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ALL INDIA COORDINATED RESEARCH PROJECT ON SUGARCANE
(Indian Council of Agricultural Research)

MONITORING REPORT (2020-2021)

A.D. PATHAK
DIRECTOR & PROJECT COORDINATOR (SUGARCANE)

भाकृअनुप
ICAR

ICAR-Indian Institute of Sugarcane Research
Lucknow-226 002

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LUCKNOW – 226 002

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CONTENTS

All India Coordinated Research Project on Sugarcane

Constitution of Monitoring Team for 2020-2021 Crop Season

1. NORTH WEST ZONE

i)	**Dr S.K. Shukla, Agronomist, ICAR-IISR, Lucknow**	-	**Team Leader**
ii)	Dr Gulzar S. Sanghera, Breeder, PAURRS, Kapurthala	-	Member
iii)	Dr Dinesh Singh, Pathologist, ICAR-IISR, Lucknow	-	Member
iv)	Dr Arun Baitha, Entomologist, ICAR-IISR, Lucknow	-	Member

2. NORTH CENTRAL & NORTH EASTERN ZONE

i)	**Dr Ashutosh Kr. Mall, Breeder, ICAR-IISR-RC, Motipur**	-	**Team Leader**
ii)	Dr Y.P. Bharati, Pathologist, GSSBRI, Seorahi	-	Member
iii)	Dr Navnit Kumar, Agronomist, SRI, Pusa	-	Member
iv)	Dr. Anil Kumar, Entomologist, SRI, Pusa	-	Member

3. PENINSULAR ZONE I

i)	**Dr G. Hemaprabha, Breeder, ICAR-SBI, Coimbatore**	-	**Team Leader**
ii)	Dr R.R. Hasure, Agronomist, RS&JRS, Kolhapur	-	Member
iii)	Dr Rini C.R. Pathologist, SRS, Thiruvalla	-	Member
iv)	Mr J. S. Nandeesh, Entomologist, ZARS, Mandya	-	Member

4. PENINSULAR ZONE II

i)	**Dr S.C. Mali, Breeder, MSRS, Navsari**	-	**Team Leader**
ii)	Shri P.V. Ghodke, Agronomist, VSI, Pune	-	Member
iii)	Dr A.B. Tambe, Entomologist, CSRS, Padegaon	-	Member
(iv)	Shri B.H. Pawar, VSI, Pune	-	Member

5. EAST COAST ZONE

i)	**Dr P.K. Nayak, Breeder, SRS, Nayagarh**	-	**Team Leader**
ii)	Dr. V. Ravichandran, Pathologist, SRS, Cuddalore	-	Member
iii)	Dr B. Bhavani, Entomologist, RARS, Anakapalle	-	Member
iv)	Dr. (Mrs.) Jyoti Rekha Patnaik, SRS, Nayagarh	-	Member

Schedule for online monitoring of AICRP(S) trials for the year 2020-2021 Crop Season

Date slot	Centre	Time slot	Discipline			
			Breeding	Agronomy	Plant Pathology	Entomology
East Coast Zone						
05.01.2021	Anakapalle	10.30 AM onwards	Yes	No	Yes	Yes
	Nayagarh		Yes	Yes	No	No
	Cuddalore		Yes	No	Yes	No
	Vuyyuru	02.30 PM onwards	Yes	No	No	No
	Nellikuppam		Yes	No	No	No
North West Zone						
06.01.2021	Sriganganagar	02.30 PM onwards	Yes	Yes	No	No
	Kota		Yes	Yes	No	No
	Pantnagar		Yes	No	Yes	No
	Muzaffarnagar		Yes	No	No	No
07.01.2021	Uchani	10.30 AM onwards	Yes	Yes	Yes	No
	Karnal		Yes	No	Yes	Yes
	Faridkot		Yes	Yes	No	No
	Kapurthala	02.30 PM onwards	Yes	No	Yes	No
	Shahjahanpur		Yes	Yes	Yes	Yes
	Lucknow		Yes	Yes	Yes	Yes
North Central & North Eastern Zones						
08.01.2021	Pusa	10.30 AM onwards	Yes	Yes	Yes	No
	Seorahi		Yes	Yes	Yes	Yes
	Bethuadahari	02.30 PM onwards	Yes	Yes	No	No
	Buralikson		Yes	No	Yes	No
	Motipur		Yes	No	Yes	No
Peninsular Zone-I						
11.01.2021	Coimbatore	10.30 AM onwards	Yes	Yes	Yes	Yes
	Thiruvalla		Yes	No	Yes	Yes
	Sankeshwar	02.30 PM onwards	Yes	Yes	No	No
	Mandya		Yes	No	No	Yes
	Kolhapur		Yes	Yes	No	No
12.01.2021	Sameerwadi	10.30 AM onwards	Yes	No	No	No
	Perumalapalle		Yes	No	No	No
	Pugalure		Yes	No	No	No
	Belagavi		Yes	No	No	No
Peninsular Zone-II						
13.01.2021	Tharsa (Akola)	10.30 AM onwards	Yes	Yes	Yes	Yes
	VSI Pune		Yes	Yes	Yes	Yes
	Padegaon		Yes	No	No	Yes
	Powarkheda		Yes	Yes	No	No
	Navsari	02.30 PM onwards	Yes	No	Yes	No
	Pravaranagar		Yes	No	No	No
	Rudrur		Yes	No	No	No
	Kawardha		Yes	No	No	No

MONITORING REPORT OF EAST COAST ZONE
(CROP SEASON 2020-2021)

Monitoring team constituted by the Director and Project Coordinator, AICRP (Sugarcane), ICAR-IISR-Lucknow vide letter no. F No. 12-11 (M)/2020-PCS dated November 13, 2020 for assessment of performance of the AICRP trials at regular as well as voluntary centres of East Coast Zone by virtual mode with the following scientists.

Sl. No.	Name, Designation & address of Members	
1	Dr. P.K. Nayak, Sugarcane Breeder & OIC, Sugarcane Research Station, Nayagarh-752070 (Odisha.)	Team Leader
2	Dr. V. Ravichandran, Plant Pathologist, Sugarcane Research Station, Cuddalore -607001 Tamil Nadu	Member
3	Dr. B. Bhavani, Principal Scientist (Entomology), Regional Agricultural Research Station (ANGRAU), Anakapalle-531001 (A.P)	Member
4	Dr. (Mrs.) J.R. Patnaik, Jr. Scientist (Agronomy) Sugarcane Research Station, Nayagarh-752070 (Odisha.)	Member
5	Shri Adil Zubair Chief Technical Officer Coordination Unit AICRP(S), ICAR-IISR, Lucknow)U.P.)	Facilitator

The AICRP(Sugarcane) centres of the ECZ have send their video photography of all the experiments allotted to them to the Team Leader and respective member of the discipline during 20th - 27th November, 2020. The centre-wise presentation of video of the experiments was made by the concerned scientist of the centres of the zone on virtual mode on dt.05.01.2021. The discipline-wise observations made different Research Stations are reported here under.

(A) CROP IMPROVEMENT

1. Parrys Sugarcane Research & Development Centre, EID Parry (India) Ltd., Nellikuppam (T.N.)

This is a voluntary centre of the AICRP (Sugarcane). The centre has conducted all the 6 trials as per the technical programme with a deviation in row spacing. Row spacing was 120 cm instead of 90 cm in all trials. In general, conductance of the trials is very good. Performance of the entries at nine months age for field stand, tillering and cane traits compared to the best standards are given in Table 1-6. There is trash mulching in alternate rows in all trials. Standard variety CoA 92081 was not included in IVT (E) and it was replaced with CoOr 03151. Other two standard varieties are CoC 01061 and CoA 11321. The centre has not submitted the video Photography of AVT(Early) ratoon and AVT(Mid late)

Ratoon due to continuous rain and field is water logged as per the report of the Breeder in-charge of the trials.

2. Sugarcane Research Station, Cuddalore, (T.N.)

The centre has conducted all the 6 trials as per the technical programme. All the trials were very good in establishment and were maintained very well. Performance of the entries at eight months age for field stand, tillering and cane traits compared to the best standards are given in Table 1-6. Some of the clones are lodged. There is TT propping in the trials. Standard variety CoA 92081 was not included in IVT (E) and it was replaced with CoOr 03151. Other two standard varieties are CoC 01061 and CoA 11321.

3. Sugarcane Research Station, Vuyyur (A.P.)

This is a voluntary centre of the AICRP(S). The centre has conducted all the 6 trials as per the technical programme. In general conductance of trials was very good. Performance of the entries at 10 months age for field stand, tillering and cane traits compared to the best standards are given in Table 1-6. Most of the clones lodged in the trials.

4. Regional Agricultural Research Station, Anakapalle (A.P.)

The centre has conducted all the 6 trials as per the technical programme . All the trials were good in establishment and were maintained very well. Performance of the entries at ten months age for field stand, tillering and cane traits compared to the best standards are given in Table 1-6. Incidence of Yellow Leaf disease (YLD) was also observed in some clones. There was standing water in IVT(E), AVT(E) II PCAVT(ML) IIPC and AVT(ML) Ratoon trails. There was poor drainage facilities in the experimental site and standing water in the trials noticed. There was no propping in the trails for which most of the clones were lodged.

5. Sugarcane Research Station, Nayagarh (Odisha)

The centre has conducted all six trials of Crop Improvement as per the technical programme of AICRP (Sugarcane). The trials were excellent in establishment. Performance of the entries at ten months age for field stand, tillering and cane traits compared to the best standards are given in Table 1-6. Some of the clones lodged in the trials due to cyclonic weather during month of October'2020.

List of trials conducted during 2020– 2021 in East Coast Zone

Sl.No.	Trials	Nellikuppam	Cudallore	Vuyyuru	Anakapalle	Nayagarh
1.	IVT(E)	Conducted	Conducted	Conducted	Conducted	Conducted
2.	AVT(E)-I PC	Conducted	Conducted	Conducted	Conducted	Conducted
3.	AVT(E)-II PC	Conducted	Conducted	Conducted	Conducted	Conducted
4.	AVT(E)-R	Conducted	Conducted	Conducted	Conducted	Conducted
5.	AVT(ML)-II PC	Conducted	Conducted	Conducted	Conducted	Conducted
6.	AVT(ML)-R	Conducted	Conducted	Conducted	Conducted	Conducted

Performance of the AICRP (S) trials at different centres in the East Coast Zone

Sl.No.	Trials	Nellikuppam	Cuddalore	Vuyyuru	Anakapalle	Nayagarh
1.	IVT(E)	Good	Excellent	Good	Good	Good
2.	AVT(E)-I PC	Good	Excellent	Good	Excellent	Excellent
3.	AVT(E)-II PC	Good	Excellent	Excellent	Excellent	Excellent
4.	AVT(E)-R	No Video for assessment	Good	Good	Good	Good
5.	AVT(ML)-II PC	Good	Good	Excellent	Good	Excellent
6.	AVT(ML)-R	No Video for assessment	Good	Good	Good	Good

EVALUATION OF ENTRIES IN TRIALS

Table 1: Initial Varietal Trials (Early)

Entries	Nellikuppam	Cuddalore	Vuyyuru	Anakapalle	Nayagarh
CoV 18356	On par	Better	Better	Better	Better
CoV 18357	Better	Better	Better	On par	Poor
CoOr 18346	On par	On par	On par	On par	On par
CoA 92081	On par	Better	On par	On par	On par
CoC 01061	On par	Best	On par	Best	Poor
CoA 11321	Best	On par	Best	Better	Best
Dt. of Planting	08.02.2020	14.03.2020	28.01.2020	11.02.2020	23.01.2020

Table 2: Advanced Varietal Trial (Early) I Plant Crop

Entries	Nellikuppam	Cuddalore	Vuyyuru	Anakapalle	Nayagarh
CoA 17321	On par	On par	Better	On par	On par
CoA 17323	Better	On par	On par	On par	On par
CoC 17336	Better	Better	On par	Better	On par
CoA 92081	On par	On par	On par	Better	Better
CoC 01061	Better	Better	Better	Poor	Better
CoOr 03151	Best	Best	Best	Best	Best
Dt. of Planting	05.02.2020	21.03.2020	07.02.2020	26.02.2020	19.01.2020

Table 3: Advanced Varietal Trial (Early) II Plant Crop

Entries	Nellikuppam	Cuddalore	Vuyyuru	Anakapalle	Nayagarh
CoA 16321	Better	On par	On par	Better	Better
CoC 16336	Better	On par	On par	Better	Better
CoC 16337	On par	Better	On par	On par	On par
CoV 16356	On par	On par	On par	On par	On par
CoA 92081	Better	Better	On par	Better	On par
CoC 01061	On par	On par	Better	On par	Better
CoOr 03151	Best	Best	Best	Best	Best
Dt. of Planting	05.02.2020	11.03.2020	04.01.2020	12.02.2020	07.01.2020

Table 4: Advanced Varietal Trial (Early) Ratoon

Entries	Nellikuppam	Cuddalore	Vuyyuru	Anakapalle	Nayagarh
CoA 16321	N	On par	On par	Better	On par
CoC 16336	O	Better	On par	On par	Better
CoC 16337		On par	Better	On par	On par
CoV 16356	V	Better	On par	Better	Better
CoA 92081	I	Better	On par	Poor	On par
CoC 01061	D	On par	On par	Better	On par
CoOr 03151	E	Best	Best	Best	Best
Dt. of Ratooning	O	18.05.2020	06.02.2020	16.02.2020	25.01.2020

Table 5: Advanced Varietal Trials (Midlate) II PC

Entries	Nellikuppam	Cuddalore	Vuyyuru	Anakapalle	Nayagarh
CoC 15339	On par	On par	Better	On par	On par
CoOr 15346	On par	On par	Better	On par	On par
CoC 16338	Better	Better	On par	Better	Better
CoC 16339	On par	On par	On par	On parr	On par
CoV 16357	Poor	On par	On par	On par	On par
CoV 92102	Best	Best	Better	Better	Best
Co 86249	Better	Better	Better	Better	Better
Co 06030	On par	On par	Best	Best	On par
Dt. of Planting	07.02.2020	11.03.2020	04.01.2020	05.02.2020	17.01.2020

Table 6: Advanced Varietal Trials (Midlate) Ratoon

Entries	Nellikuppam	Cuddalore	Vuyyuru	Anakapalle	Nayagarh
CoC 15339	N	On par	Better	Better	On par
CoOr 15346	O	On par	Better	On par	On par
CoC 16338		On par	On par	Poor	Better
CoC 16339	V	Better	On par	On par	Better
CoV 16357	I	On par	On par	On par	On par
CoV 92102	D	Best	Best	Best	Best
Co 86249	E	Better	On par	Better	On par
Co 06030	O	Better	Poor	On par	Better
Dt. of Ratooning		18.05.2020	06.02.2020	16.03.2020	27.01.2020

(B) AGRONOMY AND SOIL SCIENCE (CROP PRODUCTION)

Centre wise experiments allotted v/c conducted and crop condition

Centre	Allotted	Conducted	Crop condition
Nellikuppam	Not Allotted	Not Allotted	------
Cuddalore	Not Allotted	Not Allotted	------
Vuyyuru	Not Allotted	Not Allotted	------
Anakapalle	Not Allotted	Not Allotted	------
Nayagarh	AS- 72, AS- 73, AS- 74 and AS- 75	AS- 72, AS- 73, AS- 74 and AS- 75	V. Good

Overall grading of trials

Trials	Nellikuppam	Cuddalore	Vuyyuru	Anakapalle	Nayagarh
AS- 72	NA	NA	NA	NA	V. Good
AS- 73	NA	NA	NA	NA	V. Good
AS- 74	NA	NA	NA	NA	V. Good
AS- 75	NA	NA	NA	NA	V. Good

NA- Not Allotted

SRS, Nayagarh

All the allotted experiments (AS 72, AS 73, AS-74 and AS-75) were conducted.

AS -72: Agronomic performance of elite sugarcane genotypes (Early)

Early maturing varieties of AVT-II approved for East-Coast zone were planted on 28.01.2020 at 120 cm spacing with two fertilizer levels i.e 100 % and 125% of the recommended dose of NPK for the zone. The crop condition was very good. However there is not much difference between two fertiliser levels (i.e 100 % and125%) in terms of tillers and cane height.

AS-73: Assessment of climate change impact on sugarcane productivity

Weekly weather data has been submitted to the Principal Investigator Crop Production, AICRP(Sugarcane).

AS-74: Evaluation of sugarcane varieties for drought tolerance

The trial was planted on 26.12.2019 with six promising genotypes for the zone. Among early maturing varieties, the growth of CoOr 12346 was better whereas in mid late entries, CoOr 15346 performed better with 0.3 IW/CPE initially. However due to intermittent rains, the performance of irrigation regimes of 1.0 and 0.3 IW/CPE ratio were became more or less similar in terms of cane height. No interaction was observed between varieties and irrigation levels.

AS-75: Precision nutrient management through rescheduling time of application for widely spaced sugarcane plant - ratoon system

The trial was planted on 27.12.2019 with promising genotype CoOr 12346. The treatments were executed as per technical programme. The crop condition was very good. The treatment A_2B_2 i.e. band placement of fertilisers (RDN+RDK) in six splits (Basal 10% remaining at 45, 75, 90,120 and 150 DAP in equal splits) found to be performing better than other treatment combinations.

(C) PLANT PATHOLOGY:

A brief summary of technical programme of Plant Pathology, 2020-21 of AICRP (S) assigned and conduction of trails by the different centres under East Coast Zone are as under

Sl. No.	Experiments	Nellikuppam	Cuddalore	Vuyyuru	Anakapalle	Nayagarh
1.	PP- 14 & 14(A)	NA	C	NA	**C**	NA
2.	PP- 17 (A)	NA	C	NA	**C**	NA
3.	PP-17 (B)	NA	C	NA	**C**	NA
4.	PP-17 (C)	NA	C	NA	C	NA
5.	PP- 17 (D)	NA	C	NA	**C**	NA
6.	PP-17 (E)	NA	NA	NA	**C**	NA
7.	PP-17 (F)	NA	C	NA	C	NA
8.	PP- 22	NA	C	NA	C	NA
9.	PP- 23	NA	C	NA	C	NA
10.	PP- 31	NA	NA	NA	C	NA
11.	PP- 33	NA	C	NA	C	NA
12.	PP-34	NA	C		C	NA

Note: C-Conducted, NA- Not Allotted, NC- Not Conducted

Detail Report of Plant Pathology Trial, 2020-21 of East Coast Zone

1. RARS, Anakapalle

Experiments / Description	Remark
PP-14 & **14(A)** : Identification of Pathotypes in red rot pathogen and maintenance of isolates of red rot Pathogen **Conducted**	This experiment was planted on 22.02.2020 with 19 host differentials. Ten isolates of *Colletotrichum falcatum* (including existing pathotype) collected from various places in Andhra Pradesh were inoculated on to nineteen host differentials on 16.09.2020. Disease progress in various cultivars was recorded on 20.11.2020. . The crop growth is satisfactory
PP-17 (A): Evaluation of zonal varieties for resistance to Red Rot**.** **Conducted**	This experiment was planted on 22.02.2020 with 21 entries. Inoculation was done by both plug and nodal methods with Cf 06 and Cf Co 09.Data on disease severity was recorded from 19..11.2020 to 21.11.2020 by longitudinal splitting of the inoculated canes. The crop stand is good.
PP-17 (B): Evaluation of zonal varieties for resistance to Smut**.** **Conducted**	This experiment was planted on 27.02.2020 with 21 entries. Inoculation was done at the time of planting. Smut incidence was recorded at fortnight intervals starting from 04.04.2020 to till date. The crop stand is good.
PP-17 (C): Evaluation of zonal varieties for resistance to wilt**.** **Conducted**	This experiment was planted on 27.02.2020 with 21 entries. Inoculation was done at the time of planting. IVT, AVT-I and AVT-II genotypes along with check varieties were inoculated with *F. sacchari* culture on 15.09.2020. Disease reaction will be recorded on 14.12.2020. . The crop stand is good.
PP-17 (D): Evaluation of zonal varieties for resistance to YLD. **Conducted**	This experiment was planted on 27.02.2020 with 21 entries. The crop stand is good. Data on YLD incidence was conducted at monthly intervals from August, 2020.
PP-17 (E): Evaluation of zonal varieties for resistance to Brown rust **Conducted**	This experiment was planted on 27.02.2020 with 16 entries. IVT, AVT-I and AVT-II genotypes along with check varieties were inoculated with *Uredospore suspension of Brown rust on 11.11.2020.*. The crop stand is good.
PP-17 (F): Evaluation of zonal varieties for resistance to Pokkha Boeng **Conducted**	This experiment was planted on 27.02.2020 with 21 entries of IVT, AVT-I and AVT-II genotypes along with check varieties. Data on top rot incidence was recorded from 21.05.2020 to till date at fortnightly intervals. The crop stand is good.

Experiments / Description	Remark
PP - 22: Survey of sugarcane diseases occurring in AP on important sugarcane varieties **Conducted**	A roving survey was conducted in different sugarcane growing areas of Andhra Pradesh during the crop season. Survey was conducted in operational areas of The Chodavaram co-operative sugars limited, Govada, Sri.Vijayarama Gajapathi Co-operative Sugars Ltd., Bhimsinghi, on 15.07.2020, 16.07.2020, 21.07.2020, 29.07.2020 and 03.10.2020, respectively.
PP-23: Assessment of elite and ISH genotypes for resistance to red rot: **Conducted**	This experiment was planted on 27.02.2020 with 8 ISH genotypes. Inoculation was done by both plug and nodal methods with Cf 06 on 16.09.2020.Data on disease severity was recorded from 19..11.2020 to 21.11.2020 by longitudinal splitting of the inoculated canes. The crop stand is good.
PP- 31: Epidemiology and management of Pokkah Boeng in sugarcane **Conducted**	This experiment was planted on 04.03.2020 with 4 treatments. Data on top rot incidence was recorded in top rot management trial from 18.05.2020 up to 19.10.2020. Data on top rot incidence to study top rot disease epidemiology was recorded at weekly interval starting from second fortnight of May, 2020.
PP-33: Management of yellow leaf disease through meristem culture **Conducted**	This experiment was planted on 27.02.2020. YLD incidence was recorded in the fields transplanted with tissue culture seedlings. RT-PCR was carried out regularly to detect SCYLV in tissue culture plantlets and in field transplanted tissue culture seedlings to ensure virus free propagation of seed material. RNA was isolated from tissue culture plantlets of sugarcane varieties, 87A 298 and 2009A 107 (RARS, Anakapalle). RT-PCR was carried out for tissue culture plantlets of the above mentioned sugarcane cultivars..
PP-34: Efficient delivery of fungicides and other agro inputs to manage major fungal diseases in sugarcane **Conducted**	The experiment on wilt management was planted on 28.05.2020 and red rot management & smut management trials were planted on 30.05.2020 with 5 treatments and 4 replications. Data on red rot and smut incidence was recorded from 01.10.2020 at monthly intervals. The crop growth is satisfactory.

2. SRS, Cuddalore

Experiments / Description	Remark
PP-14 & **14(A)** : Identification of Pathotypes in red rot pathogen and maintenance of isolates of red rot Pathogen **Conducted**	This experiment was planted on 17.03.2020 with 19 host differentials. The red rot pathotypes CF06 and CF12 were obtained from SBI, Coimbatore and the red rot pathogens isolated from varieties *viz*., CoC 23, CoC 24, CoV 09356, Co(SC) Si 6 and Co 06022 were inoculated by plug method of inoculation on 29.10.2020. The inoculated cane will be split open assessed for diseases reaction 60 days after inoculation.
PP-17 (A): Evaluation of zonal varieties for resistance to Red Rot**.** **Conducted**	This experiment was planted on 24.03.2020 with 21 entries. The red rot pathogen (CF 06) was inoculated in the canes both by plug method and nodal cotton swab method. The canes will be split opened and evaluated for disease reaction 60 days after inoculation. The crop stand is good.
PP-17 (B): Evaluation of zonal varieties for resistance to Smut**.** **Conducted**	This experiment was planted on 24.03.2020 with 24 entries. Inoculation was done at the time of planting. Smut incidence was recorded at fortnightly intervals starting from 35 DAP to till date.. The crop stand is good.
PP-17 (C): Evaluation of zonal varieties for resistance to wilt**.** **Conducted**	This experiment was planted on 27.03.2020 with 21 entries. Inoculation was done at the time of planting. IVT, AVT-I and AVT-II genotypes along with check varieties were inoculated with *F. sacchari* culture on 15.09.2020. Disease reaction will be recorded on 14.12.2020. . The crop stand is good.
PP-17 (D): Evaluation of zonal varieties for resistance to YLD. **Conducted**	This experiment was planted on 24.03.2020 with 23 entries. The crop stand is good. Data on YLD incidence was recorded after 10^{th} and 12^{th} month after planting.
PP-17 (F): Evaluation of zonal varieties for resistance to Pokkha Boeng **Conducted**	This experiment was planted on 24.03.2020 with 22 entries of IVT, AVT-I and AVT-II genotypes along with check varieties. Data on Pokkah Boeng incidence was recorded at fortnightly intervals. The crop stand is good.
PP - 22: Survey of sugarcane diseases occurring in TN on important sugarcane varieties **Conducted**	The incidence of red rot disease was observed in the village Keelpathi of Cuddalore district. The disease severity ranged upto 2 % in the variety PI 00-1401. Incidence of red rot disease was recorded in Soornavur village of Villupuram District CoC 24 (1 %). Incidence of red rot disease was recorded in Sogathur village of Thiruvannamalai District CoC 24 (3 %) in an area of 1.0 acre. Red

Experiments / Description	Remark
	rot disease incidence was noticed in varieties *viz.*, CoC 24, CoSi (SC) 6 and CoV 09356 to the range of 2 to 35% in the villages of Sithanur, Kanthalavadi, Siruvannur, T.Edayar, Pillayarkuppam, Keelkuppam Vellore, Ku Natham, T. Edapalayam and Arum Kurikhai of Villupuram district.
PP-23: Assessment of elite and ISH genotypes for resistance to red rot: **Conducted**	This experiment was planted on 17.03.2020 with 30 ISH genotypes. Inoculation was done by both plug and nodal methods with Cf 06 on 28.10.2020. The red rot pathogen (CF 06) was inoculated in the canes by plug method on 28.10.2020 and the inoculated canes will be split opened and assessed for disease reaction 60 days after inoculation. The crop stand is good.
PP-33: Management of yellow leaf disease through meristem culture **Conducted**	The tissue culture seedling of variety Co 86032 and CoC 25 were transplanted in the field along with conventional setts for comparison. The biometric observation and incidence of yellow leaf disease will be recorded during the 10^{th} and 12^{th} month after planting. Another experiment with the tissue culture seedling of variety Co 86032 and CoC 13339 were transplanted on 05.09.2020 in the field for assessing the biometric characters and YLD incidence. The biometric observation and incidence of yellow leaf disease will be recorded during the 10^{th} and 12^{th} month after planting.
PP-34: Efficient delivery of fungicides and other agro inputs to manage major fungal diseases in sugarcane **Conducted**	Field experiments was laid with the variety CoC 24 with four treatments and five replications for management of red rot disease after treating the single bud setts in sett treatment device disease affected canes was chopped and incorporated in the furrows at the time of planting on 25.04.2020 to induce red rot. The trial is in progress and disease incidence was recorded at monthly interval and the biometric data will be recorded at time of harvest Field experiments was laid with the apparently healthy setts of variety CoC 22 with four treatments and five replications for management of smut disease after treating the single bud setts in sett treatment device. The trial is in progress and disease incidence was recorded at monthly interval and the biometric data will be recorded at time of harvest The crop growth is satisfactory.

(D) ENTOMOLOGY:

Projects allotted v/s conducted at different centres of East Coast Zone

S. No.	Centre	E. 4.1	E. 28	E. 30	E. 34	E. 41	Total
1	Nellikuppam	NA	NA	NA	NA	NA	0
2	Cuddalore	NA	NA	NA	NA	NA	0
3	Vuyyur	NA	NA	NA	NA	NA	0
4	Anakapalle	A/C	A/C	A/C	A/C	A/C	5
5	Nayagarh	NA	NA	NA	NA	NA	0

A/C: Allotted and conducted; NA: Not Allotted

RARS, Anakapalle

i. Project No.4.1 Evaluation of genotypes for their reaction against major insect pests (early shoot borer, internode borer and scale insect)

AVT (E) I Plant : (3) CoA17321, CoA17323 and CoC17336
AVT(E) II plant : (3) CoA16321,CoC16336, CoC16337
Standard (E) : (4) CoA92081, Co86249, CoOr03151 & CoC01061
AVT(ML) II plant : (5) CoC15339, CoOr15346, CoC16338, CoC16339& Co V16 357
Standard (ML) : (2) Co06030 & CoV92102
Susceptible check : (1) CoA99082 (93 A 145)
Design : RBD Replications: 3
Date of planting : 7-3-2020 Plot size : 6M X 0.9 M X 4R

a. Cultural operations like ferilisers, weeding etc: Weeding and hoeing were done and fertilizers were applied as per the recommendations. Intercultivation and T.T. propping 1st & 2nd tier were done. Spraying of post emergence herbicide and need based irrigation were done upto November month..
b. Crop condition: Crop is at grand growth stage and the is lodged due to heavy rains received during October
c. Whether the trial is taken up as the technical programme of the work : Yes.
d. Progress of experiment and data collected so far:
   Data on early shoot borer (number of total shoots versus deadhearts) at 30, 60, 90 and 120 days after planting were recorded and calculated per cent ESB (% dead heart) incidence.
   Significant observations made:
   Cumulative incidence of early shoot borer up to 120 DAP revealed that all the test entries have registered moderate to severe incidence of early shoot borer up to 120 DAP. Among test entries, CoC 17336 recorded lowest incidence of early shoot borer and found promising against ESB.

ii. Project No. E.28. Survey and surveillance of sugarcane insect pests

a. Whether the trial is taken up as the technical programme of the work : Yes.
b. Progress of experiment and data collected so far:
   i. Roving survey of sugarcane fields at 5-8 km distance in Visakhapatnam district during the crop season up to November month.
   ii. The information regarding location, variety, date of planting, spacing ,fertilizer doses and inter crops etc., will be recorded.
   iii. Observations on incidence of ESB recorded by examining 100plants at five places (four corners and in the middle) at monthly interval.
   iv. Observations on incidence of sucking pests and other pests recorded by examining 20 canes at random at monthly interval.

c. **Significant observations made:**

Low to incidence of early shoot borer (*C. infuscatellus*), sugarcane mite (*O. indicus*) and low to moderate incidence of fall army worm (*S. frugiperda*), sugarcane aphid (*M. sacchari*), yellow mealybug (*Kiritshenkella sacchari)* and pink mealybug (*Pseudosaccharicoccus. sacchari))* and internode borer *(C. sachariphagus indicus)* were observed in sugarcane from March-November months.

iii. Project No. E.30: Monitoring of insect pests and bio-agents in sugarcane ecosystem

a. No. of treatments and replications: Observations will be made from different fields of plant and ratoon crops and also in a fixed plot at RARS, Anakapalle.
b. Date of Planting: 24-4-2020
c. Variety: Co A 99082 (93 A 145)
d. Cultural operations like ferilisers, weeding etc: Weeding and hoeing were done and fertilizers were applied as per the recommendations. Intercultivation and T.T. propping (1^{st} & 2^{nd} tier) were done.
e. Crop condition: Grand growth stage and in good condition
f. Whether the trial is taken up as the technical programme of the work : Yes.
g. Progress of experiment and data collected so far:
   i. Observations on incidence of ESB, sucking pests, internode borer and natural enemies were recorded by examining 100 plants at five places (four corners and in the middle) at monthly intervals.
h. Significant observations made**:**
   Low to moderate incidence of early shoot borer, sugarcane mite (*O.indicus*) , low to moderate incidence of fall army worm (*S.frugiperda*), sugarcane aphid (*M.sacchari*), internode borer (*C. sachariphagus indicus)* were observed in sugarcane from April-November months.

iv. Project E 34: Standardisation of simple cost effective techniques for mass multiplication of potential bio-agents of sugarcane insect pests (*Nomurea rileyi*)

a. Progress of work so far **:**The lab work is in progress.

v. Project 41: Assessment of yield losses caused by borer pests of sugarcane under changing climate scenario

i. No. of treatments: Two (2)
   T1- Protected plot T2- Unprotected plot
ii. Design: Observational plot
iii. Plot size: 0.25ac
iv. Varieties**:** Two (93 A 145 & 87 A 298)
v. Date of planting: 21.04. 2020
vi. Cultural operations like fertilisers, weeding etc: Weeding and hoeing were done and fertilizers were applied as per the recommendations. Intercultivation and T.T. propping (1^{st} tier tier) were completed.
vii. Data on Incidence of early shoot borer were recorded at 30, 60, 90 & 120 DAP
viii. Crop condition**:** Crop is in grand growth stage and viral disease, mosaic and YLD incidences were observed.
ix. Whether the trial is taken up as the technical programme of the work : Yes.
x. Progress of experiment and data collected so far**.**

- T1- Soil application of fipronil 0.3G @ 20kg/ha was done at planting and spraying of chlorantraniliprole 18.5SC @ 0.3ml/lt at 40 DAP and monocrotophos @ 1.6 ml/lt at 120 DAP and at 140 DAP were done in protected plot.

- Recorded data on field incidence of early shoot borer at 30, 60 90 & 120 Days after planting.

xi. **Significant observations made:**

Low incidence of early shoot borer (*C. infuscatellus*), was observed during April-June months in protected plot (93 A 145 : 4.79%DH & 87 A 298 : 5.49%DH) compared to unprotected plot (93 A 145 : 14.42%DH & 87 A 298 : 10.96%DH)

The monitoring team expresses sincere thanks to all the In charges & their team for providing the Video Photography of different trials to the Team Leader in time and video presentation on virtual mode on dt 05.01.2021. We are also thankful to Dr. A. D. Pathak, Director & Project Coordinator, AICRP (Sugarcane), ICAR-IISR, Lucknow for constituting the team, inspiring guidance and support.

MONITORING REPORT OF NORTH WEST ZONE
(CROP SEASON 2020-2021)

Monitoring team constituted by the Director and Project Coordinator, AICRP (Sugarcane), ICAR-IISR-Lucknow vide letter no. F No. 12-11 (M)/2020-PCS dated November 13, 2020 for assessment of performance of the AICRP trials at regular as well as voluntary centres of North West Zone by virtual mode with the following scientists.

Sl. No.	Name, Designation & address of Members	
1	Dr S.K. Shukla Sugarcane Principal Scientist & Head Division of Crop Production ICAR-IISR, Lucknow	Team Leader
2	Dr. Gulzar Singh Sanghera Principal Scientist (PBG-Sugarcane) PAURRS, Kapurthala	Member
3	Dr Dinesh Singh Principal Scientist (Plant Pathology) ICAR-IISR, Lucknow	Member
4	Dr. Arun Baitha Principal Scientist (Entomology) ICAR-IISR, Lucknow	Member
5	Shri Adil Zubair Chief Technical Officer Coordination Unit AICRP(S), ICAR-IISR, Lucknow (U.P.)	Facilitator

The centre-wise presentation of video of the experiments was made by the concerned scientist of the centres of the zone on virtual mode on dated 06.01.2021 and 07.01.2021. The discipline-wise observations made from the video photography of different Research Stations are reported here under.

A. CROP IMPROVEMENT

As per the technical programme, supplied by Project Coordinator AICRP (S) for the crop season 2020-21 in crop improvement discipline, all the eight trials of the crop improvement were allotted to all the centers of North West Zone (NWZ) except CCS HAU, Research Station, Uchani and ICAR – SBI, Regional centre Karnal. Four trials i.e. IVT (Mid-late), AVT-IP (Early), AVT-IIP (Mid-late) and AVT-Ratoon (Midlate) were allotted to Uchani centre. Similarly, 04 trials i.e. IVT (Early), AVT-II P (Early), AVT-IP (Mid-late) and AVT Early Ratoon were allotted to Karnal centre. All the allotted trials were conducted by all the centers. The trials allotted and those conducted by the centers of NWZ are given in the **Table1**. The overall grading of the trials observed (during online monitoring virtual mode) by the team is presented in **Table 2**.

1. ICAR-INDIAN INSTITUTE OF SUGARCANE RESEARCH, LUCKNOW

All the eight trials were conducted as per the technical programme for 2020-21 of North West Zone. As per videos provided, the performance of 4 experiments was average and

two were poor (not ideal for assessment), reason may be the outbreak of COVID 19 pandemic and subsequent restrictions/ curfews that hampered the management of trials. The observations on crop stand with respect to individual entries in the trials are given below.

Initial varietal trial (Early)

The trial performance was poor and not be assessed for the individual cones (Table 2 & 4).

Advanced Varietal Trial (Early) – I Plant Crop

In the AVT I plant (early) trial, Co 0238 was the best standard. CoLk 16202 was better; CoLk 16201 and CoLk 14201 were found on par among the test entries. However, Co 16029 15025 and CoPb 16181 were rated as poor as compared to the best standard (Table 4).

Advanced Varietal Trial (Early) – II Plant Crop

In the AVT II plant (early) trial, Co 0238 was the best standard. CoLk 15205 was observed better. However, two test entries Co 15023, CoLk 15201 and CoPb 15212 were on par with the best standard. However, Co 15024 and Co 15027 were observed poor (Table 7).

Advanced Varietal Trial (Early) – Ratoon

In the AVT Early ratoon trial, Co 0238 was the best standard. Co 15027 and CoPb 15212 were on par in performance to best standard. However, rest of the entries were observed poor.

Initial Variety Trial (Midlate)

This trial was rated poor in overall grading of trials and not to be considered for the assessment of individual clones (Table 2 &4).

Advanced Varietal Trial (Midlate) –I Plant Crop

In AVT I plant (Mid late), variety CoS 767 was the best standard and CoS 16233 observed better than check. However, two test entries Co 16030 and CoS 16232 were on par with the best standard. CoLk 16203 & CoLk 16204 had poor crop stand (Table 6).

Advanced Varietal Trial (Mid-late) – II Plant Crop

In the AVT II plant (Midlate), CoPant 97222 was the best standard. Test entries i.e.CoLk 15206 and CoS 15232 were better performing for cane and growth traits, while CoLk 15206, CoLk 15207, CoLk 15209 and CoPb 15213 were on par and CoS 15223 was observed poor in the trial (Table 8).

Advanced Varietal Trial – Ratoon (Midlate):

In this trial, best standard was Co 05011 and CoLk 15209 was better performing in comparison to standard. However, two clones CoLk 15207 and CoS 15233 were at par and showed poor growth (Table 10).

Seed multiplication

It will be discussed in the forthcoming plant breeders meet.

Fluff supply programme

It will be discussed in the forthcoming plant breeders meet.

2. U. P. COUNCIL OF SUGARCANE RESEARCH, SHAHJAHANPUR

All the eight trials were conducted as per the technical programme for 2020-21 of North West Zone and were well maintained as per the crop growth. The trials were without weeds and cultural operations were carried out in time. The observations on crop stand with respect to individual entries in the trials are given below.

Initial Varietal Trial (Early)

In the IVT (Early), Co 0238 was the best standard with respect to crop stand. The test entries CoLk 17201, CoPb 17212 and CoS 17231 were found better whereas CoLk 17203, CoPant 17221 and CoPb 17212 were on par with the best standard. However, CoLk 17202 was poor as compared to standard (Table 2 & 3).

Advanced Varietal Trial (Early) – I Plant Crop

In the AVT I plant (early) trial, Co 0238 was the best standard. CoLk 16202, CoPb 16181 and CoLk 14201 were found better among the test entries. However, Co 16029 and CoLk 16201 were adjudged at par with the best standard (Table 5).

Advanced Varietal Trial (Early) – II Plant Crop

In the AVT II plant (early) trial, Co 0238 was the best standard and CoLk 15201 was rated better. However, four cones Co 15023, Co 15027, CoLk 15205 and CoPb 152121 were found on par for cane growth parameters. Co 15025 was ranked poor and also having lodging tendency (Table 7).

Advanced Varietal Trial (Early) – Ratoon

In the AVT Early ratoon trial, Co 0238 was the best standard. In this trial two clones namely CoLk 15205 and CoPb 15212 were better and two clones Co 15027 and CoLk 15201 were on par with the best standard. However, Co 15023 and Co15024 were observed to have poor crop stand (Table 9).

Initial Variety Trial (Midlate)

In the IVT (midlate) trial, Co 05011 was the best standard. In this trial six clones, Co 17018, CoH 17262, CoPb 17214, CoPb 17215, CoPant 17223 and CoS 17234 were adjudged as better performing than standard Co 05011 (Table 4). Among remaining test clones; CoH 17261 was poor while other test clones were observed on par for their performance with best standard.

Advanced Varietal Trial (Midlate) –I Plant Crop

In the AVT I plant (midlate) trial, CoS 767 was the best standard and four clones namely Co 16030, CoLk 16204, CoS 16232 and Cos 16233 were found better than the best standard and one clone CoLk 16203 was on par to the standard in performance (Table 6).

Advanced Varietal Trial (Midlate) – II Plant Crop

In the AVT II plant (Midlate), CoS 767 was the best standard. Test entries i.e. CoLk 15206 and CoS 15233 were found while rest of clones were on par in their performance (Table 8).

Advanced Varietal Trial – Ratoon (Midlate)

In the AVT ratoom (midlate) trial, CoS 767 was the best standard. Two test entries namely CoLk 15207 and CoS 15233 were found better. However four test entries; CoLk 15206, CoLk 15209, CoPb 15213 and CoS 15232 were on par with the best standard CoS 767 while Co 15026 was poor in performance (Table 10).

Seed multiplication

It will be discussed in the forthcoming plant breeders meet.

Fluff supply programme

It will be discussed in the forthcoming plant breeders meet.

3. G B PANT UNIVERSITY OF AGRICULTURE AND TECHNOLOGY, PANTNAGAR

All the eight trials were conducted. All the experiments were well executed. The trials were without weeds and cultural operations were carried out in time. The observations on crop stand with respect to individual entries in the trials are given below.

Initial Varietal Trial (Early)

In the IVT (Early), Co 0238 was the best standard with respect to crop growth. The test entries CoLk 17201 was better; CoPant 17221 and CoPb 17212 were on par while other entries and rated poor in performance as compared to best standard (Table 3).

Advanced Varietal Trial (Early) – I Plant Crop

In the AVT I plant (early) trial, Co 0238 was the best standard and clone CoLk 16201 was adjudged as better and three clones Co15025, CoLk 16202 and CoPb 16181 were on par while Co 16029 and CoLk 14201 were poor in comparison to best standard (Table 5).

Advanced Varietal Trial (Early) – II Plant Crop

In the AVT II plant (early) trial, Co 0238 was the best standard and test clone Co 15027 was better than this standard. However, two clones Co 15023 and CoLk 15201 were found on par and remaining three clones were rated poor for their crop stand (Table 7).

Advanced Varietal Trial (Early) – Ratoon

In the AVT early ratoon trial, Co 05009 was the best standard. Test clone Co 15027 was better; two clones CoLk 15201 and CoLk 15205 were on par and showed poor growth in comparison to best standard (Table 9).

Initial Variety Trial (Midlate)

In the IVT (midlate) trial, CoPant 97222 was the best standard. Four test clones namely CoPb 17214, CoPant 17223, CoS 17234 and Cos 17236 were found better in their performance to the best standard. While seven clones were adjudged on par and four as poor performers in this trial as compared to CoPant 97222 (Table 4).

Advanced Varietal Trial (Midlate) –I Plant Crop

In the AVT I plant (midlate) trial, CoPant 97222 was the best standard. Two clones Co16030 and CoS 16233 were better; two clones CoLk 16203 and CoS 16232 were on par and CoLk 16204 was poor in performance (Table 6).

Advanced Varietal Trial (Midlate) – II Plant Crop

In the AVT II plant (Midlate), CoPant 97222 was the best standard and Test clone CoS 15232 was better while three clones CoLk 15209, CoPb 15213 and CoS 15233 were on par with standard Copant 97222 (Table 8). Three clones Co 15026, CoLk 15206 and CoLk 15207 showed their poor crop stand.

Advanced Varietal Trial – Ratoon (Midlate)

In the AVT ratoon (midlate) trial, CoPant 97222 was the best standard. Four test clones namely CoLk 15206, CoLk 15209, CoPb 15213 and CoS 15233 were found on par and remaining as poor as compared to standard (Table 10).

Seed multiplication

It will be discussed in the forthcoming plant breeders meet.

Fluff supply programme

It will be discussed in the forthcoming plant breeders meet.

4. SUGARCANE RESEARCH STATION, MUZAFFARNAGAR

All the eight trials were conducted as per the technical programme for 2020-21. All the experiments were well executed. The observations on crop stand with respect to individual entries in the trials are given below.

Initial Varietal Trial (Early)

In the IVT (Early), Co 0238 was the best standard with respect to crop stand. The test entries CoLk 17201, CoPb 17212 and CoS 17231 were found better in performance than standard. Clone CoPant 17221 was found on par while three clones namely CoLk 17202, CoLk 17203 and CoPb 17211 reported to have no germination in this trial (Table 3).

Advanced Varietal Trial (Early) – I Plant Crop

In the AVT I plant (early) trial, Co 0238 was the best standard. Four test clones namely CoLk 16201, CoLk 16202, CoPb 16181 and CoLk 14201 were found better and clones Co 16029 and Co 15025 were observed on par (Table 5) in this trial as compared to best standard.

Advanced Varietal Trial (Early) – II Plant Crop

In the AVT II plant (early) trial, Co 0238 was the best standard. Three test clones namely Co 15023, Co 15027 and CoLk 15201 were better and clones Co 15024, CoLk 15205 and CoPb 15212 were rated on par as compared to standard (Table 7).

Advanced Varietal Trial (Early) – Ratoon

In the AVT Early ratoon trial, Co 0238 was the best standard and three clones Co 15027, CoLk 15205 and CoPb 15212 were better for ratoon performance and CoLk 15201 was found on par while Co 15023 and Co 15024 showed poor performance in this trial as compared to standard.

Initial Variety Trial (Midlate)

In the IVT (mid-late) trial, CoPant 97222 was the best standardin this trial nine test clones namely Co 17018, CoLk 17205, CoPb 17213, CoPb 17214, CoPb 17215, CoPant 17224, CoS 17234, CoS 17236 and CoS 17237 showed better performance and four clones viz., CoH 17262, CoLk 17204, CoPant 17223 and CoS 17235 showed on par performance as compared to standard (Table 4).

Advanced Varietal Trial (Midlate) –I Plant Crop

In the AVT I plant (midlate) trial, Co 05011was the best standard. Three test clones Co 16030, CoLk 16204 and CoS 16232 were better performing and two clones CoLk 16203 and CoS 16233 were on par with standards for their performance in this trial (Table 6).

Advanced Varietal Trial (Midlate) – II Plant Crop

In the AVT II plant (Midlate), CoPant 97222 was the best standard. Five test clones namely Co15026, CoLk 15206, CoLk 15207, CoLk 15209.

Advanced Varietal Trial – Ratoon (Midlate):

In the AVT ratoon (midlate) trial, CoS 767 was the best standard. In this trial five clones namely CoLK 15206, CoLk 15209, CoPb 15213, CoS 15232 and CoS 15233 were found better than the check and two clones Co 15026 and CoLk 15207 were found at par (Table 10).

Seed multiplication

It will be discussed in the forthcoming plant breeders meet.

5. CCSHAU, RRS, UCHANI

This centre was allotted four trials. All the allotted trials were conducted as per the technical programme for 2020-21 of North West Zone. All the experiments were well executed. The trials were without weeds and cultural operations were carried out in time. The observations on crop stand with respect to individual entries in the trials are given below.

Initial varietal trial (Early)

Not allotted.

Advanced Varietal Trial (Early) – I Plant Crop

In this trial Co 0238 was the best standard. Among test clones, four clones CoLk 16201, CoLk 16202, CoPb 16181 and CoLk 14201 were found on par with the standard where as two clones; Co 16209 and Co 15025 were poor as compared to the best standard (Table 5).

Advanced Varietal Trial (Early) – II Plant Crop

Not allotted.

Advanced Varietal Trial (Early) – Ratoon

Not allotted.

Initial Variety Trial (Midlate)

In IVT midlate trial CoPant 97222 was the best standard for growth parameters. Six test clones viz., CoH 17261, CoPb 17214, CoPb 17215, CoPant 17223, CoS 17235 and CoS 17236 were found better than the check (Table 4). However, eight clones were found on par and one clone CoLk 17205 was poor in this trial.

Advanced Varietal Trial (Midlate) –I Plant Crop

Not allotted.

Advanced Varietal Trial (Midlate) – II Plant Crop

In the AVT II plant (Midlate), CoPant 97222 was the best standard. Among the test clones, CoS 15223 was found better than check and four clones, Co 15026, CoLk 15206, CoLk 15209 and CoS 15232 were on par whereas CoLk 15207 and CoPb 15213 were observed poor in their performance against the standard CoPant 97222 (Table 8).

Advanced Varietal Trial – Ratoon (Midlate):

In the AVT ratoon (midlate) trial, CoPant 97222 was the best standard. One clone CoS 15232 was better, three clones on par and three were poor than the standard CoPant 97222 (Table 10).

Seed multiplication

It will be discussed in the forthcoming plant breeders meet.

Fluff supply programme

It will be discussed in the forthcoming plant breeders meet.

6. ICAR-SBI, RC, KARNAL

This centre was allotted four trials. All the allotted trials were conducted as per the technical programme for 2020-21 of North West Zone. All the experiments were well executed. The trials were without weeds and cultural operations were carried out in time. The observations on crop stand with respect to individual entries in the trials are given below.

Initial varietal trial (Early)

In Initial varietal trial (Early) Co 0238 was the best standard. Two clones CoPb 17212 and CoS 17231 were found on par whereas remaining four clones were related as poor in performance as compared to the standard Co 0238 (Table 3).

Advanced Varietal Trial (Early) – I Plant Crop

Not allotted.

Advanced Varietal Trial (Early) – II Plant Crop

In the AVT II plant (early), Co 0238 was the best standard. Among test clones Co 15027 and CoLk 15201 were found better whereas Co 15023 and CoPb 15212 were on par in their performance. Two clones Co 15024 and CoLk 15205 were rated as poor in their performance (Table 7).

Advanced Varietal Trial (Early) – Ratoon

In the AVT II plant (early), Co 0238 was the best standard. Among test clones Co 15027 and CoLk 15201 were found better whereas Co 15023 was on par in its performance. Three clones Co 15024, CoPb 15212 and CoLk 15205 were rated as poor in their performance (Table 9).

Initial Variety Trial (Midlate)

Not allotted

Advanced Varietal Trial (Midlate) –I Plant Crop

In this trial CoPant 97222 was the best standard. Among test clones CoS 16233 was better, Co 16030 and CoS 16232 were on par and CoLk 16203 & CoLk 16204 were poor as compared to the standard CoPant 97222 (Table 6).

Advanced Varietal Trial (Midlate) – II Plant Crop

Not allotted

Advanced Varietal Trial – Ratoon (Midlate)

Not allotted

Seed multiplication

It will be discussed in the forthcoming plant breeders meet.

Fluff supply programme

It will be discussed in the forthcoming plant breeders meet.

7. PAU, RRS, KAPURTHALA

All the eight trials were conducted as per the technical programme for 2020-21 of North West Zone. All the experiments were well executed. The trials were without weeds and cultural operations were carried out in time. The observations on crop stand with respect to individual entries in the trials are given below.

Initial varietal trial (Early)

Co 0238 was the best standard with respect to crop. The test entries CoPant 17221 and CoPb 17212 were found on par with standard while rest of the entries were adjudged on lowerside of standard (Table 3).

Advanced Varietal Trial (Early) – I Plant Crop

In the AVT I plant (early) trial, Co 0238 was the best standard. Two clones CoLk 16202 and CoPb 16181 were better while remaining four clones were at par in their performance as compared to the standard (Table 5).

Advanced Varietal Trial (Early) – II Plant Crop

In the AVT II plant (early) trial, Co 0238 was the best standard. Among test clones Co 15027 and CoLk 15201 were better in performance and Co 15023, CoLk 15205 and CoPb 15212 were on par and Co 15024 was found poor than the standard and having lodging tendency (Table 7).

Advanced Varietal Trial (Early) – Ratoon

In the AVT Early ratoon trial, Co 0238 was the best standard. Among test clones Co 15027, CoPb 15212 and CoLk 15201 were better in performance, CoLk 15205 on par and Co 15023 & Co 15024 were observed poor with lodging tendency (Table 9).

Initial Variety Trial (Midlate)

In the IVT (mid-late) trial, Co 05011 was the best standard. In this trial seven clones namely Co 17018, CoH 17262, CoPb 17214, CoPb 17215, CoPant 17223, CoS 17234 and CoS 17236 were better in their performance than the best standard. However, two clone CoH 17261 and Cos 17233 were poor while rest of the clones were found at par to the standard (Table 4).

Advanced Varietal Trial (Midlate) –I Plant Crop

In the AVT I plant (midlate) trial, CoS 767 was the best standard and two clones Co 16030 and CoS 16233 were better performing while CoLk 16203, CoLk 16204 and CoS 16232 were found on par for their performance compared to best standard (Table 6).

Advanced Varietal Trial (Midlate) – II Plant Crop

In the AVT II plant (Midlate), Co 05011 was the best standard. Four clones namely CoLk 15207, CoPb 15213, CoS 15232 and CoS 15233 were better in performance than check. Two clones Co 15206 and CoLk 15209 were on par while CoLk 15206 was rated as poor (Table 8).

Advanced Varietal Trial – Ratoon (Midlate):

In the AVT ratoon (midlate) trial, Co 05011 was the best standard. Among test clones, three clones (CoLk 15207, CoPb 15213, CoS 15232) were better and four clones (Co 15026, Co Lk 15206, CoLK 15209 & CoS 15233) were on paras compared to the best standard Co 05011 (Table 10).

Seed multiplication

It will be discussed in the forthcoming plant breeders meet.

Fluff supply programme

It will be discussed in the forthcoming Zonal Breeders & Plant Pathologists Meet.

8. PAU, RRS, FARIDKOT

All the eight trials were conducted as per the technical programme of North West Zone for 2020-21. All the experiments were well executed. The trials were without weeds and cultural operations were carried out in time. The observations on crop stand with respect to individual entries in the trials are given below.

Initial varietal trial (Early)

Co 05009 was the best standard with respect to crop stand and growth. Two clones CoPant 17221 and CoPb 17212 were on par with standard whereas rest of the clones observed poor in their performance (Table 3).

Advanced Varietal Trial (Early) – I Plant Crop

In the AVT I plant (early) trial, Co 05009 was the best standard. Among test clones, CoLk 14201 was better and four clones (Co 15025, CoLk 16201, CoLk 16202 and CoPb 16181) were on par in their performance compared to best standard while Co 16029 was poor (Table 5).

Advanced Varietal Trial (Early) – II Plant Crop

In the AVT II plant (early) trial, Co 05009 was the best standard. Four clones Co 15024, Co 15027, CoLk 15201 and CoPb 15212 were on par as compared to standard Co 05009. However, two clones CoLk 15205 and Co 15023 were found poor (Table 7).

Advanced Varietal Trial (Early) – Ratoon

In the AVT Early ratoon trial, Co 05009 was the best standard. Two entries Co 15027 and CoPb 15212 were better; CoLk 15205 was on par while others were poor in their performance as compared to the best standard.

Initial Variety Trial (Midlate)

In the IVT (mid-late) trial, Co 05011 was the best standard. Among test entries eight clones were better, five were on par and two (CoH 17261 & CoS 17233) were poor in their performance as compared to standarad (Table 4).

Advanced Varietal Trial (Midlate) –I Plant Crop

In the AVT I plant (midlate) trial, Co 05011 was the best standard. Among test clones, four clones (CoLk 16203, CoLk 16204, CoS 16232 & CoS 16233) were on par and Co 16030 was found poor as compared to the standard (Table 6).

Advanced Varietal Trial (Midlate) – II Plant Crop

In the AVT II plant (Midlate), CoPant 97222 was the best standard. Among test clones CoPb 15213 & CoS 15233 were better and Co 15026, CoLk 15207, CoLK 15209 & CoS 15232 were on par and CoLk 15206 was poor (Table 8).

Advanced Varietal Trial – Ratoon (Midlate)

In the AVT ratoon (midlate) trial, CoPant 9722 was the best standard. In this trial four clones CoLk 15209, CoPb 15213, CoS 15232 and CoS 15233 were on par while others were poor in their performance as compared to the standard (Table 10).

Seed multiplication

It will be discussed in the forthcoming plant breeders meet.

Fluff supply programme

It will be discussed in the forthcoming plant breeders meet.

9. ARS, SRIGANGANAGAR

All the eight trials were conducted and the experiments were well executed. The trials were without weeds and cultural operations carried out in time. The observations on crop stand with respect to individual entries in the trials are given below.

Initial varietal trial (Early)

Co 0238 was the best standard with respect to crop stand and growth. Two clones CoLk 17202 and CoPb 17212 were better and three clones Co 17201, CoPb 17211 & CoS 17231 were on par with the best standard for plant growth (Table 3).

Advanced Varietal Trial (Early) – I Plant Crop

In the AVT I plant (early) trial, Co 0238 was the best standard. In this trial three clones Co 029, Co 15025 & CoPb 16181 were better in growth than standard whereas, CoLk 16201 and CoLk 14201 were at par for their performance in comparison to check (Table 5).

Advanced Varietal Trial (Early) – II Plant Crop

In the AVT II plant (early) trial, Co 0238 was the best standard. Among test clones, Co 15023 and Co 15027 were found better while Co 15024, CoLk 15201 and CoPb 15212 were at par for growth performance (Table 7).

Advanced Varietal Trial (Early) – Ratoon

In the AVT Early ratoon trial, Co 0238 was the best standard. Among test clones, Co 15023 and Co 15027 were found better while Co 15024, CoLk 15201 and CoPb 15212 were at par for growth performance (Table 9).

Initial Variety Trial (Midlate)

In the IVT (mid-late) trial, Co 05011 was the best standard. In this trial seven clones were adjudged better than standard (Table 4) and two clones CoS 17236 & CoPb 17213 were at par while others were poor in their performance as compared to the Co 05011 for growth parameters.

Advanced Varietal Trial (Midlate) –I Plant Crop

In the AVT I plant (midlate) trial, CoPant 97222 was the best standard. In this trial one clone CoS 16232 was better, Co 16030 was at par while others were poor in growth as compared to standard CoPant 97222 (Table 6).

Advanced Varietal Trial (Midlate) – II Plant Crop

In the AVT II plant (Midlate), CoPant 97222 was the best standard. In this trial two test clones Co 15026 & Co Lk 15209 were better, one Cos 15233 was at par and remaining were poor for their growth as compared to best standard (Table 8).

Advanced Varietal Trial – Ratoon (Midlate)

In the AVT ratoon (midlate) trial, CoPant 97222 was the best standard. In this trial two test clones Co 15026 & Co Lk 15209 were better, one Cos 15233 was at par and remaining were poor for their growth as compared to best standard (Table 10).

Seed multiplication

It will be discussed in the forthcoming plant breeders meet.

10. ARS, KOTA

All the eight trials were conducted and the experiments were well executed. The trials were without weeds and cultural operations carried out in time. The observations on crop stand with respect to individual entries in the trials are given below.

Initial varietal trial (Early)

Co 0238 was the best standard with respect to crop stand and growth in this trial. Four test clones (CoLk 17202, CoPant 17221, CoPb 17212 & CoS 17231) were better than check for growth performance and two were on par and one poor (Table 3).

Advanced Varietal Trial (Early) – I Plant Crop

In the AVT I plant (early) trial, Co 0238 was the best standard. In this trial two test clones CoLk 16202, CoLk 14201 were better and three clones Co 16029, CoLK 16201 and CoPb 16181 were on par with the standard (Table 5).

Advanced Varietal Trial (Early) – II Plant Crop

In the AVT II plant (early) trial, Co 0238 was the best standard. Among test clones Co 15023, Co 15027 and CoLk 15205 were observed better while, Co 15024, CoLk 15201 and CoPb 15212 were found on par as compared to standard (Table 7).

Advanced Varietal Trial (Early) – Ratoon

In the AVT Early ratoon trial, Co 0238 was the best standard. Among test clones Co 15023, Co 15027 and CoLk 15205 were observed better while, Co 15024, CoLk 15201 and CoPb 15212 were found on par as compared to standard (Table 9).

Initial Variety Trial (Midlate)

In the IVT (mid-late) trial, Co 05011 was the best standard. Among test clones in this trial five clones were adjudged better, five at on par and five poor in their performance as compared to standard Co 05011 (Table 4).

Advanced Varietal Trial (Midlate) –I Plant Crop

In the AVT I plant (midlate) trial, Co 05011 was the best standard. In this trial three clones namely CoLk 16203, CoLk 16204 and CoS 16233 were better performing. However, CoS 16232 was on par and Co 16030 was poor in comparison to standard (Table 6).

Advanced Varietal Trial (Midlate) – II Plant Crop

In the AVT II plant (Midlate), Co 05011 was the best standard. . In this trial four clones namely Co 15026, CoLk 15207, CoS 15232 & CoS 15233 were better than standard and three clones (CoLk 15206, CoLk 15209 & CoPb 15213) were on par in their performance as compared to best standard (Table 8).

Advanced Varietal Trial – Ratoon (Midlate)

In the AVT II ratoon (Midlate), Co 05011 was the best standard. . In this trial four clones namely Co 15026, CoLk 15207, CoS 15232 & CoS 15233 were better than standard and three clones (CoLk 15206, CoLk 15209 & CoPb 15213) were on par in their performance as compared to best standard (Table 8).

Seed multiplication

It will be discussed in the forthcoming plant breeders meet.

Table 1. Allotment and conduct of crop improvement trials at different centers in North West Zone

Trial	Lucknow	Shahjahanpur	Pantnagar	Muzzaffarnagar	Karnal	Uchani	Kapurthala	Faridkot	Sriganganagar	Kota
IVT (Early)	C	C	C	C	C	NA	C	C	C	C
AVT (Early)I Plant Crop	C	C	C	C	NA	C	C	C	C	C
AVT (Early)II Plant Crop	C	C	C	C	C	NA	C	C	C	C
AVT (Early) Ratoon	C	C	C	C	C	NA	C	C	C	C
IVT (Midlate)	C	C	C	C	NA	C	C	C	C	C
AVT(Midlate) I Plant	C	C	C	C	C	NA	C	C	C	C
AVT(Midlate) II Plant	C	C	C	C	NA	C	C	C	C	C
AVT(Midlate)Ratoon	C	C	C	C	NA	C	C	C	C	C
Fluff supply Programme										

C= Conducted; NA= Not Allotted

Table 2. Overall grading of the trials based on the observations made during monitoring of Trials Videos (Virtual Mode)

Trial	Lucknow	Shahjahanpur	Pantnagar	M. Nagar	Karnal	Uchani	Kapurthala	Faridkot	Sriganganagar	Kota
IVT (Early)	P	E	VG	G	E	NA	E	E	VG	VG
AVT-I (Early)	G	E	E	VG	NA	E	E	E	E	E
AVT-II (Early)	A	E	VG	E	E	NA	E	E	E	G
AVT-R (Early)	A	VG	G	G	VG	NA	E	VG	VG	G
IVT (Midlate)	P	E	VG	E	NA	E	E	E	E	E
AVT-I(Midlate)	G	E	E	E	E	NA	E	E	E	VG
AVT-II(Midlate)	G	E	E	VG	NA	E	E	E	VG	VG
AVT-R (Midlate)	A	E	VG	VG	NA	E	VG	E	G	G

E=Excellent, VG= Very Good, G=Good, A= Average, P=Poor, NA= Not Allotted;

Each trial was rated in five scales:

Sl. No	Score (%) obtained	Rating
1	81-100	Excellent
2	61-80	Very good
3	41-60	Good
4	21-40	Average
5	0-20	Poor

Assessment of the trial should be based on

1. Whether conducted as per the technical programme
2. General growth and maintenance of the trial
3. If the trial is unfit for evaluation Grade **POOR** may be given.
4. When the trial is not allotted, it may be indicated as **Not Allotted**

Table 3: Performance of test entries in relation to standards in Initial Varietal Trial (Early)

S. No	Genotype	Lucknow *	Shahjahanpur	Pantnagar	Muzzaffarnagar	Karnal	Uchani	Kapurthala	Faridkot	Sriganganagar	Kota
1	CoLk 17201		Better	Better	Better	Poor	NA	Poor	Poor	On par	On par
2	CoLk 17202		Poor	Poor	N G	Poor	NA	Poor	Poor	Better	Better
3	CoLk 17203		On par	Poor	NG	Poor	NA	Poor	Poor	Poor	On par
4	CoPant 17221		On par	On par	On par	Poor	NA	On par	On par	Poor	Better
5	CoPb 17211		On par	Poor	NG	Poor	NA	Poor	Poor	On par	Poor
6	CoPb 17212		Better	On par	Better	On par	NA	On par	On par	Better	Better
7	CoS 17231		Better	Poor	Better	On par	NA	Poor	Poor	On par	Better
	Standards										
1	CoJ 64		II	III	III	III	NA	III	III	III	III
2	Co 0238		Best	Best	Best	Best	NA	Best	II	Best	Best
3	Co 05009		III	II	II	II	NA	II	Best	II	II

NA=Not allotted; *Poor trial not assessed

a) Among the standards the best was indicated and others were ranked II and III

b) The entries were compared with the best standard based on cane characters and field stand and rated as

1. Better
2. On par
3. Poor

Table 4: Performance of test entries in relation to standards in Initial Varietal Trial (Midlate)

S. No	Genotype	Lucknow*	Shahjahanpur	Pantnagar	Muzzaffarnagar	Karnal	Uchani	Kapurthala	Faridkot	Sriganganagar	Kota
1	Co 17018		Better	On par	Better	NA	On par	Better	On par	Poor	Poor
2	CoH 17261		Poor	Poor	Poor	NA	Better	Poor	Poor	Better	Poor
3	CoH 17262		Better	Poor	On par	NA	On par	On par	On par	Better	Better
4	CoLk 17204		On par	On par	On par	NA	On par	Better	On par	Poor	On par
5	CoLk 17205		On Par	Poor	Better	NA	Poor	On par	On par	Poor	Better
6	CoPb 17213		On par	On par	Better	NA	On par	On par	Better	On par	On par
7	CoPb 17214		Better	Better	Better	NA	Better	Better	Better	Better	Poor
8	CoPb 17215		Better	On par	Better	NA	Better	Better	Better	Better	Better
9	CoPant 17223		Better	Better	On Par	NA	Better	Better	Better	Better	On par
10	CoPant 17224		On par	On par	Better	NA	On par	On par	Better	Poor	Poor
11	CoS 17233		On par	On par	On par	NA	On par	Poor	Poor	Poor	Poor
12	CoS 17234		Better	Better	Better	NA	On par	Better	On par	Better	Better
13	CoS 17235		On par	On par	On par	NA	Better	On par	Better	Better	Better
14	CoS 17236		On par	Better	Better	NA	Better	Better	Better	On par	On par
15	CoS 17237		On par	Poor	Better	NA	On par	On par	Better	Better	On par
1	CoS 767		II	II	II	NA	III	II	III	II	II
2	CoPant 97222		III	Best	Best	NA	Best	III	II	III	III
3	Co 05011		Best	III	II	NA	II	Best	Best	Best	Best

NA= Not allotted; *Poor trial not assessed

Table 5: Performance of test entries in relation to standards in Advanced Varietal Trial-I Plant (Early)

S. No	Genotype	Lucknow	Shahjahanpur	Pantnagar	Muzzaffarnagar	Karnal	Uchani	Kapurthala	Faridkot	Sriganganagar	Kota
1	Co 16029	Poor	On par	Poor	On par	NA	Poor	On par	Poor	Better	On par
2	Co 15025	Poor	Poor	On par	On par	NA	Poor	On par	On par	Better	Poor
3	CoLk 16201	On par	On par	Better	Better	NA	On par	On par	On par	On Par	On par
4	CoLk 16202	Better	Better	On par	Better	NA	On par	Better	On par	Poor	Better
5	CoPb 16181	Poor	Better	On par	Better	NA	On par	Better	On par	Better	On par
6	CoLk 14201	On Par	Better	Poor	Better	NA	On par	On par	Better	On par	Better
	Standards										
1	CoJ 64	II	II	II	II	NA	III	III	III	III	III
2	Co 0238	Best	Best	Best	Best	NA	Best	Best	II	Best	Best
3	Co 05009	III	III	III	III	NA	II	II	Best	II	II

NA= Not allotted.

Table 6: Performance of test entries in relation to standards in Advanced Varietal Trial-I Plant (Midlate)

S. No	Genotype	Lucknow	Shahjahanpur	Pantnagar	Muzzaffarnagar	Karnal	Uchani	Kapurthala	Faridkot	Sriganganagar	Kota
1	Co 16030	On par	Better	Better	Better	On par	NA	Better	Poor	On par	Poor
2	CoLk 16203	Poor	On par	On par	On par	Poor	NA	On par	On par	Poor	Better
3	CoLk 16204	Poor	Better	Poor	Better	Poor	NA	On par	On par	Poor	Better
4	CoS 16232	On par	Better	On par	Better	On par	NA	On par	On par	Better	On par
5	CoS 16233	Better	Better	Better	On par	Better	NA	Better	On par	Poor	Better
	Standards										
1	CoS 767	Best	Best	II	II	II	NA	Best	II	II	II
2	CoPant 97222	II	II	Best	III	Best	NA	III	III	Best	III
3	Co 05011	III	III	III	Best	III	NA	II	Best	III	Best

NA= Not allotted

Table 7: Performance of test entries in relation to standards in Advanced Varietal Trial-II Plant (Early)

S. No	Genotype	Lucknow	Shahjahanpur	Pantnagar	Muzzaffarnagar	Karnal	Uchani	Kapurthala	Faridkot	Sriganganagar	Kota
1	Co15023	On par	On par	On par	Better	On par	NA	On par	Poor	Better	Better
2	Co 15024	Poor	Poor	Poor	On par	poor	NA	Poor	On Par	On par	On par
3	Co 15027	Poor	On par	Better	Better	Better	NA	Better	On par	Better	Better
4	CoLk 15201	On par	Better	On par	Better	Better	NA	Better	On par	On par	On par
5	CoLk 15205	Better	On par	Poor	On par	Poor	NA	On par	Poor	Poor	Better
6	CoPb 15212	On par	On par	Poor	On par	On par	NA	On par	On par	On par	On par
	Standards										
1	CoJ 64	II	II	III	III	III	NA	III	III	III	III
2	Co 0238	Best	Best	Best	Best	Best	NA	Best	II	Best	Best
3	Co 05009	III	III	II	II	II	NA	II	Best	II	II

NA= Not allotted

Table 8: Performance of test entries in relation to standards in Advanced Varietal Trial-II Plant (Midlate)

S. No	Genotype	Lucknow	Shahjahanpur	Pantnagar	Muzzaffarnagar	Karnal	Uchani	Kapurthala	Faridkot	Sriganganagar	Kota
1	Co 15026	On par	On par	Poor	Better	NA	On par	On par	On par	Better	Better
2	CoLk 15206	Better	Better	Poor	Better	NA	On par	Poor	Poor	Poor	On par
3	CoLk 15207	On par	On par	Poor	Better	NA	Poor	Better	On par	Poor	Better
4	CoLk 15209	On par	On par	On par	Better	NA	On par	On par	On par	Better	On par
5	CoPb 15213	On Par	On par	On par	On par	NA	Poor	Better	Better	Poor	On par
6	CoS 15232	Better	On par	Better	On Par	NA	On par	Better	On par	Poor	Better
7	CoS 15233	Poor	Better	On par	Better	NA	Better	Better	Better	On par	Better
	Standards										
1	CoS 767	III	Best	III	III	NA	II	II	III	III	II
2	CoPant 97222	Best	III	Best	Best	NA	Best	III	Best	Best	III
3	Co 05011	II	II	II	II	NA	III	Best	II	II	Best

NA= Not allotted.

Table 9: Performance of test entries in relation to standards in Advanced Varietal Trial-Ratoon (Early)

S. No	Genotype	Lucknow	Shahjahanpur	Pantnagar	Muzzaffarnagar	Karnal	Uchani	Kapurthala	Faridkot	Sriganganagar	Kota
1	Co15023	Poor	Poor	Poor	Poor	On par	NA	Poor	Poor	Better	Better
2	Co 15024	Poor	Poor	Poor	Poor	Poor	NA	Poor	Poor	On par	On par
3	Co 15027	On par	On par	Better	Better	Better	NA	Better	Better	Better	Better
4	CoLk 15201	Poor	On par	On par	On par	Better	NA	Better	Poor	On par	On par
5	CoLk 15205	Poor	Better	On par	Better	Poor	NA	On par	On par	Poor	Better
6	CoPb 15212	On par	Better	Poor	Better	Poor	NA	Better	Better	On par	On par
	Standards										
1	CoJ 64	II	III	III	II	III	NA	III	III	III	III
2	Co 0238	Best	Best	II	Best	Best	NA	Best	II	Best	Best
3	Co 05009	III	II	Best	III	II	NA	II	Best	II	II

NA= Not allotted

Table 10: Performance of test entries in relation to standards in Advanced Varietal Trial-Ratoon (Midlate)

S. No	Genotype	Lucknow	Shahjahanpur	Pantnagar	Muzzaffarnagar	Karnal	Uchani	Kapurthala	Faridkot	Sriganganagar	Kota
1	Co 15026	Poor	Poor	Poor	On par	NA	Poor	On par	Poor	Better	Better
2	CoLk 15206	Poor	On par	On Par	Better	NA	On par	On par	Poor	Poor	On par
3	CoLk 15207	On par	Better	Poor	On par	NA	Poor	Better	Poor	Poor	Better
4	CoLk 15209	Better	On par	On par	Better	NA	On par	On par	On par	Better	On par
5	CoPb 15213	Poor	On par	On Par	Better	NA	Poor	Better	On par	Poor	On par
6	CoS 15232	Poor	On par	Poor	Better	NA	Better	Better	On par	Poor	Better
7	CoS 15233	On par	Better	On par	Better	NA	On par	On par	On par	On par	Better
	Standards										
1	CoS 767	II	Best	III	Best	NA	II	II	III	III	II
2	CoPant 97222	III	III	Best	III	NA	Best	III	Best	Best	III
3	Co 05011	Best	II	II	II	NA	III	Best	II	II	Best

NA= Not allotted

B. CROP PRODUCTION

1) Centre-wise status of trials allotted and conducted

Experiment No &Title	**AS72:** Agronomic performance of elite sugarcane genotypes	**AS73:** Assessment of climate change impact on sugarcane productivity	**AS74:** Evaluation of sugarcane varieties for drought tolerance	**AS75:** Precision nutrient management through rescheduling time of application for widely spaced sugarcane plant-ratoon system.
Centre				
Lucknow	Conducted	Compiled data	Conducted	Conducted
Shahjhanpur	Conducted	-	Conducted	Conducted
Uchani	Conducted	-	Conducted	Conducted
Faridkot	Conducted	Compiled data	Conducted	Conducted
Kota	Conducted	-	Conducted	Conducted

2) General observations made during online presentation

Centre	**AS72**	**AS73**	**AS74**	**AS 75**
Lucknow	Early maturing varieties planted as per technical programme but crop condition at the time of monitoring was very poor. Plant population in some replications were severely affected. Crop has been severely damaged by Blue Bull and other uncontrolled factors. Mid-late varieties are also planted as per the technical program. However, the trial has been vitiated due to its under average performance.	Data are being compiled. No field experiment.	The crop growth was observed excellent with visible difference with respect to two irrigation regimes i.e 1.0 and 0.3 IW/CPE ratio.	The crop growth was excellent and treatment differences were found clearly visible.
Shahjhanpur	The crop growth was found excellent. The highest number of shoots per plot were appeared in genotype CoLk 15205 while maximum growth and plant height were observed in Co 0238 early maturing genotype. In Mid-late maturing genotypes, CoLK 15207 was found better in number of shoots produced	-	The crop growth was very good. Maximum number of shoots were observed in CoS 13231, while, growth and plant height was better in CoLk 94184. Higher numbers of shoots were observed with IW/CPE ratio1.0 as compared to 0.3 IW/CPE ratio in both	Maximum number of shoots were observed in band placement of fertilizer compared to broad casting method while RDN + RDK in seven splits (Basal 10 % remaining at 45,

	/ha. All the genotypes are performing better with 125% NPK in terms of number of shoots as compared with 100% NPK.		early and mid-late genotypes.	75, 90, 120, 150 and 180 DAP in equal splits) were found better over others.
Uchani	Best performing early varieties were in order of CoLk 15201 and Co 0238 (highest cane yield expected). Mid-late varieties CoPant 97222 were showing better performance among all the entries and checks. However, all the varieties (early and mid-late group) responded to 125 % RDF in terms of growth and phenotypic appearance over 100% RDF.	-	Among early maturing varieties, Co 0238 and among mid-late varieties, CoH 167 is performing better in terms of overall growth. However, higher values of tillers, plant height and other characters of varieties were observed at IW/CPE ratio 1.0 over 0.3.	Band placement seemed to be better as compared to broadcasting method of nutrient application. Higher splits of N & K seemed to be better as compared to three splits in terms of cane height and plant population.
Faridkot	Early varieties were showing thick and heavy canes at 120 cm spacing. Some varieties were looking better at 125% fertilizer. However, Mid-late varieties were showing thick and heavy canes at 120 cm spacing. Some varieties are looking better at 125% fertilizer.	Weather data recorded and supplied for further analysis.	Due to heavy rainfall in the months of July, August and September months the differences in irrigation regimes are not much visible but overall growth of crop was found better at IW/CPE = 1.0 than IW/CPE = 0.3	Split application of nutrients with band application seems better than other treatments
Kota	The crop growth was found very good. Crop performances under the field condition of early variety (Co 15027) and mid-late variety (CoLk 15209) were found better over other entries.	-	The crop growth was very good. Among early maturing varieties, CoPk 05191 (Pratap Ganna-1) and among mid-late varieties, Co 05011 was performing better in terms of crop growth. Overall crop responses were found better for irrigation scheduling at IW/CPE ratio 1.0.	Band placement fertilizer application found better over other method. However, RDN + RDK in seven splits (Basal 10 % remaining at 45, 75, 90, 120, 150 and 180 DAP in equal splits) responded higher plant growth over the rest of treatments.

3) Salient observations made about trials

Name of centre	Experiments No.	Execution of allotted trials as per approved technical programme.	Health standard, and sanitation	Proper labelling in the experimental plots.	Agronomic management of trials (weed mgt, earthling etc)	Overall rating (A: Very good, B: good, C: average & D: below average)
Lucknow	**AS72**	Yes	Very poor	Yes	Poor	D
	AS73	Data of weather parameters are being recorded				A
	AS74	Yes	Excellent	Yes	Excellent	A
	AS 75	Yes	Excellent	Yes	Excellent	A
Shahjhanpur	**AS72**	Yes	Excellent	Yes	Very good	A
	AS74	Yes	Excellent	Yes	Very good	A
	AS 75	Yes	Excellent	Yes	Very good	A
Uchani	**AS72**	Yes	Excellent	Yes	Excellent	A
	AS74	Yes	Excellent	Yes	Excellent	A
	AS 75	Yes	Excellent	Yes	Excellent	A
Faridkot	**AS72**	Yes	Excellent	Yes	Excellent	A
	AS73	Weather data recorded and supplied				
	AS74	Yes	Excellent	Yes	Excellent	A
	AS 75	Yes	Excellent	Yes	Excellent	A
Kota	**AS72**	Yes	Excellent	Yes	Excellent	A
	AS74	Yes	Excellent	Yes	Excellent	A
	AS 75	Yes	Excellent	Yes	Excellent	A

4) Grading of centre with allotted experiment of crop production

Centres	Grading				Overall grading of experiment
	AS-72	**AS 73**	**AS 74**	**AS 75**	
Lucknow	Poor	-	Excellent	Excellent	Very good
Shahjhanpur	Excellent	-	Excellent	Excellent	Excellent
Uchani	Excellent	-	Excellent	Very good	Excellent
Faridkot	Excellent	Excellent	Excellent	Excellent	Excellent
Kota	Excellent	-	Excellent	Excellent	Excellent

C. PLANT PATHOLOGY

Monitoring team was constituted by the Project Coordinator (Sugarcane) IISR, Lucknow. Monitoring team had online monitored all the centres under North West Zone of AICRP during 06.01.2021 to 07.01.2021 through their presentations as well as the videos submitted by them. NWZ comprised of ten centres. Out of these, only six centres had been allotted sugarcane pathology experiments and all centres conducted plant pathology projects. The titles of plant pathology projects conducted during 2020-21 are given as under.

PP 14	Identification of pathotypes of red rot pathogen
PP 14 (a)	Maintenance of isolates of red rot pathogen
PP 17 (a)	Evaluation of zonal varieties for resistance to red rot
PP 17 (b)	Evaluation of zonal varieties for resistance to smut
PP 17 (c)	Evaluation of zonal varieties for resistance to wilt
PP 17 (d)	Evaluation of zonal varieties for resistance to YLD
PP 22	Survey of sugarcane diseases naturally occurring in the area on important sugarcane varieties
PP 23	Assessment of elite and ISH genotypes for resistance to red rot
PP 31	Screening, epidemiology and management of *pokkah boeng* in sugarcane

PP 33	Management of yellow leaf disease through meristem culture
PP 34	Efficient delivery of fungicides and other agro inputs to manage major fungal diseases in sugarcane

Summary of plant pathology projects allotted and conducted at various centres

The experiments of plant pathology under AICRP (S) allotted and conducted during 2020-21 in various centres of North Western Zone are listed below along with the observations.

Sl. No.	Centres	Plant Pathology Projects										
		PP 14	**PP 14 (A)**	**PP 17 (A)**	**PP 17 (B)**	**PP 17 (C)**	**PP 17 (D)**	**PP 22**	**PP 23**	**PP 31**	**PP 33**	**PP 34**
1.	IISR, Lucknow	C	C	C	C	C	C	C	C	NA	NA	NA
2.	SRI, Shahjahanpur	C	C	C	C	NC	C	C	C	C	NA	C
3.	GBPUAT Pantnagar	NA	NA	C	C	NA	C	C	NA	NA	NC	NA
4.	Muzaffarnagar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5.	HAU Uchani	C	C	C	C	NA	C	C	C	C	C	C
6.	SBI-RC Karnal	C	C	C	NA	NA	C	C	C	NA	NA	C
7.	PAU, Kapurthala	C	C	C	C	C	C	C	C	C	NA	C
8.	PAU, Faridkot	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9.	ARS,Sri Ganganagar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10.	ARS, Kota	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Abbreviations: C = Conducted, NC= Not Conducted, NA= Not allotted

1. ICAR-Indian Institute of Sugarcane Research, Lucknow (UP)

Monitoring team examined virtually all trials on dated 07 January, 2021 along with Team Leader. All the experiments were placed with the Field Boards and the proper levelling was done. The crop growth was found up to the marks.

PP 14: Identification of pathotypes of red rot pathogen

This experiment was conducted with 20 host differentials namely CoS 767, CoS 8436, CoSe 95422, BO 91, Co 62399, Co 7805, Co 7717, Co 86002, Co 997, Co 86032, Co 1148, CoJ 64, CoV 92102, Co 419, Co 975,CoC 671, Co 0238, Khakai, Baragua and SES 594. These host differentials was planted during 24 to 28 Feb, 2020 in 0.5 ha for the testing of the pathogenic variability on host differentials. Sum total of 10 local isolates excluding CF 07, CF 08 and CF 09 were inoculated for their reaction. Plug method of inoculation was done in the month of August. Three host differential namely Co 7717, Co 997 and CoC 671 were found affected with the wilt. The observation of wilt affected differentials were taken in advance before the incidence

PP 14 (A): Maintenance of isolates of red rot pathogen

Red rot cultures of designated standard pathotypes and local isolates have been maintained properly on suitable medium in *in-vitro* condition. The virulency of the designated standard pathotypes were maintained by inoculating them in their respective host variety under field condition.

PP 17 (A): Evaluation of zonal varieties for resistance to red rot

This experiment was planted from 03 to 06 March, 2020 in 0.3 ha for the testing against red rot of sugarcane. The forty six (46) entries along with standard check varieties were planted accordingly. Red rot inoculation was done with two pathotypes CF 08 and CF 09 by plug methods and nodal cotton swab method. Evaluation data was not taken till recording of the trails. Various entries namely CoLk 17202, CoPb 17211, Co 15025, Co 15024, Co 15027, Co 17214, CoPant 17223 and CoS 17233 were found affected by wilt in red rot experimental field. Trial was properly labelled and weeds were not seen in the recording. The crop condition was up to the mark for the evaluation against red rot disease.

PP 17 (B): Evaluation of zonal varieties for resistance to smut

Forty six (46) entries of with standard check varieties were planted accordingly from 03 to 06 March, 2020. Smut was observed on various entries *viz.,* CoPb 17213, CoPant 17224, CoLk 15209, CoLk 17203, Co17018, Co1158 and CoLk7701 during the virtual monitoring. The agronomic practices to raise the good crop was conducted properly which seems to see the experiment.

PP 17 (C): Evaluation of zonal varieties for resistance to wilt

Forty six (46) entries of with standard check varieties were planted accordingly from 03 to 06 March, 2020. Wilt was observed on various entries *viz.,* Co 15025, Co 15024, Co 15027, Co17214, CoPant 17223 and CoS17233 during the virtual monitoring. The agronomic practices to raise the good crop was conducted properly which seems to see the experiment.

PP 17 (D): Evaluation of zonal varieties for resistance to YLD

All forty six (46) entries of with standard check varieties CoLk 94184 were planted accordingly from 03 to 06 March, 2020. Yellow Leaf Disease was observed on various entries *viz.,* CoLk 17202, CoPant17223, CoPant17224 and CoS17233 during the virtual monitoring. The agronomic practices to raise the good crop was conducted properly appeared during monitoring of the experiment.

PP 22: Survey of sugarcane diseases naturally occurring in the area on important sugarcane varieties

Survey of various sugar factory areas and different farmer's field of UP and Bihar were conducted to record the incidence of major and minor diseases of sugarcane by the concern scientist. Various diseases such as red rot, smut, GSD, leaf scald and pokkah boeng were reported by concerning scientist. Final report preparation is under progress.

PP 23: Assessment of elite and ISH Genotypes for resistance to red rot of sugarcane

Twenty four ISH genotypes were planted from 10 to 13March, 2020 in 0.2 ha for the testing against red rot disease of sugarcane. Both plug and nodal method of inoculation were done with two pathotypes CF 08 and CF 09. Data was not taken till the recording of video. Trial condition was found good and all the genotype were labelled.

General observations:

- *All The allotted experiment were conducted. Proper field sanitation and labelling was maintained.*
- *Experimental fields was found lush green. Proper care has been taken to maintain the congenial environment for red rot, smut and wilt disease development.*

2. Sugarcane Research Institute (UPCSR), Shahjahanpur (UP)

Virtual monitoring of SRI, Shahjahanpur (UP) was conducted on 07 January, 2021. All the assigned experiments were conducted and field was found without labelled.

PP 14: Identification of pathotypes/races in red rot pathogen

This experiment was planted with 19 host differentials for testing of new pathotypes if any. fourteen local isolate including designated pathotypes of *C. falcatum* were tested for their behaviour on 19 host differentials by plug method under field conditions. Red rot were evaluatied in all differentials with seven exiting pathotypes along with fourteen local isolates by plug method of inocluation in the second week of August, 2020. Data had been already taken and compilation work are in progress.

PP 17 (A): Maintenance of isolates of red rot pathogen

As discussed with the concerned scientist, the pathotypes belonging to the Co 0238 is being maintained by the scientist.

PP 17 (A): Evaluation of zonal varieties for resistance to red rot

The experiment was conducted with forty six zonal entries. The inoculation was carried out with CF 08 and CF 09 pathotypes in August by plug and nodal method of inoculation separately. Standard checks were also planted and inoculated for study. Data were not recorded till the recording of video. Trials were observed normal. Data compilation work will be done later.

PP 17 (B): Evaluation of genotypes/varieties against smut disease

Forty six zonal entries of trials were planted in two replications on 09.03.2020 for smut evaluation as AICRP norm and it was weed free. Variety Co 1158 was used as smut susceptible check. As per the discussion smut incidence at fortnightly intervals was recorded. Data are taken according to AICRP norms and compilation works are in progress.

PP 17 (D): Evaluation of varieties/genotypes against yellow leaf disease

Yellow Leaf Disease data is being recorded in all the above trials and various varieties found affected by the disease. Data compilation is in progress.

PP 17 (F) Evaluation of zonal varieties for resistance to pokkah boeng disease

Pokkah boeng incidence had been already taken in the month of July to September. Data compilation works are in progress.

PP 22: Survey of sugarcane diseases naturally occurring in the area on important sugarcane varieties

Survey was conducted in near by sugar factories zone of central UP during during the crop seasons. Severe incidence of red rot on variety Co 0238 was found. The variety succumbed with red rot in Lakhimpur Kheri, Shahjahanpur, Hardoi and Sitapur district. Incidence of wilt also also observed in several variety. Smut and Grassy shoot disease were observed on Co 0238 along with other varieties in almost all sugar factory mill zones. Other minor diseases namely top rot (Bateria), SCMV, YLD and leaf binding, Leaf fleck were also recorded in different sugar factories zones from central UP. Data compile work are in progress.

PP 23: Assessment of elite and ISH genotypes for resistance to red rot

Sum total of thirty ISH genotypes were planted on 09.03.2020. Weeding was done but they again comes with the time. These ISH genotypes were tested for red rot resistance against CF 08 and CF 09 pathotypes in second week of August by plug and nodal method of inoculation separately. Data compilation work is in progress.

PP 31: Screening, epidemiology and management of *pokkah boeng* in sugarcane

Twenty one vareities/genotypes were planted on 13 March, 2020 for study in natural condition. Natural incidence data of *pokkah boeng* was recorded in July to September during high rainfall and humidity. The variety Co 0238 was used as susceptible standard. The efficacy of carbendazim fungicide for management of *pokkah boeng* was also tested on two popular varieties Co 0238 and CoS 08279.

PP 33: Management of yellow leaf disease through meristem culture combined with molecular diagnostics

CoS 08272 variety (Susceptible to YLD) is used for the experiments and planted in bet ween 04.4.2020 to 07.4.2020. The planting materials were taken from YLD free seed nursary, wheras it should be from the tissu cuture raised plant. As per the concern scientist, molecular testing is in progress.

PP 34: Efficient delivery of fungicides and other agro inputs to manage major fungal diseases in sugarcane (Through Sett Treatment Device)

Variety Co 0238 has been planted on dated 17.03.2020 for the testing of efficient delivery of fungicides to manage red rot diseases in sugarcane. Sett Treatment Device used for the purpose. As per the concern scientist T_2 treatment (STD with fungicide + soil drenching by 45 & 90 days) gave better result againt red rot.

General observations:

- *To optimize the reaction of different diseases, it is necessary to have good agronomic practices. Whereas field condition was observed average in sanitation and labelling of different variety/genotype was not up to the mark.*
- *Proper care must be taken to maintain the congenial environment for red rot and other diseases development.*
- *Evaluation of different genotypes was not conducted in proper wilt sick plot.*
- *The designated differential namely Co 975 and Co 997 found impure in Identification of pathotypes/races of red rot pathogen experiment.*
- *Screening for red rot under wilt infected field condition dose not provides appropriate data which was seen in the experiments.*
- *Various diseases such as mosaic, leaf fleck (Sugarcane bacilliform virus), yellow leaf disease, grassy shoot disease and leaf spot were also observed in different specialized experiments which should not be.*

3. G.B. Pant University of Agriculture & Technology, Pantnagar (Uttarakhand)

Monitoring team virtually examined the experiment conducted at Pantnagar, (Uttarakhand) on 07 January, 2020. All the experiments were conducted properly as AICRP (S) norms and field sanitation was found normal.

PP 17 (A): Evaluation of zonal varieties for resistance to red rot

Evaluation of zonal varieties for resistance to red rot experiment was planted on 23 March, 2020 as per AICRP norms with forty four zonal entries along with standard checks. Two genotypes viz., CoPb 17211and CoS 17231 were not planted due to non-availability of planting materials. Experiment condition was seen good and weed free condition during virtual monitoring. Inoculation was done on 26-27 August 2020 with CF 08 and CF 09 pathotypes by plug and nodal method of inoculation. CoJ 64 was used as red rot susceptible check. Recording of different data was completed during the month of November, 2020. Most of the entries were seen moderately resistant and few entries were moderately susceptible against red rot disease of sugarcane.

PP 17 (B): Evaluation of genotypes/varieties against smut disease

Only forty four genotypes were planted during March 2020 as per AICRP norms for smut testing. Two genotypes viz., CoPb 17211and CoS 17231 were not planted due to non-availability of planting materials. Experiment condition was found good and weed free. Incidence of the smut was recorded at fortnightly intervals by concerning scientist.

PP 17 (D): Evaluation of varieties/genotypes against yellow leaf disease

YLD data for forty four entries of different categories were planted during March, 2020. Out of Forty six genotypes, two genotypes viz., CoPb 17211and CoS 17231 were not planted due to non-availability of planting materials. Data recording is in progress.

PP 22: Survey of sugarcane diseases naturally occurring in the area on important sugarcane varieties

As per the scientist, extensive survey was not being conducted due to the pandemic of Covid-19. But up to some extent, the survey was conducted. Data was not compiled till the virtual monitoring done.

PP 33: Management of YLD through meristem culture

Experiment was allotted and not accepted due to lack of facilities.

General observations:

In PP-17 experiments "Evaluation of zonal varieties for resistance to Red rot, smut, wilt, YLD and pokkah boeng only forty four zonal entries along with standard checks were evaluated. Two genotypes namely CoPb 17211and CoS 17231 were not planted due to unavailability of planting materials. Breeder of the concerned centre should take care and should provide full set of materials. The experimental field sanitation was found good in condition.

4. C.C.S. Haryana Agricultural University Regional Research Station, Uchani, Karnal (Haryana)

Monitoring team virtually examined the different experiments of sugarcane pathology conducted at RRS, Uchani, Karnal (Haryana) on 07 January, 2021. All the assigned experiments were conducted properly as AICRP (S) norms and field sanitation was found excellent.

PP 14: Identification of pathotypes of red rot pathogen

Nineteen recommended differentials were planted during March, 2020 (Ten rows of each differentials) and inoculated with five local isolates along with the designated isolates (CF 01,CF 02, CF03,CF 07, CF 08, CF 09 and CF11). Experiment condition was found good and weed free. Inoculation was carried out in the last week of August 2020 by plug method as stated by concerning scientist. Observation had been taken after 60 days of inoculation..

PP 14 (A): Maintenance of isolates of red rot pathogen

CF 01, CF 02, CF 03, CF 07, CF 08, CF 09 and CF 11 designated pathotypes along with five local isolates were maintained under *in-vitro* condition. To maintain pathogenic virulence of the said isolates of red rot, it is periodically inoculated in respective host and isolated again from it.

PP 17 (A): Evaluation of zonal varieties for resistance to red rot

All the 46 entries (IVT& AVT) along with six checks were planted on March 10, 2020 as per AICRP norm for the evaluation against red rot. Experiment condition was found good and weed free. All entries were inoculated by plug and nodal cotton swab methods with CF08 and CF 09 in the month of August, 2020. Experiment was not harvested but data was recorded after 60 days of inoculation.

PP 17 (B): Evaluation of zonal varieties/ genotypes for resistance to smut

Evaluation of zonal varieties/ genotypes for resistance to smut was conducted with all 46 genotypes along with standard checks. The planting was carried out during March, 2020 with two replications (As per AICRP norm). Smut was reported in several genotypes namely CoLk17203, Co 17018 and CoH 17262. .Data compilation works are being in progress.

PP 17 (D): Evaluation of varieties/genotypes against yellow leaf disease

Complete set of genotypes were evaluated against yellow leaf disease. Severity data was taken on time in all entries. YLD was reported in entries such as CoPant 17223, CoPant 17224 and CoS 17233.

PP 22: Survey of sugarcane diseases naturally occurring in the area on important sugarcane varieties

The extensive survey was conducted in various mill zones of Haryana. Variety Co 0238 was found infected with smut and pokkah boeng in most of the location. Red rot was reported on varieties CoJ 85 in different sugar mill zone. Top rot was also reported on CoJ 85, CoS 8436 and Co 0238 in various sugar mill zone. Incidence of smut was also foun in the varieties like Co 89003 and CoH 119. GSD was reported on Co 0118, CoH 119, Co 0238 and Co 89003 from almost all the sugar mill zone of Haryana. Ring spot (*Leptosphaeria sacchari*) and mosaic disease were also reported in most of the mill zone area.

PP 23: Assessment of elite and ISH genotypes for resistance to red rot

The experiments of "Assessment of elite and ISH genotypes for resistance to red rot" were conducted with twenty four ISH genotypes. Planting was done during March 2020 and the genotypes were inoculated with CF08 and CF 09 by plug method and nodal method in the last week of August 2020.

PP 31: Screening, epidemiology and management of *pokkah boeng* in sugarcane

Varieties viz., CoS 8436, CoH 119, CoH 164, CoH 167 were taken for study as stated by concerning scientist. This disease were correlated with climate conditions for the incidence of Pokkah boeng disease. Management experiment was also conducted with 3 replications with the variety Co 0238. Overnight cane soaking with carbendazim and foliar sprays with carbendazim was reported better for controlling *pokkah boeng* and also increase germination.

PP 33: Management of YLD through meristem culture

Management of YLD through meristem culture experiment was conducted in collaboration with CPB, Hisar. Varieties Co 89003 and Co 0238 were raised through meristem culture. Seedlings of Co 89003 and Co 0238 sugarcane seed cane varieties were reported free from YLD. These varieties were planted in the field at CCS, RRS Karnal. Observations are being in progress

PP 34: Efficient delivery of fungicides and other agro inputs to manage major fungal diseases in sugarcane (Through Sett Treatment Device)

Variety CoJ 85 has been planted during the month of March, 2020 for the testing of efficient delivery of fungicides to manage red rot diseases in sugarcane. Sett Treatment Device used for the purpose. As per the concern scientist the result reporting will be done later on.

General observations:

- *Pokkah boeng and Smut was observed on variety such as CoH 14261 in ratoon of breeding trial during visit.*
- *Wilt, mosaic and YLD were also observed in most of the sugarcane patghlogy experiments during virtual monitoring.*

5. ICAR- Sugarcane Breeding Institute, Regional Research Centre, Karnal (Haryana)

Monitoring team examined the SBI-RC, Karnal (Haryana) on 07 January, 2021. All the allotted experiments were conducted properly as AICRP (S) norms and field sanitation was not in condition.

PP 14: Identification of pathotypes of red rot pathogen

Identification of pathotypes in red rot pathogen experiments, planting was carried out with 20 sugarcane differentials. The differentials were Co 0238, Co 975, Co 419, Co 997, Co 1148, Co 7717, Co 62399, CoS 767, CoS 8436, Baragua, Khakai, BO 91, Co 86002, SES 594, Co 860032, CoV92102, CoSe 95422, CoJ 64, CoC 671 and Co 7805. Out of fourteen isolates inoculated designated, 7 were the designated pathotypes and 7 new isolates. The inoculation was done during 21-21 August, 2020. Red rot evaluation was done on 22.10.2020.

PP 14 (A): Maintenance of isolates of red rot pathogen

Seven designated pathotypes viz; CF 01, CF 02, CF 03, CF 07, CF 08, CF 09 and CF 11 and seven local isolates were maintained under *in-vitro* condition.

PP 17 (A): Evaluation of zonal varieties for resistance to red rot

Evaluation of zonal varieties for resistance to red rot experiment was planted during March, 2020 with forty five zonal entries along with six checks. One entry was not planted because seed was not available. Inoculation was done last week of August, 2020 by using CF 08 and CF 09 pathotypes by plug and nodal method of inoculation. The data was recorded after 60 days of inoculation. Data compilation work is being in progress.

PP 17 (D): Evaluation of varieties/genotypes against yellow leaf disease

The incidence of Yellow leaf disease was done in 45 genotypes of zonal trials. One genotypes was not planted in the experiments.

PP 22: Survey of sugarcane diseases naturally occurring in the area on important sugarcane varieties

Extensive survey was not conducted due to pandemic of Covid-19. Few visits were made in various sugar mill zones of Haryana and Uttar Pradesh as revealed by the concern scientist. Data compilation work is being in progress.

PP 23: Assessment of elite and ISH genotypes for resistance to red rot

Sum total of 27 clones were planted on 21 March 2020 for evaluation of red rot resistance. Inoculation was done on 22 August, 2020 through CF 08 and CF 09 by plug method nodal method of inoculation. Data evaluation was done after 60 days of inoculation. Data compilation work is being going on.

PP 34: Efficient delivery of fungicides and other agro inputs to manage major fungal diseases in sugarcane.

The experiments on "Efficient delivery of fungicides and other agro inputs to manage major fungal diseases in sugarcane" two diseases namely red rot and smut of sugarcane were tested. The experiment was planted on 04 March, 2020. Variety CoJ 64 was teken for red rot study whereas variety CoLk 15201 and CoPb 16211 were taken for the stydy of smut.

General observations:

- *Evaluation of zonal varieties for resistance to red rot, smut, wilt and YLD experiment, out of forty six genotypes, forty five zonal entries were evaluated. One genotype was not planted because seed was not available.*
- *The breeder should take care to provide the complete set of materials*
- *Natural incidence of smut was noticed on various entries. Mosaic and YLD were also observed during virtual monitoring.*

6. Punjab Agricultural University, Regional Research Station, Kapurthala (Punjab)

Vertual monitoring of PAU-RRS, Kapurthala (Punjab) was conducted on 07 January, 2021. All the allotted experiments were conducted properly as AICRP (S) norms. Field was observed weed free condition during video presentation.

PP 14: Identification of pathotypes/races in red rot pathogen

Complete set of nineteen differentials were planted during March, 2020 as AICRP technical programme. Inoculated was done in last week of August, 2020 with two designated isolates i.e. CF 08 and CF 09 and seven newly collected isolates as stated by concerning scientist. Experimental crop and lay out condition was found good and weed free.

PP 14 (A): Maintenance of isolates of red rot pathogen

Two designated pathotypes of red rot of said zone namely CF 08 and CF 09 and other sevel newly collected local isolates were maintained under *in-vitro* condition.

PP 17 (A): Evaluation of zonal varieties for resistance to red rot

The complete set of forty six genotypes of different categories were planted during March, 2020 for red rot testing and experimental field was seen free from weeds. The red rot inoculation was done in last week of August, 2020 with CF 08 and CF 09 pathotypes individually by plug and nodal method of inoculation.

PP 17 (B): Evaluation of genotypes/varieties against smut disease

The complete set of forty six genotypes of different categories were planted were planted during March, 2020 for smut testing and it was weed free. Data for smut was recorded at fortnightly intervals as stated by concerning scientist.

PP 17 (C): Evaluation of genotypes/varieties against wilt

Total forty six entries were planted on 24 March, 2020 in sick soil of respective field. Germination data was recorded after 50 days. Symptom of wilt was recorded by concerning scientist.

PP 17 (D): Evaluation of varieties/genotypes against yellow leaf disease

The incidence of Yellow leaf disease under natural condition was recorded in all forty six zonal entries. Various entries were found affected by YLD as reported by concerning scientist.

PP 22: Survey of sugarcane diseases naturally occurring in the area on important sugarcane varieties

Ten sugar mill command areas were surveyed in the Punjab and Haryana states. Red rot was reported on variety CoJ 85, CoJ 88, Co 89003 from various sugar factory zones. Smut was reported in plant and ratoon crop of Co 0238. Will was reported on CoJ 85 from various sugar mill areas. GSD and pokkah boeng were also reported on Co 0238 by concerning scientist.

PP 23: Assessment of elite and ISH genotypes for resistance to red rot

Total of twenty seven ISH genotypes were planted on 24 March, 2020 and inoculated during last week of August, 2020. The red rot pathotypes CF08 and CF 09 were used for the testing. The plug method of inoculation and nodal method of inoculation were carried out. Red rot observation was recorded and data compilation work is in progress.

PP 31: Screening, epidemiology and management of *pokkah boeng* in sugarcane

All the zonal entries along with two checks (Co 0238 & CoJ 85) were screened for pokkah boeng. All the weather parameters were recorded during complete experimentation. The trial on management of *pokkah boeng* was planted on 9 April, 2020 with four replications as AICRP norm.

General observations:

- *All the allotted sugarcane pathology experiments of Kapurthala were conducted as per the technical programme defined by the AICRP.*
- *Natural incidence of smut, YLD, leaf fleck (Sugarcane bacilliform virus), mosaic was noticed at Kapurthala during their virtual presentation.*

D. Entomology

1. **E 4.1**: Evaluation of Zonal varieties/genotypes for their reaction against major insect- pests.
2. **E.28**: Survey and surveillance of sugarcane insect -pests.
3. **E.30:** Monitoring of insect-pests and bio-agents in sugarcane agro ecosystem.
4. **E.34:** Standardization of simple and cost effective techniques for mass multiplication of potential bio-agents of sugarcane insect pests
5. **E.41**: Assessment of yield losses caused by borer pests of sugarcane under changing climate scenario

Overall Grading of Trials on the basis of Video

Centers	Trials				
	E 4.1	**E.28**	**E.30**	**E.34**	**E.41**
Faridkot	NA	NA	NA	NA	NA
Kapurthala	NA	NA	NA	NA	NA
SBI,Karnal	Very Good	Good*	Very Good	NA	NA
Shahjahanpur	Very Good	Very Good	Very Good	NA	NA

Pantnagar	NA	NA	NA	NA	NA
Sriganganagar	NA	NA	NA	NA	NA
Muzaffarnagar*	NA	NA	NA	NA	NA
Kota	NA	NA	NA	NA	NA
Lucknow	Good	Good	Good	Good	Poor
Uchani	NA	NA	NA	NA	NA

***Survey conducted but not reported, will include in annual report**
NC: Not conducted; NA: Not alloted

E 4.1: Evaluation of Zonal varieties/genotypes for their reaction against major insect-pests.

SBI, Karnal

AVT Plant -I

A total of ten genotypes (Co 15025, Co 16029, CoLk 16201, CoLk 16202, CoPb 16181, CoLk 16203, CoLk 16204, CoS 16232, CoS 16233 and Co 16030) along with two checks (Co 0238 & Co 05011) were evaluated against early shoot borer (ESB) and top borer (TB). The ten genotypes were showed least susceptible reaction to early shoot borer and top borer.

AVT Plant -II

A total of thirteen genotypes (CoPb 15213,CoLk 15209,CoLk 15207,CoS 15232,CoS 15233,Co 15023,Co 15024,Co 15027,CoLk 5201,CoLk 15206,Co 15026,CoLk 15205 and CoPb 15212) along with two checks (Co 0238 & Co 05011) varieties were evaluated against early shoot borer (ESB) and top borer (TB).All the 13 genotypes were showed least susceptible reaction to early shoot borer and top borer.

AVT Ratoon

A total of thirteen genotypes (Co 15023, Co 15024,Co 15027, CoLk 15201,CoLk 15205,CoPb 15212, Co 15026,CoLk 15206,CoLk 15207,CoLk 15209,CoPb 15213,CoS 15232 and CoS 15233) along with two checks (Co 0238 & Co 05011) were evaluated against black bug (BB), early shoot borer (ESB), top borer (TB), root borer (RB) and stalk borer (SB).All the 13 genotypes showed least susceptible (LS) to BB, ESB and TB.

Shahjahanpur

AVT (E) - plant-I

A total of six genotypes (Co 15025, Co 16029, CoLk 14201, CoLk 16201, CoLk 16202 and CoPb 16181), along with three checks (Co 0238, CoJ 64 & Co 05009) were evaluated against early shoot borer (ESB) and top borer (TB) and showed least susceptible.

AVT (E) -Plant-II

A total of six genotypes (Co 15023, Co 15024, Co 15027, CoLk 14201, CoLk 15201, CoLk 16205 and CoPb 15212), along with three checks (Co 0238, CoJ 64 & Co 05009) were evaluated against early shoot borer (ESB) and top borer (TB) and showed least susceptible.

AVT (M) - Plant-I

A total of five genotypes (Co 16030, CoLk 16203, CoLk 16204, CoS16232 and CoS 16233 along with three checks (CoS 767, Co 05011 and CoPt 97222) were evaluated against early shoot borer (ESB) and top borer (TB) and showed least susceptible.

AVT (M) - Plant-II

A total of seven genotypes (Co 15026, CoLk 15206, CoLk 15209, CoLk 15207 CoPb 15213 CoS 15232 and CoS 15233 along with three checks (CoS 767, Co 05011 and CoPt 97222) were evaluated against early shoot borer (ESB) and top borer (TB) and showed least susceptible.

AVT (E) Ratoon

A total of six genotypes (Co 15023, Co 15024, Co 15027, CoLk 14201, CoLk 15201, CoLk 16205 and CoPb 15212), along with three checks (Co 0238, CoJ 64 & Co 05009) were evaluated against early shoot borer (ESB) and top borer (TB) and showed least susceptible.

AVT (M) Ratoon

A total of seven genotypes (Co 15026, CoLk 15206, CoLk 15209, CoLk 15207 CoPb 15213 CoS 15232 and CoS 15233 along with three checks (CoS 767, Co 05011 and CoPt 97222) were evaluated against early shoot borer (ESB) and top borer (TB) and showed least susceptible.

Lucknow

A total of fifteen genotypes along with three checks under early maturing group and fourteen genotypes along with three checks under mid late maturing group were evaluated for their reaction against major insect pests of sugarcane. Borer incidence was moderate. Among mid late maturing group, incidence of insect pests was moderate to high.

E.28: Survey and surveillance of sugarcane insect -pests.

SBI, Karnal

Survey was conducted in command areas of different sugar mills, details report will be report in Annual report.

Shahjahanpur

Survey has been made in different factory zones (21 sugar factories of central U.P.).The sporadic incidence of white grub, mealy bug, grass hopper, Gurdaspur borer, root borer and termites was found.

Lucknow

Limited insect pest surveys were conducted due to COVID 19. Activity was taken up during post corona period mainly in U. P., incidence of insect pests was low.

E.30: Monitoring of insect-pests and bio-agents in sugarcane agro ecosystem.

SBI, Karnal

A non-replicated experiment was conducted in 0.5 acre with variety Co 15023.Incidence of early shoot borer, black bug and pyrilla incidences were also noticed.Blister mite incidence was up to 50.0% of leaf sheaths. Parasitization of top borer larvae by *Isotima javensis* was 2.0%.

Shahjahanpur

The incidence of early shoot borer in experimental field (Variety- UP 05125) were recorded as 1.68% (May), 3.19% (June), 2.37% (July) while top borer 3rd brood (0.73 %) and 4th brood (1.01%).Bio-agents, *Telenomus beneficiens, Rhaconotus* spp., *Stenobracon* spp., *Isotima javensis and Epiricania melanoleuca* were recorded.

Lucknow

The experiment was conducted with three commercial varieties. Incidence of borer pests was moderate to high. Incidence of mealy bug was high in CoLk 94184 and CoLk 11203 while it was low in Co 0238.

E.34: Standardization of simple and cost effective techniques for mass multiplication of potential bio-agents of sugarcane insect pests

Lucknow

Mass multiplication of *Eumicrosoma* sp. on the eggs of *Dimorphopterus gibbus* has been done

E.41: Assessment of yield losses caused by borer pests of sugarcane under changing climate scenario

The experiment was laid out with Co-0238 but due to Covid-19 and damage by blue bull, the appearance of experiment was very poor thus the experiment has been vitiated.

MONITORING REPORT OF NORTH CENTRAL & NORTH EASTERN ZONES
(CROP SEASON 2020-2021)

Monitoring team constituted by the Director and Project Coordinator, AICRP (Sugarcane), ICAR-IISR-Lucknow vide letter no. F No. 12-11 (M)/2020-PCS dated November 13, 2020 for assessment of performance of the AICRP trials at regular as well as voluntary centres of North Central & North Eastern Zones by virtual mode with the following scientists.

Sl. No.	Name, Designation & address of Members	
1	Dr. A.K. Mall Senior Scientist (Plant Breeding) ICAR-IISR, Lucknow	Team Leader
2	Dr. Y.B. Bharati Scientific Officer (Plant Pathology) GSSBRI, Seorahi	Member
3	Dr. Navnit Kumar Asstt. Professor-cum-Scientist(Agronomy) SRI, Pusa	Member
4	Dr. Anil Kumar Assistant Professor (Entomology) SRI, Pusa	Member
5	Dr. Lalan Sharma Scientist (Plant Pathology) Coordination Unit AICRP(S), ICAR-IISR, Lucknow (U.P.)	Facilitator

The AICRP(Sugarcane) centres of the NC&NE Zones have send their video photography of all the experiments allotted to them to the Team Leader and respective member of the discipline during 20th - 27th November, 2020. The centre-wise presentation of video of the experiments was made by the concerned scientist of the centres of the zone on virtual mode on dt.08.01.2021. The observations made different Research Stations are reported here under.

A. Crop Improvement

Specific Remarks

- Breeding trials at all locations were laid out as per the technical programmes, except Buraliksion. Due to unavailability of material all the trials were not conducted at Buralikson.Buralikson centre should lift adequate seed materials from Pusa centre well in time by sending Scientist/ technical staff.
- The overall comparative rating of the Centres with respect to various trials is: **Excellent to very good** at Motipur, Very good to good atPusaand Bethuadahari, **Good** at Seorahi and Buralikson.
- Pusa centre has raised 7587 seedlings from fluffs of 2020 even in COVID-19 situation and doing good work in multiplication and distribution of planting /seed material to all the centres of the zone. Due to the sincere efforts and help of the scientist of this centre Bethuadahari and Buralikson centres are conducting very good trials. But due to unavailability of suitable land,Pusa centre is unable to continue multiplication of material for conducting trials at all the centres of the zone.The location of trials at Pusa has been shifted 20 km away from Pusa at Kalyanpur.
- The rating of entries in individual trial / Centre is as follows:

1. Overall Grading of Trials

Trials/ Centre	Seorahi	Pusa	Motipur	Bethuadhari	Buralikson
IVT (Early)	Good	Very good	Excellent	Good	Not conducted
AVT(Early) I Plant	Good	Very good	Excellent	Very good	Good
AVT (Early) II Plant	Good	Very good	Excellent	Very good	Not conducted
AVT (Early) Ratoon	Good	Good	Very good	Very Good	Not conducted
IVT (Midlate)	Good	Very good	Excellent	Good	Not conducted
AVT (Midlate) I Plant	Good	Very good	Very Good	Very good	Good
AVT (Midlate) II Plant	Good	Very good	Excellent	Very good	Good
AVT (Midlate) Ratoon	Good	Good	Very good	Very good	Good
Remarks / Weeds, insect-Pests and Diseases.	Minor incidence of termites and top borer was observed	Minor incidence of Plassey borers, grass hoppers and top borer was observed	Minor incidence of termites and top borer was observed	Ratoon trials were under waterlogged situation for 3 months i.e from Mid July to Mid October. The incidence of scale insects (2%) Plassey borers (2-5%) and mealy bugs in traces was observed.	The incidence of scale insects Plassey borers and mealy bugs (upto 5%) was observed. The incidence of aphids, woolly aphids and top borers in trials were in traces.

*Scoring of the trial was based on (i) whether the trial was conducted as per the technical programme and (ii) general growth and maintenance of the trial. Team have not visited trials at all the locations. Observations are based on Videography of the trials sent by the centres.

2. PERFORMANCE OF ENTRIES IN EACH TRIAL

2.1 Initial Varietal Trial (Early)

Entry / Locations	Seorahi	Pusa	Motipur	Bethuadhari	Buralikson*	Other information
CoP17436	Average	Very Good	Excellent	Good	Not conducted	-
CoP17437	Good	Very good	Good	Good	Not conducted	-
CoP17438	Good	Very Good	Very good	Good	Not conducted	-
CoP17440	Average	Very Good	Good	Good	Not conducted	-
CoP17441	Average	Very Good	Good	Good	Not conducted	-
CoSe16454	Good	Very Good	Very good	Very good	Not conducted	-
CoSe17451	Good	Very Good	Excellent	Very good	Not conducted	-
CoBln17501	Very Poor	Good	Good	Good	Not conducted	-
CoLk 94184(std)	Very good	Good	Very good	Good	Not conducted	Best standard at all the locations--
CoSe95422(std)	Good	Good	Very good	Good	Not conducted	-
CoSe01421(std)	Good	Good	Good	Good	Not conducted	-
Overall Performance of the Experiment	Good	Very Good	Excellent	Good	Not conducted	-

2.2 AVT (Early)-I Plant

Entry / Locations	Seorahi	Pusa	Motipur	Bethuadhari	Buralikson	Other information
CoP 16437	Good	Excellent	Excellent	Good	Good	-
CoP16438	Average	Very good	Good	Good	Average	-
CoLk 16466	Good	Very good	Excellent	Good	Average	-
CoLk 16468	Poor	Very good	Very good	Good	Average	Flowering was seen at many locations
CoSe16451	Good	Good	Good	Average	Average	
CoLk 94184(std)	Good	Good	Good	Good	Good	Best standard at all the locations-
CoSe95422(std)	Good	Good	Good	Good	Good	-
CoSe01421(std)	Good	Good	Good	Good	Good	-
Overall Performance of the Experiment	Good	Very Good	Excellent	Very Good	**Good**	-

2.3 AVT (Early)-II Plant

Entry / Locations	Seorahi	Pusa	Motipur	Bethuadhari	Buralikson	Other information
CoP15436	Good	Good	Very good	Very good	Not conducted	-
CoLk15466	Good	Good to Very good	Excellent	Good	Not conducted	-
CoLk15467	Good	Good	Very good	Good	Not conducted	-
CoSe15452	Average	Good	Very good	Good	Not conducted	-
CoSe15455	Good	Good	Good	Good	Not conducted	
CoLk 94184(std)	Good	Good	Very good	Good	Not conducted	Best standard at all the locations-
CoSe95422(std)	Very good	Good	Good	Good	Not conducted	-
CoSe01421(std)	Good	Good	Good	Good	Not conducted	-
Overall Performance of the Experiment	Good	Very good	Excellent	Very good	Not conducted	-

2.4 AVT (Early)-Ratoon

Entry / Locations	Seorahi	Pusa	Motipur	Bethuadhari	Buralikson	Other information
CoP15436	Good	Good	Very good	Very good	Not conducted	-
CoLk15466	Good	Good	Very good	Good	Not conducted	-
CoLk15467	Average	Good	Very good	Good	Not conducted	-
CoSe15452	Good	Average	Excellent	Good	Not conducted	-
CoSe15455	Average	Good	Good	Good	Not conducted	
CoLk 94184(std)	Very good	Good	Very good	Good	Not conducted	Best standard at all the locations
CoSe95422(std)	Good	Good	Very good	Good	Not conducted	-
CoSe01421(std)	Good	Good	Good	Good	Not conducted	-
Overall Performance of the Experiment	Good	Good	Very Good	Very good	Not conducted	-

2.5 IVT (Midlate)

Entry / Locations	Seorahi	Pusa	Motipur	Bethuadhari	Buralikson*	Other information
CoP 17444	Good	Very good	Good	Very Good	Not conducted	wilt infestation and lodging across the centres.
CoP17446	Good	Very good	Very good	Very Good	Not conducted	-
CoSe16455	Good	Very good	Excellent	Good	Not conducted	-
CoSe 16456	Excellent	Very good	Excellent	Very Good	Not conducted	-
CoSe17452	Good	Good	Good	Good	Not conducted	-
CoBln17502	Poor	Good	Good	Good	Not conducted	Wilt and lodging at many centres
Bo91(std)	Good	Good	Good	Good	Not conducted	-
CoP9301(std)	Good	Good	Good	Good	Not conducted	-
CoP 06436(std)	Very Good	Very good	Very good	Very good	Not conducted	Best standard at all the locations
Overall Performance of the Experiment	Good	Very good	Excellent	Good	Not conducted	-

2.6 AVT (Midlate)-I plant

Entry / Locations	Seorahi	Pusa	Motipur	Bethuadhari	Buralikson*	Other information
CoP16439	Average	Very Good	Very Good	Good	Average	Flowers at Bethuadahari
CoLk 16470	Good	Very Good	Excellent	Very good	good	-
CoSe16452	Good	Good	Good	Good	good	-
CoBln16502	Poor	Good	Average	Good	good	Wilt and lodging at many centres
Bo91(std)	Good	Good	Good	Good	Average	-
CoP9301(std)	Good	Good	Good	Good	Average	-
CoP 06436(std)	Very good	Very Good	Very Good	Very good	Good	Best standard at all the locations
Overall Performance of the Experiment	Good	Very Good	Very Good	Very good	Good	-

2.7 AVT (Midlate)-II plant

Entry / Locations	Seorahi	Pusa	Motipur	Bethuadhari	Buralikson*	Other information
CoP 15438	Average	Good	Good	Good	Good	-
CoP 15439	Good	Very good	Excellent	Very good	Good	-
CoP15440	Good	Very good	Very good	Very good	Good	-
CoLk 15468	Good	Good	Very good	Average	Average	-
CoLk 15469	Average	Good	Very good	Good	Good	-
CoSe15453	Excellent	Very good	Excellent	Good	Good	
CoSe15454	Good	Very good	Good	Good	Good	
Bo91(std)	Good	Good	Good	Good	Average	-
CoP9301(std)	Good	Good	Good	Good	Good	-
CoP 06436(std)	Very good	Good	Very Good	Very Good	Good	Best standard at all the locations
Overall Performance of the Experiment	Good	Very good	Excellent	Very good	Good	-

2.8 AVT (Midlate)-Ratoon

Entry / Locations	Seorahi	Pusa	Motipur	Bethuadhari	Buralikson*	Other information
CoP 15438	Good	Average	Good	Good	Good	-
CoP 15439	Average	Very good	Good	Very good	Very Good	-
CoP15440	Good	Very good	Very good	Very good	Good	-
CoLk 15468	Good	Good	Very good	Average	Good	-
CoLk 15469	Average	Good	Very good	Good	Good	-
CoSe15453	Excellent	Good	Excellent	Good	Good	
CoSe15454	Good	Good	Good	Good	Very Good	
Bo91(std)	Good	Good	Good	Good	Good	-
CoP9301(std)	Good	Good	Good	Good	Good	-
CoP 06436(std)	Very good	Good	Very Good	Very Good	Very Good	Best standard at all the locations
Overall Performance of the Experiment	Good	Very good	Very Good	Very good	Good	-

B. Agronomy & Soil Science

A. Centre- wise status of trials allotted and conducted

Expt. No.	AS-72	AS-73	AS-74	AS-75
Title of experiment	Agronomic performance of elite sugarcane genotypes	Assessment of climate change impact on sugarcane productivity	Evaluation of sugarcane varieties for drought tolerance	Precision nutrient management through rescheduling time of application for widely spaced sugarcane plant-ratoon system
G.S. Sugarcane Breeding & Research Institute, **Seorahi**, Distt.- Kushinagar (U.P.)	✓ Conducted only at 120 cm row spacing along with assigned varieties at 100 & 125% RD of NPK	Not known by me	NC	✓ Conducted as per technical programme
Sugarcane Research Institute, **Pusa**, Samastipur, Bihar	✓ Conducted as per technical programme	✓ Final Report Submitted to P.I. & P.C., IISR, Lucknow	✓ Conducted as per technical programme	✓ Conducted as per technical programme
IISR Regional Center, **Motipur**, Muzaffarpur, Bihar	NA	Not known by me	NA	NA
Sugarcane Research Station, **Bethuadahari**, Nadia, W.B.	NC	Not known by me	NC	NC
Sugarcane Research Station, **Buralikson**, Golaghat, Assam	NC	Not known by me	NC	NC
Sugarcane Research Station, Kunraghat (UPCSR), **Gorakhpur** (U.P.)	NA	Not known by me	NA	NA

Note:NA- Not assigned, NC- Not conducted, ✓ - Conducted.

Centre-wise and experiment-wise observations

1. G.S. Sugarcane Breeding & Research Institute, Seorahi, Distt.- Kushinagar (U.P.)

Expt. No.	Variety	DoP	Best treatment	Remarks
AS-72	E: 05 + 03 ML: 07 + 03	19.2.2020	Among early testing genotypes, CoSe 15455 is showing good potential followed by CoSe 15452, CoLk 15466 and CoP 15436 genotypes while Among midlate testing genotypes, CoSe 15453 genotype is performing good followed by CoLk 15469, CoLk 15468, CoSe 15454 and CoP 15439 genotypes. Performance increasing up to 125 per cent recommended dose of fertilizer.	The four experiments viz., AS-72, AS-73, AS-74 and AS-75 were allotted and only two experiments (AS-72 & AS-75) were conducted.AS-75 has been conducted as per technical programme. Crop condition was very good. Status of AS -73 was not known by me.
AS-73	-	-	-	
AS-74	-	-	-	
AS-75	CoS 08272	17.02.2020	Application of RDN+RDK in seven splits (Basal 10% remaining at 45, 75, 90,120,150 and 180 DAP in equal splits) through band placement treatment is performing best. Band placement mode of fertilizer application is performing well as compared broad casting mode of fertilizer application.	

2. Sugarcane Research Institute, Pusa, Samastipur, Bihar

Expt. No.	Variety	DoP	Best treatment	Remarks
AS-72	E: 05 + 03 ML: 07 +	18.2.2020 (E) 20.2.2020	Among early genotype, CoP15436 performed better *fb*CoSe15452 and CoLk 15466. Among row spacing	All the experiments (AS-72, AS-73, AS-74 and AS-75) were conducted as per

	03	(ML)	90 cm performed better than 120 cm row spacing. Among fertility level, 125% RDF was better than 100% fertility level. Among mid-late group, variety CoSe 15454 performed best *fb*CoP 15439 and CoSe 15453. Row spacing of 90 cm was better than 120 cm. Among fertility level, 125% RDF was better than 100% fertility level.	technical programme. The field was well maintained and the performance of the crop was good.
AS-73	-	-	Final Report Submitted to P.I. & P.C., IISR, Lucknow	
AS-74	E: 03 ML: 03	21.2.2020	Variety CoP 16437 performed best followed byCoP 9437 and CoP 112at IW: CPE ratios 1.00.	
AS-75	CoP16437	26.2.2020	Band placement of fertilizer performing better. RDN + RDK in seven splits (Basal 10% remaining at 45, 75, 90, 120, 150 and 180 DAP in equal splits)	

3. IISR Regional Center, Motipur, Muzaffarpur, Bihar
Remarks: Agronomical experiments not conducted

4. Sugarcane Research Station, Bethuadahari, Nadia, W.B.
Remarks: Agronomical experiments not conducted due to transfer of Agronomist

5. Sugarcane Research Station, Buralikson, Golaghat, Assam
Remarks: Agronomical experiments not conducted.

6. Sugarcane Research Station, Kunraghat (UPCSR), Gorakhpur (U.P.)
Agronomical experiments not conducted.

B. PLANT PATHOLOGY

Zone wise online monitoring of AICRP(S) plant pathology discipline trials for the year 2020–2021 crop season on dated 08 – 01 – 2021 by presentation of online videography of all the respective centers and out of five only four centers conducted plant pathology projects. The details of experiment titles of plant pathology project are as under.

PP 14	Identification of pathotypes in red rot pathogen.
PP 14 (a)	Maintenance of pathotypes/ isolates of red rot pathogen
PP 17 (A)	Evaluation of zonal varieties for resistance to red rot

PP 17 (B)	Evaluation of zonal varieties for resistance to smut
PP 17 (C)	Evaluation of zonal varieties for resistance to wilt
PP 17 (D)	Evaluation of zonal varieties for resistance to YLD
PP 17 (F)	Evaluation of zonal varieties for resistance to pokkah boeng
PP 22	Survey of sugarcane diseases naturally occurring in the area on important sugarcane varieties.
PP 23	Assessment of elite and ISH genotypes for resistance to red rot.
PP 31	Epidemiology and management of pokkah boeng in sugarcane.
PP 34 (A, B & C)	Efficient delivery of fungicides and other agro inputs to manage major fungal diseases in sugarcane. A- Management of red rot B- Management of smut C- Management of wilt

Concise summary of plant pathology projects allotted and conducted at various centers.

The experiment of plant pathology under AICRP (S) allotted and conducted during 2020-21 by various centers/institute of North Central & North Eastern Zone. The observation made by each centre are depicted below.

S. N.	**Centres** (NCZ& NEZ)	**Plant Pathology Projects**										
		PP 14	PP 14 (A)	PP 17 (A)	PP 17 (B)	PP 17 (C)	PP 17 (D)	PP 17 (F)	PP 22	PP 23	PP 31	PP 34
1	Seorahi	C	C	C	C	NA	C	C	C	NC	C	C
2	Pusa	C	C	C	C	C	C	C	C	C	C	NC
3	Motipur	NA	NA	C	C	NA	C	C	C	NA	NA	NA
4	Bethuadhahari	NA	NA	C	NA	NA	NA	NA	NA	NA	NA	NA
5	Buralikson	NA	NA	C	NA	NA	C	C	C	NA	NA	NA

Abbreviations: C = Conducted, NC = Not conducted, NA =Not Allotted

1. Genda Singh Sugarcane Breeding & Research Institute, Seorahi, P.O Tamkuhiraj-274407, Distt. Kushinagar (U.P.) India

All experiments were conducted as per technical programme of AICRP (S) but PP 23 experiment (ISH) genotypes could not be procured by the Breeder due to Covid-19 outbreak. So, will be planted old planting materials tested for resistance to red rot. Overall, the crop condition was observed satisfactory by online videography are presented their concern pathologist of experimental trial results under progress.

2. Sugarcane Research Institute (RAU) Pusa-848125, Distt. Samastipur (Bihar), India

All experiments were conducted as per technical programme of AICRP (S) but only one experiment (PP 34) was not conducted due to unavailability of sett treatment device. Concern scientist inform their situation an inoculation was not carried out due to heavy water logging condition and all differentials were damaged observed by online videography presented by concern their pathologist.

3. ICAR-IISR, Regional Centre, Motipur - 843111, Distt. Muzaffarpur (Bihar), India

As per AICRP (S) technical programme allotted experiment was conducted by concern scientist has done. An online videography is presented their concern pathologist result under progress.

4. Sugarcane Research Station, Bethuadahari-741126, Distt. Nadia, (W.B.), India

Dr K.N. Mandal, (Head) Economic Botanist VII, inform that only experiment (Evaluation of zonal varieties for resistance to red rot) here evaluated for conduct to other station pathologist has been done but other experiment **not conducted** due to pathologist not there and online videography presentation not clear through online poor connection.

5. Sugarcane Research Station, (A.A.U.) Buralikson, P.O. Baruabamungaon-785618, Distt. Golaghat (Assam), India

As per AICRP (S) technical programme allotted experiments are conducted to concern scientist details 22 entries were evaluated for red rot resistance result under progress but YLD and pokkah boeng were not found and survey had been done in different sugarcane growing areas of Golaghat district but not specific any observation online videography presented by concern pathologist.

C. **ENTOMOLOGY**

Projects allotted v/s conducted at different centres of zone

S. No.	Centre	E. 4.1	E. 28	E. 30	E. 40	E.41	Total
1	Seorahi	A/C	A/C	A/C	-	-	3/3
2	Pusa	A/C	A/C	A/C	-	A/C	4/4
3	Motipur	-	-	-	-	-	0
4	Bethuadahari	-	-	-	-	-	0
5	Buralikson	-	-	-	-	-	0

A/C: Allotted and conducted; A/NC: Allotted and not conducted

1. SEORAHI

Number of Experiment Allotted: 3, Conducted –03

Experiment No: 1 (E.4.1): Evaluation of zonal varieties /genotypes for their reaction against major insect- pests.

- **Date of planting: 28/3/2020**

Status:

AVT (Early) 1st plant Entries: 5 Standard: 3

Sl.No.	Varieties	% Incidence		
		Cumulative Shoot borer	Top borer 3rd brood	Top borer 4th brood
1	CoP 16437	11.11	2.44	4.91
2	CoP 16438	11.29	2.68	5.28
3	CoLk 16466	12.71	1.64	3.37
4	CoLk 16468	13.21	3.01	5.09
5	CoSe 16451	11.11	1.86	4.30
6	CoLk 94184	12.15	2.09	3.87
7	CoSe 95422	7.29	2.87	4.33
8	CoSe 01421	9.44	2.38	5.55

AVT (Early) 2nd plant Entries: 5 Standard: 3

Sl.No.	Varieties	% Incidence		
		Cumulative Shoot borer	Top borer 3rd brood	Top borer 4th brood
1	CoP 15436	9.37	2.18	3.62
2	CoLk 15466	9.14	2.53	4.64
3	CoLk 15467	11.17	2.00	3.30
4	CoSe 15452	9.03	1.76	5.14
5	CoSe 15455	8.93	1.48	3.80
6	CoLk 94184	6.38	1.82	3.46
7	CoSe 95422	8.94	2.90	4.38
8	CoSe 01421	9.88	2.25	4.61

AVT (Mid-late) 1st plant Entries: 4 Standard: 3

Sl.No.	Varieties	% Incidence		
		Cumulative Shoot borer	Top borer 3rd brood	Top borer 4th brood
1	CoP 16439	12.34	2.15	3.65
2	CoLk 16470	11.45	2.91	3.10
3	CoBln16502	13.69	2.77	3.71
4	CoSe 16452	8.47	2.32	3.34
5	BO91	8.33	2.05	3.21
6	CoP 9301	10.55	1.39	3.52
7	CoP 06436	12.31	2.40	4.06

AVT (Mid-late) 2nd plant Entries: 7 Standard: 3

Sl.No.	Varieties	% Incidence		
		Cumulative Shoot borer	Top borer 3rd brood	Top borer 4th brood
1	CoP 15438	13.58	3.69	5.21
2	CoP 15439	12.56	2.97	4.91
3	CoP 15440	13.18	2.86	4.31
4	CoLk 15468	9.42	2.91	4.19
5	CoLk 15469	11.93	2.94	4.36
6	CoSe15453	5.95	2.09	3.86
7	CoSe15454	5.85	1.91	3.57
8	BO91	8.23	2.57	4.67
9	CoP9301	1010	2.73	4.61
10	CoP 06436	10.30	2.70	4.44

Experiment No. E-28: Survey and Surveillance of sugarcane insect-pests in the area
Status:
Survey and Surveillance of sugarcane insect-pests in the area 2020-21

Variety	**Name of Pest**	**% incidence/population**			**Remark**
		Min.	**Max**	**Average**	
(1) Seorahi					
Co 0238,0118,98014,CoS 08272 CoLk 94184	Top Borer 2nd brood	02	05	3.50	
	Trips/Leaf	06	10	8.00	
	Mealy bugs/plant	03	08	5.55	

(2) Ramkola					
Co 0238,0118,98014,CoS 08272 CoLk 94184,CoP 9301,CoS 08279,	Top Borer 2nd brood	01	04	2.50	
	Trips/Leaf	-	-	-	
	Mealy bugs/plant	01	05	3.00	
(3) Dhadha					
Co 0238,0118	Top Borer 2nd brood	02	03	2.50	
	Trips/Leaf	05	10	7.50	
	Mealy bugs/plant	03	06	4.50	
(4) Pratappur					
Co 0238,0118,98014,CoS 08272 CoLk 94184,CoP 9301,CoS 08279,	Top Borer 2nd brood	01	05	3.00	
	Trips/Leaf	06	13	9.50	
	Mealy bugs/plant	-	-	-	
(5) Khadda					
Co 0238,0118,98014,CoS 08272 CoLk 94184,CoP 9301	Top Borer 2nd brood	01	05	3.00	
	Trips/Leaf	07	11	9.00	
	Mealy bugs/plant	05	06	5.50	
(6) Siswabajar					
Co 0238,0118,98014,CoS 08272 CoLk 94184,CoP 9301,CoS 08279,	Top Borer 2nd brood	02	05	3.50	
	Trips/Leaf	04	11	7.50	
	Mealy bugs/plant	02	04	3.00	
(7) Sathiyav					
Co 0238,0118,98014,CoS 8436,767,UP 39, 91269 CoLk 94184,,	Top Borer 2nd brood	01	04	2.50	
	Trips/Leaf	06	10	8.00	
	Mealy bugs/plant	02	04	3.00	
(8) Ghoshi					
Co 0238,0118,98014,CoS e 01434,92423 CoLk 94184,	Top Borer 2nd brood	02	06	4.00	
	Trips/Leaf	06	12	9.00	
	Mealy bugs/plant	03	05	4.00	
(9) Captangaj					
Co 0238,0118,98014,CoS 08272 CoLk 94184,CoP 9301,CoS 08279,	Top Borer 2nd brood	02	04	3.00	
	Trips/Leaf	05	11	8.00	
	Mealy bugs/plant	02	07	4.50	
(10) Pipraech					
Co 0238,0118,98014,CoS 08272 CoLk 94184,CoP 9301,CoS 08279,	Top Borer 2nd brood	02	03	2.50	
	Trips/Leaf	02	07	4.50	
	Mealy bugs/plant	-	-	-	

(11) Munderwa					
Co 0238,0118,98014,CoS 08272 CoLk 94184,,CoS 08279,CoSe 08452	Top Borer 2nd brood	01	03	2.00	
	Trips/Leaf	06	10	8.00	
	Mealy bugs/plant	01	05	3.00	
(12) **Babhanan**					
Co 0238,0118,	Top Borer 2nd brood	02	04	3.00	
	Trips/Leaf	05	11	8.00	
	Mealy bugs/plant	02	07	4.50	
(13) **Mankapur**					
Co 0238,0118	Top Borer 2nd brood	02	04	3.00	
	Trips/Leaf	04	12	8.00	
	Mealy bugs/plant	02	05	3.50	
(14)Balrampur					
Co 0238,0118	Top Borer 2nd brood	02	03	2.50	
	Trips/Leaf	04	12	8.00	
	Mealy bugs/plant	02	07	4.50	
(15)Tulshipur					
Co 0238,0118,98014	Top Borer 2nd brood	02	04	3.00	
	Trips/Leaf	04	09	6.50	
	Mealy bugs/plant	02	07	4.50	
(16)Utrola					
Co 0238,0118,,CoS 08272 CoLk 94184,CoS 08279	Top Borer 2nd brood	02	05	3.50	
	Trips/Leaf	04	11	7.50	
	Mealy bugs/plant	02	05	3.50	
(17)Rudhawali					
Co 0238,0118,,CoS 08272 CoLk 94184	Top Borer 2nd brood	02	05	3.50	
	Trips/Leaf	04	13	8.50	
	Mealy bugs/plant	04	07	5.50	
(18)Kunuderkhi					
Co 0238,0118	Top Borer 2nd brood	02	03	2.50	
	Trips/Leaf	04	11	7.50	

	Mealy bugs/plant	02	05	3.50	
(19)Akberpur					
Co 0238,0118	Top Borer 2nd brood	02	04	3.00	
	Trips/Leaf	06	11	8.50	
	Mealy bugs/plant	02	07	4.50	
(20)Mausudha					
Co 0238,0118,98014	Top Borer 2nd brood	02	04	3.00	
	Trips/Leaf	06	11	8.50	
	Mealy bugs/plant	02	07	4.50	
(21) Rauzagaw					
Co 0238,0118,98014	Top Borer 2nd brood	02	03	2.50	
	Trips/Leaf	04	11	7.50	
	Mealy bugs/plant	02	07	4.50	

Survey was conducted in–and–around 21 Sugar Mills of In eastern U.P. the incidence of top borer andTrips/Leaf were found low in most of the factory zones.Sporadic occurrence of mealy bug were observed low to medium in some factory zone.

Experiment No. E-30: Monitoring of insect-pests and their bio-agents in sugarcane agro-eco system.

Status: Monitoring of insect pest and natural enemies of Sugarcane (0.2 ha. area) 2020-21

(1) Early shoot borer				
Period of observation Dates + SMW	% incidence	% parasitism (ESB), if any		
		T. chilonis	*E. annulipes*	*S. inferens*
16-04-2020 16th SMW	3.66	-	-	-
18-05-2020 20th SMW	4.98	-	-	-
17-06-2020 24th SMW	7.89	-	-	-
20-07-2020 29th SMW	2.13	-	-	-

(2)Top borer							
Period of observation Dates + SMW	% incidence	% Parasitism (Top shoot borer)					
		Stenobracon sp.	*I. javensis*	*Elasmus zehntneri*	*Rhaconotus scripophagae*	*T. Japonicum*	*T. chilonis*
18-04-2020 16th SMW	-	-	-	-	-	-	-
31-05-2020 22nd SMW	2.02	6.25	2.00	-	-	-	-
30-06-2020 26th SMW	3.57	10.52	3.12	4.00	5.00	-	-
29-07-2020 31th SMW	4.06	13.63	16.66	10.71	8.00	-	-
29-08-2020 35th SMW	6.67	17.64	20.00	11.42	9.37	-	-
22-09-2020 38th SMW	1.50	5.00	3.63	4.16	6.00	-	-
25-10-2020 43rd SMW	-	-	-	-	-	-	-
(3)Stalk borer							
Period of observation Dates + SMW	% incidence	% Parasitism (Stalk borer)					
		Cotesia flavipes	*Apantelles flavipes*	*Apanteles pyralophagus*	*S. inference*	*Nosema sp.*	*B. bassiana*
18-04-2020 16th SMW	-	-	-	-	-	-	-
20-05-2020 20th SMW	-	-	-	-	-	-	-
16-06-2020 24th SMW	-	-	-	-	-	-	-
22-07-2020 29th SMW	-	-	-	-	-	-	-

21-08-2020 34th SMW	-	-	-	-	-	-	-
23-09-2020 38th SMW	7.20	9.37	-	-	-	-	-
26-10-2020 43rd SMW	10.05	11.11	-	-	-	-	-

Experiment was conducted in 0.2 ha area planted with CoS 008272 cultivars to monitor the key insect pests and their bio-agents. A bioagents viz., *Isotima javensis* (pre-pupel), *Stenobracon deesae* (larval), *Elasmus zehnteri*, *Rhaconotus species* (larval), parasitoids of top borer and *Cotesia flavipes (Larval)* parasitoids of stalk borer were recorded.

(1) CENTRE : PUSA

(2)

Allotted Experiment – 04, Conducted –04

As per technical programme, the following experiments were conducted during reporting period at Pusa Farm, Sugarcane Research Institute, RPCAU, Pusa.

1. Project E-4.1: Evaluation of zonal varieties/genotypes for their reaction against insect-pests.

Status:

Date of Planting — 29.01.2020; Plot Size — 6.0 X 5.40 m2,**Varieties/genotypes —** 53 (Including standard)

During evaluation of genotypes some genotypes like CoP 06436, CoLk 15466, CoP 17438, CoSe 15453 etc. are recorded as less susceptible reaction against borers.

2. Project E- 28: Survey and surveillance of sugarcane insect-pests.

Status:

The incidence of root/shoot, top borer, stalk borer and plassey borer varied from 2.7 to 9.1%, 3.6 to 16.5%, 4.3 to 10.8% and 5.7 to 16.3% respectively, during crop season 2020-21. While incidence of scale insect, mealy bug, black bug, white fly and mites were recorded above ETL on the crop.

3. Project E-30: Monitoring of insect-pests and their bio-agents in sugarcane agro-eco system.

Status:

Plot size — Half (1/2) acre,Variety – CoP 2061 (mid-late) ,Date of Planting — 22.01.2020

The observations on population of root/shoot, top borer, stalk and plassey borer were recorded up to 18% during period 2020-21, while in case of bio-agents, *Cotesia flavipes* was observed up to 30% against borers**.**

4. Project E-41: Assessments of yield losses caused by borer pests of sugarcane under changing climate scenario.

Status:

Plot size — 0.1 acre +0.1 acre.,Variety – CoP 2061 (mid-late),Date of Planting — 27.01.2020

The data of this project is in under process.

Overall the crop condition is satisfactory in all the experiments.

3. CENTRE: MOTIPUR

- Allotted Experiment – Nil

4. CENTRE : BETHUADAHARI

- Allotted Experiment – Nil

General observation: Incidence of Top borer, and Plassey borer were observed as major pests during period of report.

5. CENTRE : BURALIKSON

- Allotted Experiment – Nil

General observation: Incidence of Plassey borer and internode borer were found but in traces.

MONITORING REPORT OF PENINSULAR ZONE – I
(CROP SEASON 2020-2021)

Monitoring team constituted by the Director and Project Coordinator, AICRP (Sugarcane), ICAR-IISR-Lucknow vide letter no. F No. 12-11 (M)/2020-PCS dated November 13, 2020 for assessment of performance of the AICRP trials at regular as well as voluntary centres of Peninsular Zone-I by virtual mode with the following scientists.

Sl. No.	Name, Designation & address of Members	
1	Dr Hemaprapha Head (Crop Improvement) ICAR-SBI, Coimbatore	Team Leader
2	Dr. R.R. Hasure Incharge & Agronomist RSJRS, Kolhapur	Member
3	Dr Rini C.R. Asstt. Professor (Plant Pathology) SRS, Thiruvalla	Member
4	Dr J.S. Nandeesh Assistant Entomologist ZARS, Mandya	Member
5	Dr. G.K. Singh Chief Technical Officer Coordination Unit AICRP(S), ICAR-IISR, Lucknow (U.P.)	Facilitator

The AICRP(Sugarcane) centres of the Peninsular Zone-I have send their video photography of all the experiments allotted to them to the Team Leader and respective member of the discipline during 20th - 27th November, 2020. The centre-wise presentation of video of the experiments was made by the concerned scientist of the centres of the zone on virtual mode on dated 11.01.2021 & 12.01.2021.

The committee monitored the progress of trials and performance of the new entries in trials very carefully from the available information provided by the AICRP centres. The details of the trials monitored are as follows.

Centre	Date	Trials			
		Breeding	Agronomy	Pathology	Entomology
ICAR SBI, Coimbatore	11-1-2021	√	√	√	√
Thiruvalla	11-1-2020	√	–	√	√
Sankeshwar	11-1-2021	√	√	–	–
Mandya	11-1-2020	√	–	–	√
Kolhapur	11-1-2021	√	√	–	–
Sameerwadi	12-1-2020	√	–	–	–
Perumalapalle	12-1-2020	√	–	–	–
Pugalur	12-1-2020	√	–	–	–
Belagavi	12-1-2020	√	–	–	–

The detailed discipline-wise report including the performance of the trials and general observations pertaining to Breeding, Agronomy, Pathology and Entomology are provided.

OBSERVATIONS OF THE MONITORING TEAM

1. Kolhapur centre experienced heavy flooding from 6-24 August, 2020. The crops were almost submerged (70%) during the period. The centre conducted an evaluation trial to identify flood tolerant clones. In this trial, the entries Co 13008, CoN 14073, Co 14005 and CoTl 14111 were excellent and Co 16018, Co 16010, Co 13014, Co 15015, CoSnk 15104 and VSI 15122, Co 17005 and Co 17012 were very good.

2. Perumalapalle centre conducted all the four trials during 2020-21. The trials have been evaluated and new plantings were taken up. Owing to paucity of funds, the center has planted only IVT, while AVTs will not be conducted henceforth. The center is in need of fluff from NHG. This point needs attention of the PC as there is difficulty in sending fluff to centres which are not conducting the AICRP trials.

3. Pugalur centre didnot participate in the online monitoring team meeting. The centre was contacted later and information on the trials was collected.

4. Belagavi centre, being a new AICRP testing centre, conducted IVT and AVT I Plant during 2020-21. All trials of 2021-22 have been laid out according to the technical programme and the centre has joined the regular stream of AICRP centre with full set of trials.

5. High incidence of flowering is recorded in almost all entries at Sankeshwar as result of about 40% more rainfall received.

6. At Coimbatore, 426 crosses were effected under fluff supply programme based on the requirement of the fluff receiving centres as no breeder was able to come and effect the crosses due to the Covid-19 pandemic situation. The centre has also planted the National Hybridization Garden 2021 with 431 parents (7 new introductions) the first week of January, 2021.

7. Sameerwadi centre has requested to be a fluff receiving centre with the joining of a breeder at the centre.

A. Breeding trials

Format for recording performance and observations on the entries in Zonal Varietal Trials by monitoring teams

1. Overall grading of trials:

Trials	Coimbatore	Mandya	Perumala palle	Pugalur	Sameer wadi	Sankesh war	Thiruvalla	Belagavi	Kolhapur
IVT	Excellent	Excellent	Good	Average	Average	Excellent	Good	Excellent	good
AVT I Plant	Excellent	Excellent	Good	Good	Average	Excellent	Excellent	Excellent	good
AVT II Plant	Excellent	Excellent	Good	good	Good	Excellent	Excellent	-	good
AVT Ratoon	Excellent	good	Excellent	Discontinued (due to wilt)	Good	Excellent	Excellent	-	good

Each trial may be rated in four scales 1. Excellent 2. Good 3. Average 4. Poor

Assessment of the trial should be based on

1. Whether conducted as per the technical programme
2. General growth and maintenance of the trial
3. If the trial is unfit for evaluation grade **POOR** may be given.
4. When the trial is not conducted, it may be indicated as **Not Conducted**

2. Evaluation of entries in trials:

a) Performance of entries in IVT for cane traits and field stand

	Coimbatore	Mandya	Perumalapalle	Pugalur	Sameerwadi	Sankeshwar	Thiruvalla	Belagavi	Kolhapur
Co 17001	better	On Par	On Par	On par	better	Better	Better	better	Better
Co 17002	better	Better	Better	average	better	Better	On par	On par	Better
Co 17003	On par	On Par	On Par	On par	On par	Better	On Par	On par	Poor
Co 17004	better	On Par	On Par	On par	better	Better	On Par	better	On Par
Co 17005	on par	poor	On Par	Poor	average	Better	On Par	better	Better
Co 17006	poor	Better	Poor	On par	On par	Average	On Par	On par	On Par
Co 17008	on par	poor	On Par	better	On par	Average	Poor	On par	Better
Co 17010	better	Better	Poor	average	On par	Better	On par	better	On Par
Co 17012	On par	On Par	On Par	average	On par	Better	On par	better	On Par
Co 17013	On par	Better	Better	average	better	Better	Poor	On par	Poor
Co 17014	better	Better	Poor	On par	better	Average	poor	On par	Better
CoVC 17061	On par	Better	On Par	On par	On par	Better	On Par	On par	Better
CoN 17071	On par	Better	Better	On par	Better	Better	On Par	On par	On Par
CoN 17072	better	Better	Better	better	Better	Better	On Par	better	Better
MS 17081	better	On Par	On Par	On par	On par	Better	Better	On par	Better
MS 17082	On par	On Par	On Par	better	On par	Better	Poor	On par	On Par
CoVSI 17121	On par	Better	Poor	better	On par	Better	On Par	On par	Poor
CoT 17366	better	Better	On Par	average	On par	Better	Better	On par	Better
Std1 Co 86032	Best std	Best std		Best std	Best std	On par	Best Std	Best Std	Best Std
Std2 CoC 671	On par	On par		average	On par	On par	On Par	On par	3rd Best Std
Std3 Co 09004	On par	On par		On par	On par	Best Std.	On Par	On par	2ndbest Std

i) Among the standards the best should be indicated

ii) The entries should be **compared with the best standard** based on cane characters and field stand and rated as

1. Better 2.On par 3. Poor

b) Example: Observations* recorded on entries in IVT

	Coimbatore	Mandya	Perumalapalle	Pugalur	Sameerwadi*	Sankeshwar	Thiruvalla	Belagavi	Kolhapur
Co 17001	NF, erect	Medium tillering and flowering	-	Aerial rooting, Good tillering, Tall	Shy flowering, erect, spiny	late profuse flowering	Thick canes,	Mild spines	Erect, spines absent
Co 17002	70% flowering	Medium tillering, uniform cane, flowering	-	Tall cane, Wilt, INB	Shy flowering, erect, non-spiny, thick canes	profuse early	Thick canes, wilt	Mild spines	Lodging
Co 17003	10% flowering, medium growth	Medium thick semi erect canes, medium flowering	-	Bud sprout, Flowered, YLD, INB	Shy flowering, erect, medium	profuse mid	short	Less flowering	Erect
Co 17004	NF, tall	Tall canes, medium flowering	Mild top rot	Thick cane	Shy flowering, erect, thick cane	profuse late flowering	non lodging	Less flowering, thick canes	Erect, NF
Co 17005	brown rust, 7% flowering	aerial rooting and flowering	Tight clasping, flowering	Aerial rooting, INB	Flowering, heavy lodging, non-spiny	profuse early flowering	Thick canes	Mild spines, high SCWT	Semi-erect, Good
Co 17006	Short	Light green canopy & flowering	-	Medium thick, Good tillering, INB	Flowering, heavy lodging, long	profuse mid period flowering	Medium	Mild spines	Erect, spines absent

					internodes				
Co 17008	Mild brown rust, thick, NF	Poor growth & flowering	-	Thick cane, Slow growth, INB	Shy flowering, erect, short thick canes	profuse early flowering	Medium	Thick	Erect, good stand
Co 17010	Tall, less NMC, NF	Leaf senescence, & flowering	-	Less tillering, Split, Wilt, INB	Shy flowering, erect, short Thick canes	profuse early flowering	Medium	Mild spines	Erect, Rust
Co 17012	Mild orange rust	Tall, long internode & flowering	-	Heavy mealy bug, Tall, Flowered	Shy flowering, erect, short thick canes	profuse early flowering	Thick canes	Mild spines	Semi-erect, spines absent, rust
Co 17013	NF	Tall cane, & flowering	-	Good tillering, Small bud, Wilt	Shy flowering, erect, long canes	profuse mid flowering	wilt		Erect
Co 17014	NF	Medium tillering & flowering	-	High incidence of INB, Thick cane	Shy flowering, erect, non-spiny	profuse early flowering	Medium thick		Erect, spines present
CoVC 17061	GSD, 30% flowering	Tall cane, medium tillering & flowering	-	Heavy lodging, wilt	Shy flowering, erect, thick canes	profuse early flowering	Thick canes, non lodging		Semi-erect, spines present
CoN 17071	Orange rust, 70% flowering	Tall cane, early flowering	-	Thin, Heavy tillering, Splits, INB	Flowering, erect, spiny (H)	profuse early flowering	Thick canes	Heavy spines	Semi-erect, spines present

CoN 17072	20% flowering	Thick cane, & flowering	Flowering	Splits, Good tillering, Thick, Flowered	Shy flowering, erect, spiny (H), thick canes	profuse early flowering	wilt	Heavy spines, High cane wt	Erect, spines absent
MS 17081	NF	Thick cane, bi buds, lodging, sparse flowering	-	Bud sprouting, Long internode, Thick cane, Good tillering	Shy flowering, lodging, spiny (H)	sparse flowering		Late flowering	Semi-erect, spines absent
MS 17082	Orange rust, 70% flowering	thick cane & late and sparse flowering	Flowering	Thick tall canes, Long internode, Good tillering	Shy flowering, lodging, non-spiny	profuse early flowering			Semi-erect, excellent stand
CoVSI 17121	10% flowering	Tall cane, non lodging & medium flowering	Flowering	Small buds, Thick cane, Flowered	Flowering, erect, non-spiny	profuse early flowering		Heavy spines	Erect, spines absent
CoT 17366	30% flowering	Lodging & flowering		Severe INB, Wilt	Shy flowering, erect, non-spiny	profuse early flowering		High SCWT	Semi-erect
Std1 Co 86032	10% flowering		Best check	Good tillering,	Shy flowering, lodging	sparse flowering		Flowering symptoms	Best std
Std2 CoC 671	30% flowering			Medium tillering	Shy flowering,	profuse early			Poor std

					lodging				
Std3 Co 09004	NF			Heavy lodging, Medium thick	Shy flowering, erect, spiny	Late/non flowering		Flowering symptoms	Second best std

* incidence of pest and diseases, cane traits like thickness, splits, spines, flowering, lodging, tillering and gappiness.

Rust is observed in almost all entries and standards at Sameervadi

* incidence of pest and diseases, cane traits like thickness, splits, spines, flowering, lodging, tillering and gappiness.

a) Performance of entries in AVT I Plant Crop for cane traits and field stand

	Coimbatore	Mandya	Perumalapalle	Pugalur	Sameerwadi	Sankeshwar	Thiruvalla	Belagavi	Kolhapur
Co 11015	better	Better	On Par	On Par	better	better	On par	On par	Better
Co 14005	better	Better	Better	Average	better	better	On par	On par	Better
Co 15005	better	Better	Poor	On Par	On par	Average	Better	On par	Better
Co 15006	Poor	Better	On Par	On Par	On par	better	On Par	On par	Better
Co 15007	better	Poor	Better	On Par	On par	better	On Par	On par	Better
Co 15009	better	Better	Poor	On Par	Better	better	On Par	better	Better
Co 15010	better	On Par	Better	better	On par	better	Better	better	On Par
Co 15017	better	Better	On Par	Average	On par	better	On Par	better	On par
Co 15021	better	On Par	On Par	On Par	On par	Average	On Par	better	Better
CoSnk 15102	On par	Poor	Better	On Par	On par	On par	On Par	On Par	Better
CoN 15071	better	Better	On Par	better	On par	better	Better	Better	Better
PI 15131	On par	Better	Better	better	On par	better	On Par	On Par	Better
Std1 Co 86032	Best std	Best std		Average	Best std	better	Best std	Best std	Best std
Std2 CoC 671	On par	2nd best		Best std	On par	Average	On Par	On Par	3rd best std
Std3 Co 09004	On par	3rd best		On Par	On par	Best Std.	On Par	On Par	2nd Best std

i) Among the standards the best should be indicated

ii) The entries should be **compared with the best standard** based on cane characters and field stand and rated as

1. Better
2. On par
3. Poor

b) Example: Observations* recorded on entries in AVT 1Plant

	Coimbatore	Mandya	Perumalapalle	Pugalur	Sameerwadi	Sankeshwar	Thiruvalla	Belagavi	Kolhapur
Co 11015	10% flowering	Good, medium thick, sparse flowering		Medium thick, Good tillering	Shy flowering, lodging, internode splits	profuse early flowering	Good tillering, pokkah bong	Mild lodging, less flowering	Semi-erect, spines absent
Co 14005	NF	Late/ sparse flowering, good tillering		thin cane, Aerial rooting, Wilt, INB	Shy flowering, lodging	profuse Midseason flowering	Brown spot	Erect, less flowering	Lodging
Co 15005	40% flowering	Medium thick & flowering		Good tillering, medium thick	Flowering, lodging,	profuse early flowering	mosaic, pokka boeng nonlodging		Semi-erect, spines absent
Co 15006	100% flowering	Medium thick, floweringd	flowering	Medium thick, Medium tillering	Flowering, lodging	profuse early flowering	mosaic	Mild YLD	Erect, spines absent
Co 15007	70% flowering	Poor growth & flowering	flowering	Bud sprout, Medium tiller, INB	Flowering, heavy lodging	profuse early flowering	mosaic	Rust	Erect, NF
Co 15009	15% flowering	Late and sparse flowering	flowering	tall, Good tillering, Medium thick, appealing, Wilt	Shy flowering, heavy lodging	profuse early flowering	mosaic,	Lodging, no rust	Lodging, excellent stand
Co 15010	Late	Early		Erect, Splits	Shy	profuse		Lodging	Lodging,

	(5%) flowering	flowering, good growth, brown spot		on cane, Severe mealy bug	flowering, erect	early flowering			spines absent
Co 15017		Flowering, medium thick canes		Good tillering, Splits, Aerial rooting	Shy flowering, erect, internode splits	profuse early flowering	Mosaic, non lodging		Lodging, spines absent
Co 15021	NF	Good growth, flowering & tall cane		Good tillering, Medium thick, INB	Shy flowering, lodging	profuse midseason flowering	Pokkah bong		Lodging
CoSnk 15102	Tip drying	Late/ sparse flowering, poor growth		Low tillering, less appealing, Wilt	Shy flowering, lodging, non-spiny	NF	pokkah bong	Lodging	Lodging
CoN 15071	GSD, NF	Flowering & high tillering		Bud sprout, Medium thick, Splits on cane, big buds	Flowering, erect, non-spiny	profuse early flowering	Mosaic and wilt		Lodging, spines present
PI 15131	80% flowering	Flowering, medium thick	flowering	Thin erect canes, YLD, INB	Shy flowering lodging, non-spiny	profuse early flowering	mosaic , non lodging		Semi-erect, excellent
Std1 Co 86032	25% flowering			medium thick	Shy flowering, lodging, non-spiny	profuse midseason flowering	pokkah bong		Heavy Lodging

Std2 CoC 671	35% flowering			Tall, Medium thick	Shy flowering, lodging, spiny (H)	profuse early flowering	Brown spot		Semi-erect
Std3 Co 09004	NF, lodging			Heavy lodging, Medium thick	Shy flowering, lodging, spiny (H)	NF/sparse flowering	mosaic, pokkah boeng		Lodging

* incidence of pest and diseases, cane traits like thickness, splits, spines, flowering, lodging, tillering and gappiness.

a) Performance of entries in AVT II Plant for cane traits and field stand

	Coimbatore	Mandya	Perumalapalle	Pugalur	Sameerwadi	Sankeshwar	Thiruvalla	Kolhapur	Belagavi
Co 14002	better	Better	On Par	average	On par	Better	On par	Better	No trial
Co 14004	better	Better	On Par	average	On par	On par	On par	Better	
Co 14012	better	Poor	On Par	On Par	On par	On par	better	On Par	
Co 14016	better	On Par	Better	On Par	On par	On par	better	Poor	
Co 14027	better	Better	Better	better	On par	Better	better	Better	
Co 14030	On par	Poor	Better	On Par	On par	better	On par	On Par	
Co 14032	On par	Better	Better	better	average	On par	poor	On Par	
CoN 14073	better	On Par	Better	better	On par	Better	better	Better	
CoSnk 14102	better	On Par	On Par	average	On par	Better	On par	Better	
CoSnk 14103	better	Better	On Par	On Par	On par	Better	On par	On Par	
CoT 14367	poor	Better	On Par	On Par	On par	Better	On par	Poor	
CoTl 14111	better	Better	On par	On Par	On par	Better	On par	Better	
CoVC 14062	poor	On Par	On Par	average	On par	On par	poor	Poor	
MS 14081	Better	Better	On Par	On Par	On par	Better	On par	On Par	
MS 14082	Better	On Par	On Par	average	better	Better	On par	Better	
Std1 Co 86032	Best std	Best std		better	Best std	Best Std.	Best std	Best std	
Std2 CoC 671	On par	On Par		On Par	On par	On par	On par	3rd best	

								std	
Std3 CoSnk 05103	poor	On Par		average	On par	On par	poor	2nd best std	

i) Among the standards the best should be indicated

ii) The entries should be **compared with the best standard** based on cane characters and field stand and rated as

1. Better
2. On par
3. Poor

b) Example: Observations* recorded on entries in AVT II Plant

	Coimbatore	Mandya	Perumalapalle	Pugalur	Sameerwadi	Sankeshwar	Thiruvalla	Belagavi	Kolhapur
Co 14002	flowering	medium thick, late flowering	Leaf yellowing	Heavy lodging, Medium thick, Wilt	Shy flowering, heavy lodging,	Better (profuse early)	flowering	No trials	Lodging,spines absent
Co 14004	NF	Medium growth, sparse flowering		Top rot, , Wilt	Shy flowering, heavy lodging	On par (moderate early)	Semi erect		Semi-erect, spines absent
Co 14012	NF	Poor growth, sparse flowering		Slightly slow growth, Medium thick, YLD	Shy flowering	On par (profuse early)			Erect, later flowering growering
Co 14016	NF	Good growth, late and sparse flowering		Medium thick, Erect cane	Shy flowering, erect	On par (profuse late)			Semi-erect
Co 14027	NF	Lodging, late sparse flowering		Thick cane, appealing, Good tillering	Shy flowering	Better (NF) yellowing/ senescence			Erect, spines absent, NF

Co 14030	lodging	Poor growth, flowering		Medium thick	Shy flowering	Excellent (profuse early)	lodging		Erect, spines absent
Co 14032	lodging	flowering, medium growth	flowering	Phosphorus deficiency noticed	Flowering, heavy lodging	On par (profuse early)	Heavy lodging		Heavy lodging
CoN 14073	NF	tall cane, late flowering	flowering	Medium thick, Medium tillering	Shy flowering, erect	Better (sparse late)			Semi-erect, spines absent
CoSnk 14102	Thin, NF	Good growth, medium tillering,late/ sparse flowering		thin cane, Slow growth, Poor, Wilt	Shy flowering, heavy lodging	Better (NF)	Lodging, leaf drying		Erect, spines absent
CoSnk 14103	NF	Late/sparse flowering lodging, thick cane		Less tiller, Slow growth, Flowered	Shy flowering, lodging	Better (NF) yellowing/ senescence	lodging		Erect, spines absent
CoT 14367	Lodging, 100%flowering	Thick cane, lodging, flowering	flowering	Slightly slow growth, Medium thick, Wilt, Flowered	Shy flowering, heavy lodging	Better (profuse early)	late shoots, lodging		Semi-erect, spines present
CoTl 14111	100% flowering	flowering, non lodging, medium growth	Smut, flowering	Good tillering, Thick cane, Flowered	Flowering, erect	Better (profuse early)	flowering		Erect, excellant stand
CoVC 14062	Short, 80% flowering	Tall cane, medium thick, flowering	Top rot	Medium thick, Good tillering	Shy flowering, good stand	On par (profuse early)	Lodging, leaf drying		Erect

MS 14081	NF	Medium growth, flowering		Erect cane, Less tiller, Medium thick, Smut	Shy flowering, spiny (H)	Better (profuse early)	Late shoots		Erect
MS 14082	NF	Good growth, late flowering, non lodging		Good tillering, Medium thick	Shy flowering, non-spiny	Better (NF)	Late shoots		Erect, excellant stand
Std1 Co 86032	15% flowering	medium thick & late flowering		Thick cane, Medium tiller	Shy flowering, non-spiny	Best Std.			Best std, heavy lodging
Std2 CoC 671	35% flowering	Medium growth & sparse flowering		Good tillering	Shy flowering, spiny (H)	Excellent (profuse early)	lodging		Semi-erect
Std3 CoSnk 05103	GSD	Poor growth & sparse flowering		Heavy lodging, Medium thick, Wilt	Flowering	Excellent (profuse early)	lodging		Semi-erect

* incidence of pest and diseases, cane traits like thickness, splits, spines, flowering, lodging, tillering and gappiness.

a) Performance of entries in AVT Ratoon Crop for cane traits and field stand

	Coimbatore	Mandya	Perumalapalle	Pugalur	Sameerwadi	Sankeshwar	Thiruvalla	Belagavi	Kolhapur
Co 14002	better	Better	Poor	Abandoned due to wilt	On par	On par	average		Better
Co 14004	better	Poor	On par		On par	On par	On par		On Par
Co 14012	better	Poor	Poor		On par	Better	On par		Poor
Co 14016	better	On Par	Better		better	On par	On par		Poor
Co 14027	better	Poor	Better		better	Better	On par		On Par
Co 14030	On par	Poor	On par		On par	Better	On par		Better
Co 14032	Poor	Better	On par		On par	On par	On par		On Par
CoN 14073	better	On Par	On Par		better	Better	On par		Better
CoSnk 14102	On par	Better	Poor		On par	Better	average		Better

CoSnk 14103	better	Poor	On Par		average	Better	On par		On Par
CoT 14367	poor	Poor	Better		average	On par	On par		On Par
CoTl 14111	on par	Better	Better		On par	Better	On par		Better
CoVC 14062	poor	Better	On par		On par	On par	On par		On Par
MS 14081	better	Better	Poor		On par	On par	On par		On Par
MS 14082	better	On Par	Better		On par	Better	On par		Better
Std1 Co 86032	Best std	2nd best std			Better std	Best Std.	Best check		Best std
Std2 CoC 671	On par	3rd best std			On par	On par	On par		On Par
Std3 CoSnk 05103	poor	Best std			On par	On par	On par		2nd best std

i) Among the standards the best should be indicated

ii) The entries should be **compared with the best standard** based on cane characters and field stand and rated as

1. Better
2. On par
3. Poor

b) Example: Observations* recorded on entries in AVT Ratoon Crop

	Coimba tore	Mandya	Perumala palle	Pugalur	Sameerwadi	Sankeshwar	Thiruvalla	Belagavi	Kolhapur
Co 14002	flowering	Sparse flowering, & lodging	Yellowing		Shy flowering, lodging	profuse early flowering	Heavily lodged		Semi-erect, spines absent
Co 14004	NF	poor growth & sparse flowering			Flowering, heavy lodging	profuse early flowering	Heavily lodged		Semi-erect, spines absent
Co 14012	NF	Poor growth, non flowering			Shy flowering, slight lodging	profuse early flowering	Heavily lodged		Semi-erect
Co 14016	Late flowering (10%)	Good growth, late flowering			Shy flowering, slight lodging	profuse early flowering	Heavily lodged		Erect
Co 14027	NF	Poor & sparse flowering			Shy flowering	NF, yellowing	Heavily lodged		Erect, NF
Co 14030	lodging	Poor, lodging & flowering			Shy flowering, slight lodging	profuse early flowering	Heavily lodged		Semi-erect
Co 14032	lodging	Fully flowered, lodging	flowering		Flowering slight lodging,	profuse early flowering	Heavily lodged		Semi-erect
CoN 14073	NF	Tall cane,	flowering		Flowering,	sparse	Heavily		Erect

		good tillering & late/ sparse flowering			slight lodging	flowering	lodged		
CoSnk 14102	NF	Medium growth, late sparse flowering	flowering		Shy flowering, slight lodging	NF	Heavily lodged		Erect, NF
CoSnk 14103	NF	Poor growth, yellow leaf disease	flowering		Shy flowering, slight lodging	sparse late flowering	Heavily lodged		Erect, NF
CoT 14367	GSD	Poor growth, yellow leaf disease	flowering		Flowering, lodging, poor stand	profuse early flowering	Heavily lodged		Erect, smut
CoTl 14111	100% flowering	Tall cane, medium thick	flowering		Flowering	profuse early flowering& profuse bud sprouting)	Semi lodging		Erect
CoVC 14062	short, 10% flowering	Tall cane, medium tillering & flowering	Lodging		Flowering	profuse early flowering	Heavily lodged		Semi-erect, rust
MS 14081	Late sparse flowering	Erect cane, medium thick & flowered	Leaf drying		Shy flowering, slight lodging, non-spiny	profuse early flowering	Heavily lodged		Erect

MS 14082	NF	Good growth, non lodging, late/sparse flowering			Shy flowering, slight lodging	NF	Heavily lodged		Semi-erect
Std1 Co 86032	10% flowering		lodging, flowering		Flowering, lodging	Best Std.	Heavily lodged		Heavy lodging
Std2 CoC 671	80% flowering		flowering		Flowering, lodging, spiny (H)	Average (profuse early)	Heavily lodged		Semi-erect
Std3 CoSnk 05103	Thin, 50% flowering		flowering		Flowering, lodging, spiny (H)	profuse early flowering	Heavily lodged		Erect

* incidence of pest and diseases, cane traits like thickness, splits, spines, flowering, lodging, tillering and gappiness.

3. **Multiplication of entries:** Monitoring team can assess the seed availability of the entries in the multiplication plots for planting ZVT next year. Any shortage in the seed materials may be reported.

4. **Fluff Supply Programme**: Number of seedlings produced and number of selections in different stages of selection cycle.

Best Entries For Sucrose

Sameerwadi: 12th month juice analysis was completed in AVT (Ratoon), Co 14004 and Co 14016 were high sugared and were on par with CoC 671 and superior to CoSnk 05103. CoT 14367 recorded the poorest juice quality.

IVT: Co 17010 and Co 17008 were the best for juice quality while CoVC 17061 was the poorest.

AVT (II Plant): Co 14027 was the best in the trial followed by Co 14004, these were on par with the standard CoC 671. CoT 14367 was the poorest in sucrose in the trial.

AVT (I Plant): Co 11015 (20.24%) and Co 14005 (19.65%) recorded the highest sucrose values in the trial. Co 15005 recorded the highest NMC.

Belagavi: In IVT Co 17001, Co 17003 and the standard Co 09004 were the best for sucrose following by Co 17001 and Co 17012. In AVT (I Plant) Co 11015 was the best for juice quality followed by Co 14005, Co 15005 and the standards Co 09004 and CoC 671.

The station has completed laying out all the trials of 2021-22.

Thiruvalla

IVT: Co 17001and Co 17003 were on par with the best check CoC 671

AVT IPlant: Co 11015, Co 15007, Co 15017 and the standard Co 09004 were sucrose rich types.

AVT IIPlant: Co 14032, Co 14004, CoVC 14062, Co 14027 were on par with the best standard CoC 671

Coimbatore :

Data at 300 days (270 days for Ratoon). Final juice analysis at harvest is during the last week of January.

IVT: Co 17001, Co 17003, Co 17005

AVT I Plant: Co 11015, Co 15007

AVT II Plant: Co 14004, Co 14027, CoVC 14062, CoVC 14062, Co 14030, Co 14027

AVT Ratoon: Co 14032, Co 14027, Co 14004

Perumalapalle: Juice analysis at 12th month indicated that the entries Co 17001, Co 17003, Co 17004, Co 17008, CoN 17071 and CoN 17072 were comparable with CoC 671.

In IVT Co 17001, Co 17002, Co 17005, Co 17008, Co 17013, CoN 17071 and Co 17072 were promising.

In IVT (I Plant) Co 11015, Co 14005 and Co 15005 recorded above 20% Brix and were numerically better than the standard Co 86032. Co 15007, Co 15010, CoN 15071, PI 15131 and Co 11015 were better in the trial.

In AVT (II Plant) CoC 671 was the best standard for juice quality and among the entries Co 14004, Co 14012, Co 14027 recorded better sucrose. The entries Co 14016, Co 14027, CoN 14073, CoSnk 14102, CoSnk 14103, CoTl 14111 and CoT 1437 were better performers.

AVT (Ratoon): The best entries for juice quality were Co 14002 and Co 14007. In this Co 14016, Co 14027, CoT 14367, CoTl 14111 and CoVc 14062 were better

SEED MULTIPLICATION

All centres have multiplied the seed in enough qualities. The centres, Belagavi, Sameervadi , Rudrur (2 trials alone) have already laid out the new experiments. Sankeshwar has less seed in the IVT entry 17009 which has less seed due to its stunted growth.

B. Crop Production

Name of the centre	I) AICRP on Sugarcane, ICAR-SBI, Coimbatore (TN)
The experiments allotted: AS -72, AS -73 , AS -74 and AS -75 **Experiments Conducted : AS- 72 and AS -73**	
AS-72: Agronomic Performance of elite Sugarcane genotypes. All the cultivars with 100 or 125 % RDF application perform well and for interaction effects of both fertilizer levels and cultivars. Among the cultivars CoN 14073, CoSnk 14102 and Co 14002 performed better compared to checks. The general performance of the trial is very good.	
AS-73: Assessment of climate change impact on sugarcane productivity. Data collected and filled in proforma was submitted to PI, Crop Production	
AS -74: Evaluation of Sugarcane Varieties for drought tolerance. NA	
AS-75: Precision nutrient management through rescheduling time of application for widely spaced sugarcane plant-ratoon system. NA	

Monitoring Report of Agronomy discipline,
All India Coordinated Research Project on Sugarcane
Performance of experiments under crop production in Peninsular Zone I for Regular center during the Year 2020-2021.

Name of the centre	II) AICRP on Sugarcane,Agricultural Research Station, Sankeshwar
The experiments allotted: AS -72, AS -73 , AS -74 and AS -75 **Experiments Conducted : AS- 72, AS -73 , AS -74 and AS -75**	
AS-72: Agronomic Performance of elite Sugarcane genotypes. All the cultivars did not differed with 100 or 125 % RDF application and for interaction effects of both fertilizer levels and cultivars. Among the cultivars CoN 14073, CoSnk 14102 and Co 14002 performed better compared to checks. The general performance of the trial is very good.	
AS-73: Assessment of climate change impact on sugarcane productivity. Data collected filled in proforma and will be submitted to PI, Crop Production along with annual report.The work is in progress.	
AS -74: Evaluation of Sugarcane Varieties for drought tolerance. Irrigation scheduling at IW/CPE ratio 1.0 was significantly better for obtaining higher sugarcane yield compared to IW/CPE ratio 0.3. Among the cultivars midlate- CoSnk 09227 and early- SNK 088789 cultivars performed better compared to other. The higher cane yield was obtained with interaction of midlate cultivar CoSnk 09227 with IW/CPE ratio 1.0. At IW/CPE ratio 0.3, cultivars *viz*., CoSnk09227 (mid-late) and SNK 088789 (early) performed better than rest of cultivars.The general performance of the trial is excellent.	
AS-75: Precision nutrient management through rescheduling time of application for widely spaced sugarcane plant-ratoon system. Band placement with split application of N & K (6 & 7) showed better performance over other treatment combination	

Sr No	Project No. →	AS 68	AS 72	AS 73	AS 74	AS 75
	Title	Impact of integrated application of organics and inorganics in improving soil health and sugarcane productivity	Agronomic performance of elite sugarcane genotypes	Assessment of climate change impact on sugarcane productivity	Evaluation of sugarcane varieties for drought tolerance	Precision nutrient management through rescheduling time of application for widely spaced sugarcane plant-ratoon system.
	Centres ↓					
1	Coimbatore	NA	Very Good	Very Good	NA	NA
2	Sankeshwar	NA	Very Good	In progress	Excellent	Excellent
3	Kolhapur	Very Good	Very Good	Very Good	Good	Very Good

C. Plant Pathology

PP 14: Identification of pathotypes of red rot pathogen

PP 14 (a): Maintenance of isolates of red rot pathogen

PP 17: Evaluation of zonal varieties for resistance to red rot, smut, wilt, YLD, brown rust and pokkah boeng

PP 17 A: Red rot

PP 17 B: Smut

PP 17 C: Wilt

PP17 D: Yellow Leaf Disease (YLD)

PP17 E: Brown Rust

PP17 F: Pokkah Boeng

PP 22: Survey of sugarcane diseases naturally occurring in the area on important sugarcane varieties

PP 23: Assessment of elite and ISH genotypes for resistance to red rot

PP 31: Epidemiology and management of pokkah boeng in sugarcane

PP 32: Management of brown spot disease of sugarcane

PP 33: Management of yellow leaf disease through meristem culture combined with molecular diagnostics

PP34: Efficient delivery of fungicides and other agro inputs to manage major fungal diseases in sugarcane

Report of Plant Pathology trials 2020-21 of Peninsular zone I

SBI, Coimbatore

Nine trials viz., PP14, PP17A, PP17B, PP17D, PP17E, PP17F, PP22, PP33, PP34 were allotted to SBI, Coimbatore. The centre has conducted all the trials in excellent manner as per the technical programme for the year 2020-21. Though the trials were harvested before the monitoring, the centre presented the details of experiments done during the year. For PP14 and PP17A trials, red rot pathogen inoculation were done during last week of August and observations recorded at the specified time. In PP17B, smut symptoms were observed on the standards along with the susceptible genotypes

ARS, Thiruvalla

Five trials viz., PP14, PP17A, PP17D, PP17F, PP22, were allotted to ARS, Thiruvalla. The centre has conducted all the trials in excellent way and videography made and presented before the monitoring team. In PP14 experiment, planting was done in February, 2020 and red rot pathogen inoculation done during October, 2020. Observations were recorded at 60^{th} day of inoculation. In PP17 experiment, separate plots were maintained for the trial. Planting were done in February, 2020, red rot inoculation made during October, 2020 and observations were recorded at 60^{th} day of inoculation. Pokkah boeng disease was observed in few varieties in mild to moderate form. In PP22, leaf spot diseases were common and no casualties were observed due to diseases.

D. Entomology Trials

As per the technical programme of year 2020-21 following Entomology trials were finalized for trials under AICRP (Sugarcane) programme:

1. **E 4.1:** Evaluation of Zonal varieties/genotypes for their reaction against major insect- pests.
2. **E.28:** Survey and surveillance of sugarcane insect -pests.
3. **E.30:** Monitoring of insect-pests and bio-agents in sugarcane agro ecosystem.
4. **E.34:** Standardization of simple and cost effective techniques for mass multiplication of sugarcane bio-agents.
5. **E.40:** Integrated approach to manage white grubs in sugarcane.
6. **E.41:** Assessment of yield losses caused by borer pests of sugarcane under changing climatic scenario

Centre wise status of Entomology trials alloted and conducted:

Experiment No.	**E 4.1**		**E.28**		**E.30**		**E.34**		**E.40**		**E.41**	
	Alloted	Conducted	Alloted	Conducted	Alloted	Conducted	Alloted	Conducted	Alloted	Conducted	Alloted	Conducted
Coimbatore												
Thiruvalla	NA	NC	A	NC	NA	NC	NA	NC	NA	NC	NA	NC
Mandya	A	C	A	C	A	C	A	NC	NA	NC	A	C

A : Alloted; NA: Not alloted; NC: Not conducted; C : Conducted as per the Technical programme

Salient Observations/ specific remarks

Experiment No.	**E 4.1**	**E.28**	**E.30**	**E.34**	**E.40**	**E.41**
Coimbatore	- - - -	-----	-----	-----	-----	----
Thiruvalla	-	The experimental observations could not be recorded due to	---	---	---	---

		pest report : *Phaenacantha bicolor* was recorded as a pest of sugarcane for the first time in India.				
Mandya	All the entries recorded less incidence of ESB and TSB	Survey was conducted at monthly interval in three sugar factory areas of Mandy district. During the survey seven pests incidence was recorded viz., Early shot borer (7.50 – 28.00 %), top shoot borer (6.00 – 18.50), inter node borer (12.50 – 29.50), root grub (larval population range 3 – 4grubs / clump), termites (Damage in patches), woolly aphids and mealy bugs.	The incidence of ESB varies from 0-3 % during 90 days after planting. TSB incidence was high during 7th month after planting. The woolly aphid was taken care by the natural enemies in the field.	----	- - - - -	The experiment was conducted by adopting two methods A. Chemical protection of the crop 1. Treated with recommended effective insecticide (Chloratroniliprole @ 22 kg/ha) 2. Untreated open for natural normal infestation of borers - Among the borer infestation, early shoot borer infestation was recorded less than 5 per cent. Inter node borer infestation will be recorded at the time of harvest.

MONITORING REPORT OF PENINSULAR ZONE-II
(CROP SEASON 2020-21)

Monitoring team constituted by the Director and Project Coordinator, AICRP (Sugarcane), ICAR-IISR-Lucknow vide letter no. F No. 12-11 (M)/2020-PCS dated November 13, 2020 for assessment of performance of the AICRP trials at regular as well as voluntary centres of Peninsular Zone-II by virtual mode with the following scientists.

Sl. No.	Name, Designation & address of Members	
1	Dr S.C. Mali, Research Scientist (Sugarcane) MSRS, Navsari	Team Leader
2	Shri P.V. Ghodke Scientist (Agronomy) VSI, Pune	Member
3	Dr A.B. Tambe Sugarcane Entomologist CSRS, Padegaon	Member
4	Mr. B. H. Pawar Head & Sr. Scientist (Pl. Pathology) VSI, Pune	Member
5	Dr. S.K. Yadav Scientist (Agronomy) Coordination Unit AICRP(S), ICAR-IISR, Lucknow (U.P.)	Facilitator

The AICRP(Sugarcane) centers of the Peninsular zone -II have sent their video photography of all the experiments allotted to them to the Team Leader during 25th - 30th December, 2020. The centre-wise presentation of video of the experiments was made by the concerned scientist of the centres of the zone on virtual mode on dated 13.01.2021.

1. Main Sugarcane Research Station, Navsari Agricultural University, Navsari (Gujarat):

The centre has laid out all the trials allotted to the centre which includes the trials under the disciplines of Breeding and Plant Pathology. Overall, the trials were excellent. Performance of the entries in all trials are good for field stand, tillering and cane traits compared to the best standards are given in Table- 1.Agronomical and entomological trials are not conducted because the posts are vacant. The plants were in good health, good tillering with dark green canopy with high NMC.

2. Vasantdada Sugar Institute, Pune (Maharashtra):

The centre has laid out all the trials under the disciplines of Breeding, Agronomy, Entomology and Pathology. Overall the trials were excellent. This centre has maintained very good crop growth, plant stand as well as all experiments were free from weeds, disease and pest.

3.Central Sugarcane Research Station, Padegaon Farm, Satara (M.S.):

The centre has conducted all the 4 trials as per the technical programmeunder the disciplines of Breeding and Entomology. Overall the trials were excellent. Agronomicaland Pathological trials are not conducted because the posts are vacant.

4. Regional Sugarcane and Rice Research Station, Rudrur, Nizamabad (Telangana):

The centre has laid out trials allotted to the centre which includes under the discipline of breeding. Overall the trials were very good. Fields were well maintained and they have reported minor wild boar problem.

5. PadmashriDr.VitthalraoVikhePatilSahakariSakharKarkhana Ltd., Pravaranagar (M.S.):

The centre has laid out all the trials under Breeding. The Breeding trials were laid out as per the technical programme. Overall the trials were very good. No agronomical, pathological and entomological trials were conducted. The plants were in good health, good NMC.

6. Sugarcane Research Centre, Dr.PunjabraoKrishiVidyapeeth, Tharsa (M.S.):

The Breeding trials were laid out as per the technical programme. They were conducted IVT trail only and according to their report AVT-II plant and AVTratoon not planted and AVT- I plant is severly damaged by wild boar. No agronomical, pathological and entomological trials were conducted.

7**. S.K.College of Agriculture and Research Station, Kawardha-491995, (C.G.):**

The centre has laid out all the trials allotted to the Centre which includes the trials under the disciplines of Breeding and Entomology. No pathological trials were conducted as no pathologist is available at the center. Overall the trials were good. The plants were in good health, medium tillering with green canopy, however, scarcity of water is observed in some trials. There is a necessity of maintaining water sources for the trials.

8. Zonal Agricultural Research Station, Powarkheda, Hoshangabad (M.P.):

The centre has laid out Breeding and agronomical trials. In breeding trials only IVT and AVT-I trials are in good condition but damaged due to wild boar. The Agronomical trials were conducted and were in good condition.

A. Breeding Trials

Specific remarks

- Breeding trials at all locations were laid out as per the technical programmes.
- The overall comparative rating of the centres with respect to various trials is: **Excellent**at Navsari, Pune and Padegaon, **Very Good** at Pravaranagar and Rudrur and **Good** at Tharsa and Akola (Kawardha). It is possible to improve the trials at Powarkheda and Akola by giving proper irrigation.
- The rating of entries in individual trial / Centre is given in the subsequent pages.

1. Centre wise performance of Trials

Trials/ Centre	Navsari	VSI, Pune	Padegaon	Rudrur	Pravaranagar	Tharsa	Kawardha	Powarkheda
IVT (Early + Midlate)	Excellent	Excellent	Excellent	Very Good	Very Good	Very Good	Good	Good
AVT(Early) I Plant	Excellent	Very Good	Excellent	Very Good	Very Good	-	Good	Poor
AVT (Early) II Plant	Excellent	Excellent	Excellent	Very Good	Very Good	-	Not conducted	Poor
AVT (Early) Ratoon	Very Good	Good	Good	Good	Good	-	Not conducted	Not conducted
Remarks / Pest and Disease	No major insect, pest or disease damage	Rust is observed in 3-4 entries in ratoon trial (CoN 14073, Co 14016)	Rust is observed in Co 15005. Pokkahboeing and YLD, GSD were also observed	In Co 15010 and Co 14030, rust was observed	Crop condition is good	Crop condition is good	Crop condition is good	Due to wild boar damage, plant stand is not good

2. PERFORMANCE OF ENTRIES IN EACH TRIAL

2.1 Initial Variety Trial (Early)

No.	Variety	Navsari	Pune	Padegaon	Rudrur	Pravaranagar	Tharsa	Kawardha	Powerkheda
1	Co 17001	Good	Very Good	Good	Good	Good	Very Good	Very good	Very good
2	Co 17002	Very Good	Very Good	Poor	Good	Very Good	Very Good	Good	Good
3	Co 17003	Very Good	Very Good	Excellent	Average	Good	Very Good	Good	Good
4	Co 17004	Very Good	Excellent	Average	Very good	Good	Very Good	Very good	Average
5	Co 17005	Poor	Very good	Poor	Average	Good	Excellent	Good	Good
6	Co 17006	Average	Good	Average	Good	Average	Good	Average	Very good
7	Co 17008	Average	Good	Poor	Good	Good	Very Good	Good	Very good
8	Co 17010	Very Good	Very good	Average	Good	Good	Excellent	Very good	Poor
9	Co 17012	Average	Excellent	Very good	Very good	Very Good	Very Good	Excellent	Good
10	Co 17013	Good	Good	Very good	Average	Very Good	Very Good	Good	Very good
11	Co 17014	Good	Good	Poor	Good	Good	Good	Poor	Good
12	CoVC 17061	Very Good	Very good	Good	Very good	Average	Very Good	Very good	Average
13	CoN 17071	Average	Very good	Poor	Good	Good	Very Good	Excellent	Very good
14	CoN 17072	Good	Good	Poor	Very good	Very Good	Very Good	Very good	Average
15	MS 17081	Good	Good	Very good	Good	Good	Good	Very good	Average
16	MS 17082	Very Good	Excellent	Very good	Average	Good	Good	Excellent	Very good
17	CoVSI 17121	Average	Very good	Good	Very good	Very Good	Very Good	Very good	Average
18	CoT 17366	Good	Very good	Good	Good	Good	Very Good	Very good	Very Good
Standards :									
19	Co 86032	Good	Very good	Excellent	Very good	Very Good	Very Good	Very good	
20	CoC 671	Good	Very good	Very good	Good	Average	Good	Excellent	
21	Co 09004	Very Good	Very good	Good	Good	Good	-	Average	

2.2 Advanced Varietal Trial -I Plant

No.	Variety	Navsari	Pune	Padegaon	Rudrur	Pravaranagar	Tharsa	Kawardha	Powerkheda
1	Co 11015	Good	Good	Good	Very Good	Good	-	Excellent	Very Good
2	Co 14005	Very Good	Very good	Good	Good	Very Good	-	Good	Good
3	Co 15005	Poor	Average	Average	Good	Good	-	Very good	Poor
4	Co 15006	Very Good	Good	Good	Very Good	Average	-	Average	Very Good
5	Co 15007	Very Good	Very good	Poor	Average	Average	-	Good	Average
6	Co 15009	Good	Excellent	Average	Very Good	Very Good	-	Excellent	Excellent
7	Co 15010	Good	Very good	Poor	Good	Very Good	-	Very Good	Poor
8	Co 15017	Poor	Good	Good	Average	Good	-	Very Good	Very Good
9	Co 15021	Average	Very good	Good	Very Good	Good	-	Very Good	Very Good
10	CoSnk 15102	Very Good	Good	Poor	Good	Good	-	Average	Average
11	CoN 15071	Excellent	Excellent	Excellent	Very Good	Good	-	Good	Good
12	PI 15131	Good	Good	Good	Good	Very Good	-	Excellent	Good
Standards :								-	
13	Co 86032	Good	Very good	Excellent	Very good	Average	-	Very good	
14	CoC 671	Good	Very good	Very good	Good	Good	-	Excellent	
15	Co 09004	Very Good	Very good	Good	Good	Good	-	Average	

2.3 Advanced Varietal Trial -II Plant

No.	Variety	Navsari	Pune	Padegaon	Rudrur	Pravaranagar	Tharsa	Kawardha	Powerkheda
1	Co 14002	Good	Good	Average	Good	Good	-	-	-
2	Co 14004	Average	Good	Good	Good	Very Good	-	-	-
3	Co 14012	Good	Good	Good	Good	Very Good	-	-	-
4	Co 14016	Good	Excellent	Very good	Very good	Good	-	-	-
5	Co 14027	Excellent	Good	Very good	Very good	Average	-	-	-
6	Co 14030	Average	Average	Average	Good	Good	-	-	-
7	Co 14032	Poor	Good	Poor	Average	Good	-	-	-

8	CoN 14073	Excekkebt	Excellent	Excellent	Very good	Very Good	-	-	-
9	CoSnk 14102	Good	Very good	Good	Good	Good	-	-	-
10	CoSnk 14103	Poor	Average	Average	Average	Good	-	-	-
11	CoT 14367	Poor	Poor	Average	Average	Good	-	-	-
12	CoTl 14111	Very Good	Very good	Average	Good	Average	-	-	-
13	CoVC 14062	Average	Good	Average	Average	Good	-	-	-
14	MS 14081	Poor	Very good	Very good	Average	Very Good	-	-	-
15	MS 14082	Very Good	Excellent	Good	Good	Good	-	-	-
Standards :									
16	Co 86032	Good	Very good	Excellent	Good	Good	-	-	-
17	CoC 671	Good	Very good	Very good	Average	Average	-	-	-
18	CoSnk 05103	Very Good	Good	Average	Good	Good	-	-	-

2.4 Advanced Varietal Trial -Ratoon

No.	Variety	Navsari	Pune	Padegaon	Rudrur	Pravaranagar	Tharsa	Kawardha	Powerkheda
1	Co 14002	Good	Very good	Average	Good	Good	-	-	Not Conducted
2	Co 14004	Very Good	Good	Average	Average	Good	-	-	
3	Co 14012	Good	Good	Poor	Good	Very Good	-	-	
4	Co 14016	Very Good	Excellent	Very good	Very Good	Average	-	-	
5	Co 14027	Good	Poor	Average	Very Good	Good	-	-	
6	Co 14030	Average	Average	Good	Good	Good	-	-	
7	Co 14032	Poor	Average	Average	Average	Good	-	-	
8	CoN 14073	Very Good	Excellent	Excellent	Very good	Very Good	-	-	
9	CoSnk 14102	Average	Good	Average	Good	Good	-	-	
10	CoSnk 14103	Poor	Good	Good	Average	Good	-	-	
11	CoT 14367	Average	Poor	Poor	Average	Good	-	-	
12	CoTl 14111	Good	Very good	Average	Good	Good	-	-	

13	CoVC 14062	Good	Average	Average	Average	Good	-	-	
14	MS 14081	Very Good	Good	Good	Average	Average	-	-	
15	MS 14082	Good	Very good	Very good	Good	Very Good	-	-	
Standards :									
16	Co 86032	Average	Very good	Excellent	Good	Good	-	-	
17	CoC 671	Poor	Good	Very good	Good	Average	-	-	
18	CoSnk 05103	Good	Good	Average	Good	Good	-	-	

B. ENTOMOLOGY

S. No.	Project No.	Project Title	AICRP(S) Centre (Peninsular II)	
			Padegaon	VSI, Pune
1	E.4.1	Evaluation of zonal varieties / genotypes for their reaction against major insect pests	C	C
2	E. 28	Survey and surveillance of sugarcane insect pests	C	C
3	E.30	Monitoring of insect pests and bio-agents in sugarcane agro ecosystem	C	C
4	E.34	Standardization of simple and cost effective techniques for mass multiplication of sugarcane bio-agents	NC	C
5	E.38	Integrated approach to manage white grub in sugarcane	NC	C
6	E.41	Assessment of yield losses caused by borer pests of sugarcane under changing climate scenario	C	NA

C= Conducted; NA= Not Allotted; NC= Not conducted

Table: Name of the tested entries against major insect-pests under project E.4.1

Project No	**:**	E 4.1
Title	**:**	Evaluation of zonal varieties / genotypes for their reaction against major insect pests.
Project No	**:**	E 4.1.1
Title	**:**	Field screening of sugarcane varieties/genotypes in IVT to major pests
Entries (18+3)=21	**:**	Co 17001,Co17002,Co17003,Co17004,Co17005,Co17006,Co 17008, Co 17010; Co 17012**,** Co 17013**,** Co 17014**,** CoVc 17061**,** CoN 17071**,** CoN 17072**,** MS 17081**,** MS 17082,CoVSI17121**,**CoT17366**,**Co 86032 (Std.)**,**CoC 671 (Std.)**,**Co 09004 (Std.)
Project No	**:**	E 4.1.2
Title	**:**	Field screening of sugarcane varieties/genotypes in AVT (I plant) to major pests
Entries (12+3)=15	**:**	Co 11015, Co14005, Co15005, Co15006, Co15007, Co15009, Co15010, Co15017, Co15021, CoSnk15102, CoN15071, PI 15131, Co86032 (std), CoC671(std), Co09004 (Std)
Project No	**:**	E 4.1.3
Title	**:**	Field screening of sugarcane varieties/ genotypes in AVT (II PL) to major pests
Entries (15+3)=18	**:**	Co14002, Co14004, Co14012, Co14016, Co 14027, Co 14030, CoM14032, CoN14073,CoSnk14102, CoSnk14103, CoT14367, CoTL 14111, CoVc14062, MS14081, MS14082,Co86032 (std), CoC 671(std), Cosnk 05103 (std)
Project No	**:**	E 4.1.4
Title	**:**	Field screening of sugarcane varieties/ genotypes in AVT (ratoon) to major pests.
Entries (15+3)=18	**:**	Co14002, Co14004, Co14012, Co14016, Co 14027, Co 14030, CoM14032, CoN14073,CoSnk14102, CoSnk14103, CoT14367, CoTL 14111, CoVc14062, MS14081, MS14082, Co86032 (std), CoC 671(std), Cosnk 05103 (std)

1) Name of the centre: AICRP on Sugarcane, Central Sugarcane Research Station, Padegaon, Tal.-Phaltan Dist. Satara (Maharashtra)

A. IN CASE OF TRIALS :

(i) No. of trials conducted & allotted

Sugarcane Entomology trails : Allotted **06** Conducted **04**

(ii) Reason (s) for non-conductance of a trial (s) (provide trial-wise details) :

Expt. E.34 and E. 40 not conducted due to epidemic Covid-19 disease since March 2020, trials have not been conducted due to lockdown, restriction of District and village borders in Maharashtra.

(iii) Technical programme (TP) followed for specifications like plot size, etc

(a) No. of trials (TPfollowed) : Sugarcane Entomology : **04**

(b) Reason(s) for not following the Tech. Programme (provide trial-wise details):**NIL**

(iv) Trial-wise Performance

(a) General crop growth :**Good**

(b) Field sanitation : **Adequate**

(v) Trial wise insect-pests situation

Expt. No.1 : Project E. 4.1 :
Title : Evaluation of zonal varieties / genotypes IVT, AVT and Ratoon trials for their reaction against major insect pests.
Objective : To grade the entries in the zonal varietal trials for their behavior towards damage by key pests in the area.

Sr.No	Name of trials	No. of entries	% ESB incidence(range)	Reaction
1	IVT	18+03 =21	1.63 to 7.81 %	Less susceptible
2	AVT I Plant	12+03 =15	0.82 to 6.32%	Less susceptible
3	AVT II Plant	15+03 = 18	1.67 to 7.23%	Less susceptible
4	Ratoon (AVT I Plant)	15+03 = 18	1.67 to 5.21 %	Less susceptible

ExptNo.2 : Project E. 28
Title : Survey and surveillance of sugarcane insect pests.
Objective : To identify key insect pests of sugarcane in the area.
Duration : Long term

There was need to undertake survey during shoot, cane formation and maturity stage but unfortunately spreading of epidemic Covid-19 disease since March 2020, survey during shoot and cane formation stage was not undertaken due to lockdown, restriction of District and village borders in Maharashtra. If the Covid-19 situation gets normal, survey will be undertaken at maturity stage of sugarcane. However, in critical situation survey was undertaken at Pravara Sugar Factory Pravaranagar, Dist. Ahmednagar at 6 villages and 17 farmers field on 2-4, September 2020.

ExptNo.3 : Project E. 30
Title : Monitoring of insect pests and bio-agents in sugarcane agro- ecosystem.
Objective : To monitor the key insect pests and natural enemies in the area.
Methodology :
- Planting of sugarcane variety recommended for the region in 0.2 ha area
- All recommended practices to be followed except application of insecticides.

Progress report : Insect-pests situation from 28/02/2020 to till date

i. ESB : Range – 0.00 to 4.49% incidence up to end of May, 2020
ii. Woolly aphid : Range – 0.00 to 3.33/leaf
iii. Whitefly : Range – 9.00 to 29.66/leaf (2^{nd} week of July to 4th week of Aug, 2020)
iv. Mealy bug : Range – 12.37 to 17.18 % (4^{th} week of July to 4^{th} week of Sept.,2020)

ExptNo.4 : Project E 34
Title : Standardization of simple and cost effective techniques for mass multiplication of sugarcane bio-agents.
Objective : To develop simple and cost effective mass-multiplication techniques of promising bio-agents of the area.
Duration : Three years
Year of start : 2017-2018
Progress of Research: Experiment not conducted due to Covid-19 problem and Maharashtra Govt. restricted staff attendance not more than 5 to 10 % for 5 months**.**

Expt No. 5 :E.40
Title: Integrated approach to manage white grub in sugarcane
Objective : To find out suitable techniques for management of white grub in Sugarcane
Progress of Research : As per the technical programme of 2020-21, It was necessary to conduct experiment on farmers field at large area but unfortunately spreading of epidemic Covid-19 disease since March 2020, trial has not conducted due to lockdown, restriction of District and village borders in Maharashtra.

Project E.41:
Title : Assessment of yield losses caused by borer pests of sugarcane under changing climate scenario.
Treatments : 2 (Protected and un protected) Design : Pair plot design
Objective : To estimate the avoidable losses due to sugarcane borer in sugarcane.
Planting date: 28/01/2020
Protected block : Insecticide Application-

i. Soil application of Chlorantroniliprol 0.4 GR @ 18.75 kg/Ha : 19/02/2020
ii. Foliar application of Chlorantroniliprol 18.5 % SC @ 375 g/ha: 8/7/20 & 25/9/2020

Parameters	**Treated with recommended effective chemical insecticide**	**Untreated open for natural normal infestation of borer**
Area	0.1 ha	0.1 ha
Infestation borer wise	All most nil	Value recorded
Yield	t/ha	t/ha

Progress of Research :

Treatment	**Early Shoot Borer (% incidence)**			
	30 DAP	60 DAP	90 DAP	120 DAP
Protected	0.00	0.00	0.11	0.08
Unprotected	0.20	3.64	6.17	6.09

2) Name of the centre: Vasant Dada Sugarcane Institute (VSI) Pune

A. <u>IN CASE OF TRIALS</u> :

(i) No. of trials conducted & allotted

Sugarcane Entomology trails : Allotted **<u>06</u>** Conducted **<u>04</u>**

(ii) Reason (s) for non-conductance of a trial (s) (provide trial-wise details) :

Expt. E.28 and E. 40 not conducted due to epidemic Covid-19 disease since March 2020, trials have not been conducted due to lockdown, restriction of District and village borders in Maharashtra.

(iii) Technical programme (TP) followed for specifications like plot size, etc

(a) No. of trials (TPfollowed) : Sugarcane Entomology : **04**

(b) Reason(s) for not following the Tech. Programme (provide trial-wise details):**<u>NIL</u>**

(iv) **Trial-wise Performance**

(a) General crop growth :**Good**

(b) Field sanitation : **Adequate (Weed free trials)**

(v) **Trial wise insect-pests situation**

E. 4.1 : Evaluation of varieties/genotypes for their reaction against major insect-pests.

Sr.No	Name of trials	No. of entries	% ESB incidence(range)	Reaction
1	IVT	18+03 =21	0.00 to 9.40 %	Less susceptible
2	AVT I Plant	12+03 =15	0.00 to 5.71%	Less susceptible
3	AVT II Plant	15+03 = 18	0.00 to 13.16%	Less susceptible
4	Ratoon (AVT I Plant)	15+03 = 18	0.00 to 11.04 %	Less susceptible

Expt. No:E.28
Title: Survey and surveillance of sugarcane insect pests in Maharashtra State.
Result: Till to date not conducted due to covid 19, survey will be conducted during next 2-3 month.

Expt. No:E.30
Title: Monitoring of insect pests and bio-agents in sugarcane Agro ecosystem.
Date of planting:20.12.2019**Area :**0.20 ha.**Variety:** Co 86032

Table : The per cent incidence /intensity of major pests.

Sr. No	SMW	Early shoot borer	Internode borer		
		% incidence	% incidence	% intensity	Infestation index
1	3 (17.1.2020)	0.00			
2	5 (4.2.2020)	0.00			
3	7 (12.2.2020)	0.00			
4	9 (26.2.2020)	0.40			
5	11 (12.3.2020)	0.64			
6	17 (24.4.2020)	0.50			
7	19 (8.5.2020)		0	0	0
8	21 (26.5.2020)		0	0	0
9	23 (10.6.2020)		22	5.21	1.15
10	25 (22.6.2020)		8	1.08	0.09
11	27 (4.7.2020)		18	2.03	0.36
12	29 (21.7.2020)		12	1.05	0.13
13	31 (30.7.2020)		27	2.64	0.71
14	33 (19.8.2020)		15	1.22	0.18
15	35 (27.8.2020)		17	1.23	0.21
16	37 (14.9.2020)		15	0.95	0.14
17	39 (30.9.2020)		14	0.83	0.12
18	42(21.10.2020)		13	0.84	0.11
19	44 (3.11.2020)		16	0.83	0.13

Result: The % incidence of early shoot borers was maximum 0.64 % in 11th standard metrological week. The % incidence of internode borer was recorded maximum 27% in the 31st standard metrological week.

Expt. No: E.34

Title: Standardization of simple, cost effective techniques for mass multiplication of sugarcane bio-agents.

Table6: Monthly production of *C. cephalonica* eggs and *T. chilonis*,*Tpriteosum*parasitoids cards during April, 2020 to November 2020

Sr. No.	***Month***	***Corcyra* eggs Produced (cc)**		***T. chilonis* cards**		***T. priteosum*cards**	
		Per month	**Per day**	**Per month**	**Per day**	**Per month**	**Per day**
1	April 2020	6.30	0.21	17	0.57		
2	May 2020	4.80	0.15	3	0.01		
3	June 2020	28.00	0.93	6	0.20		
4	July 2020	47.70	1.54	0	0.00		
5	August 2020	192.20	6.20	60	1.93	23	0.74
6	Sept., 2020	136.70	4.56	117	3.90	30	1.00
7	Oct., 2020	317.60	10.24	211	6.81	23	0.74
8	Nov., 2020	102.4	3.41	64	2.13	29	0.96
	Total	835.70	27.24	478.00	15.55	105	3.44
	Average	104.46	3.41	59.75	1.94	26.25	0.86

Table 7:**Supply of Tricho cards/Corcyra eggs during April to November, 2020**

Name of sugar mill/other	**No. of TC cards supplied (A)**	**Amount (A) Rs**	**Area covered ha**	**Corcyra eggs supplied cc** (C)	**Amount (C) (Rs.)**	**No. of TPcards supplied** (B)	**Amount (B) Rs.**	**Area covered ha**
Bio-control Lab., Dhule				50	4750			
Agril. College, Pune				35	3325			
Agril. College, Dhule				2	190			
Farmar (A)	159	15105	10.6			24	2280	1.6
				87	8265			
T C cards to Farmar (A)	159	15105	10.6					
T P cards TO Farmers (B)	24	2280	1.6					
Corcyra eggs Total (C)	87	8265						
Total D (A+B+C)		25650						
VSI Farm F (Gratis)	219	**20805**	14.60					
Grand Total G = (D+F)=		**46455**						

TC: *T. chilonis***TP**:*T. priteosum*

Results:
Produced 835.70 cc *Corcyra*eggs,478*T. chilonis*&105 *T. priteosum*cardup to November 2020. Supplied 159 Tc. Cards and 24 Tp card to the farmer and 87 cc Corcyra eggs to the Govt./privet lab up to November 2020

Project No: E 40
Title: Integrated approach to manage white grubs in sugarcane

Results: Not conducted due to Covid 19 problem.

Project No : E 41
Title :Assessment of yield losses caused by borer pests of sugarcane under changing climate scenario.
Date of planting:17.01.2020 Design: Pair plot Area: 0.10ha each

Table 8: Germination %, Tillering &Per cent incidence of measure pest

Sr. No	Parameters	T1 (Protected)	T2 (Unprotected)
1	Per cent incidence of ESB at 30 DAP	1.00	0.00
2	Per cent Germination at 45 DAP	52.40	41.00
3	Per cent incidence of ESB at 45 DAP	0.74	0.00
4	Per cent incidence of ESB at 60 DAP	1.01	0.26
5	Per cent incidence of ESB at 90 DAP	0.77	1.07
6	Per cent incidence of ESB at 120 DAP	0.23	0.31
7	Cumulative incidence of ESB	1.77	1.32
8	Tillering ratio at 120 DAP	4.20	3.94
9	Per cent incidence of INB at 150 DAP	4	2
10	Per cent intensity of INB at 150 DAP	3.86	2.58
11	Infestation index of INB at 150 DAP	0.15	0.10
12	No. of bored plants/ha.	1714	929

Result:

The germination % at 45 DAP was 52.40% and 41.00%inIPM block and control plot respectively. Tillering ratio at 120 DAP was 4.20 and 3.94 in IPM block and control plot respectively.

The cumulative % incidence of early shoot borer was 1.77% and 1.32% in IPM block and control plot respectively. In IPM Block percent incidence, intensity and infestation index of internode borer at 150 DAP was 4, 3.86 and 0.15, respectively, while in control plot it was 2, 2.58 and 0.10, respectively.

C. PLANT PATHOLOGY: AICRP(S) Monitoring Report PZ II , 2020-21

A brief summary of technical programme of Plant Pathology, 2020-21 of AICRP (S) assigned and conduction of trails by the different centres under Peninsular Zone II are as under

Sr. No.	Experiments	Tharsa	Navsari	Powerkheda	Pune	Padegaon	Pravara nagar	Rudrur	Kawardha
13.	**PP- 14 & 14(A)**	NA	C	NA	NA	NA	NA	NA	NA
14.	**PP- 17 (A)**	NA	C	NA	NA	NA	NA	NA	NA
15.	**PP-17 (B)**	NA	C	RNR	C	NC	NA	NA	NA
16.	**PP-17 (C)**	NA	C	NA	NA	NA	NA	NA	NA
17.	**PP- 17 (D)**	NA	C	RNR	C	NC	NA	NA	NA
18.	**PP-17 (E)**	NA	C	NA	C	NC	RNR	NA	NA
19.	**PP-17 (F)**	NA	C	RNR	C	NC	NA	NA	NA
20.	**PP- 22**	NA	C	RNR	C	NC	NA	NA	NA
21.	**PP- 23**	NA	C	NA	NA	NA	NA	NA	NA
22.	**PP- 31**	RNR	NA	NA	C	NA	NA	NA	NA
23.	**PP- 33**	NA	C	NA	C	NA	NA	NA	NA
24.	**PP-34**	NA	NC	NA	C	NA	NA	NA	NA

Note: C- Conducted, NA- Not Allotted, NC- Not Conducted, RNR- Report Not Received

Detailed Report of Plant Pathology Trials, 2020-21 of Peninsular zone II
Centre: Pune

Experiments / Description	Remark
PP-17 (B): Evaluation of zonal varieties for resistance to Smut**.** **Conducted**	This experiment was planted on 21.01.2020 with 30 entries. Inoculation was done at the time of planting. Smut incidence was recorded at fortnightly intervals starting from 35 DAP.Till date, out of 30 varieties 15 varieties were found free from smut disease under artificial disease condition**.** The crop stand is good.
PP-17 (D): Evaluation of zonal varieties for resistance to YLD. **Conducted**	This experiment was planted on 21.01.2020 with 12 entries of AVT I plants genotypes. Data on YLD incidence was recorded after 8^{th}, 9^{th} and 10^{th} DAP. Till date, out of 12 varieties Co15006&PI15131 were found susceptible to YLD. The crop stand is good
PP-17 (E): Evaluation of zonal varieties for resistance to Brown Rust **Conducted**	This experiment was planted on 21.01.2020 with 12 entries of AVT-II genotypes. Data on Brown rust incidence was recorded at fortnightly intervals.Till date, out of 12 varieties, Co 15009 were found susceptible to rust. The crop stand is good
PP-17 (F): Evaluation of zonal varieties for resistance to PokkhaBoeng **Conducted**	This experiment was planted on 21.01.2020 with 12 entries of AVT-I plants genotypes. Data on PokkahBoeng incidence was recorded at fortnightly intervals.Till date, out of 12 varieties Co 15009, Co 15017, Co 15021, CoSnK 15102, CoN 15071 and PI 15131 were found susceptible to pokkahboeng. The crop stand is good.
PP - 22: Survey of sugarcane diseases occurring in TN on important sugarcane varieties **Conducted**	1. CoC 671 – Pokkahboeng, GSD, mosaic 2. Co86032 – GSD, Pokkahboeng, Smut, Mosaic, Rust 3. CoVSI9805 - Pokkahboeng, Knife cut. Rust 4. CoM0265 – GSD, Brown spot, Rust 5. Co 92005 - Rust, GSD, pokkahboeng 6. VSI 434 – GSD, Pokkahboeng, Mosaic, Rust 7. CoVSI03102 - GSD, Rust, pokkahboeng 8. MS10001 - Pokkahboeng, Pokkahboeng 9. VSI08005 - Pokkahboeng, Rust, Smut
PP 31: Epidemiology and management of pokkahboeng in sugarcane	Recorded temperature, relative humidity and rainfall from May to September for the establishing the correlation with disease incidence.
PP 32: Management of brown spot disease of sugarcane	This experiment was planted on 21.01.2020 with 6 fungicide treatments against brown spot disease. Among the 6 treatments of fungicide minimum PDI observed in treatment of tebuconazole (0.1%) i.e.17.03 percent. The crop stand is good.
PP-33: **a.** Management of yellow leaf disease	The plant crop of Co86032 and VSI08005 where TC plantlets were used is free of YLD. However, in

Experiments / Description	Remark
through meristem culture (plant cane) **b.** Management of yellow leaf disease through meristem culture (Ratoon) **Conducted**	control plot and MHAT treated plot YLD was noticed. In ratooncrop.,YLD was observed in all the plots.

Centre: Navsari

Experiments / Description	Remark
PP-14&14(A) : Identification of pathotypes in red rot pathogen and maintenance of isolates of red rot Pathogen	This experiment was planted on 04.01.2020 with 20 differentials. Inoculation was done by both plug and nodal methods with Cf 06 and Cf 12 and seven local isolates. CoC 671 showed S reaction to all isolates, whereas, CoJ 64, CoS 8436, Baragua and SES 594 showed R reaction among all isolates The crop stand is good.
PP-17 (A): Evaluation of zonal varieties for resistance to Red Rot**.** **Conducted**	This experiment was planted on 04. 01.2020 with 49 entries of AVT and IVT. Among the IVT- MS 17082 showed HS to CF 06 & S to CF 12, MS 17081 showed MS to both the pathotypes, Among the AVT-I, CoSnk 15102 showed HS, while, Co 15006 and Co 15007 showed MS reaction to both the pathotypes, whereas, Checks CoC 671 showed HS reaction and Co 86032 showed S reaction to both the pathotypes
PP-17 (B): Evaluation of zonal varieties for resistance to Smut**.** **Conducted**	This experiment was planted on 06.01.2020 with 49 entries. Inoculation was done at the time of planting. Smut incidence was recorded at fortnightly intervals starting from 35 DAP.Till date, out of 49 varieties 28 varieties were found free from smut disease under artificial disease condition**.** The crop stand is good.
PP 17 (C): Evaluation of zonal varieties for resistance to wilt under wilt sick plot. **Conducted**	This experiment was planted on 10.01.2020 with 32 entries in AVT. The trial is under progress.
PP-17 (D): Evaluation of zonal varieties for resistance to YLD. **Conducted**	This experiment was planted on 10. 01.2020 with 32 entries of AVT. Data on YLD incidence was recorded after 8^{th}, 9^{th} and 10^{th} DAP. Till date, out of 32 varieties.9 entries showed the YLD incidence The crop stand is good
PP-17 (E): Evaluation of zonal varieties for resistance to Brown rust **Conducted**	This experiment was planted on 10.01.2020 with 32 entries of AVT genotypes. Data on Brown rust incidence was recorded at fortnightly intervals.Till date, no brown rust incidence was observed. The crop stand is good

Experiments / Description	Remark
PP-17 (F): Evaluation of zonal varieties for resistance to PokkhaBoeng **Conducted**	This experiment was planted on 10.01.2020 with 32 entries of AVT genotypes. Data on Pokkahboeng incidence was recorded at fortnightly intervals.Till date, out of 32 varieties, 12 entries showed the pokkahboeng disease incidence. The crop stand is good
PP - 22: Survey of sugarcane diseases occurring in AP on important sugarcane varieties **Conducted**	The survey is under progress. 1. CoC 671- Red rot, Wilt, Pokkahboeng, Mosaic 2. Co 86032- Red rot, Wilt, Whip smut, Pokkahboeng 3. CoM 0265- Red rot, Wilt, Sett rot, Whip smut, Pokkahboeng 4. Co 97009- Red rot, Wilt
PP-23: Assessment of elite and ISH genotypes for resistance to red rot: **Conducted**	This experiment was planted on 10.01.2020 with 36 ISH genotypes. Inoculation was done by both plug and nodal methods. Due to heavy rainfall in month of Aug- Sept. 2020, inoculation was started on 23rd September 2020. Therefore, final evaluation is remaining.
PP-33: Management of yellow leaf disease through meristem culture **Conducted**	The experiment was planted.15.04.2020. The trial is under progress.
PP-34: Efficient delivery of fungicides and other agro inputs to manage major fungal diseases in sugarcane **Not Conducted**	Sett treatment device have purchased in month of June-2020 and installation was done in Oct-2020. So trial will be conducted in next season.

- ***No reports are received from other stations in PZ-II except Navsari and Pune.***

D. AGRONOMY AND SOIL SCIENCE (CROP PRODUCTION)

Mr. P. V. Ghodke,Scientist Agronomy. Vasantdada Sugar Institute Pune

Member, AICRP monitoring team, Peninsular Zone II

Centre wise experiments allotted v/c conducted and crop condition

Centre	Allotted	Conducted	Crop condition
Tharsa	AS -72, AS-73, AS-74 and AS-75	Not conducted	------
Navsari	AS -72, AS-73, AS-74 and AS-75	Not conducted	------
Powarkheda	AS -72, AS-73, AS-74 and AS-75	AS 72 ,AS 74&AS75	V. Good
Pune	AS -72, AS-73, AS-74 and AS-75	AS 72 & AS 74	V. Good
Padegaon	AS -72, AS-73, AS-74 and AS-75	Not conducted	------

Pravaranagar	AS -72, AS-73, AS-74 and AS-75	Not conducted	------
Rudrur	AS -72, AS-73, AS-74 and AS-75	Not conducted	------
Kawardha	AS -72, AS-73, AS-74 and AS-75	Not conducted	------

Overall grading of trials

Trials	Tharsa	Navsari	Powarkheda	Pune	Padegaon	Pravaranagar	Rudrur	Kawardha (Raipur)
AS- 72	NC	NC	V. Good	V. Good	NC	NC	NC	NC
AS- 73	NC	NC	NC	NC	NC	NC	NC	NC
AS- 74	NC	NC	V. Good	V. Good	NC	NC	NC	NC
AS- 75	NC	NC	V. Good	NC	NC	NC	NC	NC

NC- Not Conducted

Centre: VSI, Pune

From the allotted experiments (AS 72, AS 73, AS-74 and AS-75) AS 72 & AS 74 were conducted.

AS 73 not conducted because, meteorological data of last 30 years was not available.

AS 75 Technical program was received late and planting season was already over. However, this trail has been conducted during 2020-21.

AS -72: Agronomic performance of elite sugarcane genotypes (Early)

Varieties of AVT-II approved for peninsular zone were planted on 06.02.2020 at 150 cm spacing with two fertilizer levels i.e. 100 % and125% of the recommended dose of NPK for the zone. The crop condition was very good. There is slight difference showed between two fertilizer levels (i.e. 100 % and125%) in terms of cane height.The genotypes CoSnK 14102, CoSnK 05103, Co 14030 showed better performance in the field.

AS-74: Evaluation of sugarcane varieties for drought tolerance

The trial was planted on 06/02/2020 with eightreleased varieties for the zone. Among the varieties, VSI 12121, Co 86032 and VSI 18121 showed better growth with 0.3 IW/CPE and 1.0 IW/CPE at initial stages. However due to heavy rains, the effect of irrigation regimes of 0.3 and 1.0IW/CPE ratio were not much prominent in terms of cane height. No interaction was observed between varieties and irrigation levels.

Centre: Powarkheda

From the allotted experiments (AS 72, AS 73, AS-74 and AS-75) AS 72, AS 74 & AS 75 were conducted.

AS 73 not conducted because, meteorological data of last 30 years was not available.

AS -72: Agronomic performance of elite sugarcane genotypes

The trial was planted on 14/02/2020 with two fertilizer levels i.e 100 % and125% of the recommended dose of NPK for the zone. The crop condition was good. Most of the

treatments are affected by wild boar. Genotype CoSnK 14102 performs good at both the fertilizer levels than rest of the genotypes.

AS-74: Evaluation of sugarcane varieties for drought tolerance

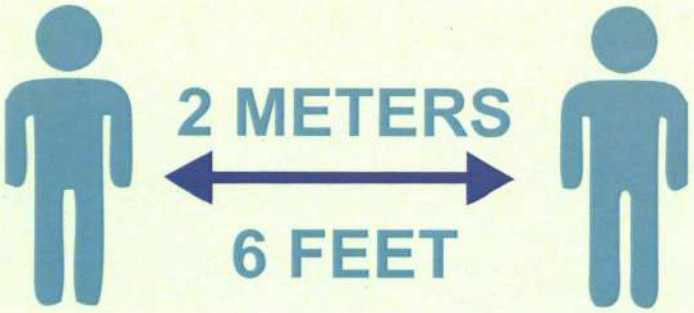
The trial was planted on 17/02/2020 with six released varieties for the zone. Among them midlate maturing variety CoJN 95-05 was better in case of tillers and NMCwith 1.0IW/CPEratio. Cane height is not much affected due to irrigation regimes.

AS-75: Precision nutrient management through rescheduling time of application for widely spaced sugarcane plant - ratoon system

The trial was planted on 17/02/2020 with variety CoJN95-05. The treatments were executed as per technical plan. The crop condition was good. The treatment combination A_2B_2i.e.band placement of fertilizer (RDN+RDK) in six splits (Basal 10% remaining at 45, 75, 90,120 and 150 DAP in equal splits) showed better performance than rest of the treatment combinations.

The monitoring team expresses sincere thanks to all the In charges of all the centres & their team for providing the Video photography and brief note of different trials of all the centres of Peninsular Zone-II to the Team Leader in time. On behalf of our entire team I am also thankful to Dr. A. D. Pathak, Director & Project Coordinator, AICRP (Sugarcane), ICAR-IISR, Lucknow for constituting the team, inspiring guidance and support.

अखिल भारतीय समन्वित गन्ना अनुसंधान परियोजना
All India Coordinated Research Project on Sugarcane



Maintain Physical Distance

Sanitize Hands Frequently

Wear Mask at Work Place and in Group

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