150 YEARS OF CELEBRATING THE MAHATMA

ALL INDIA COORDINATED RESEARCH PROJECT ON SUGARCANE

(Indian Council of Agricultural Research)

MONITORING REPORT (2019-20)

ICAR- Indian Institute of Sugarcane Research
Lucknow – 226 002

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ALL INDIA COORDINATED RESEARCH PROJECT ON SUGARCANE

(Indian Council of Agricultural Research)

MONITORING REPORT (2019-20)

A.D. Pathak

DIRECTOR & PROJECT COORDINATOR (SUGARCANE)

ICAR- INDIAN INSTITUTE OF SUGARCANE RESEARCH

LUCKNOW – 226 002

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Published by : Dr A.D. Pathak, Director & Project Coordinator, All India Coordinated Research Project on Sugarcane,ICAR-Indian Institute of Sugarcane Research, Raebareli Road, P.O. Dilkusha, Lucknow-226 002 (U.P.)

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All India Coordinated Research Project on Sugarcane

Constitution of Monitoring Team for 2019-2020 Crop Season

1. NORTH WEST ZONE

i)	**Dr Sanjeev Kumar, Breeder, ICAR-IISR, Lucknow**	-	**Team Leader**
ii)	Dr Jyoti Rekha Patnaik, Agronomist, SRS, Nayagarh	-	Member
iii)	Dr Sujeet Pratap Singh, Pathologist, UPCSR, Shahjahanpur	-	Member
iv)	Dr A.B. Tambe, Entomologist, CSRS, Padegaon	-	Member

2. NORTH CENTRAL & NORTH EASTERN ZONE

i)	**Dr S.N. Sushil, Entomologist, ICAR-IISR, Lucknow**	-	**Team Leader**
ii)	Dr D.N. Kamat, Breeder, SRI, Pusa	-	Member
iii)	Dr A.P. Dwivedi, Agronomist, ICAR-IISR, Lucknow	-	Member
iv)	Dr Mahaveer Bochalya, Pathologist, RRS, Uchani	-	Member

3. PENINSULAR ZONE I

i)	**Dr S.N. Swamy Gowda, Breeder, ZARS, Mandya**	-	**Team Leader**
ii)	Dr V.P. Jaiswal, Agronomist, ICAR-IISR, Lucknow	-	Member
iii)	Dr Geeta Sharma, Pathologist, GBPUAT, Pantnagar	-	Member
iv)	Dr Arun Baitha, Entomologist, ICAR-IISR, Lucknow	-	Member

4. PENINSULAR ZONE II

i)	**Dr P. Govindaraj, Breeder, ICAR-SBI, Coimbatore**	-	**Team Leader**
ii)	Prof. S.B. Deshmukh, Agronomist, RS&JRS, Kolhapur	-	Member
iii)	Dr V. Ravichandran., Pathologist, SRS, Cuddalore	-	Member
iv)	Mr R.G. Yadav, Entomologist, VSI, Pune	-	Member

5. EAST COAST ZONE

i)	**Dr S.K. Pandey, Entomologist, SBI-RC, Karnal**	-	**Team Leader**
ii)	Dr Gulzar S. Sanghera, Breeder, PAURRS, Kapurthala	-	Member
iii)	Dr S.N. Singh, Agronomist, ICAR-IISR, Lucknow	-	Member
iv)	Dr R.C. Patel, Pathologist, MSRS, Navsari	-	Member

Facilitator for Monitoring Team for 2019-2020 Crop Season

Sl. No.	Zone	Name & Designation	Contact details
1.	North Central & North Eastern Zones	**Dr S.K. Yadav,** Scientist (Agronomy)	E-mail: sanjaybhu05@rediffmail.com Mob.: 094021-34428
2.	Peninsular Zone-I	**Dr Lalan Sharma,** Scientist (Plant Pathologist)	E-mail: sharmanbaim@gmail.com Mob.: 080040-81721; 08887960911
3.	East Coast Zone	**Shri Adil Zubair,** Asstt. Chief Technical Officer	E-mail: adizubi64@gmail.com Mob.: 09451086378

Visit Schedule of the Monitoring Teams during 2019-20 crop season

Monitoring Teams for different zones	Centres monitored	Visit schedule
North West Zone		
Team Leader • Dr Sanjeev Kumar, Breeder, ICAR-IISR, Lucknow **Members** • Dr Jyoti Rekha Patnaik, Agronomist, SRS, Nayagarh • Dr Sujeet Pratap Singh, Pathologist, UPCSR, Shahjahanpur • Dr A.B. Tambe, Entomologist, CSRS, Padegaon	Lucknow, Shahjahanpur, Muzaffarnagar, Pantnagar, Karnal, Uchani, Kapurthala, Faridkot, Sriganganagar and Kota	29.11.2019 To 10.12.2019
North Central & North East Zone		
Team Leader • Dr S.N. Sushil, Entomologist, ICAR-IISR, Lucknow **Members** • Dr D.N. Kamat, Breeder, SRI, Pusa • Dr A.P. Dwivedi, Agronomist, ICAR-IISR, Lucknow • Dr Mahaveer Bochalya, Pathologist, RRS, Uchani	Gorakhpur, Seorahi, Pusa, Motipur, Muzaffarpur, Bethuadahari and Buralikson	28.11.2019 to 07.12.2019
East Coast Zone		
Team Leader • Dr S.K. Pandey, Entomologist, SBI-RC, Karnal **Members** • Dr Gulzar S. Sanghera, Breeder, PAURRS, Kapurthala • Dr S.N. Singh, Agronomist, ICAR-IISR, Lucknow • Dr R.C. Patel, Pathologist, MSRS, Navsari	Nellikuppam, Cuddalore, Vuyyuru, Anakapalle and Nayagarh	04.12.2019 to 13.12.2019
Peninsular Zone-I		
Team Leader • Dr S.N. Swamy Gowda, Breeder, ZARS, Mandya **Members** • Dr V.P. Jaiswal, Agronomist, ICAR-IISR, Lucknow • Dr Geeta Sharma, Pathologist, GBPUAT, Pantnagar • Dr Arun Baitha, Entomologist, ICAR-IISR, Lucknow	Coimbatore, Pugalur, Thiruvalla, Mandya Sankeshwar, Sameerwadi, Kolhapur and Perumalapalle	25.11.2019 to 08.12.2019
Peninsular Zone-II		
Team Leader Dr P. Govindaraj, Breeder, ICAR-SBI, Coimbatore **Members** • Prof. S.B. Deshmukh, Agronomist, RS&JRS, Kolhapur • Dr V. Ravichandran., Pathologist, SRS, Cuddalore • Mr R.G. Yadav, Entomologist, VSI, Pune	Pune, Pravaranagar, Padegaon, Akola, Powarkheda, Navsari and Rudrur	05.12.2019 to 13.12.2019

MONITORING REPORT OF NORTH WEST ZONE
(CROP SEASON 2019-20)

A team for monitoring of AICRP(S) trials in North West Zone was constituted by the Project Coordinator, All India Co-ordinated Research Project on Sugarcane vide letter F. No. 12-11(M)/2019-PCS dated 04-09-2019 to assess the trials of different disciplines conducted at regular as well as voluntary centers in the zone. The Monitoring Team has following scientists as its members.

Sr. No.	Name, Designation & Address	
1.	**Dr Sanjeev Kumar,** Principal Scientist (Plant Breeding) ICAR-Indian Institute of Suharcane Research, Lucknow	**Team Leader**
2.	**Dr(Mrs) J.R. Patnaik** Junior Scientist (Agronomy) Sugarcane Research Station, Nayagarh (Odisha)	Member
3.	**Dr Sujeet Pratap Singh** Scientific Officer (Plant Pathology) U.P. Council of Sugarcane Research, Shahjahanpur (Uttar Pradesh)	Member
4.	**Dr A.B. Tambe** Sugarcane Entomologist Central Sugarcane Research Station, Padegaon (Maharashtra)	Member

The team assembled at ICAR- Indian Institute of Sugarcane Research on 29.11.2019 and monitored the experiments of AICRP on Sugarcane from 30th November 2019 to 9th December 2019 (excluding journey period) in North West Zone as per the following.

S. No	Centres	Date of visit
1.	ICAR-Indian Institute of Sugarcane Research, Lucknow	30.11.2019
2.	U. P. Council of Sugarcane Research, Shahjahanpur	01.12.2019
3.	GB Pant University of Agriculture and Technology, Pantnagar	03.12.2019
4.	Sugarcane Research Station (UPCSR), Muzaffarnagar	04.12.2019
5.	Regional Research Station, (CCSHAU), Uchani, Karnal	05.12.2019
6.	ICAR-SBI Regional Centre, Karnal	05.12.2019
7	Regional Research Station(PAU), Kapurthala	06.12.2019
8	Regional Research Station (PAU), Faridkot	07.12.2019
9	Agricultural Research Station, Sriganganagar	08.12.2019
10	Agricultural Research Station, Kota	09.12.2019

CROP IMPROVEMENT

All the eight trials of the crop improvementwere allotted to all the centers of North West Zone (NWZ) except Uchani and Karnal. Four trials i.e. IVT (Early), AVT-IP (Midlate), AVT-II (Midlate) and AVT-Ratoon (Midlate) were allotted to Uchani centre. Similarly, 04 trials i.e. IVT (Midlate), AVT-I (Early), AVT-II (Early) and AVT Ratoon were allotted to Karnal centre. All the allotted trials were conducted by allthe 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 the visit of the monitoring team is presented in Table 2.

ICAR-INDIAN INSTITUTE OF SUGARCANE RESEARCH, LUCKNOW

All the eight trials were conducted as per the technical programme for 2019-20 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 the IVT (Early), Co 0238 was the best standard with respect to crop stand at eight month of crop age. The test entries CoLk 16201, CoLk 16202, CoPant 16221, CoPant 16222, CoPb 16211 and CoPb 16181 were found better and Co 16029 was on par with the best standard. However, Co 15025 and CoS 16231 were rated as poor when compared with the best standard. Co 15025 had poor crop stand and flowering symptomswere observed in CoPant 16221 (Table 3.).

Advanced Varietal Trial (Early) – I Plant Crop

In the AVT I plant (early) trial, Co 0238 was the best standard. CoLk 15201, CoLk 15205 and CoPb 15211 were found better among the test entries. However, Co 15027 was on par with the best standard and Co 15023 as well as Co 15024 were rated as poor. Co 15024 had also shown lodging tendency.

Advanced Varietal Trial (Early) – II Plant Crop

In the AVT II plant (early) trial, Co 0238 was the best standard. CoLk 14201 and CoPb 14181 were found better. However, two test entries Co 14034 and CoPb 14211 were on par with the best standard. Co 14034 had poor crop stand in all the three replications.

Advanced Varietal Trial (Early) – Ratoon

In the AVT Early ratoon trial, Co 0238 was the best standard. Co 14181 was better and CoLk 14201 was on par with the best standard. However, two entries Co 14034 and CoPb 14211 were rated as poor to the best standard. Co 14034 had also shown severe wilt in the ratoon trial.

Initial Variety Trial (Midlate)

In the IVT (midlate) trial,CoS 767 was the best standard. All the test clones in this trial were found better to the best standard. Although CoPb 16212 had shown best growth among the test clones but profusely flowered at this centre.

Advanced Varietal Trial (Midlate) –I Plant Crop

In the AVT I plant (midlate) trial, CoS 767 was the best standard. CoLk 15206, CoLk 15207 and CoS 15232 were found better than the best standard while CoLk 15209, CoPb

15213 and CoS 15232 were on par with the best standard. Co 15026 had poor crop stand and stunted growth hence rated as poor.

Advanced Varietal Trial (Midlate) – II Plant Crop

In the AVT II plant (Midlate), CoS 767 was the best standard. Test entries i.e.CoLk 14203, CoLk 14204, CoPb 14185 and CoS 14233 were better than the best standard. However, CoPb 14184 was on par and Co 14035 and CoH 14261 were found poor to the best standard.

Advanced Varietal Trial – Ratoon (Midlate)

In the AVT ratoon (midlate) trial, CoPant 97222 was the best standard. Three test entries namely Co 14035, CoLk 14203 and CoLk 14204 were better than the best standard while CoH 14261, CoPb 14184, CoPb 14185, CoS 14233 were found poor when compared with the best standard.

Seed multiplication

Seed multiplication of all the entrieswas done for conducting the IVT trials during 2020-21. However, few entries such as CoPb 17211, CoH 17261, CoH 17262, CoS 17232 and CoS 17234 have less seed material. All the 12 near commercial clones for drought testing were multiplied. Out of thirty, 25 ISH/IGH clones were under multiplication for drought testing.

Fluff supply programme

Sowing of fluff received from ICAR-SBI was taken up at the centre and approximately 25000 seedlings were transplanted in the field for its further evaluation.

U. P. COUNCIL OF SUGARCANE RESEARCH, SHAHJAHANPUR

All the eight trials were conducted as per the technical programme for 2019-20 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 the IVT (Early), Co 0238 was the best standard with respect to crop stand at eight month of crop age. The test entries CoLk 16202, CoPant 16222, and CoPb 16211 were found better whereas Co 16029, CoLk 16201, CoPant 16221 and CoPb 16181 were on par with the best standard. However, Co 15025 and CoS 16231 were rated as poor when compared with the best standard Co 0238. Flowering symptoms were observed in CoPant 16221, CoLk 16202 and CoPb 16181.

Advanced Varietal Trial (Early) – I Plant Crop

In the AVT I plant (early) trial, Co 0238 was the best standard. CoLk 15201, CoLk 15205 and CoPb 15212 were found better among the test entries. However, Co 15023 and Co 15027 were on par with the best standard and Co 15024 rated as poor. Co 15024 had also shown lodging tendency at the centre.

Advanced Varietal Trial (Early) – II Plant Crop

In the AVT II plant (early) trial, Co 0238 was the best standard. CoPb 14181 and CoPb 14211 were found better. However, two test entries Co 14034 and CoLk 14201 were on

par with the best standard. Co 14034 had poor crop stand and CoPb 14181 had shown lodging tendency.

Advanced Varietal Trial (Early) – Ratoon

In the AVT Early ratoon trial, Co 0238 was the best standard. CoLk 14201 and CoPb 14181 were better and Co 14034 and CoPb 14211 were on par with the best standard. Co 14034 had poor crop stand.

Initial Variety Trial (Midlate)

In the IVT (midlate) trial, Co 05011 was the best standard. CoLk 16203, CoLk 16204, CoPant 16223, CoPb 16212 and CoS 16233 were found better to the best standard. However, Co 16030 and CoS 16232 were on par with the best standard. CoPb 16212 was profusely flowered at the centre.

Advanced Varietal Trial (Midlate) –I Plant Crop

In the AVT I plant (midlate) trial, CoPant 97222was the best standard. CoLk 15207, CoS 15232 and CoS 15233 were found better than the best standard while CoLk 15206, CoLk 15209 and CoPb 15213 were on par with the best standard. Co 15026 had poor crop stand hence rated as poor. Smut incidence was recorded in CoLk 15207 and CoLk 15209 where as YLD was noticed in CoS 16233.

Advanced Varietal Trial (Midlate) – II Plant Crop

In the AVT II plant (Midlate), CoS 767 was the best standard. Test entries i.e.CoLk 14203, CoLk 14204, and CoS 14233 were better than the best standard. However, Co 14035 and CoPb 14185 were on par and CoH 14261 and CoPb 14184 were poor to the best standard. Smut was noticed in few clumps of CoPb 14184. Two clones i.e. CoLk 14203 and CoLk 14204 were interchanged with each other and mislabelled at the centre.

Advanced Varietal Trial – Ratoon (Midlate)

In the AVT ratoom (midlate) trial, CoPant 97222 was the best standard. Three test entries namely CoLk 14203, CoLk 14204 and CoS 14233 better than the best standard while CoLk 14035 and CoPb 14184 were on par with the best standard. However, CoH 14261 and CoPb 14185 were poor.Two clones i.e. CoLk 14203 and CoLk 14204 were interchanged with each other and mislabelled at the centre.

Seed multiplication

Seed multiplication of all the entrieswas done for conducting the IVT trials during 2020-21. Eighteen new sugarcane entries of 18 series were also multiplied to supply their seed to the testing centres.

Fluff supply programme

Sowing of fluff received from ICAR-SBI was taken up at the centre and approximately 22000 seedlings were transplanted in the field for its further evaluation.

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 05009 was the best standard with respect to crop growth at eight month of crop age. The test entries CoLk 16202, CoPant 16222, and CoPb 16181 were found better whereas Co 15025. Co 16029, CoLk 16201, CoPant 16221 and CoPb 16211 were on par with the best standard. However, CoS 16231 were rated as poor when compared with the best standard. Flowering was observed in CoPant 16221. The trial was conducted in four rows instead of six rows.

Advanced Varietal Trial (Early) – I Plant Crop

In the AVT I plant (early) trial, Co 0238 was the best standard. CoLk 15201, CoLk 15205 and CoPb 15212 were found better among the test entries. However, Co 15027 was on par with the best standard and Co 15023 and Co 15024 were rated as poor. Co 15024 had also shown lodging tendency at the centre. Co 15023 was damaged by wild animals.

Advanced Varietal Trial (Early) – II Plant Crop

In the AVT II plant (early) trial, Co 0238 was the best standard. CoPb 14181 was found better. However, remaining three entries Co 14034, CoLk 14201 and CoPb 14211 were on par with the best standard. Co 14034 had poor crop stand and also shown lodging in all the three replications.

Advanced Varietal Trial (Early) – Ratoon

In the AVT early ratoon trial, Co 05009 was the best standard. CoLk 14201, CoPb 14181 and CoPb 14211 were on par with the best standard. However, Co 14034 was rated as poor to the best standard. CoPb 14211 had shown lodging tendency.

Initial Variety Trial (Midlate)

In the IVT (midlate) trial, CoPant 97222 was the best standard. CoPant 16223, CoPb 16212 and CoS 16232 were found better to the best standard. However, Co 16030, CoLk 16203, CoLk 16204 and CoS 16233 were on par with the best standard. CoPb 16212 was profusely flowered at the centre. The trial was conducted in four rows instead of six rows.

Advanced Varietal Trial (Midlate) –I Plant Crop

In the AVT I plant (midlate) trial, CoPant 97222was the best standard. Co 15026, CoLk 15206, CoLk 15209 and CoS 15232 were found better than the best standard while CoLk 15207, and CoS 15233 were on par with the best standard. However, CoPb 15213 was poor and also showed flowering symptoms in few clones.

Advanced Varietal Trial (Midlate) – II Plant Crop

In the AVT II plant (Midlate), CoPant 97222 was the best standard. Test entries i.e.CoLk 14203, CoLk 14204, and CoS 14233 were better than the best standard. However, Co 14261, CoPb 14184 were on par and Co 14035 and CoPb 14185 were found poor when compared with the best standard.

Advanced Varietal Trial – Ratoon (Midlate)

In the AVT ratoon (midlate) trial, CoPant 97222 was the best standard. Three test entries namely CoLk 14203 and CoS 14233 were better than the best standard while CoLk 14204 and CoPb 14185 were on par with the best standard. However, Co 14035, CoH 14261 and CoPb 14184 were poor.

Seed multiplication

Seed multiplication of all the entrieswas done for conducting the IVT trials during 2020-21except CoH 17261 and CoS 17232 which were not available at the centre. However, CoH 17262 and CoPb 17211 have less seed material at this centre.

Fluff supply programme

Sowing of fluff received from ICAR-SBI was taken up at the centre and approximately 5000 seedlings were transplanted in the field for its further evaluation.

SUGARCANE RESEARCH STATION, MUZAFFARNAGAR

All the eight trials were conducted as per the technical programme for 2019-20. 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 at eight month of crop age. The test entries CoLk 16202 and CoPant 16222 were found better and Co 15025 was poor when compared with the best standard. However, remaining entries in the trial were on par with the best standard. Co 15025 had poor crop stand and flowering symptom observed in CoPant 16221.

Advanced Varietal Trial (Early) – I Plant Crop

In the AVT I plant (early) trial, Co 0238 was the best standard. CoLk 15201was found better among the test entries. However, Co 15027 and CoPb 15212 were on par with the best standard. Co 15023, Co 15024 and CoLk 15205 were rated as poor. Co 15024 had also shown lodging tendency.

Advanced Varietal Trial (Early) – II Plant Crop

In the AVT II plant (early) trial, Co 0238 was the best standard. CoLk 14201 and CoPb 14181 were found better. However, Co 14034 was on par and CoPb 14211 was poor with the best standard.

Advanced Varietal Trial (Early) – Ratoon

In the AVT Early ratoon trial, Co 05009 was the best standard. Co 14034, CoLk 14201 and CoPb 14181were better and CoPb 14211 was found poor when compared with the best standard.

Initial Variety Trial (Midlate)

In the IVT (mid-late) trial, Co 05011 was the best standard. CoLk 16203, CoLk 16204, CoPant 16223 and CoS 16233 were found better to the best standard. However, Co 16030, CoPb 16212 and CoS 16232 were on par with the best standard. CoPb 16212 was flowered at the centre.

Advanced Varietal Trial (Midlate) –I Plant Crop

In the AVT I plant (midlate) trial, Co 05011was the best standard. CoLk 15207 and CoS 15233 were found better than the best standard while Co 15026, CoLk 15206 and CoS 15232 were on par with the best standard. However, CoLk 15209 and CoPb15213 were poor to the best standard.

Advanced Varietal Trial (Midlate) – II Plant Crop

In the AVT II plant (Midlate), CoS 767 was the best standard. Test entries i.e.CoLk 14203, CoLk 14204, and CoS 14233 were better than the best standard. However, CoPb 14185 was on par with the best standard. and Co 14035, CoH 14261 and CoPb 14184 were poor to the best standard. Smut incidence was recorded in CoH 14261 at the centre. Incidence of YLD was also noticed in CoPb 14184 and CoS 14233.Two clones i.e. CoLk 14203 and CoLk 14204 were interchanged and mislabelled at the centre.

Advanced Varietal Trial – Ratoon (Midlate)

In the AVT ratoon (midlate) trial, CoS 767 was the best standard. CoLk 14202 and CoPb 14185 were better than the best standard while CoH 14035, CoPb 14184, CoLk 14203 and14233 were on par with the best standard. However, CoH 14261 was rated as poor to the best standard.

Seed multiplication

Seed multiplication of all the entrieswas done for conducting the IVT trials during 2020-21. However, few entries such as CoPb 17211, CoLk 17202 and CoH 17262 have less seed material.

CCSHAU, RRS, UCHANI

All the allotted trials were conducted as per the technical programme for 2019-20 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 the IVT (Early), Co 0238 was the best standard with respect to crop stand at eight month of crop age. The test entries CoLk 16202, CoPant 16221 and CoPant 16222 were found better and Co 16029, CoLk 16201, CoPb 16211 and CoPb 16181were on par with the best standard. However, Co 15025 and CoS 16231 were rated as poor to the best standard. Co 15025 had poor crop stand in all the three replications.

Advanced Varietal Trial (Early) – I Plant Crop

Not allotted.

Advanced Varietal Trial (Early) – II Plant Crop

Not allotted.

Advanced Varietal Trial (Early) – Ratoon

Not allotted.

Initial Variety Trial (Midlate)

Not allotted.

Advanced Varietal Trial (Midlate) –I Plant Crop

In the AVT I plant (midlate) trial, CoPant 97222 was the best standard. CoLk 15206 and CoLk 15207 were found better than the best standard while CoS 15232 and CoS 15233were on par with the best standard. However, Co 15026, CoLk 15209 and CoPb 15213 were found poor to the best standard.

Advanced Varietal Trial (Midlate) – II Plant Crop

In the AVT II plant (Midlate), CoPant 97222 was the best standard. Test entries i.e.Co 14035, CoLk 14203, CoPb 14185 and CoS 14233 were better than the best standard. However, CoPb 14184 was on par and CoH 14261 was poor to the best standard.Two clones i.e. CoLk 14203 and CoLk 14204 were interchanged and mislabelled at the centre. However, CoLk 14204 was not planted at the centre.

Advanced Varietal Trial – Ratoon (Midlate)

In the AVT ratoon (midlate) trial, CoS 767 was the best standard. None of the test entries was found superior or better to the best standard. Four entries namely Co 14035, CoLk 14203, CoPb 14185 and CoS 14233 were on par with the best standard while CoH 14261 and CoPb 14184were poor when compared with the best standard. Two clones i.e. CoLk 14203 and CoLk 14204 were interchanged and mislabelled at the centre. However, CoLk 14204 was not planted at the centre.

Seed multiplication

Seed multiplication of all the entrieswas done for conducting the IVT trials during 2020-21except CoS 17231 and CoS 17232 which were not available at the centre. However, CoS 17233 has less seed material at this centre.

Fluff supply programme

Sowing of fluff received from ICAR-SBI was taken up at the centre and approximately 11033 seedlings were transplanted in the field for its further evaluation.

ICAR-SBI RC, KARNAL

All the allotted trials were conducted as per the technical programme for 2019-20. 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 the AVT I plant (early), Co 0238 was the best standard. Co 15027, CoLk 15201 and CoLk 15205 were better than the best standard. However test entries like Co 15023, Co 15024 and Co 15212 were on par with best standard Co 0238.

Advanced Varietal Trial (Early) – II Plant Crop

In the AVT II plant (early), Co 0238 was the best standard. CoLk 14201 and CoPb 14181 were better to the best standard. However, Co 14035 was on par and CoPb 14211 was found poor when compared with best standard.In place of CoLk 14201, a different clone was planted at the centre.

Advanced Varietal Trial (Early) – Ratoon

In the AVT II plant (early), Co 0238 was the best standard. CoLk 14201 was better to the best standard. However, all the remaining test entries were on par with best standard.In place of CoLk 14201, a different clone was planted at the centre.

Initial Variety Trial (Midlate)

In the IVT (midlate) trial, CoPant 97222 was the best standard. All the test entries were superior to the best standard except CoLk 16203 which was found to be on par with the best standard. CoPb 16212 was flowered at the centre.

Advanced Varietal Trial (Midlate) –I Plant Crop

Not allotted

Advanced Varietal Trial (Midlate) – II Plant Crop

Not allotted

Advanced Varietal Trial – Ratoon (Midlate)

Not allotted

Seed multiplication

Seed multiplication of all the entrieswas done for conducting the IVT trials during 2020-21.Out of thirty, 25 ISH/IGH clones were under multiplication for drought testing.

Fluff supply programme

Sowing of fluff received from ICAR-SBI, Coimbatore was taken up at the centre and approximately 3200 seedlings were transplanted in the field for its further evaluation.

PAU, RRS, KAPURTHALA

All the eight trials were conducted as per the technical programme for 2019-20 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 stand at eight month of crop age in this trial. The test entries Co 16029, CoLk 16202 CoPant 16221, CoPant 16222 and CoPb 16211 were found to be better and CoLk 16201 and CoPb 16181were on par with the best standard. However, Co 15025 and CoS 16231 were rated as poor when compared with the best standard Co 0238. Co 15025 had shown poor crop stand in all the three replications.

Advanced Varietal Trial (Early) – I Plant Crop

In the AVT I plant (early) trial, Co 0238 was the best standard. CoLk 15201, CoLk 15205 and CoPb 15212 were found better among the test entries. However, Co 15027 was on par with the best standard and Co 15023 as well as Co 15024 were rated as poor. Co 15024 had also shown lodging tendency.

Advanced Varietal Trial (Early) – II Plant Crop

In the AVT II plant (early) trial, Co 0238 was the best standard. CoLk 14201, CoPb 14181 and CoPb 14211 were found better. However, Co 14034 was poor when compared with the best standard. Co 14034 had poor crop stand in all the three replications and YLD was also noticed in this clone. In place of CoLk 14201, a different clone was planted at the centre.

Advanced Varietal Trial (Early) – Ratoon

In the AVT Early ratoon trial, Co 0238 was the best standard. CoLk 14201 was better and CoPb 14181 and CoPb 14211 were on par with the best standard. However Co 14034 was rated as poor to the best standard. Co 14034 had also shown severe wilt in the ratoon trial.In place of CoLk 14201, a different clone was planted at the centre.

Initial Variety Trial (Midlate)

In the IVT (mid-late) trial,CoS 767 was the best standard. Co 16030, CoPant 16223, CoPb 16212 and CoS 16233 were found better to the best standard. However, CoLk 16203, CoLk 16204 and CoS 16232 were on par with best standard. CoPb 16212 had shown symptoms of flowering at the centre.

Advanced Varietal Trial (Midlate) –I Plant Crop

In the AVT I plant (midlate) trial, CoS 767 was the best standard. CoLk 15207 and CoS 15232 were found better than the best standard while CoLk 15206 was on par with the best standard. However, Co 15026, CoLk 15209, CoPb 15213 and CoS 15233 were found to be poor when compared with the best standard.

Advanced Varietal Trial (Midlate) – II Plant Crop

In the AVT II plant (Midlate), Co 05011 was the best standard. Test entries i.e.CoLk 14203, CoPb 14185 and CoS 14233 were better than the best standard. However, Co 14035, CoLk 14204, CoPb 14184 were on par and CoH 14261 were poor to the best standard. Two clones i.e. CoLk 14203 and CoLk 14204 were interchanged and mislabelled at the centre.

Advanced Varietal Trial – Ratoon (Midlate)

In the AVT ratoon (midlate) trial, Co 05011 was the best standard. Test entry namely CoPb 14184 was found better while Co14035, CoLk 14203, CoLk 14204, CoPb 14185 and CoS 14233 were on par with the best standard. However, CoH 14261 was rated as poor when compared with the best standard in this ratoon trial.Two clones i.e. CoLk 14203 and CoLk 14204 were interchanged and mislabelled at the centre.

Seed multiplication

Seed multiplication of all the entrieswas done for conducting the IVT trials during 2020-21.

Fluff supply programme

Sowing of fluff received from ICAR-SBI was taken up at the centre and approximately 10300 seedlings were transplanted in the field for its further evaluation.

PAU, RRS, FARIDKOT

All the eight trials were conducted as per the technical programmeof North West Zone for 2019-20. 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 at eight month of crop age in this trial. The test entries Co 16029, CoLk 16202 CoPant 16221, CoPant 16222 and CoPb 16211 were found to be better and CoLk 16201 and CoPb 16181were on par with the best standard. However, Co 15025 and CoS 16231 were rated as poor when compared with the best standard Co 05009.

Advanced Varietal Trial (Early) – I Plant Crop

In the AVT I plant (early) trial, Co 05009was the best standard. Co 15027, CoLk 15201, CoLk 15205 and CoPb 15212 were found better among the test entries. However, Co 15024 was on par with the best standard and Co 15023 was rated as poor.

Advanced Varietal Trial (Early) – II Plant Crop

In the AVT II plant (early) trial, Co 05009 was the best standard. CoLk 14201, CoPb 14181 and CoPb 14211 were found better. However, Co 14034 was on par with the best standard. Co 14034 had poor crop stand in all the three replications.

Advanced Varietal Trial (Early) – Ratoon

In the AVT Early ratoon trial, Co 05009 was the best standard. All the test entries in the trial were found better to the best standard.

Initial Variety Trial (Midlate)

In the IVT (mid-late) trial, Co 05011 was the best standard. All the test entries were found better to the best standard except CoLk 16204 which was on par with the best standard.

Advanced Varietal Trial (Midlate) –I Plant Crop

In the AVT I plant (midlate) trial, CoPant 97222was the best standard. Co 15026, CoLk 15207, CoPb 15213 and CoS 15232 were found better to the best standard while CoLk 15206, CoLk 15209 and CoS 15233 were on par with the best standard.

Advanced Varietal Trial (Midlate) – II Plant Crop

In the AVT II plant (Midlate), Co 05011 was the best standard. Test entries i.e. CoH 14261,CoLk 14203, CoPb 14184 and CoPb 14185 were better than the best standard. However, Co 14035, CoLk 14204 and CoS 14233 were on par with the best standard. Two clones i.e. CoLk 14203 and CoLk 14204 were interchanged with each other and mislabelled at the centre.

Advanced Varietal Trial – Ratoon (Midlate)

In the AVT ratoon (midlate) trial, Co 05011 was the best standard. Test entrynamely CoH 14261, CoPb 14184 and CoPb 14185 were found better while CoLk14204 was on par with the best standard. However, CoH 14261, CoLk 14203 and CoS 14233 were rated as poor when compared with the best standard in ratoon trial.Two clones i.e. CoLk 14203 and CoLk 14204 were interchanged with each other and mislabelled at the centre.

Seed multiplication

Seed multiplication of all the entries was done for conducting the IVT trials during 2020-21 except CoS 17232 which was not available at the centre. However, CoLk 17202, CoS 17231 and CoS 1723 have less seed material at this centre.

Fluff supply programme

Sowing of fluff received from ICAR-SBI was not taken up at the centre.

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 05009 was the best standard with respect to crop stand and growth at eight month of crop age in this trial. The test entries CoPant 16221, CoPant 16222 and CoPb 16181 were found to be better and Co 16029, CoLk 16201, CoLk 16202 and CoPb 16211 were on par with the best standard. However, Co 15025 was rated as poor when compared with the best standard Co 05009. CoS 16231 was not planted at the centre.

Advanced Varietal Trial (Early) – I Plant Crop

In the AVT I plant (early) trial, Co 0238was the best standard. CoLk 15201, CoLk 15205 and CoPb 15212 were found better among the test entries. However, Co 15023 and Co 15027 were on par with the best standard and Co 15024 was rated as poor.The trial was planted in six rows instead of eight rows at this centre.

Advanced Varietal Trial (Early) – II Plant Crop

In the AVT II plant (early) trial, Co 0238 was the best standard. CoLk 14201, CoPb 14181 and CoPb 14211 were found better. However, Co 14034 was on par with the best standard. Co 14034 had poor crop stand in all the three replications. In place of CoLk 14201, a different clone was planted at the centre.The trial was planted in six rows instead of eight rows at this centre.

Advanced Varietal Trial (Early) – Ratoon

In the AVT Early ratoon trial, Co 05009 was the best standard. CoLk 14201 and CoLk 14211 were found better to the best standard. However CoPb 14181 was on par and Co 14034 was poor to the best standard. In place of CoLk 14201, a different clone was planted at the centre. The trial was planted in six rows instead of eight rows at this centre.

Initial Variety Trial (Midlate)

In the IVT (mid-late) trial, Co 05011 was the best standard. Co 16030, CoLk 16203, CoPb 16212, CoS 16232 and CoS 16233 were found better to the best standard except CoLk 16204 and CoPant 16223 which were on par with the best standard.

Advanced Varietal Trial (Midlate) –I Plant Crop

In the AVT I plant (midlate) trial, CoPant 97222was the best standard. CoLk 15207, CoLk 15209, CoPb 15213 and CoS 15233 were found better to the best standard while, CoLk 15206 and CoS 15232 were on par with the best standard. However, Co 15026 was rated as poor to the best standard.The trial was planted in six rows instead of eight rows at this centre.

Advanced Varietal Trial (Midlate) – II Plant Crop

In the AVT II plant (Midlate), CoPant 97222 was the best standard. Test entries i.e. CoS 14233 was better while five test enries i.e. Co 14035, CoH 14261, CoLk 14204, CoPb 14184 and CoPb 14185 werefound better than the best standard. However, CoLk 14203 was poor to the best standard. Two clones i.e. CoLk 14203 and CoLk 14204 were interchanged with each other and mislabelled at the centre.The trial was planted in six rows instead of eight rows at this centre.

Advanced Varietal Trial – Ratoon (Midlate)

In the AVT ratoon (midlate) trial, Co 05011 was the best standard. Test entrynamely CoLk 14204 was found better while CoH 14261 and CoPb 14185 were on par with the best standard. However, CoH 14035, CoLk 14203, CoPb 14184 and CoS 14233 were rated as poor when compared with the best standard in ratoon trial.Two clones i.e. CoLk 14203 and

CoLk 14204 were interchanged with each other and mislabelled at the centre.The trial was planted in six rows instead of eight rows at this centre.

Seed multiplication

Seed multiplication of all the entries was done for conducting the IVT trials during 2020-21 except CoS 17231 and CoS 17233 which were not available at the centre. However, CoPb 17212 and CoPant 17221 have less seed material at this centre.

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 05009 was the best standard with respect to crop stand and growth at eight month of crop age in this trial. The test entries Co 16029, CoLk 16201, CoLk 16202, CoPant 16222, CoPb 16181 and CoS 16231 were found to be better and Co 15025, CoPant 16221 and CoPb 16211 were on par with the best standard. Clones such as CoLk 16202, CoPb 16211, CoPb 16181, CoPant 16221 and CoPant 16222 were flowered at the centre. A different clone was planted in place of standard CoJ 64. This trial was planted in four rows instead of six rows at the centre.

Advanced Varietal Trial (Early) – I Plant Crop

In the AVT I plant (early) trial, Co 05009was the best standard. Co 15027, CoLk 15201 and CoLk 15205 were found better among the test entries, while CoPb 15212 was on par with the best standard. However, Co 15023 and Co 15024 was rated as poor.A different clone was planted in place of standard CoJ 64. The trial was planted in six rows instead of eight rows at this centre.

Advanced Varietal Trial (Early) – II Plant Crop

In the AVT II plant (early) trial, Co 05009 was the best standard. CoLk 14201 and CoPb 14181 were found better. However, Co 14034 and CoPb 14211 were on par with the best standard. A different clone was planted in place of standard CoJ 64. The trial was planted in six rows instead of eight rows at this centre.

Advanced Varietal Trial (Early) – Ratoon

In the AVT Early ratoon trial, Co 05009 was the best standard. None of the test entries was better than the best standard, whereas CoLk 14201 and CoLk 14211 were found on par with the best standard. Co 14034 and CoPb 14181 were poor to the best standard. A different clone was planted in place of standard CoJ 64. The trial was planted in six rows instead of eight rows at this centre.

Initial Variety Trial (Midlate)

In the IVT (mid-late) trial, CoPant 97222 was the best standard. All the test entries were found better to the best standard except CoS 16233 which was on par with the best standard, Co 16030, CoLk 16203, CoPb 16212, CoPant 16223 and CoS 16233 were flowered at this centre. This trial was planted in four rows instead of six rows at the centre.

Advanced Varietal Trial (Midlate) –I Plant Crop

In the AVT I plant (midlate) trial, Co 05011was the best standard. CoLk 15206, CoLk 15207and CoS 15233 were found better while, Co 15026 and CoS 15232 were on par with the best standard. However, CoLk 15209 and CoPb 15213 were rated as poor to the best standard.CoLk 15209 and CoLk 15213 were flowered. The trial was planted in six rows instead of eight rows at this centre.

Advanced Varietal Trial (Midlate) – II Plant Crop

In the AVT II plant (Midlate), Co 05011 was the best standard. Test entries i.e. Co 14035, CoLk 14203, CoLk 14204, CoPb 14185 and CoS 14233 were better while CoPb 14184 was on par with best standard. However, CoH 14261 was rated as poor to the best standard. CoPb 14184 was flowered. The trial was planted in six rows instead of eight rows at this centre.

Advanced Varietal Trial – Ratoon (Midlate)

In the AVT ratoon (midlate) trial, Co 05011 was the best standard. Test entriesnamely, CoH 14261, CoLk 14203 and CoPb 14184 were found better while Co 14035 was on par with the best standard. However, CoLk 14204, CoPb 14185 and CoS 14233 were rated as poor when compared with the best standard in ratoon trial.The trial was planted in six rows instead of eight rows at this centre.

Seed multiplication

Seed multiplication of all the entries was done for conducting the IVT trials during 2020-21 except CoS 17231, CoS 17232, CoS 17233 and CoS 17234 which were not available at the centre. However, CoPb 17211has less seed material at this centre.

Table 1.Allotment and conductance of crop improvement trials at the centers of 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	C	NA	C	C	C	C
AVT (Early)II Plant Crop	C	C	C	C	NA	C	C	C	C	C
AVT (Early) Ratoon	C	C	C	C	NA	C	C	C	C	C
IVT (Midlate)	C	C	C	C	NA	C	C	C	C	C
AVT(Midlate) I Plant	C	C	C	C	NA	C	C	C	C	C
AVT(Midlate) II Plant	C	C	C	C	C	NA	C	C	C	C
AVT(Midlate)Ratoon	C	C	C	C	C	NA	C	C	C	C
Fluff supply Programme										

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

Table 2. Overall grading of the trials based on the observations made during monitoring of field experiments

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

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	Co 15025	Poor	Poor	On par	Poor	NA	Poor	Poor	Poor	Poor	On par
2	Co 16029	On par	On par	On par	On par	NA	On par	Better	Better	On par	Better
3	CoLk 16201	Better	On par	On Par	On par	NA	On par	On par	On par	On par	Better
4	CoLk 16202	Better	Better	Better	Better	NA	Better	Better	Better	On par	Better
5	CoPant 16221	Better	On par	On Par	On Par	NA	Better	Better	Better	Better	On par
6	CoPant 16222	Better	Better	Better	Better	NA	Better	Better	Better	Better	Better
7	CoPb 16211	Better	Better	On par	On par	NA	On par	Better	Better	On par	On Par
8	CoPb 16181	Better	On par	Better	On par	NA	On par	On par	On par	Better	Better
9	CoS 16231	Poor	Poor	Poor	On Par	NA	Poor	Poor	Poor	NP	Better
	Standards										
1	CoJ 64	II	II	II	III	NA	III	III	III	III	III*
2	Co 0238	Best	Best	III	Best	NA	Best	Best	II	II	II
3	Co 05009	III	III	Best	II	NA	II	II	Best	Best	Best

NA=Not allotted, NP=Not Planted, *At Kota Centre, a different clone was planted in place of standard CoJ 64.
****At Kota and Pantnagar centres, the trial was conducted in four rows instead of six rows**

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

c) Other specific information if any like incidence of pest and diseases, cane traits like, flowering, lodging at specific centres was given in text report presented centre wise or as separate foot notes.
d) Fluff Supply Programme: Information on number of seedlings produced and transplanted was also reported.

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 16030	Better	On par	On par	On par	Better	NA	Better	Better	Better	Better
2	CoLk 16203	Better	Better	On par	Better	On par	NA	On par	Better	Better	Better
3	CoLk 16204	Better	Better	On par	Better	Better	NA	On par	On par	On par	Better
4	CoPant 16223	Better	Better	Better	Better	Better	NA	Better	Better	On Par	Better
5	CoPb 16212	Better	Better	Better	On Par	Better	NA	Better	Better	Better	Better
6	CoS 16232	Better	On Par	Better	On Par	Better	NA	On par	Better	Better	Better
7	CoS 16233	Better	Better	On par	Better	Better	NA	Better	Better	Better	On par
	Standards										
1	CoS 767	Best	II	II	III	III	NA	Best	III	II	II
2	CoPant 97222	III	III	Best	II	Best	NA	III	II	III	Best
3	Co 05011	II	Best	III	Best	II	NA	II	Best	Best	III

NA= Not allotted, ***At Kota and Pantnagar centres, the trial was conducted in four rows instead of six rows**

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

S. No	Genotype	Lucknow	Shahjahanpur	Pantnagar	Muzzaffarnagar	Karnal	Uchani	Kapurthala	Faridkot	Sriganganagar	Kota
1	Co 15023	Poor	On par	Poor	Poor	On par	NA	Poor	Poor	On par	Poor
2	Co 15024	Poor	Poor	Poor	Poor	On par	NA	Poor	On par	Poor	Poor
3	Co 15027	On par	On par	On par	On par	Better	NA	On par	Better	On Par	Better
4	CoLk 15201	Better	Better	Better	Better	Better	NA	Better	Better	Better	Better
5	CoLk 15205	Better	Better	Better	Poor	Better	NA	Better	Better	Better	Better
6	CoPb 15212	Better	Better	Better	On par	On par	NA	Better	Better	Better	On par
	Standards										
1	CoJ 64	II	II	II	III	III	NA	III	III	III	III*
2	Co 0238	Best	Best	Best	Best	Best	NA	Best	II	Best	II
3	Co 05009	III	III	III	II	II	NA	II	Best	II	Best

NA= Not allotted.*At Kota Centre, a different clone was plantedin place of standard CoJ 64.

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

S. No	Genotype	Lucknow	Shahjahanpur	Pantnagar	Muzzaffarnagar	Karnal	Uchani	Kapurthala	Faridkot	Sriganganagar	Kota
1	Co 15026	Poor	Poor	Better	On par	NA	Poor	Poor	Better	Poor	On par
2	CoLk 15206	Better	On par	Better	On par	NA	Better	On par	On par	On par	Better
3	CoLk 15207	Better	Better	On par	Better	NA	Better	Better	Better	Better	Better
4	CoLk 15209	On par	On par	Better	Poor	NA	Poor	Poor	On par	Better	Poor
5	CoPb 15213	On par	On par	Poor	Poor	NA	Poor	Poor	Better	Better	Poor
6	CoS 15232	Better	Better	Better	On par	NA	On par	Better	Better	On par	On par
7	CoS 15233	On par	Better	On par	Better	NA	On par	Poor	On par	Better	Better
	Standards										
1	CoS 767	Best	II	II	II	NA	II	Best	III	II	II
2	CoPant 97222	II	Best	Best	III	NA	Best	III	Best	Best	III
3	Co 05011	III	III	III	Best	NA	III	II	II	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	Co 14034	On par	On par	On par	On par	On par	NA	Poor	On par	On par	On par
2	CoLk 14201	Better	On par	On par	Better	Better**	NA	Better**	Better	Better**	Better
3	CoPb 14181	Better	Better	Better	Better	Better	NA	Better	Better	Better	Better
4	CoPb 14211	On par	Better	On par	Poor	Poor	NA	Better	Better	Better	On par
	Standards										
1	CoJ 64	II	II	III	III	III	NA	III	III	III	III***
2	Co 0238	Best	Best	II	Best	Best	NA	Best	II	Best	II
3	Co 05009	III	III	Best	II	II	NA	II	Best	II	Best

NA= Not allotted

* The trial was planted in six rows instead of eight rows at Kota and Sriganganagar.

** In place of CoLk 14201, a different clone was planted at three locations i. e. Karnal, Kapurthala and Sriganganagar

*** At Kota Centre, a different clone was planted in place of standard CoJ 64.

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 14035	poor	On par	Poor	Poor	NA	Better	On par	On par	On par	Better
2	CoLk 14261	Poor	Poor	On par	Poor	NA	Poor	Poor	Better	On par	Poor
3	CoLk 14203	Better	Better**	Better	Better**	NA	Better**	Better**	Better**	Poor**	Better
4	CoLk 14204	Better	Better**	Better	Better**	NA	NP	On par**	On par**	On par**	Better
5	CoPb 14184	On Par	poor	On par	Poor	NA	On par	On par	Better	On par	On par
6	CoPb 14185	Better	On par	Poor	On Par	NA	Better	Better	Better	On Par	Better
7	CoS 14233	Better	Better	Better	Better	NA	Better	Better	On par	Better	Better
	Standards										
1	CoS 767	Best	Best	III	Best	NA	II	II	III	III	II
2	CoPant 97222	II	III	Best	III	NA	Best	III	II	Best	III
3	Co 05011	III	II	II	II	NA	III	Best	Best	II	Best

NA= Not allotted, NP= Not Planted

* The trial was planted in six rows instead of eight rows at Kota and Sriganganagar.

** Two clones i.e. CoLk 14203 and CoLk 14204 were interchanged and mislabelled at Shahjahanpur, Muzaffarnagar, Uchani, Kapurthala, Faridkot and Sriganganagar.

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	Co 14034	Poor	On par	Poor	Better	On par	NA	Poor	Better	Poor	Poor
2	CoLk 14201	On par	Better	On par	Better	Better**	NA	Better**	Better	Better**	On par
3	CoPb 14181	Better	Better	On par	Better	On par	NA	On par	Better	On par	Poor
4	CoPb 14211	Poor	On par	On par	Poor	On par	NA	On par	Better	Better	On Par
	Standards										
1	CoJ 64	II	III	III	III	III	NA	III	III	III	III***
2	Co 0238	Best	Best	II	II	Best	NA	Best	II	II	II
3	Co 05009	III	II	Best	Best	II	NA	II	Best	Best	Best

NA= Not allotted

* The trial was planted in six rows instead of eight rows at Kota and Sriganganagar.

** In place of CoLk 14201, a different clone was planted at three locations i. e. Karnal, Kapurthala and Sriganganagar

*** At Kota Centre, a different clone was planted in place of standard CoJ 64.

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 14035	Better	On par	Poor	On par	NA	On par	On par	Poor	Poor	On par
2	CoLk 14261	Poor	Poor	Poor	Poor	NA	Poor	Poor	Better	On par	Better
3	CoLk 14203	Better	Better**	Better	On par**	NA	On par**	On par**	Poor**	Poor**	Better
4	CoLk 14204	Better	Better**	On par	Better**	NA	NP	On par**	On Par**	Better**	Poor
5	CoPb 14184	Poor	On par	Poor	On par	NA	Poor	Better	Better	Poor	Better
6	CoPb 14185	Poor	Poor	On par	Better	NA	On par	On par	Better	On par	Poor
7	CoS 14233	Poor	Better	Better	On par	NA	On par	On par	Poor	Poor	Poor
	Standards										
1	CoS 767	III	Best	III	Best	NA	Best	II	III	III	II
2	CoPant 97222	Best	III	Best	III	NA	III	III	II	II	III
3	Co 05011	II	II	II	II	NA	II	Best	Best	Best	Best

NA= Not allotted, NP= Not Planted

* The trial was planted in six rows instead of eight rows at Kota and Sriganganagar.

** Two clones i.e. CoLk 14203 and CoLk 14204 were interchanged and mislabelled at Shahjahanpur, Muzaffarnagar, Uchani, Kapurthala, Faridkot and Sriganganagar.

CROP PRODUCTION

1) Centre-wise status of trials allotted and conducted

Experiment No	AS68	AS72	AS73	AS74
Title of Experiment	Impact of integrated application of organic and inorganic 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
Lucknow	Conducted	Conducted	Conducted	Conducted
Shahjhanpur	Conducted	Conducted	Conducted	Conducted
Uchani	Conducted	Conducted	Conducted	Conducted
Faridkot	Conducted	Conducted	Conducted	Conducted
Kota	Not conducted	Conducted	Conducted	Conducted

2) Salient observations made

Centre	AS68	AS72	AS73	AS74
Lucknow	The treatments were executed as per the technical program. The crop growth was satisfactory. Treatment T6, i.e. application of FYM @20 t/ha with soil test based inorganic fertilizer was better in terms of growth and was at par with T9 having 10t/ha FYM along with biofertilisers and soil test based inorganic fertilizers	Early maturing varieties approved for Northwest zone are planted as per the technical programme. But the crop got completely damaged by blue bull attack. Midlate varieties are planted as per the technical program. In this trial, one replication also got damaged by blue bull attack.Among the midlate entries, CoLk 14203, CoLk 14204 varieties were performing better. However there is not much visible difference between two fertiliser levels (i.e 100 % and125% NPK)	Data is being compiled	The experiment has been laid out very nicely as per the technical programme.The crop growth was excellent and there was clear visible difference in crop growth in terms of plant height with respect to two irrigation regimes i.e 1.0 and 0.3 IW/CPE ratio. Among early maturing varieties, CoLk 94184 and among midlate varieties, COLK 11206 areperforming better in terms crop growth with 0.3 IW/CPE ratio.

Shahjhan pur	The treatments were applied as per the technical program. The crop growth was excellent. T9 having 10t/ha FYM along with biofertlisers and soil test based inorganic fertilizers is performing better which is at par with T6, i.e. application of FYM @20 t/ha with soil test based inorganic fertilizer.	Early maturing varieties and midlate varieties approved for Northwest zone are planted as per the technical programme.The crop growth was excellent. Amongearly varieties: CoPb 14181 has maximum germination and more number of shoots but Co238 has better canegrowth. Among midlate varieties: CoS 14233has maximum germination and more number of shoots. All the genotypes are performing better with 125% NPK in terms of germination and number of shoots compared with 100% NPK.	Data is being compiled	The experiment has been laid as per the technical programme. The crop growth was very good. Higher number of shoots observed with IW/CPE ratio1.0 as compared to 0.3 IW/CPE ratio. Among early maturing varieties, CoS 13231 and among midlate varieties, COSe 11453 are performing better in terms crop growth Rainfall was sufficient so there was no visible difference in plant growth between two irrigation regimes.
Uchani	The experiment was conducted as per the technical program with early maturing and good ratooner variety CoH 160. The crop condition was very good. Treatment T6, i.e. application of FYM @20 t/ha with soil test based inorganic fertilizer, T5, i.e application of FYM @20 t/ha with RDF inorganic fertilizer and T9, i.e application of10t/ha FYM along with biofertlisers and soil test based inorganic fertilizers were performing better in terms of number of	The trial was conducted with AVT-II entries of Northwest zone with 120cm spacing and two fertiliser levels i.e 100% and 125% NPK. Early: CoLk 14201 and Co 0238 are the best performing varieties (Highest cane yield expected) followed by CoPb 14181, Co 14034, Co 05009 and lowest in CoJ64 and CoPb 14211. Mid late trial:Varieties CoPb 14184, CoPb 14185 and CoH 14263 showed better and similar performance(Highes	Data is being compiled	As per the technical program, six entries (3 from Early (Co 0118, Co 0238 and CoH 160) and 3 from midlate (CoH 119, Co 05011 and CoH 167) were planted at two irrigation levels (1.0 and 0.3 IW/CPE ratio). Among early maturing varieties, Co 0238 and among midlate varieties, CoH 167 performed better in terms of overall growth performances. However higher values of tillers, height and other characters of varieties were observed at 1.0 over 0.3 IW/CPE ratio.

	tillers and overall growth.	t cane yield expected) as compared to rest of the varieties. All the varieties responded well upto RDF in terms of growth phenotypic appearance.		
Faridkot	The trial wasconducted as per the technical program. The crop growth was very good. Treatment T9, i.e having 10t/ha FYM along with biofertilisers and soil test based inorganic fertilizerswas better in terms of growth and was at par withT6, i.e. application of FYM @20 t/ha with soil test based inorganic fertilizer	The trials were laid out as per the technical program with approved AVT-II entries. The experiment has excellent crop growth. All the entries (early and midlate) are responding well upto 100% NPK fertiliser level.	Data is being compiled	The experiment has been laid out with three early maturing varieties (CoPb 92, Co 0118 and CoJ 64) and Midlate maturing varieties (CoPb 91, CoPb 93 and CoPb 94) were planted at two irrigation levels (i,e. 1.0 and 0.3 IW/CPE ratio). The plant stand was excellent. Among early maturing varieties, CoPb 92 and among midlate varieties, CoPb94 are performing better in terms crop growth with IW/CPE ratio 0.3.
Kota	Not conducted	The experiment has been conducted as per the technical program with approved early and midlate maturing entries. The crop growth was good. Among early varieties: CoLk 14201 and CoPb 14181have more number of shoots and better cane growth compared to other entries. Among midlate varieties: CoLk 14203 and CoPb 14184 havemore number of shoots and better plant stand compared to other entries.	Data is being compiled	The trial has been executed as per the technical program with three early and three midlate maturing varieties with two irrigation levels.The crop growth was very good.Among early maturing varieties, CoPK05191 and among midlate varieties, CoH 09264 are performing better in terms of crop growth. However there was no visible difference in plant growth between two irrigation regimes.

PLANT PATHOLOGY

Monitoring team constituted by Project Coordinator (Sugarcane) IISR, Lucknow. Monitoring team has visited all the respective centres under NWZ of AICRP during 30.11.2019 to 10.12.2019. NWZ comprised ten centres and out of ten only six centres conducted plant pathology projects. The detail experiment titles of plant pathology project are 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

Concise summary of plant pathology projects allotted and conducted at various centres

The experiments of plant pathology under AICRP (S) allotted and conducted during 2019-20 by various centres of North Western Zone. The observations made by each centre are depicted below.

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**
1.	IISR, Lucknow	C	C	C	C	NC	C	C	C	NA	NC
2.	SRI, Shahjahanpur	C	C	C	C	NA	C	C	C	C	NA
3.	GBPUAT Pantnagar	NA	NA	C	C	NA	C	C	NA	NA	NC
4.	SRI,Muzaffarnagar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5.	HAU Uchani	C	C	C	C	NA	C	C	C	C	C
6.	SBI-RC Karnal	C	C	C	NA	NA	C	C	C	NA	NA
7.	PAU, Kapurthala	C	C	C	C	C	C	C	C	C	NA
8.	PAU, Faridkot	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9.	ARS,Sri Ganganagar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10.	ARS, Kota	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 visited the all trials on dated 30 November, 2019 along all team member and leader. The experimental trials have been monitored thoroughly at field with concerning scientist. Experiment was not labelled. Progress of trials has been examined accordingly.

PP 14: Identification of pathotypes of red rot pathogen

This experiment was conducted with 19 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, Khakai, Baragua and SES 594. These host differentials was planted during 19 to 24 Feb, 2019 in 0.3 ha for the testing of the pathogenic variability on host differentials against twelve local isolates excluding CF 07, CF 08 and CF 09. The study of CF01, CF02, CF03 and CF11 were not included in this experiment. Plug method of inoculation was done in the month of August. Experiment was not harvested during the visit. Two host differentials i.e. Co 86032 and CoSe 95422 were found impure in trial. These would be replaced by original differentials in next year as stated by concerning scientist. Entire trial was not labelled. Various differentials were found infected by wilt.

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

Red rot cultures of designated standard pathotypes and local isolates have been maintainedproperly on suitable medium in *in-vitro* condition.

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

This experiment was planted from 26 to 28 Feb 2019 in 0.2 ha for the testing of red rot. The forty four (44) entries of 6 trials along with check varieties were planted accordingly. Inoculation was done with two pathotypes CF 08 and CF 09 by plug methods separately.Nodal cotton swab method of inoculation was not seen in trial during the visit. Evaluation data was not taken till the visit. A range of entries were found affected by wilt in red rot inoculated field. Various entries namely CoPb 14181, Co 14035, Co 15025, CoPb 14211, CoPb 15212, Co 14034, Co15026 were found affected by wilt in red rot experimental field. Trial was not labelled and weed abundance was present severely inside the trial during the visit.

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

Forty four (44) entries of 6 trials along with check varieties were planted accordingly on 19-24 February 2019. Smut was observed on varios entries *viz*; CoLk 16203, Co 14035, CoLk 14204, Co 15024, CoS 14233, CoLk 15207 and CoLk 15209 during the visit. Sanitation of smut trial was not satisfactory.

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

Zonal entries of various trials were not planted separately in sick field for the evaluation of wilt. Whereas incidence of wilt were noticedon various entries in red rot inoculated field.

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

YLD data will be recorded in the month of December 2019.

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 Biharwere conducted to record the incidence of major and minor diseases by concerning scientist. Various diseases such as red rot, smut, GSD, leaf scald and *pokkah boeng* were reported by concerning scientist. Data compilation works are being in progress.

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

Twenty six ISH genotypes were planted from 10 to 13March, 2019 in 0.2 ha for the testing of red rot. Inoculation was done with two pathotypes CF 08 and CF 09 by plug method. Data was not taken till the visit. Trial condition was found good but no any genotype was found labelled during the visit.

PP 33: Management of YLD through meristem culture

This experiment was allotted as technical programme but not conducted**.**

General observations:

- *Field condition was observed average in sanitation. Entries were not labelled.*
- *Experimental fields became dried due to lack of irrigation. Proper care should be taken to maintain the congenial environment for red rot disease development.*
- *Sick plot should be maintained individually to evaluate the wilt data.*
- *Two differentials became found impure in PP 14 experiment during visit.*
- *Severe wilt condition became observed in red rot inoculated plot, screening of red rot will be tough in wilt infected entries.*
- *Various diseases such as mosaic,leaf fleck (Sugarcane bacilliform virus), yellow leaf disease, grassy shoot disease and leaf spot were observed during the visit at Lucknow.*

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

Monitoring team visited farm of SRI, Shahjahanpur (UP) on 01 December, 2019. All the assigned experiments were conducted properly as AICRP (S) norms and field was found clean and well labelled.

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

This experiment was planted on 4 March 2019 with 19 host differentials as per AICRP norms. Seventeenlocal isolate including 07 designated pathotypes of *C. falcatum* were tested for their behaviour on 19 host differentials by plug method under field conditions. Seven existing pathotypes *viz;*CF 01,CF 02, CF 03, CF 07, CF 08, CF 09, CF 11 and three local isolates Cf 8436 (CoS 8436), Cf 07250 (CoS 07250), Cf 97264 (CoS 94264) along with five isolates of Cf 0238 (Co 0238) were inoculated for pathogenic variability. Experiment was harvested after two months of inoculation and data compilation work is being in progress.

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

Thirty isolates of Co 0238 were collected from various sugar mill during survey. These isolates and pathotypes were maintained in *in-vitro* condition.

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

The experiment was conducted as per AICRP norms withfortyzonal entries.These entries were planted on 04.03.2019 and inoculation was carried out with CF 08 and CF 09 pathotypesin second week of August by plug and nodal method of inoculation separately. Early and mid late checks were also planted and inoculated for study. Variety CoJ 64 was used as a red rot susceptible after every zonal trial. Data were evaluated in the month of October. One entry CoPb 16211 of IVT (Early) was reported susceptible against red rot by plug and nodal method of inoculation. Trials were observed well labelled and weed free during the team visit. Data compilation work is being in progress.

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

Forty zonal entries of six trials were planted in two replications on 04.03.2019 for smut evaluation as AICRP norm and it was weed free. Variety Co 1158 was used as smut susceptible check. Smut incidence at fortnightly intervals was recorded up to October during visit.Incidence of the smut was reportedinCoLk 15201, CoPb 16211, CoPb 14181, CoLk 16204, CoPant 16223,CoS 16233, Co 15026, CoLk 15206, CoLk 15209, CoLk 14203, CoPb 15213, CoLk 14203, CoLk 14204, CoPb 14184, CoPb 14185during monitoring. 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 taken in breeding trial and various entries found affected by this disease.Data compilation works are beingin progress.

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

Extensive survey were conducted in sixteen sugar factories zone of central UP during pre and post monsoon period as reported by concerning scientst. Severe incidence of red rot on Co 0238 was reported up to dried out (up to 100%) condition in Lakhimpur Kheri district. Mix infection of red rot and wilt also observed in Co 0238. Smut disease was reported on Co 0238. Grassy shoot disease was reported on Co 0238 with other varieties in almost all sugar factory mill zones. The incidence of *pokkah boeng* disease was reported up to 50 per cent on Co 0238 from different factories zones. Other minor diseases namely top rot (Bacteria), leaf fleck (*Sugarcane bacilliform virus*), mosaic, YLD and leaf binding were also reported by concerning scinetist.Data compilation works are being in progress.

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

Total of twenty three ISH genotypes were planted on 04.03.2019 and it was found weed free during visit. These ISH genotypes were tested for red rot resistanceagainst CF 08 and CF 09 pathotypesin second week of August by plug and nodal method of inoculation separately. Variety CoJ 64 was used as a red rot susceptible. Data were evaluated in the month of October. Two ISH genotypes AS 04-245 and GU 07-3774 were reported susceptible to CF 08 and CF 09. Data compilation work is beinggoing on.

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

Twenty two vareities/genotypes were planted on 04 March, 2019 for study in natural condition as concerning scientist. Trial was found weed free, well labelled and lay out was examined as per AICRP norm. Naturalincidence of *pokkah boeng* was observed by scientist in July to September during high rainfall and humidity.The variety Co 0238 was used as susceptible standard. Varius vareities/genotypes were reported as susceptiblenamely Co 0238, CoS 17231, CoS 17234, CoS 17235, CoS 17236, CoS 17451, CoSe 17452, CoSe 16452, CoSe 16456 and S. 1206/13by this disease.The efficacy of carbendazim fungicide for management of *pokkah boeng* was also tested on two popular varieties Co 0238 and CoS 08279 by stated concerning scientist. Treatment T_1 (Carbendazim treatment with STD) was reportedbetter in germination and T_3 (T_1 + foliar spray with carbendazim)was reported most effective to control *pokkah boeng* disease followed by T_2 in both varieties.

General observations:*Overall crop growth wasexcellent and fields were weed free. Smut, wilt, pokkah boeng, knife cut, mosaic, leaf fleck (Sugarcane bacilliform virus), YLD were observed during visit in natural condition.*

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

Monitoring team visited farm of Pantnagar, (Uttarakhand) on 03 December, 2019. All the experiments except PP 33 were conducted properly as AICRP (S) norms and field sanitation was found good in condition.

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

The experiment was planted on 08 March, 2019 as per AICRP norms with forty zonal entries along with checks of six trials. Experiment condition was found good and weed free condition during visit. Inoculation was done on 20-24 August 2019 with CF 08 and CF 09 pathotypes by plug and nodal method of inoculation. CoJ 64 was used as red rot susceptible

check. Experiment was harvested and data was evaluated on 14-15 November 2019. Data was compiled during visit. Two entries (CoLk 16201, CoPb 16211) of IVT (Early) were reported susceptible to CF 08 and CF 09 by plug as well as nodal cotton swab method. Almost most of the entries were reported moderately resistant and few entries were reported moderately susceptible to red rot.

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

Forty entries of six trials were planted on 08 March, 2019 as per AICRP norms for smuttesting. Experiment condition was found good and weed free during visit. Incidence of the smut was taken fortnightlyby concerning scientist. The varieties CoLk 16201, CoPb 16211, CoPb 14181, CoS 16232, Co 15026, CoLk 15209 andCoLk 14203 were reported susceptible to smut. Rest of the entries was reported R, MR and MS to smut.

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

YLDdata for forty entries of six trials will be taken in December month as reported by concerning scientist.

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

Survey works were conducted during the schedule time and red rot, smut were reported in various sugar factory areas. Data was not compiled.

PP 33: Management of YLD through meristem culture

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

General observations: *All experimental field sanitation was found good in condition. One experiment was not conducted.*

4. Sugarcane Research Station (UPCSR), Muzaffarnagar – 252 001 (U.P.)

Monitoring team visited Muzaffarnagar farm on 04 December, 2019. No any experiments of Plant Pathology were allotted by AICPR (S) at SRS, Muzaffarnagar. General observation was recorded in IVT and AVT entries of all zonal trials. Natural incidence of smut was observed on various entries such as CoLk 14203, CoLk 14204, CoH 14261, CoPb 14185, Co 05011, CoPant 97222, CoH 14261 of AVT ML (II P). In IVT Early, natural incidence of smut was notice on CoLk 16201 and CoPb 16181. The variety CoLk 15207, CoPb 14181 and Co 0238 were found affected by smut. In ratoon of AVT (ML) experiment, natural incidence of smut was notices on CoLk 14203, CoH 14261, CoPb 14184, CoPb 14185, CoLk 14204, CoS 14233 with various severity level. Minor diseases like YLD, leaf fleck (*Sugarcane bacilliform virus*), mosaic were also notice on zonal entries at Muzaffarnagar.

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

Monitoring team visited farm of RRS, Uchani, Karnal (Haryana) on 05 December, 2019. 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 on March 10, 2019 (Ten rows of each differentials) and inoculated with designated isolates (CF 01,CF 02, CF03,CF 07, CF 08, CF 09 and CF11). Experiment condition was found good and weed free. Newly collected six isolates (RR 37- RR 42) of red rot were inoculated in the last week of August 2019 by plug

method as stated by concerning scientist. Observation had been taken after 60 days of inoculation. Data compilation works are being in progress.

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 six local isolates RR 37, RR 38, RR 39, RR 40, RR 41and RR 42 were maintained in *in-vitro* condition.

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

All the 39 entries (IVT& AVT) along with six checks were planted on March 8, 2019 as per AICRP norm. 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 last week of August 2019. Experiment was harvested and data was evaluated after 60 days of inoculation. The variety CoPb 16211 of IVT (E) was susceptible as reported by concerning scientist. Data compilation worksare being in progress.

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

Thirty nine genotypes (IVT & AVT) along with six checks were planted on March 07, 2019 with two replications (As per AICRP norm). Smut was reported in several namely Co 15025, Co 16029, CoLk 14201, CoLk 16201, Co 15027, Co Pant 16221 and CoLk 16204.Data compilation worksare being in progress.

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

Yellow leaf disease severity data was takenone time inall entries of six trials (IVT & AVT). YLD was reported in various entries such as Co 16029, CoPb 16181,Co15023, Co15027, CoLk 15206, Co 14035, CoS 767 and Co 05011. Data observation is being in progress.

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

Survey was conducted in various mill zones of Haryana during pre and during monsoon seasons.Red rot was reported on varieties Co 89003 and CoJ 85 in different sugar mill zone Top rot was also reported on CoH 119, CoJ 85, CoS 8436 and Co 0238 in various sugar mill zone. Severe incidence of smut was reported on Co 0238 and other varieties Co 89003 and CoH 119 also affected by this disease. Wilt and it'sassociation with root borer was reported in Co 89003 in three sugar mill zone. GSD was reportedon Co 0238, CoH 160, Co 0118, CoH 119, CoS 767 and Co 89003 from almost all the sugar mill zone of Haryana.*Pokkha boeng*, ring spot (*Leptosphaeria sacchari*) andmosaic disease were also reported in most of the mill zone area.

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

Twenty four ISH genotypes were planted on March 09, 2019 and were inoculated with CF08 and CF 09 by plug method in the last week of August 2019. Data compilation works are being in progress.

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

Pokkah boeng was reported in CoS 8436, CoH 119, CoH 164, CoH 167 were taken for study as stated by concerning scientist. This disease were correlated with climate conditions *Pokkah boeng* disease was reported in several varieties namely CoPb 16222, Co 13024, CoLk 14201, CoPant 16223 Co I5026, CoPb 15213, CoS 8436 , Co 89003, CoJ 85, CoH 110, CoH 156, CoH 152, Co 7717, CoH 164, CoH 119 , Co 0237, CoH 56, Co 0238

and CoH 133 with different incidence level. Management experiment was planted on March 24, 2019 with 3 replications. 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

This experiment was conducted in collaboration with CPB, Hisar as told by concerning scientist.Varieties CoH 160, Co 89003, Co 0238, CoH 119 and Co 0118 were raised through meristem culture. Seedlings of CoH 160 and Co 0238 sugarcane seed cane varieties were free from YLD through meristem culture.These varieties were planted in the field at CCS, RRS Karnal. Observations are being in progress.

General observations: *Smut was observed on varioussuch as CoLk 14203, CoH 14261 and CoS 767 in ratoon of breeding trial during visit. Wilt, mosaic and YLD were also observed during visit.*

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

Monitoring team visited farm of SBI-RC, Karnal (Haryana) on 05 December, 2019. All the allotted experiments were conducted properly as AICRP (S) norms and field sanitation was found good in condition.

PP 14: Identification of pathotypes of red rot pathogen

Nineteen host differentials were planted on 7- 8 March, 2019 as per AICRP norm and inoculation was done with 7 existing pathotypes and 5 new isolates on 20 August, 2019 by plug method. Data evaluation was done after 60 days of inoculation. Data compilation work is being in progress.

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 five local isolates were maintained in *in-vitro*condition.

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

Experiment was planted on 19 March, 2019 with forty two zonal entries with six checks. Inoculation was done on 22 August, 2019 by using CF 08 and CF 09 pathotypes by plug and nodal method of inoculation. All entries were harvested for data evaluation 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 zonal trials. Data compilation work is being in progress.

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

Survey works were conducted in various sugar mill zones of Haryana, UK and UP sates. Data compilation work is being in progress.

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

Total of twenty seven ISH genotypes were planted on 12 March, 2019 for red rot resistance. Inoculation was done on 21 March, 2019 by using CF 08 and CF 09 by plug method of inoculation. Data evaluation was done after 60 days of inoculation. Data compilation work is being going on.

General observations:*Natural incidence of smut was noticed on variousentries namely CoPb 14181, CoLk 14201, CoLk 14203, CoH 14261, CoS 15233, CoLk 15209, CoLk 15207 and CoLk 15201 in entomology trial during visit. Mosaic and YLD were also observed during visit.*

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

Monitoring team visited farm of SBI-RRC, Karnal (Haryana) on 06 December, 2019. All the allotted experiments were conducted properly as AICRP (S) norms. Field was observed weed free condition during visit.

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

All nineteen differentials were planted on 19 March, 2019 as AICRP norm. Inoculated was done on 19 August, 2019 with two designated isolates i.e. CF 08 and CF 09 and ten newly collected isolates as stated by concerning scientist. Experimental crop and lay out condition was found good and weed free. Observation had been taken and compilation works are being in progress.

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

0Twoexisting pathotypes i.e. CF 08 and CF 09 and ten local isolates were maintained in *in-vitro* condition.

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

Total fortyentries were planted on 23 March, 2019 and inoculation was done on 20 August, 2019 with CF 08 and CF 09 pathotypesindividually by plug and nodal method of inoculation. Data compilation work is being in progress.

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

Forty entries of six trials were planted on 28 March, 2019 for smut testing and it was weed free. Data for smut was recorded fortnightly, as stated by concerning scientist. Smut was reported in CoLk 14203, CoLk 14204, CoPb 14181, CoS 15232, CoLk 16203, CoLk 16204, CoS 16232,CoPant 97222 and Co 05011 by concerning scientist. Smut was observed on CoPb 16181, CoPb 15212, Co 15026 and CoLk 15209 during visit. Data compilation work is in progress.

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

Total fortyentries were planted on 25 March, 2019 in sick soil of respective field. Germination data was recorded after 45 days. Symptom of wilt was reported on Co 14034, CoS 14233, CoPb 14211, CoPant 97222, Co 7717 and Co 89003 by concerning scientist. 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 all forty zonal entries. Various entries were found affected by YLD as reported by concerning scientist. Data compilation work is being in progress.

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

Survey works were conducted in sixteen sugar mill zones. Red rot was reported on variety CoJ 64, 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 Co 89003 from various sugar mill areas. GSD and *pokkah boeng* were also reported on Co 0238 by concerning scientist. Data compilation works are in progress.

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

Total of twenty seven ISH genotypes were planted on 1 April, 2019 and inoculated on 21 August, 2019 against CF08 and CF 09 by plug method of inoculation. Data compilation work is going on.

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

All the zonal entriesalong with two checks (Co 0238 & CoJ 85) were screened for pokkah boeng.Weather parameters had been taken for experimentation. The trial on management of *pokkah boeng* was planted on 9 April with four replications as AICRP norm. Data was not compiled.

General observations:*Natural incidence of smut was noticed on CoPb 14184, CoPb 14185 and Co 05011. Minor diseases i.e. YLD, leaf fleck (Sugarcane bacilliform virus), mosaic were also notice at Kapurthala (Pb).*

8. Punjab Agricultural University, Regional Research Station, Faridkot - 151 203 (Pb)

Monitoring team visited farm of Faridkot on 07 December, 2019. Plant Pathology experiment was not assigned by AICRP (S) at RRS, Faridkot. General observation was recorded in IVT and AVT entries of all zonal trials. Natural incidence of smut was observed on various entries such as CoLk 15209, CoLk 15201, CoLk 14203, CoH 14261, CoLk 16201 and Co 0238. Other diseases such as wilt, YLD, GSD, knife cut, mosaic were also notice on zonal entries at Faridkot.

9. Agricultural Research Station (SKRAU, Rajasthan), Sri Ganganagar–335001 (Raj)

Monitoring team visited SriGanganagar farm on 08 December, 2019. Plant Pathology experiment was not allotted by AICRP (S) at this centre. General observation was recorded in IVT and AVT entries. Natural incidence of smut was observed on ratoon entries such as CoPb 14211, CoPb 14181, CoLk 14201 and Co 05009. Other diseases such as wilt, leaf fleck (*Sugarcane bacilliform virus*), YLD, GSD, *Pokkah boeng*, knife cut, mosaic were also noticed at SriGanganagar.

10. Agricultural Research Station (AU, Kota), Ummedganj, Kota–324001 (Rajasthan)

Monitoring team visited farm of ARS, Kotaon 09 December, 2019. Plant Pathology experiment was not allotted by AICRP (S) at this centre. General observation was recorded in IVT and AVT entries. Severe incidence of smut and GSD were notice at this centre in zonal trials during visit. Natural incidence of smut was observed in AVT (ML) ratoon entries such as CoLk 14204, CoLk 14203, CoPb 14184, CoH 14261, CoS 767, CoPb 14185 and CoPant 97222. In AVT (E) ratoon crop, various entries namely CoPb 14211, Co 0238, CoLk 14201 and Co 05009 was found affected by smut. In AVT ML (I P), natural incidence of smut was observed on Co 15026, CoLk 15206, CoLk 15207, CoLk 15209, CoS 15232, CoS 15233, CoS 767, CoPant 97222 in all replications. In AVT E (II P), smut was noticed on Co 15027, CoLk 15201 and CoLk 15205 entries. In AVT ML (II P), various entries such as CoH 14261, CoLk 14203, CoPb 14184, CoPb 14185, CoS 767, CoPant 97222 were found affected by smut. In AVT E (II P), smut was notice on CoPb 14181, and Co 05009. In IVT Early, various entries such as Co16029, CoPb 16181, Co 05009, CoLk 16201 were affected by smut. In IVT mid late, smut was notice on CoPb 16212, CoS 16232, CoS 16233 and CoPant 97222. Other diseases such as wilt, leaf fleck (*Sugarcane bacilliform virus*), YLD, mosaic, GSD, *pokkahboeng*, knife cut and mosaic were also notice on most of the entries at Kota.

Note: All the allotted projects were conducted by **Shahjahanpur, Uchani, Kapurthala** and **Karnal** centres as per technical programme of AICRP (S). Excellent trials were maintained with proper lay out and weed free condition.

ENTOMOLOGY

S. No.	Project No.	Project Title	AICRP(S) Centre (NWZ)		
			Lucknow	Shahjahanpur	Karnal(SBI)
1	E.4.1	Evaluation of zonal varieties / genotypes for their reaction against major insect pests	C	C	C
2	E. 28	Survey and surveillance of sugarcane insect pests	C	C	NC
3	E.30	Monitoring of insect pests and bio-agents in sugarcane agro ecosystem	C	C	C
4	E.34	Standardization of simple and cost effective techniques for mass multiplication of sugarcane bio-agents	C	NA	NA
5	E.38	Formulation and validation of IPM module of sugarcane insect-pests	NA	C	NA
6	E.41	Assessment of yield losses caused by borer pests of sugarcane under changing climate scenario	C	NA	NA

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

ICAR-India Institute of Sugarcane Research, Lucknow

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

(i) No. of trials conducted & allotted
Sugarcane Entomology trails: Allotted **05** Conducted **05**

(ii) Reason (s) for non-conductance of a trial (s) (provide trial-wise details): **<u>NIL</u>**

(iii) Technical programme (TP) followed for specifications like plot size, etc
(a) No. of trials (TP followed): Sugarcane Entomology: **05**
(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**

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

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

- The germination in early maturing group 13+3 ranged from 27.63% (Co 14034) to 52.91% (Co 0238) and midlate maturing group 19+3 varieties/ genotypes ranged from 20.69 % (Co 14035) to 47.49 % (CoS 16233).
- Incidence of top borer II and III brood was low while it was higher in III brood.
- In early group only two genotypes *viz.,* CoPb 14211 and Co 0238 were tolerant to stalk borer while in midlate maturing group CoLK 16203 was tolerant to stalk borer.
- In early maturing group CoPant 16222 and Co 0238 were moderately susceptible and rest of the genotypes were less susceptible to internode borer while in midlate

maturing group CoLk 16203, CoPant 16223, CoS 14233 and CoS 15232 were less susceptible and rest of the entries were moderately susceptible to internode borer.

- All genotypes of early and midlate maturing group were found moderately susceptible to mealy bugs

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

- Survey of insect-pests was carried out in command areas of Sugar mills of Uttar Pradesh. Incidence of insect-pests was low in most of the areas.

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

Varieties monitored for insect-pests: Co 0238 and CoLk 94184

- Germination was 23.46 and 26.98 per cent respectively
- Root borer incidence was noticed in the month of August with the range of 26.67 to 61.53 per cent
- Incidence of top borer III brood was low while IV brood was 22.93 % in Co0238. In CoLk94184, incidence was low in III brood and higher (21.86 %) in IV brood.

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

- Mass multiplication of parasitoids, *Eumicrosoma* sp. is continuing

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

- Experiment planted during Dec., 05-12- 2018 with CoLk 7201
- The data of quantitative and qualitative losses will be generated after harvest the crop. The experiment is in progress

Inter personal relation among the staff: Good

Suggestions (If any) for improving the Research activity:

- Observations on ESB should be necessary upto 4 months. Also observation on mealy bug and scale insect should be recorded in future.

UP Council of Sugarcane Research, Shahjahanpur

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

(i) No. of trials conducted & allotted
Sugarcane Entomology trails: Allotted **04** Conducted **04**

(ii) Reason (s) for non-conductance of a trial (s) (provide trial-wise details): **<u>NIL</u>**

(iii) Technical programme (TP) followed for specifications like plot size, etc
(a) No. of trials (TP followed): 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.

1. AVT (E) II Plant: 04 varieties + 03 Std.
   All entries were found LS against shoot borer and top borer except variety Co 05009 it was MS to top borer.
2. AVT (M) II Plant: 07 varieties + 03 Std.
   All entries were found LS to shoot borer and top borer

3. AVT (E) I Plant: 06 varieties + 03 Std.
   All entries were found LS against shoot borer and top borer, while variety Co 15024 was found MS to top borer.
4. AVT (M) I Plant: 07 varieties + 03 Std.
   All entries were found LS against shoot borer and top borer, while variety CoLk 15209 was found MS to top borer.
5. AVT (E) Ratoon: 04 varieties + 03 Std.
   All entries were found LS against shoot borer and MS to top borer.
6. AVT (M) Ratoon: 07 varieties + 03 Std.
   All entries were found LS against shoot borer and MS to top borer.

All the entries early and midlate group were found MS to mealy bug.

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

- Survey of insect-pests was carried out in different sugar factory zone to identify key insect-pests of sugarcane in area. The incidence of shoot borer and top borer were found low while sporadic infestation of white fly, mealy bug, grass hopper and white grub were observed.

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

Varieties monitored for insect-pests: UP 05125

- The incidence of shoot borer was recorded 3.07 % (May), 4.31% (June) and 1.56 % in the month of July. However, top borer III brood (2.26 %) and IV brood (1.38 %) were recorded. The parasites *Viz.,Telenomous beneficiens, Rhoconotus, Stenobracon and Isotima javensis* were recorded at hot weather and during monsoon.

E. 38: Formulation and validation of IPM module of sugarcane insect-pests.

- In IPM block the germination percentage was 51.09, No. of tillers/ha (100818) were found higher than farmers practice i.e. 46.92 % and 87092/ha, respectively. The incidence of shoot borer was less (1.80 %) as compared to farmer's practice (3.89 %). The experiment is in progress, final results will be come out after harvest of the trial.

Inter personal relation among the staff: Good

Suggestions (If any) for improving the Research activity:

Observations on minor insect-pests should be recorded in varietal screening trials.

ICAR-SBI, Regional Centre, Karnal

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

(i) No. of trials conducted & allotted
Sugarcane Entomology trails: Allotted **03** Conducted **02**

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

(iii) Technical programme (TP) followed for specifications like plot size, etc
(a) No. of trials (TP followed): Sugarcane Entomology: **02**
(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**

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

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

- In early maturing group and midlate maturing group all the entries were found less susceptible to borers and other minor insects*viz.,* mealy bugs, white fly, *Pyrilla* etc.

- AVT Ratoon: All the entries were badly damaged due to termites. More than 80 % crop was dried due to termites.

E. 28: Survey and surveillance of sugarcane insec-pests: Not conducted

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

Varieties monitored for insect-pests: Co 0238

- None of the insect-pests observed on sugarcane during the entire crop period.

Inter personal relation among the staff: Good

Suggestions (If any) for improving the Research activity:

All the trials should be conducted and observation on ESB should be taken upto 120 days.

CCSHAU, RRS, Uchani

Trial-wise Performance

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

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

Insect-Pest Situation:

In breeding trials, top borer, root borer, mealy bug and white fly population were observed at low level. In general crop condition was good.

Inter personal relation among the staff: Good

GBPUAT, Pantnagar

Trial-wise Performance

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

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

Insect-Pest Situation:

In breeding trials, top borer, root borer, mealy bug and white fly population were observed at low level. In general crop condition was good.

Inter personal relation among the staff: Good

SRS, Muzaffarnagar

Trial-wise Performance

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

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

Insect-Pest Situation:

In breeding trials, top borer and root borer was observed at low level, whereas, mealy bugs, and white fly was noticed at low to moderate level.

Inter personal relation among the staff: Good

PAU, RRS Kapurthala

Trial-wise Performance

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

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

Insect-Pest Situation:

In breeding trials, top borer and root borer was observed at low level, whereas, mealy bug *Pyrilla* (1-5 nyphs/leaves) and white fly was noticed at low to moderate level.

The Egg masses and cocoons of *Epiricania melanoleuca (Fletcher*) were also observed along with *Pyrilla* population.

Inter personal relation among the staff: Good

PAU, RRS, Faridkot
Trial-wise Performance

(a) General crop growth: **Good**
(b) Field sanitation: **Adequate (Weed free trials)**

Insect-Pest Situation:

In breeding trials, top borer and root borer was observed at low level, whereas, mealy bug, *Pyrilla* and white fly was noticed at low to moderate level. The Egg masses and cocoons of *Epiricania melanoleuca (Fletcher*) were also observed along with *Pyrilla* population.

Inter personal relation among the staff: Good

ARS, Sriganganaga
Trial-wise Performance

(a) General crop growth: **Good**
(b) Field sanitation: **Adequate (Weed free trials)**

Insect-Pest Situation:

In breeding trials, mealy bug, *Pyrilla* and white fly was noticed at low level. The Egg masses and cocoons of *Epiricania melanoleuca (Fletcher*) were also observed along with *Pyrilla* population. Top borer incidence was at low level.

Inter personal relation among the staff: Good

ARS, Kota
Trial-wise Performance

(a) General crop growth: **Good**
(b) Field sanitation: **Adequate (Weed free trials)**

Insect-Pest Situation:

In breeding trials, top borer, and white fly was noticed at low level whereas, mealy bug population noticed at moderate level.

Inter personal relation among the staff: Good

Monitoring Report of North Central & North Eastern Zones
(Crop Season 2019-20)

The monitoring team comprising of Breeder, Agronomist, Entomologist, Plant Pathologist was constituted by the Project Coordinator, AICRP on Sugarcane *vide* F.No.12-11(M)/2019-PCS, dated, 26th August 2019. The team executed the monitoring work of AICRP(S) trials in North Central and North Eastern Zone as per schedule given below.

Team members	Centres visited	Date of visit
Dr. S. N. Sushil Principal Scientist (Agril. Entomology) ICAR-IISR, Lucknow (Team leader) **Dr. D.N. Kamat** Assistant Professor (Plant Breeding) SRI, Pusa (Bihar) (Member) **Dr. A.P. Dwivedi** Principal Scientist (Agronomy) ICAR-IISR, Lucknow (Member) **Dr. Mahaveer Bochalya** Scientist (Plant Pathology) RRS, Uchani (Member) **Dr. S. K. Yadav** Scientist (Agronomy) ICAR-IISR, Lucknow (Facilitator)	Genda Singh Sugarcane Breeding and Research Institute, UPCSR, Seorahi, U.P.	28.11.2019
	ICAR-IISR Regional Centre, Motipur, Bihar	29.11.2019
	Sugarcane Research Institute, RAU, Pusa, Bihar.	30.11.2019
	Sugarcane Research Station, Bethuadahari, Distt. Nadia, W.B.	01.12.2019
	Sugarcane Research Station, AAU, Buralikson, Assam.	03.12.2019

1. **G.S. Sugarcane Breeding & Research Institute, Seorahi, Kushinagar (U.P): Date of Visit 28.12.2019:** The Centre has laid out all the allotted trials which includes Breeding (8 trials), Agronomy (2 trials) and Plant Pathology (4 trials). All the trials were maintained properly at the experimental farm. However, little more attention is required for weed management.

2. **ICAR-IISR Regional Centre, Motipur, Muzaffarpur, Bihar: Date of visit 29.11.2019**: The Centre has laid out all the allotted trials including trials of Breeding (8 trials) and Plant Pathology (2 trials). Overall maintenance of the trials were Excellent. Fields were well maintained, weed free and the crop growth was very good.

3. **Sugarcane Research Institute (Rajendra Central Agril. University), Pusa, Bihar: Date of Visit 30.11.2019:** The Centre has laid out all the trials of Breeding, Agronomy, Plant Pathology and Entomology. The trials were maintained properly as per the technical programme.

4. **Sugarcane Research Station (Department of Agriculture), Bethuadahari, West Bengal: Date of Visit 01.12.2018:** The Centre has conducted AICRP trials of Breeding and Agronomy. All the trials were maintained properly, however, some of the plots were heavily infested by weeds.

5. **Sugarcane Research Station, Buralikson, Assam: Date of Visit 03.12.2019:** The Centre has carried out trials of Breeding (6 trials) and Pathology (2 trials). All the trials have been maintained properly at the experimental farm of the station. Parrots have been observed as a major menace to the sugarcane crop, especially to the genotypes having high sucrose content.

Discipline wise report is mentioned hereunder:

CROP IMPROVEMENT

- Breeding trials at all locations were laid out as per the technical programmes, except Buralikson.
- The overall comparative rating of the Centres with respect to various trials is Excellent at Motipur and Pusa,Very good at Seorahi and Bethuadahari and Good at Buralikson. Two trials at Buralikson have not been conducted due to unavailability of sufficient planting material. For this Buralikson centre should lift adequate seed materials from Pusa centre well in time by sending Scientist/ technical staff.
- Pusa centre has raised highest number of seedlings (40520) in the Zone and also in the country and doing excellent work in multiplication and distribution of planting /seed material for 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. Therefore, Pusa centre deserves Appreciation/Award from AICRP on Sugarcane.
- 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)	Very good	Excellent	Excellent	Good	Good
AVT(Early) I Plant	Excellent	Excellent	Excellent	Very good	**Not Conducted**
AVT (Early) II Plant	Good	Excellent	Excellent	Very good	Good
AVT (Early) Ratoon	Good	Very good	Very good	Very Good	Good
IVT (Midlate)	Very Good	Excellent	Excellent	Good	Good
AVT (Midlate) I	Excellent	Excellent	Excellent	Very good	Very good

Plant					
AVT (Midlate) II Plant	Very good	Excellent	Excellent	Very good	Good
AVT (Midlate) Ratoon	Good	Very good	Very good	Very good	**Not Conducted**
Remarks / Weeds,insect-Pests and Diseases.	Minor incidence of termites and top borer was observed	Minor incidence of Plassey borer and top borer was observed	Minor incidence of termites and top borer was observed	The incidence of scale insects (2%) Plassey borers (2-5%)and mealy bugs in traces was observed.	The incidence of scale insects (2-5%) Plassey borers (2-5%) and mealy bugs (upto5%) 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.

2. PERFORMANCE OF ENTRIES IN EACH TRIAL

2.1 Initial Varietal Trial (Early)

Entry / Locations	Seorahi	Pusa	Motipur	Bethuadahari	Buralikson*	Other information
CoBln 16501	Poor	Good	Good	Poor	Good	Severe Wilt infection recorded at Seorahi and Bethuadahari and mild at Pusa and Motipur.
CoLk 16466	Good	Good	Good	Very good	Very good	Thin canes
CoLk 16467	Good	Average	Very good	Good	Very good	Short plant height all the centers
CoLk 16468	Average	Very good	Good	Very good	Very good	-
CoP 16436	Good	Average	Good	Good	Average	Short plant height at all the centres except Motipur and Pusa
CoP 16437	Very goo	Excellent	Very good	Very good	Very good	Performed well across the

						centres .
CoP 16438	Very goo	Very good	Very good	Very good	Very good	Performed well across the centres .
CoSe 16451	Good	Good	Good	Good	Good	-
Standards CoLk 94184	Very goo	Good	Very good	Good	Very good	-
CoSe 95422	Good	Good	Very good	Very good	Good	-
CoSe 01421	Good	Good	Good	Average	Average	-
Overall Performance of the Experiment	Very goo	Excellent	Excellent	Good	Good	-

2.2 AVT (Early)-I Plant

Entry / Locations	**Seorahi**	**Pusa**	**Motipur**	**Bethuadhari**	**Buralikson**	**Other information**
CoLk 15466	Good	Good	Very good	Good	-	Thin canes
CoLk 15467	Good	Good	Very Good	Very Good	-	Less height at many centres.
CoP15436	Good	Very good	Good	Very Good	-	-
CoSe 15452	Good	Good	Good	Good	-	-
CoSe 15455	Excellent	Good	Very good	Very good	-	Lodging at Motipur
Standards CoLk 94184	Very good	Good	Very good	Very Good	-	-
CoSe 95422	Very good	Very good	Excellent	Very good	-	-
CoSe 01421	Good	Good	Good	Good	-	-
Overall Performance of the Experiment	Excellent	Excellent	Excellent	Very good	**Not Conducted**	-

2.3 AVT (Early)-II Plant

Entry / Locations	Seorahi	Pusa	Motipur	Bethuadhari	Buralikson	Other information
CoLk14206	Good	Very good	Very good	Good	Very good	-
CoP 14437	Good	Very good	Very good	Very good	Very good	-
CoSe 14451	Very good	Good	Very good	Very good	Good	-
CoSe 14454	Very good	Very good	Very good	Very good	Very good	-
Standards CoLk 94184	Good	Good	Very good	Good	Very good	-
CoSe 95422	Very good	Very good	Very good	Good	Very good	-
CoSe 01421	Good	Very good	Good	Good	**Not Planted**	-
Overall Performance of the Experiment	Good	Excellent	Excellent	Very good	Good	-

2.4 AVT (Early)-Ratoon

Entry / Locations	Seorahi	Pusa	Motipur	Bethuadahari	Buralikson	Other information
CoLk14206	Good	Good	Very good	Good	Good	-
CoP 14437	Very good	Very good	Very good	Very good	Very good	Medium thick cane
CoSe 14451	Good	Good	Good	Very good	Good	-
CoSe 14454	Very good	Good	Very good	Very good	Very good	Broad leaf medium thick cane
Standards CoLk 94184	Excellent	Very good	Very good	Very good	Good	-
CoSe 95422	Very good	Good	Excellent	Very good	Good	-
CoSe 01421	Good	Average	Good	Good	**Not Planted**	Due to unavailability of planting material, it was not planted in

						first plant at Buralikson last year.
Overall Performance of the Experiment	Good	Very good	Very good	Very Good	Good	-

2.5 IVT (Midlate)

Entry / Locations	Seorahi	Pusa	Motipur	Bethuadahari	Buralikson*	Other information
CoBln 16502	Poor	Good	Average	Average	Very good	wilt infestation and lodging observed.
CoLk 16469	Good	Good	Very good	Good	Very good	-
CoLk 16470	Very good	Very good	Very good	Very good	Good	-
CoLk 16471	Very good	Average	Good	Good	Good	Thin canes
CoP 16439	Very good	Very good	Very good	Good	Good	-
CoP 16440	Very good	Very good	Very good	Very good	Very good	-
BO156	Good	Good	Good	Good	Good	-
CoSe 16452	Very good	Good	Very good	Good	Very good	-
CoSe 16453	Very good	Good	Good	Good	Good	Thin canes
Standards BO 91	Good	Very good	Very good	Good	Very good	-
CoP 9301	Good	Good	Very good	Very good	Very good	-
CoP 06436	Good	Very good	Excellent	Very good	Very good	-
Overall Performance of the Experiment	Very Good	Excellent	Excellent	Good	Good	-

2.6 AVT (Midlate)-I plant

Entry / Locations	Seorahi	Pusa	Motipur	Bethuadahari	Buralikson*	Other information
CoLk 15468	Very good	Average	Very good	Good	Very good	Flowers at Bethuadahari
CoLk 15469	Good	Very good	Very good	Very good	Very good	-
CoP 15438	Very good	Good	Very good	Very good	Good	-
CoP 15439	Very good	Very good	Very good	Very good	Very good	-

CoP 15440	Very good	Very good	Very good	Very good	Very good	-
CoSe 15453	Excellent	Very good	Excellent	Excellent	*Not planted	-
CoSe 15454	Very good	Good	Very good	Very good	*Not planted	Less height at Pusa and Motipur
Standards BO 91	Very good	Very good	Very good	Very good	Very good	-
CoP 9301	Good	Good	Very good	Good	Good	-
CoP 06436	Excellent	Excellent	Excellent	Very good	Very good	-
Overall Performance of the Experiment	Excellent	Excellent	Excellent	Very good	Very good	-

* Not planted as the planting material was not sufficient for planting.

2.7 AVT (Midlate)-II plant

Entry / Locations	Seorahi	Pusa	Motipur	Bethuadhari	Buralikson*	Other information
CoLk 14208	Very good	Very good	Very good	Good	Very good	-
CoLk 14209	Good	Good	Very good	Very good	Very good	-
CoP 14438	Very good	Very good	Very good	Very good	Very good	-
CoP 14439	Very good	Very good	Very good	Very good	Very good	-
CoSe 14455	Very good	Very good	Very good	Very good	Very good	-
Standards BO 91	Very good	Very good	Very good	Very good	Very good	-
CoP 9301	Good	Very good	Very good	Very good	Good	-
CoP 06436	Excellent	Very good	Excellent	Good	Very good	-
Overall Performance of the Experiment	Very good	Excellent	Excellent	Very good	Good	-

2.8 AVT (Midlate)-Ratoon

Entry / Locations	Seorahi	Pusa	Motipur	Bethuadahari	Buralikson*	Other information
CoLk 14208	Very good	Good	Very good	Good	-	-
CoLk 14209	Good	Very good	Very good	Very good	-	-
CoP 14438	Very good	Very good	Very good	Very good	-	-
CoP 14439	Very good	Very good	Very good	Very good	-	-
CoSe 14455	Very good	Very good	Good	Very good	-	-
Standards BO 91	Very good	Very good	Very good	Very good	-	-
CoP 9301	Good	Good	Very good	Good	-	-
CoP 06436	Excellent	Excellent	Excellent	Very good	-	-
Overall Performance of the Experiment	Good	Very good	Very good	Very good	**Not Conducted**	Trial was not conducted last year as AVT(Midlate) I Plant at Buralikson and so no Ratoon.

***Trial was not conducted last year as AVT (Midlate) I Plant at Buralikson and so no Ratoon.

CROP PRODUCTION

1) Centre-wise status of trials allotted and conducted

Centres	Experiment			
	AS-68	**AS-72 (Early &Mid-late)**	**AS-73**	**AS-74**
Seorahi	Conducted	Conducted	Not Conducted	Not Conducted
Pusa	Conducted	Conducted	Not Conducted	Conducted
Motipur	Not-allotted	Not-allotted	Not-allotted	Not-allotted
Bethuadahari	Not Conducted	Conducted	Not Conducted	Conducted
Buralikson*	Not conducted	Not conducted	Not conducted	Not conducted

*Not conducted due to withdrawal of agronomist post.

2) Salient observations:

AS-68: Impact of integrated application of organics and inorganics in improving soil health and sugarcane productivity

- At Seorahi centre, application of FYM @ 10 tonnes/ha+ Bio-fertilizer (*Azotobacter*+PSB) + soil test basis (NPK Application) is performing best amongst the tested treatments followed by application of FYM @ 10 tonnes/ha + Bio-fertilizer (*Azotobacter*+PSB) + 100 per cent RDF .
- At Pusa centre, the sugarcane Ratoon II crop was excellent and the performance of treatment T_6 receiving fertilizer on soil test basis along with FYM @ 20 tonnes/ha was found the best.
- Health and vigour of crop were found quite satisfactory at the both the centre i.e. Seorahi and Pusa.

***AS-70: Scheduling irrigation with mulch under different sugarcane planting methods**

*****Although this project has been concluded but still Bethuadhari centre is continuing this trial for the current year. Observations are given below**:**

- P_3I_3 i.e. paired row trench planting (30:120 cm row spacing) with organic mulch @ 6t/ha (paddy straw) and irrigation at 1.00 IW/CPE ratio was found better than P_3I_2 i.e. paired row trench planting (30:120 cm row spacing) with organic mulch @ 6t/ha (paddy straw) and irrigation at 0.80 IW/CPE ratio.
- Variety CoLk94184 shown the excellent vigour in this trail at Buraliskan.

AS-72: Agronomic performance of elite sugarcane genotypes

- At Seorahi centre, Among early testing genotypes, CoSe 14454 is showing good potential followed by CoSe 14451, CoLk 14206 and CoP 14437 genotypes while Among midlate testing genotypes, CoLk 14208 genotype is performing good followed by CoSe 14455, CoP 14439, CoP 14438 and CoLk 14209 against check CoP 9301. Better performance was observed with increasing recommended dose of fertilizers upto 125 per cent.
- At Pusa centre, among early genotype CoSe14454 performed better followed by CoSe14451. Among fertility level, 125% RDF was better than 100% fertility level. Similarly, among midlate genotypes CoSe 14455 performed best followed by CoP 14438. Among fertility level, 125% RDF was better than 100% fertility level.
- At Bethuadahari centre, the best genotype is CoSe 95422 followed by zonal check CoLk 94184 at 100% recommended doses of NPK in case of early maturing

genotype. Whereas, in mid-late genotype the best genotype is CoSe 14455 followed by zonal check CoP 9301 at 100% recommended doses of NPK.

AS-74: Evaluation of sugarcane varieties for drought tolerance

- This experiment was conducted at two centres only i.e. Pusa and Bethuadahari.
- At Pusa centre, variety CoP 16437 performed best followed by CoP 9437 and CoP 112 at IW: CPE ratios 1.00.
- At Bethuadahari centre, among the different varieties BO 91 gave the best result with the application of irrigation at 0.3 IW/CPE ratios.
- Performance of crop at Pusa was found better than Bethuadahari due to flood during rainy season.

Rating of the agronomy experiments conducted by the Centres of North Central and North-Eastern zones

Centres	Experiments (allotted and conducted)			
	AS-68	**AS-72 (Early & Mid-late)**	**AS 73**	**AS 74**
Seorahi	Excellent	Excellent	Not Conducted	Not Conducted
Pusa	Very Good	Excellent	Not conducted	Very good
Motipur	Not-allotted	Not-allotted	Not-allotted	Not-allotted
Bethuadahari	Not Conducted	Excellent	Not Conducted	Very Good
Buralikson*	Not conducted	Not conducted	Not conducted	Not conducted

*Not conducted due to withdrawal of agronomist post.

ENTOMOLOGY

1. Centre-wise status of trials allotted and conducted

Centre	Experiment No& Title			
	E4.1-Evaluation of Zonal varieties /genotypes for their reaction against major insect pests	**E28:** Survey and surveillance of sugarcane insect pests	**E30:** Monitoring of insect pests and bio-agents in sugarcane agro-ecosystems	**E38:** Formulation and validation of IPM Module of sugarcane insect pests
Seorahi	Not Allotted			
Pusa	Conducted	Conducted	Conducted	Conducted
Motipur	Not Allotted			
Bethudahari	Not Allotted-			
Buralikson	Not Allotted-			

2. Salient observations

Seorahi: Low incidence of top borer, stalk borer, internode borer and mealy bug was observed in breeding trials.

Motipur: Minor incidence of Plassey borer and top borer was observed in breeding trials.

Pusa: The incidence of top borer (5-10%), stalk borer (4-6%), root borer (8-10%), early shoot borer (8-10%), Plassey borer (2-5%), mealy bug (8-12%), white fly, pyrilla, scale

insects (traces) were observed. Incidence of mite was recorded to the extent of 40-60% in some of the fields.

Bethuadahari: The incidence of Plassey borer (5-10%), whitefly (5-10%) and mealy bug (8-10%) was recorded in breeding trials.

Buralikson: The severe damage of sugarcane by parrots in breeding trials was noticed. The incidence of mealy bug (5-10%), termites (5-10%), plassey borer (1-2%), top borer (1-2%) and mealy bugs (traces) were recorded in different trials.

Rating of the Entomology experiments conducted by the Centres of North Central and North-Eastern zones

Centre	Experiments			
	E4.1	**E28**	**E30**	**E38**
Seorahi	Not Allotted	Not Allotted	Not Allotted	Not Allotted
Pusa	**Excellent**	**Very good**	**Very good**	**Very good**
Motipur	Not Allotted	Not Allotted	Not Allotted	Not Allotted
Bethuadhari	Not Allotted	Not Allotted	Not Allotted	Not Allotted
Buralikson	Not Allotted	Not Allotted	Not Allotted	Not Allotted

PATHOLOGY

The following trails were allotted to the centres of North Central and North Eastern Zones.

1. PP14 Identification of pathotypes of red rot pathogen
2. PP 17 A Evaluation of zonal varieties for resistance to red rot
3. PP 17 B Evaluation of zonal varieties for resistance to smut
4. PP 17 C Evaluation of zonal varieties for resistance to wilt
5. PP 17 D Evaluation of zonal varieties for resistance to YLD
6. PP 22 Survey of sugarcane diseases naturally occurring in the area on important sugarcane varieties
7. PP 23 Assessment of elite and ISH genotype for resistance to red rot
8. PP 31 Screening, epidemiology and management of pokkah boeng in sugarcane

The different trials conducted by the centres are presented in the following table

Centre	Experiments									
	PP-14	**PP-17A**	**PP-17B**	**PP-17C**	**PP-17D**	**PP-22**	**PP-23**	**PP-31 i**	**PP-31 ii**	**PP-31 iii**
Seroahi	C	C	C	-	C	C	C	C	NC	C
Motipur	-	C	C	-	-	-	-	-	-	-
Pusa	C	C	C	C	C	C	C	C	C	C
Bethuadahari	-	-	-	-	-	-	-	-	-	-
Buralikson	-	C	-	-	-	C	-	-	-	-

C= Conducted; NC= Experiment allotted but not conducted; - = Experiment not allotted

1. G.S. Sugarcane Breeding and Research Institute, Seorahi

1.1 PP14 Identification of pathotypes of red rot pathogen

All the 19 differentials were planted on 12.03.2019. Inoculation was done on the differentials by plug method on 20.08.2019 with the designated pathotypes of the zone CF 07 and CF 08 and twenty canes of each differential were inoculated with each isolate of red rot pathogen.

1.2 PP 17A Evaluation of zonal varieties for resistance to red rot

Twenty four clones of IVT and AVT in early and mid-late group were planted alongwith checks CoJ 64 and CoSe 95422 on 12.03.2019. Inoculation was done on the differentials by plug as well as nodal method on 20.08.2019 with the designated pathotypes of the zone CF 07 and CF 08. CoSe 15452, CoLk 15467, CoLk 15469, CoS 767, Co 0238, CoLk 16470 were found moderately susceptible to red rot.

1.3 PP 17B Evaluation of zonal varieties for resistance to smut

Twenty four clones of IVT and AVT in early and midlate group were planted alongwith checks Co1158 on 12.03.2019. Twelve entries were found affected with Smut in few clumps (CoLk 16466, CoLk 16470, CoLk 15466, CoLk 15467, CoLk 15468, CoLk 14206, CoP 16439, CoSe 15455, CoSe 15453, CoSe 16452, CoSe 95422 and Co 1158).

1.4 PP 17D Evaluations of zonal varieties for resistance to YLD

Twenty four clones of IVT and AVT in early and midlate group were planted on 12.03.2019. Till date Yellow Leaf Disease was noticed in entries viz. (CoLk 16470, CoS 11271, CoSe 15452, CoV 92102, CoSe 15454)

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

The survey was conducted in cane growing areas of Uttar Pradesh; red rot disease was recorded in CoSe 92423, CoSe 98231, CoS 97261, CoP 9301, CoJ 88, UP 9530 and Co 0238 with severity range of traces to 40 percent. Smut disease was noticed in varieties *viz.,* CoS 08279, CoLk 94184, CoSe 01434, CoSe 08452 and Co 0238 with severity range of traces to 15 percent. Wilt disease was observed on varieties Co 0238, Co 0233, CoPk 05191, CoP 9301 Co 05011 and CoSe 92423 with severity range of traces to 10 percent. Similarly other minor diseases *viz*., grassy shoot and Pokkah boeng disease was also noticed.

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

This experiment was conducted with 25 genotypes. All the genotypes were inoculated with CF 07 and CF 08 by plug method of inoculation on 21.08.2019. Incidence of red rot was observed in following genotypes i.e. As 04-245, MA 5/37, MA 5/22 and PG 1869137and GU 073774

1.7 PP 31 Screening, epidemiology and management of Pokkah boeng in sugarcane

This experiment was conducted with 25 clones along with standards. The clones were planted on 12.03.2019. Incidence of pokkah boeng was observed in some of the clones in traces to 5 percent.

2. Indian Institute of Sugarcane Research, Regional Centre, Motipur

2.1 PP 17A Evaluation of zonal varieties for resistance to red rot

Thirty eight genotypes of IVT and AVT in early and midlate group were planted alongwith checks CoJ 64 and CoSe 95422 on 21.02.2019. Inoculation was done on the differentials by plug as well as nodal method on 20.08.2019 with the designated pathotypes of the zone CF 07 and CF 08.

2.2 PP 17B Evaluation of zonal varieties for resistance to smut

Thirty eight genotypes of IVT and AVT in early and midlate group were planted alongwith checks Co1158 and CoLk 7701 on 23.02.2019. The clones were inoculated at the time of planting by following spore suspension method. Crop condition was good and experimental field is free from weeds.

3. Sugarcane Research Institute, Pusa, Samastipur, Bihar

3.1 PP 14 Identification of pathotypes of red rot pathogen

All the 19 differentials were planted on 21.01.2019 except Co 86032. Inoculation was done by plug method on 27.08.2019 with designated pathotypes of the zone CF 07 and CF 08 and twenty canes of each differential were inoculated with each isolate of red rot pathogen. The crop growth was good.

3.2 PP 17A Evaluation of zonal varieties for resistance to red rot

Fourty three clones of IVT and AVT in early and midlate group were planted alongwith check CoSe 95422 on 25.01.2019. Inoculation was done by plug as well as nodal method on 29.08.2019 with the designated pathotypes of the zone CF 07 and CF 08.

3.3 PP 17B Evaluation of zonal varieties for resistance to smut

Fourty three genotypes of IVT and AVT in early and midlate group were planted alongwith check CoSe 95422 on 25.01.2019. The clones were inoculated at the time of planting by following spore suspension method. Three entries were found affected with Smut in few clumps (CoLk 14209, CoP 15436 and CoSe 16453).

3.4 PP 17C Evaluation of zonal varieties for resistance to wilt

Fourty three genotypes of IVT and AVT in early and midlate group were planted alongwith check CoSe 95422 on 25.01.2019. Overall the crop condition was good.

3.5 PP 17D Evaluations of zonal varieties for resistance to YLD

Fourty three genotypes of IVT and AVT in early and midlate group were planted alongwith check on 25.01.2019. Till date Yellow Leaf Disease was noticed in Co 0238, CoSe 95422, CoS 8436, CoPant 97222, CoV 92102 and CoSe 15454 in few clumps.

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

The survey was conducted in cane growing areas of Bihar; red rot disease was recorded in Co 0233, CoS 8436, Co 0238, CoH 167 and Co 0118 with severity range of traces to 25 percent. Smut 10 %, wilt 5 to 25 % and PBD 10 % noticed in varieties *viz.,* Co 0238, BO 141, Co 92006, CoPant 97222, Co 0233, BO 110, Co 0118 and CoH 167.

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

This experiment was conducted with 27 genotypes. All the genotypes were inoculated with pathotypes CF 07 and CF 08 by plug method of inoculation on 27.08.2019. The crop growth was good.

3.8 PP 31 Screening, epidemiology and management of Pokkah boeng in sugarcane

This experiment was conducted with 20 varieties planted on 24.01.2019. The observation on Pokkah boeng incidence was being made. Weather data were being collected for epidemiological studies. Out of 20 varieties seven varieties were found moderately susceptible to Pokkah Boeng disease while, remaining varieties were observed with mild infection. The disease appeared in the 1st week of May. Sett treatment with Carbendazim and 3 sprays at 15 days interval with same fungicide gave good result in control of Pokkah Boeng disease.

4. Sugarcane Research Station, Bethudahari

The centre has not been allotted with any Plant Pathology trials.

5. Sugarcane Research Station, Buralikson

5.1 PP 17A Evaluation of zonal varieties for resistance to red rot

The trial on screening for red rot resistance was conducted with 44 genotypes including standards. Inoculations with two pathotypes CF 07 and CF 08 was done by both the plug method and nodal cotton swab methods on 04.10.2019. Inoculations were done late, therefore splitting of canes cannot be taken up for red rot reaction.

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

The survey work was conducted in the month of June and July 2019 in Habial gaon, Kathkotia, Golaghat districts of West Bengal. Pokkah boeng, wilt and ring spot diseases were noticed in traces to mild form. Next survey scheduled is proposed in the month of December, 2019.

Rating of the Plant Pathology experiment conducted by the Centres of North Central and North Eastern zone

Centre	Experiment conducted									
	PP-14	PP-17A	PP-17B	PP-17C	PP-17D	PP-22	PP-23	PP-31 ii	PP-31 ii	PP-31 iii
Seorahi	Very Good	Very Good	Good	-	Good	Good	Very Good	Good	NC	Good
Motipur	-	Very Good	Good	-	-	-	-	-	-	-
Pusa	Very Good	Very Good	Very Good	Good	Good	-	Very Good	Good	Good	Very Good
Bethuadahari	-	-	-	-	-	-	-	-	-	-
Buralikson	-	Good	-	-	-	Very Good	-	-	-	-

- Experiment not allotted NC – Experiments not conducted

Monitoring Report of East Coast Zone
(Crop Season 2019-20)

Monitoring team constituted by the Project Coordinator vide letter no. F No. 12-11 (M)/2019-PCS dated September 04, 2019 for assessment of performance of the AICRP sugarcane trials at both regular as well as voluntary centres of East Coast Zone with the following scientists.

Sl. No.	Name, Designation & Address of the Members	
1	Dr. S.K. Pandey Principal Scientist(Entomology), ICAR-SBI, Regional Centre, Karnal-132001 (Haryana)	Team Leader
2	Dr. S N Singh, Principal Scientist (Agronomy), ICAR-IISR, Lucknow-226002, (UP)	Member
3	Dr. Gulzar S. Sanghera, Principal Scientist (PBG) Sugarcane, PAU, Regional Research Station, Kapurthala-144601, (Punjab)	Member
4	Dr R.C. Patel, Asstt. Research Scientist,Pathology NAU, Navsari,(Gujrat)	Member
5.	Mr. Adil Zubair, Asstt. Chief Technical Officer AICRP(S), ICAR-Indian Institute of Sugarcane Research, Raebareli Road, P. O.- Dilkusha, Lucknow – 226 002(U.P.)	Facilitator

The team assembled at Parry Sugarcane Research and Development Centre, EID Parry (India) Ltd., Nellikuppum on 4th December, 2019 and subsequently visited and monitored the AICRP (Sugarcane) regular as well as voluntary centres i.e., Nellikuppum, SRS, Cuddalore; SRS, Vuyyuru; RARS, Anakapalle and SRS, Nayagarh from 5th December to 12th December 2019. The discipline-wise observations made during the visit of different Research Stations and recommendations are reported as under:

General Observation:

- There is a deficit of 20 to 30 per cent of rainfall in whole Tamilnadu especially the area surrounding Nellikuppum and Cuddalore during June & July months and excess rainfall in October to 1st week of December, 2019.
- The crop condition was good at all the centres of the Zone.
- White ant and wilt disease observed in many entries of AVT at Vuyyuru centre especially in CoC 15336, Co 06030, CoC 14337, Co 13031, CoV 92102 and Co 86249
- Natural occurrence of smut was noticed in entries CoV 16356 and CoC 14336 at RARS, Anakapalle.
- Flowering was noticed in CoC 16336 and Co 13031 at Cuddalore and CoV 16356 both at Cuddalore and Vuyyuru
- The incidence of Yellow Leaf Disease Syndrome and mosaic was observed in AP and Odisha.

(A) CROP IMPROVEMENT

1. Parry's Sugarcane Research & Development Centre, EID Parry (India) Ltd., Nellikuppam (TN), Visited on Dt. 05.12.2019

This is a voluntary centre of AICRP on Sugarcane. As per the technical programme of crop improvement of AICRPS for the year 2019-20, the centre was allotted 6 trials that were conducted successfully as per layout provided in Randomized Block Design. The plot size for two trials viz., IVT (E) and IVT (ML) was six rows of 6m length with inter row spacing of 90 cm apart. However, for remaining four advanced trials namely, AVT (E) I Plant, AVT (E) II Plant, AVT (E) Ratoon and AVT (ML) I Plant the plot size was 8 rows of 6.0 m length planted at 90 cm apart. Drought conditions prevailed at this centre during early crop stage while excess rain at later stages so the crop growth was little affected. In general, conductance and management of the trials was very good. However, severe incidence of internode borer, yellow leaf disease (YLD) and wilt was observed during monitoring. There was profuse development of aerial roots in test clones in all the trials due severe infestation of INB. Performance of the test entries at nine months age for field crop stand, tillering ability and cane traits compared to the best standards are given in Table 1-6. Field operations like earthling up and propping were done nicely in all the trails. Seed multiplication of 03 early and 01 mid late entries accepted during group meeting of AICRP(S) held at UAS, Bengaluru in 2018 was carried out as per the technical programme.

2. TNAU, Sugarcane Research Station, Cuddalore (TN), Visited on Dt.05.12.2019

SRS, Cuddalore is a regular centre of the AICRP(S). The centre received and has conducted all the 6 trials as per the technical programme. The plot size for two trials viz., IVT (E) and IVT (ML) was six rows of 6m length with inter row spacing of 90 cm apart. However, for remaining four advanced trials namely, AVT (E) I Plant, AVT (E) II Plant, AVT (E) Ratoon and AVT (ML) I Plant the plot size was 8 rows of 6.0m length planted at 90 cm apart. Drought condition prevailed at this centre during early crop growth stages whereas a heavy rainfall of 953.5 mm during second week of October to first week of December, 2019. The crop was fully lodged and water was still stagnating (2-3 feet) in experimental fields so as reported in comparison to last year the growth of crop was greatly affected. All the trials were good in establishment and were maintained very well. Performance of the entries at nine months age for field crop stand, tillering ability and cane traits compared to the best standards are given in Table 1-6. Heavy rainfall during October-November, 2019 and water logged conditions predisposed the testing clones for lodging as there was no propping. There was little flowering in entries CoC 16336 and CoV 16356. Seed multiplication of 03 early and 01 midlate entries accepted during group meeting of AICRP(S) held at UAS, Bengaluru in 2018 was carried out. From 36 cross combinations a total of 3125 seedlings were raised and transplanted.

3. ANGRAU, Sugarcane Research Station, Vuyyuru (AP) Visited on Dt.08.12.2019

This is volunteer centre in AICRP on sugarcane, allotted 6 trials of crop improvement and all the trials were successfully conduced as per the technical programme. The plot size for two trials viz., IVT (E) and IVT (ML) was six rows of 6m length with inter row spacing of 90 cm apart. However, for remaining four advanced trials namely, AVT (E) I Plant, AVT (E) II Plant, AVT (E) Ratoon and AVT (ML) I Plant the plot size was 8 rows of 6.0m length planted at 90 cm apart. All the trials were good in establishment at early stages and were maintained very well except AVT early ratoon which was having very poor crop stand damaged by termite, wilt, smut and YLD, no plant population in most of plots. Due to very poor performance of this trial, may not be considered for assessment. Performance of the entries at ten months age for field crop stand, tillering ability and cane traits compared to the

best standards are given in Table 1-6. Flowering was noticed in CoC 15336, CoC 15338 and CoOr 17346 test clones along with standard CoOr 03151 in some plots. Incidence of termite, scale insect and Yellow Leaf disease (YLD) was also observed with variable degree in different clones. Seed multiplication of 03 early and 01 Midlate entries accepted during group meeting of AICRP(S) held at UAS, Bengaluru in 2018 was carried out as per the technical programme. A total of 12,600 seedlings were raised from the fluff received from SBI, Coimbatore and planted in the main field.

4. ANGRAU, Regional Agricultural Research Station, Anakapalle (A.P.)Visit on Dt.10.12.2019

The centre has conducted all six trials of Crop Improvement as per the technical programme of AICRP (Sugarcane). The plot size for two trials viz., IVT (E) and IVT (ML) was six rows of 6m length with inter row spacing of 90 cm apart. However, for remaining four advanced trials namely, AVT (E) I Plant, AVT (E) II Plant, AVT (E) Ratoon and AVT (ML) I Plant the plot size was 8 rows of 6.0m length planted at 90 cm apart. All the trials were excellent in conductance and establishment except AVT early ratoon. Severe lodging of clones was observed in all trials due heavy rainfall in last week of November 2019. In AVT early ratoon very severe incidence of mosaic and YLD was observed that led to failure of trial, there were no cane plant formation in some plots and the plots having poor crop stand/ plant population were completely dried (Fig 2). General performance of the entries at nine months age for field stand, tillering ability and cane traits compared to the best standards are given in Table 1-6. Two tiered (T.T.) propping was done nicely. Flowering was observed in clones CoC 17337, CoOr 17346, CoC 15339 and CoV 16357. Incidence of Yellow Leaf disease (YLD) and mosaic was observed in some of the test clones and standards in different trials. Seed multiplication of 03 early and 01 midlate entries accepted during group meeting of AICRP(S) held at UAS, Bengaluru in 2018 was carried out. Further, Multiplication of 12 ISH (Inter-specific hybrids) clones was carried out as per the technical programme. A total of 11824 number seedlings were raised from 38 cross combinations and planted in the main field and the survival per cent was 79.73. Seedling stand and its maintenance in field were excellent.

5. OUAT, Sugarcane Research Station, Nayagarh (Odisha) Visit on Dt.11.12.2019

This centre has conducted all the six trials as per the technical programme. The plot size for two trials viz., IVT (E) and IVT (ML) was six rows of 6m length with inter row spacing of 90 cm apart. However, for remaining four advanced trials namely, AVT (E) I Plant, AVT (E) II Plant, AVT (E) Ratoon and AVT (ML) I Plant the plot size was 8 rows of 6.0m length planted at 90 cm apart.

The trials were very good in their layout and establishment however maintenance was hampered due to the natural calamities (Fani and Bulbul cyclones during May, 2019 and October, 2019, respectively) that occurred in the region. Performance of the entries at nine months age for field crop stand, tillering ability and cane traits compared to the best standards are given in Table 1-6. Over all crop growth was good in all the trails.

List of trials conducted during 2019– 2020 in East Coast Zone

Sr. No.	Name of Trial	Nellikuppam	Cudallore	Vuyyur	Anakapalle	Nayagarh
1.	IVT(E)	Conducted	Conducted	Conducted	Conducted	Conducted
2.	AVT(E)-I Plant	Conducted	Conducted	Conducted	Conducted	Conducted
3.	AVT(E)-II Plant	Conducted	Conducted	Conducted	Conducted	Conducted
4.	AVT(E)-R	Conducted	Conducted	Conducted	Conducted	Conducted
5.	IVT(ML)	Conducted	Conducted	Conducted	Conducted	Conducted
6.	AVT(ML)-I Plant	Conducted	Conducted	Conducted	Conducted	Conducted

Flowering was noticed in CoC 15338 and CoV 15356. In IVT early trial, very poor plant population and no cane formation was observed for clones CoA 17321 and CoC 17336 in different plots. Seed multiplication of 03 early and 01 Midlate entries accepted during group meeting of AICRP(S) held at UAS, Bengaluru in 2018 was carried out as per the technical programme. Under fluff supply programme, the centre has transplanted 4560 seedlings raised from fluff received from SBI, Coimbatore.

Performance of the AICRP (S) trials at different centres in the East Coast Zone (2019-20)

S. No.	Trials	Nellikuppam	Cuddalore*	Vuyyuru	Anakapalle *	Nayagarh
1.	IVT(E)	Excellent	Good	Excellent	Good	Good
2.	AVT(E)-I Plant	Excellent	Good	Excellent	Good	Good
3.	AVT(E)-II Plant	Good	Good	Good	Excellent	Excellent
4.	AVT(E)-R	Good	Abandoned	Abandoned	Abandoned	Abandoned
5.	IVT(ML)	Excellent	Good	Good	Good	Good
6.	AVT(ML)-I Plant	Excellent	Poor	Excellent	Excellent	Good

*Severe lodging of trials at these centres

EVALUATION OF DIFFERENT CLONES IN TRIALS CONDUCTED IN EAST COASTAL ZONE (2019-20)

Table 1: Initial Varietal Trials (Early)

Entries	Nellikuppam	Cuddalore	Vuyyuru	Anakapalle	Nayagarh
CoA 17321	Poor	Poor	Better	Better	Better**
CoA 17322	Poor	On par	On par	Better	Very Poor
CoA 17323	On par	On par	Poor	On par	On par
CoC 17336	Better	Poor	On par*	Poor*	On par**
Satandards					
CoA 92081	Better (II)	Good (II)	Poor (III)	Poor (III)	Poor (III)
CoC 01061	Poor (III)	Good (II)	Better (II)	Better (II)	Better (II)
CoOr 03151	Best (I)	Best (I)	Best (I)	Best (I)*	Best (I)
Dt. of Planting	08.01.19	27.02.19	06.02.19	07.03.19	15.01.19

* Lodged in all replications

**Only one replication (no germination in two replications)

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

Entries	Nellikuppam	Cuddalore	Vuyyuru	Anakapalle	Nayagarh
CoA 16321	Better	Better	On par	Better	Poor
CoC 16336	Poor	On par	Poor	Poor*	Better
CoC 16337	Better	Better	On par	On par	On par
CoV 16356	On par	On par*	Better	On par	On par
Standards					
CoC 92081	Good (III)	Poor (III)	Good (III)	Poor (II)	Poor (III)
CoC 01061	Better (II)	Better (II)	Better (II)	Better (II)	Better (II)
CoOr 03151	Best (I)	Best(I)	Best (I)	Best (I)*	Best (I)
Dt. of Planting	25.01.19	01.03.19	01.03.18	07.03.19	16.01.19

* Lodged in all replications

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

Entries	Nellikuppam	Cuddalore	Vuyyuru	Anakapalle	Nayagarh
CoC 15336	Poor	Better	Better	Better	On par
CoC 15338	Better	On par	On par	On par	On par
CoV 15356	Poor	On par	Poor	Poor*	Poor
Standards					
CoA 92081	Poor (III)	Poor (III)	Poor (III)	Better (II)	Poor (III)
CoC 01061	Better (II)	Better (II)	Better (II)	Better (II)	Better (II)
CoOr 03151	Best (I)	Best (I)	Best (I)	Best (I)	Best (I)
Dt. of Planting	09.01.19	05.03.19	06.02.19	13.03.19	21.01.19

* Lodged in all replications

Table 4: Advanced Varietal Trial (Early) Ratoon

Entries	Nellikuppam	Cuddalore*	Vuyyuru*	Anakapalle*	Nayagarh*
CoC 15336	On par	This trial was Abandoned	This trial was Abandoned	This trial was Abandoned	This trial was Abandoned
CoC 15338	On par				
CoV 15356	Better				
Standards					
CoA 92081	Poor				
CoC 01061	Better				
CoOr 03151	Best				
Dt. of Ratooning	15.03.19	27.03.19	08.04.19	28.03.19	25.01.19

Table 5: Initial Varietal Trials (Midlate)

Entries	Nellikuppam	Cuddalore	Vuyyuru	Anakapalle	Nayagarh
CoA 17324	V Poor	On Par	Poor	On par	V Poor*
CoC 17337	Better	Poor	Better	Better	Poor
CoOr 17346	On par	On par	On par	On par	On par
PI 17376	Better	Better	Better	Better	Poor
PI 17377	Poor	Better	Better	On par	On par
Standards					
CoV 92102	Better (II)	Better (II)	Best (I)	Best (I)	Poor (III)
Co 86249	Good (III)	Good (III)	Better (II)	Better (II)	Best (I)

Co 06030	Best (I)	Best (I)	Good(III)	Poor (III)	Better (II)
Dt. of Planting	08.01.19	27.02.19	06-07.02.19	14.03.19	01.02.19

Table 6: Advanced Varietal Trials (Midlate) I Plant

Entries	**Nellikuppam**	**Cuddalore**	**Vuyyuru**	**Anakapalle**	**Nayagarh**
CoC 15339	On par	Better	On par	Better	Better
CoOr 15346	Poor	Better	On par	Poor	On par
CoC 16338	On par	On par	On par	On par	On par
CoC 16339	Better	On par	Better	Better	On par
CoV 16357	On par	Better	On par	On par	Poor
Standards					
CoV 92102	Better (II)	Better (II)	Poor (III)	Poor (III)	Good (III)
Co 86249	Good (III)	Good (III)	Better (II)	Best (I)	Best (I)
Co 06030	Best (I)	Best (I)	Best (I)	Better (II)	Better (II)
Dt. of Planting	25.01.19	06.03.19	07.03.19	07.03.19	18.01.19

(B) AGRONOMY AND SOIL SCIENCE (CROP PRODUCTION)

Nayagarh (Odisha)

All the allotted experiments (AS 68, AS 72, and AS 73and AS 74) were conducted successfully. The growth of the crop in respective experiments was satisfactory, and raised as per the schedule of technical programme with all the recommended package of practices of the region.

AS-68: Impact of integrated application of organics and inorganics in improving soil health and sugarcane productivity.

The ratoon of Co Or 102346 (mid late) variety was initiated on 15th of January 2019. The crop condition was very good. On the basis of visual observations and also of the interaction with the scientist concerned, it was observed that the treatments T8 (FYM at 10 t/ha + bio fertilizers+ 100 RDF) and T9 (FYM at 10 t/ha+ bio fertilizers + soil test based fertilizer application) being at par, were found best ones amongst other treatments in the test. The treatments were executed as per technical programme.

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

Early maturing varieties of AVT-II approved for East-Coast zone were planted on 05/2/2019 at 120 cm row spacing with two fertilizer levels *i.e.* 100 % and125% 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-74: Evaluation of sugarcane varieties for drought tolerance.

The trial was planted on 10-01-2019 on six recently released varieties for the zone. Among early maturing varieties, the growth of Co Or 03151 was found better whereas in mid late entries, Co Or 04152 performed better with irrigation level of 0.3 IW/CPE ratio initially. However, due to intermittent rains, the performance of irrigation regimes of 1.0 and 0.3 IW/CPE ratios became more or less similar in terms cane height. Perhaps due to these reasons no visual interaction was observed in between varieties and irrigation levels.

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

This project is primarily based on the collection of secondary data pertaining to meteorological observations of the AICRP centre, so that the impact of climate change on the productivity of sugarcane could be assessed for streamlining futuristic approach in sugarcane package of practices. During field visit and interaction with the scientist concerned it was brought to our notice that the weekly meteorological data have been collected and submitted to the PI.

(C) PLANT PATHOLOGY:

A brief summary of technical programme of Plant Pathology, 2019-20 of AICRP (Sugarcane) assigned and conduction of trails by the different centres under East Coast Zone are as follows:

Sr. No.	Experiments	Nellikuppam	Cuddalore	Vuyyuru	Anakapalle	Nayagarh*
1.	PP-14	NA	C	NA	C	NC
2.	PP14(A)	NA	C	NA	C	NC
3.	PP-17 (A)	NA	C	NA	C	NC
4.	PP-17 (B)	NA	C	NA	C	NC
5.	PP-17 (C)	NA	NA	NA	C	NC
6.	PP-17 (D)	NA	C	NA	C	NC
7.	PP-22	NA	C	NA	C	NC
8.	PP-23	NA	C	NA	C	NA
9.	PP-31	NA	NA	NA	C	NC
10.	PP-33	NA	C	NA	C	NA

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

***Withdrawal of Post of Plant Pathologist in 2018-19**

Sr. No	Name of Centre and date of visit	Experiment No.	Description	Remarks
1.	EID Parry (India) Ltd. **Nellikuppam** Distt. Cuddalore 05.12.2019	Not allotted	Visited Breeding trials	• All Assigned experiments of other discipline were well laid. • Severe infection of INB has been seen mostly in all varieties / clones. • Mild to lesser incidence of wilt & YLD has been seen in many varieties/clones. • Rust incidence was also noticed. • Suggested to take appropriate management technique to overcome INB problem.

2.	SRS (TNAU), **Cuddalore** (TN) 06.12.2019	PP14 & PP14 (A) : Identification of pathotypes & maintenance of red rot pathogen	Date of Planting : 2072.02.2019 No. of differentials : 19 Date of inoculation : 29.10.2019 Method of inoculation : Plug method Pathotypes used : *Cf 06* & *Cf 12* Observation should be taken after 60 days of inoculation Maintenance of Pathotypes is in progress	• All experiments conducted as per technical programme • Experiments were well laid • Due to heavy rain, the experimental field as well as the entire farm was filled with water Therefore, proper visit of the field was very difficult. • Incidence of red rot, YLD, wilt and Pokkah bong has been seen scanty to mild level.
		PP 17(A): Red Rot Screening	No. of genotype planted :21+2 Checks Date of Planting : 09.02.2019 Date of inoculation : 15.10.2019 (Plug method), 16.10.2019 (Cotton swab Nodal Method) Pathotype used : *Cf 0 6* & *Cf 12*	
		PP 17(B) : Smut Screening	No. of genotypes planted :21+2 Checks Date of Planting : 16.02.2019 Inoculation: Steeped in freshly prepared Smut spore suspension for ½ hour before planting. Evaluation: All varieties showed smut incidence ranging from 2.2 % (Co Or 15346) to 46.6 %(PI 17376).	
		PP 17 (D): Evaluation for YLD	No. of genotype : 20+3 checks Observation to be recorded: 8th, 10th & 12th months on natural incidence of YLD.	
		PP 22: Survey	Red rot disease was observed in CoC 24, CoV 09356, Co	

			86032 and Co 06022 ranging from 2 to 14%. Wilt disease incidence was observed in Co 86032 and CoV 09356 ranging from 3 to 10%. Co 86032, PI 1401, PI 1110, CoC 24 and CoV 09356 were observed 5 to 25% YLD Incidence. Co 86032 and CoC 25 were observed up to 12% smut incidence.	
		PP 23: Assessment of elite & ISH genotypes for Resistance to Red Rot	No. of genotypes : 27 + 1 Check Date of Planting : 09.02.2019 Pathotype used : *Cf 06* Method of Inoculation : Plug Method	
		PP 33 : Management of YLD through meristem culture	Sugarcane variety used for Meristem tip culturing : Co 86032 Medium used : As per technical programme	
3.	Sugarcane Research Station, **Vuyyuru** (AP) 08.12.2019	Not allotted	Visited Breeding trials	• All allotted experiments of other discipline were well laid. • Severe incidence of wilt, leaf spot and rust has been seen in CoA 92081 and severe leaf spot in CoC 15338. • Incidence of red rot, YLD and rust has also noticed in many genotypes and varieties. • High incidence of termite noticed in entire farm.

4.	RARS (ANGRAU), **Anakapalle** (AP) 10.12.2019	PP 14 & 14(A): Identification of pathotypes & Maintenance of red rot pathogen.	Date of planting : 20.02.2019 No. of Differential : 19 Pathotype used : *Cf 06* and six local isolates Method of inoculation : Plug method Date of inoculation : 13.09.2019 Maintenance of pathotypes is in progress	• All experiments/trials were well laid as per technical programme • Lesser to high infestation of termites has been noticed in entire farm including trials of each discipline • Low to Severe incidence of wilt has been noticed in CoV 16356. • Incidence of YLD, SCBV, wilt, Mosaic and Ring Spot has also seen /noticed form scanty to mild level.
		PP17(A):Screening for red rot	No. of genotypes planted : 21+6 check Date of planting : 21.02.2019 Date of inoculation (1) Plug method : 11.09.2019 (2) Cotton Swab) : 12.09.2019 Pathotypes used: *Cf 0 6*	
		PP17(B):Screening for Smut	No. of genotypes planted : 21+6 check Date of planting : 21.02.2019 Date of inoculation : 21.02.2019 (Steeped in freshly prepared Smut spore Suspension for ½ hour before planting Evaluation : In progress	
		PP17(C):Screening against wilt	No. of genotypes planted :21+6 check Date of planting : 21.02.2019 Date of inoculation : 21.02.2019 Inoculants used : *Fusarium sacchari*	
		PP 17(D): Evaluation for YLD	Assessment is in progress.	
		PP 22: Survey	In progress : In general the incidence of different diseases like red rot, wilt, smut, mosaic and YLD have been	

			recorded in varying intensities from various zone of AP	
		PP 23: Assessment of elite & ISH genotype against Red Rot	No. of genotype planted : 27 ISH + 3 check Date of planting : 23.02.2019 Date of inoculation : 13.09.2019 Pathotypes used: *Cf 0 6* Method of inoculation : Plug method	
		PP31:Screening, Epi& Management of Pokkah Bong	Date of planting : 23.02.2019 Genotype for Screening: 21 + 6 check. Incidence of top rot disease was recorded from 07.06.2019 followed by 10 days interval and up to 03.10.2019 No. of treatment : 4 as per technical programme Expt- In progress	
		PP33: Management of YLD through meristem culture	This experiment was well laid as per technical programme. We visited the tissue culture lab and seen the progress. It was evident that the field which was transplanted with tissue culture seedlings were almost free from the disease. However, 2% incidence was observed in the fields transplanted with tissue culture seedlings from Sugarcane cultivar *viz.,* 87 A 298.	
5.	Sugarcane Research Station (OUAT). Nayagarh (Odisha)	As per pathological technical programme, there	Visited Breeding trials	• Experiments/ trials of Breeding & Agronomy discipline were

	11.12.2019	was allotment of the trials but as told by the OIC Nayagarh that pathological discipline was with drawn		laid properly • Due to lack of water and heavy infestation of termite. • Mild to high incidence of wilt has also noticed in experiments field. • Incidence of red rot, YLD, Wilt & leaf spot and rust also seen in some cultivar from scanty to mild level in experiments field

(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. 38	E. 41	Total
1	Nellikuppam	NA	NA	NA	NA	NA	NA	0
2	Cuddalore	NA	NA	NA	NA	NA	NA	0
3	Vuyyuru	NA	NA	NA	NA	NA	NA	0
4	Anakapalle	**A/C**	**A/C**	**A/C**	**A/C**	**A/C**	**A/C**	0
5	Nayagarh	NA	NA	NA	NA	NA	NA	0

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

RARS (ANGRAU), Anakapalle (AP) Dt.10.12.2019

All the allotted experiments (E 4.1, E 28, E 30, E 34, E 38, and E 41) were conducted successfully. The growth of the crop in respective experiments was satisfactory and raised as per the schedule of technical programme with all the recommended package of practices of the region.

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

The experiment was planted in Randomized Block Design with three replications. There were 19 genotypes planted on 15.03.2019 in 6.0m X0.8 m plots.

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

As reported by the concerned scientist that she surveyed insect pests of sugarcane which will be continued during the cropping season.

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

A non-replicated field experiment was conducted in 0.02 acre area with all the recommended package of practices of the region except insecticidal applications. The experimental crop was planted on 27.04.2019. Experiments conducted nicely as per technical programme. The crop maintenance was good.

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

Rearing of host insect, *Pyrilla perpusilla for the multiplication* of *Epricania* melanoleca was under progress in laboratory.

E 38: Formulation and validation of IPM Module of sugarcane Insect-pests.

The experiment was planted in three blocks with variety Co 93A 145 at row to row spacing of 0.90 m there were three treatments; T1- IPM Module T2- Zonal recommendation T3 untreated control. Experiments conducted nicely as per technical programme. Crop maintenance was good.

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

A non-replicated field experiment was conducted in 0.25 acre area in two blocks with variety Co 93A 145 at row to row spacing of 0.90 m there were two treatments. The experimental crop was planted on 04.04.2019. Experiment conducted nicely as per technical programme. Crop maintenance was good.

Suggestions:

Based on the visit to different centres and discussion with the scientists working in AICRP (Sugarcane), the following suggestions are made for consideration-

- The centre RARS Anakapalle requested for restoration of post of Junior Scientist (Agronomy). Looking to their performance, the request may kindly be considered.
- The post of Junior Scientist (Plant Pathology) may be restored at SRS, Nayagarh for evaluation of the clones to red rot otherwise entries for IVT will not be submitted.
- Vuyyuru centre requested for enhancement in contingent amount for conduction of trials and handling of fluff supply programme.
- In some centres, growth of the standards is not appreciable due to continuous use of same seed materials. The seed materials may be treated with MHAT/Aerated Steam Therapy(AST).

The monitoring team expresses sincere thanks to all the Station In charges & their team for the facilities extended during the visit. We are also thankful to Dr. A.D. Pathak, Project Coordinator, AICRP (Sugarcane), ICAR-Indian Institute of Sugarcane Research, Lucknow for constituting the team, inspiring guidance and support.

Monitoring Report of Peninsular Zone-I
(Crop Season 2019-20)

The team constituted by project coordinator, AICRP on Sugarcane (Ref. I.No. 1211(M)/ 2019-PCS dt. 4-11-2019) executed the monitoring work of Peninsular Zone-1 centres as per the following details and schedule.

Team members	Centres	Date of visit
Team Leader Dr. S.N.Swamy Gowda Breeder & Scheme Head AICRP on Sugarcane ZARS, V.C.Farm (UAS Bengaluru) Mandya **Members** Dr. V.P.Jaiswal, Sr. Scientist (Agronomy) ICAR-IISR, Lucknow Dr. Arun Baitha Principal Scientist (Entomology) ICAR- IISR, Lucknow Dr. Ramesh Sunder, Principal Scientist (Pathology), ICAR-SBI, Coimbatore **Facilitator** Dr. Lalan Sharma Scientist(Pathology) Coordination Unit(S) ICAR- IISR, Lucknow	Agricultural Research Station, Perumalapalle, Tirupathi	27-11-2019
	Parry Sugarcane Research & Development Centre, E.I.D. Parry (India)Ltd., Pugalur, Tamil Nadu	29-11-2019
	ICAR- Sugarcane Breeding Institute-Coimbatore	30-11-2019
	Sugarcane Research Station, Kallungal,Thiruvalla Kerala	01-12-2019
	Zonal Agriculture Research Station, V.C.Farm, Mandya, Karnataka	03-12-2019
	S. Nijalingappa Sugar Institute, Belagavi	04-12-2019
	Agricultural Research Station, Sankeshwar,Belagam District	05-12-2019
	K.J. Somaiya Institute of Applied Agricultural Research, Sameerwadi, Bagalkot Distt.	06-12-2019
	Regional Sugarcane & Jaggery Research Station. Opp Shri Shahu Market Yard, Kolhapur	07-12-2019

CROP IMPROVEMENT

The detailed report of Crop Improvement Technical Programme (2019-20) implemented by the centres of Peninsular Zone-1 as per format circulated by P.I(Crop Improvement) and Director, SBI, Coimbatore is as fallows.

Peninsular Zone- 1

1. **Overall grading of trial**

Trials/ Centres	IVT	AVT- I PC	AVT- II PC	AVT- Ratoon	Multiplication of IVT Entries
Perumalapalle	Good	Excellent	Excellent	Average	Sufficiently multiplied
Pugalur	Excellent	Good	NC	NC	Sufficiently multiplied
Coimbatore	Excellent	Excellent	Excellent	Good	Sufficiently multiplied
Thiruvalla	Good	Excellent	Excellent	Average	Sufficiently multiplied
Mandya	Excellent	Excellent	Excellent	Good	Sufficiently multiplied
Sankeshwar	Excellent	Excellent	Excellent	Good	Sufficiently multiplied
Sameerwadi	Excellent	Excellent	Excellent	Good	Sufficiently multiplied
Kolhapur	Average	Good	Average	Poor	Sufficiently multiplied

NC= Not conducted
Belagaum centre sufficiently multiplied the entries of IVT & AVT-I PC
Pugalur centre not conducted the AVT II PC and AVT Ratoon due to continuous drought.

Rating 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

1. **Evaluation of entries in trials**

Performance of entries in IVT

Entries	Perumalapalle	Pugalur	Coimbatore	Thiruvalla	Mandya	Sankeshwar	Sameerwadi	Kolhapur
Co 16006	Better	Better	Average	Better	Better	On par	Better	Average
Co 11015	Better	Better	Better	On par	Better	Better	Better	Better
Co 16009	On par	On par	On par	On par	On par	On par	Better	Better
Co 16010	Better	On par	On par	On par	On par	On par	On par	On par
Co 16017	Better	Better	Better	Better	Better	Better	Better	Better
Co 16018	On par	Better	On par	On par	Better	Better	Average	On par
CoVC 16061	Poor	Poor	Poor	Better	Average	Average	Poor	Average
CoVC 16062	Better	On par	Better	Better	Better	Better	Better	Average
CoN 16071	Better	Better	Better	Better	Better	Better	Better	Average
CoM 16081	Poor	Poor	Better	On par	Better	On par	Better	Better
CoM 16082	Better	On par	On par	On par	Better	Better	Better	Better
CoVSI 16121	Poor	Better	Better	Better	Poor	Average	Better	Average
PI 16131	Poor	Average	Better	Poor	Poor	Better	Better	Better
CoR 16141	Better	Better	Better	Better	Better	On par	Better	Average

CoR 16142	On par	On par	Average	On par	Better	Better	On par	Average
Standards								
Co 86032	-	Best	-	-	Best	Best	-	-
CoC 671	Best	-	-	Best	-	-	-	-
Co 09004	-	-	Best	-	-	-	Best	Best

Perumalapalle : Co 16009 and CoN 16071 showing smut incidence, CoR 16142 shown rust incidence CoVC 16061 and CoVSI 16121 shown YLD.

Pugalur : CoVC 16061, CoVC 16062 and PI 16141 Showed YLD.

Coimbatore : CoR 16142 shown rust incidence and CoVC 16061 shown YLD incidence

Thiruvalla : Most of the entries are lodged due to flooding, aerial rooting observed in most of the entries

Mandya : Co 16010 shown GSD, CoVC 16061, Covc 16062, CoN 16071 and PI 16131 showed leaf Spot and YLD incidence.

Sankeshwar : Leaf spot & YLD observed in CoVC 16061 and CoVC 16062. Rust was observed in CoR 16142. CoSnk 13101 shown GSD and Majority of the entries infected with Woolly aphid

Sameerwadi : Smut observed in Co 16009 and YLD observed in CoVC 16061 & CoVC 16062.

Kolhapur : Crop stand was Average to poor in almost all the entries. Majority of the entries are lodged & found aerial roots due to submergence of water upto 15 days

2. Evaluation of entries in trials

Performance of entries in AVT- I Plant

Entries	**Perumal apalle**	**Pugalur**	**Coimb atore**	**Thiruv alla**	**Mandy a**	**Sankesh war**	**Sameer wadi**	**Kolhap ur**
Co 14002	Average	Better	Better	Better	Better	Better	Better	Better
Co 14004	Better	Better	On par	On par	On par	On par	Better	On par
Co 14012	Average	Average	On par	On par	Average	On par	Better	Better
Co 14016	On par	On par	On par	Better	Better	On par	On par	Average
Co 14027	Better	Better	Better	Better	Better	Better	Better	Better
Co 14030	On par	On par	Better	On par	Better	Better	Better	Better
Co 14032	Better	Better	Better	Better	Average	Average	Better	Better
CoN 14073	Average	Better	Better	On par	On par	On par	On par	On par
CoSnk 14102	Average	Better	Better	Better	On par	On par	On par	Better
CoSnk 14103	Average	Better	Better	Better	Better	Better	Average	Average
CoT 14367	Better	Poor	Better	Better	Average	Better	Better	Average
CoTl 14111	Better	Average	Better	Better	Better	Better	Better	Better
CoVC 14062	On par	Average	On par	Better	On par	On par	On par	Better
MS 14081	Better	Average	Better	Better	Better	Better	Better	Average
MS 14082	On par	Better	On par	On par	On par	Better	On par	Average
Standards								
Co 86032	Best	-	Best	-	Best	Best	Best	Best
CoC 671	-	Best	-	Best	-	-	-	-
CoSnk 05103	-	-		-	-	-	-	-

Perumalapalle : YLD incidence observed in Co 14002 and MS 14081, Smut was noticed in CoSnk 05103.

Pugalur : Incidence of YLD was observed in Co 14012, CoT 14367, CoTl 14111 and CoVC 14062, Smut incidence observed in Co 14012, MS 14081 & MS 14082.

Mandya : YLD incidence observed in Co 14002, Co 14027, Co 14032 & CoTl 14111.

Sankeshwar : YLD noticed in MS 14082. CoSnk 13101 shown GSD and Majority of the entries infected with Woolly aphid.

Sameerwadi : YLD incidence noticed in Co 14012 & Co 14027.

3. Evaluation of entries in trials

Performance of entries in AVT- II Plant

Entries	Perumalapalle	Coimbatore	Thiruvalla	Mandya	Sankeshwar	Sameerwadi	Kolhapur
Co 13002	Better	On par	Better	Average	Better	Average	Average
Co 13003	Better	On par	On par	Better	On par	Better	Better
Co 13004	Better	On par	Better	Better	On par	Better	Better
CoN 13072	On par	Better	On par	Better	On par	On par	Better
CoSnk 13101	Better	Better	Better	Average	Better	Better	Average
MS 13081	On par	Better	Average	Better	On par	Better	Better
Co 13006	Better	Better	Better	Better	Better	On par	On par
Co 13008	Average	On par	On par	On par	Better	Better	On par
Co 13009	Better	Better	On par	Better	Better	On par	Better
Co 13013	On par	Better	Better	Better	Better	Better	Better
Co 13014	On par	On par	Better	Better	On par	On par	On par
Co 13018	Better	On par	On par	On par	Better	Better	Better
Co 13020	Average	Average	Better	Better	On par	Average	Average
CoN 13073	On par	Better	On par	On par	Better	On par	Poor
CoSnk 13103	Average	Better	On par	Average	Better	Better	Better
CoSnk 13106	Better	On par	On par	Better	On par	Better	Better
PI 13132	Better	Better	Better	Better	Better	On par	Poor
Standards							
Co 86032	Best	-	-	Best	Best	Best	-
CoC 671	-	Best	-	-	-	-	-
CoSnk 05103	-	-	Best	-	-	-	Best

Perumalapalle : YLD incidence observed in the entries of CoSnk 13101 & CoSnk 13103.

Thiruvalla : Most of the entries tend to lodging due to water flooding/ submergence

Mandya : CoSnk 13101, Co 13006, Co 13008, CoSnk 13103 & CoSnk 13106 shown YLD and Co 13008 & Co 13020 shown Brown spot.

Sankeshwar : CoSnk 13101 shown GSD and Majority of the entries infected with Woolly aphid.

Sameerwadi : CoSnk 13103 shown YLD and PI 13132 shown rust.

Kolhapur : CoSnk 13103 showed YLD. Crop stand was Average/poor due to submergence of water for 15 days

4. Evaluation of entries in trials

Performance of entries in AVT- Ratoon

Entries	Perumal apalle	Coimba tore	Thiruval la	Mandya	Sankesh war	Sameer wadi	Kolhapur
Co 13002	Better	Better	Better	Average	Better	Better	Average
Co 13003	Poor	Average	Average	Average	Better	Better	Better
Co 13004	Better	Better	Average	Better	Better	Better	Poor
CoN 13072	Better	Better	Better	Average	On par	On par	Better
CoSnk 13101	Poor	Average	Average	Poor	On par	Better	Poor
MS 13081	Average	On par	Better	Better	Better	On par	Average
Co 13006	On par	On par	Better	Better	Average	Better	Better
Co 13008	Better	On par	Average	Average	On par	Better	Better
Co 13009	Better	Better	Better	Better	Better	Average	Better
Co 13013	Better	Average	Better	Better	Better	Better	Better
Co 13014	Average	Better	Better	On par	On par	On par	Better
Co 13018	Average	Average	Better	On par	On par	Better	Average
Co 13020	Average	Better	Average	Average	Better	Average	Average
CoN 13073	Average	Average	Average	On par	On par	Better	Average
CoSnk 13103	Poor	Average	Better	Poor	Better	Better	Average
CoSnk 13106	Better	Average	Average	Average	Better	Average	Poor
PI 13132	Poor	Average	Average	Better	Better	On par	Poor
Standards							
Co 86032	-	-	-	Best	Best	Best	-
CoC 671	-	-	-	-	-	-	-
CoSnk 05103	Best	Best	Best	-	-	-	Best

Perumalapalle **:** YLD incidence observed in Co 13003, Co 13009, Co 13020, CoSnk 13103 & Co 86032. The trial was average because of water stress. Poor crop stand observed in the entries of Co 13003, CoSnk 13101, CoSnk 13103 and PI 13132.

Coimbatore **:** Smut was observed in PI 13132 & Co 13013.
Co 13020, CoSnk 13106 & PI 13132 are found lodging.

Thiruvalla **:** Most of the entries were found to be lodging due to flooding/ submergence with water.

Mandya **:** YLD incidence noticed in the entries of Co 13002, Co 13003, Co 13004, CoSnk 13101 CoSnk 13103 & CoSnk 13106

Sankeshwar **:** YLD was noticed in CoSnk 13103 and Majority of the entries infected with Woolly aphid.

Kolhapur **:** Crop stand was Average/poor due to submergence of water for 15 days. Poor crop stand observed in the entries of Co 13004, CoSnk 13101, CoSnk 13106 & PI 13132.

CROP PRODUCTION

The committee visited eight centres of Peninsular Zone-I of All India Coordinated Research Project on Sugarcane *viz*., **Perumallapalle, Pugulur, Coimbatore, Thiruvalla, Mandya, Sankeshwar, Sameerwadi** and **Kolhapur** from **27.11.2019 to 07.12.2019**. As per the technical programme of year 2019-20 following Crop Production experiments were finalized for multi-location trials under AICRP (Sugarcane) programme:

1. **AS-68**. Impact of integrated application of organics and in organics in improving soil health and sugarcane productivity.
2. **AS-72**. Agronomic performance of elite sugarcane genotypes.
3. **AS-73:** Assessment of climate change impact on sugarcane productivity
4. **AS-74**: Evaluation of sugarcane varieties for drought tolerance.

Overall Grading of Trials:

Centers	**Trails**			
	AS-68	**AS-72**	**AS-73**	**AS-74**
Perumallapalle *(Voluntary centre)*	NC	NC	NC	NC
Pugulur *(Voluntary centre)*	NC	NC	NC	NC
Coimbatore *(Regular centre)*	NC	Excellent	NC	NC
Thiruvalla *(Regular centre)*	NC	NC	NC	NC
Mandya *(Regular centre)*	NC	NC	NC	NC
Sankeshwar *(Regular centre)*	Excellent	Excellent	Very Good	Excellent
Sameerwadi *(Voluntary centre)*	NC	NC	NC	NC
Kolhapur *(Regular centre)*	Very Good	Very Good	Very Good	NC

(Rating scales)
1. Excellent 2. Very good 3. Good 4. Average 5. Poor
NC: Not conducted

Salient highlights.

1. **AS 68. Impact of integrated application of organics and inorganic in improving soil**
   health and sugarcane productivity

The experiment was conducted by Sankeshwar and Kolhapur centres as per approved technical programme with objective to develop nutrient management strategy for sustaining soil health and sugarcane production. Sankeshwar centre allocated the treatments on second

ratoon crop while, Kolhapur centre has initiated this programme this year with plant crop. Proper agronomic management related to weed management and earthing up were done as per schedule of the experiment. Plant health standard was satisfactory. Sanitation and labeling in the experimental plots were proper done at Sankeshwar centre. Coimbatore centre has not conducted this trial due to scarcity of land. The trial was assigned to other centres like Thiruvalla and Mandya but could not conducted due withdrawal of the agronomist post. The voluntary centre has not taken up this experiment due to lack of resources.

2. **AS 72. Agronomic performance of elite sugarcane genotypes**

The experiments were assigned to all the participating centres but conducted by only three regular centres viz., Coimbatore, Sankeshwar and Kolhapur with the objective to assess the agronomic performance of sugarcane genotypes of Advance Varietal Trials (AVT). Different genotypes were planted along with standard local checks. Coimbatore centre has conducted this trail with three fertility levels and two replications instead of three due to scarcity of land. Sankeshwar and Kolhapur centre has executed this trail as per approved technical programme with three replications although crop is in maturing phase with good condition free from weeds, disease and pest. Performance of crop was very good at Sankeshwar centre. Kolhapur centre received heavy rain during month of August and due to 15 days water logging condition affected crop growth adversely. Other five participating centres have not been conducted trial this year.

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

The experiments were assigned to all centres where post of agronomist has been provided as well as voluntary centres with objective to assess long term variability in weather parameter and the change of sugarcane productions, but the experiment was taken up only by two centres Sankeshwar and Kolhapur and both centres will send their required weather data by the end of January 2020. No information has been provided by other six centres regarding progress made for collection of weather data.

4. **AS-74**: **Evaluation of sugarcane varieties for drought tolerance.**

The experiment was conducted by Sankeshwar centre with objective to identification of drought tolerant varieties suitable for specific climatic condition as per approved technical programme. Proper agronomic management like weed management and earthing etc. were followed. Health vigour of plants was found satisfactory. Heavy rain received during the month of July, did not affect the crop growth under two irrigation regimes. Sanitation and labeling in the experimental plots were properly done. Crop has been reached at its maturity stage. Other centres of Peninsular zone -1 have not conducted this trial.

CROP PROTECTION (ENTOMOLOGY)

The committee visited nine centers of Peninsular Zone-I of All India Coordinated Research Project on Sugarcane *viz*., **Perumallapalle, Pugulur, Coimbatore, Thiruvalla, Mandya, Belagavi, Sankeshwar, Sameerwadi** and **Kolhapur** from **27.11.2019 to 07.12.2019**. As per the technical programme of year 2019-20 following Entomology trials were finalized for multi-location 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.38**: Formulation and validation of IPM Module of sugarcane insect-pests.

Overall Grading of Trials:

Centers	Trials				
	E 4.1	**E.28**	**E.30**	**E.34**	**E.34**
Perumallapalle *(Voluntary centre)*	NA	NA	NA	NA	NA
Pugulur *(Voluntary centre)*	NA	NA	NA	NA	NA
Coimbatore *(Regular centre)*	Very Good	Very Good	Very Good	Excellent	NA
Thiruvalla *(Regular centre)*	NA	NA	NA	NA	NA
Mandya *(Regular centre)*	Very Good	Very Good	Very Good	NC	Very Good
Belagavi (*Voluntary centre)*	NA	NA	NA	NA	NA
Sankeshwar *(Regular centre)*	NA	NA	NA	NA	NA
Sameerwadi *(Voluntary centre)*	NA	NA	NA	NA	NA
Kolhapur *(Regular centre)*	NA	NA	NA	NA	NA

(Rating scales)
1. Excellent 2. Very good 3. Good 4. Average 5. Poor
NC: Not conducted; NA: Not allotted

Specific Observations:

- At Perumallapalle, the incidence of scale insect, web mite and white fly was observed in few entries.
- The fungus *Beauveria brongniartii* and *Metarhizium anisopliae* are being mass multiplied at SBI Coimbatore.
- The incidence of internode borer (traces) was noticed at Pugulur, Coimbatore, Thiruvalla, Mandya and Belagavi in few entries.
- At Sankeshwar the incidence of sugarcane woolly aphid and white fly was observed in CoVSI 16212, Co 14004, CoC 671 and Co 13009.

CROP PROTECTION (PLANT PATHOLOGY)

Technical Programme (2019-20):

1. **PP 14:** Identification of pathotypes of red rot pathogen
2. **PP 17A**: Evaluation of zonal varieties for resistance to red rot
3. **PP 17B**: Evaluation of zonal varieties for resistance to smut
4. **PP 17C**: Evaluation of zonal varieties for resistance to wilt
5. **PP 17D**: Evaluation of zonal varieties for resistance to yellow leaf disease (YLD)
6. **PP 22**: Survey of sugarcane diseases naturally occurring in the mill area on important sugarcane varieties
7. **PP 23**: Assessment of elite and ISH genotypes for resistance to red rot

8. **PP 28(b):** Methodology for screening sugarcane genotypes for resistance to brown rust *(P. melanocephala)*
9. **PP 31:** Screening, epidemiology and management of *pokkah boeng* in sugarcane
10. **PP 33:** Management of yellow leaf disease through meristem culture

Project allotted v/s conducted at different centers of zone

Sr. No.	Centre	PP 14	PP 17A	PP 17B	PP 17C	PP 17D	PP 22	PP 23	PP 28b	PP 31	PP 33
1.	**Perumallapalle**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3.	**Pugalur**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2.	**Coimbatore**	A/C	A/C	A/C	NA	A/C	A/C	NA	NA	NA	A/C
4.	**Thiruvalla**	A/C	A/C	NA	NA	NA	A/C	NA	NA	NA	NA
5.	**Mandya**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6	**Sameerwadi**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7	**Sankeshwar**	NA	NA	A/C	NA	NA	NA	NA	NA	NA	NA
8	**Kolhapur**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

A/C = Allotted and Conducted; **A/NC =** Allotted and Not Conducted; **NA =** Not Allotted

Overall rating of the pathology trials in each center of PZ-I (2019-20)									
Sl.N.	**Trial**	**Perumallapalle**	**Pugalur**	**Coimbatore**	**Thiruvalla**	**Mandya**	**Sankeshwar**	**Sameerwadi**	**Kolhapur**
1	**PP 14: PP 14A**	-	-	V. Good	Good	-	-	-	-
2	**PP 17(A):**	-	-	Excellent	Good	-	-	-	-
3	**PP 17(B):**	-	-	Excellent	Not conducted	-	V. Good	-	NA
4	**PP 17 (D),**	-	-	V. Good	NA	-	NA	-	NA
5	**PP 22:**	-	-	Excellent	V. Good	-	NA	-	NA
6	**PP 28(B):**	-	-	-	-	-	NA	-	NA
7	**PP 31:**	_	-	_	_	_	-	_	-
8	**PP 32**	_	-	_	_	_	NA	_	NA
9	**PP 33:**			V. Good	-		-	-	-

Detail report of plant pathology trials 2019-20 of Peninsular zone I

ARS,Perumallapalle

Thecentre was not assigned any trial of AICRP on Sugarcane under Plant Pathology discipline. However, during field observations natural incidence of few foliar diseases were noticed. Yellow Lead Disease was observed in most of the clones and there was an overall

sick crop throughout the trails. Besides that, minor incidence of rust, smut, mosaicand *pokkah* boeng diseases were observed in breeding and station trials. Severe smut was observed in the variety CoA92081(Viswamithra) and moderate levels of smut was observed in the IVT clones - CoN 16071, Co 16009, Co 16017 and AVT clones–Co 14027, Co 14032, MS 14081and CoSnk 14-103. Incidence of YLD was observed in IVT clones - VSI 16-121, CoVc 16061, Co Vc 16062, PI 16-131 and AVT clones - Co Snk 14-102, Co 13009, etc. *Pokkah*boeng was observed in IVT clones - CoM 16082, Co CoM 16081 and AVT clones–Co 14004, Co 14032, Co VC 14062, Co 13004, MS 13081, Co 13008 and Co 13009.Wilt was observed in Co 16071, and Severe Rust was observed in CoR 16142.

Parry R&D, EID Parry, Pugalur:

The volunteer R&D Centre, EID Parry was not allotted any trial of AICRP on sugarcane under Plant Pathology for the current period. However, natural incidence of diseases was observed in the IVT Breeding trial and no AVT trial was taken up at the centre. *Pokkah*boeng was noticed in CoM 16082, Co 16018, CoVC-16062, Co 16009, Co 14004; YLD in Co Snk 14103, Co 14032, Co 14002, Co 14012, CoVC 14062, CoVC 16061, PI 16131, VSI 16121,; Severe smut in MS 14082, MS 14081 and MS 16081; moderate smut in Co 14012; Rust in CoR 16142. The growth and vigour of Co 11015 is comparable to Co 86032, the reference standard.

SBI, Coimbatore

Six trials as indicated in the table *viz.*, PP 14, 14A,PP 17A, PP 17 B, PP 17 C, PP 22 and PP 33 were allotted to this centre and all trials were conducted.

PP 14: Identification of pathotypes of red rot pathogen

Totally nineteen sugarcane differentials viz. *Baragua*, *khakai,* SES 594,CoS 767, BO 91, CoC 671,Co7717, Co 997, CoJ 64, Co 1148, Co 419, Co 62399, Co 975, CoS 8436, Co 7805, Co 86002, Co 86032, CoV 92102 , 19. CoSe 95422 were planted for identification of pathotypes/races in red rot pathogens. Inoculations of two designated (Cf 06 and Cf 12) plus 8 isolates of red rot was undertaken by this center by plug method during third week of September and evaluation was scheduled for the I week of December.

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

All the IVT& AVT (early, mid late) zonal varieties (21 clones) along with standards were planted (one row per clone during February2019 for evaluation against red rot. Inoculation was undertaken during third week of August by plug and cotton swab methods by CF 06 and CF 12. Only inoculated canes exhibited red rot symptoms and no disease symptoms were observed under natural conditions. Evaluation of the test clones for red resistance was undertaken during the last week of October.

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

All Fifteen IVT (early, midlate) and AVT zonal varieties along with standards were also planted (one row per clone) in two replications during February 2019 for evaluation against smut. Inoculations were done at the time of planting. The method of inoculation involves steeping of two budded setts in freshly prepared smut spore suspension (> 90% spore viability and with a spore load of 10^6 spores per ml) for thirty minutes during planting time by the centre. Smut symptoms are being observed on the standards along with the susceptible (Co 96007 and Co 97009) and resistant (Co 6806) genotypes at fortnightly intervals.

PP 17(D): **Evaluation of zonal varieties for resistance to yellow leaf disease (YLD)**

All Fifteen IVT (early, midlate) and AVT zonal varieties along with respective standards were also planted (four rows three meter each) for evaluation against YLD. YLD was observed in Co N 16071, Co VSI 16121, etc. entries.

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

Periodical Survey and surveillance for sugarcane diseases naturally occurring in the region is being undertaken on a regular basis. Almost entire Tamil Nadu state was covered under a detailed survey program representing various agro-climatic regions of the state. Survey for natural occurrence of diseases in the Breeding trials indicated that the crop season 2019-20 was favourable for sugarcane and the crop was free from any major diseases in the trials. In the initial period, *Pokkah* boeng was observed in a few plants and GSD was also observed in 3-4 entries. Smut whip was observed in 2 entries. Brown rust was observed in traces on a few entries. Pre- wilting symptoms were observed on few entries, but there was no wilt in later stage. Overall the crop growth was very good due to timely rainfall and favourable weather conditions.

PP 33: Management of yellow leaf disease through meristem culture

Varieties viz. Co 11015, Co 0238, Co 860032, CoC 671 and Co 99004 (tissue culture derived material) was planted for management of yellow leaf disease through meristem culture in 25 rows of three meter. Apparently Healthy planting materials of the same set of varieties were planted and observed for the occurrence of YLD symptoms on comparison with that of the TC-derived planting materials. A clear distinction could be observed on the impact of YLD infection in the field between use of virus-free seed materials and apparently healthy planting material in the conducted trial.

SRS, **Thiruvalla:**

Three trials (PP 14, PP 17(A) and PP 22) were allotted to this center. All the three trials viz. PP 14, PP 17(A) and PP 22 were conducted as per approved technical programme. The smut experiment PP 17(B) was not conducted and it is observed that it is not allotted for the period under report. General growth and maintenance of the trials was average, as heavy rains received during the monsoon followed by severe flood has resulted in lodging and emergence of secondary shoots and aerial roots. Creeper weeds were found to phanerogamically parasitize the overgrown and lodged canes throughout the field.

PP 14: Identification of pathotypes of red rot pathogen

The trial was laid out with nineteen sugarcane differentials (*Baragua*, *khakai,* SES 594,CoS 767, BO 91, CoC 671,Co7717, Co 997, CoJ 64, Co 1148, Co 419, Co 62399, Co 975, CoS 8436, Co 7805, Co 86002, Co 86032, CoV 92102 , 19. CoSe 95422), which were planted in two rows during February, 2019 for identification of pathotypes in red rot pathogens.Red rot pathogen challenge was performed using 10 different pathotypes, collected from ICAR-SBI, Coimbatore by plug method. Results indicated that the susceptible check CoC 671 has exhibited a clear distinction in terms of differential reaction to the different test pathotypes used in the experiment.

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

The experiment was planted in February 2019, with the IVT (15+3), AVT I PC (15+3) and AVT II PC (17+3) clones along with three standards for reference. Inoculations was done using Cf 06 by plug and cotton swab methods along with the Cf12 in third week of

September due to flood situation of the center. Development of red rot on inoculated standards was observed in the test clones, which establishes the virulence of the pathotypes (Cf 06 and Cf 12), used for evaluation. The final evaluation of the clones for red rot resistance was due by the I week of December 2019.

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

Periodical survey for diseases in Sugarcane cultivated in parts of Kerala like Chittoor and Marayur was undertaken by the center. The overall scenario indicated observation of diseases like Pokkahboeng, rust, YLD, mosaic and brown spot diseases. The foliar diseases and more precisely the leaf spot incidence were the major disease observed during the surveys conducted under naturally occurring conditions.

In the IVT and AVT trials conducted in the center, Brown spot, ring spot, rust, mosaic, pokkahboeng and YLD diseases were observed in most of the plant and ratoon entries.

ZARS, Mandya:

The ZARS Mandya centre was not assigned with any trial of AICRP on sugarcane under Plant Pathology discipline. The current season received copious rains and the overall crop stand is very good. Incidence of ring spot, GSD, mosaic, rust and Yellow Leaf diseases were observed in most of the IVT and AVT early & mid-late entries. Foliar diseases namely Leaf spot, YLD, GSD and *Pokkah* boeng were observed in most of the genotypes in the trial plots.

NSI, Belagavi:

Seed multiplication was conducted in this centre for undertaking the AICRP trials in the next year. The crop was maintained well and the overall crop was found to be with luxuriant growth, as the region received good rainfall during the cropping season. There was an overall profuse flowering observed in the fields. Natural incidence of YLD and GSD was observed along with severe leaf spot incidence in few of the clones.

ARS, Sankeshwar:

Only one trial (PP 17 (B) was allotted to this centre this season and the trial was conducted as per approved technical programme. General growth and maintenance of trials was very good. Periodical smut whip count is being undertaken at the centre and cumulative disease score is recorded as part of evaluation of the AICRP clones for smut resistance program (PP-17B). Natural incidence of diseases namely *Pokkah* boeng, YLD, GSD, Brown Leaf spots, etc was observed in the Breeding trial experiments. By and large severe *Pokkah* boeng (on recovery stage) and GSD incidence was noticed in many entries.

KIAAR, Sameerwadi:

In this centre, no pathology experiments were allotted for the period under report. Natural incidence of diseases was observed in the breeding trials. Moderate incidence of YLD, *Pokkah* boeng, GSD, mosaic, rust and other foliar disease viz. Leaf spots were observed in all most all entries in plant breeding trials. Use of Healthy seed nursery program was advocated using the Aerated steam therapy facility available with the centre for successfully managing the severe GSD prevailing in the trial plots.

RS & JRS, Kolhapur:

No pathology trial was conducted by this center as the post of Plant Pathologist was withdrawn from the centre. All the Breeding trials were conducted as per the Technical program and the crop condition is in the recovery stage from the recent heavy floods at this

center. An overall observation in the trial plots for natural incidence of diseases indicated moderate levels of YLD, GSD, Leaf spots and few incidences of rust symptoms in selected clones. However, wilt incidence was observed in many entry clones, which might have been pre-disposed to wilt due to prolonged water logging during the recent heavy rains and flood like situation.

Concluding Remarks:

Over all the trials conducted across 8 centres of Peninsular Zone- 1 were good to excellent. The ratoon trails at Kolhapur, Thiruvalla and Perumalapalle was Poor to Average due to submergence with water and moisture stress respectively. The trials across the centres are conducted as per the guidelines of AICRP on Sugarcane.

All the centres cooperated and facilitated for smooth conduct of Monitoring work for which the team is very much thankful and their help during the visit is gratefully acknowledged.

Monitoring Report of Peninsular Zone-II
(Crop Season 2019-20)

Monitoring team for Peninsular Zone II was constituted by Dr. A.D. Pathak, Director, ICAR-IISR, Lucknow and Project Coordinator, AICRP on Sugarcane for assessment of performance of the AICRP trials at regular as well as voluntary centers with the following scientists.

1. Leader **:**Dr. P. Govindaraj, Principal Scientist (Plant Breeding), ICAR-Sugarcane Breeding Institute, Coimbatore (Tamil Nadu)
2. Member **:**Dr. S.B Deshmukh, Assistant Agronomist, Regional Sugarcane and Jaggery Research Station, Kolhapur (Maharashtra)
3. Member **:**Shri. R.G.Yadav, Scientific Officer (Entomology), Vasantdada Sugar Institute, Pune (MS)
4. Member **:** Dr. V. Ravichandran, Assistant Professor (Pathology), Sugarcane Research Station (TNAU), Cuddalore

All the members of the team except Dr. S.B. Deshmukh assembled at Hyderabad on 05.12.19 and Dr. S.B. Deshmukh joined the team during the visit to VSI, Pune. The team visited the Regional Sugarcane and Rice Research Station, Rudrur (on 06.12.19), Central Sugarcane Research Station, Padegaon (on 09.12.19), Vasantdada Sugar Institute, Pune (on 10.12.19), Padmashri Dr. Vitthalrao VikhePatil Sahakari Sakhar Karhana Ltd., Pravaranager (on 11.12.19), Main Sugarcane Research Station, ZARS, Powerkheda (on 12.12.19), Sugarcane Research Centre, Akola (on 14.12.19) and Sugarcane research station, Navsari (on 16.12.19). Observations recorded during the visit to different AICRP(S) centres and recommendations are reported here.

Monitoring team report on Crop Improvement

Four Zonal Varietal Trials were allotted to all the seven participating centres of Peninsular Zone II. The trials were assessed and rated based on overall conduct of the trial, compliance with the technical programme, crop stand and maintenance of the trials (Table 1). Each entry in the trial was compared with the best standard of the trial for field stand and performances of the entries are presented in Table 2-5.

Table 1. Rating of centres:

S.No	Entries	Rudrur	Padegaon	Pune	Pravaranagar	Powerkheda	Akola	Navsari
1	**IVT**	Good	**Excellent**	**Excellent**	Average	Average	NC	**Excellent**
2	**AVT I Plant**	Good	**Excellent**	**Excellent**	**Excellent**	Good	Conducted at Tharsa	**Excellent**
3	**AVT II Plant**	Average	Good	**Excellent**	**Excellent**	Good	NC	**Excellent**
4	**AVT Ratoon**	Poor	Good	Average	Average	Poor	Poor	Good
	Remarks	Early drought, no second earthingup and late heavy rain affected the trials	Good crop stand. Detrashing was not done	Good crop stand.	Early drought and less irrigation affected the performance of the entries	Wild boar damage affected all the trials. The trials may be shifted to a new place for logical conductance of trials	Late ratooning resulted in poor crop stand. Now all the trials are shifted to Tharsa.	Good crop stand. Heavy flowering in many entries.

Table 2. INITIAL VARIETAL TRIAL

	Entries	Rudrur	Padegaon	Pune	Pravaranagar	Powerkheda	Akola	Navsari
1	Co 11015	**OP**	**OP**	**OP**	**P**	**P**		**B**
2	Co 16006	**OP**	**OP**	**OP**	**OP**	**B**		**OP**
3	Co 16009	**B**	**OP**	**B**	**OP**	**P**		**OP**
4	Co 16010	**P**	**OP**	**P**	**P**	**P**		**OP**
5	Co 16017	**B**	**OP**	**OP**	**OP**	**B**		**OP**
6	Co 16018	**OP**	**OP**	**B**	**OP**	**OP**		**P***
7	CoVC 16061	**P**	**P**	**P**	**P**	**OP**		**P**
8	CoVC 16062	**B**	**B**	**B**	**OP**	**OP**		**B**
9	CoN 16071	**P**	**OP**	**OP**	**P**	**P**		**OP**
10	CoM 16081	**B**	**B**	**B**	**B**	**B**		**B**
11	CoM 16082	**B**	**B**	**B**	**OP**	**P**		**B**
12	CoVSI 16121	**OP**	**P**	**P**	**P**	**P**		**P**
13	PI 16131	**OP**	**P**	**OP**	**P**	**P**		**P**
14	CoR 16141	**B**	**B**	**OP**	**OP**	**B**		**B**
15	CoR 16142	**OP**	**OP**	**OP**	**OP**	**B**		**B**
Standards								
1	Co 86032			**Best**	**Best**	**Best**		**Best**
2	CoC 671							
3	Co 09004	**Best**	**Best**					

*** Wilt**

Table 3. ADVANCED VARIETAL TRIAL – I Plant

	Entries	Rudrur	Padegaon	Pune	Pravaranagar	Powerkheda	Akola	Navsari
1	Co 14002	**OP**	**B**	**OP**	**OP**	**B**		**B**
2	Co 14004	**OP**	**OP**	**OP**	**P**	**No cane**		**OP**
3	Co 14012	**OP**	**P**	**OP**	**OP**	**B**		**OP**
4	Co 14016	**B**	**B**	**B**	**OP**	**B**		**B**
5	Co 14027	**OP**	**P**	**P**	**OP**	**P**		**OP**
6	Co 14030	**B**	**OP**	**P**	**P**	**No Cane**		**P**
7	Co 14032	**OP**	**OP**	**P**	**P**	**B**		**P**
8	CoN 14073	**B**	**B**	**B**	**OP**	**B**		**B**
9	CoSnk 14102	**B**	**B**	**OP**	**B**	**B**		**OP**
10	CoSnk 14103	**B**	**OP**	**P**	**P**	**No Cane**		**P**
11	CoT 14367	**P**	**P**	**P**	**P**	**OP**		**OP**
12	CoTl 14111	**B**	**OP**	**OP**	**OP**	**B**		**OP**
13	CoVC 14062	**B**	**OP**	**OP**	**P**	**OP**		**OP**
14	MS 14081	**B**	**B**	**OP**	**OP**	**OP**		**OP**
15	MS 14082	**B**	**B**	**OP**	**B**	**B**		**B**
Standards								
1	Co 86032	**Best**	**Best**	**Best**	**Best**			**Best**
2	CoC 671							
3	CoSnk 05103					**Best**		

Table 4. ADVANCED VARIETAL TRIAL – II Plant

	Entries	Rudrur	Padegaon	Pune	Pravaranagar	Powerkheda	Akola	Navsari
1	Co 13002	**OP**	**P**	**P**	**P**	**OP**		**P**
2	Co 13003	**OP**	**B**	**B**	**B**	**Wild Boar**		**OP**
3	Co 13004	**B**	**OP**	**OP**	**OP**	**B**		**B**
4	Co 13006	**P***	**B**	**OP**	**B**	**B**		**B**
5	Co 13008	**B**	**B**	**B**	**B**	**B**		**B**
6	Co 13009	**B**	**B**	**OP**	**OP**	**B**		**B**
7	Co 13013	**B**	**B**	**OP**	**OP**	**OP**		**OP**
8	Co 13014	**B**	**OP**	**OP**	**OP**	**B**		**B**
9	Co 13018	**OP**	**OP**	**P**	**P**	**Wild Boar**		**OP**
10	Co 13020	**B**	**OP**	**OP**	**OP**	**Wild Boar**		**B**
11	CoN 13072	**B**	**B**	**B**	**OP**	**B**		**B**
12	CoN 13073	**P**	**OP**	**B**	**OP**	**Wild Boar**	**-**	**B**
13	MS 13081	**B**	**B**	**B**	**OP**	**Wild Boar**		**OP**
14	CoSnk 13101	**P**	**OP**	**P**	**P**	**OP**		**P**
15	CoSnk 13103	**OP**	**OP**	**P**	**P**	**OP**		**P**
16	CoSnk 13106	**P**	**OP**	**OP**	**OP**	**B**		**OP**
17	PI 13132	**OP**	**P**	**P**	**P**	**OP**		**P**
Standards								
1	Co 86032		**Best**	**Best**				
2	CoC 671	**Best**						
3	CoSnk 05103				**Best**	**Best**		**Best**

*** wilt**

Table 5. ADVANCED VARIETAL TRIAL – Ratoon

	Entries	Rudrur	Padegaon	Pune	Pravaranagar	Powerkheda	Akola	Navsari
1	Co 13002		**P**	**P**	**OP**		**P**	**P**
2	Co 13003		**B**	**B**	**B**		**OP**	**B**
3	Co 13004		**B**	**OP**	**OP**		**B**	**OP**
4	Co 13006		**B**	**B**	**OP**		**B**	**OP**
5	Co 13008		**B**	**B**	**B**		**B**	**B**
6	Co 13009		**B**	**B**	**B**		**B**	**B**
7	Co 13013		**B**	**B**	**B**		**B**	**OP**
8	Co 13014		**OP**	**OP**	**OP**		**P**	**OP**
9	Co 13018		**B**	**OP**	**OP**		**P**	**OP**
10	Co 13020		**P**	**P**	**OP**		**OP**	**P**
11	CoN 13072		**OP**	**OP**	**B**		**OP**	**B**
12	CoN 13073		**B**	**B**	**OP**		**B**	**B**
13	MS 13081		**B**	**OP**	**OP**		**P**	**OP**
14	CoSnk 13101		**OP**	**P**	**P**		**OP**	**P**
15	CoSnk 13103		**B**	**OP**	**B**		**OP**	**OP**
16	CoSnk 13106		**P**	**OP**	**P**		**P**	**OP**
17	PI 13132		**P**	**P**	**P**		**P**	**P**
Standards								
1	Co 86032				**Best**			
2	CoC 671							
3	CoSnk 05103		**Best**	**Best**			**Best**	**Best**

Centre wise reports:

I. Regional Sugarcane and Rice Research Station, Rudrur: All the four trials were conducted as per the technical programme. While the field stand was good in IVT and AVT I Plant, the AVT II Plant was average and AVT (Ratoon) was poor. The ratoon trial was rejected as the data would not be reliable. Early drought, excess rain in later part and wild boar damage had resulted in the average growth and more gaps in the field. Second earthingup was also could not be taken up. The centre requested budget under contingency for improving the irrigating facilities and timely field operations.

1. Initial Varietal Trial (IVT): Co 09004 was the best standard and the entries Co 16009, Co 16017, CoM 16081, CoM 16082, CoR 16141 and PI 16131 were better than Co 09004.

2. Advanced Varietal Trial I Plant (AVT – I Plant): Co 86032 was the best standard and the entries Co 14016, CoN 14073, CoSnk 14102, CoSnk 14103, CoTl 14111, CoVC 14062, MS 14081 and MS 14082 were better.

3. Advanced Varietal Trial II Plant (AVT – II Plant): Co 86032 was the best standard and the entries Co 13004, Co 13006, Co 13013, Co 13014, Co 13020, CoN 13072 and MS 13081 were found to be better than the best standard Co 86032.

4. Advanced Varietal Trial - Ratoon (AVT – Ratoon): The trial was poor and rejected.

5. Seed multiplication: Enough seed materials were available for planting the trials during 2020-21

II. Central Sugarcane Research Station, Padegaon: All the four trials were conducted as per the technical programme. While the field stand was excellent in IVT and AVT I Plant, AVT II Plant was good and AVT (Ratoon) was average. The crop stand was very good in general but flowering was very high in many entries. In some entries low cane population and reduced growth were observed. Detrashing was recommended in the trials for better observation.

1. Initial Varietal Trial (IVT): Co 09004 was the best standard and the entries CoVC 16062, CoM 16081, CoM 16082 and CoR 16141 were better than Co 09004.

2. Advanced Varietal Trial I Plant (AVT – I Plant): Co 86032 was the best standard and the entries Co 14002, Co 14016, CoN 14073, CoSnk 14102, MS 14081 and MS 14082 were better. Smut was observed in the entries CoTl 14111 and CoVC 14062.

3. Advanced Varietal Trial II Plant (AVT – II Plant): Co 86032 was the best standard and the entries Co 13003, Co 13006, Co 13008, Co 13009, Co 13013, CoN 13072 and MS 13081 were found to be better than the best standard Co 86032. Among these entries Co 13008 and MS 13081 were the top rankers.

4. Advanced Varietal Trial - Ratoon (AVT – Ratoon): CoSnk 05103 was the best standard and the entries Co 13003, Co 13006, Co 13008, Co 13009, Co 13013 and CoN 13073 were

found to be better than the best standard. Among these entries Co 13008 and Co 13006 were the top rankers.

5. Seed multiplication: Enough seed materials were available for planting the trials during 2020-21.

6. Fluff Supply Programme: In the ground nursery 7,500 seedlings were under evaluation. In addition 524 and 26 clones were being evaluated in clonal I and Clonal II stage trials respectively.

III Vasantdada Sugar Institute, Pune: All the four trials were conducted as per the technical programme. Three trials viz., IVT, AVT I Plant and AVT II Plant were rated as excellent and AVT (Ratoon) was average. The crop stand was very good in general but lodging of the canes was observed. Detrashing was recommended in the trials for better observation.

1. Initial Varietal Trial (IVT): Co 86032 was the best standard and the entries Co 16009, Co 16018, CoVC 16062, CoM 16081 and CoM 16082 were better than Co 86032.

2. Advanced Varietal Trial I Plant (AVT – I Plant): Co 86032 was the best standard and only two entries viz., Co 14016 and CoN 14073 were to be found better.

3. Advanced Varietal Trial II Plant (AVT – II Plant): Co 86032 was the best standard and the entries Co 13003, Co 13008, CoN 13072, CoN 13073 and MS 13081 were found to be better than the best standard Co 86032.

4. Advanced Varietal Trial - Ratoon (AVT – Ratoon): CoSnk 05103 was the best standard and the entries Co 13003, Co 13006, Co 13008, Co 13009, Co 13013 and CoN 13073 were found to be better than the best standard.

5. Seed multiplication: Enough seed materials were available for planting the trials during 2020-21.

6. Fluff Supply Programme: In the ground nursery 2,783 seedlings were under evaluation.

IV. Padmashri Dr. Vitthalrao VikhePatil Sahakari Sakhar Karhana Ltd., Pravaranager
All the four trials were conducted as per the technical programme. While the field stand was excellent in AVT I Plant and AVT II Plant, IVT was average and AVT (Ratoon) was average. The crop stand was affected due to drought and less irrigation.

1. Initial Varietal Trial (IVT): Co 86032 was the best standard and only one entry viz., CoM 16081 was better than Co 86032.

2. Advanced Varietal Trial I Plant (AVT – I Plant): Co 86032 was the best standard and the entries CoSnk 14102 and MS 14082 were better.

3. Advanced Varietal Trial II Plant (AVT – II Plant): Co 86032 was the best standard and the entries Co 13003, Co 13006 and Co 13008 were found to be better than the best standard Co 86032. Among these entries Co 13008 was the best entry.

4. Advanced Varietal Trial - Ratoon (AVT – Ratoon): CoSnk 05103 was the best standard and the entries Co 13003, Co 13008, Co 13009, Co 13013, CoSnk 13103 and CoN 13072 were found to be better than the best standard.

5. Seed multiplication: Enough seed materials were available for planting the trials during 2020-21

V. Main Sugarcane Research Station, ZARS, Powerkheda All the four trials were conducted as per the technical programme. While the field stand was good in AVT I Plant and AVT II Plant, IVT was average and AVT (Ratoon) was poor. As reported in earlier years wild boar damaged all the trials extensively and early drought also affected the crop.

1. Initial Varietal Trial (IVT): Co 86032 was the best standard and the entries Co 16006, Co 16017, CoM 16081, CoR 16142 and CoR 16141 were better than Co 86032.

2. Advanced Varietal Trial I Plant (AVT – I Plant): CoSnk 05103 was the best standard and the entries Co 14002, Co 14012, Co 14016, Co 14032, CoN 14073, CoSnk 14102, CoTl 14111 and MS 14082 were better. Smut was observed in the entry CoVC 14062.

3. Advanced Varietal Trial II Plant (AVT – II Plant): CoSnk 05103 was the best standard and the entries Co 13004, Co 13006, Co 13008, Co 13009, Co 13014, CoN 13072 and CoSnk 13106 were found to be better than the best standard CoSnk 05103.

4. Advanced Varietal Trial - Ratoon (AVT – Ratoon): The trial was unfit for evaluation.

5. Seed multiplication: Enough seed materials were available for planting the trials during 2020-21

VI. Sugarcane Research Centre, Akola: Only two trials viz., AVT I Plant and IVT were conducted. Since the AVT (I Plant) was conducted at a new place (Tharsa) which was far away from Akola the trial could not be evaluated.

1. Advanced Varietal Trial - Ratoon (AVT – Ratoon): The trial was not conducted as per the technical programme. The number of rows per entry per replication was 5 instead of 8. The trial was very poor due to poor AVT (I Plant) and late ratooning (05.04.19). Hence the trial was unfit for evaluation.

2. Seed multiplication: Enough seed materials were available for planting the trials during 2020-21

VII. Sugarcane Research Station, Navsari: All the four trials were conducted as per the technical programme except AVT (Ratoon) which was conducted with 2 replications instead of

3. Based on the field stand IVT and AVT I Plant, the AVT II Plant were excellent and AVT (Ratoon) was good. The crop stand was very good in general but flowering was high in many entries.

1. Initial Varietal Trial (IVT): Co 86032 was the best standard and the entries Co 11015, CoVC 16062, CoM 16081, CoR 16142 and, CoR 16141 were better than Co 86032. Incidence of wilt was observed in Co 16018.

2. Advanced Varietal Trial I Plant (AVT – I Plant): Co 86032 was the best standard and the entries Co 14002, Co 14016, CoN 14073 and MS 14082 were better.

3. Advanced Varietal Trial II Plant (AVT – II Plant): CoSnk 05103 was the best standard and the entries Co 13004, Co 13006, Co 13008, Co 13009, Co 13014, Co 13020, CoN 13072 and CoN 13073 were found to be better than the best standard CoSnk 05103. Among the entries CoN 13073 was the best.

4. Advanced Varietal Trial - Ratoon (AVT – Ratoon): CoSnk 05103 was the best standard and the entries Co 13003, Co 13008, Co 13009, CoN 13072 and CoN 13073 were found to be better than the best standard. Among the entries CoN 13073 was the best.

5. Seed multiplication: Enough seed materials were available for planting the trials during 2020-21.

6. Fluff Supply Programme: A total of 250, 283 and 53 clones are under evaluation in Clonal trials I, II and III respectively.

Monitoring Report of Agronomy Trials

Name of the centre: **Rudrur**
The Post of the Agronomist was vacant. No agronomical experiments are **allotted**.

Name of the centre: **Padegaon**
The Post of the Agronomist was vacant. No agronomical experiments are **allotted**.

Name of the centre: **VSI, Pune**
The experiments allotted: **AS 68, AS 70, AS 71, AS 72, AS 73 and AS 74.**
Experiments Concluded: **AS 68, AS 71**

AS 73: The Experiment AS 73 i.e. Assessment of climate change impact on sugarcane productivity was not conducted due to non-availability of meteorological data form nearest observatory for last 35 years. Hence, the experiment AS 73 was not conducted by **VSI, Pune.**

AS 70: Scheduling of irrigation with mulch under different sugarcane planting methods. The trial was conducted as per the technical programme. All observations were recorded as per the scheduled time, the agronomical operations i.e. weeding, light earthing up, big earthing up were carried out. However, the moisture content before irrigation was recorded and it was range of 10-25%. The tiller population was increased upto 120 days of planting and decreased at 180 days. The highest tiller population 83519 ha^{-1} was recorded in the treatment of P_1 i.e. Furrow Planting in 120 cm spacing without mulching. Among the irrigation schedules the highest tiller population 83264 ha^{-1} (IW/CPE is 1.0 **The trial was very good. Furrow planting in 120 cm with green manure in** 1.0 IW/CPE ratio is shown the better performance.

AS 72: Agronomic performance of elite Sugarcane Genotypes. The trial was conducted as per the technical programme. The maintenance of the trial was **very good**. All the observation was taken as per the technical programme. The flowering was observed in some varieties. The earthing up was carried out in experimental plots. The trial was conducted only on **125 % RDF in 3 replications**. the genotypes CoSnk 13103 showed the better performance in terms of germination, tillering count and NMC. The genotypes Co 13009 shows the least performance in terms of germination, tillering count and NMC. In general, the performance of trial was **excellent.** The genotype Co 13008 and Co 13006 also showed good performance in respect of growth.

AS 74: Evaluation of Sugarcane Varieties for drought tolerance. The trial was conducted as per the technical programme. The germination %, tillering count and NMC were recorded. The RWC %, LAI and SLW were also recorded. All the agronomic package of practices are adopted as per the schedule. The performance of trial was **excellent.** In I_1 and I_2, Varieties CoM 0265 and VSI 08005 have good performance in respect of germination, Tillering count and NMC than rest of the treatments. The performance of variety Com0265 and VSI08005 shows the good performance in growth.

Name of the centre: **Pravaranagar**
The Post of the Agronomist was vacant. No agronomical experiments are allotted.

Name of the centre: **Powerkheda**
The experiments allotted: **AS 68, AS 70, AS 71, AS 72, AS 73 and AS 74.**
Experiments Concluded: **AS 68, AS 70**
The trial not conducted: **AS 71**
The trial conducted: **AS 72, AS 73 and AS 74**

AS 72: Agronomic performance of elite Sugarcane Genotypes. The trial was conducted as per the technical programme. All the scheduled observations were recorded as per the technical programme. All the agronomical package of practices was followed. The juice analysis for 10 months was completed. The performance of all the genotypes is numerically good in **100 % RDF** but was on par with **125 % RDF**. Visually the performance of genotypes Co 13008 and Co 13006 were very good in all three replications. The general performance of this trial is **very good.**

AS 73: Assessment of climate change impact on sugarcane productivity. This trial is also conducted but the collection of data for last 30 years is in progress. The performance of trial is good.

AS 74: Evaluation of Sugarcane Varieties for drought tolerance: The experiment was conducted as per the technical programme. All the scheduled observations were recorded as per the scheduled time. The crop conduction was **very good**. All the protocol for determination of RLW %, LAI and SLW needs to be necessary for drought tolerance study. The general performance of the trial was **good.** The variety CoJN86141 and Co 85004 was good for IW/CPE ratio in 0.3. However, in respect of IW/CPE ratio 1.0, the variety CoJn 86600 and CoJN 86141 also had good performance. The entry CoC 6221 showed the lowest performance in 0.3 and 1.0 IW/CPE ratio.

Name of the centre: **Akola**
The Post of the Agronomist was vacant. No agronomical experiments are **allotted.**

Name of the centre: **Navasari**
The Post of the Agronomist was vacant. No agronomical experiments are **allotted**.

Monitoring Report for Entomology trials

Sr. No.	Name of the center & Date of Visit	Expt. No.	Description	Remarks
1	RS &RRS Rudrur (Telagana) 06.12.2019	Not allotted	Visited fields	• Low to medium incidence of ESB, INB, RB, WF,SWA and wild big • RB incidence Medium in CoVc 16062 & CoVc 16061 • SWA incidence more- Co 16010
2	CSRS Padegaon (M.S) 09.12.2019	E 4.1.1	Date of planting- 05.02.2019 No of Genotypes -15+3 Replication -3 Design- Alpha Plot size- 6.0m X 2 m^2	• Trail laid as per technical programme • Low to medium incidence of ESB, INB and SWA. • SWA incidence more- Co 16017
		E 4.1.2	Date of planting- 05.02.2019 No of Genotypes -15+3 Replication -3 Design- RBD Plot size- 6.0m X 2 m^2	• Trail was laid as per technical programme • ESB incidence below 15 % in MS 14081 & MS 14.82 • Low to medium incidence of INB and SWA.
		E4.1.3	Date of planting- 05.02.2019 No of Genotypes -17+3 Replication -3 Design- RBD Plot size- 6.0m X 2 m^2	• Trail laid as per technical programme • Low to medium incidence of ESB, INB and SWA. • INB/MB incidence Medium- CoC 13013
		E4.1.4	As per Pl. Breeding trial	• Pests observations in Pl. Breeding trial.
		E 28	Survey on insect pest in adjoining area.	• Noticed incidence of early shoot borer, internode borer, root borer, mealy bug, scale insect, white fly, Sugarcane wooly aphid and white grub.
		E 30	**Date of planting:** 05.02.2019	• The % incidence of ESB was maximum 17.37 % in 16th standard Metrological week while, minimum 0 % in 10th standard Metrological week.
		E 34	Multiplication of *Trichogramma chilonis*	• As per information given it was done at Agril. College, Pune.

		E 38	Conducted	• Trial vitiated due to drought in summer & heavy rainfall during rainy season.
		E 40	Not conducted	• Not conducted due to less incidence of white grub.
		E41	Not Conducted	• Not conducted
3	VSI, Pune (MS) 10.12.2018	E 4.1.1	Date of planting- 22.12.2018 No of Genotypes -15+4 Replication -3 Design- RBD Plot size- 6.0m X 4 rows (Gross) 5.0m X 4 R (Net)	• Trail was laid as per technical programme. • The cumulative % incidence of ESB was above 30 % in CoC 671 (std) (33.73%), while it was minimum in Co 16018 (4.21%) and CoM 16081 (4.23 %). • Found less to medium incidence of INB and SWA.
		E 4.1.2	Date of planting- 30.01.2019 No of Genotypes -15+3 Replication -2 Design- RBD Plot size- 6.0m X 4.2m^2 rows (Gross) 6.0m X 2.8m^2 R (Net)	• Trail laid as per technical programme. • The cumulative % incidence of ESB was above 30 % in CoSnk14103 (33.02%), and Co 86032 (std) (33.91 %), while it was minimum in CoT14367 (5.45%) and Co14016 (7.88%). • Found low to medium incidence of INB.
		E 4.1.3	Date of planting- 30.01.2019 No of Genotypes -17+3 Replication -2 Design- RBD Plot size- 6.0m X 4.2m^2 rows (Gross) 6.0m X 2.8m^2 R (Net)	• Trail laid as per technical programme. • The cumulative % incidence of ESB was above 30 % in MS 13081 (31.54%), while it was minimum in CoSnk 05103 (Std) (3.14%) and Co 13004 (4.96%). • Found less to medium incidence of internode borer.
		E 4.1.4	Date of Ratooning- 19.01.2019 No of Genotypes -17+3 Replication -2 Design- RBD Plot size- 6.0m X 4.2m^2 rows (Gross) 6.0m X 2.8m^2 R (Net)	• Trail was laid as per technical programme. • The cumulative % incidence of ESB was below 15 % in Co 13003 (6.80%), Co 13014 (7.49 %) CoSnk 05103 (Std) (9.22%) and CoN 13073 (9.58%), while it was

				maximum in CoSnk 13101 (27.78%) and MS 13081 (23.92%) . • Found less to medium incidence of INB and SWA.
		E 28	Survey on insect pest in adjoining area.	• Noticed incidence of early shoot borer, internode borer, root borer, Mealy bug, Scale insect, wire worm, white fly, Fall armyworm, Sugarcane wooly aphid and white grub.
		E 30	**Date of planting:** 07.02.2019 **Variety:** Co 86032 Area:0.20 ha.	• The % incidence of ESB was maximum 3.08 % in 23rd standard Metrological week while, minimum 0 % in 9 & 11 standard Metrological week, • The % incidence of INB was recorded maximum 12% in the 15th standard Metrological week. • The % incidence of Mealy bug was recorded maximum 4 in 29th Standard Metrological week
		E 34	Mass multiplication of *T. chilonis* parasitoids. Mass multiplication of *Beauveria bassiana* is done in microbiology section	Produced 855 Tricho card up to November 2019. Supplied 161 Tricho cards to the farmer and 23 Tricho cards/ 100 cc Corcyra eggs to the Govt. lab up to November 2019.
		E 38	Date of planting- 29.01.2019 Paired plot Variety: VSI 08005 Plots size 0.20 R Treatments: T1- IPM Module T2 – Farmers practice	• Trail was laid as per technical programme. • Incidence of early shoot borer was below ETL (15%) in both treatments.
		E 40	Not conducted	• Not conducted due to less incidence of white grub.
		E.41	Date of planting- 18.02.2019 Variety: VSI 08005 Paired plot: Plots size 0.10 ha	• Trail was laid as per technical programme. • Cumulative incidence of early shoot borer was 4.99 % in treated plot and 28.99

			Treatments: Two T1- Treated plot T2 –Control plot	% in control plot.
4	P Dr. VVP SSK ltd. Pravaranagar (M.S)11.12.2019	Not allotted	Visited fields	• Low to medium incidence of ESB, INB and SWA • Noticed medium incidence of SWA in CoSnk 14103
5	ZARS, Powarkheda, (M.P) 12.12.2019	Not allotted	Visited fields	• Low to medium incidence of ESB, INB and SWA. • Medium to high damage by Wild pig. • Wild pig damage was more in Co 14027 & CoSnk 14103
6	SRC, Dr. PDKV, Akola (M.S) 14.12.2019	Not allotted	Visited fields	• Low to high incidence of ESB, INB and SWA. • Medium to high infestation of Wild Pig. • Very poor ratoon crop.
7	MSRS, Navsari (Gujrat) 16.12.2019	Not allotted	Visited fields	• Low to medium incidence of ESB, INB , RB , WF and SWA. • Noticed medium incidence of RB in Co 16018 & Co Snk 13103

Monitoring report of Pathology trials

The following trials were allotted to the centers of Peninsular Zone II during 2019-2020

1. PP14 Identification of pathotypes of red rot pathogen
2. PP 17 A Evaluation of zonal varieties for resistance to red rot
3. PP 17 B Evaluation of zonal varieties for resistance to smut
4. PP 17 C Evaluation of zonal varieties for resistance to wilt
5. PP 17 D Evaluation of zonal varieties for resistance to YLD
6. PP 22 Survey of sugarcane diseases naturally occurring in the area on important sugarcane varieties
7. PP 23 Assessment of elite and ISH genotype for resistance to red rot
8. PP 31 Screening, epidemiology and management of pokkah boeng in sugarcane
9. PP 32 Management of brown spot disease of sugarcane
10. PP 33 Management of yellow leaf disease through meristem culture

The different trials conducted by the centers are presented in the following table

Centre	Experiments									
	PP14	PP 17A	PP 17B	PP 17C	PP 17D	PP 22	PP 23	PP 31	PP 32	PP 33
Rudrur	-	-	-	-	-	-	-	-	-	-
Padegaon	-	-	-	-	-	-	-	-	-	-
Pune	-	-	C	-	C	C	-	C	C	C
Pravaranagar	-	-	-	-	-	-	-	-	-	-
Powerkheda	-	-	-	-	-	-	-	-	-	-
Akola	-	-	-	-	-	-	-	-	-	-
Navasari	C	C	C	C	C	C	C	-	-	-

C = Conducted; NC = Experiment allotted but not conducted; - = Experiment not allotted

Regional Sugarcane and Rice Research Station, Rudrur

The centre was not allotted with any Plant Pathology trials.

Central Sugarcane Research Station, Padegaon

The centre was not allotted with any Plant Pathology trials.

Vasantdada Sugar Institute, Pune

PP 17B Evaluation of zonal varieties for resistance to smut

The trial was conducted with 47 clones and the clones were inoculated at the time of planting. All the clones were planted on 04.01.2019. Incidence of smut disease was noticed in 15 clones *viz.,* Co 14027, Co 16017, Co 11015, CoR 16142, Co 14004, Co 16018, Co 16009, Co 14016, CoVc 14062, CoVc 16061, MS 14081, CoVc 15063, Co 15021 and Co 13014, Co 13008. The other 32 clones were free from smut disease. The crop growth was good.

PP 17D Evaluation of zonal varieties for resistance to yellow leaf disease

The natural incidence of yellow leaf disease was not observed till date and YLD disease development would be recorded in 10^{th} and 12^{th} month after planting.

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

The survey was conducted during June to October 2019. The incidence of Pokkah boeng disease was noticed in varieties *viz.,* Co 86032, CoC 671, CoVSI 9805, Co 92005, VSI 434, CoVSI 03102, MS 10001 and VSI 08005. GSD was observed on varieties CoC 671, Co 86032, CoM 0265, Co 92005, VSI, 434 and CoVSI 03102. Similarly other diseases *viz*., mosaic, smut, rust and brown spot were also noticed.

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

This trial was conducted with 14 varieties. The incidence of pokkah boeng disease was observed in four varieties. Weather parameters were recorded for studying the epidemiology of pokkah boeng disease.

PP 32 Management of brown spot disease of sugarcane

This trial was conducted with six treatments with four replications. The trail was laid in the Vignar SSK Ltd., Junnar. Since the location of the trail was in sugar mills area monitoring team was unable to visit the trial.

PP 33 Management of yellow leaf disease through meristem culture

This trail was conducted with the two varieties Co 86032 and VSI 08005 with three treatments *viz*., tissue culture plantlet (virus free), Moist Hot air treatment and control. The incidence of Yellow leaf disease was noticed in the control plots and disease free in the tissue culture plantlets plots.

Padmashri Dr. Vitthalrao Vikhe Patil Sahakari Sakhar Karkhana Ltd., Pravaranagar

The centre was not allotted with any Plant Pathology trials.

Zonal Agricultural Research Station, JNKVV, Powerkheda

The centre was not allotted with any Plant Pathology trials.

Sugarcane Research Centre, PDKV, Akola

The centre was not allotted with any Plant Pathology trials.

Main Sugarcane Research Station, Navsari

PP14 Identification of pathotypes of red rot pathogen

All the 19 differentials were planted on 23.01.2019. Inoculation was done on the differentials by plug method with the designated pathotypes of the zone Cf 06 and Cf 12 along with four isolates of red rot pathogen (Co 86032, Co 86002, CoSi 95071 and CoM 0265).

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

The trial was conducted with 47 clones along with standards. The clones were inoculated both by plug and nodal cotton swab method separately with two pathotypes Cf 06 and Cf 12. The crop growth was good.

PP 17B Evaluation of zonal varieties for resistance to smut

The trial was conducted with 47 clones along with standards and the clones were inoculated at the time of planting by following spore suspension method. The crop growth was good

PP 17C Evaluation of zonal varieties for resistance to wilt

The trial was conducted with AVT clones along with standards. The clones were planted in 6 meter row in the wilt sick soil.

PP 17D Evaluation of zonal varieties for resistance to YLD

Separate experiment was not laid out for this experiment. However the incidence of YLD has to be recorded in the clones from PP 17A experiment.

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

The survey was conducted in Gujarat and red rot disease was recorded in CoC 671, Co 86002, Co 86032 and CoM 0265. Smut disease was noticed in varieties *viz.,* Co 86002, CoM

0265 and VSI 08005. Wilt disease was observed on varieties *viz.* Co 86002, CoC 671 and Co 97009.

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

This experiment was conducted with 27 genotypes. All the genotypes were inoculated with Cf 06 and Cf 12 by plug method of inoculation.

Rating of the Plant Pathology experiment conducted by the Centers of Peninsular zone II

Centre	Experiments conducted							
	PP14	PP 17A	PP 17B	PP 17C	PP 17D	PP 23	PP 31	PP 33
Pune	-	-	Excellent	-	Very Good	-	Very Good	Very Good
Navasari	Very Good	Very Good	Very Good	Good	Good	Very Good	-	-

- Experiment not allotted NC – Experiments not conducted

Recommendations:

Based on the visit to different centres and discussion with the scientists working in the participating centres of AICRP(S), the following suggestions are made for consideration-

1. The voluntary centre, Regional Sugarcane and Rice Research Station, Rudrur requested budget under contingency for improving the irrigating facilities and timely field operations which may be considered.
2. In some centers, growth of the standards was not appreciable due to continuous use of same seed materials. The seed materials may be treated with aerated steam therapy or tissue culture based seed materials may be used
3. Timely harvest and ratooning operations were not carried out by some centres hence the ratoon trial was not satisfactory. Centres should ensure good ratoon crop.
4. At Powerkheda centre, all the trials were damaged by wild boar hence necessary protective measures may be taken to protect the crop. Since it is a perennial problem alternatively the trials may be shifted to another place.

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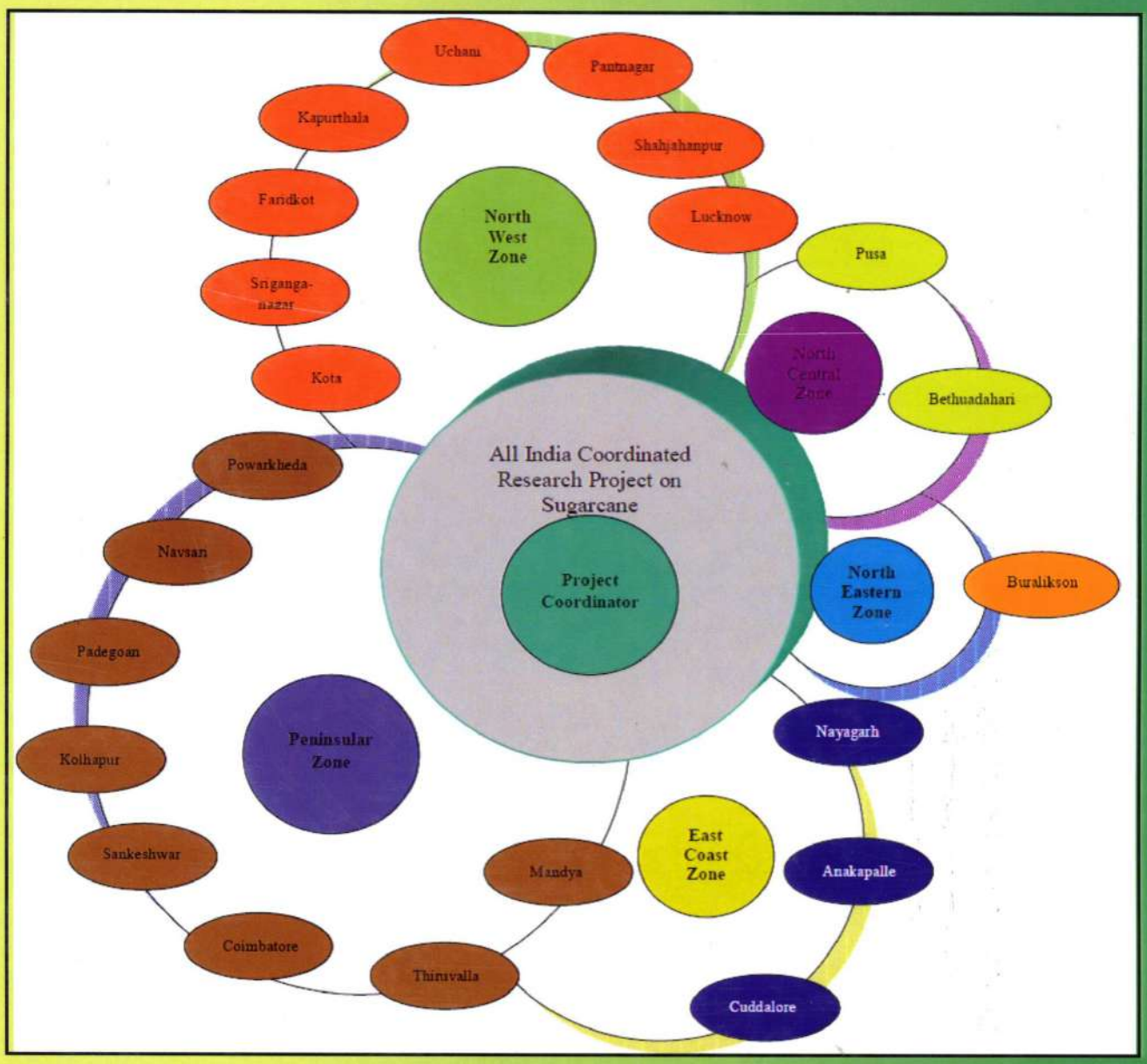

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