

TAMIL NADU AGRICULTURAL UNIVERSITY

PROCEEDINGS

28th Sugarcane Scientists Meet **(May 27, 2020)**

Lead Center

Sugarcane Research Station
Tamil Nadu Agricultural University
Cuddalore – 607 001

Directorate of Research

Tamil Nadu Agricultural University
Coimbatore - 641 003

2020

PROCEEDINGS

28th Sugarcane Scientists' Meet (May 27, 2020)

The 28th Sugarcane Scientists Meet was conducted on 27.5.2020 through webinar in Anna Auditorium involving 60 scientists off-line and more than 85 scientists on-line covering all college campuses, research stations and KVKs.

Dr. N. Kumar, Vice Chancellor, TNAU, offered initial remarks for the meet. He highlighted that India is still recognized as the second largest producer of sugar next to Brazil. Despite the fact that India has a commanding position at the global scale, Tamil Nadu State has been in declining trend in area (56%), production (59.2%) and productivity (7.36%) in the past five years. The labour cost, increase in cost of cultivation, non-payment by the sugar mills are the plausible reasons for the drastic reduction in sugarcane statistics. TNAU has released **42 varieties** in sugarcane, helped the State in augmenting the production but the spread of the varieties determine by the Government and Sugar Factories. The Vice Chancellor informed the sugarcane scientists to evolve strategies to rescue the industry.

Dr. K.S. Subramanian, Director of Research flagged off issues such as relative performance of TNAU varieties in comparison to Co. 11015 (Atulya) which is a release by Sugarcane Breeding Institute in 2019, efforts to expand area under Sustainable Sugarcane Initiative (SSI), inclusion of tropical sugarbeet as an alternative strategy and continued efforts of the university to inform the government.

Dr. S. Geetha, Director (CPBG), **Dr. V. Geethalakshmi**, Director (Crop Management and **Dr. K. Prabakar**, Director (CPPS), presented the research highlights, action taken on previous Sugarcane Scientists Meet and Action Plan for the year 2020-2021 of their respective directorates and departments involved. The Director (CPBG) who is also the Nodal Officer of the Sugarbeet Evaluation Trials conducted in TNAU. The data that the sugarbeet yielded 35-40 tonnes per ha with CCS% of 12-14 and this crop can help the sugar industry to run the mills beyond regular crushing season by 2-3 months. The Vice Chancellor offered concluding remarks and the Director of Research summarized the event.

The proceedings of the meet is furnished as below

I. CROP IMPROVEMENT

- A. Decisions made on the entries for Variety Release Proposal/ART/OFT/MLT evaluation
- B. Action Plan 2020-2023
- C. Research projects on Sugarcane
- D. Remarks on the ongoing university research projects/AICRP/Externally funded projects

II. CROP MANAGEMENT

- A. Decisions made on OFT
- B. Action Plan 2019-2023
- C. Research projects on Sugarcane
- D. Remarks on the ongoing University Research projects/AICRP/Externally funded projects

III. CROP PROTECTION

- A. Decisions made on OFT
- B. Action Plan 2020-2021
- C. Research projects on Sugarcane
- D. Remarks on the ongoing university research projects/AICRP/Externally funded projects

IV. GENERAL REMARKS OF THE VICE CHANCELLOR

V. CLOSING REMARKS & WAY FORWARD BY THE DIRECTOR OF RESEARCH

VI. PARTICIPANTS

I. CROP IMPROVEMENT

A. Entries for variety release proposal/ART/OFT/MLT (2020-2021)

Recommendations for Central Release/State Release/ART/MLT/AICRP trials

A1. Variety release

Nil

A2. Cultures identified for ART 2021-22

The clones *viz.*, Co 15007, Co 14016, C 30010, Si 10-12 and check varieties *viz.*, CoG 6, CoSi 8, CoC 25, Co 86032 and Co 11015 were planted in first plant during 2020-21. The same set of clones and standards will be planted as second plant crop during 2021-22 and the ratoon study of first plant also carried out during 2021-22 after its harvest.

The traits need to be recorded are listed below

1. Germination%
2. Number of tillers ('000/ha) at 120 DAP
3. Number of millable Cane ('000/ha) at harvest
4. Stalk length (cm) at harvest
5. Stalk diameter (cm) at harvest
6. Cane yield (t/ ha) at harvest
7. CCS (%) at 10th month and 12th month
8. CCS yield (t/ha) at harvest

A3. Cultures identified for testing under Multi Location Trial 2021-22

S. No	Clone	Parentage	Cane yield (t/ha)	CCS %	Sugar yield (t/ha)	Reaction to red rot
1.	Co 15020	Co 86032 x Co 86011	141.49	13.81	19.55	R (Nodal)
2.	C 2015-006	Co 85002 GC	133.6	13.0	17.4	MR
3.	C 2015-021	Co 85002 GC	133.0	12.9	17.1	MR
4.	C 2015-095	CoV 89101 x ISH 69	133.8	12.8	17.2	MR

5.	G 11035	83 R 23 (GC)	133.55	13.10	17.50	MR
6.	Si 2013-032	Si 2000-03 GC	131.7	12.9	16.99	MR

Standards: Co 86032, Co 11015 and CoC 13339 (all testing centres shall multiply the standards in their locations to reduce the burden of seed cane transport)

Plot size: 5 m row length x 5 rows x 1.2 m row space

Replications: Three

Time of planting: Dec 2020 – Jan 2021

Age of the crop: 12 month

Seed rate: 12 buds per meter

Traits to be observed:

1. Number of tillers ('000/ha) at 120 DAP
2. Number of millable Cane ('000/ha) at harvest
3. Stalk length (cm) at harvest
4. Stalk diameter (cm) at harvest
5. Cane yield (t/ ha) at harvest
6. CCS (%) at 10th month and 12th month
7. CCS yield (t/ha) at harvest

Locations:

1. SRS, Cuddalore
2. SRS, Sirugamani
3. SRS, Melalathur
4. SBI, Coimbatore

Scientist's in-charge:

1. Dr. R. Sudhagar, Associate Professor (PBG), SRS, Melalathur
2. Dr. M. Shanmuganathan, Asst. Professor (PBG), SRS, Cuddalore
3. Dr. S. Mohan, Teaching Assistant (PBG), SRS, Sirugamani
4. Scientist designated by the Director, SBI, Coimbatore

A4. Clones identified for proposing to AICRP (S) – ZVT - 2020

S. No	Clone	Parentage	Cane yield (t/ha)	CCS %	Sugar yield (t/ha)	Reaction to red rot
1.	C 2015-006	Co 85002 GC	133.6	13.0	17.4	MR
2.	C 2015-021	Co 85002 GC	133.0	12.9	17.1	MR
3.	C 2015-095	CoV 89101 x ISH 69	133.8	12.8	17.2	MR
4.	G 2005-047	89 V74 (GC)	120.1	13.0	15.7	MR

B. Action Plan (2020 – 2023)

Action Plan 5.	Evolution of short duration and high sugar clones			
	Activity	Responsible centre	Plan of work	Deliverables
	2020-21 Crossing at NHG	Hybridization at NHG: SRS, Cuddalore SRS, Sirugamani SRS, Melalathur	Crossing between high sugar varieties (CoC 671, Co 86032, Co 94012 etc.,) with early maturing sugarcane varieties (Co 11015, CoC 92061) and GCs of Co 11015, CoC 671, Co 86032 and Co 94012	Development of short duration high sugar clone
	Selection from the already available clones	SRS, Cuddalore SRS, Sirugamani SRS, Melalathur	Screen the clones available in Progeny Row Trial for early maturity (more HR Brix than CoC 671, Co 86032 and Co 11015) at 8 th month with more than 5 millable canes	
	2021-22 Fluff seedling development and evaluation	SRS, Cuddalore SRS, Melalathur SRS, Sirugamani	Fluff sharing, seedling development and evaluation	
	Confirmation of earliness	SRS, Cuddalore SRS, Melalathur SRS, Sirugamani	The selected clones (more HR Brix than CoC 671, Co 86032 and Co 11015) at 8 th month with more than 5 millable canes will be considered	
	Red rot screening	SRS, Cuddalore	Rapid screening of selected clones	
	2022-23 Selection of early maturing clones	SRS, Cuddalore SRS, Melalathur SRS, Sirugamani	Screening for elite clones with high HR brix compared to CoC 671, Co 86032 and Co 11015 at 8 th month and more than 5 millable cane will alone be forwarded	
	Multi-location testing	SRS, Cuddalore SRS, Melalathur SRS, Sirugamani	The selected clones with red rot resistance will be tested in all sugarcane research stations for selecting elite clones for conducting ART	

Action Plan 6.	Development of high sugar clones through recurrent selection			
	Activity	Responsible centre	Plan of work	Deliverables
	2020-21 Crossing at NHG	Hybridization at NHG: SRS, Cuddalore SRS, Sirugamani SRS, Melalathur	Crossing among high sugar varieties like CoC 671, Co 86032, Co 94012, Co 86002, Co 11015 and collecting GCs of high sugar clones	Development of high sugar clone for further recurrent crossing and selection
	Selection from the already available clones	SRS, Cuddalore SRS, Sirugamani SRS, Melalathur	Screen the clones available in Progeny Row Trial / fluff seedling for high HR Brix (>24)	
	2021-22 Fluff seedling development and evaluation	SRS, Cuddalore SRS, Melalathur SRS, Sirugamani	Fluff sharing, seedling development and screening for high HR Brix (>24)	
	Crossing the hybrid with high sugar varieties (Recurrent Selection1)	SRS, Cuddalore SRS, Melalathur SRS, Sirugamani	The selected hybrids will be raised at SRS, Sirugamani and crossed again with high sugar varieties	
	2022-23 Crossing the hybrid with high sugar varieties	SRS, Cuddalore SRS, Melalathur SRS, Sirugamani	The selected hybrids will be raised at SRS, Sirugamani and crossed again with high sugar varieties	
	Fluff seedling development and evaluation	SRS, Cuddalore SRS, Melalathur SRS, Sirugamani	Fluff sharing, seedling development and screening for high HR Brix (>24)	

C. Research Projects on Sugarcane

S.No	Discipline/ Station	University Research Projects	AICRP project	Externally Funded Project	Total	No. of Scientists
1.	SRS, Cuddalore	1	1	-	2	1
2.	SRS, Sirugamani	3	-	-	3	-
3.	SRS, Melalathur	2	-	-	2	1
	Total	6	1	-	7	2

D. Ongoing URPs / AICRPs in Crop Improvement

No.	Project No. and Title	Project leaders	Duration	Remarks
1. University Research Projects (URPs)				
1.	CPBG/ CDL/ PBG/ SUG/ 2017/ 001 Evaluation and identification of high sugar varieties with red rot resistance for Tamil Nadu.	Dr.M.Shanmuganathan Asst. Prof. (PB&G), SRS, Cuddalore	April 2017 to March 2020	The project may be closed and a new project shall be proposed.
2.	CPBG/SGM/PBG/SUG /2014/001 Evolving mid-late maturing sugarcane varieties with high yield, quality and in-built resistance for red rot disease to cater the needs of Cauvery delta zone.	Dr.M.Shanmuganathan Asst. Prof. (PB&G), SRS, Cuddalore	Oct 2014 to Sept 2019	The project may be closed and completion report shall be submitted
3.	CPBG/SGM/PBG/SUG /2014/002 Evolving sugarcane	Dr.M.Shanmuganathan Asst. Prof. (PB&G), SRS, Cuddalore	Oct 2014 to Sept	The project may be closed and completion

	varieties suitable for early season with high yield, quality coupled with resistance for red rot disease.		2019	report shall be submitted
4.	CPBG/SGM/PBG/SUG/2014/003 Hybridization, fluff study, individual seedling selection and early stage selection in sugarcane (<i>Saccharum</i> spp. Hybrid)	Dr.M.Shanmuganathan Asst. Prof. (PB&G), SRS, Cuddalore	Dec 2014 to Nov 2019	The project may be closed and completion report shall be submitted
5.	CPBG/MLT/PBG/SUG/2019/New Evaluation of high yielding and quality sugarcane clones with red rot tolerance in advanced breeding cycles	Dr. R.Sudhagar Associate Professor (PB&G) and Head Dr. S. Rajkumar, Teaching Assistant (PB&G)	Dec 2019 to Nov 2022	The project shall be continued
6.	CPBG/MLT/PBG/SUG/2019/ New Hybridization and selection of sugarcane clones for high yield and quality	Dr. R.Sudhagar Associate Professor (PB&G) and Head Dr. S. Rajkumar, Teaching Assistant (PB&G)	Dec 2019 to Nov 2022	The project shall be continued

2. AICRPs				
7.	AICRP/PBG /CUD/SUG /025 AICRP on Sugarcane	Dr.M.Shanmuaganthan Asst. Prof. (PB&G)	Continuous	The project shall be continued.

II. CROP MANAGEMENT
A. Decisions made on Adoption / OFT
1. Adoption

1. Integrated best management practices for resource conservation in Sugarcane

- Crop geometry: Adoption of 150 cm inter row spacing, Sett treatment with bio-inoculants (*Gluconacetobacter diazotrophicus* and AM fungi) Irrigation: sub surface drip fertigation, *In-situ* trash decomposition after cane harvest with TNAU Bio-mineralizer @ 2kg/tonne of trash
- Mechanization: Power weeder (30 & 60 DAP), Earthing up (90 DAP) and Detrashing (120 & 210 DAP)

2. Packages of practices for organic sugarcane cultivation for chewing cane

- Application of 12.5 t/ha of FYM as basal dressing along with 2.4 kg /ha each of *Gluconacetobacter* TNAU 1 (30,60 and 90 DAS) and Phosphobacteria in 100 kg/ha of FYM along the furrows
- Application of *Trichoderma viride* @ 2.5 kg / ha along with 25 kg FYM as basal
- Application of neem cake @ 125 kg/ha along with sett treatment of *Gluconacetobacter* TNAU 1 @ 2 kg/ha
- Application of recommended dose of N (300 kg/ha) through vermicompost as band placement at 30, 60 and 90 DAP for clay loam and 30,60,90 & 120 days for sandy loam soils, respectively
- Foliar application of Panchagavya @ 3% at monthly intervals from planting up to 5th month
- Trash mulching along the ridges on 3rd day in clay soils and @ 21 days after planting for sandy loam soil
- Basal application of silicon solubilizer @ 12.5 kg/ha adjacent to the crop row with 50 kg FYM

- Installation of pheromone traps @ 20 Nos./ha for monitoring and trapping of borer pests of sugarcane
- Release of *Trichogramma chilonis* from the 4th to 6th month at 15 days interval @ 2.5 cc / ha

3. Growth promoting nutrients to enhance the cane yield and sucrose accumulation in sugarcane crop

- Foliar spraying of macro and micro nutrient solution at weekly twice to protract from 10th to 25th DAP + soaking of bud chips in 0.01% ethrel and 0.1% calcium chloride for 2 hrs.
- [macro nutrients- KNO₃ (202g/l) + Ca (NO₃)₂ (236g/0.5l) + MgSO₄ (493g/l) + 1M NH₄NO₃ (80g/l) + FeSO₄.7H₂O (15g/l) and micro nutrients- H₃BO₃ (2.86g/l) + MnCl₂ 4H₂O (1.81g/l) + ZnSO₄.7H₂O (0.22g/l) + CuSO₄.5H₂O (0.051g/l) + H₃MoO₄.H₂O (0.09g/l)]

4. Exogenous application of ascorbic acid in mitigating salt stress in sugarcane

- Sett treatment with 1mM ascorbic acid + foliar spray of 1mM ascorbic acid at 45th after planting.

2. For OFT

OFT 1. Effect of new generation herbicides molecules and its combination on management of creeper weeds in sugarcane

Objective: To find out the effect of Halosulphuron on creeper weed control

Action: SRS, Cuddalore & SRS, Sirugamani

Scientist in-charge:

1. Dr. M. Jayachandran, Professor and Head, SRS, Cuddalore
2. Dr. R. Nageswari, Assistant Professor (Agronomy), SRS, Sirugamani

Duration: 2020-2022

Area: 1.00 ac

Design: Non- replicated trial

Treatments details:

T₁ - Manual hand weeding on 30,40,60 DAP + dethrashing on 4th and 5th month

T₂ - Directed spraying of Halosulphuron @ 0.2% on 4 to 5 months

Observations to be recorded

Population of creeper weeds flora (before spraying /dethrashing)

Population of creeper weeds flora (10 days after spraying /dethrashing),

Population of millable cane

Cane length, cane girth, single cane weight, CCS%, cane yield and B:C ratio

OFT 2: Assessing the effect of mechanization on soil compaction in sugarcane and developing suitable management strategies

Objective: To study the effect of intensified mechanization in sugarcane cultivation on soil compaction

Action: SRS, Cuddalore, SS&AC, TNAU, Coimbatore and SRS, Sirugamani

Scientist in-charge

1. Dr. M. Jayachandran, Professor & Head, SRS, Cuddalore
2. Dr. N. Chandrasekaran, Professor (SS&AC), TNAU, Coimbatore
3. Dr. R. Nageswari, Assistant Professor (Agronomy), SRS, Sirugamani

Duration: 2020-2022

Area: 1.00 ac

Design: Non- replicated trial

Treatment details:

T₁- Chisel ploughing at early stages of land preparation and farm yard manure @ 12.5 t/ha

T₂- Farmers practice

Observations to be recorded

Soil bulk density, particle density, hydraulic conductivity, Infiltration rate, Porosity
Soil texture at 3 different depth (20, 40 & 60 cm), Growth and yield and quality parameters

OFT 3: Optimization of fertilizer dose for chewing cane selection from Venkettanpatti

Objective: To study the performance of chewing cane selection from Venketanpatti and optimize the dose of N,P,K for sustainable yield

Action: SRS, Cuddalore and SRS, Sirugamani

Scientist in-charge:

1. Dr. M. Jayachandran, Professor & Head, SRS, Cuddalore
2. Dr. R. Nageswari, Assistant Professor (Agronomy), SRS, Sirugamani

Duration: 2020-2022

Area: 0.5 ac

Design: Non- replicated trial

Treatment details:

T₁- Chewing cane selection from Venkettanpatti + application of 125 % recommended dose of fertilizer

T₂- Chewing cane selection from Venkettanpatti + recommended dose of NPK

Observations to be recorded

Cane length, cane girth, number of nodes, internode length, individual cane weight, marketable canes, cane yield and brix.

OFT 4: Developing multi micronutrient foliar formulation for alleviating the micronutrient deficiencies in sugarcane

Objective: Evaluation of micronutrient foliar mixture for the management of multi-micronutrient deficiencies and increasing the productivity of Sugarcane

Action:

Coordinating centre:

Soil Science and Agricultural Chemistry, TNAU, Coimbatore:

Dr.D.Jegadeeswari, Assoc. Professor,
Dept. of SS&AC, TNAU, Coimbatore

Centres: SRS, Cuddalore & SRS, Sirugamani

Scientist in-charge:

1. Dr. G. Gayathry, Assistant Professor (Ag.Microbiol.), SRS, Cuddalore
2. Dr. M. Baskar, Associate Professor (SS&AC), AEC&RI, Kumulur

Duration: 2020-2022

Area: 1.00 ac

Design: Non- replicated trial

Treatment details:

T₁: Recommended NPK based on STCR-IPNS + water spray*

T₂: Recommended NPK based on STCR-IPNS + Foliar spray of Micronutrient mixture @15.0 kg ha⁻¹ twice*

* Spray timings: Early tillering (60 DAP) and tillering (90 DAP) stages

Observations to be recorded:

Growth attributes

Yield attributes & Cane yield

Quality parameters

BCR

B. Action plan for identified themes (2020 – 2023)

Action Plan No. 1				Amalgamated drought management agro-techniques under SSI system for sustainable cane productivity in drought prone locations			
Theme Leader				Dr. M. Jayachandran, Professor (Agronomy) and Head, Sugarcane Research Station, Cuddalore – 1			
Action Plan		Name of the scientist(s) and centre		Activity		Deliverables	
Dissemination of amalgamated drought management agro-techniques for the Micro Irrigation in sugarcane and sustainable cane productivity under SSI system in drought prone areas.		Scientists Incharge SRS, Cuddalore Dr.G. Manickam Professor (Agronomy) Dr.G.Gayathry, Asst. Prof. (AGM) Tmt.R.Anitha, Asst. Prof. (CRP) SRS, Sirugamani Dr.L. Chithra Professor and Head Dr. R.Nageswari Asst. Professor (Agronomy)		Treatments: Irrigation scheduling: (Main plots) I ₁ - 0.50 IW/CPE ratio with irrigation I ₂ - 0.75 IW/CPE ratio with irrigation I ₃ - 1.00 IW/CPE ratio with irrigation Drought mitigation: (Sub plots) P ₁ - Basal application of <i>Bacillus subtilis</i> (PGPR) P ₂ - Foliar application of kaolin + PPFM (in 2 nd month and 3 rd and 5 th month. P ₃ - Fertigation of humic acid 3 ml/lit + <i>Bacillus</i> (PGPR) with proposed fertilizer schedule. P ₄ -Detrashing on 5 th & 7 th month & <i>In-situ</i> decomposition of trash by TNAU Biomineraliser @ 2kg/tonne of trash. P ₅ - P ₁ +P ₂ +P ₃ +P ₄ Design : Split plot, Replications : Three		An amalgamated drought mitigation technology could be delivered among the MIFG for combating drought and improved productivity.	

		Observations to be recorded: <ul style="list-style-type: none"> • Soil moisture tension and field capacity, soil physico - chemical properties • Crop growth, physiological and yield parameters, Quantification of soil and plant growth promoters Rationale: To delineate the appropriate quantum of water required for maintaining optimum soil moisture to mitigate drought stress in sugarcane	
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Action plan No.2		Standardization of fertigation intervals and source of fertilizer for sugarcane.	
Theme Leader		Dr. M. Jayachandran, Professor (Agronomy) and Head, Sugarcane Research Station, Cuddalore	
Action plan	Name of the scientist(s) and centre	Activity	Deliverables
Finalization of fertigation intervals for sugarcane under SSI methods of planting. Dissemination of technologies with right source of fertilizer and time of application to the	Scientists Incharge SRS, Cuddalore Dr.G. Manickam Professor (Agronomy) Dr.G.Gayathry, Asst. Prof. (AGM),	Treatments Fertigation schedule I ₁ - Subsurface drip irrigation with fertigation once in 5 days I ₂ - Subsurface drip irrigation with fertigation once in 7 days I ₃ - Subsurface drip irrigation with fertigation once in 10 days	Economize fertilizer and water use, analysis the fertigation efficiency in sugarcane cultivation under SSI and improve productivity and profitability of the MIFG.

<p>Micro Irrigation Farmer's Groups in Tamil Nadu.</p>	<p>SRS, Sirugamani Dr.L. Chithra Professor and Head</p> <p>Dr. R.Nageswari Asst. Professor (Agronomy)</p>	<p>I₄ - Subsurface drip irrigation with fertigation once in 15 days</p> <p>Source of nutrients N₁ - 100 % water soluble fertilizer N₂ - 100 % straight fertilizer (Super-basal application, Urea and MOP by drip) N₃ - 50 % water soluble fertilizer and 50 % straight fertilizer</p> <p>Design : Split plot Replication : Three Plot size : 10 rows of 10 meter length</p> <p>Observations to be recorded:</p> <ul style="list-style-type: none"> • Soil moisture tension and field capacity, soil physico - chemical properties • Crop growth, physiological and yield parameters, Quantification of soil and plant growth promoters <p>Rationale: To quantify the appropriate quantum of water and water soluble fertilizer required for maintaining optimum soil moisture and all the perspectives of sugarcane growth and consistent yield attributes</p>	
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Action Plan No. 3 Studies on the effect of plant growth promoting hormones and beneficial soil microbes on population of cane and yield of sugarcane			
Action Plan	Name of the scientist(s) and centre	Activity	Deliverables
Influence of plant growth promoting hormones and microbes on tiller population and yield of sugarcane.	SRS, Cuddalore Tmt.R.Anitha, Assistant Professor (Crop Physiology)	Treatments: T ₁ : Control T ₂ : Soil application of Azophosmet @ 15 kg/ha T ₃ : Soil application of Azophosmet @ 15 kg/ha along with foliar spray of IAA 200ppm @ 30 th and 45 th DAP T ₄ : Soil application of Azophosmet @ 15 kg/ha along with foliar spray of Kinetin 50ppm @ 30 th and 45 th DAP T ₅ : Foliar spray of IAA 200 ppm and Kinetin 50ppm @ 30 th and 45 th DAP T ₆ : Soil application of Azophosmet @ 10 kg/ha along with foliar spray of IAA 200ppm and Kinetin 50ppm @ 30 th and 45 th DAP Replication: Four Design : RBD	To increase the net millable canes through hormones and microbes will be delivered for adoption Justification: The beneficial bacteria viz., <i>Azospirillum</i> , phosphobacteria and the methylobacterium usually colonizes in the rhizosphere region of the sugarcane for substitutional supply of the nutritional needs of sugarcane. While <i>Azospirillum</i> substitutes nitrogen through its ability to fix atmospheric nitrogen, phosphobacteria solubilize the soil fixed phosphorus and the methylobacterium synthesis varied phytohormones like Indole acetic acid (IAA), cytokinin and gibberlic acid etc., which are involved in varied physiologic activities. Under the conditions of surplus soil nutrients reserve, the sugarcane buds would utilize these resources to acquire vigorous and uniform seedlings growth. Further, subsequent foliar nutritioning of

		Observations to be recorded: <ul style="list-style-type: none"> Crop growth, physiological and yield parameters, Soil nutrient status Quantification of soil and plant growth promoters Rationale: The number of millable cane has to be increased by studying the application feasibility of growth hormones and bioactive compounds released by microorganisms.	hormones like Indole acetic acid (IAA) and kinetin on 30 th and 45 th days enhances various metabolic activities of sugarcane crop. While IAA impacts active cell division and the kinetin on healthier cane shoots development. Thus, the foliar feeding of the above phytohormone results in enhanced number of millable canes.
Action Plan No.4	Studies on the effect of trash solubilizers for <i>in-situ</i> decomposition of sugarcane trash and its impact on the yield of ratoon cane		
Action Plan	Name of the scientist(s) and centre	Activity	Deliverables
Impact of Trashsol in augmentation of soil fertility for improved cane productivity Justification: *Trashsol: A	Scientists Incharge SRS, Cuddalore 1. Dr.G.Gayathry, Asst. Prof. (AGM.) TNAU, Coimbatore 2. Dr. R. Sunitha Asst.Prof. (ENS),	Treatments: T ₁ –Trashsol @ 20 kg/ha* at 15 days interval + 125 % RDF T ₂ –Trashsol @ 30 kg/ha* at 15 days interval + 125 % RDF T ₃ –Trashsol @ 20 kg/ha* at15 days interval + 100 % RDF T ₄ –Trashsol @ 30 kg/ha* at 15 days interval + 100	A ready to use and trash solubilising mix can be developed and disseminated to farmers for <i>in-situ</i> trash decomposition

<p>bacterial and fungal consortium along with inorganic nutrients developed and standardised exclusively for sugarcane trash decomposition at SRS, Cuddalore</p>	<p>Dept. of organic farming and sustainable agriculture</p>	<p>% RDF T₅ – Trashesol @ 20 kg/ha* at 15 days interval + 75 % RDF T₆ – Trashesol @ 30 kg/ha* at 15 days interval + 75 % RDF T₇ – 100 % RDF alone + untreated trashes (Control) *10th, 25th, 40th after harvest of the plant crop (Trashesol should be mixed with cowdung slurry (400 kg in 1000 liters of water per hectare and sprayed with boom sprayer on the trashes) <ul style="list-style-type: none"> • Replications: Three <p>Observations to be recorded:</p> <ul style="list-style-type: none"> • Growth and yield parameters, soil nutrient status, C:N ratio, Quantification of soil hydrolytic enzymes (Dehydrogenases, urease and phosphatase), estimation of growth promoters (IAA and Cytokinins) <p>Rationale To alleviate the activity of burning of trashes after cane harvest and to study the effect of trash decomposing microbial consortium for increased soil fertility and sustainable sugarcane yield.</p> </p>	
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C. RESEARCH PROJECTS ON SUGARCANE

Name of the Research Station	University Research subprojects	AICRP Projects	Externally Funded Projects / Core projects	Total
Agronomy				
SRS, Cuddalore	1	-	1	2
SRS, Sirugamani	-	-	-	-
Soil Sci. & Agrl. Chemistry				
SRS, Cuddalore	1	-	-	1
SS&AC, TNAU, Cbe	-	-	1	1
Crop Physiology				
SRS, Cuddalore	-	-	1	1
Agrl. Microbiology				
SRS, Cuddalore	1	-	1	2
TOTAL	3	-	4	7

D. ONGOING URPS / AICRPS / EXTERNALLY FUNDED PROJECTS/OFT

S. No.	Project Number and title	Remarks of the Director
AGRONOMY		
1.	DCM/CDR/AGR/SUG/2016/001 Studies on identification of promising chewing cane and optimising the doses of N,P and K for sustainable cane yield and quality (March 2016 to July 2020) Dr.M.Jayachandran Professor and Head, SRS, Cuddalore	Recommended to propose for OFT with treatments details to respective centers.
2.	DCM/CDR/AGR/SUG/CP/173 Studies on the effect of new generation herbicides molecules and its combination on management of creeper weeds in sugarcane (Jan 2019 to June 2020) Dr. G. Manickam Professor (Agronomy), SRS, Cuddalore	Recommended to propose for OFT with treatments details to respective centers.

SOIL SCIENCE AND AGRICULTURAL CHEMISTRY		
3.	NRM/CDR/SAC/SUG/2016/001 Assessing the effect of mechanization on soil compaction in sugarcane and developing suitable management strategies (Nov' 2016 to Dec'2019) Dr.M.Jayachandran Professor and Head, SRS, Cuddalore Dr. N. Chandrasekaran Professor (SS&AC), TNAU, Coimbatore	Recommended to propose for OFT with treatments details to respective centers.
4.	NRM/CBE/SAC/SUG/2018/CP014 Developing multi micronutrient foliar formulation for alleviating the micronutrient deficiencies in sugarcane and groundnut (August 2018 to July 2020) Dr. D.Jegadeeswari, Assoc. Prof. (SS&AC) Dept. of Soil Science & Agrl. Chemistry, TNAU, Coimbatore	Recommended to propose for OFT with treatments details to respective centers.
CROP PHYSIOLOGY		
5.	DCM/CDR/CRP/SUG/2018/CP174 Studies on the effect of organic and inorganic inoculants on post-harvest deterioration under manual and mechanical harvest in sugarcane (Feb 2019 to July 2022) Tmt. R. Anitha Asst. Professor (Crop Physiology), SRS, Cuddalore Co- PI : Dr. G. Gayathry Asst. Professor (Agrl. Micro), SRS, Cuddalore	The project may be continued. The results are to be confirmed with sugarmills.

AGRICULTURAL MICROBIOLOGY		
6.	NRM/CDL/AGM/SUG/2020/001 <i>In-situ</i> decomposition of sugarcane trash and stubbles using biosolublizers and its impact on the yield of manually harvested cane ratoon cane (July 2019- July 2021) Dr. G. Gayathry, Asst. Prof. (Agrl. Micro) SRS, Cuddalore	The project may be continued. The results are to be confirmed in another ratoon crop experiment.
Externally Funded Project - DST- ECR, SERB, New Delhi		
7.	GoI/NRM/CDL/AGM/2017 Fermentative Production of GABA enriched Kombucha: a value added functional plant beverage (FPB) from underutilized fruits (March 2017-March 2020) Dr. G. Gayathry, Asst. Professor (Agrl. Micro.), SRS, Cuddalore	The project may be completed and the completion report may be submitted for approval.
Ongoing on-farm trials		
1.	OFT – 1: Nutri-pellet pack fertilization in sugarcane (2019-2020) Coordinating centre Dept. of SS&AC, TNAU, Coimbatore Dr.D.Jegadeeswari, Assoc. Professor (SS&AC) SRS, Cuddalore Dr.M. Jayachandran, Professor and Head, Scientist Incharge Dr. G. Gayathry Asst. Prof. (Micro.) SRS, Sirugamani Dr.L.Chithra, Professor and Head, Dr.R.Nageswari, Assistant Professor (Agronomy)	OFT in progress and may be continued and results are to be presented in the Sugarcane meet 2021

2.	<p>OFT – 5: Impact of silicon nutrition on physiology, yield and quality of sugarcane under drought condition (2019-2020)</p> <p>Centres:</p> <p>SRS, Cuddalore: Tmt. R. Anitha, Asst. Professor (Crop Physiology)</p> <p>AC&RI, Eachangkottai: Dr. C. Tamilselvi Asst. Professor (Crop Physiology)</p>	OFT in progress and may be continued
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III. CROP PROTECTION

A. Decisions made on Adoption / OFT

A1. For Adoption

Soil application of *Metarhizium anisopliae* 4×10^9 cfu/g @ 5 kg/ha was highly effective in reducing white grub population (66.66%) with highest cane yield of 103.03 t/ha and highest B:C ratio of 2.02

A2. For OFT

Nil

A3. For Information

- Out of 48 clones screened for resistance, 18 were less susceptible to early shoot borer with less than 30 % incidence
- Army worm, *Spodoptera mauritia* damage was observed to a level of 12.25 % at Parayampattu village of Thiruvannamalai district and 14.50 to 20.00% at S. Kolathur, Kaduvanur village of Kallakuruchi district
- Buprestid leaf miner damage (3.0 %) was recorded in ratoon crop of Co 86032 at the Farm Unit of Chengalpattu Co-operative sugar Mill, Padalam
- Among the 52 clones screened for resistance to red rot by plug method the three clones viz., C 15632, 16G031 and 16G032 were identified as resistant and thirteen clones were identified as moderately resistant
- Among the 21 AICRP clones screened for resistance to red rot by plug method 18 clones were identified as moderately resistant. Six clones were identified as moderately resistant to smut disease by artificial inoculation
- Setts treatment with liquid formulated *Chaetomium globosum* @ 10 ml/l for 10 minutes + Soil application with talc formulation 2.5 kg/ha at the time of planting recorded lowest incidence of sett rot disease with the higher germination percent, higher tiller population and shoot population

E. Action plan for identified themes (2020 – 2021)

Action Plan No. 1		Surveillance of pests and diseases of sugarcane	
Theme Leader		Dr. S. Pasupathy, Professor (Agrl. Entomology), SRS, Cuddalore	
Activity	Scientist(s)	Observations to be made	Deliverables
<p>Monitoring and surveillance of borers, sucking pests, root feeders, defoliator (if any) and natural enemies in sugarcane in the endemic areas of respective district should be made. Weather parameters should be collected</p> <p>Monitoring and surveillance of red rot, smut, wilt and YLD in endemic areas of the respective district. Fixed plot and roving surveys should be conducted. Weather parameters should be collected</p> <p>Awareness campaign on the integrated management of pests and diseases should be arranged at appropriate time.</p> <p>Correlation studies with weather parameters and developing forewarning model</p>	<p>SRS, Cuddalore Dr. S. Pasupathy Dr.V. Ravichandran</p> <p>AC&RI, Vazhavachanur Dr. S. Douressamy</p> <p>AC&RI,Kudumiyanmalai Dr.P.Chandramani</p> <p>AC & RI, Killikulam Dr.N.Balakrishnan</p> <p>ARS, Bhavanisagar Dr.Sheela Venugopal</p> <p>IOA, Kumulur Dr. V. Bhaskaran</p> <p>SRS, Sirugamani Dr.M. Mathialagan Teaching Assistant</p> <p>SRS, Melalathur Dr. C. Mohan Teaching Assistant</p> <p>ACRC,TNAU, Coimbatore Dr. S. Kokilavani</p>	<p>Monitoring and surveillance to be done throughout the year.</p> <p>Correlation and regression analysis on major pests and diseases with weather factors to be done.</p>	<p>Forecasting the outbreak of pests and diseases in sugarcane at appropriate times, for taking up management measures by the farmers.</p> <p>Prediction analysis on the incidence of pests and diseases.</p>

Action Plan No. 2	Identification of resistant sources with mechanism of resistance for major pests and diseases		
Theme Leader	Dr. V. Ravichandran, Assistant Professor (Plant Pathology), SRS, Cuddalore		
Activity	Name of the scientist(s) and centre	Observations to be made	Deliverables
Screening of sugarcane clones for field resistance to major pests and diseases.	<p>SRS, Cuddalore Dr. S. Pasupathy Dr.V.Ravichandran,</p> <p>SRS, Sirugamani Dr.M. Mathialagan Teaching Assistant</p> <p>SRS, Melalathur Dr. C. Mohan Teaching Assistant</p>	<p>Pests: Early shoot borer, internode borer and emerging pests. To be screened under natural field conditions. The mechanism of resistance (antixenosis, antibiosis & tolerance) has to be studied</p> <p>Diseases: Red rot and smut To be screened both by artificial inoculation and natural condition Yellow leaf disease To be screened in natural condition The mechanism of resistance (physical, biochemical and molecular) has to be studied.</p>	Identification of resistant clones and resistance mechanisms for pests and diseases of sugarcane for utilizing in breeding programmes.

Action Plan No. 3		Evaluation of sex pheromone trap for Mass trapping inter node borer in sugarcane	
Theme Leader		Dr. S. Pasupathy, Professor (Agrl. Entomology), SRS, Cuddalore	
Activity	Name of the scientist(s) and centre	Observations to be made	Deliverables
Evaluation of sex pheromone trap for mass trapping internode borer Treatment Sex pheromone traps @ 10, 15 & 20 /acre & Control Replications: 5 Design: RBD Stage of installation: 120 DAP	SRS, Cuddalore Dr. S. Pasupathy AC & RI, Vazhavachanur Dr. S. Douressamy AC & RI, Eachengkottai Dr.A.Thirumurugan SRS, Sirugamani Dr.M. Mathialagan Teaching Assistant SRS, Melalathur Dr. C. Mohan Teaching Assistant	Weekly catches of male moths, percent damage of internode borer, cane yield & BCR	No. of traps for mass trapping INB will be standardized

Action Plan No. 4		Evaluation of insecticides against early shoot borer under wider row planting	
Theme Leader		Dr. S. Pasupathy, Professor (Agrl. Entomology), SRS, Cuddalore	
Activity	Name of the scientist(s) and centre	Observations to be made	Deliverables
Evaluation of insecticides against early shoot borer under wider row planting Treatments T ₁ - Imidacloprid 17.8 SL @ 250 ml/ha T ₂ - Azadirachtin 1% 1000 ml/ha T ₃ – Chlorantraniliprole 18.5SC 375 ml/ha T ₄ – Control Time of application at 15% incidence Replications: 4 Design: RBD	SRS, Cuddalore Dr. S. Pasupathy AC & RI, Eachengkottai Dr.A.Thirumurugan IOA, Kumulur Dr. V. Bhaskaran SRS, Sirugamani Dr.M. Mathialagan Teaching Assistant SRS, Melalathur Dr. C. Mohan Teaching Assistant	Percent ESB damage, natural enemies, cane yield & BCR	Effective molecule for early shoot borer will be identified

Action Plan No. 5		Management of smut disease in sugarcane	
Theme Leader		Dr. V. Ravichandran, Assistant Professor (Plant Pathology), SRS, Cuddalore	
Action Plan	Name of the scientist(s) and centre	Observations to be made	Deliverables
Management of smut disease in sugarcane	SRS, Cuddalore Dr.V.Ravichandran, Assistant Professor (Plant Pathology)	<p>Treatment</p> <p>T₁ – Sett treatment with propiconazole 1 ml l⁻¹ for 15 min + foliar spraying @ 1 ml l⁻¹ at 60 and 90 days after planting .</p> <p>T₂ – Sett treatment with <i>Bacillus subtilis</i> (EPC5) @ 10 g l⁻¹ for 15 min + foliar spraying @ 1 g l⁻¹ at 60 and 90 days after planting .</p> <p>T₃ – Sett treatment with <i>Chaetomium globosum</i> (Cg6) @ 10 g l⁻¹ for 15 min + foliar spraying @ 1 g l⁻¹ at 60 and 90 days after planting .</p> <p>T₄ – Sett treatment with carbendazim 1 g l⁻¹ for 15 min + foliar spraying @ 1 g l⁻¹ at 60 and 90 days after planting .</p> <p>T₅ - Untreated control</p> <p>Replications : Four</p> <p>Design: RBD</p> <p>Observations Smut incidence and Yield</p>	Technology for the management of smut disease in sugarcane

C. RESEARCH PROJECTS ON SUGARCANE

Name of the Research Station	University Research subprojects	AICRP Projects	Externally Funded Projects / Core projects	Total
Agricultural Entomology				
SRS, Cuddalore	2	-	-	2
AC&RI, Echankottai	1	-	-	1
Plant Pathology				
SRS, Cuddalore	1	1	-	2
TOTAL	4	1	-	5

D. ONGOING URPS / AICRPS / EXTERNALLY FUNDED PROJECTS/OFT

S. No.	Project Number and title	Remarks of the Director
AGRICULTURAL ENTOMOLOGY		
1.	CPPS / CDL / ENT / SUG 2020/ 001 Screening of Sugarcane clones for field resistance against endemic pests of Cuddalore region (Feb 2019 to Jan 2021) Dr.S.Pasupathy, Professor (Agrl. Entomology) SRS, Cuddalore	The project may be continued.
2.	CPPS / CDL / ENT /SUG/2020 / 002 Surveillance of major insect pests of Sugar cane in Cuddalore district (Feb 2019 to Jan 2021) Dr.S.Pasupathy, Professor (Agrl. Entomology) SRS, Cuddalore	The project may be continued.
3.	CPPS/EKT/ENT/SUG/2019/001 Developing technology capsule for the management of pests and diseases of sugarcane under wider row planting. (June 2019 to May 2022) Dr.A.Thirumurugan	The project may be continued.

	Professor (Entomology) and Head, AC&RI, Echangkottai Dr.K.Yamunarani Asst. Professor (Plant Pathology) AC&RI, Echangkottai	
PLANT PATHOLOGY		
4.	AICRP/PBG/CUD/SUG/025 AICRP on sugarcane (2019 to 2020) Dr.V.Ravichandran, Asst. Professor (Plant Pathology) SRS, Cuddalore	The project may be continued as per the technical programme of AICRP
5.	CPPS/CDR/PAT/SUG/2017/001 Biosuppression of sugarcane sett rot disease and understanding the mechanism of suppression against <i>Certocystis paradoxa</i> (June, 2017 to March 2020) Dr.V.Ravichandran, Asst. Professor (Plant Pathology) SRS, Cuddalore	The results are to be consolidated and completion report should be submitted on or before 30.06.2020. A new URP may be proposed on or before 30.06.2020

IV. GENERAL REMARKS OF THE VICE CHANCELLOR

CROP IMPROVEMENT

- During fluff seedling selection, due weightage have to be given for clones with high HR Brix (>24) and more number of millable cane (>5) for developing high sugar variety (Action: Plant Breeders of SRS, Cuddalore, Melalathur and Sirugamani)
- During selection, clones with special traits must be tested and confirmed for registering as genetic stock (Action: Plant Breeders of SRS, Cuddalore, Melalathur and Sirugamani)
- Explore the possibilities of utilizing *Erianthus arundinaceous* for developing intergeneric hybrids (Action: Plant Breeders of SRS, Cuddalore)
- Establishing a sugarcane crossing block in Paddy Breeding Station, TNAU, Coimbatore (Action: Plant Breeders of SRS, Cuddalore, Sirugamani and Melalathur)
- Utilize Co 11015 as standard in all breeding trials (Action: Plant Breeders of SRS, Cuddalore, Melalathur and Sirugamani)
- Steps shall be taken to strengthen the germplasm collection by assembling more collections from Tamil Nadu and other state released sugarcane varieties (Action: Plant Breeders of SRS, Cuddalore)

CROP MANAGEMENT

- In the drip fertigation system involving SSI, pesticides need not be applied through drip.
- In climate resilient cropping programmes of breeding, an agronomist and soil scientists may be involved.
- In the development of value added from Kombucha, a Food Science and nutritionist may be involved for optimization and standardization of the product.

CROP PROTECTION

- All the scientists are instructed to monitor the insect pests, diseases and nematodes of sugarcane in their districts regularly. If any outbreak of existing pests, disease and nematodes or occurrence of new insect pests, diseases and nematodes of sugarcane noticed report to the Director (CPPS) immediately.

- Monthly pest and disease surveillance report should be submitted to the Professor and Head, Department of Agrl. Entomology, CPPS on or before 25th of every month without fail in the Google Forms for consolidation.
- The dates given for sending the closure proposal / deletion proposal should be strictly adhered.
- All the Plant Protection scientists working in the stations need to have at least three URPs and if working in AICRP schemes/teaching campuses need to have at least one URP.
- Any new URP proposals related to plant protection is to be presented before the RPAC convened by the Director (CPPS) before getting final approval.
- All scientists are requested to publish their findings in reputed peer reviewed society journals. Both hard and soft copies of published articles shall be sent to the Director, CPPS, TNAU, Coimbatore for repository purpose.
- Biological control based IPM strategies for sugarcane pests may be popularized
- An alternative fungicide for carbendazim sett treatment may be explored.
- Research programme may be intensified for smut disease with resistance sources and management strategies.

V. Closing Remarks & Way Forward by the Director of Research

- Large scale demonstrations of newly released sugarcane varieties from TNAU (Co. 13339; CoG6) and Sugarcane Breeding Institute, Coimbatore (Co. 11015 Atulya) in sugar mill areas and farmers fields to get the feedback and to be presented at the Scientific Workers' Conference 2020 and subsequent CSM 2021.
- The improved version of CoC 671 may be developed and introduced as a new variety to gain advantage of yield
- The performance of SSI in sugar mill areas to be studied under TN-IAMP and data to be presented in the next CSM and to develop as a technology capsule in boosting sugarcane production in the State of Tamil Nadu
- Develop strategies to minimize the damage caused by red rot using standard nursery program
- Complete mechanization in sugarcane, tested in TNAU, Coimbatore, may be critically evaluated in terms labour saving, economics and productivity gains.

DIRECTOR OF RESEARCH

V. PARTICIPANTS

I. List of participants at TNAU campus

Dr.N. Kumar , Vice Chancellor, TNAU, Coimbatore	
University officers	
1	Dr.K.S.Subramanian , Director of Research, TNAU, Coimbatore
2	Dr.S.Geetha , Director, CPBG, TNAU, Coimbatore
3	Dr.V.Geethalakshmi , Director, CMS, TNAU, Coimbatore
4	Dr.R.Santhi , Director, NRM, TNAU, Coimbatore
5	Dr.S.Mohankumar , Director, CPMB &B, TNAU, Coimbatore
6	Dr.S.Panneerselvam , Director, WTC, TNAU, Coimbatore
7	Dr.S.Sundareswaran , Director, Seeds, TNAU, Coimbatore
8	Dr.B.Shridar , Dean, AEC&RI, TNAU, Coimbatore
9	Dr.M.Kalyanasundaram , Dean, AC&RI, TNAU, Coimbatore
10	Dr.J.S.Kennedy , Dean, SPGS, TNAU, Coimbatore
11	Dr.T.Raguchendar , Dean, DSW, TNAU, Coimbatore
12	Dr.S.D.Sivakumar , Director, ABD, TNAU, Coimbatore
13	Dr.K.R.Ashok , Director, CARDS, TNAU, Coimbatore
14.	Dr.J.Venkata Pirabhu , Director, Planning & Monitoring, TNAU, Coimbatore.
Professor and Heads/Scientists of various Departments, TNAU, Coimbatore	
15	Dr.C.R.Chinnamuthu, Professor and Head, Dept. of Agronomy
16	Dr.N.Sathiah, Professor and Head, Dept. of Agrl. Entomology
17	Dr.M.Maheswari, Professor and Head, Dept. of Environmental Science
18	Dr.G.Karthikeyan, Professor and Head, Dept. of Plant Pathology
19	Dr.P.Jeyakumar, Professor and Head, Dept. of Crop Physiology
20	Dr.E.Somasundaram, Professor and Head, Dept. of Sustainable Organic Agriculture
21	Dr.S.Pugalendhi, Professor and Head, Dept. of Renewable energy
22	Dr.D.Asokan, P&H, Dept. of Farm Machinery & Power, AEC &RI
23	Dr.S.P. Ramanathan Professor and Head, ACRC
24	Dr.V.Gomathi, Professor and Head, Dept. of Ag. Microbiology
25	Dr.P.Malarvizhi, Professor and Head, Dept. of Soil Science and Agrl. Chemistry
26	Dr.K.Valliappan, Professor and Head, Dept. of Environmental Sciences
27	Dr.S.Pazhanivelan, Professor and Head, Dept. of RS&GIS
28	Dr.S.Rajeswari, Professor and Head, Dept. of Cotton
29	Dr.M.Kumar, Professor (PBG)
30	Dr.M.Mohamed Yassin, Professor (Agron.), O/o the Directorate of Research
31	Dr.V.K.Duraisamy, Professor (Agron.), O/o the Directorate of Research
32	Dr.N.Chandra Sekaran, Professor (SS&AC)
33	Dr. R. Vishnupriya, Professor (Agrl. Entomology)
34	Dr. S. Jeyarani, Professor (Agrl. Entomology)
35	Dr.K.Vaiyapuri, Professor (Agron.)

36	Dr.A.Senthil, Assoc.Prof. (CRP)
37	Dr.D.Jegadeeswari, Assoc. Professor (SS&AC)
38	Dr.N.Sakthivel, Assoc.Prof.(Agron.)
39	Dr.S.Gokilavani, Assistant Professor (Agronomy), ACRC
40	Dr.K.Senguttuvan, Asst.Prof. (Agrl. Entomology)
41	Dr.S.Thiruvarrasan, Assistant Professor, (Agronomy)
42	Dr.P.Latha, Asst.Professor (Pl.Path.)
43	Dr.N.Premalatha, Asst.Prof.(PBG)

II. List of Outstation participants (online mode)

S.No	Name of the University officer/ Scientists	Cell number	e-mail ID
Tamil Nadu Rice Research Institute			
1.	Dr.V.Ambethgar, Director, TRRI, Aduthurai	9442875303	dirtrri@tnau.ac.in
Sugarcane Research Station, Cuddalore			
1.	Dr.M.Jayachandran, Professor and Head	9443422461	jayachandranm@tnau.ac.in
2.	Dr.G.Manickam, Professor(Agronomy)	9443257056	manickamcdm@gmail.com
3.	Dr.S.Pasupathy, Professor (Entomology)	9655735019	sundarampasupathy@rediffmail.com
4.	Dr.M. Shanmuganathan, Asst. Professor (Plant Breeding)	9443758903	shanmuganathan.m@tnau.ac.in
5.	Dr.V.Ravichandran, Asst. Professor (Plant Pathology)	9952840586	ravichandran.v@tnau.ac.in
6.	Dr.G.Gayathry, Asst. Professor(Agrl. Microbiol.)	9488494284	gayathryg@tnau.ac.in
7.	Tmt.R.Anitha, Asst. Professor(Crop Physiology)	8754253111	anithasrs2014@gmail.com
Sugarcane Research Station, Sirugamani			
8.	Dr.L.Chithra, Professor and Head	8778150236	lakshmananchithra@yahoo.co.in
9.	Dr.R.Nageswari, Asst. Professor (Agronomy)	7502840470	oryzanagtn@gmail.com
10.	Dr.S.Mohan, Teaching Assistant	9842960200	mail2mohanshanmugam@gmail.com

11.	Dr.V.Manimozhi Selvi, Teaching Assistant	9629966621	manimozhiagri2005@gmail.com
12.	Dr.M. Mathialagan Teaching Assistant	9597999685	mathialagan08637@gmail.com
Sugarcane Research Station, Melalathur			
13.	Dr. R.Sudhagar, Associate Professor and Head	9842256972	genesudha@gmail.com
14.	Dr.C. Mohan Teaching Assistant	9597999810	mohanentomology@gmail.com
AC&RI, Vazhavachanur			
15.	Dr.S.Douressamy, Professor (Agrl. Entomology)	9487381260	douressamy.s@tnau.ac.in
AC&RI, Echankottai			
16.	Dr.A.Thirumurugan, Professor (Agrl. Entomology)	8489678759	thirumurugan.a@tnau.ac.in
17.	Dr.A.Yamunarani, Asst. Prof. (Plant Pathology)	9043009449	yamunarani.k@tnau.ac.in
HC & RI (W), Trichy			
18.	Dr.V.R.Saminathan, Associate Professor (Agrl. Entomology)	9894383412	sami_ento@yahoo.com
IOA, Kumulur			
19.	Dr.V.Bhaskaran, Asst. Prof.(Agrl. Entomology)	9445175022	varadharajbhaskaran@gmail.com
ADAC&RI, Trichy			
20.	Dr.S.Nithila, Asst. Prof.(Crop Physiology)	8668006451	dr.nithila@gmail.com