

**Proceedings &
Recommendations of the
50th Sugarcane Research & Development
Workshop of Tamil Nadu & Puducherry**

**October
23-24, 2019**

**Cheyar Co-op
Sugar Mills Ltd.**



ICAR-Sugarcane Breeding Institute

Coimbatore – 641 007

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Date

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Host

Cheyar Co-op Sugar Mills Ltd.



**ICAR-SUGARCANE BREEDING INSTITUTE
COIMBATORE - 641 007**

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Compiled by: Dr D Puthira Prathap

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Dr. Bakshi Ram

Director

ICAR - Sugarcane Breeding Institute,

Coimbatore - 641 007

0422-2472621 Extn : 201

Fax : 0422-2472923

e-mail : sbiextension@yahoo.com

web: <http://sugarcane.res.in>

[A soft copy of this publication is available in

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PROCEEDINGS AND RECOMMENDATIONS OF THE 50TH SUGARCANE RESEARCH AND DEVELOPMENT WORKSHOP OF TAMIL NADU AND PUDUCHERRY (GOLDEN JUBILEE)

The 50th Sugarcane R&D Workshop of Tamil Nadu and Puducherry was held at *Hotel Fortune Select Grand, Chennai* during October 23-24, 2019.

The following topics were discussed:

- i. Review of action taken on the recommendations of the previous (49th) workshop
- ii. Wide row planting with Intercropping
- iii. Review of Sugarcane mechanization initiatives including mechanical harvesting
- iv. Current varietal position and Performance of new sugarcane varieties
- v. All India Co-ordinated Research Project on Sugarcane, Co-ordinated agronomic experiments/Adaptive Research Trials and SBI-SISMA/SBI-TNCSF Varietal trials
- vi. Sugarcane seed nursery programme

The workshop was hosted by Cheyyar Co-op Sugar Mills Ltd., Anakkavoor. About 300 delegates comprising scientists from ICAR-Sugarcane Breeding Institute, Coimbatore and Tamil Nadu Agricultural University, Coimbatore, Cane Development personnel from various sugar factories, officers from the Department of Agriculture, Directorate of Sugar and other Cane Development organizations in Tamil Nadu & Puducherry participated in the workshop. The Cheyyar Co-op Sugar mills Ltd., the

host of this workshop, had arranged an exhibition of recent and popular sugarcane varieties, sugarcane machinery including harvesters, drip irrigation technologies and many other agricultural inputs at the venue. The factory had also arranged for a motivational talk by Shri *Devakottai* Ramanathan, a popular Tamil orator.

Shri M Kulandaivelu, Managing Director, Cheyyar Co-op Sugar Mills Ltd., welcomed the gathering.

Dr Bakshi Ram, Director, ICAR-Sugarcane Breeding Institute in his Theme address mentioned that Sugarcane agriculture in Tamil Nadu has been facing several challenges for the past five - six years, poor rainfall being the major one. Sugar production in Tamil Nadu is expected to be around 7.5 lakh tonnes in 2019-20 season as against 8.60 lakh tonnes during 2018-19 season. 'Co' varieties currently occupy about 70 % of the cane area in Tamil Nadu. Co 11015, which has been identified for commercial cultivation in Tamil Nadu, has been found to be capable of accumulating high sugar content by 240 days, steadily increasing to 360 days. Cultivation of such promising varieties would go a long way in improving the sugar production of Tamil Nadu which has been seeing a sharp decline in the last few years compared to other sugar producing states, he added.

In his Special address, Shri Ajay Yadav IAS., Additional Director of Sugar, Govt. of Tamil Nadu expressed concern over the declining area under sugarcane in the state and mentioned that the main aim of the Commissionerate is to increase cane and sugar production in the following years in Tamil Nadu.

Smt. Reeta Harish Thakkar, IAS., Commissioner of Sugar, Govt. of Tamil Nadu & Managing Director, Tamil Nadu Sugar Corporation (TASCO) in her Presidential address appreciated the efforts taken by the public-sector

and co-operative sugar mills in multiplying the seed material of the newly released variety, Co 11015. The state is in need of varieties that would perform exceptionally well even in drought conditions, she added. She expressed hope that policy, subsidy schemes and research would come to the aid of the sugar sector in Tamil Nadu in the next few years.

Shri R Doraikannu, Hon'ble Minister for Agriculture, Govt. of Tamil Nadu, in his address listed out the measures taken by the Government of Tamil Nadu for the sugarcane farmers of the state and highlighted the benefits of PMFBY (PM Fasal Bima Yojana) for sugarcane farmers. He called upon ICAR-Sugarcane Breeding Institute, Tamil Nadu Agricultural University, Commissionerate of Sugar, Govt. of Tamil Nadu and Private & Public sector sugar factories to come together in order to improve sugarcane production & productivity and make Tamil Nadu a leading state in the country.

The "*Compendium of Research Articles & Status Papers*" of the Workshop was released by Shri M.C. Sampath, Hon'ble Minister for Industries, Govt. of Tamil Nadu.

In his inaugural address, Shri M.C. Sampath, Hon'ble Minister for Industries, Govt. of Tamil Nadu appreciated ICAR- Sugarcane Breeding Institute for developing Co 11015, a promising high-sucrose variety suitable for Tamil Nadu. He hoped that this variety will help in improving the sugar recovery in the state, which has dropped significantly in the recent years.

Mentioning that the sugarcane farmers in the state are in stress at present, he highlighted the measures taken by the government in alleviating the stress including promotion of micro-irrigation and mechanization.

The Inaugural session ended with vote of thanks

by Shri A Ravichandran, Chief Cane Officer, Cheyyar Co-op Sugar Mills Ltd.

INTRODUCTORY SESSION

- Chairperson : Shri Ajay Yadav IAS.,
Additional Director of
Sugar, Govt. of Tamil Nadu
- Co-Chairpersons : Dr Bakshi Ram, Director,
ICAR-Sugarcane Breeding
Institute

Shri M Kulandaivelu,
Managing Director, Cheyyar
Co-op Sugar Mills Ltd.
- Second* : Dr. Palani G Periasamy,
“Dr. N. Mahalingam
Memorial Lecture -
2019” President, SISMA-TN
and Chairman, Dharani
Sugars & Chemicals Ltd.
- Presentation of Action : Dr. D. Puthira Prathap,
Taken Report on the
recommendations of
49th R&D workshop Principal Scientist
(Agricultural Extension),
ICAR-Sugarcane Breeding
Institute, Coimbatore.

In his opening remarks, the Director of ICAR-Sugarcane Breeding Institute thanked the Sakthi Group of Companies for instituting the ‘**Dr.N.Mahalingam memorial lecture series**’ to be delivered in the Sugarcane R&D workshops, annually.

In his lecture, entitled, “*Tamil Nadu Sugar Industry – Challenges ahead and the way forward*” Dr. Palani G Periasamy, President, The South Indian Sugar Mills Association (SISMA)-TN & Chairman, Dharani Sugars and Chemicals Ltd., provided the current scenario of sugar production and consumption in the country before moving on to the

state of Tamil Nadu. Tamil Nadu, till five years ago, was one of the largest producers of sugar occupying third/ fourth rank in the country. It was one of the pioneers in integrated cane development and technology absorption. Cogeneration of power first took off and gathered momentum in the State. Due to agro climatic conditions peculiar to the State, Tamil Nadu sugar industry always used to have longer duration of cane crushing operations than mills in other States, he mentioned. However, the current status is not so promising, he lamented. Efforts taken by the Government on Ethanol-blended petrol, micro-irrigation for sugarcane and the release of the high-sucrose variety, Co-11015 are some of the few signs of a bright sugar sector in Tamil Nadu, he added.

Following the memorial lecture, Shri Ajay Yadav IAS., Additional Director of Sugar, Govt. of Tamil Nadu made an elaborate presentation on 'Support measures for sugarcane farmers by the Government of Tamil Nadu'

The Action taken report on the 11 recommendations of the 49th Sugarcane R&D Workshop' held at Erode was presented by Dr. D. Puthira Prathap, Principal Scientist, ICAR-Sugarcane Breeding Institute, Coimbatore. During the presentation it was mentioned that the first Sugarcane R&D workshop (formerly called as R&D workers' meeting / Science Club meeting) was held on 3 January 1981 in Coimbatore with the major topics, 1. Role of phosphate and potash in sugarcane production and sugar accumulation and 2. Performance of CoC 671 in Tamil Nadu.

TECHNICAL SESSION - I

Topic : *Wide row planting with Intercropping*

Chairperson : Dr. L. Chitra, , Prof. & Head, SRS (TNAU), Sirugamani

Co-chairperson : Shri A Muniasamy, CCO,
Vellore Co-op Sugar Mills Ltd.

Rapporteur : Dr. C Appunu, ICAR-SBI,
Coimbatore

In this session, lead papers were presented by scientists of ICAR-SBI and Tamil Nadu Agricultural University. This was followed by Status report presentations by sugar mills in the region.

Based on the presentations and discussions, the following observations and recommendations were made:

1. Factories should select suitable intercrops based on local conditions. The crops chosen should be fast-growing, non-competitive with sugarcane and of short duration (less than 90 days).
2. Factories should advocate use of green manures as intercrop in problem soils such as saline, alkaline and tannery -affected soils.
3. Single bud/single bud settling transplanting must be adopted based on local conditions for obtaining maximum yield.
4. Ideally 4.5 feet of row- to- row spacing must be adopted by the factories
5. Seedling to seedling space should preferably be 1.5 feet (late planting season) and 2 feet (early planting season)
6. Factories should invariably follow soil test based fertilizer application

TECHNICAL SESSION - II

Topic : *Review of Sugarcane
mechanization initiatives
including mechanical harvesting*

- Chairperson : Shri K. Nagendran,
Special Director,
ThiruArooran Sugars Ltd.,
- Co-chairpersons : 1. Dr. M. Jayachandran,
P&H, SRS (TNAU), Cuddalore
2. Shri A Ravichandran, Cheyyar
Co-op Sugar Mills Ltd.
- Rapporteur : Dr. A Vennila, ICAR-SBI,
Coimbatore

During this session, the sugar factories presented their plans, initiatives and achievements in the field of sugarcane mechanization including cane harvesting. A research paper on the effect of soil compaction due to mechanization on sugarcane cultivation was also presented. During the session, Shri K Raja, a progressive farmer from Vellore Co-op Sugar Mills Ltd area (Mobile: 9445200084) had demonstrated a bio-acoustic device designed by him to ward off wild boars. The major problems associated with mechanical harvesting are:

- i. Soil compaction
- ii. More creeper weed incidence
- iii. Stubble uprooting in sandy soils

Based on the presentations and the interaction that followed, the following observations/recommendations were made.

1. As labour scarcity is likely to become more serious in the coming years, all the T.N sugar mills must promote sugarcane mechanization more effectively.
2. Soil compaction is likely to become a concern in the near future due to mechanical cane harvesting. Hence, sub soil tillage with chisel plough shall be a mandatory practice in the land preparation for mechanical cane cultivation.

3. Adequate care must be taken by the factories to design the field layout before taking up cane planting under wider row spacing for adopting mechanized cane operations and head lands must be provided to achieve efficient machine harvesting.
4. Since cane planting under Sub Surface Drip system (SSD) and mechanical cane cultivation are complimentary to each other, all the SSD cane fields must be targeted for mechanized inter-cultural operations and machine harvesting
5. Since farmers are apprehending yield reduction due to machine harvesting, factories should promote adoption of proper agronomic practices like perfect row spacing and proper earthing-up in the plant crops & appropriate post-harvest measures like de-ridging, trash incorporation and right earthing-up in the ratoon crops.
6. It is also recommended to preferably select non-brittle varieties for machine harvesting.
7. Trash burning must be strictly avoided in the machine harvested cane plots as a measure to maintain soil health besides preventing soil compaction due to machine harvesting.
8. Adequate number of farm machinery and implements like harrows, power tillers, mini-tractors and harvester machines must be built up in the factory command areas to lend timely services to the cane growers through customized service centres at affordable costs.
9. The innovative measure adopted by Dharani Sugars & Chemicals Ltd in using nylon nets for unloading the billet cane from the cane trucks is well appreciated

and recommended for adoption wherever tipplers are not available for the movement and unloading of machine harvested cane.

10. A database must be created in all the sugar mills engaging harvester machines by assessing the extraneous matter percentage in the machine harvested cane by conducting periodical sampling in the cane yard and legitimize the deduction towards extraneous matter from the cane weight.
11. Trash incorporation has become an essential operation under machine harvesting scenario and hence, it should be promoted in sugarcane cultivation

TECHNICAL SESSION - III

Topic	: <i>Current varietal position in Sugar factories & Performance of new sugarcane varieties</i>
Chairperson	: Dr. G. Hemaprabha, Head, Dvn. of Crop Improvement, ICAR-SBI, Coimbatore
Co-chairperson	: Shri S.J. Lakshman, EID Parry (I) Ltd.
Rapporteur	: Dr R Sudhagar, SRS (TNAU), Melalathur

Based on the presentations by the factories on the current varietal position and discussions that followed, the following observations and recommendations were made:

1. Seed subsidy can be extended for the variety CoG (6), released by SRS (TNAU), Melalathur to Ambur Co-op Sugar Mills Ltd, as this variety has been identified as a tannery effluent polluted soil-tolerant variety.

2. BMT results shall be reported by the factories for the varieties Co 0212/CoV93056/Co 06030 in the forthcoming R&D workshops
3. Most of the factories have reported higher yields for the new varieties at the time of introduction but it was observed that there has been a reduction in yield at later stages. Director, ICAR-SBI had suggested that nursery and other developmental activities taken up by the factories shall be focused to revive the original yield levels.
4. Bannari amman, Alathukombai has reported very poor recovery for VCF 0517 (CoVC 14061) in BMT. Therefore, cultivation of this variety shall not be encouraged by the factory.
5. Cultivation of CoC 24 shall be phased out early so as to avoid red rot spread.
6. Many factories have reported early recovery of Co 86032 after drought and good ratoon establishment.
7. The new variety Co 11015 shall be multiplied through single bud seedling to ensure faster spreading.
8. Agronomy and nutrient package has to be standardized for Co 11015 by the research institutions.
9. Studies on micro nutrient management in ratoon crop of Co 11015 and INB shall be initiated by the institutions
10. The variety Co 0212 has recorded good yield and quality with wide row spacing which has to be evaluated in other factories too. This variety shall be planted with low sett rates with wide row spacing
11. The red rot incidence in the varieties Co 06022 and Co 06030 is to be closely monitored.

TECHNICAL SESSION - IV

- Topic : *All India Co-ordinated Research Project on Sugarcane trials, Co-ordinated agronomic experiments (ART) & SBI-SISMA/SBI-TNCSF trials*
- Chairperson : Dr. Bakshi Ram, Director, ICAR – SBI, Coimbatore
- Co-chairperson : Dr. S Pasupathy, SRS (TNAU), Cuddalore
- Rapporteur : Dr M Shanmuganathan, SRS, Cuddalore

In this session, four presentations from ICAR-SBI and TNAU scientists were made. Clones such as Co 12009, VSI 12121 and CoM 12085 had performed better based on the two-plant and one ratoon crop in peninsular zone. The early clone CoA 14321 had performed better based on the two plant and one ratoon crop for East Coast zone.

In the SBI-SISMA trials, the clones viz., Co 13014, Co 11015, Co 13018, Co 14016 and Co 06031 had performed better than Co 86032 for cane yield and sugar yield. Of these, Co 11015 had recorded 10.23 %, 20.13 % and 9.66 % improvement over Co 86032 for cane yield, sugar yield and sucrose content across Tamil Nadu. Hence this clone was proposed and released as short duration sugarcane variety for commercial cultivation in Tamil Nadu. In the trials conducted at SRS, Cuddalore, early clone CoC 14336 and midlate clone CoC 14337 had performed better based on two Plant and one ratoon crop.

Based on the presentations and discussions followed, the following observations and recommendations were made:

1. Varieties such as Co 09004, Co 10026, Co 12009 for interior Tamil Nadu and CoA 14321, CoC 14337 for coastal Tamil Nadu were found promising in AICRP (S). The sugar factories may test these varieties for assessing their suitability in their respective locations.
2. Co 11015, Co 13018, Co 15007 and Co 09004 were found promising in the SBI-SISMA trials conducted at nine sugar factory areas in the state of Tamil Nadu. Out of these, Co 11015 has already been released for Tamil Nadu and Puducherry. Hence, factories may take necessary steps to multiply this variety.

TECHNICAL SESSION - V

Topic	: <i>Seed Nursery Programme</i>
Chairperson	: Dr. A.J. Prabakaran, ICAR-SBI, Coimbatore
Co-chairperson	: Smt A.K. Sivamalar, MD, Kallakurichi-2 Co-op Sugar Mills Ltd.
Rapporteur	: Dr. D. Puthira Prathap, ICAR-SBI, Coimbatore

In this session, Dr. A.J. Prabakaran, ICAR-SBI, Coimbatore presented a lead paper on 'Role of ICAR-Sugarcane Breeding Institute in facilitating healthy Sugarcane Seed Nursery Programmes in Tamil Nadu during 2018-19'. This session was followed by a *General Interactive session*.

Based on the presentations and discussions followed, the following observations and recommendations were made:

1. Factories should make payments in time after getting the Proforma Invoice from ICAR-SBI, Coimbatore for the seed material
2. Factories should ensure lifting of the seed material

from the field-locations after receipt of the cutting order

3. Factories should provide feedback to ICAR-SBI about the quality of the seed material they have lifted.

PLENARY SESSION

- Chairperson : Dr. Bakshi Ram, Director,
ICAR - SBI, Coimbatore
- Present : Dr. M. Jayachandran, P&H,
SRS (TNAU), Cuddalore
Shri M Kulandaivelu, MD,
Cheyyar Co-op Sugar Mills Ltd.
Shri M Sengottuvelu, GM,
Dharani Sugars & Chemicals Ltd/
All Chairpersons/Co-
chairpersons/rapporteurs of
sessions
- Vote of Thanks : Dr. D. Puthira Prathap,
ICAR-Sugarcane Breeding
Institute, Coimbatore

During this session, the chairpersons/rapporteurs of different technical sessions presented the proceedings and recommendations. Following this, awards were presented for best presenters of status reports. The following were the award winners.

1. Shri K Gopinath, Ponni Sugars Ltd.
2. Shri C Balaje, Rajshree Sugars & Chemicals Ltd.
3. Shri J Indrajith, Arignar Anna Sugar mills Ltd.
4. Shri N Sundarajan, Dharani Sugars & Chemicals Ltd.
5. Shri K.P. Murugesan, Kallakurichi - I Coop Sugar Mills Ltd.

6. Shri S Avinashilingam, Rajshree Sugars & Chemicals Ltd.
7. Shri V Sridhar, Sakthi Sugars Ltd., Appakudal
8. Smt M Thayammal, Cheyyar Co-op Sugar Mills Ltd.
9. Shri J Uthandi, Sakthi Sugars Ltd., Sivaganga
10. Shri M Chinnapillai, Vellore Co-op Sugar Mills Ltd.
11. Shri K Aruljothi, Rajshree Sugars & Chemicals Ltd.
12. Shri S Sanjeevi, Dharmapuri District Co-op Sugar Mills Ltd.
13. Shri P Senthilvel, Kothari Sugars Ltd., Kattur
14. Shri V Rajesh, Dhanalakshmi Srinivasan (VV) Sugars Ltd.
15. Shri R Subramanian, Sakthi Sugars Ltd. Poonthuraismur

The Chairperson summarized the proceedings of the two-day workshop and requested all the participants to make concerted efforts to implement the various recommendations arrived at the workshop.

The workshop ended with the Vote of Thanks proposed by Dr. D. Puthira Prathap, Principal Scientist (Agricultural Extension), ICAR - Sugarcane Breeding Institute, Coimbatore during which it was informed that **Ponni Sugars (Erode) Ltd.** will be hosting the **51st Sugarcane R&D workshop of Tamil Nadu and Puducherry** in 2020 .





ICAR-Sugarcane Breeding Institute
(Indian Council of Agricultural Research)
Coimbatore – 641 007