

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

**Technical Programme for the year 2019-20
North West Zone**

B. II - Zonal Varietal Trial

Centres (10) : Faridkot, Karnal, Kota, Lucknow, Kapurthala, Muzaffarnagar, Pantnagar, Shahjahanpur, Sriganaganar and Uchani

1. Initial Varietal Trial (Early)

Entries (9) : Co 15025, Co 16029, CoLk 16201, CoLk 16202, CoPb 16211, CoPb 16181, CoPant 16221, CoPant 16222, CoS 16231

Standard (3) : CoJ 64, Co 0238 and Co 05009

Design : Randomized Block Design

Replications : Three

Plot size : Gross : 6m x 6r x 0.90m
Net : 5m x 4r x 0.90m

Seed rate : 12 buds per meter

Date of planting : February- March

Time of Harvest : 2nd fortnight of January

Data to be recorded : As per Annexure I

2. Advanced Varietal Trial (Early) – I Plant

Entries (6) : Co 15023, Co 15024, Co 15027, CoLk 15201, CoLk 15205, CoPb 15212

Standard (3) : CoJ 64, Co 0238, Co 05009

Design : Randomized Block Design

Replications : Three

Plot size : Gross : 6m x 8r x 0.90m
Net : 5m x 6r x 0.90m

Seed rate : 12 buds per meter

Date of planting : February- March

Time of Harvest : 2nd fortnight of January

Data to be recorded : As per Annexure I

3. Advanced Varietal Trial (Early) – II Plant

Entries (4)	:	Co 14034, CoLk 14201, CoPb 14181, CoPb 14211
Standard (3)	:	CoJ 64, Co 0238, Co 05009
Design	:	Randomized Block Design
Replications	:	Three
Plot size	:	Gross : 6m x 8r x 0.90m Net : 5m x 6r x 0.90m
Seed rate	:	12 buds per meter
Date of planting	:	February- March
Time of Harvest	:	2 nd fortnight of January
Data to be recorded	:	As per Annexure I

4. Advanced Varietal Trial (Early) - Ratoon

Entries (4)	:	Co 14034, CoLk 14201, CoPb 14181, CoPb 14211
Standard (3)	:	CoJ 64, Co 0238 and Co 05009
Design	:	Randomized Block Design
Replications	:	Three
Plot size	:	Gross : 6m x 8r x 0.90m Net : 5m x 6r x 0.90m
Date of ratooning	:	After harvest of plant crop
Time of Harvest	:	2 nd fortnight of December
Data to be recorded	:	As per Annexure II

5. Initial Varietal Trial (Midlate)

Entries (7)	:	Co 16030, CoLK 16203, CoLk 16204, CoPb 16212, CoPant 16223, CoS 16232, CoS 16233
Standard (3)	:	CoS 767, CoPant 97222, Co 05011
Design	:	Randomized Block Design
Replications	:	Three
Plot size	:	Gross : 6m x 6r x 0.90m Net : 5m x 4r x 0.90m
Seed rate	:	12 buds per meter
Date of planting	:	February- March
Time of Harvest	:	2 nd fortnight of March
Data to be recorded	:	As per Annexure III

6. Advanced Varietal Trial (Midlate) – I Plant

Entries (7)	:	Co 15026, CoLk 15206, CoLk 15207, CoLk 15209, CoPb 15213, CoS 15232, CoS 15233
Standard (3)	:	CoS 767, CoPant 97222, Co 05011
Design	:	Randomized Block Design
Replications	:	Three
Plot size	:	Gross : 6m x 8r x 0.90m Net : 5m x 6r x 0.90m
Seed rate	:	12 buds per meter
Date of planting	:	February- March
Time of Harvest	:	2 nd fortnight of March
Data to be recorded	:	As per Annexure III

7. Advanced Varietal Trial (Midlate) – II Plant

Entries (7)	Co 14035, CoH 14261, CoLk 14203, CoLk 14204, CoPb 14184, CoPb 14185, CoS 14233
Standard (3)	: CoS 767, CoPant 97222, Co 05011
Design	: Randomized Block Design
Replications	: Three
Plot size	: Gross : 6m x 8r x 0.90m Net : 5m x 6r x 0.90m
Seed rate	: 12 buds per meter
Date of planting	: February- March
Time of Harvest	: 2 nd fortnight of March
Data to be recorded	: As per Annexure III

8. Advanced Varietal Trial (Midlate) – Ratoon

Entries (7)	: Co 14035, CoH 14261, CoLk 14203, CoLk 14204, CoPb 14184, CoPb 14185, CoS 14233
Standard (3)	: CoS 767, CoPant 97222, Co 05011
Design	: Randomized Block Design
Replications	: Three
Plot size	: Gross : 6m x 8r x 0.90m Net : 5m x 6r x 0.90m
Date of ratooning	: After harvest of plant crop
Time of Harvest	: 2 nd fortnight of February
Data to be recorded	: As per Annexure IV

9. SEED MULTIPLICATION

(i) Multiplication of pre-zonal entries for seed lifting

The following entries accepted during the group meeting of AICRP(S) held at TNAU, Coimbatore in 2017 are under multiplication at ICAR-SBI Regional Centre, Karnal. On prior intimation, the participating centres should depute their staff to the Karnal centre and lift the seed material for one year multiplication at their centres :

Early (9) : CoLk 15202, CoLk 17201, CoLk 17202, CoLk 17203, CoPb 17211, CoPb 17212, CoPant 17221, CoS 17231, CoS 17232

Midlate (15) : CoLk 17204, CoLk 17205, CoPb 17213, CoPb 17214, CoPb 17215, CoPant 17223, CoPant 17224, CoS 17233, CoS 17234, CoS 17235, CoS 17236, CoS 17237, CoH 17261, CoH 17262, Co 17018

10. Seed multiplication of new entries

The following entries were accepted during the biennial workshop of AICRP(S) held at UAS, Bengaluru during 2018. The concerned breeders are requested to supply seed material of their entries for one year multiplication at Sugarcane Research Station, Muzaffarnagar (UPCSR) seed multiplication centre.

Early (7) : CoPb 18181, CoPb 18182, CoLk 18201, CoLk 18202, CoPb 18211, CoPb 18212, CoPant 18221

Midlate (11) : Co 18021, Co 18022, CoLk 18203, CoLk 18204, CoPb 18213, CoPb 18214, CoPant 18221, CoS 18231, CoS 18232, CoS 18233, CoS 18234

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

a) Seed multiplication of ISH/IGH clones:

The following 30 entries of ISH and IGH Clones will be multiplied at three centres for evaluating the drought (Lucknow and Karnal) and waterlogging (Pantnagar) tolerance

ISH 501, ISH 502, ISH 512, ISH 513, ISH 516, ISH 519, ISH 524, ISH 526, ISH 528, ISH 534, ISH 535, ISH 536, ISH 542, ISH 545, ISH 548, ISH 554, ISH 558, ISH 564, ISH 567, ISH 584, ISH 585, ISH 587, ISH 590, ISH 594, IGH 806, IGH 816, IGH 823, IGH 829, IGH 833, IGH 834

b) Seed multiplication of commercial clones: Drought tolerance

Participating centre: Lucknow

The following 12 commercial clones are under multiplication at ICAR - Sugarcane Breeding Institute, Coimbatore and ICAR-Indian Institute of Sugarcane Research, Lucknow during the year 2018-19. The participating centre should depute their staff to lift the material to ICAR-SBI, Coimbatore for one year multiplication during the year 2019-20.

S.No	Clone	S.No	Clone
1	Co 09022	7	Co 15026
2	Co 12029	8	Co 15027
3	Co 13034	9	CoLk 14203
4	Co 14034	10	CoLk 15204
5	Co 15023	11	CoLk 15206
6	Co 15024	12	CoLk 15207

c) Seed multiplication of commercial clones: Waterlogging tolerance

Participating centre: Pantnagar

The following 18 commercial clones are under multiplication at ICAR - Sugarcane Breeding Institute, Coimbatore. The participating centre should depute their staff to lift the material to ICAR-SBI, Coimbatore for one year multiplication during the year 2019-20.

S.No	Clone	S.No	Clone
1	96 WL 1206	10	WL 10-18
2	WL 10-20	11	WL 10-83
3	99 WL 1028	12	WL 10-105
4	WL 09-965	13	WL 11-2263
5	WL 09-678	14	WL 11-2534
6	WL 10-24	15	WL 12-509
7	WL 10-62	16	WL 12-182
8	WL 10-3	17	WL 12-300
9	WL 10-85	18	Co 99006

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) after 10 months at harvest
6. Stalk length (cm) after 10 months at harvest
7. Stalk diameter (cm) after 10 months at harvest
8. Single cane weight (kg) after 10 months at harvest
9. Brix %, Sucrose %, Purity % and CCS % - 2nd fortnight of November and January
10. CCS t/ha after 10 months at harvest
11. Extraction % after 10 months at harvest
12. Fibre % after 10 months at harvest
13. Pol % cane after 10 months at harvest
14. Jaggery quality after 10 months at harvest (if facility available)
15. 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

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

- Note :**
1. No gap filling should be done.
 2. Ratooning operation should be completed within 15 days after harvesting plant crop.
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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 %, Sucrose %, Purity % and CCS % - 2nd fortnight of December
 9. CCS t/ha after 270 days at harvest
 10. Extraction % after 270 days at harvest
 11. Fibre % after 270 days at harvest
 12. Pol % cane after 270 days at harvest
 13. Jaggery quality after 270 days at harvest (if facility available)
 14. Jaggery yield (t/ha) after 270 days at harvest (if facility available)

ALL INDIA COORDINATED RESEARCH PROJECT ON SUGARCANE

**Characters on which data to be recorded in Initial Varietal Trial (IVT)
and Advance Varietal Trial (AVT) in Midlate (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 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 %, Sucrose %, Purity % and CCS % - 2nd fortnight January and March
10. CCS t/ha after 12 months at harvest
11. Extraction % after 12 months at harvest
12. Fibre % after 12 months at harvest
13. Pol % cane after 12 months at harvest
14. Jaggery quality after 12 months at harvest (if facility available)
15. Jaggery yield (t/ha) after 12 months at harvest (if facility available)

Morphological characters

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

ALL INDIA COORDINATED RESEARCH PROJECT ON SUGARCANE

Characters on which data to be recorded in 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.
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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 %, Sucrose %, Purity % and CCS % - 2nd fortnight of February
 9. CCS (t/ha) after 330 days at harvest
 10. Extraction % after 330 days at harvest
 11. Fibre % after 330 days at harvest
 12. Pol % cane after 330 days at harvest
 13. Jaggery quality after 330 days at harvest (if facility available)
 14. Jaggery yield (t/ha) after 330 days at harvest (if facility available)