling nursery of 2015-16 along with two standards, CoA92081 and Co86249.
c.	Fertilizer application	100 kg P_2O_5 + 120 kg K_2O/ha as basal. 112 kg Nitrogen in two equal splits at 45 DAP and 90 DAP.
d.	Cultural practices	Hand weeding & Hoeing:24-05-2016 &25-05-2016 01.07.2016,02.07.2016 Intercultivation : 04.07.2016 Rectification of cross channels:05.07.2016 Earthing up : 16.08.2016 Removal of flower weeds:29.06.2016 &30.06.2016 I tier TT propping :03.10.2016,04.10.2016 II tier TT propping : 11.11.2016,12.112016 III tier TT propping : 12.12.2016,13.12.2016
e.	Irrigations	Once in a week during the formative phase and once in 18 days during maturity phase
f.	Plant protection	Need based
g.	Date of harvest	06.05.2016 & 08.05-2016
h.	Plot size	5M x 0.8M x 4R = 16.0 M^2
i.	Layout	ARCBD
j.	Replications	Non-replicated spaced planted trial
k.	Total experimental area	0.50ac
l.	Name and designation of the participants	1.Dr.D.Adilakshmi, Senior scientist(Plant Breeding) 2.Dr.M.Charumathi,Senior scientist(Plant Breeding) 3. Dr. A.Appala swamy, Principal scientist(Plant Breeding)

m. Results recorded during the previous year

One hundred and eleven clones along with two standards were evaluated during 2015-16 in selection nursery, out of which twenty eight clones were selected based on cane yield and other quality parameters. The clones *viz*., 2014 A 224 (150.35 t/ha), 2014 A 48 (149.97 t/ha) , 2014 A 210 (146.44 t/ha) 2014 A 89 (144.21 t/ha), 2014 A 23 (143.20 t/ha) and 2014 A 301 (143.02 t/ha)

recorded higher cane yield of more than 130.00 t/ha when compared to the best standard Co A92081 (115.20t/ha). The clone 2014 A 116 has recorded highest NMC of 124.50 thousands/ha compared to the best standard Co A92081 (101.50/ha)

The clones 2014 A 210 (21.71 %) and 2014 A 54(21.25 %) recorded higher per cent juice sucrose of more than 21.00 %, compared to standard Co A92081 (20.75 %) . The clone 2014 A 210 has recorded highest CCS yield (22.99 t/ha) compared the best standard Co A92081 (17.13 t/ha)

n. Results obtained during the year

Seventy six clones along with two standards (Co A 92081 and Co 86249) were evaluated during 2016-17 in selection nursery, of which twenty five clones were selected based on cane yield and other quality parameters. The NMC (‘000/ha) ranged from 83.13 (2015 A 37) to 123.13 (2015 A 102), the percent juice sucrose ranged from 18.06 (2015 A 233) to 22.16 (2015 A 275), CCS % ranged from 13.87 (2015 A 152) to 16.16 (2015 A 275), Cane yield (t/ha) ranged from 97.50 (2015 A 37) to 140.00 (2015 A 51) and the CCS yield (t/ha) ranged from 14.03 (2015A 233) to 21.06 (2015 A 51). The best standard Co A 92081 has recorded 101.25, 105.00, 14.42, 20.02 and 15.15 respectively.(Table.5)

VIII. Technical programme of the year next to the reporting year

Two hundred and twenty five clones along with two standards, CoA92081 & CoV92102 will be studied during 2017-18

IX. Technical summary of the individual reporting year

Seventy six clones along with two standards (Co A 92081 and Co 86249) were evaluated during 2016-17 in selection nursery, out of which twenty five clones were selected based on phenotypic parameters, cane yield and other quality parameters. The clone 2015 A 275 has recorded highest percent juice sucrose and CCS percent, while the clone 2015 A 51 has recorded highest cane yield and CCS yield when compared to the best standard Co A92081.

X. Salient findings

Seventy six clones along with two standards (CoA 92081 and Co 86249) were evaluated during 2016-17 in selection nursery, out of which twenty five clones were selected based on phenotypic parameters, cane yield and other quality parameters

Table.5: Performance of selected clones in selection nursery 2016-17

S.No.	clone No	NMC ('000/ha)	% Juice Sucrose	Cane Yield (t/ha)	CCS%	CCS Yield (t/ha)
1	2015A 7	106.25	19.87	110.00	14.20	15.62
2	2015A37	83.13	21.02	97.50	14.99	14.62
3	2015A45	90.00	21.04	103.13	14.95	15.42
4	2015A51	120.00	21.01	140.00	15.04	21.06
5	2015A59	116.25	20.16	120.00	14.15	16.98
6	2015A64	120.00	20.01	125.00	14.41	18.01
7	2015A67	120.00	20.18	125.00	14.53	18.16
8	2015A83	110.63	21.12	125.00	15.22	19.03
9	2015A84	113.13	20.54	121.88	14.79	18.03
10	2015A85	103.75	22.05	115.63	15.92	18.41
11	2015A93	96.88	20.76	105.00	14.96	15.71
12	2015A102	123.13	20.38	134.38	14.62	19.65
13	2015A137	111.88	22.15	115.63	16.00	18.50
14	2015A152	100.00	19.32	117.50	13.87	16.30
15	2015A156	115.00	20.19	121.88	14.54	17.72
16	2015A183	100.00	20.59	110.00	14.84	16.32
17	2015A187	108.13	20.18	118.75	14.53	17.25
18	2015A199	115.00	20.78	125.00	14.98	18.73
19	2015A222	100.00	20.17	110.00	14.52	15.97
20	2015A228	106.25	20.10	114.38	14.44	16.52
21	2015A230	114.38	20.01	122.50	14.41	17.65
22	2015A233	96.25	18.06	108.75	12.90	14.03
23	2015A264	87.50	22.10	100.00	15.94	15.94
24	2015A275	100.00	22.16	112.50	16.61	18.69
25	2015A299	111.88	20.18	125.00	14.53	18.16
	Co86249©	98.75	19.76	101.88	14.21	14.48
	CoA92081©	101.25	20.02	105.00	14.42	15.14

I.	**Project No.**	:	B II Zonal Varietal Trials P2 – 2016 / 4 / AHD / F30 / H10 / H20 / 0230
II.	**Project Title**		Initial Varietal Trial (Early)
III.	**Serial number of the year of Experimentation**	:	IV
IV.	**Location**	:	Regional Agricultural Research Station, Anakapalle
V.	**Objective**	:	To screen and select high yielding and sucrose rich clones from clones poled from different centres of East Coast Zone.
VI.	**Technical Programme on which the report is based**	:	Based on constraints identified in East Coast Zone and deliberation held in the Joint group / workshop in AICRP on Sugarcane.
VII.	**Discipline wise – technical report**	:	
	a. Date of planting	:	06.2.2016
	b. Varieties	:	Seven + Two standards Co 07013, Co 13023, Co13024, CoA 14321, CoA14322,CoC 14336, and CoV 14356 Standards: CoC 01061, CoA 92081.
	c. Fertilizer application	:	100 kg P_2O_5 + 120 kg K_2O / ha. 112 kg N in two splits i.e. at 45 DAP and 90 DAP

d. Cultural practices :

Hand weeding and hoeing	:	02.04.2016 to 03.04.2016
Inter cultivation	:	18.4.2016
Rectification of cross channels	:	20.5.2016
Earthing up	:	28.6.2016
Removal of flower weeds	:	16.8.2016, 17.8.2016, 18.08.2016
I Tier TT propping	:	12.8.2016, 19.8.2016 and 20.8.2016
II Tier TT Propping	:	20.10.2016, 22.10.2016

e. Irrigations	:	Once in a week during formative phase and once in 18 days during maturity phase.
f. Plant protection	:	Need based
g. Date of harvest	:	08.01.2017

h. Plot size	:	Gross : 6.0 m x 0.9 m x 6 R = 32.40 m^2 Net : 5.0 m x 0.9 m x 4 R = 18.00 m^2
i. Layout	:	RBD
j. Replications	:	Three
k. Total experimental area		0.2 ha
l. Name and designation of the participants	:	1. Dr.A.Appala swamy Principal Scientist (plant Breeding) 2. Dr. M.Charumathi, Senior Scientist (Plant Breeding) 2. Dr.D.Adilakshmi, Senior Scientist (Plant Breeding)

m. Results recorded during the previous year :

Five clones were tested against three standards under Initial Varietal Trial (Early) crop during 2015-16. The clones differed significantly for all characters studies. Number of millable canes ranged from 102.00 thousands/ha (Co 6907) to 143.33 thousands /ha (CoA 13322). The clone CoA 13322 (143.33 thousands/ha) recorded significantly higher NMC when compared to their standards CoC 01061 (136.69 thousands/ha), CoA 92081 (122.63 thousands/ha) and Co6907 (102.00 thousands/ha) for NMC. Cane yield varied from 80.00 t/ha (Co 6907) to 136.87t/ha (CoA 13322). The clone CoA 13322 recorded significantly higher cane yield (136.87 t/ha) followed by CoA 13323 (133.36 t/ha) and found to be significantly superior over the three standards , Co 6907 (80.00 t/ha), CoC 01061 (107.96 t/ha) and CoA 92081 (119.34 t/ha) for cane yield. For per cent juice sucrose, the test clone CoC 13336 (18.54) followed by CoA 13324 (18.44) and CoA 13321 (18.31) recorded higher per cent juice sucrose when compared to best standard CoA 92081 (18.30). The test clone CoC 13336 (18.54) recorded higher per cent juice sucrose and found to be on par with the best standard CoA 92081 (18.30) at harvest. CCS yield ranged from 10.35 t/ha (Co 6907) to 17.94 t/ha (CoA 13322). The clone CoA 13322 (17.94 t/ha) was found to be significantly superior over three standards Co 6907 (10.35 t/ha), CoC 01061 (14.35 t/ha) and CoA 92081 (16.05t/ha) for CCS yield. The standard CoA 92081 recorded lower fibre per cent (13.89) while CoC 13337 (16.05) recorded higher fibre per cent at harvest

n. Results obtained during the year:

Seven clones were tested against two standards under Initial Varietal Trial (Early) crop during 2016-17. The clones differed significantly for all characters studies. Number of millable canes ranged from 55.86 thousands/ha (Co 13024) to 95.52 thousands /ha (CoC 01061). Cane yield varied from 68.37 t/ha (Co 13024) to 125.41t/ha (CoA 114321). The clone CoA 14321 recorded significantly higher cane yield (125.41 t/ha) followed by CoC14336 (121.81 t/ha) and found to be significantly superior over the two standards , Co C01061 (96.34 t/ha) and CoA 92081 (90.86 t/ha) for cane yield. For per cent juice sucrose, the test clone CoC 14336 (19.30) followed by CoA 14321 (19.05) recorded higher per cent juice sucrose when compared to best standard CoA 92081 (18.33). CCS yield ranged from 8.62 t/ha (Co 13024) to 16.91 t/ha (CoA 14321). The clone CoA 14321 (16.91t/ha) and followed by CoC14336(16.71t/ha) were found to be significantly superior over two standards CoC01061 (11.96 t/ha) and CoA 92081 (11.60t/ha) for CCS yield. The standard CoA 92081 recorded lower fibre per cent (14.61) while CoC01061 (16.80) recorded higher fibre per cent at harvest. (Table.6)

VIII **Technical programme of the year next to the reporting year:**

CoC15336, Co C15337, CoC15338 and CoV 15356 along with three standards CoC 01061 , CoA 92081 and Co Or03151 will be studied during 2017-18.

Technical summary of the individual reporting year:

IX The clones **CoA14321** and **CoC14336** were found to be significantly superior for cane yield and CCS yield when compared to best standard CoC01061.For per cent juice sucrose, the clones **CoC14336** and **CoA14321**were found to be on par with the best standard CoA92081

X **Salient findings.**

The clones **CoA14321** and **CoC14336** were found to be significantly superior for cane yield and CCS yield when compared to best standard CoC01061.For per cent juice sucrose, the clones **CoC14336** and CoA14321were found to be on par with the best standard CoA92081

Table 6: Initial Varietal Trial (Early)-2016-17
Statistically analysed data
Centre: Regional Agricultural Research Station, Anakapalle

S. No.	Clone	CCS (t/ha)	Cane yield (t/ha)	CCS % (10 m)	Sucrose % (10 m)	Brix % (10 m)	Purity % (10 m)	Pol % cane (10m)	Extraction % (10 m)	Fibre % (10 m)	NMC at 10 m ('000/ha)
1	**Co07013**	11.25	89.99	12.53	17.93	19.86	90.31	14.29	60.27	15.25	62.19
2	**Co13023**	9.57	76.03	12.59	18.21	20.62	88.32	14.51	60.30	15.35	59.87
3	**Co13024**	8.62	68.37	12.60	18.27	20.79	87.89	14.45	58.93	15.86	55.86
4	**CoA14321**	16.91	125.41	13.49	19.05	20.46	93.13	15.09	62.60	15.75	80.09
5	**CoA14322**	9.78	86.77	11.31	16.43	18.78	87.49	13.15	63.04	14.97	62.96
6	**CoC14336**	16.71	121.81	13.71	19.30	20.61	93.70	15.38	57.42	15.28	79.47
7	**CoV14356**	12.51	97.85	12.74	18.30	20.43	89.56	14.67	61.12	14.93	80.09
Standards											
1	**CoC 01061**	11.96	96.34	12.42	17.93	20.21	88.76	14.01	53.99	16.80	95.52
2	**CoA 92081**	11.60	90.86	12.77	18.33	20.39	89.89	14.73	60.69	14.61	84.41
	SE	0.85	6.33	0.26	0.33	0.36	1.03	0.31	2.29	0.43	3.54
	CD (0.05)	2.55	18.97	0.79	1.002	1.09	3.07	0.92	6.88	1.28	10.61
	CV (%)	12.15	11.56	3.60	3.18	3.11	1.97	3.68	6.65	4.81	8.35

S. No.	Clone	Stalk Length (cm)	Stalk Diameter (cm)	Single cane weight (kg)	CCS % (8 m)	Sucrose % (8 m)	Brix % (8 m)	Purity % (8 m)	No. of shoots (‘000/ha) 240 days	No. of tillers (‘000/ha) 120 days	Germination % (30 days)
1	**Co07013**	220.53	2.59	1.53	11.86	17.06	19.08	89.44	64.04	66.51	54.51
2	**Co13023**	217.48	2.68	1.43	12.35	17.61	19.33	91.12	62.19	65.12	50.93
3	**Co13024**	209.43	2.39	1.13	12.26	17.37	18.82	92.33	59.26	61.26	50.69
4	**CoA14321**	312.03	3.07	1.73	12.82	18.24	19.91	91.60	82.09	83.79	65.39
5	**CoA14322**	232.78	2.70	1.52	10.69	15.57	17.86	87.18	71.45	73.30	56.36
6	**CoC14336**	294.97	2.97	1.57	12.91	18.43	20.29	90.92	80.25	87.49	66.89
7	**CoV14356**	254.76	2.62	1.12	12.16	17.27	18.77	92.04	84.41	90.27	76.74
Standards											
1	**CoC 01061**	307.87	2.39	1.03	11.43	16.73	19.40	86.27	100.46	110.03	79.63
2	**CoA 92081**	243.13	2.49	1.11	12.05	17.03	18.31	92.96	86.57	109.41	83.68
	SE	8.31	0.05	0.07	0.23	0.29	0.39	1.20	4.20	5.87	4.25
	CD (0.05)	24.92	0.16	0.19	0.69	0.89	1.17	3.59	12.59	17.62	12.76
	CV (%)	5.65	3.62	8.52	3.32	2.98	3.56	2.29	9.48	12.26	11.34

	Project No.	:	B II Zonal Varietal Trials P2 – 2016 / 5/ AHD / F30 / H10 / H20 / 0230
II.	Project Title		Advanced Varietal Trial (Early) I Plant crop
III.	Serial number of the year of Experimentation	:	V
IV.	Location	:	Regional Agricultural Research Station, Anakapalle
V.	Objective	:	To screen and select high yielding and sucrose rich clones from clones poled from different centres of EC Zone.
VI.	Technical Programme on which the technical programme is based	:	Based on constraints identified in East Coast Zone and deliberation held in the Joint group / workshop in AICRP on Sugarcane.
VII.	Discipline wise – technical report	:	
	a. Date of planting	:	19.2.2016
	b. Varieties	:	Five + two standards CoA 13322, CoA 13323, CoC 13336, CoC 13337, CoV 13356 Standards: Co C 01061 and Co A 92081
	c. Fertilizer application	:	100 kg P_2O_5 + 120 kg K_2O / ha. 112 kg N in two splits i.e. at 45 DAP and 90 DAP
	d. Cultural practices	:	Hand weeding and hoeing : 22.3.2016, 24.3.2016 Intercultivation : 28.4.2016 Ear thing up : 6.6.2016 TT propping I tier : 20.8.2016 to 23.8.2016 TT propping II tier : 24.10.2016, 25.10.2016 Removal of flower weeds : 16.8.2016, 20.8.2016, 22.8.2016, 24.8.2016
	e. Irrigations	:	Once in a week during formative phase and once in 18 days during maturity phase.
	f. Plant protection	:	-
	g. Date of harvest	:	18.01.2017
	h. Plot size	:	Gross : 6.0 m x 0.9 m x 8 R = 43.20 m^2 Net : 5.0 m x 0.9 m x 6 R = 27.00 m^2
	i. Layout	:	RBD
	j. Replications	:	Three
	k. Total experimental area		0.25 ha

l. Name and designation of the participants	:	1. Dr.A.Appala swamy Principal Scientist (Plant Breeding) 2. Dr. M.Charumathi, Senior Scientist (Plant Breeding) 3. Dr.D.Adilakshmi, Senior Scientist (Plant Breeding)

m. Results recorded during the previous year :

Five clones were tested against three standards under Advanced Varietal Trial (Early) I Plant crop during 2015-16. The clones differed significantly for all characters studies. Number of millable canes ranged from 102.33 thousands/ha (CoV 12356) to 137.44 thousands /ha (CoA 12323). The clone CoA 12323 (137.44 thousands/ha) recorded significantly higher NMC when compared to their standards CoC 01061 (122.33 thousands/ha), CoA 92081 (116.11 thousands/ha) and Co 6907 (103.56 thousands/ha) for number of millable canes. Cane yield varied from 87.33 t/ha (Co 6907) to 126.79 t/ha (CoA 12323). The clone CoA 12323 recorded higher cane yield (126.79 t/ha) and found to be significantly superior over the three standards , Co 6907 (87.33 t/ha), CoC 01061 (102.33 t/ha) and CoA 92081 (108.15 t/ha) for cane yield. For per cent juice sucrose, the best standard CoA 92081 (19.96) recorded higher per cent juice sucrose when compared to test clones and other standards however, the test clone CoA 12323 (19.89) recorded higher per cent juice sucrose and found to be on par with the best standard CoA 92081 (19.96) at harvest. CCS yield ranged from 10.58 t/ha (Co 6907) to 17.60 t/ha (CoA 12323). The clone CoA 12323 (17.60 t/ha) and was found to be significantly superior over three standards Co 6907 (10.58 t/ha), CoC 01061 (13.62 t/ha) and CoA 92081 (15.01 t/ha) for CCS yield. The clone CoA 12323 recorded lower fibre per cent (13.43) while CoA 12321 (16.93) recorded higher fibre per cent at harvest

n. Results obtained during the year :

Five clones were tested against two standards under Advanced Varietal Trial (Early) I Plant crop during 2016-17. The clones differed significantly for all characters studies. Number of millable canes ranged from 57.51 thousands/ha (CoA13323) to 113.58 thousands /ha (CoC01061). Cane yield varied from 67.65 t/ha (CoA13323) to 136.72 t/ha (CoC13337). The clone CoC13337 recorded higher cane yield (136.72 t/ha) and followed by CoV13356(112.66t/ha) were found to be significantly superior over the two standards , Co A92081 (106.75 t/ha) and CoC01061 (92.04t/ha) for cane yield. For per cent juice sucrose, the test clone CoC13336 (18.65) recorded higher per cent juice sucrose when compared best standards CoA 92081 (17.07) at harvest. CCS yield ranged from 6.95 t/ha (CoA13323) to 14.29t/ha (CoV13356). The clone CoV13356 (14.29 t/ha) followed by CoC13337(13.92 t/ha) were found to be significantly superior over two standards Co C01061 (10.57 t/ha) and CoA 92081 (12.50 t/ha) for CCS yield. The clone CoA13322 recorded lower fibre per cent (15.68) while CoC01061 (17.61) recorded higher fibre per cent at harvest(Table.7)

VIII. Technical programme of the year next to the reporting year:

Co13023, CoA 14321 and CoC 14336 along with two standards viz., CoC 01061 and CoA 92081will be studied during 2017-18.

I X. Technical summary of the individual reporting year:

The clone **CoV13356** recorded higher CCS yields, **CoC 13336** for higher juice sucrose and **CoC13337** for higher cane yield compared to the best standard CoA92081. Among the test entries **CoA13222** recorded lower fibre per cent while CoC01061 recorded higher fibre per cent.

X. Salient findings.

The clone **CoV13356, CoC13336** and **CoC13337** recorded higher CCS yields, higher juice sucrose and higher cane yield, respectively when compared to the best standard CoA92081.

Table 7: Advanced Varietal Trial (Early) I plant-2016-17
Statistically analysed data
Centre: Regional Agricultural Research Station, Anakapalle

S. No.	Clone	CCS (t/ha)	Cane yield (t/ha)	CCS % (10 m)	Sucrose % (10 m)	Brix % (10 m)	Purity % (10 m)	Pol % cane (10m)	Extraction % (10 m)	Fibre % (10 m)	NMC at 10 m ('000/ha)
1	**CoA13322**	10.72	96.43	11.11	16.00	17.97	89.07	12.69	60.74	15.68	85.17
2	**CoA13323**	6.95	67.65	10.30	15.05	17.39	86.29	11.80	60.08	16.63	57.51
3	**CoC13336**	12.23	94.06	12.93	18.65	20.99	88.71	14.77	66.45	15.73	79.21
4	**CoC13337**	13.92	136.72	10.18	15.06	17.88	84.42	11.78	60.11	16.79	111.73
5	**CoV13356**	14.29	112.66	12.71	18.18	20.08	90.52	14.27	61.32	16.45	103.39
Standards											
1	**CoC 01061**	10.57	92.04	11.50	16.65	18.86	88.23	12.88	53.33	17.61	113.58
2	**CoA 92081**	12.50	106.75	11.72	17.07	19.58	87.17	13.36	58.27	16.71	93.93
	SE	0.76	3.48	0.57	0.73	0.68	1.65	0.55	1.85	0.45	2.91
	CD (0.05)	2.35	10.73	1.77	2.26	2.11	5.07	1.71	5.69	1.37	8.96
	CV (%)	11.39	5.97	8.65	7.64	6.26	3.25	7.34	5.33	4.66	5.47

S. No.	Clone	Stalk Length (cm)	Stalk Diameter (cm)	Single cane weight (kg)	CCS % (8 m)	Sucrose % (8 m)	Brix % (8 m)	Purity % (8 m)	No. of shoots (‘000/ha) 240 days	No. of tillers (‘000/ha) 120 days	Germination % (30 days)
1	**CoA13322**	238.28	3.00	1.12	10.62	15.45	17.69	87.33	86.52	93.01	77.24
2	**CoA13323**	268.42	2.74	1.17	9.71	14.35	16.98	84.30	60.18	69.65	48.07
3	**CoC13336**	271.80	2.35	1.29	10.12	15.02	17.90	83.82	81.58	86.73	53.93
4	**CoC13337**	289.10	2.80	1.28	8.86	13.35	16.36	81.65	114.61	119.65	68.98
5	**CoV13356**	252.26	2.97	1.09	10.13	15.06	18.01	83.62	106.58	111.52	61.42
Standards											
1	CoC 01061	298.14	2.21	0.82	10.32	15.06	17.36	86.78	116.66	122.73	80.32
2	CoA 92081	259.40	2.87	1.23	10.83	15.98	18.85	84.83	97.84	104.53	73.92
	SE	6.11	0.05	0.06	0.43	0.55	0.54	1.56	2.32	2.71	5.05
	CD (0.05)	18.85	0.15	0.18	1.33	1.71	1.67	4.80	7.14	8.34	15.58
	CV (%)	3.95	3.03	9.08	7.43	6.43	5.35	3.18	4.23	4.63	13.21

I.	**Project No.**	:	B II Zonal Varietal Trials P2 – 2016 / 6 / AHD / F30 / H10 / H20 / 0230
II.	**Project Title**		Advanced Varietal Trial (Early) – II Plant Crop
III.	**Serial number of the year of Experimentation**	:	VI
IV.	**Location**	:	Regional Agricultural Research Station, Anakapalle
V.	**Objective**	:	To screen and select high yielding and sucrose rich clones from clones poled from different centres of East Coast Zone.
VI.	**Technical Programme on which the technical programme is based**	:	Based on constraints identified in East Coast Zone and deliberation held in the Joint group / workshop in AICRP on Sugarcane.
VII.	**Discipline wise – technical report**	:	
	a. Date of planting	:	25.02.2016
	b. Varieties	:	Five + Three standards CoA 12321, CoA 12322, CoA 12323 ,Co Or 12346 and CoV12356 Standards: Co 6907, CoC 01061, CoA 92081.
	c. Fertilizer application	:	100 kg P_2O_5 + 120 kg K_2O / ha. 112 kg N in two splits i.e. at 45 DAP and 90 DAP
	d. Cultural practices	:	

Hand weeding & Hoeing	:	02.4.2016 to 06.4.2016
Earthing up	:	02.6.2016
Inter cultivation	:	24.6.2016
Removal of flower weeds	:	21.7.2016 to 25.7.2016
TT propping I tier	:	20.8.2016,24.8.2016, 1.9.2016, 3.9.2016
TT propping II tier	:	14.10.2016,15.10.2016

	e. Irrigations	:	Once in a week during formative phase and once in 18 days during maturity phase.
	f. Plant protection	:	Need based
	g. Date of harvest	:	20.1.2017

h. Plot size	:	Gross : 6.0 m x 0.9 m x 8 R = 43.20 m^2 Net : 5.0 m x 0.9 m x 6 R = 27.00 m^2
i. Layout	:	RBD
j. Replications	:	Three
k. Total experimental area		0.2 ha
l. Name and designation of the participants	:	1. Dr.A.Appala Swamy, Principal Scientist (Plant Breeding) 2. Dr. M.Charumathi, Senior Scientist (Sugarcane) 3. Dr.D.Adilakshmi, Senior Scientist (Plant Breeding)

m. Results recorded during the previous year :

Four clones were tested against three standards under Advanced Varietal Trial Second plant crop during 2015-16. The clones differed significantly for all characters studied. Number of millable canes ranged from 104.33 thousands/ha (CoC 11336) to 142.00 thousands /ha (CoA 11321). The clone CoA 11321 (142.00 thousands/ha) recorded higher number of millable canes when compared to CoC 01061 (136.67 thousands/ha) and was found to be on par with CoC 01061 and significantly superior over CoA 92081 (120.67 thousands/ha) and Co 6907 (104.67 thousands/ha) for number of millable canes. Cane yield varied from 98.00 t/ha (Co 6907) to 138.33 t/ha (CoA 11321). The clones CoA 11321 (138.33 t/ha) and CoA 11323 (134.67 t/ha) recorded higher cane yield and found to be significantly superior over the three standards, Co 6907 (98.00 t/ha), CoC 01061 (101.00 t/ha) and CoA 92081 (116.33 t/ha) for cane yield. For per cent juice sucrose the clones, CoA 11323 (18.60) and CoA 11321 (18.52) recorded higher per cent juice and found to be on par with the best standard CoA 92081 (18.40) at the time of harvest. CCS yield ranged from 11.76 t/ha (Co 6907) to 18.95 t/ha (CoA 11321). The clones CoA 11321 (18.95 t/ha) and CoA 11323 (18.71) recorded higher CCS yield and were found to be significantly superior over three standards Co 6907 (11.76 t/ha), CoC 01061 (12.75 t/ha) and CoA 92081 (15.88 t/ha) for CCS yield. The standard CoA 92081 recorded lower fibre per cent (13.33) while CoC 11336 (16.00) recorded higher fibre per cent at harvest

n. Results obtained during the year:

Five clones were tested against three standards under Advanced Varietal Trial Second plant crop during 2016-17. The clones differed significantly for all characters studied. Number of millable canes ranged from 78.91 thousands/ha (CoV12356) to 96.29 thousands /ha (CoA12321). The clone CoA 12321 (96.29 thousands/ha) recorded higher number of millable canes when compared to CoC 01061 (92.90 thousands/ha). Cane yield varied rom 84.16 t/ha (Co 6907) to 102.94 t/ha (CoA 12322). The clones CoA 12322 (102.94t/ha) and CoV12356 (100.56 t/ha) recorded higher cane yield over the three standards, Co 6907 (84.16 t/ha), CoC 01061 (85.56t/ha) and CoA 92081 (88.61 t/ha) for cane yield. For per cent juice sucrose the clones, CoA 12323 (19.17) recorded higher per cent juice and found to be on par with the best standard CoA 92081 (19.12) at the time of harvest. CCS yield ranged from 10.80 t/ha (Co 6907) to 13.63 t/ha (CoV12356). The clones CoV12356 (13.63 t/ha) and CoA 12322 (12.65) recorded higher CCS yield and were found to be superior over three standards Co 6907 (10.80 t/ha), CoC 01061 (11.04 t/ha) and CoA 92081 (11.67 t/ha) for CCS yield. The clone CoV12356 recorded lower fibre per

cent (15.71) while Co6907 (17.61) recorded higher fibre per cent at harvest (Table 8)

VIII. Technical programme of the year next to the reporting year:

Five entries viz., CoA 13322, CoA 13323, CoC 13336, CoC 13337 and CoV 13356 along with two standards CoC 01061 and CoA 92081 will be studied during 2017-18.

IX. Technical summary of the individual reporting year:

The clone **CoA12322** and **CoV12356** were found to be superior over the best standard CoA92081 for cane and CCS yield respectively

X. Salient findings.

The clone **CoA12322** and **CoV12356** were found to be superior over the best standard CoA92081 for cane and CCS yield respectively

Table 8: Advanced Varietal Trial (Early) II Plant Crop-2016-17
Statistically analysed data
Centre: Regional Agricultural Research Station, Anakapalle

S. No.	Clone	CCS (t/ha)	Cane yield (t/ha)	CCS % (10 m)	Sucrose % (10 m)	Brix % (10 m)	Purity % (10 m)	Pol % cane (10m)	Extraction % (10 m)	Fibre % (10 m)	NMC at 10 m ('000/ha)
1	**CoA12321**	11.88	94.87	12.52	18.36	21.37	85.93	14.42	60.07	16.43	96.29
2	**CoA12322**	12.65	102.94	12.29	17.66	19.70	89.65	13.84	64.94	16.63	87.65
3	**CoA12323**	12.44	92.67	13.39	19.17	21.24	90.32	14.98	63.02	16.88	69.75
4	**CoOr12346**	11.16	89.13	12.58	18.30	20.95	87.44	14.24	61.77	17.17	79.52
5	**CoV12356**	13.63	100.56	13.54	19.11	20.50	93.30	15.16	62.82	15.71	78.91
Standards											
1	Co 6907	10.80	84.16	12.82	18.55	21.01	88.32	14.36	57.29	17.61	90.12
2	CoC 01061	11.04	85.56	12.91	18.55	20.72	89.60	14.42	56.27	17.24	92.90
3	CoA 92081	11.67	88.61	13.18	19.12	21.77	87.83	14.94	59.03	16.86	82.51
	SE	0.69	5.43	0.22	0.25	0.32	1.14	0.18	1.41	0.54	2.73
	CD (0.05)	2.12	16.51	0.65	0.77	0.97	3.46	0.57	4.29	1.63	8.31
	CV (%)	10.14	10.18	2.89	2.36	2.65	2.22	2.22	4.03	5.53	5.58

S. No.	Clone	Stalk Length (cm)	Stalk Diameter (cm)	Single cane weight (kg)	CCS % (8 m)	Sucrose % (8 m)	Brix % (8 m)	Purity % (8 m)	No. of shoots ('000/ha) 240 days	No. of tillers ('000/ha) 120 days	Germination % (30 days)
1	**CoA12321**	242.78	2.82	1.21	9.74	14.62	17.81	82.25	101.44	117.69	64.35
2	**CoA12322**	265.49	2.94	1.16	10.23	15.05	17.61	85.63	91.97	112.04	53.78
3	**CoA12323**	279.50	2.98	1.73	10.80	15.79	18.28	86.51	76.85	95.06	44.83
4	**CoOr12346**	237.85	2.72	1.23	9.83	14.66	17.63	83.21	84.47	115.95	47.61
5	**CoV12356**	266.63	2.99	1.53	9.31	14.27	18.07	79.04	87.04	98.97	43.75
Standards											
1	Co 6907	239.11	2.30	1.07	9.21	13.79	16.74	82.53	95.57	119.96	52.77
2	CoC 01061	286.74	2.25	0.96	10.24	15.42	18.88	81.73	105.04	135.60	60.11
3	CoA 92081	273.85	2.95	1.25	10.17	15.24	18.50	82.38	87.96	98.56	52.62
	SE	6.22	0.05	0.06	0.38	0.33	0.32	2.78	2.98	4.82	3.26
	CD (0.05)	18.91	0.14	0.19	1.16	0.98	0.96	8.45	9.07	14.66	9.91
	CV (%)	4.12	2.88	8.81	6.65	3.79	3.06	5.81	5.66	7.47	10.76

I.	**Project No.**	:	B II Zonal Varietal Trials P2 – 2016 /7/ AHD / F30 / H10 / H20 / 0230
II	**Project Title**		Advanced varietal trial (Early) – Ratoon
III.	**Serial number of the year of Experimentation**	:	VII
VI	**Location**	:	Regional Agricultural Research Station, Anakapalle
V.	**Objective**	:	To screen and select high yielding and sucrose rich clones from clones poled from different centers of EC Zone.
VI.	**Technical Programme on which the technical programme is based**	:	Based on constraints identified in East Coast Zone and deliberation held in the Joint group / workshop in AICRP on Sugarcane.
VIII.	**Discipline wise – technical report**	:	
	a. Date of Ratoon	:	11.05.2016
	b. Varieties	:	Five + Three standards CoA 12321, CoA 12322, CoA 12323 ,Co Or 12346 and CoV12356 Standards: Co 6907, CoC 01061, CoA 92081.
	c. Fertilizer application	:	100 kg P_2O_5 + 120 kg K_2O / ha. 112 kg N in two splits i.e. at 45 DAP and 90 DAP
	d. Cultural practices	:	Hand weeding an Hoeing 08.8.2016 to 10.08.2016 Removal of flower weeds & Creepers 29.8.2016,30.08.2016,31.08.2016 Earthing up 06.09.2016 to 09.09.2016 TT propping I tier : 20.10.2016, 21.10.2016,24.10.2016 TT propping II tier: 26.11.2016 to 30.11.2016
	e. Irrigations	:	Once in a week during formative phase and once in 18 days during maturity phase.
	f. Plant protection	:	Need based
	g. Date of harvest	:	01.03.2017
	h. Plot size	:	Gross : 6.0 m x 0.9 m x 8 R = 43.20 m^2 Net : 5.0 m x 0.9 m x 6 R = 27.00 m^2

i. Layout : RBD

j. Replications : Three

k. Total experimental area 0.2 ha

l. Name and designation of the participants :
1. Dr.A.Appala Swamy, Principal Scientist (Sugarcane)
2. Dr. M.Charumathi, Senior Scientist (Plant Breeding)
3. Dr.D.Adilakshmi, Senior Scientist (Plant Breeding)

m. Results recorded during the previous year :

Four clones were tested against three standards under Advanced Varietal Trial (Early) Ratoon crop during 2015-16. The clones differed significantly for all characters studied. Number of millable canes ranged from 81.00 thousands/ha (Co 6907) to 134.67 thousands /ha (CoA 11321). The clone CoA 11321 (134.67 thousands/ha) recorded significantly higher NMC when compared to their standards CoC 01061(107.75 thousands/ha), CoA 92081 (98.67 thousands/ha) and Co 6907 (81.00 thousands/ha) for NMC. Cane yield varied from 79.67 t/ha (Co 6907) to 126.33 t/ha (CoA 11321). The clones, CoA 11321 (126.33 t/ha) and CoA 11323 (123.33 t/ha) recorded higher cane yield and found to be significantly superior over the three standards , Co 6907 (79.67 t/ha), CoC 01061 (90.00 t/ha) and CoA 92081 (102.63 t/ha) for cane yield. For per cent juice sucrose, the clones, CoA 11321 (18.64) and CoA 11323 (18.80) recorded higher per cent juice sucrose when compared to standards CoA 92081 (18.12), Co 6907 (18.12) and CoC 01061 (18.00) and found to be on par with standards . CCS yield ranged from 9.86 t/ha (Co 6907) to 16.35 t/ha (CoA 11321). The clones CoA 11321 (16.35 t/ha) and CoA 11323 (16.20 t/ha) were found to be significantly superior over three standards Co 6907 (9.86 t/ha), CoC 01061 (11.17 t/ha) and CoA 92081 (12.85 t/ha) for CCS yield. The standard CoA 92081 recorded lower fibre per cent (13.68) while CoC 11336 (17.00) recorded higher fibre per cent at harvest

n. Results obtained during the year:

Five clones were tested against three standards under Advanced Varietal Trial (Early) Ratoon crop during 2016-17. The clones differed significantly for all characters studied. Number of millable canes ranged from 70.37 thousands/ha (Co A92081) to 89.52 thousands /ha (CoA 12322). The clones CoA 12322 (89.52 thousands/ha) and CoA12321(88.48 thousands/ha) were recorded higher NMC when compared to their standards CoC 01061(80.69 thousands/ha), CoA 92081 (70.37 thousands/ha) and Co 6907(71.91 thousands/ha) for NMC. Cane yield varied from 73.53 t/ha (Co C01061) to 99.17 t/ha (CoA 12322). The clones, CoA 12322 (99.17 t/ha) and CoA 12321(87.15 t/ha) recorded higher cane yield and found to be significantly superior over the three standards , Co 6907 (74.71 t/ha), CoC 01061 (73.53 t/ha) and CoA 92081 (78.21 t/ha) for cane yield. For per cent juice sucrose, the clone CoA 12323 (19.66) recorded higher per cent juice sucrose when compared to standards CoA 92081 (18.66), Co 6907 (18.22) and CoC 01061 (18.15) and found to be on par with standards . CCS yield ranged from 8.96 t/ha (Co C01061) to 12.08 t/ha (CoA 12322). The clones CoA 12322 (12.08 t/ha) and CoV12356 (11.04 t/ha) were found to be superior over three standards Co 6907 (9.20 t/ha), CoC 01061 (8.96 t/ha) and CoA 92081 (9.88 t/ha) for CCS yield. The clone CoA 12321 recorded lower fibre per cent (13.80) while CoV12356 (14.86) recorded higher fibre per

cent at harvest (Table 9)

VIII. Technical programme of the year next to the reporting year:

Five entries viz., CoA 13322, CoA 13323, CoC 13336, CoC 13337 and CoV 13356 along with two standards CoC 01061 and CoA 92081 will be studied during 2017-18.

IX. Technical summary of the individual reporting year:

The clones **CoA12322** and **CoV12356** recorded significantly higher cane and CCS yields when compared to best standard CoA92081. For per cent juice sucrose, the clone CoA12323 was found to be on par with the best standard CoA92081.

X. Salient findings.

The clones **CoA12322** and **CoV12356** recorded significantly higher cane and CCS yields when compared to best standard CoA92081

.

Table 9 : Advanced Varietal Trial (Early) Ratoon Crop-2016-17

Statistically analysed data

Centre: Regional Agricultural Research Station, Anakapalle

S. No.	Clone	CCS (t/ha)	Cane yield (t/ha)	CCS % (9 m)	Sucrose % (9 m)	Brix % (9 m)	Purity % (9 m)	Pol % cane (9m)	Extraction % (9 m)
1	**CoA12321**	10.21	87.15	11.77	17.50	20.96	83.44	13.80	54.29
2	**CoA12322**	12.08	99.17	12.14	18.04	21.56	83.66	14.35	58.21
3	**CoA12323**	10.25	76.21	13.42	19.66	22.84	86.07	15.41	55.44
4	**CoOr12346**	9.43	74.43	12.59	18.37	21.18	86.83	14.31	55.32
5	**CoV12356**	11.04	86.31	12.80	18.74	21.74	86.18	14.86	50.54
Standards									
1	Co 6907	9.20	74.71	12.32	18.22	21.57	84.42	14.10	52.21
2	CoC 01061	8.96	73.53	12.24	18.15	21.61	83.99	14.22	51.54
3	CoA 92081	9.88	78.21	12.62	18.66	22.08	84.51	14.60	56.50
	SE	0.79	5.43	0.44	0.57	0.54	1.06	0.48	2.82
	CD (0.05)	2.42	16.51	1.34	1.73	1.64	3.24	1.47	8.57
	CV (%)	13.59	11.57	6.10	5.35	4.31	2.17	5.80	9.00

S. No.	Clone	Fibre % (9 m)	NMC at 9 m ('000/ha)	Stalk Length (cm)	Stalk Diameter (cm)	Single cane weight (kg)	No. of tillers ('000/ha) 180 days	No. of shoots ('000/ha) 90 days
1	**CoA12321**	16.14	88.48	214.78	2.74	1.03	95.06	108.59
2	**CoA12322**	15.42	89.52	224.29	2.77	1.10	98.56	113.88
3	**CoA12323**	16.60	71.19	212.57	3.03	1.09	82.24	93.93
4	**CoOr12346**	17.17	70.68	220.03	2.75	0.90	77.36	92.18
5	**CoV12356**	15.71	80.76	230.56	2.98	1.07	87.34	101.11
Stds								
1	Co 6907	17.61	71.91	210.85	2.37	0.89	83.13	101.44
2	CoC 01061	16.66	80.69	222.28	2.17	0.83	90.64	105.79
3	CoA 92081	16.74	70.37	228.37	2.86	0.97	78.08	91.97
	SE	0.52	4.62	5.47	0.04	0.08	5.68	8.16
	CD (0.05)	1.56	14.04	16.62	0.12	0.24	17.27	24.82
	CV (%)	5.40	10.26	4.29	2.60	13.71	11.37	13.98

I.	**Project No.**	:	B II Zonal Varietal Trials P2 – 2016 /8 AHD / F30 / H10 / H20 / 0230
II.	**Project Title**		Initial varietal trial (Mid late)
III.	**Serial number of the year of Experimentation**	:	VIII
IV.	**Location**	:	Regional Agricultural Research Station, Anakapalle
V.	**Objective**	:	To screen and select high yielding and sucrose rich clones from clones poled from different centres of EC Zone.
VI.	**Technical Programme on which the technical programme is based**	:	Based on constraints identified in East Coast Zone and deliberation held in the Joint group / workshop in AICRP on Sugarcane.
VII.	**Discipline wise – technical report**	:	
	a. Date of transplanting	:	10.02.2016
	b. Varieties	:	Twelve + Two standards Co13025,Co13027,Co13028,Co13029,Co13030,Co13031,Co13032,CoA 14323, CoA 14324, CoC 14337,PI14376 and PI14377 Standards: CoV 92102 and Co 86249
	c. Fertilizer application	:	100 kg P_2O_5 + 120 kg K_2O / ha. 112 kg N in two splits i.e. at 45 DAP and 90 DAP
	d. Cultural practices	:	

Hand weeding& Hoeing	:	12.4.2016 to 16.4.2016
Inter cultivation	:	08.06.2016
Earthing up	:	26.08.2016 to 30.8.2016
Removal of flower weeds	:	28.9.2016 to 30.9.2016
TT propping I tier	:	01.9.2016, 02.9.2016, 06.9.2016,07.09.2016
TT propping II tier	:	30.11.2016, 2.12.2016, 3.12.2016

e. Irrigations	:	Once in a week during formative phase and once in 18 days during maturity phase.
f. Plant protection	:	Need based
g. Date of harvest	:	08.02.2017
h. Plot size	:	Gross : 6.0 m x 0.9 m x 6 R = 32.40 m^2 Net : 5.0 m x 0.9 m x 4 R = 18.00 m^2
i. Layout	:	RBD

j. Replications : Two

k. Total experimental area 0.18 ha

l. Name and designation of the participants : 1. Dr.A.Appala Swamy, Principal Scientist (Plant Breeding)
2. Dr. M.Charumathi, Senior Scientist (Plant Breeding)
3. Dr.D.Adilakshmi, Senior Scientist (Plant Breeding)

m. Results recorded during the previous year :

Eight clones were tested against three standards under Initial Varietal Trial (Midlate) crop during 2015-16. The clones found to be differed significantly for all characters studied. Number of millable canes ranged from 112.44 thousands/ha (CoA 12324) to 138.31 thousands /ha (CoA 13328). The clones CoA 13328 (138.31 thousands/ha) and CoA 13327 (137.00 thousands/ha) recorded higher NMC and found significantly superior with their standards CoV 92102 (123.11 thousands/ha), Co 7219 (120.11 thousands/ha) and Co 86249 (118.67 thousands/ha) for NMC. Cane yield varied from 98.67 t/ha (CoOr 13346) to 134.78 t/ha (CoA 13328). The clones CoA 13328 (134.78 t/ha) and CoA 13327 (130.33 t/ha) recorded higher cane yield and found to be significantly superior over three standards , CoV 92012 (108.33 t/ha), Co 7219 (105.67 t/ha) and Co 86249 (100.19 t/ha) at harvest. For per cent juice sucrose, the clones CoA 13328 (18.97) and CoA 13327 (18.62) recorded higher per cent juice sucrose and found to be on par with the best standard CoV 92102 (18.60) at the time of harvest. CCS yield varied from 11.16 t/ha (Co 86249) to 17.85 t/ha (CoA 13328). The clones CoA 13328 (17.85 t/ha) and CoA 13327 (16.75 t/ha) recorded significantly higher CCS yield when compared to their standards CoV92102 (14.04 t/ha), Co 7219 (13.20 t/ha) and Co 86249 (11.17 t/ha). The standard CoV 92102 (13.20) recorded lower fibre per cent while CoA 13339 (15.10) recorded higher fibre per cent at harvest

n. Results obtained during the year:

Twelve clones were tested against two standards under Initial Varietal Trial (Midlate) crop during 2016-76. The clones found to be differed significantly for all characters studied. Number of millable canes ranged from 58.79 thousands/ha (Co13032) to 86.34 thousands /ha (CoC14337). The clones CoC14337 (86.34 thousands/ha) and CoA 14323 (83.33 thousands/ha) recorded higher NMC and found significantly superior with their standards CoV 92102 (70.84 thousands/ha) and Co 86249 (68.75 thousands/ha) for NMC. Cane yield varied from 70.01 t/ha (Co13032) to 116.77 t/ha (CoC14337). The clones CoC14337 (116.77 t/ha) and CoA 14323 (111.09 t/ha) recorded higher cane yield and found to be significantly superior over two standards , CoV 92012 (95.05 t/ha) and Co 86249 (81.52 t/ha) at harvest. For per cent juice sucrose, the clones PI14376 (20.46) and CoA 14323 (19.70) recorded higher per cent juice sucrose and found to be on par with the best standard CoV 92102 (18.52) at the time of harvest. CCS yield varied from 8.55 t/ha (Co 13032) to 15.78 t/ha (CoC14337). The clones CoC14337 (15.78 t/ha) and CoA 14323 (15.52 t/ha) recorded significantly higher CCS yield when compared to their standards CoV92102 (12.46 t/ha)and Co 86249 (10.33 t/ha). The clone CoA14323 (14.76) recorded lower fibre per cent while Co13032 (16.57) recorded higher fibre per cent at harvest (Table 10).

XII. Technical programme of the year next to the reporting year:

Fiver entries viz., CoC15339, CoC 15340, CoOr 15346, PI 15376 and PI 15377 along with three standards CoV 92102 , Co 86249 and Co 06030 will be studied during 2017-18

XIII. Technical summary of the individual reporting year:

The entries, **CoC14337** and **Co A 14323** recorded higher cane , CCS yields and per cent juice sucrose when compared to standards CoV92102 and Co86249

XIV. Salient findings.

The entries, **CoC14337** and **Co A 14323** recorded higher cane , CCS yields and per cent juice sucrose when compared to standards CoV92102 and Co86249

Table 10: Initial Varietal Trial (Midalte)-2016-17

Statistically analysed data

Centre: Regional Agricultural Research Station, Anakapalle

S. No.	Clone	CCS (t/ha)	Cane yield (t/ha)	CCS % (12 m)	Sucrose % (12 m)	Brix % (12 m)	Purity % (12 m)	Pol % cane (12m)	Extraction % (12 m)	Fibre % (12 m)	NMC at 12 m ('000/ha)
1	**Co13025**	11.27	90.17	12.50	17.83	19.59	90.99	14.21	54.81	15.33	68.98
2	**Co13027**	9.28	77.08	12.09	17.48	19.79	88.24	13.78	55.68	16.22	67.36
3	**Co13028**	10.19	79.97	12.75	18.08	19.66	91.95	14.33	65.15	15.76	76.62
4	**Co13029**	9.97	85.85	11.63	16.75	18.82	89.05	13.32	64.06	15.52	77.55
5	**Co13030**	8.79	74.01	11.88	17.07	19.06	89.56	13.58	57.4	15.40	59.03
6	**Co13031**	11.65	91.89	12.64	18.11	20.06	90.20	14.43	59.65	15.27	81.02
7	**Co13032**	8.55	70.01	12.24	17.56	19.53	89.89	13.76	56.05	16.57	58.79
8	**CoA14323**	15.52	111.09	13.97	19.70	21.10	93.37	15.81	64.18	14.76	83.33
9	**CoA14324**	9.77	79.01	12.36	17.77	19.85	89.53	14.03	53.05	16.06	68.29
10	**CoC14337**	15.78	116.77	13.50	19.13	20.72	92.28	15.19	63.89	15.56	86.34
11	**PI14376**	11.76	81.06	14.54	20.46	21.84	93.69	16.13	62.13	16.15	68.52
12	**PI14377**	12.16	91.51	13.35	19.01	20.84	91.21	15.10	63.15	15.54	73.84
Standards											
1	CoV 92102	12.46	95.05	13.14	18.52	19.84	93.41	14.63	61.73	16.02	70.84

2	Co 86249	10.33	81.52	12.66	18.01	19.65	91.67	14.24	56.29	15.93	68.75
	SE	0.56	3.27	0.55	0.73	0.69	0.85	0.58	1.26	0.34	3.94
	CD (0.05)	0.72	9.99	1.68	2.23	2.11	2.26	1.77	3.84	1.05	12.04
	CV (%)	7.08	5.28	6.09	5.66	4.88	1.32	5.67	2.97	3.08	7.73

Contd…

S. No.	Clone	Stalk Length (cm)	Stalk Diameter (cm)	Single cane weight (kg)	CCS % (10 m)	Sucrose % (10 m)	Brix % (10 m)	Purity % (10 m)	No. of shoots ('000/ha) 240 days	No. of tillers ('000/ha) 120 days	Germination % (30 days)
1	**Co13025**	227.81	2.66	1.31	11.73	16.91	19.02	88.87	77.55	89.82	49.31
2	**Co13027**	213.57	2.81	1.14	12.05	17.35	19.42	89.42	79.40	90.97	41.14
3	**Co13028**	193.92	2.63	1.04	13.49	19.15	20.84	91.87	83.79	92.59	40.11
4	**Co13029**	207.50	2.64	1.10	11.32	16.42	18.68	87.90	85.65	99.31	48.96
5	**Co13030**	218.69	2.76	1.46	10.29	15.38	18.59	82.70	71.30	81.48	43.41
6	**Co13031**	239.45	2.98	1.29	12.07	17.44	19.67	88.55	90.74	102.08	51.91
7	**Co13032**	203.28	2.67	1.29	11.06	16.16	18.65	86.66	68.52	82.41	40.45
8	**CoA14323**	277.42	3.02	1.86	13.32	19.06	21.13	90.23	91.20	104.63	63.54
9	**CoA14324**	219.79	2.98	1.45	10.14	15.42	19.25	80.15	79.40	90.05	61.97
10	**CoC14337**	255.48	3.02	1.77	11.75	17.22	20.02	86.03	92.36	108.10	89.58
11	**PI14376**	246.58	2.77	1.48	13.09	19.35	22.88	84.57	76.62	89.35	50.69
12	**PI14377**	216.71	2.78	1.24	13.30	19.16	21.52	89.08	82.18	93.28	52.44
Standards											
1	CoV 92102	267.68	2.63	1.64	12.47	17.97	20.19	89.00	78.81	87.96	47.92

2	Co 86249	262.33	2.29	1.15	10.92	16.24	19.45	83.44	76.87	93.75	43.75
	SE	9.65	0.07	0.16	0.60	0.78	0.77	1.58	5.93	5.11	3.89
	CD (0.05)	29.48	0.23	0.49	1.84	2.40	2.38	4.84	18.12	15.62	11.91
	CV (%)	5.88	3.87	16.63	7.13	6.39	5.53	2.57	10.35	7.75	10.64

I.	**Project No.**	:	B II Zonal Varietal Trials P2 – 2015 /9 AHD / F30 / H10 / H20 / 0230
II.	**Project Title**		Advanced varietal trial (Mid late) –I plant crop
III.	**Serial number of the year of Experimentation**	:	IX
IV.	**Location**	:	Regional Agricultural Research Station, Anakapalle
V.	**Objective**	:	To screen and select high yielding and sucrose rich clones from clones poled from different centres of EC Zone.
VI.	**Technical Programme on which the technical programme is based**	:	Based on constraints identified in East Coast Zone and deliberation held in the Joint group / workshop in AICRP on Sugarcane.
VII.	**Discipline wise – technical report**	:	
	a. Date of transplanting	:	25.02.2016
	b. Varieties	:	Four + Two standards CoA 11326, CoA 12324, CoC 13339 and CoOr 13346 Standards: CoV 92102 and Co 86249
	c. Fertilizer application	:	100 kg P_2O_5 + 120 kg K_2O / ha. 112 kg N in two splits i.e. at 45 DAP and 90 DAP
	d. Cultural practices	:	

Hand weeding& Hoeing	:	6.4.2016 to 11.4.2016
2nd time	:	16.05.2016
Inter cultivation	:	10.06.2016
Earthing up	:	26.07.2016 to 30.7.2016
Removal of flower weeds	:	30.8.2016 to 02.09.2016
TT propping I tier	:	25.9.2016 to 28.9.2016
TT propping II tier	:	30.11.2016, 2.12.2016, 3.12.2016

	e. Irrigations	:	Once in a week during formative phase and once in 18 days during maturity phase.
	f. Plant protection	:	Need based
	g. Date of harvest	:	18.02.2017
	h. Plot size	:	Gross : 6.0 m x 0.9 m x 8 R = 43.20 m^2 Net : 5.0 m x 0.9 m x 6 R = 27.00 m^2
	i. Layout	:	RBD
	j. Replications	:	Four
	k. Total experimental area		0.20 ha

l. Name and designation of the participants : 1. Dr.A.Appala Swamy, Principal Scientist (Plant Breeding)
2. Dr. M.Charumathi, Senior Scientist (Plant Breeding)
3. Dr.D.Adilakshmi, Senior Scientist (Plant Breeding)

m. Results recorded during the previous year :

Not conducted during 2015-16

n. Results obtained during the year :

Four clones were tested against two standards under Advanced Varietal Trial (Midlate) first plant crop during 2016-17. The clones found to be differed significantly for all characters studied. Number of millable canes ranged from 72.61 thousands/ha (CoA 111326) to 85.73 thousands /ha (CoC13339). The clones CoC13339 (85.73 thousands/ha) found to be on par with the standards CoV 92102 (82.25 thousands/ha)and Co 86249 (84.95 thousands/ha) for NMC. Cane yield varied from 88.12 t/ha (CoA11326) to 111.15 t/ha (CoC13339). The clones CoC13339 (111.15 t/ha) recorded higher cane yield and found to be significantly superior over two standards , CoV 92012 (94.85 t/ha)and Co 86249 (89.36 t/ha) at harvest. For per cent juice sucrose, the clones CoC13339 (19.74) recorded higher per cent juice sucrose and found to be on par with the best standard CoV 92102 (18.13) at the time of harvest. CCS yield varied from 9.78 t/ha (Co Or13346) to 15.35 t/ha (CoC13339). The clones CoC13339 (15.35 t/ha) recorded significantly higher CCS yield when compared to their standards CoV92102 (11.88 t/ha) and Co 86249 (9.91 t/ha). The clone CoA11326 (14.98) recorded lower fibre per cent while CoOr13346 (16.99) recorded higher fibre per cent at harvest (Table 11).

XII. Technical programme of the year next to the reporting year:

Six entries viz., Co13028, Co13029, Co13031, CoA14323, CoC14337 and PI 14377 along with two standards CoV 92102 and Co 86249 will be studied during 2017-18

XIII. Technical summary of the individual reporting year:

The entry Co C13339 recorded higher cane , CCS yields and per cent juice sucrose when compared to best standard CoV92102

XIV. Salient findings.

The entry Co C13339 recorded higher cane , CCS yields and per cent juice sucrose when compared to best standard CoV92102

Table 11: Advanced Varietal Trial (Midalte)-First plant Crop -2016-17

Statistically analysed data

Centre: Regional Agricultural Research Station, Anakapalle

S. No.	Clone	CCS (t/ha)	Cane yield (t/ha)	CCS % (12 m)	Sucrose % (12 m)	Brix % (12 m)	Purity % (12 m)	Pol % cane (12m)	Extraction % (12 m)	Fibre % (12 m)	NMC at 12 m ('000/ha)
1	CoA11326	11.05	88.12	12.51	18.38	21.46	85.63	14.69	56.14	14.98	72.61
2	CoA12324	12.18	96.75	12.59	18.34	21.06	87.06	14.46	53.85	16.17	74.93
3	CoC13339	15.35	111.15	13.82	19.74	21.77	90.56	15.57	64.74	16.12	85.73
4	CoOr13346	9.78	87.03	11.28	16.65	19.65	84.58	12.99	54.43	16.99	84.41
Standards											
1	CoV 92102	11.88	94.85	12.53	18.13	20.53	88.18	14.23	53.23	16.52	82.25
2	Co 86249	9.91	89.36	11.11	16.35	19.16	85.33	12.78	51.35	16.81	84.95
	SE	0.67	4.05	0.55	0.67	0.49	1.33	0.51	2.23	0.32	2.34
	CD (0.05)	2.04	12.20	1.65	2.02	1.49	4.02	1.54	6.72	0.96	7.06
	CV (%)	11.58	8.57	8.89	7.48	4.79	3.07	7.22	8.02	3.92	5.79

S. No.	Clone	Stalk Length (cm)	Stalk Diameter (cm)	Single cane weight (kg)	CCS % (10 m)	Sucrose % (10 m)	Brix % (10 m)	Purity % (10 m)	No. of shoots ('000/ha) 240 days	No. of tillers ('000/ha) 120 days	Germination % (30 days)
1	CoA11326	225.27	3.01	1.49	11.25	16.56	19.43	85.25	82.64	96.22	42.59
2	CoA12324	226.85	3.05	1.53	11.49	17.04	20.28	84.04	84.79	98.29	53.01
3	CoC13339	269.73	2.89	1.53	13.30	18.89	20.55	91.97	95.68	119.21	64.64
4	CoOr13346	256.08	2.42	1.04	9.85	14.78	17.99	82.11	94.59	123.30	48.03
Standards											
1	CoV 92102	292.21	2.52	1.22	12.85	18.44	20.56	89.68	92.28	115.35	59.72
2	Co 86249	290.26	2.28	1.19	10.94	16.13	18.96	85.01	92.98	113.79	71.70
	SE	6.03	0.055	0.07	0.33	0.42	0.43	1.19	2.42	3.00	3.95
	CD (0.05)	18.16	0.16	0.21	0.98	1.25	1.28	3.58	7.30	9.05	11.91
	CV (%)	4.64	4.07	10.42	5.63	4.90	4.34	2.76	5.36	5.41	13.96

I.	**Project No.**	:	B- III Evaluation and Identification of climate resilient ISH and IGH genetic stocks
II.	**Project Title**		1. Evaluation and Identification of climate resilient ISH and IGH genetic stocks (a) Evaluation for drought tolerance (I plant crop)
III.	**Serial number of the year of Experimentation**	:	X
IV.	**Location**	:	Regional Agricultural Research Station, Anakapalle
V.	**Objective**	:	Screening and identification of elite clones under drought situation of coastal Andhra Pradesh.
VI.	**Technical Programme on which the technical programme is based**	:	Based on constraints identified in rainfed areas in coastal Andhra Pradesh and deliberations held in the Joint group / workshops in AICRP on Sugarcane.
VII.	**Discipline wise – technical report**	:	
	a. Date of Planting	:	09.03.2016
	b. Varieties	:	Twenty seven + Three standards BM 1003143, BM 1005149, BM 1009163, BM 1010168, BM 1022173, PG 9869137, SA 98-13, SA 04-454, SA 04-4792, SA 04-458, SA 04-390, SA 04-496, SA 04-409, AS 04-1689, AS 04-245, AS 04-2097, AS 04-635, AS 04-1687, MA 5/51, MA 5/5, MA 5/37, MA 5/99, MA 5/22, GU 07-3849, GU 07-3774, GU 07-2276 and CYM 07-986 Standards: CoA 06321,83R 23 and CoA 92081
	c. Fertilizer application	:	100 kg P_2O_5 + 120 kg K_2O / ha. 112 kg N in two splits i.e. at 45 DAP and 90 DAP
	d. Cultural practices	:	

Hand weeding& Hoeing	:	5.5.2016, 6.5.2016, 8.5.2016
Inter cultivation	:	25.06.2016
Earthing up	:	25.7.2016
Removal of flower weeds	:	2.9.2016 to 19.9.2016
TT propping I tier	:	10.10.2016 to 18.10.2016
TT propping II tier	:	24.12.2016 to 26.12.2016

	e. Irrigations	:	**<u>Recommended practices:</u>** Once in a week during formative phase and once in 18 days during maturity phase. **Drought situation:** with draw irrigation between 60-150 days after planting in drought treatment plot
	f. Plant protection	:	Need based

g. Date of harvest	:	12.3.2017
h. Plot size	:	Gross : 6.0 m x 0.9 m x 2 R = 10.80 m^2 Net : 5.0 m x 0.9 m x 2 R = 9.00 m^2
i. Layout	:	Alpha design
j. Replications	:	Two
k. Total experimental area		0.20 ha
l. Name and designation of the participants	:	1. Dr.A.Appala Swamy, Principal Scientist (Plant Breeding) 2. Dr. M.Charumathi, Senior Scientist (Plant Breeding)

m. Results recorded during the previous year :

Tiller population at 120 DAP shoot population at 150 DAP and NMC at 360 DAP were significantly influenced due to drought and varieties. Significantly higher millable stalks and millable canes at harvest were recorded under recommended practices when compared to drought situation. The interaction between two main plot and varieties with respect to stalk population and NMC was found to be significant which might be due to higher tiller production and conversion of tiller into millable canes.

At 300 DAP and 360 DAP the effect of drought on single cane weight and cane diameter was found to be significant. The entry BM 1022173 were found to be significant when compared to other test clones and standards. The quality parameters of brix and sucrose per cent were significantly influenced by drought and varieties. The test clones, SA 04-496, SA 04-409, CYM 07-986 recorded higher brix and sucrose per cent and found to be significant when compared to best standard CoA 92081 when tested in the trial. The interaction at 10^{th} and 12^{th} month age was also found to be significant.

The juice extraction per cent and fibre per cent were significantly effected by both main plot treatments and varieties. Among the varieties tested, the standards recorded significantly higher juice extraction per cent where as the test clones recorded lower per cent fibre when compared to standards at both 300 and 360 DAP.

Cane yield at harvest was significantly effected by drought and varieties. Higher cane yield was recorded under recommended package but the difference of yield between drought and normal practices was meagre due to receipt of good rainfall during grand growth period. The interaction due to drought and varieties with respect to cane yield was significant. Tiller mortality was less in MA/5 and high in SA 04-409. Physiological parameters i.e., leaf area and Relative water content were recorded in the experiment

n. Results obtained during the year:

Twenty seven clones alongwith three standards were evaluated in alpha design in normal and drought conditions. The replicated data shows differences among the clones for all the characters studied. The clone BM1010168 showed superior performance in normal (NMC of 91.21thousands/ha, cane yield of 83.33 t/ha and sucrose of 19.29%) and drought(NMC of 93.06thousands/ha, cane yield of 82.93 t/ha and sucrose of 18.49%) when compared to superior standard clone CoA06321(2001A63) in normal((NMC of 78.71thousands/ha, cane yield of 79.49 t/ha and sucrose of 18.51%) as well as drought((NMC of 68.98thousands/ha, cane yield of 70.08 t/ha , CCS yield of 9.08t/ha and sucrose of 18.49%) conditions.(Tables 12 & 13)

XII. Technical programme of the year next to the reporting year:

Twenty seven entries viz., BM 1003143, BM 1005149, BM 1009163, BM 1010168, BM 1022173, PG 9869137, SA 98-13, SA 04-454, SA 04-4792, SA 04-458, SA 04-390, SA 04-496, SA 04-409, AS 04-1689, AS 04-245, AS 04-2097, AS 04-635, AS 04-1687, MA 5/51, MA 5/5, MA 5/37, MA 5/99, MA 5/22, GU 07-3849, GU 07-3774, GU 07-2276 and CYM 07-986 Standards: CoA 06321,83R 23 and CoA 92081 will be studied during 2017-18 as second plant crop

XIII. Technical summary of the individual reporting year:

The clone BM1010168 showed superior performance in normal as well as in drought conditions when compared to superior standard clone CoA06321(2001A63) for NMC/ha, cane yield/ha and juice sucrose per cent.

XIV. Salient findings.

The clone BM1010168 showed superior performance in normal as well as in drought conditions when compared to superior standard clone CoA06321 for NMC/ha, cane yield/ha and juice sucrose per cent.

Table:12.Mean data for Evaluation and identification of climate resilient ISH and IGH genetic stocks-Ist plant crop (Normal conditions)-RARS,Anakapalle

Entry	Germination %	No. of Tillers (000'/ha)		No. of shoots (000'/ha)				Leaf rolling at sunrise during water stress
		90days	120days	150days	180days	240days	360days	
BM 1003143	35.07	80.56	106.95	101.39	97.68	84.73	78.71	**NT**
BM 1005149	41.32	113.43	125.93	123.15	109.73	99.07	91.66	
BM 1009163	39.30	119.44	131.48	125.93	124.07	108.34	100.93	
BM 1010168	43.40	93.06	134.72	129.16	111.11	99.54	91.21	
BM 1022173	43.35	68.06	79.63	75.46	74.54	70.83	66.21	
PG 9869137	21.87	54.63	59.73	52.32	44.91	39.36	34.73	
SA 98-13	22.92	56.02	91.21	87.96	72.22	64.82	57.87	
SA 04-454	30.90	82.87	105.09	104.17	91.21	83.79	76.39	
SA 04-4792	37.76	78.71	105.56	103.71	93.06	84.72	75.46	
SA 04-458	23.26	79.17	121.30	113.89	93.06	84.26	75.46	
SA 04-390	44.45	87.50	112.50	108.80	97.22	87.50	78.24	
SA 04-496	34.03	94.44	120.83	114.36	108.34	99.07	88.43	
SA 04-409	38.19	74.07	107.87	102.77	91.21	81.48	74.54	
AS 04-1689	35.42	95.84	140.74	132.87	120.37	109.72	101.38	
AS 04-245	35.86	107.87	144.44	137.96	123.15	110.65	100.46	
AS 04-2097	34.03	88.43	137.51	135.65	108.79	100.00	90.28	
AS 04-635	49.31	113.43	147.22	137.50	132.87	121.29	111.11	
AS 04-1687	58.33	126.39	155.09	145.37	143.52	130.56	117.59	
MA 5/51	50.79	95.37	131.95	131.48	114.81	105.56	95.37	
MA 5/5	36.46	70.37	97.68	97.23	80.56	68.52	62.04	
MA 5/37	42.36	65.27	81.48	80.09	71.76	62.04	54.63	
MA 5/99	34.73	106.48	147.68	137.96	128.24	115.28	103.70	

MA 5/22	37.11	60.19	86.57	71.76	62.50	53.71	44.91	
GU 07-3849	45.48	119.45	144.45	136.57	131.02	114.35	105.56	
GU 07-3774	28.47	117.59	140.74	131.48	128.71	116.67	107.41	
GU 07-2276	50.15	98.61	134.26	128.71	116.20	106.95	97.68	
CYM 07-986	40.76	81.02	120.83	116.21	99.07	90.27	80.56	
Standards								
Co A 06321	37.49	62.96	104.63	100.46	95.37	83.34	78.71	
83R23	39.28	46.29	84.26	76.39	75.00	66.21	62.96	
CoA92081	48.61	68.98	94.91	89.82	82.87	73.62	64.36	

Entry	Data at 300 days							
	Single cane weight(Kg)	Cane length(cm)	Cane diameter(cm)	Number of internodes	Juice Brix %	Juice sucrose %	Extraction %	cane fibre %
BM 1003143	0.80	279.89	2.42	20.0	16.15	13.84	49.47	18.59
BM 1005149	0.99	299.31	2.73	21.5	19.23	17.28	46.21	16.57
BM 1009163	0.52	213.95	1.32	18.5	10.06	7.62	35.06	21.55
BM 1010168	0.92	300.39	2.18	21.5	19.42	17.53	46.02	16.44
BM 1022173	0.98	378.68	2.76	18.0	15.78	12.99	44.96	15.96
PG 9869137	0.90	235.29	2.93	15.0	17.45	15.01	48.38	16.65
SA 98-13	0.75	249.26	2.15	16.0	17.01	13.86	47.64	17.13
SA 04-454	0.55	399.46	2.36	19.0	11.80	8.79	41.12	17.29
SA 04-4792	1.00	264.58	2.44	19.0	18.73	16.17	48.39	20.23
SA 04-458	0.42	288.92	1.71	19.0	15.25	11.10	42.47	19.31
SA 04-390	0.99	379.02	2.15	18.5	16.75	13.12	43.91	14.89
SA 04-496	0.76	299.56	2.15	17.0	19.52	17.62	42.98	19.15
SA 04-409	1.06	380.31	2.36	20.0	19.42	16.96	39.36	16.10
AS 04-1689	0.58	259.39	2.58	28.5	12.15	8.85	41.64	18.65
AS 04-245	0.42	317.62	1.34	20.0	13.27	10.89	26.56	16.63
AS 04-2097	0.64	348.90	1.96	20.5	12.69	9.50	38.27	18.93
AS 04-635	0.55	304.54	1.42	14.0	15.24	11.91	33.05	20.66
AS 04-1687	0.63	352.75	1.52	24.5	13.51	10.12	36.55	17.39
MA 5/51	0.89	284.53	2.36	16.5	16.62	14.41	42.88	17.25
MA 5/5	0.94	349.38	2.45	28.0	17.30	14.76	44.20	16.46
MA 5/37	0.90	299.41	2.02	21.5	18.78	15.83	44.02	17.61
MA 5/99	0.46	319.41	1.66	15.5	13.88	11.03	31.94	17.73
MA 5/22	1.02	321.31	2.44	21.0	16.18	13.15	51.26	19.90

GU 07-3849	0.75	296.32	2.12	22.5	19.05	16.01	40.27	17.81
GU 07-3774	0.38	257.46	1.97	18.0	12.26	9.41	37.67	17.04
GU 07-2276	0.83	313.96	2.57	19.5	15.04	11.89	48.34	21.05
CYM 07-986	0.56	277.45	1.62	16.0	15.94	13.53	37.71	18.21
Standards								
Co A 06321	1.01	267.40	1.77	19.0	18.49	16.37	52.93	16.06
83R23	0.96	218.32	1.93	20.0	17.76	15.56	48.54	18.38
CoA92081	1.07	236.47	2.83	22.0	20.13	18.66	51.55	16.29

Entry	Data at 360 days							
	Single cane weight(kg)	Cane length(cm)	Cane diameter(cm)	Number of internodes	Juice Brix %	Juice sucrose %	Extraction %	cane fibre %
BM 1003143	0.95	280.39	2.53	20.5	18.07	15.78	49.43	18.81
BM 1005149	1.02	306.83	2.76	22.5	21.19	18.57	45.53	17.51
BM 1009163	0.71	219.30	1.42	20.5	12.99	9.56	38.25	21.06
BM 1010168	1.07	298.23	2.28	23.5	21.34	19.29	46.00	15.97
BM 1022173	1.19	363.80	2.62	20.5	17.41	14.58	44.55	16.32
PG 9869137	1.10	240.29	2.84	15.5	18.99	16.58	50.31	16.77
SA 98-13	1.02	244.53	2.28	17.5	18.31	16.05	51.12	16.51
SA 04-454	0.76	397.24	2.45	20.0	13.62	10.13	39.69	17.55
SA 04-4792	1.24	264.54	2.44	20.0	20.31	17.40	50.24	19.62
SA 04-458	0.58	288.92	1.86	20.0	16.75	13.45	43.92	18.57
SA 04-390	1.19	379.07	2.17	20.5	19.25	16.94	44.82	15.77
SA 04-496	0.96	309.65	2.14	18.5	20.61	18.55	43.51	19.37
SA 04-409	1.21	386.31	2.28	20.5	21.36	18.18	41.89	16.53
AS 04-1689	0.73	267.39	2.60	29.0	14.06	10.10	42.98	18.81
AS 04-245	0.60	315.62	1.52	22.0	15.48	13.25	30.52	16.67
AS 04-2097	0.80	358.91	2.22	22.5	14.23	10.81	39.92	18.39
AS 04-635	0.71	309.48	1.50	16.5	16.61	13.76	34.18	20.61
AS 04-1687	0.82	350.25	1.59	27.0	15.41	11.77	39.67	17.77
MA 5/51	1.11	292.53	2.39	18.0	18.91	16.80	43.44	18.19
MA 5/5	1.16	346.38	2.48	28.5	19.86	16.91	44.20	17.23
MA 5/37	1.03	296.80	2.08	22.5	20.74	18.46	45.59	17.51
MA 5/99	0.73	318.92	1.60	17.0	15.76	12.37	31.97	18.75
MA 5/22	1.16	320.81	2.38	22.5	18.25	14.75	51.76	20.10
GU 07-3849	0.92	301.32	2.18	24.5	21.04	17.56	43.22	17.81

GU 07-3774	0.60	262.46	2.00	20.0	14.78	12.06	39.54	18.01
GU 07-2276	1.03	310.98	2.47	21.5	16.78	14.34	48.78	20.47
CYM 07-986	0.78	280.97	1.75	18.0	17.78	15.07	40.23	18.89
Standards								
Co A 06321	1.18	272.40	1.78	21.0	21.18	18.51	52.45	17.03
83R23	0.60	223.34	1.99	21.5	19.91	17.26	49.93	17.83
CoA92081	1.17	240.47	2.82	23.0	21.97	19.25	51.9	16.54

Entry	Cane yield at 360 days(t/ha)	Tiller mortality(%)	Leaf area(m^2)		Relative Water Content			Leaf water potential
			Before imposition of drought	After withdrawing the drought	Before water stress	During water stress	after water stress	
BM 1003143	63.43	22.37	0.83	3.66	79.89	**NT**	81.95	**NT**
BM 1005149	90.56	25.64	2.06	4.22	76.32		82.72	
BM 1009163	49.27	21.79	0.86	3.61	83.42		85.89	
BM 1010168	83.33	29.55	1.42	3.81	79.25		82.90	
BM 1022173	64.35	13.48	1.26	3.96	80.98		83.44	
PG 9869137	31.33	33.65	2.15	4.35	74.86		79.88	
SA 98-13	43.44	33.99	1.13	3.50	70.35		76.86	
SA 04-454	40.86	27.06	1.26	3.71	78.88		81.02	
SA 04-4792	74.93	26.92	1.95	4.20	77.46		83.39	
SA 04-458	33.44	34.33	0.95	3.29	80.34		83.31	
SA 04-390	77.59	27.68	2.52	4.75	83.29		85.44	
SA 04-496	67.78	22.61	2.46	4.95	74.44		80.29	
SA 04-409	78.79	27.45	2.04	4.25	81.27		84.07	
AS 04-1689	60.69	23.78	1.12	3.46	79.47		83.36	
AS 04-245	41.25	27.08	0.82	3.20	76.70		82.34	
AS 04-2097	56.83	33.77	1.00	3.54	72.08		80.57	
AS 04-635	61.71	19.27	0.99	3.19	79.56		83.00	
AS 04-1687	73.53	19.17	0.85	2.82	73.94		76.77	
MA 5/51	85.02	26.94	1.35	3.50	80.46		84.12	
MA 5/5	57.76	35.78	1.18	3.16	82.63		85.04	
MA 5/37	49.62	31.43	1.66	3.66	80.89		85.43	
MA 5/99	47.60	24.78	0.82	3.12	79.76		84.23	
MA 5/22	45.33	38.12	2.10	4.56	76.37		83.14	
GU 07-3849	79.14	22.73	0.85	3.22	84.21		84.47	
GU 07-3774	42.85	18.66	0.59	2.80	81.91		85.28	

GU 07-2276	80.05	25.19	1.86	3.71	73.43		80.35	
CYM 07-986	45.92	30.72	0.70	2.86	83.30		84.43	
Standards								
Co A 06321	79.49	21.36	2.49	4.96	76.27		85.42	
83R23	60.54	17.54	1.39	4.42	83.34		70.95	
CoA92081	68.73	28.07	1.22	4.18	80.36		85.23	

Table:13.Mean data for Evaluation and identification of climate resilient ISH and IGH genetic stocks-Ist plant crop (Drought conditions)

Entry	Germination %	No. of Tillers (000'/ha)		No. of shoots (000'/ha)				Leaf rolling at sunrise during water stress
		90days	120days	150days	180days	240days	360days	
BM 1003143	55.56	77.32	106.48	99.54	94.45	86.11	79.16	**NT**
BM 1005149	36.81	85.18	115.74	111.11	96.30	83.33	74.07	
BM 1009163	39.80	103.70	127.32	122.68	118.52	101.39	93.52	
BM 1010168	46.18	92.14	126.86	121.29	112.50	101.38	93.06	
BM 1022173	43.40	58.33	81.02	75.01	69.44	62.96	54.63	
PG 9869137	31.94	48.62	58.79	48.15	42.59	38.88	33.80	
SA 98-13	31.25	62.96	91.21	86.57	77.78	72.68	62.96	
SA 04-454	20.48	62.04	94.91	93.53	76.39	70.37	60.65	
SA 04-4792	36.13	74.07	100.93	98.15	83.79	75.46	67.13	
SA 04-458	43.75	91.21	119.45	119.91	107.87	99.54	91.20	
SA 04-390	40.00	62.96	86.11	84.26	74.54	65.74	56.02	
SA 04-496	36.46	92.59	124.08	114.82	107.87	96.76	86.11	
SA 04-409	37.85	64.35	101.38	99.54	79.63	72.23	63.89	
AS 04-1689	44.09	100.01	129.16	127.32	116.67	108.34	100.01	
AS 04-245	40.42	79.16	115.74	111.12	92.59	84.26	75.00	
AS 04-2097	36.46	84.26	131.48	128.71	106.48	98.15	91.66	
AS 04-635	40.36	76.39	125.00	131.48	99.54	91.66	82.87	
AS 04-1687	49.65	105.09	135.18	134.26	124.54	113.43	100.93	
MA 5/51	37.85	62.04	109.26	106.03	86.12	77.78	71.76	
MA 5/5	46.53	75.00	103.71	101.39	87.04	78.24	68.52	
MA 5/37	32.29	50.46	79.63	69.45	60.65	51.85	46.29	
MA 5/99	36.46	91.21	136.57	132.41	113.89	103.24	93.98	
MA 5/22	44.46	58.79	84.26	71.29	59.26	51.39	43.52	
GU 07-3849	45.14	105.09	131.02	129.63	118.06	109.26	99.07	

GU 07-3774	36.46	122.23	141.21	133.34	131.94	120.37	111.57	
GU 07-2276	47.56	89.36	121.76	119.45	104.63	98.15	89.36	
CYM 07-986	47.34	87.51	117.13	115.74	100.46	90.75	81.48	
Standards								
Co A 06321	40.97	55.56	99.07	89.36	82.02	72.68	68.98	
83R23	37.90	45.83	82.87	74.07	73.15	64.43	61.12	
CoA92081	41.32	61.11	87.96	83.8	79.23	71.76	63.88	

Entry	Data at 300 days							
	Single cane weight(kg)	Cane length(cm)	Cane diameter(cm)	Number of internodes	Juice Brix %	Juice sucrose %	Extraction %	cane fibre %
BM 1003143	0.73	273.33	2.42	19.0	16.56	13.59	41.96	19.14
BM 1005149	0.81	292.31	2.50	20.0	18.94	16.43	44.32	17.78
BM 1009163	0.48	213.18	1.47	18.0	10.80	8.18	30.71	19.81
BM 1010168	0.80	287.01	1.82	20.0	18.90	16.56	45.99	16.17
BM 1022173	0.81	356.85	2.55	17.0	16.28	13.89	36.47	16.60
PG 9869137	0.85	231.895	2.70	17.0	17.76	14.93	43.13	17.38
SA 98-13	0.76	248.90	2.08	17.0	17.42	14.28	42.48	16.87
SA 04-454	0.51	371.46	2.21	18.0	12.06	9.68	36.81	17.67
SA 04-4792	0.88	258.86	2.29	20.0	19.82	16.87	49.04	19.47
SA 04-458	0.44	281.85	1.56	19.0	14.92	9.36	33.48	18.94
SA 04-390	0.81	372.40	1.95	20.0	16.43	14.04	51.64	16.78
SA 04-496	0.66	287.42	2.00	16.5	18.75	16.86	41.63	19.53
SA 04-409	0.89	367.23	2.19	19.0	18.42	16.78	36.99	17.05
AS 04-1689	0.47	250.35	2.23	26.0	12.06	9.45	34.58	18.82
AS 04-245	0.55	300.25	1.46	19.5	13.51	10.45	32.15	16.84
AS 04-2097	0.58	338.69	1.82	19.5	12.96	9.81	42.65	17.92
AS 04-635	0.57	301.44	1.23	16.0	15.89	12.11	31.01	20.96
AS 04-1687	0.53	347.98	1.38	24.0	12.85	10.31	39.03	18.28
MA 5/51	0.8	278.04	2.18	17.5	16.55	14.04	47.02	18.95
MA 5/5	0.85	343.28	2.26	26.0	17.39	14.77	42.47	17.91
MA 5/37	0.81	290.78	1.79	21.0	18.11	15.07	45.81	18.43
MA 5/99	0.45	310.28	1.55	15.0	14.89	11.51	29.71	18.88
MA 5/22	0.89	310.29	2.28	19.5	17.19	14.05	45.09	20.25
GU 07-3849	0.75	285.26	1.95	20.0	17.74	14.90	36.86	18.76

GU 07-3774	0.47	245.38	1.80	19.0	12.04	8.79	40.71	18.15
GU 07-2276	0.71	294.89	2.44	19.0	15.08	11.78	48.01	19.96
CYM 07-986	0.53	280.46	1.44	15.5	15.99	12.92	30.49	19.04
Standards								
Co A 06321	1.01	258.28	1.72	18.0	18.45	16.50	55.03	17.23
83R23	0.86	217.79	1.94	19.0	17.98	16.23	49.13	17.26
CoA92081	0.99	228.06	2.71	21.0	19.43	18.02	50.08	16.86

Entry	Data at 360 days							
	Single cane weight(kg)	Cane length(cm)	Cane diameter(cm)	Number of internodes	Juice Brix %	Juice sucrose %	Extraction %	cane fibre %
BM 1003143	0.64	275.30	2.45	20.0	18.95	16.19	48.24	19.00
BM 1005149	0.79	298.26	2.70	21.5	20.16	17.43	45.94	17.74
BM 1009163	0.36	213.28	1.54	21.0	13.07	9.78	41.32	20.54
BM 1010168	0.88	281.29	2.26	21.5	21.03	18.49	44.49	15.88
BM 1022173	0.90	353.39	2.46	20.5	18.58	16.09	45.32	16.49
PG 9869137	0.83	233.26	2.73	16.5	19.55	16.63	48.29	17.37
SA 98-13	0.66	237.05	2.23	18.0	19.05	16.41	49.94	16.90
SA 04-454	0.44	383.61	2.33	20.5	13.48	10.29	40.80	17.66
SA 04-4792	0.99	261.56	2.32	20.5	21.11	18.53	48.92	20.03
SA 04-458	0.36	285.60	1.84	19.5	16.92	12.46	43.23	18.69
SA 04-390	1.01	374.26	2.01	21.0	18.29	15.95	42.18	16.51
SA 04-496	0.58	301.29	2.09	18.0	20.06	17.74	42.05	19.25
SA 04-409	0.91	376.78	2.21	19.5	20.66	18.26	40.52	16.79
AS 04-1689	0.54	263.25	2.46	27.0	14.41	10.74	41.01	17.35
AS 04-245	0.36	308.05	1.49	20.5	15.61	11.96	34.26	16.98
AS 04-2097	0.54	355.31	2.09	21.5	15.30	11.56	39.27	17.98
AS 04-635	0.34	301.54	1.55	17.0	18.01	14.05	34.93	20.03
AS 04-1687	0.61	340.47	1.67	25.5	14.79	12.55	40.05	18.52
MA 5/51	0.70	276.33	2.26	17.0	18.96	16.45	41.85	18.75
MA 5/5	0.73	340.38	2.36	26.5	19.93	17.41	42.76	17.88
MA 5/37	0.69	286.06	1.90	21.0	19.80	17.40	43.58	17.69
MA 5/99	0.38	316.55	1.53	17.5	16.84	13.52	33.76	18.90
MA 5/22	0.79	309.23	2.21	21.5	16.79	15.02	49.32	20.32
GU 07-3849	0.72	294.97	2.15	23.5	20.02	17.18	42.43	18.16
GU 07-3774	0.26	248.40	1.85	19.5	13.52	10.42	40.22	18.23

GU 07-2276	0.73	302.88	2.29	20.0	16.79	14.42	47.26	20.39
CYM 07-986	0.38	280.28	1.81	18.5	18.49	15.25	40.78	18.85
Standards								
Co A 06321	1.03	270.51	1.75	20.5	20.33	18.49	50.52	17.45
83R23	0.88	223.73	1.94	20.5	20.96	18.36	48.82	17.81
CoA92081	1.00	235.65	2.72	22.5	21.91	19.57	50.55	16.56

Entry	Cane yield at 360 days(t/ha)	Tiller mortality(%)	Leaf area(m^2)		Relative Water Content			Leaf water potential
			Before imposition of drought	After withdrawing the drought	Before water stress	During water stress	after water stress	
BM 1003143	51.07	19.83	0.73	3.41	77.80	**NT**	71.56	**NT**
BM 1005149	58.59	33.33	1.82	4.16	77.79		73.46	
BM 1009163	33.51	23.86	0.81	3.44	83.17		73.65	
BM 1010168	82.93	23.31	1.30	3.63	79.40		70.88	
BM 1022173	49.17	26.93	1.13	3.79	81.94		73.35	
PG 9869137	28.32	29.43	1.96	4.14	76.71		70.46	
SA 98-13	41.59	27.14	1.10	3.31	72.31		67.02	
SA 04-454	26.66	33.65	1.14	3.58	78.38		70.25	
SA 04-4792	66.31	31.44	1.90	4.19	78.94		70.85	
SA 04-458	34.53	24.03	0.89	3.02	79.26		71.31	
SA 04-390	56.47	32.05	2.45	4.43	81.39		71.52	
SA 04-496	49.67	25.09	2.35	4.80	75.67		67.36	
SA 04-409	58.96	36.46	1.83	4.16	83.31		73.43	
AS 04-1689	55.29	21.51	1.03	3.35	80.41		72.93	
AS 04-245	28.72	34.63	0.76	3.18	77.46		69.46	
AS 04-2097	50.32	28.06	0.91	3.31	73.61		64.21	
AS 04-635	27.93	37.32	0.92	3.14	79.34		73.13	
AS 04-1687	61.77	24.77	0.88	2.68	76.35		68.43	
MA 5/51	50.47	31.95	1.21	3.38	79.49		70.87	
MA 5/5	50.48	31.41	1.16	3.32	82.27		74.26	
MA 5/37	31.92	33.65	1.50	3.70	85.45		75.85	
MA 5/99	35.91	28.95	0.82	2.82	79.52		71.56	
MA 5/22	35.03	39.70	2.10	4.28	79.34		72.98	
GU 07-3849	71.53	23.65	0.80	3.09	85.43		78.96	

GU 07-3774	29.33	16.42	0.61	2.71	81.10		71.82	
GU 07-2276	64.40	26.27	1.70	3.48	80.58		73.05	
CYM 07-986	31.03	29.90	0.70	2.60	82.43		71.45	
Standards								
Co A 06321	70.07	22.92	2.40	4.70	78.69		70.78	
83R23	53.97	17.53	1.39	4.16	81.52		73.46	
CoA92081	63.69	23.68	1.27	4.20	82.36		72.85	

NT: Not taken

I.	**Project No.**	:	B- III
II.	**Project Title**		Evaluation and Identification of climate resilient ISH and IGH genetic stocks (ii)Evaluation for drought tolerance (Ratoon crop)
III.	**Serial number of the year of Experimentation**	:	XI
IV.	**Location**	:	Regional Agricultural Research Station, Anakapalle
V.	**Objective**	:	Screening and identification of elite clones under drought situation of coastal Andhra Pradesh.
VI.	**Technical Programme on which the technical programme is based**	:	Based on constraints identified in rainfed areas in coastal Andhra Pradesh and deliberations held in the Joint group / workshops in AICRP on Sugarcane.
VII.	**Discipline wise – technical report**	:	
	a. Date of ratooning	:	11.05.2016
	b. Varieties	:	Fifteen + Three standards AS 04-245, MA 5/5, MA 5/37, GU 07-3774, CYM 07-986, GU 07-3849, GU 07-2276, AS 04-635, AS 04-1687, AS 04-2097, SA 04-472, AS 04-1689, BM 1022173, SA 04-496, SA 04-409 Standards: CoA 06321,83R 23 and CoA 92081
	c. Fertilizer application	:	100 kg P_2O_5 + 120 kg K_2O / ha. 112 kg N in two splits i.e. at 45 DAP and 90 DAP
	d. Cultural practices	:	

Hand weeding& Hoeing	:	5.7.2016, 7.7.2016, 8.7.2016
Inter cultivation	:	20.09.2016
Removal of flower weeds	:	3.10.2016 to 06.10.2016
TT propping I tier	:	10.10.2016 to 14.10.2016
TT propping II tier	:	24.12.2016 to 27.12.2016

	e. Irrigations	:	**<u>Recommended practices:</u>** Once in a week during formative phase and once in 18 days during maturity phase. **Drought situation:** with draw irrigation between 60-150 days after planting in drought treatment plot
	f. Plant protection	:	Need based
	g. Date of harvest	:	17.4.2017
	h. Plot size	:	Gross : 6.0 m x 0.9 m x 2 R = 10.80 m^2 Net : 5.0 m x 0.9 m x 2 R = 9.00 m^2

i. Layout	:	Split plot design
j. Replications	:	Two
k. Total experimental area		0.20 ha
l. Name and designation of the participants	:	1. Dr.A.Appala Swamy, Principal Scientist (Plant Breeding) 2. Dr. M.Charumathi, Senior Scientist (Plant Breeding)

m. Results recorded during the previous year :

Tiller population at 120 DAP shoot population at 150 DAP and NMC at 360 DAP were significantly influenced due to drought and varieties. Significantly higher millable stalks and millable canes at harvest were recorded under recommended practices when compared to drought situation. The interaction between two main plot and varieties with respect to stalk population and NMC was found to be significant which might be due to higher tiller production and conversion of tiller into millable canes.

At 300 DAP and 360 DAP the effect of drought on single cane weight and cane diameter was found to be significant. The entry BM 1022173 were found to be significant when compared to other test clones and standards. The quality parameters of brix and sucrose per cent were significantly influenced by drought and varieties. The test clones, SA 04-496, SA 04-409, CYM 07-986 recorded higher brix and sucrose per cent and found to be significant when compared to best standard CoA 92081 when tested in the trial. The interaction at 10^{th} and 12^{th} month age was also found to be significant.

The juice extraction per cent and fibre per cent were significantly effected by both main plot treatments and varieties. Among the varieties tested, the standards recorded significantly higher juice extraction per cent where as the test clones recorded lower per cent fibre when compared to standards at both 300 and 360 DAP.

Cane yield at harvest was significantly effected by drought and varieties. Higher cane yield was recorded under recommended package but the difference of yield between drought and normal practices was meagre due to receipt of good rainfall during grand growth period. The interaction due to drought and varieties with respect to cane yield was significant. Tiller mortality was less in MA/5 and high in SA 04-409. Physiological parameters i.e., leaf area and Relative water content were recorded in the experiment.

n. Results obtained during the year:

During 2016-17, out of 14 clones evaluated along with three standards in ratoon crop, the clone SA04-496 showed on par performance in normal (NMC of 75.46thousands/ha, cane yield of 60.25 t/ha and sucrose of 17.21%) and drought(NMC of 72.23thousands/ha, cane yield of 85.81 t/ha and sucrose of 16.41%) when compared to superior standard clone CoA92081(87A298) in normal((NMC of 75.46thousands/ha, cane yield of 83.95 t/ha and sucrose of 18.28%) as well as drought((NMC of 78.24thousands/ha, cane yield of 70.10 t/ha and sucrose of 18.23%) conditions.(Table.14 & 15)

XII. Technical programme of the year next to the reporting year:

Twenty seven entries viz., BM 1003143, BM 1005149, BM 1009163, BM 1010168, BM 1022173, PG 9869137, SA 98-13, SA 04-454, SA 04-4792, SA 04-458, SA 04-390, SA 04-496, SA 04-409, AS 04-1689, AS 04-245, AS 04-2097, AS 04-635, AS 04-1687, MA 5/51, MA 5/5, MA 5/37, MA 5/99, MA 5/22, GU 07-3849, GU 07-3774, GU 07-2276 and CYM 07-986 Standards: CoA 06321,83R 23 and CoA 92081 will be studied during 2017-18 as ratoon plant crop

XIII. Technical summary of the individual reporting year:

The clone SA04-496 showed on par performance in normal ae well as in drought conditions when compared to superior standard clone CoA92081(87A298) for NMC/ha, cane yield/ha and juice sucrose per cent.

XIV. Salient findings.

The clone SA04-496 showed on par performance in normal ae well as in drought conditions when compared to superior standard clone CoA92081 for NMC/ha, cane yield/ha and juice sucrose per cent.

Table.14:Mean data for Evaluation and identification of climate resilient ISH and IGH genetic stocks - Ratoon(Normal) -RARS,Anakapalle

Entry	No. of Tillers (000'/ha)		No. of shoots (000'/ha)				Leaf rolling at sunrise during water stress
	90days	120days	150days	180days	240days	330days	
BM 1022173	75.46	83.80	74.54	70.37	68.52	66.21	**NT**
SA 04-472	71.29	89.35	82.41	80.09	77.32	75.46	
SA 04-496	80.09	88.88	81.48	78.71	77.32	75.46	
SA 04-409	93.52	99.54	90.75	87.04	83.8	79.17	
AS 04-1689	138.89	137.50	125.46	118.52	111.12	102.32	
AS 04-245	143.52	152.32	143.06	133.33	125.93	111.57	
AS 04-2097	138.43	143.52	132.87	122.22	116.21	106.95	
AS 04-635	150.93	154.17	143.98	135.65	124.54	114.35	
AS 04-1687	104.64	117.13	110.19	100.46	95.37	91.21	
MA 5/5	93.06	100.93	94.45	86.11	79.17	76.85	
MA 5/37	58.79	75.46	66.20	61.58	57.87	56.48	
GU 07-3849	122.23	130.09	121.76	116.21	109.72	105.09	
GU 07-3774	155.09	158.80	143.98	136.57	128.70	116.21	
GU 07-2276	142.13	148.62	138.89	132.87	124.07	116.21	
CYM 07-986	125.46	132.87	123.61	116.67	107.87	104.17	
Standards							
Co A 06321	103.24	114.36	106.03	102.77	100.93	91.66	
83R23	81.48	90.27	81.95	81.02	80.09	76.39	
CoA92081	84.26	90.28	81.96	80.09	78.71	75.46	

Entry	Data at 330 days							
	Single cane weight(kg)	**Cane length(cm)**	**Cane diameter(cm)**	**Number of internodes**	**Juice Brix %**	**Juice sucrose %**	**Extraction %**	**cane fibre %**
BM 1022173	1.02	269.72	2.33	21.0	17.01	14.23	45.74	16.91
SA 04-472	0.99	236.58	2.19	20.5	18.95	15.82	49.25	18.92
SA 04-496	0.80	238.33	1.80	17.5	20.01	17.21	45.39	18.84
SA 04-409	0.95	229.09	2.10	22.0	20.06	16.78	45.78	16.98
AS 04-1689	0.76	223.13	1.96	20.5	13.94	10.78	42.60	17.35
AS 04-245	0.59	238.46	2.14	20.0	15.22	12.22	45.29	17.05
AS 04-2097	0.82	199.90	1.73	19.5	13.98	11.06	46.57	18.78
AS 04-635	0.70	210.38	1.77	20.0	15.20	12.01	49.98	20.61
AS 04-1687	0.75	242.16	1.61	19.0	14.74	12.01	46.47	19.49
MA 5/5	0.95	230.31	1.70	21.0	17.95	15.16	44.98	18.51
MA 5/37	1.04	231.49	1.82	18.5	19.00	16.55	44.21	18.78
GU 07-3849	0.73	227.44	1.58	20.5	18.07	15.07	49.91	19.87
GU 07-3774	0.52	241.84	1.78	18.5	14.89	12.16	46.96	18.73
GU 07-2276	0.62	261.55	1.90	21.0	16.96	13.71	49.83	19.34
CYM 07-986	0.68	278.99	2.00	18.0	16.94	14.02	41.84	19.09
Standards								
Co A 06321	1.06	230.38	2.16	19.0	19.52	17.21	50.45	16.55
83R23	1.00	218.88	2.08	20.5	19.99	17.40	48.43	18.32
CoA92081	1.11	231.89	2.22	19.0	21.06	18.28	51.28	16.00

Entry	Cane yield at 330 days(t/ha)	Tiller mortality(%)	Leaf area(m^2)		Relative Water Content			Leaf water potential
			Before imposition of drought	After withdrawing the drought	Before water stress	During water stress	after water stress	
BM 1022173	67.045	11.19	1.04	3.21	79.26	**NT**	80.82	**NT**
SA 04-472	74.82	7.52	1.36	3.52	76.36		80.45	
SA 04-496	60.25	6.65	2.03	4.22	75.39		81.21	
SA 04-409	74.67	12.76	1.78	3.82	82.81		86.81	
AS 04-1689	78.54	17.98	1.18	3.29	81.34		87.94	
AS 04-245	65.54	22.15	0.58	2.55	74.16		87.65	
AS 04-2097	87.74	19.46	0.78	2.73	70.36		83.34	
AS 04-635	80.02	20.52	0.71	2.66	79.42		82.26	
AS 04-1687	66.66	16.83	0.61	2.37	73.99		83.45	
MA 5/5	74.31	18.51	0.93	3.12	80.53		87.48	
MA 5/37	58.54	14.61	1.35	3.43	83.36		78.35	
GU 07-3849	77.02	13.65	0.71	2.61	85.42		86.75	
GU 07-3774	59.69	19.27	0.56	2.41	81.26		82.77	
GU 07-2276	71.91	16.20	1.58	3.37	76.63		85.79	
CYM 07-986	71.25	15.69	0.61	2.67	83.82		85.22	
Standards								
Co A 06321	96.21	12.59	2.23	4.46	76.41		87.29	
83R23	76.38	6.77	1.15	3.56	79.86		85.82	
CoA92081	83.95	7.76	1.33	3.89	81.36		84.74	

Table:15. Mean data for Evaluation and identification of climate resilient ISH and IGH genetic stocks (Drought conditions)

Entry	No. of Tillers (000'/ha)		No. of shoots (000'/ha)				Leaf rolling at sunrise during water stress
	90 days	120 days	150 days	180 days	240 days	330 days	
BM 1022173	85.18	93.98	85.65	79.16	76.39	74.08	**NT**
SA 04-472	81.02	92.59	85.65	82.41	79.64	76.39	
SA 04-496	79.63	89.36	77.78	75.93	74.07	72.22	
SA 04-409	87.96	97.69	89.82	89.82	86.57	81.03	
AS 04-1689	140.275	142.14	132.41	125.46	114.82	108.33	
AS 04-245	145.37	150.93	140.74	132.41	124.07	109.26	
AS 04-2097	139.82	142.59	134.26	124.07	116.67	110.65	
AS 04-635	128.71	135.65	124.54	115.74	107.87	101.86	
AS 04-1687	84.72	93.52	86.57	80.09	77.32	75.93	
MA 5/5	56.95	73.62	66.66	61.57	60.65	58.79	
MA 5/37	71.76	78.71	70.84	67.59	65.75	63.89	
GU 07-3849	89.82	100.93	92.59	87.04	82.41	81.02	
GU 07-3774	132.87	139.82	128.25	121.29	114.82	106.48	
GU 07-2276	114.82	120.37	112.96	107.41	101.856	95.37	
CYM 07-986	136.57	139.36	128.24	118.98	111.58	106.95	
Standards							
Co A 06321	105.09	112.96	104.63	100.46	98.63	93.06	
83R23	78.71	86.11	79.63	79.17	77.78	72.68	
CoA92081	81.95	88.89	83.79	83.80	81.95	78.24	

Entry	Data at 330 days							
	Single cane weight(kg)	**Cane length(cm)**	**Cane diameter(cm)**	**Number of internodes**	**Juice Brix %**	**Juice sucrose %**	**Extraction %**	**cane fibre %**
BM 1022173	0.96	265.82	2.13	19.0	16.26	12.38	46.05	17.08
SA 04-472	0.86	231.85	2.15	20.0	18.02	15.01	48.00	18.84
SA 04-496	0.82	236.80	1.77	18.5	19.09	16.41	44.38	18.69
SA 04-409	0.90	224.76	1.99	22.5	19.23	16.28	47.76	18.01
AS 04-1689	0.81	220.35	1.89	20.5	13.96	11.23	44.76	17.91
AS 04-245	0.52	232.23	1.99	19.0	15.63	13.05	46.75	17.08
AS 04-2097	0.80	191.78	1.61	18.5	14.95	11.99	47.70	19.72
AS 04-635	0.78	197.25	1.75	19.5	14.96	12.01	46.82	19.66
AS 04-1687	0.85	233.13	1.59	20.0	15.01	12.09	43.93	19.87
MA 5/5	0.82	229.13	1.58	19.5	17.89	15.32	44.04	18.60
MA 5/37	0.92	221.70	1.70	19.0	18.212	14.93	44.32	18.95
GU 07-3849	0.79	220.79	1.52	19.5	18.20	15.36	47.83	19.91
GU 07-3774	0.58	233.60	1.64	18.5	15.34	12.10	46.93	19.39
GU 07-2276	0.74	248.16	1.82	20.5	17.95	14.75	46.82	19.43
CYM 07-986	0.70	264.46	1.88	18.5	16.25	13.23	42.83	19.88
Standards								
Co A 06321	0.98	228.36	2.06	18.5	19.57	16.79	48.06	16.31
83R23	1.00	216.87	2.00	19.5	20.15	17.96	47.78	17.82
CoA92081	0.89	221.95	2.16	18.0	20.69	18.23	51.83	15.92

Entry	Cane yield at 330 days(t/ha)	Tiller mortality (%)	Leaf area(m^2)		Relative Water Content			Leaf water potential
			Before imposition of drought	After withdrawing the drought	Before water stress	During water stress	after water stress	
BM 1022173	70.94	13.50	0.90	2.96	76.77	**NT**	70.04	**NT**
SA 04-472	65.48	9.62	1.28	3.26	76.44		67.32	
SA 04-496	58.81	7.13	1.86	3.99	74.52		68.52	
SA 04-409	72.48	9.32	1.75	3.56	81.14		72.99	
AS 04-1689	87.69	18.16	0.97	3.01	79.42		70.51	
AS 04-245	56.77	22.35	0.70	2.19	74.92		67.58	
AS 04-2097	88.42	17.39	0.76	2.49	72.11		67.06	
AS 04-635	79.63	17.97	0.73	2.50	77.74		68.96	
AS 04-1687	65.28	11.68	0.65	2.21	71.61		64.82	
MA 5/5	48.38	11.88	0.86	2.81	75.27		70.09	
MA 5/37	58.84	9.83	1.22	3.27	80.96		71.91	
GU 07-3849	65.07	12.30	0.70	2.38	80.54		72.83	
GU 07-3774	61.94	16.87	0.56	2.25	79.48		73.66	
GU 07-2276	69.55	15.40	1.45	3.16	73.89		66.26	
CYM 07-986	74.85	16.60	0.56	2.42	81.41		73.65	
Standards								
Co A 06321	92.85	10.73	2.16	4.26	77.61		70.72	
83R23	76.33	4.19	1.15	3.38	75.49		70.61	
CoA92081	70.10	6.48	1.20	3.65	77.77		71.01	

NT : Not taken

ANNEXURE – I

Progress of fluff supply programme from 2000-01 to 2016-17 at RARS; Anakapalle

Year	Quantity of fluff received (g)	No.of crosses/GCs/PCs studied			No. of seedlings			No. of genotypes selected/evaluated in			C_3 PYT	No. of clones promoted to yield trials
		Crosses	GCs	PCs	Transplanted	Survived	% Survival	Seedling nursery (C_0)	Settling Nursery (C_1)	Selection nursery (C_2)		
2000-01	1,136.98	23	12	-	3,332	2,735	82.08	103	86/318	16/58	10/12	Early-5 Midlate-5
2001-02	2,804.70	47	25	7	13,711	10,226	74.58	252	20/101	20/86	8/16	Early-4 Midlate-4
2002-03	2,719.50	34	24	8	22,303	11,245	50.42	315	38/252	11/20	9/20	Early-6 Midlate-3
2003-04	1,329.00	23	21	11	11,869	7,590	63.95	131	62/315	16/38	6/11	Early-3 Midlate-3
2004-05	1698.90	24	42	5	12389	9792	79.04	175	30/131	23/62	9/16	Early-6 Midlate-3
2005-06	1136.65	29	41	-	31235	12152	38.91	317	44/175	11/30	11/23	Early-6 Midlate-5
2006-07	1177.99	39	29	-	15424	11560	74.95	220	40/317	24/44	9/11	Early-5 Midlate-4
2007-08	1313.40	46	19	-	17311	13692	79.61	520	52/220	17/40	14/24	Early-5 Midlate-9
2008-09	1744.39	49	37	10	15005	9193	61.27	472	114/520	18/52	7/17	Early-7
2009-10	1102.70	42	19	4	9588	5260	54.86	519	66/472	23/114	7/18	Early-4 Midlate-3
2010-11	1748.77	40	35	12	14337	4537	31.65	321	100/519	21/66	15/23	Early-9 Midlate-6

2011-12	1941.22	54	38	12	16228	11620	71.60	357	91/321	41/100	12/21	Early-6 Midlate-6
2012-13	1142.99	30	23	13	14213	6250	43.97	369	104/357	25/91	12/41	Early-6 Midlate-6
2013-14	2144.50	39	44	11	9403	6888	73.25	355	93/369	22/104	14/25	Early-7 Midlate-7
2014-15	2074.50	41	24	12	11,336	8539	75.33	300	115/369	26/93	12/22	Early-6 Midlate-6
2015-16	2651.00	46	56	13	10,397	7,314	70.35	760	76/300	28/111	12/23	Early-6 Midlate-6
2016-17	1245.00	32	18	13	6965	5931	85.15	609	225/760	25/76	12/23	Early-6 Midlate-6

ANNEXURE – II

Meteriological Data during Crop Growth Period (2016 – 17) at RARS,Anakapalle

Momth and year	Temperature(ºC)		Relative humidity(%)		Rainfall(mm)	No. of rainy days
	Max.	Min.	Max.	Min.		
February,2016	33.2	23.1	91	47	0.0	0.0
March,2016	35.1	23.8	90	48	0.0	0.0
April,2016	36.4	27.6	84	51	0.0	0.0
May,2016	35.8	28.0	82	57	209.2	6
June,2016	33.4	27.4	88	69	186.4	9
July,2016	31.9	27.0	87	69	158.4	9
August,2016	33.2	27.3	85	63	182.0	10
September,2016	30.8	26.5	92	78	352.1	18
October,2016	31.8	24.6	85	55	183.4	7
November,2016	31.3	20.2	87	43	0.6	0
December,2016	30.5	19.0	86	44	0	0
January, 2017	31.1	16.4	80	41	0	0
Total/Mean	**32.87**	**24.24**	**86.42**	**55.42**	**1272.10**	**59**

ANNEXURE-III

Information for the entries accepted for inclusion into zonal varietal trials during the Biennial workshop of AICRP(S) held at VSI, Pune

S.No	Duration group	AICRP number	Station pedigree number	Parentage	Features
1	Early	**CoA16321**	2010A229	81V48GC	CCS(t/ha) at harvest: 15.67 CCS(%) at harvest:12.80 Cane yield(t/ha):123.73 NMC(‘ooo/ha) at harvest:110.03 Juice sucrose(%):17.94 Red rot reation(plug method): R,R ,R for Cf 04,06, 05 respectively
2	Midlate	**CoA16322**	2011A222	Co79218GC	CCS(t/ha) at harvest: 16.95 CCS(%) at harvest:14.27 Cane yield(t/ha):117.93 NMC(‘ooo/ha) at harvest:97.47 Juice sucrose(%):20.28 Red rot reation(plug method): MR,MR ,MS for Cf 04,06, 05 respectively