TAMIL NADU AGRICULTURAL UNIVERSITY

PROCEEDINGS

32nd Sugarcane Scientists Meet
(30.05.2024)

LEAD CENTRE

Sugarcane Research Station
Tamil Nadu Agricultural University
Cuddalore – 607 001

Directorate of Research
Tamil Nadu Agricultural University
Coimbatore – 641 003

2024

PROCEEDINGS

32nd Sugarcane Scientists Meet
(30.05.2024)

The 32nd Crop Scientists' Meet on Sugarcane was held on 30.05.2024 at Rasi Seeds Conference Hall, TNAU, Coimbatore. **Dr. V. Geethalakshmi**, Vice Chancellor, TNAU, Coimbatore chaired the meeting and offered the opening remarks. Madam suggested to analyze the reasons for the reduction in Sugarcane area in Tamil Nadu and urged the scientists to develop farmer friendly technologies to boost the area under sugarcane. Madam also emphasized that each sugarcane Research Station need to work with specific objectives like Breeding at Cuddalore, Crop Management research at Sirugamani and Seed Production at Melalathur.

Dr. M. Raveendran, Director of Research welcomed the participants and offered his overall remarks on the progress of activities during the last year. It was suggested to assess the reasons for decline in area under sugarcane in Tamil Nadu. Efforts may be taken to increase the area under cultivation of Sugarcane in Tamil Nadu

The highlights of the research achievements, action taken on the recommendations of the previous meet and action plan for 2024-25 in the disciplines of Crop improvement, Crop Management, Natural Resource Management Plant Protection were presented by **Dr. R. Ravikesavan**, Director, CPBG, **Dr. M.K. Kalarani**, Director, DCM, **Dr. P. Balasubramaniam**, Director, NRM and **Dr.M. Shanthi**, Director, CPPS respectively.

Dr. A. Subramanian, Professor and Head, Department of Cotton, TNAU, Coimbatore proposed a vote of thanks.

The proceedings of the 32nd Sugarcane Crop Scientists Meet 2024 are furnished under the following headings:

I. CROP IMPROVEMENT

A. Variety release proposal OFT / ART / MLT
B. Action Plan (2020-2025)
C. Research Projects and remarks

II. CROP MANAGEMENT

A. Technologies for adoption / OFT
B. Action Plan Projects
C. Research Projects and remarks

III. CROP PROTECTION

A. Technologies for adoption OFT / Information
B. Action Plan Projects
C. Research Projects and remarks

IV. REMARKS

V. LIST OF PARTICIPANTS

I. CROP IMPROVEMENT

A. Entries for Variety Release Proposal/ART/OFT/MLT (2024-25)

A1. Clones under On Farm Trial 2024-25

G 2008-19, A mid late maturing clone is under OFT. It is a derivative of CoV92102 General Cross. In 20 trials, G 2008-19 has recorded a mean cane yield of 129.68 tonnes/hectare. G.2008-19 has the yield advantage of 12.7 % in cane cane yield and 6.4 % in CCS % over the check variety Co 86032. The clone has manifested Moderate Resistance to Red Rot disease and given good quality jaggery. It possesses high sugar content with an estimated CC of 13.17%. The clone was found to have good ratooning ability and suitable for salt affected soils. The OFT has to be conducted with checks Co 86032 and CoC 13339.

A2. Cultures Identified for ART 2024 -25

The below mentioned clones were identified for conducting ART 2024-25 as Plant -I crop along with the checks in 23 sugar mills. Both the clones are on par with the check Co 86032 in cane yield and CCS %. However, both are moderately resistant to red rot under plug method and R to smut with good ratoon ability.

S. No.	Clone	Parentage	Red rot score	Cane yield (t/ha)	CCS (%)
1.	C 16338	Co 775 GC	MR	112.1	13.07
2.	Co 17001	Co0327 / Co 0218	MR	116.7	13.19
	Standards: Co C13339, Co 86032, Co 11015 and Co G7				

Traits to be recorded

1. Number of milllable cane (‘ooo/ha) at harvest
2. Individual cane weight in kg
3. Pol % at 10th and 12th month
4. Brix% at 10th and 12th month
5. Cane Yield (t/ha) at harvest

A3. Cultures for Multi Location Trial 2024-25

The cultures which are to be evaluated as Plant -I crop during 2024-25

Entries (7)	:	C 17017, C 17043, C 17122, G 15060, Si 15003, Co 17009 and Co 18001
Standards (5)	:	Co 86032, Co 11015, CoC 13339, CoG 7 & CoV 09356
Locations	:	Cuddalore, Sirugamani, Melalathur and SBI, Coimbatore
Plot Size	:	5m row length x 5 rows x 1.2 m row space
Replication	:	Three
Time of Planting	:	Jan - Feb 2023
Spacing	:	12 buds per metre x 1.2 m between rows
Traits to be recorded	:	Number of millable cane (,000/ha) at harvest Single cane weight (kg) at harvest Cane Yield (Kg/plot) at harvest Brix % at 8th, 10th and 12th month

		age of the cane Pol % at 10th and 12th month age of the cane Other salient features
Scientist Incharge	:	Dr. D. Sassikumar, Professor &Head, SRS, Cuddalore Dr. V. Anbanandan, Professor, SRS, Sirugamani Dr. N.A. Saravanan, Assoc. professor & Head, SRS, Melalathur Scientist Designated by the Director, SBI, Coimbatore

The cultures accepted for multiplication during 2024 and will be evaluated as MLT-Plant I during 2025

S. No.	Clone	Parentage	Cane yield (t/ha)	CCS %	Sugar yield (t/ha)	Reaction to red rot
1.	C 19024	Co 0238 x Co 97015	131.3	12.96	17.02	MR
2.	C 20072	Co 0212 GC	136.7	13.18	18.02	MR
3.	C 20085	Co 8371 PC	138.3	13.02	18.01	-
4.	C 21033	Co 2000-10 x CoBln 03174	134.5	12.98	17.46	-
5.	Co 15017	Co 94012 x Co 86011	135.2	-	22.54	R
6.	Co 16018	CYM 09-382 x CoT 8201	202.7	-	27.65	MR
7.	Co 19014	Co 11015 GC	156.0	-	22.32	MS
8.	G 12087	G 09 020 (GC)	126.0	13.01	16.41	MR
9.	G 12117	G 07023 (GC)	124.0	13.13	16.13	MR
10.	Si 2016-04	TNAU(SC) Si 8 GC	137.0	13.19	18.05	-
11.	Si 2016-196	TNAU(SC) Si 6 GC	133.0	13.15	17.50	-
12.	Si 2016-028	TNAU(SC) Si 8 GC	135.0	13.08	17.60	-

A4. New clones accepted for AICRP(S) – ZVT - East Coast Zone – 2023 - 24

S. No.	Clone Number (Culture)	AICRP Number	Parentage	Maturity group	Red Rot rating	Cane Yield (T/ha)	CCS (%)	Sugar Yield (T/ha)
1.	C 20085	CoC 23336	Co 8371 PC	Early	-	148.2	12.94	19.18
2.	C 21033	CoC 23337	Co 2000-10 x CoBin 03174	Early	MR	138.4	12.92	17.88
3.	C 19024	CoC 23338	Co 0238 x Co 97015	Mid late	MR	135.6	13.10	17.76
4.	C 20072	CoC 23339	Co 0212 GC	Mid late	MR	142.3	12.94	18.41

B. ACTION PLAN (2024-25)

Action Plan	Centre	Activity
<u>Action Plan -I</u> Developing high yield and High sugar clones Induced Mutagenesis in high sugar varieties for red rot resistant clones	SRS, Melalathur	Thirteen mutants of Co 86032 which has shown morphological variation may be confirmed for stability in expression of traits in all the three sugarcane Research Stations. Gamma irradiation may be done in CoC 671 and Co 11015 as a fresh set during this year.

Action Plan 2 Breeding for climate resilient clones Identification of clones tolerant to prolonged water logging and salinity	SRS, Cuddalore	The identified clones *viz*., C 22033, C 22072, C 22099, C 22157 C 22324 and C 22328 may be revalidated for endurance in the prolonged water-logged condition.
	SRS, Melalathur	The advanced clones will be screened in salt affected/tannery effluent soils
Action Plan 3 Development of high sugar soma clones of CoC 671 with red rot resistance	SRS, Cuddalore	The soma clones of CoC 671 developed at Coimbatore will be evaluated for phenotypic variability and red rot resistance
Action Plan 4 Genome Editing in Sugarcane Red Rot resistance	CPMB	The guide RNA was constructed and the genome editing work has to be taken up for sugarcane red rot disease
Action Plan 5 Identification of extra early clones (Clones with CCS 13 % and cane yield 30 t /acre at 8th month age)	SRS, Cuddalore, Sirugamani and Melalathur	The ground nursery will be screened for extra early maturity Attempting hybridization with early clones *viz*., Co 11015, CoC 92061

C. Review of research projects on Sugarcane and remarks on the ongoing university research projects/AICRP/Externally funded projects

C1. Research Projects on Sugarcane

Discipline/Station	University Research Projects	AICRP project	Total
SRS, Cuddalore	2	1	3
SRS, Melalathur	1	-	1
SRS, Sirugamani	2	1	3
DCPBG, TNAU, CBE	1	-	1
Total	**6**	**2**	**8**

B2. Remarks of ongoing URPs / AICRPs in Crop Improvement

S. No.	Project No. and Title	Project leaders	Duration	Remarks
C1. University Research Projects (URPs)				
1.	CPBG/CDL/PBG/SUG/ 2020/ 001 Evaluation and identification of high yielding and quality varieties with inbuilt red rot resistance to cater the needs of Tamil Nadu cane farmers and sugar mills	PI: Dr. D. Sassikumar, Prof. (PBG) and Head, SRS, Cuddalore Co PI: Dr. T. Thirumurugan, Assoc. Prof. (PB&G) Dr. S. Thangeswari, Asst. Prof. (Pl. Pathology), SRS, Cuddalore	Apr 2020-Mar 2025	The project shall be continued. Clones with high sugar content are to be evaluated for pest and disease reactions. Simultaneous seed multiplication needs to be taken up for high sucrose clones from IYT stage onwards.
2.	CPBG/MLT/PBG/SUG/ 2019/001	PI: Dr. N.A. Saravanan,	Dec 2019 - Nov 2024	The project shall be continued. High brix mutants of CoC671 are

	Evolution of high yielding and quality sugarcane clones with red rot tolerance	Asst. Prof. (PBG) and Head, SRS, Melalathur		to be studied for morphological variation. The top 5 clones in terms of high sucrose are to be studied in other stations for stability in expression
3.	CPBG/SRS/PBG/SUG/ 2020/001 Development of improved sugar content varieties in sugarcane through mutagenesis.	PI: Dr. V. Anbanandan, professor (PBG), SRS, Sirugamani	Dec 2020 - Dec 2025	The project shall be continued. High brix mutants may be identified
4.	CPBG/SRS/PBG/SUG/ 2021/002 Evolving mid-late maturing sugarcane varieties with resistance to red rot and smut disease suitable for Cauvery delta zone.	PI: Dr. V. Anbanandan, professor (PBG), SRS, Sirugamani	Feb 2021- Jan 2026	The project shall be continued. The clones may be tested for red rot and smut artificially at AYT stage itself
5.	CPBG/CBE/PBG/SUG/2 020/001 Maintenance of hybridization garden of Sugarcane with core germplasm	PI: Dr. Asish K Binodh, Assistant Professor (PBG) DCPBG, Coimbatore	August, 2020 - July, 2025	The project may be closed and the completion report is to be submitted
C2. AICRPs				
6.	AICRP/PBG /CUD/SUG /025 AICRP on Sugarcane	Dr. T. Thirumurugan, Asst. Professor (PBG)	Continuous	The project shall be continued.
7.	AICRP on Sugarcane Voluntary centre	Dr. V. Anbanandan Professor (PB&G)	Continuous	The project shall be continued.

II. CROP MANAGEMENT

A. Technologies for Adoption/OFT/Information

A1. For Adoption

Sett priming with TNAU bud chip Consortia for extended storage and production of disease-free settlings

Sett priming with TNAU Bud chip consortia was done with the variety CoC 13339 to extend the storage period of bud chip. Treated bud chips were planted on 1st day, 3rd day and 7th day along with untreated control. Meantime the treated bud chips were stored in vacuum bag. The best results under storage were obtained on 3rd day planting

It resulted in maximum germination (75 %), shoot length (64 cm), root length (22.12 cm) and seedling vigour index (6085) of sugarcane. It also recorded maximum leaf area (35.99 cm^2), total chlorophyll (2.80 mg g^{-1}) with minimum bacterial load (0.96 CFU 10^6) and extended storage period of 3 days. This technology also resulted in reduced sett rate with increased BCR (1.82).

A2. For On Farm Trial

Studies on the effect of nutrient solution, growth promoting hormones and beneficial soil microbes on population of cane, physiology and yield of ratoon sugarcane crop

Objective:

To study the interaction effects of plant growth regulators and microbes on cane yield enhancement and economic viability of ratoon sugarcane crop

Co- ordinating centre & Scientist In-charge

SRS, Cuddalore: Tmt. R. Anitha, Assistant Professor (Crop Physiology)

Sub- centres & Scientists in-charge

1. SRS, Sirugamani: Dr. C. Raja Babu, Associate Professor (Crop Physiology)
2. SRS, Melalathur: Dr. J. Nambi, Associate Professor (Agronomy)
3. AC & RI, Vazhavachanur: Dr. K. Ananthi, Asst. Professor (Crop Physiology)
4. KVK, Tiruvallur: Dr. K. Sivagamy, Assistant Professor (Agronomy)

Treatments

T_1: Control

T_2: Soil application of Azophos @ 15kg/ha + Sugarcane booster recommended dose + foliar spray of nutrient solution @ 30th DASE

Observations and Analysis

Initial and post-harvest soil nutrient status, establishment Percentage (%), Tiller population (‘000/ha), Millable cane population (‘000/ha), Total bacterial population (10^8cfu/g), Physiological parameters, Cane yield and economics.

A3. For Information

1. Creation of database on sugarcane area in major sugarcane growing districts of Tamil Nadu

Through application of satellite data and on comparison with ground truth points, sugarcane cultivation area of Villupuram and Cuddalore districts were assessed. It was observed based on the accuracy assessment from the ground truth data that the overall accuracy of 85.5 % was obtained at Cuddalore and 85.2 % at Villupuram districts

2. Dissecting the physiological mechanism and adaptive response of sugarcane varieties to waterlogging

On imposing waterlogging stress to sugarcane genotypes revealed that sugarcane Variety CoC 13339 and sugarcane clone C 16338 recorded more leaf area (538.94 cm^2 and 463.92 cm^2), wider size of aerenchyma pore, high GA content (1234 mg/g) and less ABA hormone content (75 mg/g), CCS per cent (13.00 % and 12.83 %) and higher cane yield (120 t/ha and 122.82 t/ha) over the susceptible check (Co 86032) under waterlogging stress. Also, PS II, ALDH, ADH genes were upregulated and showed highest transcript accumulation in the tolerant genotypes compared to the susceptible ones.

3. Optimisation of economic returns in sugarcane based intercropping systems with SSI technologies

Planting of sugarcane at 0.30 m spacing between two plants with zig zag planting along with intercropping of Tenai recorded the highest cane equivalent yield of 215 t/ha and BCR of 2.03 with an additional cane yield of 2 t/ha over black gram intercropping.

4. Studies on diversifications option in sugarcane-based cropping systems for resource conservation and doubling farmer's income in Tamil Nadu.

Sowing of Lablab 3 rows as intercrop with sugarcane planted during January month under paired row system (150 cm with 30 cm furrow) + plastic mulch recorded maximum cane yield (22%) and higher BCR of 2.72.

B. ACTION PLAN FOR IDENTIFIED THEMES

Theme No. 1	**Creating precise database on sugarcane area in major sugarcane growing districts of Tamil Nadu Period: 2022-2024**
Theme Leader	Dr. S. Pazhanivelan, Director (CWGS), TNAU, Coimbatore
Name of the scientist(s) and centre	**Remarks**
Coordinating Centre: CWGS Dr. S. Pazhanivelan, Director, CWGS, TNAU, Coimbatore Implementing centres: SRS, Melalathur: Dr. N.A. Saravanan, Asst. Prof. & Head SRS, Cuddalore: Dr. M. Jayachandran, Prof. (Agron.), SRS, Sirugamani: Dr. Murali Arthanari, Professor and Head	❖ Project to be closed ❖ Findings given for information

Theme No. 2	**Dissecting the physiological mechanism and adaptive response of sugarcane varieties to waterlogging**
Theme Leader	Tmt. R. Anitha, Assistant Professor (CRP), SRS, Cuddalore Duration: 2022-2024

Name of the scientist(s) and centre	**Remarks**
Centre: SRS, Cuddalore Tmt. R. Anitha, Asst. Prof. (CRP) Observations to be recorded: Tiller population, Millable cane population, LAI, Proline content, Catalase activity, Cane yield, Sugar yield, CCS %	❖ Project to be closed ❖ Findings given for information

Theme No. 3	**Optimization of economic returns in sugarcane based intercropping systems with sustainable sugarcane initiative (SSI) technologies (as URP TRRI/CDR/AGR/SUG/2023/001)**
Theme Leader:	Dr. M. Jayachandran, Professor (Agronomy), SRS, Cuddalore Duration: 2022-2025

Name of the scientist(s) and centre	Remarks
Coordinating centre: SRS, Cuddalore: Dr. M. Jayachandran, Prof. (Agronomy) Implementing Centres SRS, Sirugamani: Dr. K. Annadurai, Professor (Agronomy) SRS, Melalathur: Dr. N.A. Saravanan, Asst. Prof. & Head	❖ Project to be continued ❖ Findings given for information

Theme No. 4	**Drone application of liquid formulation sugarcane boosters**
Theme Leader	Dr. N. Sritharan, Assoc. Professor (CRP), TNAU, Coimbatore Tmt. R. Anitha, Asst. Prof. (CRP), SRS, Cuddalore Duration: 2023-2025

Name of the scientist(s) and centre	Remarks
Implementing centres: SRS, Sirugamani: Dr. C. Rajababu, Assoc. Prof. (CRP) & Head	❖ Project to be continued

C. List of projects

Centres	**Action Plan**		**OFT**		**URP**	
	AGR	CRP	AGR	CRP	AGR	CRP
SRS, Cuddalore	2	2	-	1	3	-
SRS, Sirugamani						
Total	**4**		**1**		**3**	

D. Ongoing URPs

S. No.	**Project No. and Title**	**Remarks**
Agronomy		
1.	**TRRI/CDR/AGR/SUG/2023/002** Studies on diversifications option in sugarcane-based cropping systems for resource conservation and doubling farmer's income in Tamil Nadu. (April 2023 to March 2026)	❖ The project to be continued ❖ Findings given for information

	Dr. M. Jayachandran, Prof. (Agronomy), SRS, Cuddalore Tmt. R. Anitha, Assistant Prof. (CRP), SRS, Cuddalore	
Crop Physiology		
2.	**DCM/CDL/CRP/SUG/2021/001** Studies on the effect of nutrient solution, growth promoting hormones and beneficial soil microbes on population of cane, physiology and yield of sugarcane (Feb 2022 to April 2024) Tmt. R. Anitha, Assistant Prof. (CRP), SRS, Cuddalore	❖ Proposed for OFT ❖ Project to be closed and completion report to be submitted

E. New Action Plan (2024-25)

Theme No. 1	**Evaluation of drought management techniques to maximize the productivity of s**
Co-ordinating centre & Scientist: SRS, Cuddalore, Dr. M. Jayachandran, Professor (Agronomy)	

Activity	**Name of the scientist(s) and centre**	**Details of the exper**
• To find out differential response of sugarcane to varied drought management practices • To assess the economics of drought mitigation technology in sugarcane **Observations to be recorded** Biometric observations, Microbial count, Physiological parameters and Yield parameters, Quality parameters	**Implementing centres:** **SRS, Cuddalore:** Tmt. R. Anitha, Asst. Professor (CRP) Dr. K. Kalaichelvi, Asst. Prof. (Agron.) Dr. G. Gayathri, Asst. Prof. (Agrl. Micro.) **SRS, Sirugamani:** Dr. K. Annadurai, Prof. (Agronomy) Dr. C. Raja Babu, Assoc. Professor (CRP) **SRS, Melalathur:** Dr. J. Nambi, Assoc. Professor (Agron.)	**Irrigation scheduling: (Main** I_1: Irrigation at 7 days interval I_2: Irrigation at 10 days interval I_3: Irrigation at 15 days interval **Drought mitigation: (Sub plo** P_1: Control P_2: Basal application of Pota bacteria @15 kg/ha +Silic kg/ha P_3: P_2+ Sett treatment with application of humic acid 2 DAP P_4: P_2+ Detrashing on 5th & 7th m *In-situ* decomposition of tr 2 kg/ton of trash P_5: P_3+ Detrashing on 5th & 7th m *In-situ* decomposition of tra kg/ton of trash Design: Split plot Replication: T

Theme No. 2	**Evaluation of sugarcane ripener for improving sucrose content in Sugarcane**		
Co-ordinating centre and scientist: SRS, Cuddalore, Dr. K. Kalaichelvi, Assistant Professor (Agronomy)			
Activity	**Name of the scientist(s) and centres**	**Details of the experiment**	**Deliverables**
▪ To evaluate the sugarcane ripeners for improving sucrose content in sugarcane ▪ To work out the economics of sugarcane ripener in sugarcane **Observations to be recorded** Biometric observations Yield parameters Quality parameters Initial and post-harvest NPK analysis Work out crop indices Work out economics	**Implementing centres:** **SRS, Cuddalore:** Dr. K. Kalaichelvi, Assistant Professor (Agronomy) **SRS, Sirugamani:** Dr. K. Annadurai, Professor (Agronomy) **SRS, Melalathur:** Dr. J. Nambi Associate Professor (Agronomy)	Treatments T_1 - Moddus (Triexapac ethyl) at 0.2 l/ha T_2 - Fusilade super (fulazifop butyl) at 125 g/ha T_3 - Glyphosate power max at 10ml/litre T_4 - Polaris (N N bis phophonomethyl glycine) at 6.72 kg/ha T_5 - Gramaxone at 1500 ml/ha T_6 - Sodium metasilicate at 0.2 % T_7 - Control Time of Application: 45 Days before harvest Design: RBD Replication: Three	Improvement in sucrose content will be identified in different sugarcane ripeners and best on economics and efficiency will be recommended

III. NATURAL RESOURCE MANAGEMENT

A. Technologies for Adoption/OFT/Information

A1. For Adoption

***In situ* sugarcane trash management in Ratoon crop by Trash D- Microbial consortia**

Application of TNAU Trash D on the trashes hastened the *in-situ* decomposition of sugarcane trashes, which was confirmed by the C:N ratio reduction to 31.7 on the 50th day after ratoon cropping with substantial yield increase percent of 16.2 over the farmer's practice.

First dose: 3rd day TNAU Trash-D (10 kg ha^{-1}) + Cow dung (200 kg/ ha^{-1}) + Urea (10 kg ha^{-1}) + Rock phosphate (100 kg ha^{-1}) + Gypsum (100 kg ha^{-1}) over the trashes followed by furrow irrigation.

Second dose: 15th day TNAU Trash-D (10 kg ha^{-1}) + Cow dung (200 kg ha^{-1}) + Urea (10 kg ha^{-1}) + Rock phosphate (100 kg ha^{-1}) + Gypsum (100 kg ha^{-1}) over the trashes followed by furrow irrigation.

Third dose: 30th day + Cow dung (200 kg ha^{-1}) + Urea (10 kg ha^{-1}) + Rock phosphate (100 kg ha^{-1}) + Gypsum (100 kg ha^{-1}) over the trashes followed by furrow irrigation.

A2. For Information

- **Evaluation of Organomineral Phosphatic Fertilizer on Soil Phosphorus Availability and Sugarcane Yield**
  - ✓ Application of 100 % of P as press mud enriched with SSP + PSB (T_8) was superior in improving cane yield (99.5 t ha^{-1}) and BCR (1.94). Yield increased by 5.18 per cent over T_2 (100 % of P as Single Super Phosphate + PSB).
- **Recycling of sugarcane waste for developing biodegradable pots in sustainable agriculture**
  - ✓ Containers made from sugarcane trash with sawdust, Sugarcane trash with coir waste and corn flour as binding agent showed more durability
  - ✓ Suited for raising seedlings in nurseries up to 2-3 months and then the seedlings can be directly planted in the main field
  - ✓ Cups made of sugarcane trash can be used as an alternate for tea cups
- **Assessment of Nutrient Use Efficiency of TNAU-WSF in sugarcane under drip fertigation**
  - ✓ Application of 100 kg as TNAU WSF + remaining N & K as urea and MOP (T_5) registered significantly increased cane yield than the treatment (T_1) of 100 % RDF as drip fertigation. The treatment T_5 was found to increase the cane yield by 4 % over 100 % RDF as drip fertigation (Conventional fertilizer) (T_1) (completed).

C. RESEARCH PROJECTS ON SUGARCANE

a. List of Projects

PROJECTS	SS&AC	AGM	ENS	TOTAL
Action Plan/ University Research Projects	3	1	1	5
Total	3	**1**	**1**	**5**

Project Wise Remarks

Soil Science and Agricultural Chemistry

S. No.	Project No. & Title	Project leaders	Duration	Remarks
A.	**Action Plan / University Research Project**			
1.	Assessment of Nutrient Use Efficiency of TNAU-WSF in sugarcane under drip fertigation	**Lead Centre & Scientist in-charge** **Dept. of SS&AC, AC&RI, Coimbatore:** Dr. G. Sridevi, Asst. Prof. (SS&AC) **Co-ordinating Centre - 1 & Scientist in-charge** **SRS, Cuddalore:** Dr. M. Jayachandran, Professor (Agronomy) Dr. G. Porkodi, Asst, Prof (SS & AC) **Co-ordinating Centre –2 & Scientist in - charge** **SRS, Melalathur:** Dr. N.A. Saravanan, Associate Prof (PBG)	2023-2024	Action plan project was completed. Findings of the project was given f or information.
2.	**NRM/CUD/SUG/2022/001** Evaluation of Organomineral Phosphatic Fertilizer on Soil Phosphorus Availability and Sugarcane Yield	Dr. G. Porkodi, Assistant Professor (SS&AC), SRS, Cuddalore Dr. M. Basker, Professor and Head, Dept. of SS&AC, ADAC&RI, Trichy	July 2022 to June 2025	• Application of 100 % of P as press mud enriched with SSP + PSB (T_8) was superior in improving cane yield (99.5 t ha^{-1}) and BCR (1.94). Yield increased by 5.18 per cent over T_2 (100% of P as

				Single Super Phosphate + PSB). • Include a treatment of recommended dose of fertilizer (300:100:200 kg/ha of NPK). **The project may be continued**
3.	**NRM/CDL/SAC/SUGARCANE/ 2024/019** Effect of nutrient treated setts on growth and yield of sugarcane	Project Leader: Dr. G. Porkodi, Assistant. Professor (SS&AC), SRS, Cuddalore Co-PI: Dr. V. Dhanushkodi, Asso. Prof. (SS&AC) KVK, Needamangalam	Feb. 2024 to Dec 2026	**The project may be continued.**
Agricultural Microbiology				
3.	**NRM/CDL/AGM/SUG/2020/001** *In-situ* decomposition of sugarcane trash and stubbles using biosolubilizers and its impact on the yield of manual and machine harvested ratoon cane.	**Project Leaders** Dr. G. Gayathry Assistant Professor, (Agrl. Microbiology), KVK, Vridhachalam **Co-Project Leaders** Dr. M.P. Sugumaran Professor (ENS), SRS, Cuddalore Dr. G. Porkodi, Assistant Professor (Soil Science), SRS, Cuddalore Dr. P. Kalaiselvi, Associate Professor (ENS), KVK, Sandhiyur	July 2020 to June 2024	Adoption of the technology is approved. Technology proposal has to be submitted.
4.	**NRM/CDL/AGM/SUG/2021/002** Studies on the impact of 'Trash D' for *in-situ* decomposition of sugarcane trash and its impact on the yield of ratoon cane.			
5.	**NRM/ CDL/ ENS/ SUGARCANE/2023/195** Recycling of sugarcane waste for developing biodegradable pots in sustainable agriculture	**Project leaders:** Dr. M.P. Sugumaran Professor (ENS), KVK, Vridhachalam Tmt. R. Anitha, Assistant Professor (CRP), SRS, Cuddalore	July 2023 to June 2025	The salient findings may be given for information **The project may be continued**

New Action Plan Proposed 2024-2025

Title & Duration	Scientists involved	Activity/ Treatments	Deliverables
New action plan 1: To assess the effect of graded levels of TNAU Water Soluble Fertilizer in soil and foliar application on yield maximization and nutrient use efficiency in Sugarcane **Duration:** 2024-2025	**Centre & Scientist In-charge** **Lead centre: SRS, Cuddalore** Dr. G. Porkodi Asst. Prof (SS & AC) **Sub centre: SRS, Melalathur** Dr. N.N. Saravanan Asst. Prof. (PBG)	**Treatments** **Main plot** M_1 - Absolute control M_2 - 25 % NPK M_3 - 50 % NPK M_4 - 75 % NPK M_5 -100 % NPK **Sub plot** S_1 - Absolute control S_2 - TNAU - WSF @ 10 kg ha^{-1} S_3 - TNAU - WSF @ 20 kg ha^{-1} S_4 - TNAU - WSF @ 40 kg ha^{-1} S_5 - TNAU - WSF @ 60 kg ha^{-1} S_6 - TNAU - WSF FS @ 1% at tillering, grand growth and maturity phase **Design:** Strip Plot Design **Replications:** Two **Observations and Analysis** 1. Post harvest soil available nutrient status 2. Biometric observations 3. Cane Yield 4. B:C ratio 5. Quality parameters (Brix value)	Recommendation of WSF through fertigation for yield maximisation in sugarcane

III. CROP PROTECTION

A. Technology for adoption/ OFT/ Information

I. Technology for adoption

a. Agricultural Entomology and Plant Pathology

IPDM Packages for the management of Crown Mealybug and Pokkah boeng disease in sugarcane (Ratoon)

- Application of recommended dose of fertilizers and micro nutrients after every ratoon and at the time of earthing up.
- Spraying of TNAU sugarcane booster at 1, 1.5 and 2kg per acre at 45, 60 and 75 DAR (Days After Ratooning) + Spray with propiconazole 25 % EC (1 ml/l) + imidacloprid 17.8 SL (0.4 ml /l) after initial appearance of symptom of Crown Mealybug and Pokkah boeng disease. If incidence noticed again, spraying with Propiconazole 25 % EC (1ml/l) + Flonicamid 50 WG (0.3g/l) or Clothianidine 50 WDG (0.5g/l) @ 20 days interval.

II. For OFT

Management of smut disease in sugarcane

Sett treatment with propiconazole 1 ml l^{-1} for 15 min + foliar spraying @ 1 ml l^{-1} at 60 and 90 days after planting.

III. For information

a. Agricultural Entomology

Roving survey

- Early shoot borer in sugarcane ranged from 6.6 (Sirugamani) to 28.6 % (Aaratchi).
- Damage level of internode borer ranged from 8.7 % (Sathamangalam) to 37.5 % (Musiri).
- The incidence of top shoot borer was 2.6 % and 8.8 % in Sirugamani and Vagainallur, respectively.
- Crown mealybug attack was noticed in almost all the areas where ratoon crop was grown (Grade 1 to Grade 4) during 2023-2024.
- The damage level of whitefly in sugarcane ranged from 8.58 % (Kalingapatty) to 32.50 % (Sirugamani).

Fixed Plot survey

- Fixed plot survey was conducted at SRS, Sirugamani during 2023-24 to assess the infestation of insect damage in sugarcane variety Si 6.

- Early shoot borer, internode borer and top shoot borer incidence ranged from 7.8 to 22.8, 4.2 to 25.8 and 3.8 to 12.2 per cent respectively.
- Early shoot borer damage showed significant negative correlation with temperature and significant positive correlation with relative humidity, whereas internode borer showed significant negative correlation with temperature and significant positive correlation with relative humidity.
- Mealybug showed significant positive correlation with temperature and relative humidity.
- Top shoot borer showed significant negative correlation with temperature and significant positive correlation with maximum relative humidity.
- Eleven germplasm were observed less susceptible to early shoot borer *viz*., Si-2009-033, Co 99006, CoC 93076, Co 99004, Co-Si-12, CoC 25, CoC671, CoC24, Si 020, Co 86032 and Co 94018.
- Fourteen germplasm were observed less susceptible to internode borer *viz*., Si 2009-013, Co 99006, CoC 93076, Co 99004, CoC 25, CoC 671, CoC 22, CoC 24, Si023, Si-020, Co 86032, TNAU (Sc)Si-8, Co 94018 and Si-0306.
- Eight germplasm were categorized as less susceptible to top borer *viz*., Si 2009-013, CoC 93076, Co 99004, CoG 6, CoC 25, CoC24, mc-707 and Co 99006
- Thirteen germplasm were observed less susceptible to mealybug *viz.*, Si 2009-013, Co -2001-101, CoC 93076, CoG 6, CoC 25, Co 25105, CoV 94104, CoC 23, CoC 22, CoC 24, Co 86032, Si-2009-03 and CoG 94077.
- Results of mass trapping of ESB moths using sex pheromone traps revealed that the overall mean early shoot borer moth catches /trap was found higher (9.08) in T3-50 traps/ha followed by T2-40 traps/ha (7.01).
- Results of the study on the damage level of early shoot borer in sugarcane in the plots installed with sex pheromone traps revealed that the cumulative mean per cent damage level of early shoot borer was found significantly low in T3-Sex pheromone trap installed @ 50/ha (17.93 %) than the other treatments followed by T2-Sex pheromone trap installed@ 40/ha (24.78 %).
- Per cent decrease of damage level of early shoot borer was high in T3-Sex pheromone trap installed @ 50/ha (66.24) followed by T2-Sex pheromone trap installed @ 40/ha (53.35).
- T3 has recorded maximum of 66.24 per cent damage reduction over control followed by T2 (53.35). Cane yield was found significantly higher in T3 (92.92 t/ha) with highest BC ratio (2.01) and highest yield increase of 35.35 per cent.
- Results of the study on the evaluation of insecticides against early shoot borer revealed that T3-Chlorantraniliprole (18.5SC)-375ml/ha was found significantly effective in reducing the damage of early shoot borer, which recorded cumulative mean per cent damage of 14.84 with 73.22 % reduction in damage of ESB, highest cane yield (94.07 t/ha), highest BC ratio (1.99).
- Results of mass trapping of INB using sex pheromone traps revealed that the overall mean higher trap catches (7.97) in T3-50 traps installed /ha followed by T2-40 traps installed/ha (4.82).

- Results of the study on the damage level of internode borer in sugarcane in the plots installed with sex pheromone traps revealed that the mean per cent damage level of internode borer was found significantly low in T3-Sex pheromone trap installed @ 50/ha (17.38 %) at harvest than the other treatments followed by T2-Sex pheromone trap installed @ 40/ha (21.37 %).
- Per cent decrease of damage level of internode borer was high in T3-Sex pheromone trap @ 50/ha (25.74) followed by T2 -Sex pheromone trap @ 40/ha -(17.45).
- Regard to the cane yield, T3-Sex pheromone trap installed @ 50/ha recorded significantly highest yield (89.99 t/ha), followed by T2-Sex pheromone trap installed @ 40/ha (86.08 t/ha) and the control recorded lowest yield (75.54 t/ha). Highest BC ratio of 1.70 was recorded in T3.

b. Plant Pathology

Roving survey

- The survey conducted at Cuddalore, Villupuram, Perambalur and Kallakuruchi districts of Tamil Nadu and Puducherry to assess the incidence of sugarcane diseases along with cane officials of MRK Co-operative Sugar Mill, EID Parry Private Sugar Mill, Chengalrayan Co-operative Sugar Mill, Kallakuruchi I & II Co-operative Sugar Mill, Perambalur Sugar Mill
- The incidence of red rot disease was recorded in varieties *viz.,* CoV 09356, and Co 86032 and the per cent disease incidence was recorded from 5 to 35 %.
- Smut disease was recorded in the varieties Co11015 and CoV 94101, CoC 22 and the disease severity was up to 20 %.
- Yellow leaf disease was noticed in CoV 09356 (5-60 %) and Co 86032 (10-20 %). Maximum incidence (5 to 60 %) of YLD was observed in Puduvettakudi village of Perambalur district.
- Fusarium wilt disease was noticed in the varieties *viz.,* 87 A 298 (10 to 45%) and CoV 09356 (5 to 45 %)
- Grassy shoot disease (2 to 10 %) was noticed especially in Kallakurichi district.
- Pokkah boeng disease incidence was noticed in varieties *viz*., CoV 94101, CoV 09356, CoC 13339, Co 11015 and Co 86032 in various districts of Tamil Nadu (10 to 45%) and CoV 09356, and PI 1110 in Karayamputhur village of Puducherry (15 to 25%). Ratoon crop was severely affected.
- In chewing cane also, the Pokkah boeng disease incidence was noticed in the local variety *viz., Mapillai Karumbu* at Co. Chathiram and nearby villages of Kurunjipadi block of Cuddalore district.
- In Erode district, sugarcane crop was free from major diseases *viz.,* red rot, smut, wilt, Pokkah boeng and YLD diseases during 2023-2024.

Screening of sugarcane clones for resistance to red rot and smut diseases

- Among the 12 Cuddalore clones screened, three clones *viz*., C 16338, C 18011 and C 21033 were moderately resistant to red rot disease.

- Among the 14 Sirugamani clones, clones, Si 2019 – 142 was found to be moderately resistant to red rot disease.
- Among the 12 Melalathur clones screened for resistance to red rot disease clone G 2020 027 was found to be moderately resistant to red rot disease.
- Among the 12 Cuddalore clones, nine clones *viz*., C 16338, C 18011, C 19028, C 20007, C 20072, C 20073, C 21033, C 21036 and C 21037 were found resistant to smut disease.
- Among the 14 Sirugamani clones, nine clones such as Si 2019 - 08, Si 2019 - 067, Si 2019 – 080, Si 2019 - 148, Si 2019 - 053, Si 2019 - 124, Si 2019 - 130, Si 2019 – 142 and Si 2019 - 169, were found to be resistant to smut disease.
- Among the 12 Melalathur clones screened, eleven clones such as G 2020 027, G 2020 063, G 2020 198, G 2020 204, G 2020 210, G 2020 244, G 2020 441, G 2020 480, G 2020 595, G 2020 680 and G 2020 935 were found to be resistant to smut disease.

D. On Farm Testing (OFT) (2024-2025)

OFT 1	**Management of smut disease in sugarcane**		
Theme leader	Dr. M. Rajakumar, Professor (Plant Pathology), SRS, Cuddalore Dr. S. Thangeswari, Asst. Prof. (Plant Pathology), TNAU, Coimbatore		
Action Plan	**Name of the scientists and centre**	**Observations to be made**	**Deliverables**
Management of smut disease in sugarcane	**SRS, Cuddalore** Dr. M. Rajakumar **SRS, Sirugamani** Dr. V.K. Satya **RRS, Viriddhachalam** Dr. V. Ravichandran	**Treatment** T_1 – Sett treatment with propiconazole @ 1 ml l^{-1} for 15 min + foliar spraying @ 1 ml l^{-1} at 60 and 90 days after planting. T_2 – Sett treatment with carbendazim @ 1 g l^{-1} for 15 min + foliar spraying @ 1 g l^{-1} at 60 and 90 days after planting. T_3 – Foliar spraying with Azoxystrobin 18.2% + Difenoconazole 11.4% w/w SC @ 0.3 g/l at 60 and 90 days after planting. T_4 – foliar spraying with carbendazim @ 1 g l^{-1} at 60 and 90 days after planting. T5 - Farmers practice **Observations** Smut incidence and Yield	Technology for the management of smut disease in sugarcane

C. Front line Demonstration of Technologies

Large scale demonstrations (20 acres) (2024-2025)

I. Management of Crown mealybug and Pokkah boeng disease in sugarcane

Treatments	Inputs	Quantity per acre	Time of application	Method of application
T1	Propiconazole 25 % EC	200 ml.	After initial appearance of symptoms	**Foliar spray** If incidence noticed again, spraying with Propiconazole 25% EC (1ml/l) + Flonicamid 50 WG (0.3g/l) or Clothianidine 50 WDG (0.5g/l) @ 20 days interval.
	Imidacloprid 17.8 SL	80 ml.		
	TNAU Sugarcane booster	4.5 kg.	45 DAR* - 1kg; 60 DAR*- 1.5 kg; 75 DAR* - 2 kg *DAR - Days after Ratooning	**Foliar spray**
T2	Farmers practice			

Number of Demonstration in each district: 5 demo (1.00 acre/demo)

Area in each District: 5.00 acre

Implementing centres: KVK, Vriddhachalam (Kallakurichi District), KVK, Tindivanam (Villupram District), KVK, Sirugamani (Trichy District), TNAU, Coimbatore (Ariyalur district) and ARS, Bhavanisagar (Erode district)

Scientists In-charge:

1.	KVK, Vriddhachalam	:	Dr. J. Jayakumar, Assoc. Prof. (Nematology) Dr. V. Ravichandran, Assoc. Prof. (Plant Pathology)
2.	KVK, Tindivanam	:	Dr. K. Senthamizh, Assoc. Prof. (Nematology) Dr. S. Douressamy, Professor (Agrl. Entomology)
3.	KVK, Sirugamani	:	Dr. R. Sheeba Jasmine, Assistant Professor (Agrl. Entomology) Dr. V.K. Satya, Assistant Professor (Plant Pathology)
4.	TNAU, Coimbatore	:	Dr. V. Baskaran, Assistant Professor (Agrl. Entomology)
5.	ARS, Bhavanisagar	:	Dr. S. Sundaravadana, Assoc. Prof. (Plant Pathology) Dr. V. Sathyaseela, Associate Professor (Agrl. Entomology)

Monitoring Centre: SRS, Cuddalore and TNAU, Coimbatore

Scientists in-charge

1. Dr. M. Rajakumar, Professor (Plant Pathology)
2. Dr. S. Douressamy, Professor (Agrl. Entomology)
3. Dr. S. Thangeswari, Assistant Professor (Plant Pathology)

Parameters to be observed

a. Per cent incidence of Crown mealybug
b. Per cent incidence of Pokkah boeng disease
c. No. of internodes/ cane
d. Cane yield (Mt/ha)
e. BC Ratio
f. Residue analysis

Expected outcome

Best IPDM package for the Crown mealybug (CMB) and Pokkah boeng (PB) in sugarcane will be confirmed by the large-scale demonstrations, which will be recommended for technology release.

II. Management of white grub in sugarcane

Treatments	Inputs	Quantity per acre	Time of application	Method of application
T1	Enriched *Metarhizium anisopliae*	2 kg.	Prophylactic - February of every year	Soil application
	Installation of light trap	1 No./ha	Immediately after 1st Summer showers	-
	Imidacloprid 17.8 SL	100 ml.	After initial appearance of damage	Soil drenching
T2	Farmers practice			

Number of Demo. in each district: 5 demo (1.00 acre/demo)

Area in each District: 5.00 acre

Implementing centres: KVK, Vriddhachalam (Cuddalore and Kallakurichi district), KVK, Tindivanam (Villupram district), KVK, Papparapatty (Dharmapuri district) and AC & RI, Vazhavachanur (Thiruvannamalai district)

Scientists In-charge:

1.	KVK, Vriddhachalam	:	Dr. J. Jayakumar, Associate Professor (Nematology) Dr. S. Douressamy, Professor (Agrl. Entomology)
2.	KVK, Tindivanam	:	Dr. K. Senthamizh, Associate Professor (Nematology)
3.	KVK, Papparapatty	:	Dr. K. Sasikumar, Assistant Prof. (Agrl. Entomology) & Dr. V. Baskaran, Assistant Prof. (Agrl. Entomology), Dept. of Agrl. Entomology, TNAU, Coimbatore

4.	AC & RI, Vazhavachanur	:	Dr. A. Sivaraman, Assistant Professor (Agrl. Entomology)

Monitoring Centre: SRS, Cuddalore

Scientist in-charge

1. Dr. S. Douressamy, Professor (Agrl. Entomology)

Parameters to be observed

a. Number of white grubs/ clump
b. Cane yield (Mt/ha)
c. BC Ratio
d. Residue analysis

Expected outcome

Best IPM package for the white grub in sugarcane will be confirmed by the large-scale demonstrations, which will be recommended for technology release.

C. Action plan for 2024-2025

Action Plan-1 Monitoring of pests, diseases, nematodes and natural enemies in sugarcane (Contd.)

Theme Leader: Dr. S. Douressamy, Professor (Agrl. Entomology), SRS, Cuddalore
Dr. M. Rajakumar, Professor (Plant Pathology), SRS, Cuddalore

Period: 2024-2025

- Monitoring of borers, sucking pests, root feeders and natural enemies in sugarcane in the endemic areas of respective district should be made.
- Monitoring of red rot, pokkah boeng, smut and YLD has to be done in endemic areas of the respective district.
- Awareness campaign on the integrated management of pests and diseases should be arranged at appropriate time.

Parameters to be recorded

1. Pests/diseases/nematodes damage level should be recorded based on Agro-eco system approach.
2. Weather factors along with soil temperature in a fixed plot by installing pheromone trap in the research station should be recorded.
3. Correlation and regression analysis of abiotic and biotic factors in sugarcane should be analyzed

(**Action:** SRS, Cuddalore and Sirugamani, Dept. of Entomology, TNAU, Coimbatore, ARS, Bhavanisagar, ARS, Virinjipuram, AC&RI, Vazhavachanur, ADAC & RI, Trichy, RRS, Vriddhachalam & CEM, Athiyandhal)

Scientists in charge

Name of the Research station/College/KVK	Name & Designation of the scientist	Monitoring to be done on	Districts to be covered
SRS, Cuddalore	Dr. S. Douressamy Prof. (Agrl. Entomology)	Pests	Cuddalore and Villupuram
SRS, Cuddalore	Dr. M. Rajakumar Professor (Plant Pathology)	Diseases	Cuddalore and Villupuram
SRS, Sirugamani	Dr. R. Sheeba Jasmine Assistant Professor (Agrl. Entomology)	Pests	Trichy and Ariyalur
ADAC & RI, Trichy	Dr. A. Sangeetha Assistant Professor (Plant Pathology)	Diseases	Trichy
AC &RI, Vazhavachanur	Dr. A. Sivaraman Assistant Professor (Agrl. Entomology)	Pests	Thiruvannamalai & Kallakurichi
RRS, Vriddhachalam	Dr. V. Ravichandran Associate Professor (Plant Pathology)	Diseases	Kallakurichi
CEM, Athiyandhal	Dr. P.M. Saravanan Associate Professor (Plant Pathology)	Diseases	Thiruvannamalai
ARS, Virinjipuram	Dr. A. Thirumurugan Professor (Agrl. Entomology) & Head	Pests	Vellore
ARS, Bhavanisagar	Dr. V. Sathyaseela Associate Professor (Agrl. Entomology)	Pests	Erode
ARS, Bhavanisagar	Dr. S. Sundaravadhana Assoc. Professor (Plant Pathology)	Diseases	Erode

Expected outcome

- Forecasting the outbreak of pests, diseases and nematodes in sugarcane at appropriate time, for taking up management measures by the farmers.
- Prediction analysis on the incidence of pests, diseases and nematodes in sugarcane.

Action Plan 2: Identification of resistant sources to major pests, diseases and nematodes (Contd.)

Mechanisms of resistance in promising sugarcane clones.

Theme Leaders:

1. Dr. S. Douressamy, Professor (Agrl. Entomology), SRS, Cuddalore
2. Dr. M. Rajakumar, Professor (Plant Pathology), SRS, Cuddalore.

Period: 2024-2025

Crop/ Diseases /insect pests
Diseases: Red rot & Smut
Pests: Early shoot borer
Mechanisms

- **Pests** - Antixenosis, Antibiosis & Tolerance
- **Diseases** - Physical, Biochemical and molecular basis one each R/MR/S entries

Action: SRS, Cuddalore & SRS, Sirugamani

Scientists Incharge

Dr. S. Douressamy, Professor (Agrl. Entomology), SRS, Cuddalore
Dr. M. Rajakumar, Professor (Plant Pathology), SRS, Cuddalore.
Dr. R. Sheeba Jasmine, Assistant Professor (Agrl. Entomology), KVK, Sirugamani.

Expected outcome

- The resistance mechanism in the identified less susceptible/ resistant clones against early shoot borer/ red rot will be categorized and the promising clone will be released as a new variety.

Action Plan 3: Crown mealybug and Pokkah boeng disease management in sugarcane (Plant crop) (Contd.)

Theme Leaders: Dr. S. Douressamy, Professor (Agrl. Entomology)
Dr. M. Rajakumar, Professor (Plant Pathology)
Dr. S. Thangeswari, Assistant Professor (Plant Pathology

Period: 2024-2025
Treatments

Treatment No.	Details
T1	Sett treatment with propiconazole 25 % EC 1ml/l and imidacloprid 70WS (1ml/l) for 20 minutes before planting.
T2	Spraying of propiconazole 25 % EC (1 ml/l) + imidacloprid 17.8 SL (0.4 ml /l) after initial appearance of symptom. If incidence noticed again, spraying with Propiconazole 25 % EC (1ml/l) + Flonicamid 50 WG (0.3g/l) or Clothianidine 50 WDG (0.5g/l) @ 20 days interval.
T3	Spraying of TNAU sugarcane booster at 1, 1.5 and 2kg per acre @ 45, 60 and 75 DAP + Spraying with propiconazole 25% EC (1 ml/l) + imidacloprid 17.8 SL (0.4 ml /l) after initial appearance of symptom
T4	T1 + T2
T5	T1 + T3
T6	Untreated control

Design: RBD, Exploded plot design
Replications: Four
Parameters to be observed

- Per cent crown mealybug incidence
- Per cent Pokkah boeng incidence
- No. of internodes
- Cane yield (Mt/ha)
- BC ratio
- Residue analysis

Scientists in-charge

1.	SRS, Cuddalore	:	Dr. S. Douressamy, Professor (Agrl. Entomology) Dr. M. Rajakumar, Professor (Plant Pathology)
2.	SRS, Sirugamani	:	Dr. R. Sheeba Jasmine, Assistant Prof. (Agrl. Entomology) Dr. A. Sangeetha, Asst. Prof. (Plant Pathology), ADAC&RI, Trichy
3.	ARS, Bhavanisagar	:	Dr. S. Sundaravadana, Assoc. Prof. (Plant Pathology) Dr. V. Sathyaseela, Associate Professor (Agrl. Entomology)

Expected outcome

- Suitable management practices for Crown mealybug and Pokkah boeng disease in sugarcane in plant crop will be finalized for OFT.

D. Research Projects on Sugarcane

Discipline	Centre	URP	AICRP	Total
Agricultural Entomology	SRS, Cuddalore	1	-	1
	SRS, Sirugamani	1	-	1
	Dept. of Agrl. Entomology, TNAU, Coimbatore	1	-	1
Plant Pathology	SRS, Cuddalore	-	1	1
Plant Nematology	AC&RI, Vazhavachanur	1	-	1
Total		**4**	**1**	**5**

E. Remarks on the On-going University Research Projects

1. Agricultural Entomology

S. No.	Project Number & Title	Period	Project leader	Remarks
1.	**CPPS/VNR/ENT/SUG/2021/001** Population dynamics of insect pests, bio agents and development of management strategies for borer pests under SSI Technology.	April 2021-March 2024	Dr. S. Douressamy Prof. (Agrl. Ento.), SRS, Cuddalore	Project may be closed and completion report may be sent for approval.
2.	**CPPS/SIR/SUG/2022/001** Screening of sugarcane germplasm against major pests and investigation on the mechanism of resistance.	January 2022-December 2024	Dr. R. Sheeba Jasmine Asst. Prof., (Agrl. Ento.), KVK, Sirugamani	Project may be continued.

S. No.	Project Number & Title	Period	Project leader	Remarks
3.	**CPPS/CBE/AEN/SUGARCANE/2024/015** Evaluation and translocation pattern in different mode of pesticide application against crown mealybug (*Phenacoccus saccharifolii*) in sugarcane.	November 2023-December 2026	Dr. V. Baskaran Asst. Prof. (Agrl. Ento.), TNAU, Coimbatore	Project may be continued.
2. Plant Nematology				
1.	**CPPS/VVNR/ANM/SUGARCANE/2023/135** Management of white grub, *Holotrichia sp*. Infesting sugarcane using native entomopathogenic nematodes.	April 2023-March 2026	Dr. P. Senthilkumar Assoc. Prof. (Nemat.), RRS, Paiyur	Proposal shall be sent for change of project operation. The sub project may be continued.

IV. REMARKS

a. General remarks

- Scientists from ICAR-SBI may be invited for the Sugarcane Scientists meet (**Action**: Prof. & Head, SRS, Cuddalore).
- The reasons for decline in area under sugarcane in Tamil Nadu may be studied and documented. Efforts may be taken to increase the area under cultivation of Sugarcane in Tamil Nadu (**Action:** DCARDS/All Directorates).
- Scientists working in Sugarcane may be encouraged to publish their research findings in the peer reviewed journals having NAAS rating more than 7 (**Action**: All Scientists).
- Efforts may be made to obtain more externally sponsored schemes (**Action**: All Scientists)

b. Crop Improvement

- Promising clones selected from early-stage trials may be evaluated simultaneously in all the three stations (**Action**: Prof. & Head, SRS, Cuddalore/ Sirugamani/ Melalathur).
- Research on genome editing in Sugarcane for Red rot resistance may be intensified (**Action**: DCPMB&B/DCPPS/ Prof. & Head, SRS, Cuddalore).

- Research on genetic improvement of sugarcane for water and fertilizer use efficiency may be continued (**Action**: Prof. & Head, SRS, Cuddalore/ Sirugamani/ Melalathur).

c. Crop Management

- Evaluation of ring pit and clumping method may be carried out for improving the productivity of chewing sugarcane (**Action:** SRS, Cuddalore).
- Correlation on size of Aerenchyma tissue with cane weight and volume of sugarcane juice may be studied (**Action:** SRS, Cuddalore).

d. Crop Protection

- Concerted efforts may be taken to control devastating pests and diseases *viz*., top rot, pokkah boeng and crown mealy bug in Tamil Nadu (**Action**: All crop protection scientists).
- Pests and diseases forecast and awareness should be done regularly as a part of IPDM measures by considering the prevailing weather factors for the benefit of farmers (**Action**: All crop protection scientists).

V. LIST OF PARTICIPANTS

S. No.	Name	Designation and Department
1.	Dr. M. Raveendran	Director of Research, TNAU, Coimbatore
2.	Dr. R. Ravikesavan	Director, CPBG, TNAU, Coimbatore
3.	Dr. P. Balasubramanian	Director, NRM, TNAU, Coimbatore
4.	Dr. M. Shanthi	Director, CPPS, TNAU, Coimbatore
5.	Dr. M.K. Kalarani	Director, CM, TNAU, Coimbatore
6.	Dr. N. Senthil	Director, CPMB&B, TNAU, Coimbatore
7.	Dr. R. Umarani	Director, Seed Centre, TNAU, Coimbatore
8.	Dr. D. Suresh Kumar	Director, CARDS, TNAU, Coimbatore
9.	Dr. K. Subrahmaniyan	Director, TRRI, Aduthurai
10.	Dr. A. Raviraj	Dean (Engg.), AEC&RI, Coimbatore
11.	Dr. V. Ambethgar	Prof. & Head, Dept. of Extension, ADAC&RI, Trichy
12.	Dr. M. Baskar	Prof. & Head (SS&AC), ADAC&RI, Trichy
13.	Dr. P.S. Geetha	Prof. & Head (DDAS), CSC&RI, Madurai
14.	Dr. U. Sivakumar	Prof. & Head, Dept. of AGM, TNAU, Coimbatore
15.	Dr. R. Veeraputhiran	Prof. & Head, CRS, Srivilliputhur
16.	Dr. S. Somasundaram	Prof. & Head, CRS, Veppanthattai
17.	Dr. D. Sassikumar	Prof. & Head, SRS, Cuddalore
18.	Dr. A. Subramanian	Prof. & Head, Dept. of Cotton, TNAU, Coimbatore
19.	Dr. V. Manonmani	Prof. & Head, DSST, TNAU, Coimbatore
20.	Dr. E. Kokiladevi	Prof. & Head (DPB), CPMB&B, TNAU, Coimbatore
21.	Dr. M. Murugan	Prof. & Head, Dept. of Entomology, TNAU, Coimbatore
22.	Dr. K. Angappan	Prof. & Head, Dept. of Pl. Pathology, TNAU, Coimbatore

S. No.	Name	Designation and Department
23.	Dr. A. Senthil	Prof. & Head, Dept. of CRP, TNAU, Coimbatore
24.	Dr. D. Selvi	Prof. & Head, Dept. of SS&AC, TNAU, Coimbatore
25.	Dr. N.K. Sathyamoorthy	Prof. & Head, ACRC, TNAU, Coimbatore
26.	Dr. P. Parasuraman	Prof. & Head, Dept. of Agronomy, TNAU, Coimbatore
27.	Dr. R. Krishnan	Prof. & Head, NOFRC, TNAU, Coimbatore
28.	Dr. M. Jayachandran	Professor (Agronomy), SRS, Cuddalore
29.	Dr. M. Rajakumar	Professor (Pl. Pathology), SRS, Cuddalore
30.	Dr. S. Douressamy	Professor (Agrl. Ento.), SRS, Cuddalore
31.	Dr. N. Manikanda Boopathi	Professor (Biotechnology), CPMB&B, TNAU, Coimbatore
32.	Dr. R. Thangapandian	Professor (PBG), CRS, Srivilliputhur
33.	Dr. V. Anbanandan	Professor (PBG), TNAU, Coimbatore
34.	Dr. S. Rajeswari	Professor (PBG), Dept. of Cotton, TNAU, Coimbatore
35.	Dr. R. Vimala	Professor (Pl. Pathology), CRS, Srivilliputhur
36.	Dr. E. Rajeswari	Prof. (Pl. Pathology), Dept. of Cotton, TNAU, Coimbatore
37.	Dr. N. Chitra	Prof. (Agrl. Ento.), Dept. of Cotton, TNAU, Coimbatore
38.	Dr. N. Vadivel	Prof. (Agronomy), Dept. of Cotton, TNAU, Coimbatore
39.	Dr. K. Raja	Professor (SST), TNAU, Coimbatore
40.	Dr. M.P. Sugumaran	Professor (ENS), KVK, Vridhachalam
41.	Dr. C. Babu	Professor (PBG), O/o. DR Office, TNAU, Coimbatore
42.	Dr. N. Balakrishnan	Professor (Ento.), O/o. DR Office, TNAU, Coimbatore
43.	Dr. V. Ravichandran	Professor (CRP), TNAU, Coimbatore
44.	Dr. M.R. Backiyavathy	Professor (SS&AC), TNAU, Coimbatore
45.	Dr. S. Maragatham	Professor (SS&AC), TNAU, Coimbatore
46.	Dr. R. Ebenezer Babu Rajan	Assoc. Professor (PBG), ARS, Kovilpatti
47.	Dr. C. Raja Babu	Assoc. Professor, SRS, Sirugamani
48.	Dr. J. Nambi	Assoc. Professor (Agronomy), SRS, Melalathur
49.	Dr. T. Thirumurugan	Assoc. Professor (PBG), SRS, Cuddalore
50.	Dr. A. Saravanan	Assoc. Professor (PBG), SRS, Melalathur
51.	Dr. C. Vijayaraghavan	Assoc. Professor (Agrl. Extn.), CRS, Srivilliputhur
52.	Dr. P. Anantha Raju	Assoc. Professor (PBG), CRS, Veppanthattai
53.	Dr. M. Ravi	Assoc. Professor (Agrl. Ento.), ICAR-KVK, Santhiyur
54.	Dr. P. Senthil Kumar	Assoc. Professor (Nematology), RRS, Paiyur
55.	Dr. R. Nageswari	Assoc. Professor (Agronomy), TRRI, Aduthurai
56.	Dr. K. Manonmani	Assoc. Professor (Pl. Pathology), AC&RI, Madurai
57.	Dr. S. Sundravadana	Assoc. Professor (Pl. Pathology), TRC, Bhavanisagar
58.	Dr. K. Ramah	Assoc. Professor (Agronomy), ARS, Bhavanisagar
59.	Dr. J. Prabhaharan	Assoc. Professor (SS&AC), AC&RI, Madurai
60.	Dr. K. Suresh	Assoc. Professor (Agrl. Ento.), KVK, Madurai
61.	Dr. Asish K Binoth	Assoc. Professor (PBG), TNAU, Coimbatore
62.	Dr. T. Eevera	Assoc. Professor, DSST, TNAU, Coimbatore
63.	Dr. K. Nelson Navamaniraj	Assoc. Professor (SST), O/o. COE, TNAU, Coimbatore
64.	Dr. J. Ramkumar	Assoc. Professor (Agrl. Ento.), KVK, Ramanad
65.	Dr. G. Guru	Assoc. Professor (Agronomy), ARS, Kovilpatti
66.	Dr. R. Sivakumar	Assoc. Professor (CRP), TNAU, Coimbatore
67.	Dr. R. Karthikeyan	Assoc. Professor (Agronomy), DCM, TNAU, Coimbatore

S. No.	Name	Designation and Department
68.	Dr. N. Sritharan	Assoc. Professor (CRP), Rice, TNAU, Coimbatore
69.	Dr. P. Malathi	Assoc. Professor (SS&AC), TNAU, Coimbatore
70.	Dr. V. Veeranan Arun Giridhari	Assoc. Professor (FSN), CPHT, TNAU, Coimbatore
71.	Dr. B. Rajagopal	Assoc. Professor (Biotechnology), TNAU, Coimbatore
72.	Dr. P. Kalaiselvi	Assoc. Professor (ENS), KVK, Salem
73.	Dr. K. Senguttuvan	Asst. Professor (Sericulture), FC&RI, Mettupalayam
74.	Dr. A. Sakuthalai	Asst. Professor (Pl. Pathology), ADAC&RI, Trichy
75.	Dr. R. Anitha	Asst. Professor (CRP), SRS, Cuddalore
76.	Dr. K. Kalaichelvi	Asst. Professor (Agronomy), SRS, Cuddalore
77.	Dr. G. Porkodi	Asst. Professor (SS&AC), SRS, Cuddalore
78.	Dr. V.K. Satya	Asst. Professor (Pl. Pathology), HC&RI(W), Trichy
79.	Dr. R. Arulmozhi	Asst. Professor (PBG), TRRI, Aduthurai
80.	Dr. S. Bharathiraja	Asst. Professor (Agrl. Micro.) CRS, Veppanthattai
81.	Dr. T. Rani	Asst. Professor (Agrl. Ento.), CRS, Veppanthattai
82.	Dr. V. Dhanushkodi	Asst. Professor (SS&AC), KVK, Needamangalam
83.	Dr. R. Sheeba Jasmine	Asst. Professor (Ento.), KVK, Sirugamani
84.	Dr. G. Gayathry	Asst. Professor (AGM), KVK, Vridhachalam
85.	Dr. V. Baskaran	Asst. Professor (Agrl. Ento.), TNAU, Coimbatore
86.	Dr. R. Rajeswari	Asst. Professor (SS&AC), TNAU, Coimbatore
87.	Dr. S. Thangeswari	Asst. Professor (Pl. Pathology), TNAU, Coimbatore
88.	Dr. R. Jayaramasoundari	Asst. Professor (Agronomy), TNAU, Coimbatore
89.	Dr. Patil Santhosh Ganapati	Asst. Professor (Statistics), PS&IT, AEC&RI, Coimbatore

******