

**All India Coordinated Research Project on Sugarcane
CROP IMPROVEMENT**

**Technical Programme for the year 2017-2018
Peninsular Zone**

B. II - Zonal Varietal Trial

Centres(18): Akola, Basmathnagar, Coimbatore, Kolhapur, Mandya, Navsari, Padegaon, Perumalapalle, Powarkheda, Pravaranagar, Pune, Pugalur, Kawardha (Raipur), Rudrur, Sameerwadi, Sankeshwar, Sirugamani and Thiruvalla.

1. Initial Varietal Trial

- Entries (37) : Co 14002, Co 14003, Co 14004, Co 14006, CoN 14071, CoN14072, CoSnk 14101, CoSnk 14102, CoT 14366, CoT 14367, MS 14081, MS 14082, Co 13021, Co 13022, Co 14008, Co 14009, Co 14012, Co 14016, Co 14022, Co 14023, Co 14025, Co 14026, Co 14027, Co 14030, Co 14031, Co 14032, CoN 14073, CoN 14074, CoSnk 14103, CoTI14111, CoTI 14112, CoVC14061, CoVC 14062, PI 14131, PI 14132, VSI 14121, VSI 14122
- Standards (3) : Co 86032, CoC 671 and CoSnk 05103
- Design : Alpha design (Filed layout enclosed)
- Replications : Two
- Plot size : Gross: 6m x 6r x 1.2 m
Net : 5m x 4r x 1.2 m
- Seed rate : 12 buds per metre
- Planting date : IInd fortnight of December to Ist fortnight of January
- Crop duration : 12 months
- Data to be recorded : As per Annexure -

2. Advanced Varietal Trial – I Plant

Entries (8)	:	Co 12007, Co 12008, Co 12009, Co 12012, Co 12019, Co 12024, CoM 12085 and VSI 12121
Standards (3)	:	Co 86032, CoC 671 and CoSnk 05103
Design	:	Randomized Block Design
Replications	:	Three
Plot size	:	Gross: 6m x 8r x 1.2 m Net : 5m x 6r x 1.2 m
Seed rate	:	12 buds per metre
Planting date	:	II nd fortnight of December to I st fortnight of January
Crop duration	:	12 months
Data to be recorded	:	As per Annexure – I

3. Advanced Varietal Trial (Early) – II Plant

Entries (5)	:	Co 11001, Co 11004, CoM 11081, CoM 11082 and CoM 11084
Standards (3)	:	Co 85004, Co 94008 and CoC 671
Design	:	Randomized Block Design
Replications	:	Three
Plot size	:	Gross: 6m x 8r x 1.2 m Net : 5m x 6r x 1.2 m
Seed rate	:	12 buds per metre
Planting date	:	1 st fortnight of January
Crop duration	:	10 months
Data to be recorded	:	As per Annexure – II

4. Advanced Varietal Trial (Early) – Ratoon

Entries (5)	:	Co 11001, Co 11004, CoM 11081, CoM 11082 and CoM 11084
Standards (3)	:	Co 85004, Co 94008 and CoC 671
Design	:	Randomized Block Design
Replications	:	Three
Plot size	:	Gross: 6m x 8r x 1.2 m Net : 5m x 6r x 1.2 m
Ratooning date	:	After harvest of AVT – I Plant
Crop duration	:	9 months
Data to be recorded	:	As per Annexure – III

5. Advanced Varietal Trial (Midlate) – II Plant

Entries (6)	:	Co 11005, Co 11007, Co 11012, Co 11019, CoM 11085 and CoM 11086
Standards (2)	:	Co 86032 and Co 99004
Design	:	Randomized Block Design
Replications	:	Three
Plot size	:	Gross : 6m x 8r x 1.2 m Net : 5m x 6r x 1.2 m
Seed rate	:	12 buds per metre
Planting date	:	2 nd fortnight of November to end of December
Crop duration	:	12 months
Data to be recorded	:	As per Annexure- IV

6. Advanced Varietal Trial (Midlate) – Ratoon

Entries (6)	:	Co 11005, Co 11007, Co 11012, Co 11019, CoM 11085 and CoM 11086
Standards (2)	:	Co 86032 and Co 99004
Design	:	Randomized Block Design
Replications	:	Three
Plot size	:	Gross : 6m x 8r x 1.2 m Net : 5m x 6r x 1.2 m
Ratooning date	:	After harvest of AVT Plant I
Crop duration	:	11 months
Data to be recorded	:	As per Annexure- V

SEED MULTIPLICATION

I. (i) Multiplication of IVT (2016-17) entries at the centres: The seed of the following entries will be multiplied at the centres during 2017-18 for inclusion in AVT-I Plant in 2018-19.

Early (8)	:	Co 13002, Co 13003, Co 13004, CoN 13071, CoN 13072, CoSnk 13101, CoSnk 13102 and MS 13081
Midlate (20)	:	Co 13005, Co 13006, Co 13008, Co 13009, Co 13011, Co 13013, Co 13014, Co 13016, Co 13018, Co 13020, CoM 13082, CoN 13073, CoN 13074, CoSnk 13103, CoSnk 13104, CoSnk 13105 , CoSnk 13106, CoT 13366, PI 13131 and PI 13132

II. Multiplication of pre-zonal entries for seed lifting.

The following entries accepted in the in the Group Meeting of AICRP(S) held at the Rajendra Agricultural University, Pusa (Bihar) in 2015 are under multiplication at ICAR-Sugarcane Breeding Institute, Coimbatore and Central Sugarcane Research Station, Padegaon. On prior intimation, the following centers should depute their staff and lift the material for one year multiplication in 2017-18:

ICAR- S.B.I, Coimbatore (Multiplication centre):

Mandya, Perumalapalle, Powarkheda, Pugalur, Rudrur, Sameerwadi, Sirugamani and Thiruvalla.

C S R S, Padegaon (Multiplication centre):

Akola, Basmathnagar, Kolhapur, Navsari, Pravaranagar, Pune, Raipur and Sankeshwar.

Early (8) : Co 14005, Co 15002, Co 15005, Co 15006, Co 15007, CoSnk 15101, CoSnk 15102 and CoVSI 15121

Midlate (18) : Co 15009, Co 15010, Co 15015, Co 15017, Co 15018, Co 15020, Co 15021, CoN 15071, CoN 15072, CoSnk 15103, CoSnk 15104, CoVC 15061, CoVC 15062, CoVC 15063, CoVC 15064, PI 15131, PI 15132 and VSI 15122.

III. Seed multiplication of new entries

The following entries were accepted in the workshop AICRP(S) held at the VSI, Pune in 2016. The concerned breeders are requested to supply two sets of seed material of the accepted entries; one set is to be sent to SBI, Coimbatore and the other set to CSRS, Padegaon for one year multiplication in 2017-18.

Entries (16): Co 16006, Co 11015, Co 16009, Co 16010, Co 16017, Co 16018, CoVC 16061, CoVC 16062, CoN 16071, CoM 16081, CoM 16082, CoVSI 16121, PI 16131, CoT 16366, CoR 16141, CoR 16142

LPHA DESIGN of thirty seven entries and three standards

(Total = 40) of IVT in Peninsular Zone (2017-18)

Number of Clones = 40, Number of blocks = 8, Replications = 2, k = 10,

A-Efficiency= 0.9286, D-Efficiency = 0.9707, $\alpha(0,1,2)$

Randomized Layout

REPLICATION 1										
Block 1	26	39	10	33	21	31	4	5	18	15
Block 2	8	38	14	36	24	25	17	3	30	9
Block 3	27	6	32	11	19	22	40	16	1	34
Block 4	20	2	28	12	13	35	7	29	37	23

REPLICATION 2										
Block 1	29	5	37	13	9	33	25	21	1	17
Block 2	27	11	3	23	7	39	19	35	15	31
Block 3	26	30	10	6	22	18	2	38	14	34
Block 4	36	4	24	28	40	32	8	16	20	12

Note : 1. Number in each plot is a clone number of trial along with three standard (38, 39 and 40)

2. Plot size as per the Peninsular Zone (Gross : 6m x 6r x 1.2m and Net : 5m x 4r x 1.2m)

1. DE - Lower bound to D-Efficiency

2. AE - Lower bound to A-Efficiency

3. $\alpha(\#, \#, \#)$ represents different concurrences of the treatments

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

(i) Evaluation for drought tolerance (II Plant Crop)

Centres (4): Padegaon, Anakapalle, Faridkot and Karnal

- Entries (27) : 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 (3) : Padegaon : CoM 88121, CoM 0265 and one more check.
Anakapalle : CoA 06231, 83 R 23 and one more check.
Faridkot : CoJ 88, Co 98014 and one more check.
Karnal : CoJ 88, Co 98014. and one more check.
- Design : Alpha design (please refer layout plan annexed)
- Replications : Two
- Plot Size : 6m X 2r X 0.90 m
- Seed rate : 12 buds per meter
- Planting date : Padegaon and Anakapalle : 1nd fortnight of February
Faridkot and Karnal : 2nd fortnight of February
- Crop Duration : 12 months
- Data to be recorded : As detailed below:
- 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 ISH and IGH genetic stocks for drought tolerance

Randomized Layout

Normal condition :

REPLICATION 1										
Block 1	24	27	1	30	17	13	5	11	8	21
Block 2	4	16	10	20	7	29	15	3	23	26
Block 3	6	19	14	12	22	18	25	28	9	2

REPLICATION 2										
Block 1	30	9	21	24	15	3	18	6	12	27
Block 2	26	23	14	8	29	11	2	17	20	5
Block 3	10	25	19	28	22	7	13	16	4	1

Droughtcondition :

REPLICATION 1										
Block 1	22	6	9	25	18	12	14	28	2	19
Block 2	20	4	3	7	16	29	10	26	23	15
Block 3	24	1	8	11	5	30	27	13	21	17

REPLICATION 2										
Block 1	7	25	16	22	1	10	13	4	19	28
Block 2	24	12	6	18	15	3	30	9	21	27
Block 3	2	8	14	29	23	26	11	17	20	5

Name of the clone and serial number :

S. No	Clone	S.No	Clone	S. No	Clone
1	BM 1003143	11	SA 04-390	21	MA 5/37
2	BM 1005149	12	SA 04-496	22	MA 5/99
3	BM 1009163	13	SA 04-409	23	MA 5/22
4	BM 1010168	14	AS 04-1689	24	GU 07-3849
5	BM 1022173	15	AS 04-245	25	GU 07-3774
6	PG 9869137	16	AS 04-2097	26	GU 07-2276
7	SA 98-13	17	AS 04-635	27	CYM 07-986
8	SA 04-454	18	AS 04-1687	28	Check 1
9	SA 04-472	19	MA 5/51	29	Check 2
10	SA 04-458	20	MA 5/5	30	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.

(ii) Evaluation for drought tolerance (Ratoon Crop)

Centres (4): Padegaon, Anakapalle, Faridkot and Karnal

Entries (27) : 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 (3) : Padegaon : CoM 88121, CoM 0265 and one more check.
Anakapalle : CoA 06231, 83 R 23 and one more check.
Faridkot : CoJ 88, Co 98014 and one more check.
Karnal : CoJ 88, Co 98014. and one more check.

Design : Alpha design (please refer layout plan annexed)

Replications : Two

Plot Size : 6m X 2r X 0.90 m

Ratooning date : Immediately after harvest of I Plant crop

Crop Duration : 11 months

Data to be recorded : As detailed below:

- i) Tillers count at 90 and 120 days
- ii) Shoot count at 150, 180, 240 and 330 days
- iii) Single cane weight, Cane length, Cane diameter, Number of internodes, Juice Brix %, Juice sucrose %, Extraction %, cane fibre % at 330 days
- iv) Cane yield at harvest
- v) Tiller mortality
(Max number of shoots-NMC at harvest) X 100/ Max number of shoots
- vi) Leaf area before imposition of drought and after withdrawing the drought
- vii) Estimation of Relative Water Content (Three times – Before, during and after water stress)
- viii) Leaf water potential (If facility available)
- ix) 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 ratooning in drought treatment plot

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

iii) Evaluation for water logging tolerance (II Plant Crop)

Centres (4): Kolhapur, Vuyyuru, Motipur and Pusa

Entries (27) : 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 (3) : Three standards (At least one sensitive and one tolerant checks) may be decided by the centres.

Design : Alpha design (please refer layout plan annexed)

Replications : Two

Plot Size : 6m X 2r X 0.90 m

Seed rate : 12 buds per meter

Planting date : Kolhapur and Vuyyuru : 1st fortnight of February
Motipur and Pusa : 2nd fortnight of February

Crop Duration : 12 months

Data to be recorded : As detailed below:

- i) Germination at 30 days for tropical region and 45 days for sub-tropical region and tillering at 90 days.
- ii) Shoot count, Single cane weight, Cane length, Cane diameter, Internode length (average of three middle internodes), number of fully emerged leaves

and leaf area/plant just before of water logging, 30 and 60 days after water logging

- iii) Juice Brix %, Juice sucrose %, Juice purity %, Extraction %, Cane fibre %, NMC, cane diameter, cane length, single cane weight at 300 and 360 days
- iv) Cane and CCS yields at 360 days
- v) Arial rooting: Number of nodes with arial roots and intensity of arial roots (Rated as absent, low, medium and high)
- vi) Foliage colour (green, light green, pale yellow) at 30 and 60 days after water logging

Weather data:

Rainfall (weekly rainfall), Maximum and Minimum temperature, RH

Imposition of water logging treatment:

1. In case natural water logging fails due to insufficient rains, water stagnation may be ensured (minimum 15 cm) during the grand growth phase (150 – 210 days after planting) / monsoon season.
2. Control plots must be well drained to avoid stagnation of water though out the cropping period.
3. Water level (in cm) above ground level in water logged blocks at 15 days interval after initiation of monsoon.
4. Duration of water logging.

Layout plan for Evaluation and identification of climate resilient ISH and IGH genetic stocks for water logging

Randomized Layout

Water logging condition :

REPLICATION 1										
Block 1	22	6	9	25	18	12	14	28	2	19
Block 2	20	4	3	7	16	29	10	26	23	15
Block 3	24	1	8	11	5	30	27	13	21	17

REPLICATION 2										
Block 1	7	25	16	22	1	10	13	4	19	28
Block 2	24	12	6	18	15	3	30	9	21	27
Block 3	2	8	14	29	23	26	11	17	20	5

Normal condition (Experiment should not be conducted in low lying area):

REPLICATION 1										
Block 1	24	27	1	30	17	13	5	11	8	21
Block 2	4	16	10	20	7	29	15	3	23	26
Block 3	6	19	14	12	22	18	25	28	9	2

REPLICATION 2										
Block 1	30	9	21	24	15	3	18	6	12	27
Block 2	26	23	14	8	29	11	2	17	20	5
Block 3	10	25	19	28	22	7	13	16	4	1

Name of the clone and serial number :

S. No	Clone	S.No	Clone	S. No	Clone
1	BM 1003143	11	SA 04-390	21	MA 5/37
2	BM 1005149	12	SA 04-496	22	MA 5/99
3	BM 1009163	13	SA 04-409	23	MA 5/22
4	BM 1010168	14	AS 04-1689	24	GU 07-3849
5	BM 1022173	15	AS 04-245	25	GU 07-3774
6	PG 9869137	16	AS 04-2097	26	GU 07-2276
7	SA 98-13	17	AS 04-635	27	CYM 07-986
8	SA 04-454	18	AS 04-1687	28	Check 1
9	SA 04-472	19	MA 5/51	29	Check 2
10	SA 04-458	20	MA 5/5	30	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.

iii) Evaluation for water logging tolerance (Ratoon Crop)

Centres (4): Kolhapur, Vuyyuru, Motipur and Pusa

Entries (27)	:	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 (3)	:	Three standards (At least one sensitive and one tolerant checks) may be decided by the centres.
Design	:	Alpha design
Replications	:	Two
Plot Size	:	6m X 2r X 0.90 m
Ratooning date	:	Immediately after harvest of I Plant crop
Crop Duration	:	11 months
Data to be recorded	:	As detailed below:

- i) Shoot count, Single cane weight, Cane length, Cane diameter, Internode length (average of three middle internodes), number of fully emerged leaves and leaf area/plant just before of water logging, 30 and 60 days after water logging
- ii) Juice Brix %, Juice sucrose %, Juice purity %, Extraction %, Cane fibre %, NMC, cane diameter, cane length, single cane weight at 270 and 330 days
- iii) Cane and CCS yields at 330 days
- iv) Aerial rooting: Number of nodes with aerial roots and intensity of aerial roots (Rated as absent, low, medium and high)
- v) Foliage colour (green, light green, pale yellow) at 30 and 60 days after water logging

Weather data:

Rainfall (weekly rainfall), Maximum and Minimum temperature, RH

Imposition of water logging treatment:

- a. In case natural water logging fails due to insufficient rains, water stagnation may be ensured (minimum 15 cm) during the grand growth phase (150 – 210 days after ratooning) / monsoon season.
- b. Control plots must be well drained to avoid stagnation of water throughout the cropping period.
- c. Water level (in cm) above ground level in water logged blocks at 15 days interval after initiation of monsoon.
- d. Duration of water logging.

ALL INDIA COORDINATED RESEARCH PROJECT ON SUGARCANE

**Characters on which data to be recorded in Initial Varietal Trial (IVT)
and Advanced Varietal Trial (AVT)**

Crop: Sugarcane

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. Number of millable canes (thousand/ha) after 10 months and 12 months at harvest
6. Stalk length (cm) after 8, 10 and 12 months at harvest
7. Stalk diameter (cm) after 8, 10 and 12 months at harvest
8. Single cane weight (kg) after 8, 10 and 12 months at harvest
9. Brix % in juice at 8, 10 and 12 months
10. Sucrose % in juice at 8, 10 and 12 months
11. Purity % at 8, 10 and 12 months
12. CCS % at 8, 10 and 12 months
13. Extraction % after 10 and 12 months at harvest
15. Fibre % after 10 and 12 months at harvest
16. Pol % cane after 10 and 12 months at harvest
17. Cane yield (t/ha) after 12 months at harvest
18. CCS t/ha after 10 and 12 months at harvest
19. Jaggery quality after 10 and 12 months at harvest (if facility available)
20. Jaggery yield (t/ha) after 10 and 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 Advance Varietal Trial (AVT)

Crop : Sugarcane (Early – II Plant)

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 ratoon crop

Crop : Sugarcane (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 Advance Varietal Trial (AVT)

Crop : Sugarcane (Midlate – II Plant)

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 ratoon crop

Crop : Sugarcane (Midlate – 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 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)