

**PROCEEDINGS OF THE
24th SUGARCANE SCIENTISTS' MEET CONDUCTED ON 26.4.2016**

The 24th Scientists' Meet on Sugarcane was held on 25th and 26th of April, 2016 at TNAU, Coimbatore. The discipline wise concurrent sessions on crop improvement, management and protection were held under the chairmanship of the concerned Technical Directors during the first day of the meet. The Director of Research while addressing the joint session of these three groups briefed the objective of conducting annual review of the university research projects and the need for the reorientation of the same according to the need of the different stakeholders of the crops. He highlighted that the action plan for the next three years in each discipline should be drawn to address the issues of the farmers and other stakeholders and suitable research projects are to be developed involving scientists from the different discipline at different centres. Appropriate action may also be suggested to the scientists to propose new research projects for seeking funds from the external agencies. Popularization of high yielding varieties, critical technologies identified by the university may be taken up with the financial assistance from the Government of India and the state planning commission.

The plenary session was held on 26th April, 2016 under the Chairmanship of the Vice-Chancellor, TNAU, Coimbatore. The Director of Research welcomed the participants. The highlights of the research achievements and action taken on the recommendations of the previous meet in the discipline of crop improvement, crop management and crop protection were presented by the respective lead scientists. The action plan for the year 2016-19 with respect to the above three disciplines was presented by the Directors of CPBG, CMS and CPPS respectively. The Revered Vice-Chancellor, in his remarks offered suggestions and improvement in the action plan and technical programmes drawn for the year 2016-19.

At the end, the Director of Research, TNAU, Coimbatore proposed a vote of thanks. The Vice Chancellor, TNAU, Coimbatore offered the following suggestions for follow up by the three stations working on Sugarcane.

Proceedings of the 24th Sugarcane Scientists' Meet are in the following order.

- 1) Staff Pattern
- 2) Remarks on the individual University Research Projects
- 3) Decisions made on entries for Variety Release/ART/MLT evaluation from breeders and OFTs from Crop Management and Crop Protection Scientists
- 4) Decisions made on OFT evaluation for technologies from Crop management and Crop Protection scientists

1. Staff Pattern

Station	Designation	Discipline								Total
		PBG	AGR	SAC	PHY	SST	ENT	PAT	NEM	
Cuddalore	Professor	1	1	-	-	-	1	1	-	10
	Asst. Professor	1	2	1	1	-	-	1	1	
Sirugamani	Professor	-	1	-	-	-	-	-	-	6
	Asst. Professor	1	2	-	-	-	1	-	-	
Melalathur	Professor	-	-	-	-	1	1	-	-	3
	Asst. Professor	1	-	-	-	-	-	-	-	
Total		4	6	1	1	1	3	2	1	19

Of the above 19 scientists three scientists (Breeder, Agronomist and Pathologist –one in each) are working under AICRP in Sugarcane at Cuddalore

2. Remarks on the individual University Research Projects

Plant Breeding and Genetics

S. No.	Project Number	Remarks
1.	CPBG/CUD/PBG/SUG/2010/ 001 Dr. R. S. Purushothaman Evolution and evaluation of early duration sugarcane varieties with high yield, quality and resistance to pest and disease.	Only evaluation for CCS, Cane yield and Sugar yield were carried for a set of clones. No information is made available for the origin of clones. Hybridization work was carried out at Sugarcane Breeding Institute. What is the difference between the Hybridization carried out under AICRP and this one? Though both the projects are aiming for evolving pest and disease resistance clone no data is made available on the evaluated clones.
2.	CPBG/CUD/PBG/SUG/2010/ 002 Dr. R. S. Purushothaman Evolution and evaluation of mid-late sugarcane varieties with high yield, quality and pest and disease resistance.	
3.	CPBG/SGM/PBG/SUG/2014/001 Dr. M. Shanmuganathan 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.	Evaluation was carried out for a set of clones. The first project deals with evaluation for Cauvery Delta Zone and the second deals with evaluation for earliness. How these criteria were used separating the clones? Study on redrot resistance is one of the major objectives in both the projects. But no information is made available on the level of redrot resistance. The accessions screened have two different nomenclatures. Some are with Si and others are with Co. Why this difference.
4.	CPBG/SGM/PBG/SUG/2014/002 Dr. M. Shanmuganathan Evolving sugarcane varieties suitable for early season with high yield, quality coupled with resistance for red rot disease.	
5.	CPBG/SGM/PBG/SUG/2014/003 Dr. M. Shanmuganathan Hybridization, fluff study, individual	The study on hybridization in Sugarcane is appreciated. However, the details of environmental influences on flowering and

	seedling selection and early stage selection in sugarcane	subsequent hybridization may be carried out in collaboration with any of the breeders from Sugarcane Breeding Institute, Coimbatore
6.	CPBGI/MLT/PBG/SUG/14/ 001 Dr. N. A. Saravanan Hybridization and selection of sugarcane clones with high yield and quality for early and mid late season.	The major objective of the project is to evolve clones with high yield and quality for early, mid and late seasons. But only one evaluation trial was conducted and there is no mention about the season and other details.
7.	CPBG/MLT/PBG/SUG/14/ 002 Dr. N. A. Saravanan Evolving high yielding and high quality sugarcane clones with red rot resistance for early season.	The major objective of the project is to evolve clones with redrot resistance for early season. No information on redrot resistance is furnished.
8.	CPBG/MLT/PBG/SUG/14/ 003 Dr. N. A. Saravanan Evolving high yielding and high quality sugarcane clones with red rot resistance for mid late season.	The major objective of the project is to evolve clones with redrot resistance for mid and late seasons. No information on redrot resistance is furnished. What is the need for two separate projects? Why the redrot resistance cannot be studied with first project?

General Remarks

A uniform pattern of nomenclature for the cultures and varieties of Sugarcane at different stations may be adopted. The data furnished are not subjected to the statistical analysis.

Agronomy

S. No.	Project Number	Remarks
1.	DCM/CDR/AGR/SUG/2015/New Dr. G. Manickam Studies on herbicides in weed management of sugarcane	The project was proposed in January 2015. The work was started in April 2016. The projects started in 2016 after this are numbered. Why this project is not numbered? It is learned that the copy of the proposal with remarks of the Technical Director has been asked from the Directorate of Research for numbering. The project is having only one trial with a set of treatments. Both Atrazine and Metribuzin are having the same mode of action and they kill broad leaved weeds by inhibiting photosystem II of photosynthesis. What is the need for having a trial with both the herbicides? Already Atrazine or Metribuzin is recommended for controlling the weeds

		in Sugarcane.
2.	DCM/CDR/AGR/SUG/2015/New Dr. S. Thiruvarassan Effect of leguminous intercrops on productivity of plant and ratoon crop of sugarcane	The trial has been initiated only in February 2016. The project will be numbered since recommendation for approval came only recently. The project leader is requested to consider about the parameters to be recorded and the duration of the trial.
3.	DCM/SGM/AGR/SUG/2014/002 Dr. K. Annadurai Dr. R. Nageswari Integrated weed management in sugarcane under Deltaic Region of Trichy District	Treatments are fixed very arbitrarily. What is the area for each of the treatments? How one can handle these many treatments with varying combinations? Only weed control efficiency, cane yield and net income are given as the outcome of the trial and the data recorded are not statistically analyzed. What are the other parameters recorded in the trial. The trial is in progress from 2013.
4.	DCM/SGM/AGR/SUG/2014/003 Dr. R. Nageswari Evaluation of sugarcane varieties suitable for SSI method	The trial is in progress from 2013 and the purpose of the trial is to evaluate the varieties for SSI method of cultivation. Since SSI method of cultivation is a common practice for all the varieties released and what is the need for this kind of evaluation. Moreover SSI method of cultivation is a combination of several individual components. Under this condition, how the varietal differences for SSI are established. Is there any experiment for the varietal differences in performance under normal method of cultivation?
5.	DCM/SGM/AGR/SUG/2014/004 Dr. R. Nageswari Nutrient management in chewing cane	What is need for these many numbers of treatments without knowing the purpose of the experiment? The effect individual components of the treatments are not at all targeted by observing right parameters. Only the cane yield and income were arrived. The usage of unwanted acronyms (PM for Pressmud; B for Booster; TC for Trash Compost) may be avoided while reporting the results of experiments.
6.	DCM/SGM/AGR/SUG/2015/005 Dr. K. Annadurai Dr. R. Nageswari Standardization of nutrients requirement for raising protray chip budded sugarcane seedlings	What is the actual method used for raising protray chip budded sugarcane seedlings? Vigour Index is derived parameter and how it is arrived using generated data? How B:C ratio is arrived at with this data? Is it reasonable and logical?

7.	DRES/BSR/AGR/SUG/2011/019 Dr.R. Jayaramasoundari Evaluation of suitable intercropping system for Sustainable Sugarcane Initiative (SSI) for Western Zone of Tamil Nadu	The project is being conducted for the past five years. Proper reporting is not made with adequate data. When this project is in progress what is the need for another project with same objective (DCM/CDR/AGR/SUG/2015/New)
8.	CAEK/KUM/AGR/SUG/2014/001 Dr. G. Kathiresan Studies on tillering behavior and its effect on cane yield and quality of different genotypes of sugarcane under mother shoot pruning in SSI method of planting in the farmers field.	Mother shoot pruning is commonly adopted under clay soil condition to increase the number of tillers in sugarcane irrespective of varieties. The conceptualized experiments do not add any new research outcome to the farmers. This experiment could have been conducted under different soil conditions instead using different genotypes.
9.	CAEK/KUM/AGR/SUG/2014/002 Dr. G. Kathiresan Evaluation of low cost pruner for mother shoot planting with different genotypes of sugarcane.	

General Remarks

None of the projects have statistical analysis and logical interpretations. Since there are five agronomists, combined effort may be made to solve the pressing the problem in sugarcane cultivation.

Soil Science and Agricultural Chemistry

S. No.	Project Number	Remarks
1.	NRM/CDR/SAC/SUG/2012/001 Dr. P. Christy Nirmala Mary Evaluation of sub surface drip fertigation with phosphorus fertilizers in improving soil health and fertilizer use efficiency for enhancing sugarcane productivity	The project period is over by 2015. From the report it is not clear whether the stated objectives are reached or not. There is no information about nutrient dynamics, nutrient mineralization and uptake pattern. The results obtained may be consolidated and closure proposal may be sent.
2.	NRM/CDR/SAC/SUG/2015/New Dr. P. Christy Nirmala Mary Use of sugarcane trash biochar for Soil Health Enhancement and sugarcane productivity	The project period is for three years. Only the physical and chemical parameters of sugarcane biochar are reported using two different systems. The effect of sugarcane biochar on sugarcane is yet to be started.

General Remarks

Since there is only one soil scientist a net-work project involving the soil scientists in AC&RI, Trichy may be evolved for addressing the major soil health problem in sugarcane cultivation.

Crop Physiology

S. No.	Project Number	Remarks
1.	DCM/CDR/CRP/SUG/2015/001 Tmt. R. Anitha Studies to standardize the growth promoting nutrients to enhance the cane yield and sucrose accumulation in CoC24	The project is in operation for the past one year. A set of nine treatments (growth promoting substances) were imposed on CoC 24 in portrays in randomized block design with three replications. There is no mention about the seedlings and their planting in the field for all the nine treatments. However, the results indicated that the treatment T6- T3+T6 was found to be good with seedlings and their performance in the field. The outcome of the work needs logical explanation.
2.	DCM/CDR/CRP/SUG/2014/002 Tmt. R. Anitha Response of sugarcane clones to salt stress and role of exogenous application of ascorbic acid in mitigating salt induced damages.	A set of five sugarcane genotypes were assessed for their salt stress by applying varying levels of NaCl. There is no information on the damages due to salt stress and how they are varying in different genotypes. How the application of ascorbic acid mitigated the salt stress in different genotypes is not resolved clearly.
3.	DCM/CDR/CRP/SUG/2015/003 Tmt. R. Anitha Impact of silicon nutrition on physiology, yield and quality of sugarcane under drought condition	The project is for two years. The major objective is to study the role of Silicon drought mitigation in sugarcane. Then what is the need for using Polyethylene Glycol for imposing stress. There are two experiments but no connection between the two experiments.

General Remarks

There is only one physiologist working in sugarcane. Since drought stress is considered as one of the major abiotic stresses affecting sugarcane cultivation, concentrated efforts may be made to work on this area. Already the crop physiologist has been asked to propose a project to an external funding agency to work on tissue culture studies at Cuddalore.

Seed Science and Technology

S. No.	Project Number	Remarks
1.	DCM/MLT/SST/SUG/2016/New Dr. K. Indira Studies on the effect of Arbuscular mycorrhizal fungi on Chip bud seedling vigor and resultant seedcane yield	Arbuscularmycorrhizal fungi (AMF) plays a vital role in promoting promote crop nutrition and increase phosphorus uptake. Set of treatments prescribed in the project does not reflect real purpose of the experiment. The data recorded for percentage of germination, root length and shoot length do not show any significant difference.
2.	DCM/MLT/SST/SUG/2016/New Dr. K. Indira Improving germination and vigour of single budded setts in sugarcane using thermootherapy and Fungicide treatments	There is an article with same title published in Proceedings of South African Sugar Technology 1998. What is the expectation of the project at the present context.

General Remarks

Experiments need not be conducted on the established results without any further improvement..

Agricultural Entomology

S. No.	Project Number	Remarks
1.	CPPS/CDR/ENT/SUG/2013/001 Dr.S.Douressamy Screening for assessment of field resistance in sugarcane clones against endemic pests of Cuddalore region	The project was for a period of three years (2013-16). The completion report may be sent at the earliest. The list of genotypes found with stability in resistance to targeted pests may given to the breeders for further evaluation for yield and quality.
2.	CPPS/CDR/ENT/SUG/2013/002 Dr.S.Douressamy Exploration and monitoring of insect pests and bio agents in sugarcane ecosystem	The project was for a period of three years (2013-16). The completion report may be sent at the earliest. Genuine recommendations may be drawn for the benefit of farmers. Completion report may sent at the earliest.
3.	CPPS/SGM/ENT/SUG/2015/001 Dr. V. Baskaran Screening for assessment of field resistance in sugarcane clones against endemic pests and suitable management practices for Cauvery delta region	Both the projects are just the replica of the above two projects. The Technical Director is requested to reorient the research projects by involving the entomologists working in Sugarcane

4.	CPPS/SGM/ENT/SUG/2015/002 Dr. V. Baskaran Monitoring of major insect pests and exploration of their natural enemies in sugarcane ecosystem	
5.	CPPS/MLT/ENT/SUG/2014/001 Dr. A. Thirumurugan Developing IPM strategies for management of white fly under precision farming sugarcane cultivation	Treatment details are not given in the report. How the experiment was conducted in the open field with nine different treatments?
6.	CPPS/MLT/ENT/SUG/2015/002 Dr. A. Thirumurugan Development of IPM packages for management of white grub in sugarcane	The first objective of the project is “to study the individual components of incidence of white grub in sugarcane and its yield. What are the individual components? There is no evidence in the experiments conducted towards the exploration of individual components of incidence of white grub.
7.	CPPS/MLT/ENT/SUG/2015/003 Dr. A. Thirumurugan Evaluation of insecticides against borer pests of Sugarcane under SSI	Management of insects using insects is already in the above two projects. What is the necessity for a separate project?

Plant Pathology

S. No.	Project Number	Remarks
1.	CPPS/CDR/PAT/SUG/2011/001 Dr.T.Kalaimani Evaluation of Sugarcane clones / Varieties for resistance to red rot caused by <i>Colletrichumfalcatum went</i>	Both the projects are designed only for screening various accessions of Sugarcane from Cuddalore, Sirugamni and Melalathur. Thought redrot resistance is being considered as a major problem no work is being carried out on this disease.
2.	CPPS/CDR/PAT/SUG/2013/002 Dr.T.Kalaimani Evaluation of resistance in sugarcane to smut caused by <i>UstilagoscitamineaSyd.</i>	

Nematology

S. No.	Project Number	Remarks
1.	CPPS/CDR/NEM/SUG/2014/001 Dr. J. Jayakumar Management of sugarcane nematodes using nonchemical methods	How the experiment 1 and experiment 2 were conducted with just three and four treatments?. How many times the treatments were replicated in both the experiments? Whether the multiplication

		rates of targeted nematodes and persistence of bacterial and fungal populations and their effectiveness were observed at different stages of experimentation?
2.	CPPS/CDR/NEM/SUG/2015/002 Dr. J. Jayakumar Screening of sugarcane varieties against root knot nematode, <i>Meloidogyne incognita</i> and lesion nematode <i>Pratylenchus zeae</i> and confirmation on the same.	The project is for just screening the sugarcane clones for their resistance to targeted nematodes. In depth studies may be initiated to study the varietal differences and the interaction between host and pest.

General Remarks

Projects may be evolved to understand the biological mechanisms associated with host and pest interactions instead of routine screening and monitoring.

3). Decisions made on entries for Variety Release/ART/MLT evaluation from breeders and OFTs from Crop Management and Crop Protection Scientists

A. Crop Improvement

I. Clone identified for variety release

1. **Early Clone C 260628 (from SRS, Cuddalore)**

Parentage: Co 85002 x HR 83-144

Cane Yield (t/ha): 144.95 (14.58 % increase over Co 86032)

CCS (%): 12.66

Sugar Yield (t/ha): 18.35 (11.86 % increase over Co 86032)

Special features

Fast growing medium thick cane

Moderately resistant to red rot

0.91 % increased sugar recovery than the factory cane in BMT

Scientist In-charge: Dr. S. Ganapathy, AP (PB&G), SRS, Cuddalore

2. **Early Clone 05 G 019 (from SRS, Melalathur)**

Parentage: HR 83-144 X CoH 119

Cane Yield (t/ha): 131.1 (32.79% increase over Co 86032)

CCS (%): 13.04

Sugar Yield (t/ha): 17.09

Special features

Suitable for Jaggery production

Suitable for problem soils

Moderately resistant to red rot and non lodging

Scientist In-charge: Dr. N.A. Saravanan, AP (PB&G), SRS, Melalathur

II. Clones identified for the evaluation under ART in 2016-17

S. No	Early clones	S. No	Mid-late clones
1	C 29 090	1	C 29 442
2	C 29 229	2	Si 2008-06
3	Si 2008-05	3	07 G 023
4	07 G 017	4	Co 08 009
5	Co 08 020	5	Co 08 016
<u>Checks</u>		<u>Checks</u>	
6	CoC (Sc) 24	6	Co 86032
7	TNAU Si (Sc) 7	7	TNAU Si (Sc) 8

Why the nomenclatures for the cultures vary among the stations of TNAU?

Technical programme – ART on Sugarcane - 2016-17

1. ART - Early (2016-17) – Plant Crop

Entries (5)	:	C 29 090, C 29 229, Si 2008-05, G 07 017, Co 08 020,
Standards (2)	:	CoS (Sc) 24 and TNAU Si (Sc) 7
Design	:	Randomized Block Design.
Replications	:	Three
Plot size	:	5.0 m x 5 Row x 0.90 m
Seed rate	:	16 buds per meter
Date of planting	:	2nd fortnight of January 2016
Crop duration	:	10 months

SRS, Cuddalore: 4 – Locations

1. E.I.D. Sugar, Nellikuppam,
2. Rajshree Sugar mill Unit- 2, Mundiampakkam,
3. Pondicherry Co-operative Sugar mill, Puducherry, &
4. Cheyyar Co-operative Sugar mill, Cheyyar.

SRS, Sirugamani: 3 – Locations

1. E.I.D. Sugar Mill, Pettavathalai
2. E.I.D. Sugar Mill, Pugalur
3. Salem Co-operative Sugar, Mohanur

SRS, Melalathur: 3 – Locations

1. Ambur Co-operative mill, Vadapudupattu – 2- locations
2. Vellore Co-operative mill, AmmundiSBI, Coimbatore:

1. Bannari Amman sugar, Aluthukombai, Sathayamangalam
2. Sakthi sugars, Appakoodal, Erode
3. Ponni Sugars, Pallipalayam, Erode
4. Amaravathi Co-operative sugar mill, Udumalaipettai

4 – Locations

2. ART - Mid-late (2016-17) - Plant Crop

Entries (5)	:	C 29 442, Si 2008-06, G 07 023, Co 08 009, Co 08 016,
Standards (2)	:	Co 86032, and TNAU Si (Sc) 8.
Design	:	Randomized Block Design
Replications	:	Three
Plot size	:	Net : 5.0 m x 4 R x 0.90 m
Seed rate	:	12 buds per meter
Date of planting	:	2nd or fortnight of February 2016/ March 2016
Crop duration	:	12 months

SRS, Cuddalore: 4 – Locations

1. E.I.D. Sugar, Nellikuppam,
2. Rajshree Sugar mill Unit- 2, Mundiampakkam,
3. Pondicherry Co-operative Sugar mill, Puducherry, &
4. Cheyyar Co-operative Sugar mill, Cheyyar

SRS, Sirugamani: 3 – Locations

1. E.I.D. Sugar Mill, Pettavathalai
2. E.I.D. Sugar Mill, Pugalur
3. Salem Co-operative Sugar, Mohanur

SRS, Melalathur: 3 – Locations

1. Ambur Co-operative mill, Vadapudupattu – 2- locations
2. Vellore Co-operative mill, Ammundi

SBI, Coimbatore: 4 - Locations

1. Bannari Amman sugar, Aluthukombai, Sathayamangalam
2. Sakthi sugars, Appakoodal, Erode
3. Ponni Sugars, Pallipalayam, Erode
4. Amaravathi Co-operative sugar mill, Udumalpettai

Scientist's In-charge: Dr. S. Ganapathy, AP, (PBG), SRS, Cuddalore

Dr. M. Shanmuganathan, AP, (PBG), SRS, Sirugamani

Dr. N. A. Saravanan, AP, (PBG), SRS, Melalathur

What is area for each of the entries?

III. Clones proposed for the evaluation under MLT in 2016-17

S. No	Early clones	S. No	Mid-late clones
1	C 31075	1	C 30010
2	C 31098	2	C 30042
3	Si 2010-01	3	Si 2010-12
4	Si 2010-02	4	Si 2010-27
5	08 G 023	5	08 G 019
6	08 G028		08 G 041
<u>Checks</u>		<u>Checks</u>	
6	CoC (Sc) 24	6	Co 86032
7	TNAU Si (Sc) 7	7	TNAU Si (Sc) 8

Why the nomenclatures for the cultures vary among the stations of TNAU?

What is the area for each of the entries? How many replications?

Locations: 1. SRS, Cuddalore
2. SRS, Sirugamani
3. SRS, Melalathur

Season: Early – January – February 2016 (Planting)
Mid-late- March – April 2016 (Planting)

Scientist's In-charge: Dr. S. Ganapathy, AP, (PBG), SRS, Cuddalore
Dr. M. Shanmuganathan, AP, (PBG), SRS, Sirugamani
Dr. N. A. Saravanan, AP, (PBG), SRS, Melalathur

B. Crop Management

OFT proposed for 2016 – 17

1. Integrated weed management in sugarcane

Coordinating centre: Dr. R. Nageswari
Asst. Professor (Agronomy)
SRS, Sirugamani

Objective

To standardize integrated weed management practice in sugarcane

Treatment

T₁- PE Pendimethalin 1 kg a.i./ha + Intercropping with Daincha + POE
Metribuzin @ 0.75kg a.i./ha on 150 DAP

T₂- PE Atrazine @1.25 kg a.i./ha + Power weeder weeding on 45 DAP
and 75 DAP

T₃- Control

Centres

SRS, Sirugamani: Dr.R.Nageswari, Asst. Professor (Agronomy)

SRS, Cuddalore : Dr. S. Thirumarassan, Asst. Professor (Agronomy)

AC&RI, Madurai: Dr. N. K. Sathyamoorthy, Asst. Professor (Agronomy)

2. Mother shoot pruning in different genotypes under SSI method of planting

Coordinating centre: Dr. G. Kathiresan, Professor (Agron), AEC&RI, Kumalur

Objective

To standardize tillering behaviour and its effects on cane yield and quality of different genotypes of sugarcane under mother shoot pruning under SSI .

Treatment

T₁-Mother shoot pruning on 15thDAP

T₂-Mother shoot pruning on 30thDAP

T₃-Mother shoot pruning on 45thDAP

T₄- Control

Centres

SRS, Sirugamani	: Dr. R. Nageswari, Asst. Professor (Agronomy)
SRS, Cuddalore	: Dr. V. Karunakaran, Asst. Professor (Agronomy)
AC&RI, Madurai	: Dr. N. K. Sathyamoorthy, Asst. Professor (Agronomy)
ARS, Bhavanisagar	: Dr. R. Jayaramasoundari, Asst. Professor (Agronomy)

3. Plant geometry under drip fertigation in SSI system

Objective: To optimize the plant geometry in SSI

Treatments

- T₁- Conventional
- T₂- 150 cm x 30 cm single row
- T₃- 150 cm x 60 cm double row

Centres

SRS, Sirugamani	: Dr. R. Nageswari, Asst. Professor (Agronomy)
SRS, Cuddalore	: Dr. V. Karunakaran, Asst. Professor (Agronomy)
AC&RI, Madurai	: Dr. S. AnithaFanish, Asst. Professor (Agronomy)
ARS, Bhavanisagar	: Dr. R. Jayaramasoundari, Asst. Professor (Agronomy)

4. Standardization of management techniques for sugarcane under SSI

Objective

To standardize intra-row spacing with and without topping under SSI

Treatment

- T₁- 30 cm spacing + 100 % NPK + with topping
- T₂- 30 cm spacing + 100 % NPK + without topping
- T₃- Conventional (6 two budded setts/m)

Centres

SRS,Cuddalore	: Dr. G. Manickam, Prof. (Agronomy)
SRS, Sirugamani	: Dr. R. Nageswari, Asst. Prof. (Agronomy)
AC&RI, Madurai	: Dr. T. Ragavan, Prof. (Agronomy)
ARS, Bhavanisagar	: Dr. R. Jayaramasoundari, Asst. Prof. (Agronomy)

C. Crop Protection

1. management of sugarcane Internode borer

Integrated

Treatments

- T₁-Release of egg parasitoid- *Trichogramma chilonis*@2.5CC/ha from 4th to 6th months at fortnightly interval.
- T₂-Installation of INB sex pheromone trap for monitoring and mass trapping @20/ha

T₃-Detrashing at 5th and 7th month after planting.

T₄-Integration of T₁ and T₂

T₅- Integration of T₁, T₂ and T₃

T₆-Untreated control

Observations: Percent damage, yield , replicated (Four) with 25 cents per treatment.

Action: SRS,Cuddalore, Sirugamani and Melalathur

Scientists incharge

Dr.S. Douressamy, Professor(Agrl. Entomology), SRS, Cuddalore

Dr. V. Bhaskaran, , Assistant Professor(Agrl. Entomology), SRS, Sirugamani

Dr. A. Thirumurugan, Professor and Head, SRS, Melalathur.

2. Evaluation of insecticides against borer pests of Sugarcane under Precision farming technology

Treatments	Dose (ml/ha)
T ₁ -imidacloprid 17.8SL	200
T ₂ - imidacloprid 17.8SL	300
T ₃ -chlorantraniliprole 18.5SC	375
T ₄ -chlorpyriphos 20EC	1500
T ₅ -Untreated Control	-

- ❖ The treatments are to be done as pestigation through drip irrigation.
- ❖ Replicated (four) with each valve covering of 15 cents
- ❖ The shoot borer incidences are to be recorded-based on ETL.
- ❖ Absorption of insecticides in the cane has to be analyzed
- ❖ Residue analysis for the best treatment.

Action: SRS,Cuddalore, SRS, Sirugamani and SRS,Melalathur

Scientists incharge

Dr.S. Douressamy, Professor(Agrl. Entomology), SRS, Cuddalore

Dr.V. Bhaskaran, , Assistant Professor(Agrl. Entomology), SRS, Sirugamani.

Dr. A. Thirumurugan, Professor and Head, SRS, Melalathur.

3. Management of whitefly in sugarcane

Development of IPM package for whitefly in sugarcane.

Treatments
T ₁ =Destruction of nymphs &puparia from removing infested leaves

T ₂ = T ₁ + installation of cages @15Nos/ha
T ₃ =T ₁ + application of imidacloprid 17.8% SL @ 100ml/ha along with 5% extra N
T ₄ =T ₁ + application of imidacloprid 17.8% SL @ 100ml/ha along with 5% extra K
T ₅ =T ₁ + application of chlorantraniliprole20CS @375ml/ha
T ₆ =T ₁ + application of dimethoate @500ml/ha
T ₇ =T ₁ + application of thiomethoxam 25WG@100gms/ha
T ₈ = T ₁ +application of carbosulfan 25 EC @ 500m/ha
T ₉ =untreated control

Action: SRS, Melalathur

Scientist incharge

Dr. A. Thirumurugan, Professor and Head, SRS, Melalathur.

4. Development of IPM package against white grub of sugarcane

Components

1. Monitoring of white grub adults immediately after 1st summer shower
2. Installation of light trap and neem branches
3. Border cropping with fresh planting of sugarcane
4. Soil drenching with insecticides

S. No.	Treatments	Dose/ha
T ₁	imidacloprid 17.8 SL	250 ml
T ₂	chlorantraniliprole 18.5 SC	300ml
T ₃	carbofuran 3G	33kg
T ₄	fipronil 5SC	1000ml
T ₅	phorate 10G	50kg
T ₆	Untreated control	

5. Soil application with bio inoculants at the time of earthing up

S. No.	Treatments	Dose/ha
T ₁	<i>Metarhiziumanisopliae</i>	4 X 10 ⁹ cfu-5 kg
T ₂	<i>Beauveriabrongniarti</i>	4 X 10 ⁹ cfu-5 kg
T ₃	<i>Beauveriabassiana</i>	4 X 10 ⁹ cfu-5 kg
T ₄	EPN (<i>Heterorhabditisindica</i>)	2 x 10 ⁹ nematodes/ha
T ₅	EPN (<i>Heterorhabditisindica</i>)	4 x 10 ⁹ nematodes/ha
T ₆	EPN (<i>Heterorhabditisindica</i>)	8 x 10 ⁹ nematodes/ha
T ₇	EPN (<i>Steinernemaglaseri</i>)	2 x 10 ⁹ nematodes/ha
T ₈	EPN (<i>Steinernemaglaseri</i>)	4 x 10 ⁹ nematodes/ha
T ₉	EPN (<i>Steinernemaglaseri</i>)	8 x 10 ⁹ nematodes/ha
T ₁₀	Untreated control	

Development of IPM package and validation.

Action: SRS, Cuddalore , Sirugamani and Melalathur

Scientists incharge

Dr.S. Douressamy, Professor(Agrl. Entomology
Dr. V. Ravichandran, Assistant Professor(Plant Pathology).
Dr. J. Jayakumar, Assistant Professor(Nematology).
Dr. V. Bhaskaran, , Assistant Professor(Agrl. Entomology), SRS, Sirugamani
Dr. A. Thirumurugan, Professor and Head, SRS, Melalathur.

5. Management of sugarcane red rot disease

Components – sett treatment and spray at 45th and 65th days after planting

1. T₁-thiophanate methyl - 0.5 g/l
2. T₂-carbendazim - 0.5 g/l
3. T₃-tebuconazole - 0.5 ml/l
4. T₄-azoxystrobin – 0.5 ml/l
5. T₅-propiconazole – 0.5 ml/l
6. T₆-*Pseudomonas fluorescens*20g/l
7. T₇- Untreated control
8. Replication: Three Design: RBD

Observations: Germination count, Disease incidence (once in 15 days -35DAP until harvest), Yield

Centre : SRS,Cuddalore

Scientist incharge

Dr. V. Ravichandran, Assistant Professor(Plant Pathology), SRS, Cuddalore

6. Management of sugarcane smut

Components

T₁- Sett treatment with propiconazole - 1 ml/l
T₂- Sett treatment with propiconazole - 1 ml/l + spray at 45 DAP
T₃- Sett treatment with propiconazole - 1 ml/l + two sprays at 45 and 65 DAP
T₄- Sett treatment with carbendazim - 0.5 g/l
T₅- Sett treatment with carbendazim - 0.5 g/l + spray at 45DAP
T₆- Sett treatment with carbendazim - 0.5 g/l + two sprays at 45 and 65 DAP
T₇- Untreated control

Replication: Three Design: RBD

Observations: Germination count, Disease incidence (once in 15 days -35DAP until harvest), Yield

Scientist incharge

Dr. V. Ravichandran, Assistant Professor(Plant Pathology), SRS,Cuddalore

Management of Nematodes

Components

1. Screening of bio control agents against nematodes in sugarcane.
2. Influence of sett treatment with bacterial and fungal antagonist for the management of sugarcane nematodes
3. Best bio inoculant for the management of nematodes in sugarcane will be confirmed by the consecutive trials and will be recommended for adoption.

Yield loss estimation in sugarcane due to nematodes

Components

1. Raising CoC (24) in Nematode infested sick plot
2. Raising CoC (24) in Nematode free plot

Parameters to be observed

Nematode species population

Damage level

Yield loss

Scientist incharge

Dr. J. Jayakumar, Assistant Professor(Nematology), SRS, Cuddalore

Remarks made by the Vice-Chancellor

1. Focus points be in accordance with either Vision, Mission and Roadmap suggested by ICAR 2030 or ICAR Platform Research Document.
2. For sugarcane with multicut capacity, Dept. of Forage Crops may be consulted for digestibility studies. Multicut sugarcane can be raised at SRS, Melalathur for assessing its performance.
3. Feed value, 'Si' content, fibre content, cutting pattern etc. should be taken into account in the varieties meant for fodder purpose.
4. In drought / salt tolerance studies associated parameters may be indicated clearly.
5. In the breeding programme varieties from other states (Haryana, Punjab, UP) and ICAR institutes may be utilized.
6. Crop management and protection scientists also should be included in the evaluation of cultures evolved by breeders.

7. Suitability of Daincha as a green manure under salt tolerant condition may be verified.
8. Usage of detrashing machine suggested under field condition may be reassessed.
9. Sensor based irrigation facility for sugarcane to be acquired at Irrigation Water Management Unit of AC&RI, Madurai within 3 months and extent of water saving to be reported. This work may be taken up immediately on priority basis. Optimum plant population and water demand may be worked out.
10. In pest monitoring, sampling procedure and area covered must be as per standard statistical procedure, so that the results are representative in nature.
11. While using *Metarhizium* for white grub management, the sporulation nature of the bioagent must be confirmed.
12. Utility of Bordo mixture in the plant protection programme may be given rejuvenation.
13. While using entomophilic nematodes for biological control, their ill effects on humans also should be verified.
14. In places where biological agents are repeatedly used over years, the status of these biological agents in terms of action and resistance development may be documented.

Action Plan for 2016-2019

The Technical Directors of Crop Improvement, Crop Management and Crop Protection are requested to prepare the action plan for 2016-2019 based on the presentations made during the Cotton Scientists' Meet as indicated in the internal communication **No.DR/Research Action Plan/2016 dated 23.5.2016**. The action plan should be ready before the forthcoming Research Council Meeting *i.e* before the third week of June 2016.

Director of Research i/c

Vice-Chancellor