ALL INDIA CO-ORDINATED RESEARCH PROJECT ON SUGARCANE

CROP IMPROVEMENT

Technical programme for the year 2021-22
East Coast Zone

B II - ZONAL VARIETAL TRIALS

Centres (5): Anakapalle, Cuddalore, Nayagarh, Nellikuppam and Vuyyuru

1. Initial Varietal Trial (Early)

Entries (5)	:	CoA19321, CoC19336, CoC19337, CoV19356, CoV19357
Standards (3)	:	CoA92081,CoC01061, CoA11321
Design	:	Randomized Block Design
Replications	:	Three
Plot size	:	Gross :6.0 m x 6r x 0.90 m Net :5.0 m x 4r x 0.90 m
Seed rate	:	12 buds per meter
Date of planting	:	1st fortnight of January
Crop duration	:	10 months
Data to be recorded	:	As per Annexure - I

2. Advanced Varietal Trial (Early) I Plant

Entries (3)	:	CoV18356,CoV18357,CoOr18346
Standards (3)	:	CoA92081,CoC01061andCoOr03151
Design	:	Randomized Block Design
Replications	:	Four
Plot size	:	Gross : 6.0 m x 8r x 0.9 m Net :5.0 m x 6r x 0.9 m
Seed rate	:	12 buds per meter
Date of planting	:	1st fortnight of January
Crop duration	:	10 months
Data to be recorded	:	As per Annexure - I

3. Advanced Varietal Trial (Early) – II Plant

Entries (3)	:	CoA17321,CoA17323,CoC17336
Standards (3)	:	CoA92081,CoC01061,CoOr03151
Design	:	Randomized Block Design
Replications	:	Three
Plot size	:	Gross : 6.0 m x 8r x 0.9 m Net : 5.0 m x 6r x 0.9 m
Seed rate	:	12 buds per meter
Date of planting	:	1st fortnight of January
Crop duration	:	10 months
Data to be recorded	:	As per Annexure - I

4. Advanced Varietal Trial (Early) – Ratoon

Entries (3)	:	CoA17321,CoA17323,CoC17336
Standards (3)	:	CoA92081,CoC01061,CoOr03151
Design	:	Randomized Block Design
Replications	:	Three
Plot size	:	Gross : 6.0 m x 8r x 0.9 m Net : 5.0 m x 6r x 0.9 m
Date of ratooning	:	After harvest of the crop
Crop duration	:	9 months
Data to be recorded	:	As per Annexure - II

5. Initial Varietal Trial (Midlate)

Entries (6)	:	CoV18358,CoA19322,CoC19338,CoC19339, CoV19358,CoV19359
Standards (3)	:	CoV92102,Co86249,Co06030
Design	:	Randomized Block Design
Replications	:	Three
Plot size	:	Gross : 6.0 m x 8r x 0.9 m Net : 5.0 m x 6r x 0.9 m
Seed rate	:	12 buds per meter
Date of planting	:	2nd fortnight of November to end of December
Crop duration	:	12 months
Data to be recorded	:	As per Annexure - III

Seed multiplication of new entries

The following entries were accepted during the biennial workshop of AICRP(S) held atICAR-IISR, Lucknow during OCT, 2020 The concerned breeders are requested to supply seed material to all the centres of the zone for one-year multiplication. Breeders of all the centres of the zone may please ensure that seed material of new entries is received well in time for planting.

Early (9) : Co11015,Co09004,Co14002,CoA20321,CoA20322,CoA20323,CoA20324,CoC20336,CoC20337

Midlate (7): Co15021,CoA20325,CoA20326,CoA20327,CoC20338,CoC20339, CoOr20346

B.III - Evaluation and identification of climate resilient ISH and IGH genetic stocks

B.III (b) Evaluation and identification of climate resilient near commercial clones
(i) Evaluation for drought tolerance (I Plant Crop)

Centres (3): Sankeshwar, Anakapalle, Lucknow

Entries (13)	:	Co09022,Co12029,Co13034,Co14034,Co15023, Co15024,Co15026,Co15027,CoLk14203,CoLk15204,CoLk15206,CoLk15207,CoS08279
Standards (3)	:	Sankeshwar:CoM88121, CoM0265 and one more local check. Anakapalle:CoA06231, 83R23 and one more local check. Lucknow:CoJ88, Co98014 and one more local check.
Design	:	Alpha design (please refer layout plan annexed)
Replications	:	Two
Plot Size	:	6m X 2r X 1.2 m
Seed rate	:	12 buds per meter
Planting date	:	Sankeshwar, Anakapalle : 2nd fortnight of Dec to 1st fortnight of Jan Lucknow : 2nd fortnight of February
Crop Duration	:	12 months

Data to be recorded

i. Germination at 30 days for tropical region and 45 days for subtropical region.
ii. Tillers count at 90 and 120 days
iii. Shoot count at 150, 180, 240 and 360 days
iv. Single cane weight, Cane length, Cane diameter, Number of internodes, Juice Brix %, Juice sucrose %, Extraction %, cane fibre % at 300 days
v. Single cane weight, Cane length, Cane diameter, Number of internodes, Juice Brix %, Juice sucrose %, Extraction %, cane fibre % at 360 days
vi. Cane yield at 360 days
vii. Tiller mortality (Max number of shoots-NMC at harvest) X 100/ Max number of shoots
viii. Leaf area before imposition of drought and after withdrawing the drought
ix. Estimation of Relative Water Content (Three times – Before, during and after water stress)
x. Leaf water potential (If facility available)
xi. Leaf rolling at sunrise during water stress

Soil analysis:

i. Field Capacity and Permanent Wilting Point of the field (before commencing the experiment)
ii. Soil moisture content by gravimetric method once in a month at 0-15 and 15-30 cm soil depths. Three samples each in control and treatment plots should be taken.

Weather data:
Rainfall**,** Maximum and minimum temperature, RH, Wind velocity and Open Pan Evaporation

Imposition of drought:

Withdraw irrigation between 60 – 150 days after planting in drought treatment plot

Layout plan for Evaluation and identification of climate resilient commercial clones for drought tolerance

Randomized Layout

Normal condition:

	Replication 1							
Block 1	3	7	15	11	13	5	9	1
Block 2	6	14	4	2	12	16	10	8

	Replication 2							
Block 1	9	5	2	12	8	13	3	16
Block 2	11	1	10	6	4	7	15	14

Drought condition:

	Replication 1							
Block 1	10	6	15	4	14	1	11	7
Block 2	5	8	12	2	3	13	9	16

	Replication 2							
Block 1	15	9	13	1	7	11	3	5
Block 2	8	14	4	6	2	12	10	16

Name of the near commercial clones and serial numbers:

S. No	Clone	S.No	Clone
1	Co 09022	9	CoLk 14203
2	Co 12029	10	CoLk 15204
3	Co 13034	11	CoLk 15206
4	Co 14034	12	CoLk 15207
5	Co 15023	13	CoS 08279
6	Co 15024	14	**Check 1**
7	Co 15026	15	**Check 2**
8	Co 15027	16	**Check 3**

Note : In case one or two entries are missing due to unavailability of seed material, additional checks (other than Check 1,2,3) may be taken.

Annexure-I

ALL INDIA COORDINATED RESEARCH PROJECT ON SUGARCANE

Characters on which data to be recorded in Initial Varietal Trial (IVT) and Advance Varietal Trial (AVT) in Early(Plant crop)

1. Germination % at 30 days for tropics and 45 days for sub-tropics
2. No. of tillers (thousand/ha) at 120 days
3. No. of shoots (thousand/ha) at 240 days
4. Cane yield (t/ha) after 10 months at harvest
5. Number of millable canes (thousand/ha) after10 months at harvest
6. Stalk length (cm) after 10 months at harvest
7. Stalk diameter (cm) after 10 months at harvest
8. Single cane weight (kg) after 10 months at harvest
9. Brix % at 8 and 10 months
10. Sucrose % in juice at 8 and 10 months
11. Purity % at 8 and 10 months
12. CCS % at 8 and 10 months
13. CCS t/ha after 10 months at harvest
14. Extraction % after 10 months at harvest
15. Fibre% after 10 months at harvest
16. Pol % cane after 10 months at harvest
17. Jaggery quality after 10 months at harvest (if facility available)
18. Jaggery yield (t/ha) after 10 months at harvest (if facility available)

Morphological characters

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

Annexure-II

ALL INDIA COORDINATED RESEARCH PROJECT ON SUGARCANE

Characters on which data to be recorded in AVT (Early – Ratoon)

Note : 1. No gap filling should be done.

2. Ratooning operation should be completed within 15 days after harvesting plant crop.

1. Number of tillers (thousand/ha) before giving full earthing up (90 days)
2. Number of cane formed tillers (thousand/ha) after 180 days
3. Number of millable canes (thousand/ha) after 270 days at harvest
4. Cane yield (t/ha) after 270 days at harvest
5. Stalk length (cm) after 270 days at harvest
6. Stalk diameter (cm) after 270 days at harvest
7. Single cane weight (kg) after 270 days at harvest
8. Brix % after 270 days at harvest
9. Sucrose % in juice after 270 days at harvest
10. Purity % after 270 days at harvest
11. CCS % after 270 days at harvest
12. CCS t/ha after 270 days at harvest
13. Extraction % after 270 days at harvest
14. Fibre % after 270 days at harvest
15. Pol % cane after 270 days at harvest
16. Jaggery quality after 270 days at harvest (if facility available)
17. Jaggery yield (t/ha) after 270 days at harvest (if facility available)

Annexure-III

ALL INDIA COORDINATED RESEARCH PROJECT ON SUGARCANE

Characters on which data to be recorded in IVT and AVT (Midlate –Plant crops)

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

Morphological characters

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

Annexure-III

ALL INDIA COORDINATED RESEARCH PROJECT ON SUGARCANE

Characters on which data to be recorded in AVT (Midlate –Ratoon crop)

Note : 1. No gap filling should be done.

2. Ratooning operation should be completed within 15 days after harvesting plant crop.

1. Number of tillers (thousand/ha) before giving full earthing up (90 days)
2. Number of cane formed tillers (thousand/ha) after 180 days
3. Number of millable canes (thousand/ha) after 330 days at harvest
4. Cane yield (t/ha) after 330 days at harvest
5. Stalk length (cm) after 330 days at harvest
6. Stalk diameter (cm) after 330 days at harvest
7. Single cane weight (kg) after 330 days at harvest
8. Brix % after 330 days at harvest
9. Sucrose % in juice after 330 days at harvest
10. Purity % after 330 days at harvest
11. CCS % after 330 days at harvest
12. CCS t/ha after 330 days at harvest
13. Extraction % after 330 days at harvest
14. Fibre % after 330 days at harvest
15. Pol % cane after 330 days at harvest
16. Jaggery quality after 330 days at harvest (if facility available)
17. Jaggery yield (t/ha) after 330 days at harvest (if facility available)