

# ALL INDIA CO-ORDINATED RESEARCH PROJECT ON SUGARCANE

## CROP IMPROVEMENT

### Technical Programme for the year 2019-20 North Central & East Zones

#### B. II - Zonal Varietal Trial

Centres (6): Bethuadahari, Buralikson, Gorakhpur, Motipur, Pusa and Seorahi

##### 1. Initial varietal Trial (Early)

Entries (8)	:	CoP 16436, CoP 16437, CoP 16438, CoLk 16466, CoLk 16467, CoLk 16468, CoSe 16451, CoBln 16501
Standards (3)	:	CoLk 94184, CoSe 95422, CoSe 01421
Experimental 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/meter
Date of planting	:	February-March
Crop duration	:	10 months
Data to be recorded	:	As per Annexure I

##### 2. Advanced varietal Trial (Early) I plant

Entries (5)	:	CoLk 15466, CoLk 15467, CoP 15436, CoSe 15452, CoSe 15455
Standard (3)	:	CoLk 94184 , CoSe 95422, CoSe 01421
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
Crop duration	:	10 months
Data to be recorded	:	As per Annexure I

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

Entries (4)	:	CoLk 14206, CoP 14437, CoSe 14451, CoSe 14454
Standard (3)	:	CoLk 94184 , CoSe 95422, CoSe 01421
Design	:	Randomized Block Design
Replications	:	Three
Plot size	:	Gross : 6m x 8r x 0.75m Net : 5m x 6r x 0.75m
Seed rate	:	12 buds per meter
Date of planting	:	February- March
Crop duration	:	10 months
Data to be recorded	:	As per Annexure I

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

Entries (4)	:	CoLk 14206, CoP 14437, CoSe 14451, CoSe 14454
Standard (3)	:	CoLk 94184 , CoSe 95422, CoSe 01421
Design	:	Randomized Block Design
Replications	:	Three
Plot size	:	Gross : 6m x 8r x 0.75m Net : 5m x 6r x 0.75m
Date of Ratooning	:	February- March
Crop duration	:	9 months
Data to be recorded	:	As per Annexure II

### **5. Initial Varietal trial (Midlate)**

Entries (9)	:	CoP 16439, CoP 16440, BO 156, CoLk 16469, CoLk 16470, CoLk 16471, CoSe 16452, CoSe 16453, CoBln 16502
Standards (3)	:	BO 91, CoP 9301, CoP 06436
Experimental 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/meter
Date of planting	:	February-March
Crop duration	:	12 Months
Data to be recorded	:	As per Annexure III

### **6. Advanced Varietal Trial (Midlate) – I Plant**

Entries (7)	:	CoLk 15468, CoLk 15469, CoP 15438, CoP 15439, CoP 15440, CoSe 15453 and CoSe 15454
Standard (3)	:	BO 91, CoP 06436, CoP 9301
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
Crop duration	:	12 months
Data to be recorded	:	As per Annexure III

### **7. Advanced Varietal Trial (Midlate) – II Plant**

Entries (5)	:	CoLk 14208, CoLk 14209, CoP 14438, CoP 14439, CoSe 14455
Standard (3)	:	BO 91, CoP 06436, CoP 9301
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
Crop duration	:	12 months
Data to be recorded	:	As per Annexure III

### **8. Advanced Varietal Trial (Midlate) Ratoon**

Entries (5)	:	CoLk 14208, CoLk 14209, CoP 14438, CoP 14439, CoSe 14455
Standard (3)	:	BO 91, CoP 06436, CoP 9301
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	:	February- March
Crop duration	:	11 months
Data to be recorded	:	As per Annexure IV

## **SEED MULTIPLICATION**

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

The following entries accepted during the group meeting of AICRP(S) held at Coimbatore during 2017 are under multiplication at SRI, Pusa. On prior intimation, the coordinating centres should depute their staff to SRI, Pusa and lift the seed material for one year multiplication at their centres.

**Early (8)** CoSe 16454, CoP 17436, CoP 17437, CoP 17438, CoP 17440, CoP 17441, CoSe 17451, CoBln 17501

**Midlate (6)** :CoSe 16455, CoSe 16456 CoP 17444, CoP 17446, CoSe 17452, CoBln 17502

### **(ii) New entries accepted:**

The following entries were accepted during the biennial workshop of AICRP(S) held at UAS, Bengaluru in 2018. The concerned breeders are requested to supply seed material of their entries for one-year multiplication at S.R.I., Pusa centre.

**Early (5)** : CoP 18436, CoP 18437, CoP 18438, CoSe 18451, CoSe 18452

**Midlate (1)** : CoSe 18453

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

### **a) Seed multiplication of ISH/IGH clones : Water logging tolerance**

The following 30 entries of ISH and IGH Clones will be multiplied at two centres (Pusa and Motipur)

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

### **c) Seed multiplication of commercial clones: Waterlogging tolerance**

Participating centre: Motipur and Pusa

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

<b>S.No</b>	<b>Clone</b>	<b>S.No</b>	<b>Clone</b>
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 IVT and AVT Early (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 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 % 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

**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.
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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 % 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)



**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

**ALL INDIA COORDINATED RESEARCH PROJECT ON SUGARCANE**

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