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VSI BULLETIN

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Foreword

Foreword ...

The ISO's indicates world's sugar production in 2023-24 expected to reach at 179.749 million tonnes, with rise of 1.584 million tonnes from last season (2022-23).

In India, in this year 2023-24, 535 sugar mills are in operation. At the end of March 2024, these mills have produced 29.95 million tonnes sugar which is deficit by 0.18 million tonnes as compared to production of previous season of the same period. It is expected that the country's sugar output will be around 31.80 million tonnes with fall of 3.90% as compared to previous season's sugar production of 330.90 million tonnes. Around 1.70 million tonnes of sugar will be diverted for ethanol production.

During the 2023-24 crushing season, 207 sugar mills in Maharashtra started their crushing season of which, 103 are in cooperative and 104 are in private sector. As of April 1, 2024, sugar mills in the state had crushed 105.08 million tonnes of sugarcane and produced sugar of 10.75 million tonnes with average sugar recovery of 10.23%. Out of 207 sugar mills, 151 sugar mills are closed their crushing operations and it is expected that remaining sugar mills will to be stopped their crushing operations upto April 1, 2024. The state is likely to produce 10.90 million tonnes of sugar

The various activities undertaken by VSI during the period from January to March 2024 have been highlighted in this volume. The major event like; the 47th Annual General Meeting (AGM) and Annual awards distribution ceremony for all those concerned with their excellence performance in increasing sugarcane production and officials of various fields in sugar Industry in the state was held on January 11, 2024 under the guidance of Hon. President of VSI Mr. Sharad Pawar. He highlighted the present scenario of sugarcane and he emphasized the sugarcane growers are to use quality seed of sugarcane production.

The 1st Alumni Meet of VSI was held on January 11, 2024. On the occasion around 253 alumni from the year 1984 to 2023 batches of sugar technology, Sugar Engineering, Alcohol technology instrumentation, Environmental Sciences and Wine Brewing & Alcohol technology students were present.

Proceeding of the 3rd International Conference & Exhibition on "Sustainability: Challenges & Opportunities in Global Sugar Industry" was held during January 12-14, 2024. On this occasion Chief Guest of this conference, Mr. Nitin Gadkari, Hon. Union Minister of Road Transport and Highways, Government of India, Mr. Guilherme Nastari, Director, DATAGRO, São Paulo, Brazil was Key Note speaker and the conference was presided over by Mr. Sharad Pawar, Hon. President of Vasantdada Sugar Institute. The Inaugural session was attended by more than 2800 participants including delegates, exhibitor and students. In this conference, total 63 deliberations were organized in 13 sessions on agricultural as well as technical topics including the Plenary Session. Apart from this, exhibition of international standard with total 276 sponsors from the country and abroad has participated in this exhibition and unique aspect of this event was the live crop demonstrations of sugarcane through 96 live demo plots in the field. They clearly indicate that VSI, as an organization, is marching ahead with confidence. We are happy to place this Bulletin in the hands of our readers and look forward to their suggestions for effecting further improvements in future.

RM Devarumath

(RM Devarumath)
Editor

EVENTS

The 47th Annual General Meeting of VSI

The 47th Annual General Meeting (AGM) of Vasantdada Sugar Institute (VSI) was held on January 11, 2024 at VSI campus, Manjari (Bk) under the Chairmanship of Mr. Sharad Pawar, Hon. President of VSI, Mr. Dilip Walse-Patil, Vice-President of VSI & Cooperation Minister of Maharashtra , members of Board of Trustees & the Governing Council of VSI viz. Mr. Vijaysinh Mohite-Patil, Mr. Jayant Patil, Mr. Jaiprakash Dandegaonkar, Mr. Harshwardhan Patil, Mr. Balasaheb Patil, Dr. Vishwajit Kadam, Mr. Dilip Deshmukh, Mr. Vishal Patil, Mr. PR Patil, Mr. BB Thombare, Mr. Sambhaji Kadupatil, DG, VSI, Mr. Shivajirao Deshmukh, Advisor, VSI and other members like Sugar Commissioner, Commissioner of Agriculture, Chairman & Members Board of Directors of Sugar Mills were present.

Dr. Indrajit Mohite, Governing Council member of VSI welcomed the Hon. President of VSI Mr. Sharad Pawar and all the dignitaries. This was followed by observation of two minutes silence as a mark of respect to those who passed away during the year.

Mr. Sambhaji Kadupatil, DG, VSI read the agenda points of the annual general meeting. On this occasion, Annual publications of VSI viz. *Technical Performance of Sugar Mills in Maharashtra - season 2022-23, Financial Performance of Sugar Mills in Maharashtra -financial year 2021-22 and Technical Performance of VSI Member Distilleries in Maharashtra – Financial year 2022-23* were released at the hands of Mr. Sharad Pawar, Hon. President of VSI. The VSI awards on different categories were distributed at the hands of President of VSI. (List of award winners is given below).

Hon. President of VSI, Mr. Sharad Pawar said that it is necessary to improve productivity of sugarcane for adequate supply of sugarcane to sugar mills during crushing season. The sugarcane growers are to use quality seed of sugarcane for increasing sugarcane production. The VSI has established Agricultural R&D farm at Patharwala, Dist. Jalna and purchased land at Gopalpur-Mhasala villages in Nagpur District to cater the need of sugar industry and sugarcane growers in Marathwada and Vidarbha regions. The main purpose of these centers is to provide quality sugarcane seed materials for sugarcane growers, training to the sugarcane growers and staff of sugar mills and supply agricultural input products viz. Multi-micronutrients, Multi-macronutrients, Microsol, Biopesticidies, Vasant Urja developed by VSI. There is severe problem of labor shortage for harvesting and transportation of sugarcane in the state. Therefore, sugar mills needs to use mechanical harvester and to change traditional sugarcane cultivation methods suitable for mechanical harvesting.

He pointed out that central government has banned on ethanol production from BH molasses/ sugarcane juice which created problems of use and sale of BH molasses stock with sugar mills and financial crisis. He urged sugar mills to start making compressed biogas (CBG) as the government imposed blending restrictions on CBG with CNG and PNG from November 2023 and the target of 5% CBG blending is to be achieved by 2028-29. He appealed to Chairman & Members Board of Directors of all sugar mills to focus on adapting to changing circumstances, embracing modern agricultural practices and exploring alternative revenue streams like CBG production to mitigate financial challenges faced by sugar mills and participate in 3rd International Conference and Exhibition organized on 12th-14th January 2024 at VSI to acquire latest advanced technology on sugar industry at world level.

List of Award Winners for the Season 2023-24

ZONE-WISE *OOS BHUSHAN* AWARDS

a. SOUTH ZONE

First Prize (Pre-season) : **Mr. Suhas Madhukar Patil,** Post:Surli, Tal.:Koregaon, Dist.:Satara
Jaywant Sugars Ltd., Dist.: Satara

First Prize (Suru-season) : **None**

First Prize (Ratoon-season) : **Mr. Sambhaji Rangrao Patil,** Post:Ghogaon, Tal.:Palus, Dist:Sangli
Rajarambapu Patil SSK Ltd., (Unit-1), Dist.: Sangli

b. CENTRAL ZONE:

First Prize (Pre-season) : **Mr. Vijay Shivlal Lokare,** Post : Ujani, Tal:Madha, Dist.:Solapur
Vitthalrao Shinde SSK Ltd., Dist.: Solapur

First Prize (Suru-season) : **Mr. Sunil Govind Kakade,** Post: Kalwadi, Tal:Junner, Dist:Pune
Shri Vighnahar SSK Ltd., Dist.: Pune

First Prize (Ratoon-season) : **Mr. Suresh Jalindar Aware,** Post: Pimpalner, Tal.:Madha, Dist.:Solapur
Vitthalrao Shinde SSK Ltd., Dist.: Solapur

c. NORTH-EAST ZONE:

First Prize (Pre-season) : **None**

First Prize (Suru-season) : **None**

First Prize (Ratoon-season) : **Mr. Bhairavnath Raghunath Sawase,** Post: Kasarjawla, Tal. & Dist. Latur
Vilas SSK Ltd., Dist.: Latur

STATE LEVEL OOS BHUSHAN AWARDS

1. **Late Yashwantrao Chavan Award (Pre-season):**
   Mrs. Vimal Laxman Chougule, Post: Manjarewadi, Tal.:Shirol, Dist.: Kolhapur
   Sharad SSK Ltd., Dist.: Kolhapur
2. **Late Vasantrao Naik Award (Suru-season):**
   Mr. Popat Tukaram Mahabare, Post: Kasur, Tal:Junnar, Dist:Pune
   Vignahar SSK Ltd., Dist.: Pune
3. **Late Annasaheb Shinde Award (Ratoon-season):**
   Mr. Aniket Hanumant Bawkar, Post:Kasarsai-Darumbre, Tal.:Mulshi, Dist:Pune
   Shri Sant Tukaram SSK Ltd., Dist.: Pune

INDIVIDUAL AWARDS

1. **Best Chief Engineer** : **Mr. Suryakant K. Godse,** SM Shankarrao Mohite-Patil SSK Ltd., Dist.: Sangli
2. **Best Chief Chemist** : **Mr. Kiran R. Patil,** Krantiagrani Dr. GD Bapu Lad SSK Ltd., Dist.: Sangli

List of Award Winners for the Season 2023-24

3. Best Finance Manager	:	**Mr. Ravindra M. Kakade,** Karmayogi Sudhakarrao Paricharak Pandurang SSK Ltd., Dist:Solapur
4. Best Distillery Manager	:	**Mr. Dattatray M. Vare** Loknete Sunderraoji Solanke SSK Ltd., Dist.: Beed
5. Best Chief Agricultural Officer	:	**Mr. Prashant B. Kanase** Dt. Patangrao Kadam Sonhira SSK Ltd., Dist.: Sangli
2. Best Environment officer	:	**Mrs. Deepa S. Bhandare,** Shri Datta Shetkari SSK Ltd., Dist.: Kolhapur
7. Best Managing Director	:	**Mr. Rajendra N. Yadav** Shri Someshwar SSK Ltd., Dist.: Pune
8. Best VSI employees	:	1. **Mr. Deepak N. Shitole,** Sr. Sugar Engineer, Sugar Engineering Department 2. **Mr. Sanjay A. Dawari,** DTP Operator, Art & Graphics Division 3. **Mr. Dhanraj M. Mohite,** Clerk Cum Record Keeper, Account Department 4. **Mr. M.S. Panchal,** Carpenter, Estate & Hostel Department

TECHNICAL EFFICIENCY AWARDS

A. SOUTH ZONE

1) First Prize	**Krantiagrani Dr. GD Bapu Lad SSK Ltd.,** Dist. Sangli
2) Second Prize	**Jaywant Sugars Ltd.,** Dist. Satara
3) Third Prize	**Vishwasrao Naik SSK Ltd.,** Dist. Sangli

B. CENTRAL ZONE

1) First Prize	**Ashti Sugar Ltd.,** Dist. Solapur
2) Second Prize	**Bhimashankar SSK Ltd.,** Dist.: Pune
3) Third Prize	**Vitthalrao Shinde SSK Ltd. (Unit-1),** Dist. Solapur

C. NORTH-EAST ZONE

1) First Prize	**Rena SSK Ltd.,** Dist. Latur **Jointly with** **Vilas SSK Ltd.,** Dist. Latur
2) Second Prize	**Vikasratna Vilasrao Deshmukh Manjara SSK Ltd.,** Dist. Latur
3) Third Prize	**Purna SSK Ltd.,** Dist. Hingoli **Jointly with** **Natural Sugar & Allied Industries Ltd.,** Dist. Osmanabad

BEST CANE DEVELOPMENT WORK AWARDS

A. SOUTH ZONE :	**Krantiagrani Dr. GD Bapu Lad SSK Ltd.,** Dist. Sangli
B. CENTRAL ZONE:	**Vitthalrao Shinde SSK Ltd.,** Dist. Solapur
C. NORTH-EAST ZONE	**Karmayogi Ankushrao Tope Samarth SSK Ltd.,** Dist. Jalna

List of Award Winners for the Season 2023-24

BEST FINANCIAL MANAGEMENT AWARDS

A. SOUTH ZONE	**Dr. Patangrao Kadam Sonhira SSK Ltd.,** Dist.: Sangli
B. CENTRAL ZONE	**Bhimashankar SSK Ltd.,** Dist. Pune
C. NORTH-EAST ZONE	**Rena SSK Ltd.,** Dist. Latur

- **LATE KISAN MAHADEV ALIAS ABASAEHB VEER BEST ENVIRONMENTAL CONSERVATION IN MAHARASHTRA**
  Padmashri Dr. DY Patil SSK Ltd., Dist.: Kolhapur

- **LATE RAOSAHEBDADA PAWAR AWARD FOR THE BEST DISTILLERY IN MAHARASHTRA**
  Sahakar Maharshi Shankarrao Mohite-Patil Ltd., Dist.: Solapur

- **LATE KARMAYOGI SHANKARRAOJI PATIL AWARD FOR THE BEST FINANCIAL MANAGEMENT IN MAHARASHTRA**
  Daund Sugar Pvt.Ltd., Dist.: Pune

- **LATE Dr. APPASAHEB ALIAS SR PATIL AWARD FOR THE BEST CANE DEVELOPMENT PERFORMANCE IN MAHARASHTRA (Jointly)**
  Yashwantrao Mohite Krishana SSK Ltd., Dist.: Satara

- **LATE VILASRAOJI DESHMUKH AWARD FOR THE MOST INNOVATIVE SUGAR FACTORY IN MAHARASHTRA**
  Sahakar Maharshi Shankarrao Kolhe SSK Ltd., Dist.: Ahmednagar

- **LATE VASANTDADA PATIL AWARD FOR BEST OVERALL PERFORMANCE OF THE SUGAR FACTORY IN MAHARASHTRA**
  Shree Chhatrapati Shahu SSK Ltd., Dist.: Kolhapur

Annual Awards for the year 2023-24

Mr. Sharad Pawar, Hon. President, VSI, addressing Annual General Meeting

Mr. Sharad Pawar, Hon. President, VSI and other dignitaries release Technical Performance of Sugar Mills in Maharashtra Publication of VSI during Annual General Meeting

Mr. Sharad Pawar, Hon. President, VSI and other dignitaries release Financial Performance of Sugar Mills in Maharashtra Publication of VSI during Annual General Meeting

Mr. Sharad Pawar, Hon. President, VSI and other dignitaries release Technical Performance of VSI Member Distilleries in Maharashtra Publication of VSI during Annual General Meeting

Late Raosahebdada Pawar Award for Best Distillery being presented to SM Shankarrao Mohite Patil SSK Ltd., Dist. Solapur

Late Kisan Mahadev Alias Abasaheb Veer Award for Best Environmental Conservation being presented to Padmashri Dr. DY Patil SSK Ltd., Dist. Kolhapur

Annual Awards for the year 2023-24

Late Karmyogi Shankarraoji Patil Award for Best Overall Financial Management to
Daund Sugar Pvt.Ltd., Dist.: Pune

Late Dr. Appasaheb Alias SR Patil Award for Best Overall Cane Development Performance Jointly given to
Yashwantrao Mohite Krishna SSK Ltd., Dist.: Satara

Late Vilasraoji Deshmukh Award for the Most Innovative Sugar Factory to
Sahakar Maharshi Shankarrao Kolhe SSK Ltd.,
Dist.: Ahmednagar

Late Vasantdada Patil Award for Best Overall Performance to
Shree Chhatrapati Shahu SSK Ltd., Dist.: Kolhapur

Best Cane Development Officer (South Zone) being presented to
Krantiagrani Dr. GD Bapu Lad SSK Ltd., Dist. Sangli

Best Cane Development Officer (Central Zone) being presented to Vitthalrao Shinde SSK Ltd.,
Dist. Solapur

Annual Awards for the year 2023-24

Best Cane Development Officer (North-East Zone) being presented to Karmayogi Ankushrao Tope Samarth SSK Ltd., Dist. Jalna

Best Financial Management Award (South Zone) being presented to Dr. Patangrao Kadam Sonhira SSK Ltd., Sangli

Best Financial Management Award (Central Zone) being presented to Bhimashankar SSK Ltd., Dist. Pune

Best Financial Management Award (North-East Zone) being presented to Rena SSK Ltd., Dist. Latur

Best Technical Efficiency Award (First prize in South Zone) being presented to Krantiagrani Dr. GD Bapu Lad SSK Ltd., Dist. Sangli

Best Technical Efficiency Award (First prize in Central Zone) being presented to Asti Sugar Ltd., Dist. Solapur

Annual Awards for the year 2023-24

Best Technical Efficiency Award (First Prize in North-East Zone) being presented to
1) Rena SSK Ltd., Dist. Latur jointly with 2) Vilas SSK Ltd., Dist. Latur

Best Environmental Officer Award being presented to
Mrs. Deepa S. Bhandare,
Shri Datta Shetkari SSK Ltd., Dist. Kolhapur

Best Distillery Manager Award being presented to
Mr. Dattatray M. Vare, Loknete Sunderraoji Solanke
SSK Ltd., Dist. Beed

Best Finance Manager Award being presented to
Mr. Ravindra M. Kakade, Karmayogi Sudhakarpant
Paricharak Pandurang SSL Ltd., Dist. Solapur

Best Agriculture Officer Award being presented to
Mr. Prashant B. Kanase,
Dr. Patangrao Kadam Sonhira SSK Ltd., Dist. Sangli

Annual Awards for the year 2023-24

Best Chief Chemist Award being presented to
Mr. Kiran R. Patil,
Krantiagrani Dr. GD Bapu Lad SSK Ltd., Dist. Sangli

Best Chief Engineer Award being presented to
Mr. Suryakant K. Godse,
SM Shankarrao Mohite-Patil SSL Ltd., Dist. Solapur

Best Managing Director Award being presented to
Mr. Rajendra N. Yadav, Shri Someshwar SSK Ltd.,
Dist. Pune

Oss Bhushan (Late Yashwantrao Chavan Award)
being presented to Mrs. Vimal L. Chaugule,
Dist. Kolhapur, Sharad SSK Ltd., Dist. Kolhapur

Oss Bhushan (Late Vasantrao Naik Award)
being presented to Mr. Popat T. Mahabare, Dist. Pune,
Shri Vighnahar SSK Ltd., Dist. Pune

Oss Bhushan (Late Annasaheb Shinde Award)
being presented to Mr. Aniket H. Bawkar, Dist. Pune,
Shri Sant Tukaram SSK Ltd., Dist. Pune

Annual Awards for the year 2023-24

Best Employee Award (VSI) being presented to
Mr. Deepak N. Shitole, Sr. Sugar Engineer,
Sugar Engineering Department

Best Employee Award (VSI) being presented to
Mr. Sanjay A. Dawari, DTP Operator,
Art & Graphics Division

Best Employee Award (VSI) being presented to
Mr. Dhanraj M. Mohite,
Clerk Cum Record Keeper, Account Department

Best Employee Award (VSI) being presented to
Mr. Maruti S. Panchal, Carpenter,
Estate & Hostel Department

1st Alumni Meet of Vasantdada Sugar Institute, Pune

1st Alumni meet was convened at Vasantdada Sugar Institute, Manjari (Bk), Pune on January 11, 2024. On this occasion, Mr. Sharad Pawar Hon. President of VSI was the Chief Guest and Mr. Sambhaji Kadupatil, DG, Mr. Shivajirao Deshmukh, Advisor, and Mr. DB Ghule, Registrar & Principal, VSI were present on dias. Around 253 alumni from the year 1984 to 2023 batch of Sugar Technology, Sugar Engineering, Alcohol Technology, Instrumentation, Environment Science courses and Wine, Brewing & Alcohol Technology students were present for this event.

The alumni were given a warm welcome & offering memento by organizing committee members. As a tribute to a mother Saraswati, the event began with lighting of the lamp & invoking the blessings of Goddess Saraswati by dignitaries present on dais.

The representatives from Ex-students namely, Dr. Sachin Nikam, alumnus of 2003 batch Sugar Engineering, presently working at Ulka Industries Pvt. Ltd., and Mr. Prashant Nirmal presently working at Mecha Power Engineering Pvt. Ltd. has felicitated Chief Guest & dignitaries on the dais by offering bouquet and memento as token of love.

Mr. Sambhaji Kadupatil welcoming the all dignitaries on the dais and alumni present for this special occasion. In his welcome address, he highlighted the institute report on the various milestones reached and gave insights about various developments taken place in the in the past years.

The event was followed by President Speech of Hon. Chief Gest Mr. Sharad Pawar. He briefed overview about the institution's achievements in terms of VSI leadership, achievements and recent infrastructure developments in campus. He has also highlighted that contribution of alumni will help to bridge the gap between the past and the future, inspiring current students to strive for excellence and embrace the spirit of lifelong learning. Finally, he also acknowledged the efforts taken by the teaching staff of VSI to create technocrats for industry.

Institute has felicitated prominent distinguished alumni excelling in their field of work and persevered to reach their milestone in sugar & allied industry as well as their own business ventures as details given in table.

Mr. Shivajirao Deshmukh, shared views of Hon. President of VSI and suggested that VSI should organize alumni meet after every 3 years and also pointed that alumni should come up with some scientific proposals/ themes which will be innovative, practical and can be implemented to resolve industrial problems. Such proposals can be scrutinized by respective HODs of VSI and proposals with innovative ideas can be further implemented by VSI. He announced to give cash prize of Rs.1 lakh to the distinguished alumni from each department (Sugar Technology, Alcohol Technology & Biofuels, Sugar Engineering & Environmental Science) with fruitful innovative idea/research theme to upgrade the technology and to resolve sugar & allied industry technical problems.

In the concluding remarks representatives from Alumni Mr. M Prakash (Alcohol Tech-1996 batch)remembered his college days experience and proved himself to climb stairs of success, Mr. G. Sathiyamoorthi (Sugar Tech-1985 batch), Mr. Jivaji Mohite (Alcohol Tech-1993 batch), Mr. PV Arya (SIT-1997 batch), Mr. Mahesh Patil (Alcohol Tech-2003 batch),Mr. Ghanshyam Salunkhe (Alcohol Tech-2011 batch) and Ms. Kirti Suryawanshi (M.Sc. WBAT-2021 batch) has also shared their experiences, memories during college life, success and their journey till date. Alumni also interacted with the students and gave motivational talk regarding preparing for higher studies and placements. Students asked many questions regarding placements and the alumni shared their views.

The event was concluded with Vote of thanks given by Mr. DB Ghule and overall session is coordinated by Mr. VP Ghule, Technical Officer, AT&B Department, VSI.

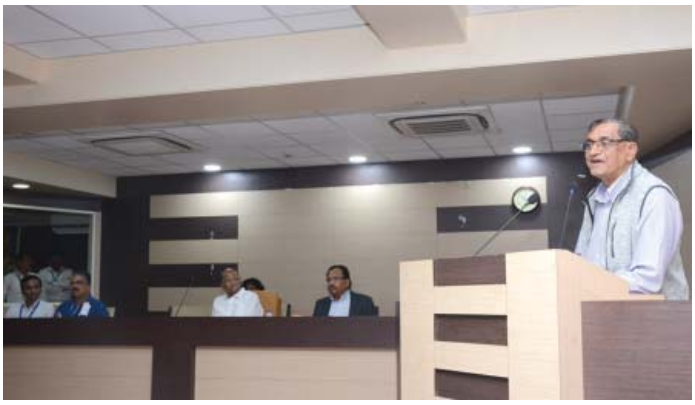
Institute Felicitated Prominent Distinguished Alumni

S. No.	Name of Distinguished Alumni	Course & Batch	Current Position
1	Mr. R. Chandrasekaraan	SED-2006	Ponni Sugars Erode Ltd. Tamilnadu
2	Mr. Appasaheb C. Patil	SED-1999	Ex. President, SISSTA, MD, Mandya Sugars, Karnataka
3	Mr. Sandipan S. Jadhav	SED-1984	Technical Adviser, RP Ghodganga SSK Ltd, Pune
4	Dr. Sachin B. Nikam	SED- 2003	Ulka Industries Pvt Ltd.,
5	Mr. Santosh T. Deokar	SED-1992	Managing Director, Ashok SSK Ltd, Ahmednagar
6	Mr. Rajendra A. Chandgude	Sugar Engg. 1999	Head-Sugar Engineering Department, VSI
7	Mr. Jivaji S. Mohite	Alcohol Tech-1993	Managing Director, Ajinkytara SSKL
8	Dr. GovindMisale	Alcohol Tech-2003	Mr. Renuka Sugars Ltd., Balgavi
9	Mr. M. Prakash	Alcohol Tech-1996	Vice President (Distillery) Triveni Engineering & Industries Ltd
10	Mr. VandanP. Ghule	Alcohol Tech-2011	Technical Officer, Dept of A T & B, VSI, Pune
11	Mr. U.D. Chauhan	Sugar Tech-1985	Ex. Managing Director, Ashok SSK Ltd, Ahmednagar
12	Mr. G. Sathiyamoorthi	Sugar Tech-1985	President, Rajshree Sugars & Chemicals Ltd, Chennai
13	Mr. N. Gopalkrishnan	Sugar Tech-1987	Secretary, SISSTA, Chennai
14	Mr. S.F. Kadam	Sugar Tech-1985	Managing Director, Dr. Patangrao Kadam Sonhira SSK Ltd. Sangli.
15	Mr. C.S. Gavhane	Sugar Tech-1986	Managing Director, Krantiagrani Dr. GD Bapu Lad SSK Ltd, Sangli
16	Mr. Pankaj Kumar Tanwar	Environmental Sciences-2002	Vice President- Technical, Organic Recy cling Systems Ltd. Navi Mumbai
17	Mr. Ravsaheb Gite	Environmental Sciences-2007	Dy. General Manager- Operations, Embio Ltd. Mahad, Raigad
18	Mr. P.V. Arya	SIT-1997	Asst. General Manager- Control & Instrumentation ISGEC Heavy Engineering Ltd, Noida
19	Mr. B.B. Deshmukh	AVSI (SCD) - 1985	General Manager at Ajeet Seeds, Aurangabad
20	Mr. Sudhakar Patil	AVSI (SCD) - 1985	CDO/AO/Ex Cane Manager, Datta SSSK Ltd, Kolhapur, T.K. Warana SSK Ltd, Sangli, Maharashtra & Nandi SSKN, Karnataka








IV ALUMNI MEET


VASANTDADA SUGAR INSTITUTE, PUNE

Proceeding of the 3rd International Conference & Exhibition on "Sustainability: Challenges & Opportunities in Global Sugar Industry" 12th-14th January 2024

12th January 2024 (Day- 1)

The 3rdInternational Conference and Exhibition 2024 on the theme of "Sustainability: Challenges & Opportunities in the Global Sugar Industry" was organized from 12thto 14thJanuary 2024. The International Conference & Exhibition was inaugurated on the first day 12th January, 2024 by the Chief Guest of this conference, Shri Nitin Gadkari, Honorable Union Minister of Road Transport and Highways, Government of India. The conference was presided over by Shri Sharad Pawar, Honorable President of Vasantdada Sugar Institute. The Inaugural session was attended by more than 2800 participants including delegates, exhibitor and students.

Shri Sharad Pawar, Honorable Member of Parliament (Rajya Sabha) and President of VSI in his welcome speech mentioned that the 3rd International Conference has been organized to discuss and deliberate all related issues ranging from agriculture to sugar processing and development of by-product such as alcohol, bio-fuels, ethanol and co-generation. The sugar sector faces various challenges of biotic and abiotic nature along with infrastructural issues. These issues can be addressed by evolving a farm management system that employs the latest tools like artificial intelligent, sensor technology, GIS, robotics etc. He emphasized that the precision agriculture can best be brought about by introducing this latest technology so as to create the farm of the future. He stressed upon the need to give more impetus on bio-technology, nano-technology, molecular biology, next generation sequencing of genome and transgenic technology as the sugar production is affected by climate change, resulting in reducing the yield of sugarcane. With ever increasing crushing capacities of sugar mills and almost the same sugarcane production resulting in shortening of crushing period, the sugar mills need to find out a way to utilize resources by diversifying portfolio to production of ethanol, Compressed BioGas (CBG), Hydrogen, aviation fuel and other products etc. He further informed the gathering that VSI is exploring the possibilities of using electric power available from co-generation to produce Green Hydrogen by using water electrolysis.

Shri Nitin Gadkari in his inaugural address applauded the research contribution of Vasantdada Sugar Institute which is remarkable and historical and still continuously engaged in research. He pointed out that along with production of sugar, the byproducts are equally important. Increasing the productivity with less expenditure cost will be important. He also insisted that scientists regarding R&D on technology for green hydrogen production at low cost.

On this occasion, Mr. Guilherme Nastari, Director, DATAGRO, São Paulo, Brazil was Key Note speaker and touched upon the topic "Roadmap for sugar independence, food security & energy transition - based on sustainable bioenergy production". He spoke about the future of mobility with reduced carbon emissions and the ways of reducing consumption of energy used in transport is electrification but there are still large opportunities to reduce energy consumption with the optimization of internal combustion engines (ICEs) as well as the introduction of intermediate solutions such as hybrid vehicles. Because it has a high anti-knocking index (AKI), ethanol is an efficient blend component to gasoline. Also, ethanol has a high hydrogen content, is easy to produce, store and distribute and does not require investments in new distribution systems. Mobility based on high-density low-carbon footprint liquid fuels is a very economical and accessible solution to many countries. Production of biofuels is replicable, scalable and can provide a rapid response for implementation of strategies aimed at contributing to reach scenarios of limited global warming impact.

The expansion of biofuels can provide a sensible route of diversification to many sugar economies, bringing more stability to sugar prices, reducing energy dependence, and providing longevity and sustainability for the use of traditional fuels in complement with biofuels.

In this conference, total 63 deliberations were organized in 13 sessions on agricultural as well as technical topics including the Plenary Session.

Plenary session : Worldwide Sugar and Co-Product Industry

Chairman : Mr. Sanjay Awasthi, President, STAI, New Delhi
Coordinator : Dr. RV Dani, Head of Department Sugar Technology, VSI
Speakers:

1. Ms. Regina Bauitista-Martin, Director General, Philippine Sugar Research Institute Foundation, Inc. (PHILSURIN), Philippines
2. Ms. Reshmi Kumari, Director (Planning, Policy & Research), Ministry of Sugar Industry, Government of Fiji, Fiji
3. Dr. Felix ReindersPresident Honoraire, International Commission on Irrigation and Drainage, Pretoria, South Africa

4. Dr. Geoff Kent, Deputy Director, The Centre for Agriculture and The Bio economy, Queensland University of Technology, Australia
5. Dr. Germán Serino, Director, Chacra Experimen tal Agricola Santa Rosa, Salta, Argentina
6. Dr. Chandrakantha Mahendranathan, Senior Lecturer and Head, Department of Botany, Eastern University, Sri Lanka
7. Dr. Wirat Vanichsriratana, Associate Professor, Kasetsart University, Thailand
8. Dr. Tran Thanh Son, Vice Director, ICISE, Quy Nhon, Binh Dinh, Vietnam
9. Dr. Yangrui Li, President of IAPSIT, Vice-President of SSRP, President of CSIATI and Chief Expert of the National Joint Research Program for Elite Sugarcane Variety Development in China.

Mr. Sanjay Awasthi was the chaired as the chairman of this session and Dr. RV Dani, was Coordinator for this session and welcomed all the speakers of the session and participants. In this session following speakers were talked on sugarcane scenario in their respective countries such as;

Ms. Regina Bauitista-Martin delivered talk on the "Achieving Sustainable Supply Chains in the Philippine Sugarcane Industry". She elaborated the activities of the PHILSURIN and its role in raising the sugarcane productivity in Philippines.

Ms. Reshmi Kumari talked on "Climate Change and Sugarcane Production in Fiji". She emphasized about the climate change which has become a threat to Fiji's sugar industry and need for continuation of implementation of climate change adaptation and mitigation strategies to minimize losses.

Dr. Felix Reinders delivered lecture on "Sugar Industry Scenario in South Africa". He explained about the history and statistical data of the South African sugar industry. He concluded that South African sugar industry is cost-competitive, consistently ranking in the top 15 out of approximately 120 sugar producing countries worldwide.

Dr. Geoff Kent in his talked on "Sugarcane Scenario in Australia" explained about the various overheads like sugar cane productivity, sugar production, Sugar export, sugar mills data and diversification in the country.

Dr. Germán Serino presented his topic on "The Argentine Sugarcane Industry in 2024". In his presentation he explained about the sugar cane farming and harvesting practices along with diversification of sugar cane for ethanol production. He concluded that Argentina´s sugarcane outputs are Internal Market 60%, Ethanol 25% and Exports 15%.

Dr. Chandrakantha Mahendranathan delivered lecture on the subject "Sugarcane Scenario in Sri Lanka" highlighted that the major strength of the sugar industry in Sri Lanka is its high demand. She emphasized that as supply of sugar in Sri Lanka comes mainly from imports, the situation in the world market has a significant impact over local prices.

Dr. Wirat Vanichsriratana explained about the "Current Trends in Thailand's Sugarcane, Sugar and Ethanol Production". During his presentation he explained about the factor effecting farmers, sugar mills. He also elaborated about the various initiatives taken by the Thai government for promoting bio refinery initiatives in the sugar industry to create high-value products from sugar processing by-products, with ethanol being a significant high-value product in Thailand for the past two decades.

Dr. Tran Thanh Son talked on "An Overview of International Centre for Interdisciplinary Science & Education (ICISE) and its Linkages with Sugar Sector Activities in Vietnam". He stressed about the various strategies to be followed in the country to improve the sugar cane productivity and sugar recovery to reduce total production cost in the country. He also explained about the requirement of periodical training, diversification and modernization of the sugar mills.

Dr. Yangrui Li explained about the "Sugarcane Breeding in China". He elaborated about the various varieties invented with sugar cane breeding having properties of strong ratoon ability, good for mechanization, high yield, high sugar varieties with strong resistance to smut, early ripening etc.

The Plenary session was concluded with concluding remarks and the felicitation of speakers by Mr. Sanjay Awasthi. Shri Sharad Pawar, Hon'ble president of VSI, felicitated Mr. Sanjay Awasthi. The session was concluded with vote of thanks.

Technical Session - I : Green Technology-Circular Bioeconomy

Chairman : Padmashri Dr. GD Yadav, Former Vice Chancellor, ICT Mumbai (MS), India
Coordinator : Dr. KS Konde, Head, Professor and Technical Adviser, Dept. of Alcohol Technology and Biofuels, VSI
Rapporteurs : Dr. S Behera, Scientist, Dept. of Alcohol Technology and Biofuels, VSI
Mr. DA Patil, Asst. Prof and Joint Technical Advisor, Dept. of Alcohol Technology and Biofuels, VSI

Speakers:

1. Dr. Ashish Lele, Director, CSIR-NCL, Pune (MS), India
2. Prof. VivekRanade, Bernal Chair Professor of Process Engineering, Bernal Institute, University of Limerick, Ireland
3. Dr. Nigel Minton, Director, BBSRC/EPSRS Synthetic Biology Research Centre (SBRC), University of Nottingham, UK
4. Mr. SiddharthMayur, Founder President & CEO of H_2O Power Systems, Private Limited, Pune (MS), India
5. Dr. Bharat B. Kale, Emeritus Professor and Director, Department of Material Science Engineering, MIT-WPU, Pune(MS), India

Technical session-III was conducted on "Green technology: Circular bioeconomy". Shri. Padmashri Dr. GD Yadav chaired this session. Dr. KS Konde coordinated the session and welcomed all the speakers of the session.

In this session, Prof. GD Yadav given talk on "Waste to Wealth & Sustainability: Valorisation of Agri & Food Waste into Fuels, Chemicals & Energy". He explained the importance of green economy, circular bio-economy & sustainable development. He emphasized to create a zero waste society. He also explained the importance of biorefinery concept to create zero-waste society from biomass sources through the options like reduce, reuse, recycle and recovery. He further explained about the green hydrogen, high value chemical & multiple product streams from different food and beverage wastes through a biorefinery approach. He mentioned about

green hydrogen production which will create CO_2 free environment and will achieve carbon-zero economy. Dr. Ashish Lele given talk on "Hydrogen Economy Indian Perspective" and he discussed India's comprehensive approach to address energy challenges and transitioning towards cleaner alternatives. He also emphasized on the green hydrogen production & it's storage. He also discussed on the possibility of converting cogenelectricity into green hydrogen in the sugar industry.

Prof. Vivek Ranade given talk on "Valorising Biomass via Hydrodynamic Cavitation and AD" and explain the role of energy in sustainable development, focusing on the integration of hydrodynamic cavitation into anaerobic digestion for biomass valorization. Prof. Ranade addressed challenges associated with anaerobic digestion emphasizing the importance of pre-treatment methods, particularly hydrodynamic cavitation for enhanced digestibility.

Dr. Nigel Minton talked on "Sustainable Production of Butanol". He emphasized on the diverse applications of butanol, its role as a solvent in various chemical and textile industries & its importance as a chemical intermediate. He discussed on strain improvement in ABE fermentation through genetic modifications. He has also shown current status of butanol production of various firms.

Mr. Siddharth Mayur gave talk on "The Future of Clean Energy" and he emphasized on the potential of green hydrogen in sugar industries. Mr. Mayur also highlighted on hydrogen demo plant based on water electrolysis installed at VSI. He also mentioned impact of green hydrogen production on sugar industries, including alternate revenue streams and reduced dependence on sugar commodity markets.

Dr. Bharat B. Kale talk on the topic of "Hydrogen Production Strategy by Photochemical Process: Nanophase to Nanocomposite Photocatalyst". He addressed the importance of more efficient and sustainable green hydrogen production based on biomass feedstock. He also discussed on the process of green hydrogen production using photocatalysis assisted water electrolysis. He also emphasized on green hydrogen production using quantum dots (QDs) nanocomposites.

The session was concluded with vote of thanks by Dr. KS Konde

Agricultural Session - I : Perspectives in Sugarcane Improvement

Chairman: Dr. S.R. Gadakh, Vice-Chancellor, Dr. PDKV, Akola
Coordinator: Dr. J.M. Repale, Senior Scientist, Plant Breeding, VSI, Pune
Rapporteur: Dr. R.M. Devarumath, Scientist, Mol. Bio.& Genetic Engg., VSI, Pune

Speakers:

1. Dr. Prakash Lakshmanan, Director, Sugarcane Research Institute, GXAAS, Guangxi, China
2. Dr. German Serino, Director, Chacra Experimental Agricola Santa Rosa, Salta, Argentina
3. Padmashree Dr. Bakshi Ram, Ex-Director, ICAR-Sugarcane Breeding Institute, Coimbatore, India
4. Dr. G. Hemaprabha, Director, ICAR-Sugarcane Breeding Institute, Coimbatore, India
5. Dr. Michael Butterfield, Data Science and Scientific Affairs Manager, CTC, Sao Paulo, Brazil

Dr. JM Repale, Senior Scientist, Plant Breeding requested Dr. SR Gadakh to Chair the session and welcomed all the speakers and delegates. The following speakers presented their research work such as;

Dr. Prakash Lakshmanan, in his talk on topic "**Sustainable Sugarcane Feed stock Production: Challenges and Opportunities"**. He explained that there is worrying trend of cane and sugar yield plateauing and a major shift in breeding/crop improvement is needed for development of new sugarcane varieties which are to be climate-resilient for continued increase in cane and sugar yield. He also clarified that to stress on the improving the drought tolerance

Dr. German Serino had given talk on **"Genetically Engineering Sugarcane at Chacra Experimental Agricola Santa Rosa: From The Research Lab to The Field"**. He highlighted that the sugarcane transformation has been identified as a complementary tool to plant breeding efforts. He also explained the efforts made by the Chacra Experimental Agrícola Santa Rosain development of sugarcane variety for the provinces of Jujuy and Salta and the efforts of the research laboratories worldwide have experimentally developed genetically engineered sugarcane.

Dr. Bakshi Ram, had given presentation on topic '**Sugarcane Breeding and Contributions of Co 0238- A Karnal Wonder'**. In his presentation he highlighted the work at ICAR-Sugarcane Breeding Institute, Regional Centre, Karnal for development of an early maturing varieties comparable or better than CoJ 64 in yield and juice quality and combined with red rot resistant gene(s) and results in the notable varieties developed by the Karnal center are Co 98014, Co 0118, Co 0238, Co 05009, Co 05011 and Co 15023 which are under cultivation in Punjab, Haryana, UP, Uttarakhand and Bihar States. Besides, he explained about the Wonder cane variety Co 0238 developed by the Karnal center and told that the Co 0238 is the only crop variety, which led to a Governments' Policy decision on permitting production of ethanol through B-Heavy molasses and directly from sugarcane juice and fixing the rates for ethanol from different raw materials (sugarcane juice, B-Heavy molasses, and C molasses) due to its higher contribution to the national sugarcane production.

Dr. G Hemaprabha talked on "**Perspectives of Sugarcane Breeding for Value Addition and Product Diversification"**. In her presentation she highlighted on the breeding priorities to improve productivity for value addition and product diversification and explained the future action plan for development of sugarcane varieties. She also explained the role of varieties Co 86032 in tropical India and Co 0238 in subtropical India in cane and sugar production. She highlighted about the varieties Co 06022, Co 06027, Co 06030, Co 0212, Co 12009 and Co 18009 involving novel genetic sources developed by ICAR Sugarcane Breeding Institute. She mentioned that the first genome editing of sugarcane was reported by Jung and Altpeter (2016) using TALENs to knockout the *caffeic acid Omethyltransferase* (*COMT*) *g*ene in sugarcane for reducing lignin content without compromising the biomass production and the progress in India to improve sucrose content, biomass modification, red rot, smut and yellow leaf resistance, tillering potential and altering flowering. She stated that gene editing could be dramatically reduce the time as well as improved precision to guarantee a successful varietal development complementing conventional breeding programs.

Dr. Michael Butterfield had given presentation on topic **"The Next Century of Sugarcane Improvement"**. In his presentation he emphasized the challenges faced by the early sugarcane breeders still remain and the new technologies available to improve the efficiency of variety improvement. He illustrated the work at CTC center and about the modern breeding techniques i.e. 5 Gs i.e. Genome, Germplasm, Genes, Genomic Breeding, Gene editing for genetic improvement. He

mentioned that the adaptive management strategies will be essential to realize the yield potential provided by improved varieties and without this, there is a high risk that sugarcane production could be negatively impacted under changing climate.

Dr. SR Gadakh, Chairman of session in his concluding remarks stated that the importance of sugarcane improvement by conventional and modern breeding methods can help to develop the new sugarcane varieties. He stated that role of crop physiology is important for increase in cane yield and quality of the sugarcane crop. He insisted that the conclusions by the authors presentations should take in to considerations for finalizing further research strategy to ease the abiotic and biotic stresses for sustainable sugarcane production and marketing in future. The session was concluded with vote of thanks.

Technical Session : II Global Market Session: Sugar Mills - Financial Discipline and Management

13th January (Day -2)

Chairman: Mr. Arvind Chudasama, Editor, International Sugar Journal, United Kingdom

Coordinator: Mr. Shivaji R. Khengare, Chief Accountant, VSI

Rapporteurs: Mr. MR Shinde, Sr. Statistician, Statistics & Informatics Section, VSI
Mr. VN Pawar, Finance Officer, Finance Section, VSI

Speakers:

1. Mr. Prakash Naiknaware, Managing Director, NFCSF, New Delhi, India
2. Mr. Ravi Gupta, Executive Director, Shree Renuka Sugars Ltd., New Delhi, India
3. Mr. Santosh Kumbhar, Assistant Executive Director, Dalmiya Bharat Sugar Mill.
4. Dr. Ajit Jaokar, Course Director, Artificial Intelligence: Cloud and Edge BH-1206, Geneva, Switzerland

In this Global Market Session of *Sugar Mills – Financial Discipline and Management* the session was chaired by Mr. Arvind Chudasama, and coordinated by Mr. Shivaji R. Khengare.

Mr. Shivaji Khengare welcomed the Chairman, speakers and all the attended participants. Then Chairman briefly introduced each speaker of the session and

speakers presented their talk on different topic such as; Mr. Prakash Naiknaware talked on **"Global Sugar Balance with-Indian Perspective".** In his presentation, he elaborated world sugar balance statement for season 2023-24. He presented an overview of five top global players of cane sugar producers *viz.* Brazil, India, Thailand, China and Pakistan and beet sugar producers viz. EU, Russia, USA , Turkey and Egypt. He also takes review of the largest sugar consumers of the world, raw and white sugar importer and exporter countries with top ethanol importers and exporters. He highlighted at a glance scenario of Indian sugar industry with regard to major sugar producing states, fluctuations in export of sugar for last seven years, sugar balance statement and also compared with global and informed that the Indian sugar industry is becoming the epicenter of the world.

Mr. Ravi Gupta, presented topic on **"Global Sugar Markets & Indian Sugar Industry". He p**resented an overview of global sugar scenario with major countries viz. Brazil, India, EU, Thailand and China. He explained sugar and ethanol production status of Brazil for 2022-23 season and its forecast for season 2023-24. He briefed about Indian sugar balance statement from 2022-23 to 2024-25 season. According to him, poor monsoon and lower reservoir level impacted 2023-24 and 2024-25 crop that affects reduction ethanol diversion. He suggested India needs to implement four action points. i) There is need of scientific estimation of crop so that the variation in initial estimate and actual production will be reduced. ii) The Government should have stable policies on sugar and ethanol in consultation with sugar industry. iii) The need of high tolerance for sugar prices to compensate for increasing cost as compared to other food items. iv) Long term policy for ethanol blending need to be continued.

Mr. Santosh Kumbhar, presented a topic ***"Sugar Mills -Financial Discipline and Management"***. He emphasized the important role of financial discipline in sugar industry. The sugar industry is highly regulated by Central and State Government. It has higher working capital and high magnitude of agro climatic volatility leaving thin margins that livelihood of sugarcane growers and employees. Hence, it is essential to follow disciplined approach for financial management. He briefly explained the various points viz. preparation of business plans & budgets, budget control, revenue management, cost & credit control, working capital management, financial MIS design and development of SOP (Standard Operating Procedures) for all Key processes like- procurement, sales & marketing, finance & accounts, sugar production, distillery operations, Human resource, Legal, Project etc.

Dr. Ajit Jaokar**,** delivered presentation on ***"Using Artificial Intelligence to Optimize Sugarcane and Sugar Yield: A Business Model Perspective"*** *He* explained importance of Artificial Intelligence (AI) techniques application in agriculture for the predication of cane yield. He told that predication of cane yield is complex phenomena which is affected by climate change, pest and diseases outbreaks, soil conditions, agronomical practices, genetic variability etc. He briefly explained that how number of AI techniques can help the yield predication by including time series analysis, remote sensing and satellite imagery. He mentioned steps involved in the development of business model as true economically optimal nitrogen rates (EONRs), combine with causal approaches, use Monte Carlo simulations to build model and test using real crop cycles in sugarcane.
Mr. Arvind Chudasama, Chairman of session felicitated all speakers with memento and Mr. PR Patil, Chairman, Maharashtra Rajya Sahakari Sakhar Karkhana Sangh Ltd. Mumbai felicitated chairman of the season with memento. The session was concluded with vote of thanks by Mr. Shivaji Khengare.

Agricultural Session -II : Soil Sustainability: Challenges and Priorities

Chairman : Dr. AL Pharande, Dean (F/A) & Director of Instruction, MPKV Rahuri
Coordinator : Dr. Preeti Deshmukh, HOD & Sr. Scientist, Soil Science Section, VSI
Rapporteurs : Mrs. Jyoti Kharade, Scientist, Soil Science Section, VSI
Mr. Sachin Sable, Scientist, Soil Science Section, VSI

Speakers:

1. Dr. Raffaella Rossetto, Head of Jau Experimental Station – Agronomic Institute, Sugarcane Research Centre, IAC, Agriculture Secretary of São Paulo, Brazil,
2. Dr. NG Patil, Director, ICAR - NBSS and LUP, Nagpur
3. Dr. Aliza Pradhan, Scientist, ICAR - NIASM, Pune

Dr. AL Pharande accorded a warm welcome to all speakers from different parts of the country with introductory remark and briefing about the theme of the session and use of vinasse application for improving soil fertility and digital soil mapping.

Dr. Raffaella Rossetto presented the topic on **"Utilization of Vinasse as Soil Amendment: Consequences and Perspectives"**. In her presentation explained sustainable agriculture aims to meet the current needs for food, fiber and energy production while preserving and enhancing the soils long term health and productivity. The recycling of vinasse from ethanol production is sustainable management practice that improve sugarcane yield by increasing soil fertility while reduces the dependence of synthetic fertilizers and should be encouraged as part of circular economy.

Dr. NG Patil delivered a topic on **"Quest for Land Parcel Specific Digital Soil Solutions: Challenges And Potential"**. He explained increasing food grain requirements, depleting/degrading land resources and changing climate have resulted in an unprecedented demand for soil- related data products, especially tailor- made soil management / land use plans under both normal and aberrant climatic situations. Several state agencies in India are seeking soil information for development planning. Thus the current status of digital soil solutions in selected regions of the country is discussed here to outline the challenges and potential of new technologies.

Dr. Aliza Pradhan presented a topic on **"Effect of tillage, Residue and Nutrient Management on Soil Organic Carbon, Biology and Yield under Multi-**

Ratooning Sugarcane System in Basaltic Soils of Semi- Arid Tropics". She explained sequestration of carbon in arable cropping systems is considered as one of the potential climate change mitigation strategies. We evaluated impacts of minimum soil disturbance, residue retention and nutrient management practices on change in total soil organic carbon (SOC), its pools, soil microbes, enzyme activities and yield under multi- ratooning sugarcane system in black soils of semi- arid tropics.

The session was concluded with vote of thanks

Technical Session - II : Modern Developments in Processing and Engineering

Chairman : Mr. Rod J. Steindl, Principal, Sugar Consulting International Pvt. Ltd., Queensland, Australia

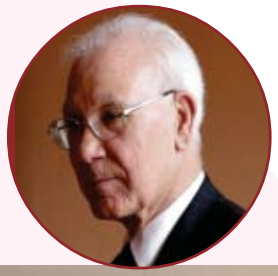
Coordinator : Mr. RA Chandgude, HOD, Sugar Engineering, VSI

Rapporteurs : Mr. K Ganadhar, Sugar Technology, VSI
Mr. PG Patil, Sugar Engineering, VSI

Speakers:

1. Mr. Rod J. Steindl, Principal, Sugar Consulting International Pvt. Ltd., Queensland, Australia
2. Dr. Geoff Kent, Deputy Director, The Centre for Agriculture and the Bioeconomy, Queensland University of Technology, Australia
3. Mr. Fernando Boscariol, Superintendent of Engineering and New Products, DEDINI S/A, Brazil
4. Dr. Mohammad Reza Hafiz Laulloo, Technical Manager, Oman Sugar Refinery Company, Oman
5. Prof. Mohamed Mathlouthi, Consultant in Food Industry, Food Packaging, and Sugar Technology from France
6. Ms. Brith Isaksson, Global Segment Manager, Food & Beverage, ABB, Sweden





Mr. Rod Steindl has delivered lecture on **"The Impact of Juice Processing Standards on the Sustainability of the Sugar Factory".** He explained cane juice clarification and mud treatment with rotary vacuum filters, solid bowl decanters, and the advantages of belt press filters to reduce sugar losses.

Dr. Geoff Kent, in his presentation on **"Digital Technology in Sugarcane Milling"** and he focused on the digital technologies that are employed and the associated control and management strategies to achieve the desired results.

Mr. Fernando Boscariol talk on **"Brazilian Sugarcane Mills: Past, Present and Future in a Sustainable Pathway"** and emphasized the five drivers of evolution trends for products and capacities and technologies in green field and brown field sugar mills in Brazil through synergy and integration, as well as an accelerated pathway to sustainability.

Dr. Reza Addresses On "**Research and Development In Sugar Refineries with A Road Map for 21st Century Sugar Refineries"**. In His deliberation explain the optimal design considerations for a sugar refinery, aiming to enhance efficiency, sustainability, and profitability.

Prof. Mohamed Mathlouthi highlighted "**The Essential Role of Water in the Crystallisation of Sugar at the Molecular and Industrial Levels"**. He explained the sucrose molecular structure, interactions, and chemistry of sucrose hydration in concentrated solutions.

Ms. Brith Isaksson presented her work on **"Enhancing Energy Efficiency and sustainability in Motor driven system and electrification".** In her presentation, threw light on the importance of small changes, which can have big impacts. She has discussed energy efficiency. She has also focus on energy-efficient motors and VFDs in operation for sustainability.

This Session was open for discussion followed with the facilitation of speakers by Mr. RA Chandgude and session concluded a vote of thanks.

Agricultural Session - III : Micro Irrigation and Mechanization

Chairman : Dr. Prashantkumar Patil, Vice Chancellor, MPKV, Rahuri

Co-ordinator : Mr. PP Shinde, Scientist and Head, Agricultural Engineering Section. VSI

Rapporteurs : Mr. SR Patil, and Mrs. MA Gaikwad, Scientific officer, Agril. Engg. Section VSI,

Speakers:

1. Dr. Felix Reinders, President Honorary, International Commission on Irrigation and Drainage, South Africa
2. Dr. SA Kulkarni, Consultant, World Bank Aided Project and Former Secretary, Maharashtra Water Resources Regulatory Authority (MWRRA), Mumbai, India
3. Dr. Shaochun Ma, Associate Professor, College of Engineering at China Agricultural University, China
4. Dr. VM Mayande, Former Vice Chancellor Dr. PDKV, Akola, and Chairman, IMAT, Pune

In this session, Dr. Felix Reinders delivered talk on **"Micro Irrigation Practices in Different Countries: A Global Perspective"**. He reviewed micro irrigation practices used in different countries and the world wide status of micro irrigation. He said two third of world's population will be affected by water shortage by the year 2030. According to available statistics of ICED 45 countries have implemented micro irrigation in their countries of this total 15 countries with 44 companies are manufacturing and marketing drip irrigation products. In India out of total net irrigated area of 72 mha, only 7.8 mha covered by micro irrigation under PMKSY which is only 11%. He said that there is enormous potential for micro irrigation industries to explore, expand and benefit. He also suggested new innovative and emerging technologies such as augmenting improving water supply, improving water use efficiency, managing water supply and maintaining irrigation system will be adopted under Smart Irrigation. There was also discussion regarding Green drum technology which is new technology uses ultrasonic sound in small body of water to clean drip irrigation lines and pipe effectively and quickly.

Dr. SA Kulkarni presented his work on **"Up-Scaling Drip Irrigation for Sugarcane in Maharashtra"**. He said that despite of several regulatory provisions, liberal soft loan facility to farmers for installation of drip system, there has not been expected expansion of drip irrigation for sugarcane in the state due to high initial investment cost, delay release of subsidy amount, tedious task of retrieving and relaying laterals, lack of awareness about operation, maintenance and management of drip system. Sugarcane covers 1/4th irrigated area but uses 2/3rd irrigation water in Maharashtra. There is an urgent need to develop a 'Farmer Friendly" drip irrigation system which has all attributes of the conventional drip system, affordable cost and simple to operate by smallholder farmers. It could be a combination of improved furrow irrigation and gated pipes with surge valves. He also said, there is an urgent need to train not only farmers but also the agriculture field staff of the sugary factories, field staff of the Agriculture Department.

Dr. Shaochun Ma emphasize on **"Sugarcane Harvester Technology: A Critical Overview"**. He reviewed status of sugarcane harvesting by manually and mechanical, different harvesting methods in current sugarcane harvester. He suggested that applications of new technologies on cane harvesters can increase field capacity and accuracy which promotes PA technology adoption.

Dr. VM Mayande, focused on "**Status of Sugarcane Mechanization in India"**. He elaborated status sugarcane mechanization as well as mechanical harvesting in India. Currently, mechanization in sugarcane crop is limited to the 80% in land preparation, 20% in planting/transplanting and 4% in harvesting. Also mechanical harvesting of sugarcane in India is increasingly adopted with about 2000 machines in operation which is still a negligible with only 4 percent of total cane area covered. He put their opinion about strategies for development and promotion of sugarcane mechanization shall include machinery packages that are environmentally

sustainable, user-friendly, with features of operational safety and comfort and promoted on custom hiring basis in jurisdiction of sugar mills that offers an opportunity for local enterprises and employment generation in sugarcane region. He said that major constraints in sugarcane mechanization include small land holdings, lack of information on modern equipment, higher prices of machinery, lack of repair and maintenance facilities at local level. The newer technologies like Artificial Intelligence, machine learning and image processing may be extensively applied for studying sugarcane crop parameters and automating different operations in sugarcane cultivation.

The concluding remarks by the chairman of the session regarding cost of machineries need to be control by manufactures by considering farmers benefits and subsidies. He also suggested some certificate courses on operation and maintenance of micro irrigation need to be start at VSI and MPKV. The session ended with vote of thanks.

Technology Provider Session - I

Chairman : Prof. S V Patil Emeritus Professor, VSI
Co-Chairman : Mr. RA Chandgude, HOD, Sugar Engineering, VSI
Rapporteurs : Mr. SP Nalawade, Mr. MV Taur, and Mr. AP Dhage,

In this session, companies presented their company profile and their products. The following companies participated manufacturers such as;

Saisidha Sugar Equipments & Engg. Co. Pvt. Ltd., Ulka Industries Pvt. Ltd., Praj Industries Ltd., Regreen Excel EPC India Pvt. Ltd., PriviledgeBicksons Boilers Pvt. Ltd., Sitson India Pvt. Ltd., Indiana Sucro Tech (Pune) Pvt. Ltd., Mojj Engineering Systems Pvt. Ltd., Shreeji Process Engineering Pvt. Ltd., Chem Process Systems, Global Enviro Engineering Pvt. Ltd., Ncon Turbo Tech Pvt. Ltd., CG Power & Industrial Solutions Pvt. Ltd.

Agricultural Session - IV : Sustainable Sugar Beet Industry – Emerging Challenges

Chairman : Dr. Sushil Soloman, Advisor, ISMA, Former Vice Chancellor, CSAU A&T, Kanpur and Former Director, ICAR-IISR, Lucknow, India

Coordinator : Dr. AS Patil, Head, Agronomy section, VSI,

Rapporteurs : Dr. SA Survase, Scientific officer, Soil Science VSI
Dr. TD Shitole, Scientific officer, Entomology section, VSI

Speakers:

1. Mr. Jean-Noel Evrard, Global Marketing Head, SeSVanderHave, Belgium
2. Dr. Ashutosh Umar Mall, Principal Scientist, Genetics and Plant Breeding, ICAR-IISR, Lucknow,
3. Mr. Timothee Massion, Executive secretary, WABCG, Paris, France
4. Mr. Richard Sauvage, Responsible Commercial, Maguin, France

At the beginning of the session Dr. AS Patil, welcomed all the participants and briefly introduce to the chairman and speakers

Mr. Jean-Noel Evrard delivered his presentation on **"Sugar beet: A Compliment to Sugarcane for Sugar and Ethanol Production in Tropical and Subtropical Areas"**. He briefly introduced the objectives and mandates of the SeSVanderHave. Further he explains the breeding strategies of Sugarbeet, its multiplication in commercial scale, their research on development of pest and disease free Sugarbeet varieties with special context to tropical condition of India. He also mentioned SeSVanderHave scientific collaborations with renowned Indian Institutes for R&D work on Sugarbeet. He mentions proper agronomic practices, sowing time, crop rotation, herbicide application etc. helps for higher Sugarbeet productivity in tropical conditions. He concluded his talk with enlightening the scope of Sugarbeet as energy crop.

Dr. Ashutosh Kumar Mall gives insights on **"Sugarbeet Breeding in India: Retrospect, Challenges &**





Prospects". He told sugar beet is a significant temperate crop, boasting salt tolerance for cultivation in saline soils where other crops falter. He nodded IISR is involved in sugarbeet research for the last seven decades, especially in sugar beet breeding. This effort yielded diploid open-pollinated, inbred, and triploid hybrids. He explains the breeding strategies of Sugarbeet especially in tropical conditions *viain situ*(direct seeded) and transplanting (steckling) methods.He mentioned, for successful cultivation of Sugarbeet in India requires a suitable market, extraneous fuel, additional machinery for processing, R&D, post-harvest, better management strategies, and governmental policies for commercial cultivation in India. This trajectory positions India as a promising contender in global sugar beet cultivation, with seed availability pivotal for sustainable growth and sugar industry involvement.

Mr. Timothee Masson speaks on **"Carbon Farming: Why and How Improving the Carbon Footprint of Sugarcane & Sugarbeet"**. He emphasized, in many countries, efforts are made to reduce carbon footprint of sugarcane or sugar beets. Situation is very different in different countries, some being motivated by buyers (sugar factories or sugar buyers), or by government's target of carbon emissions, sometimes written into laws. Further he explained excessive use of fertilizers, burning of crop residues, change in land use pattern is the responsible factors for carbon emission and increased Co_2 level in the environment. He enlightens the measures to be taken to reduce the carbon emission, includes in situ conservation of crop residues, crop rotation, optimization of fertilizer use, minimum tillage etc.

Mr. Richard Sauvage discusses his ideas on **"Advantages of The Beet Sugar Factory Compared to The cane sugar factory"**. He briefed about his company operations, marketing strategy in the various part of the world. Later on Fabien Majchrzak gives the technical analysis of sugarcane and Sugarbeet, also explains the process of sugar extraction from Sugarbeet. He ended his presentation with giving comparative study of Sugarbeet over sugarcane.

After the all presentations, the session was opened for discussion, some of the participants were shared their thoughts, also arises question and satisfactory answers were given by the speakers.

In concluding remarks by chairman shedding light on innovative practices, cutting-edge research, and the future landscape of the sugarbeet industry in India. The session was concluded with vote of thanks by Dr. AS Patil.

Technology Provider Session - I

Chairman : Dr. RV Dani, Head of Department Technology, VSI
Co-Chairman : Mr. KS Konde, Head of Department Alcohol Technology and Bio Fuels, VSI The Rapporteurs: Mr. RR Patil and Mr. AB Kotkar, VSI

In this session, OEM/machinery manufactures were delivered their new technology, design concept, and new equipment related to sugar and its byproducts. Following companies were participated such as, Universal Forces Industries Pvt. Ltd., Mill Gears Pvt. Ltd., Forbes Marshall, Shree Kurmdas Industries Pvt. Ltd., Aryan Boilers Pvt. Ltd., Thyssenkrupp Industries India Pvt. Ltd., KSB Ltd., Bajaj Power Equipments Pvt. Ltd., Fives Cail: KCP Ltd., Spray Engineering Devices Ltd., Yaskawa India Pvt. Ltd.

Technology Provider session - I (Agriculture)

Chairman : Mr. PP. Shinde, Scientist and Head, Agricultural Engineering Section VSI
Co-chairman : Mr. BH Pawar, Sr. Scientist and Head, Plant Pathology Section, VSI, Pune.
Rapporteurs : Mr. SR Patil, scientific officer, Agril. Engg. Section, VSI
Dr. GS Kotgire, Scientist, Plant Pathology section VSI

In this session following invited speakers presented their presentation;

Dr. MS Powar, Sr. Manager Marketing IFFICO, Pune, Maharashtra explained on "**Nano Fertilizers for Sustainable Agriculture"**. He suggested that Nano fertilizers are revolutionary products developed by using nanotechnology and it's a unique controlled & slow released fertilizers having coating of nano particles which improves not only germination rate but also enhance plant height, root development, leaf chlorophyll, follicular unit extraction, increases the yield as well as enhance the quality of produce. The application of Nano Fertilizers as a novel technology in a future for sustainable crop production. Similarly, time period for adaptation as source of plant nutrients depend on effective legislations, production of novel NFs products asper need. He conveyed message to all Cooperation of stake holders to promote Nano fertilizers is much needed and long term studies are required to determine the impacts of NFs in soil-water – plant continuum.

Mr. SS Heganna, Chief Agriculture Officer, Datta Shirol SSK, Ltd., Kolhapur presented his experience on "**Impact of Sub-Surface Drainage System on Soil Properties and Crop Yield"**. He put their opinion about problems overcome during sugarcane cultivation in sodic soil and gave remedies to how to mitigate this problem in farmer's point of view besides, he also discussed about efforts made by sugar mill for project implemented Datta pattern of soil reclamation on 3250 ha area. The Sub-surface drainage is the only proper & assured measure to reclaim such Soil. Such project should be implemented on community basis. Proper drain depth –drain spacing&appropriate gradeto total system is of prime importance. The chairman of the session put their remarks regarding use of Nano based technology in agriculture and adoption of subsurface drainage system for reclamation of sodic soil.

The session ended with vote of thanks to the chairman, speaker and delegate attained this session.

Technology Provider Session - III

Chairman : Mr. RA Chandgude, Head of Department Sugar Engineering VSI
Co-Chairman : Mr. KS Konde, Head of Department Alcohol Technology and Bio Fuels, VSI
Rapporteurs : Mr. DN Shitole, Mr. SM Rao, and Mr. MV Taur, VSI

In the session OEM/machinery manufacturers delivered their new technology, design concept, and new equipment related to sugar and its byproducts. The following companies participated such as,; Interis India Pvt. Ltd., CRI Pumps Pvt. Ltd., Suviron Equipments Pvt. Ltd., Thermax Ltd., SS Engineers, Siemens Ltd., Uttam Energy Ltd., Raj Process Equipments and Systems Pvt. Ltd., MAN Energy Solutions, Aquatech Systems, Schneider Electric, KBK Chem Engineering Pvt. Ltd., Paharpur Cooling Towers Ltd., Clean Earth Energy Solutions India Pvt. Ltd.

Agricultural Session - V : Microbes and Potential Bioagents In Sustainable Sugarcane Production

Chairman : Dr. Alok Kumar Shrivastava, Director, NBAIM, UP India
Coordinator : Mrs. Sudha D. Ghodke, Scientist & Head, Agril.Microbiology Section VSI
Rapporteurs : Mrs. KG Nigade, Scientist and Mr. BG Mali, Scientific Officer, Agril. Microbiology Section, VSI.

Speakers:

1. Dr. Chandrakanta Mahendranathan, Senior Lecturer & Head, Dept. of Botany, Eastern University Sri Lanka
2. Prof. Mohammed Bello Yerima, Dept. of Microbiology Sokoto State University, Sokoto, Nigeria
3. Mrs. Rutuja R. More, Microbiologist & Independent Director, Uttam Sugar Mills, UP, India

In this session, Dr. Alok Kumar Shrivastava, was covered the topic on **"Conservation, Maintenance and Utilization of Agriculturally Beneficial Microorganism for increasing Growth and Yield of crops"**. He told the importance of microbes in sugarcane agriculture and frontiers of potential of microbes in sugarcane agriculture in their introductory speech. He also focused on mapping of soil microbes in India, root architecture and climate resilience. In their speech he told the food problem in future is globally, so avoid the futuristic food problem now it is necessary to adopt the microbial technology for food production.

Dr. Chandrakanta Mahendranathan delivered lecture on **"The Persistent of Emerging Plant Diseases and its Threat in the Food Security and Economy"**. She explained Global Food Security Index (GFSI), Reduction of food due to plant diseases, so disease management is must to save the food losses globally. Prof. Mohammed Bello Yerima, delivered speech on **"Impacts of Microbes on Sustainable Sugarcane Production and Sugar Industry"**. He emphasized the role of microbes in sustainable sugarcane production, need of mechanization in sugarcane farming.

Mrs. Rutuja R. More given speech on **"Recent Development in Agriculturally Beneficial Microorganisms"**. She focused on global market of Biofertilizers, Biopesticides&Biostimulants, Qualitycontrol of liquid biofertilizer products as per FCO norms, need of capsulation to biofertilizers due to microbes are driving force of sustainable agriculture.

Technical Session - III : Challenges & Opportunities in Bioethanol

Chairman : Shri. Atul Mulay, President and Strategic Business Unit Head for Bio Energy Division in Praj Industries Ltd., Pune, India

Coordinator : Dr. KS Konde, Head, Professor and Technical Adviser, Dept. of Alcohol Technologyand Biofuels, VSI, Pune, India

Rapporteur : Dr. Sangram Patil, Scientist, Dept. of Alcohol Technology and Biofuels, VSI, Pune, India
Mr. RV Ghodage, Asst. Prof and Joint Technical Advisor, Dept. of Alcohol Technology and Biofuels, VSI, Pune, India

Speakers:

1. Mr. YB Ramkrishna, Member Expert of working Group on Bio fuels, Ministry of Petroleum & Natural Gas, Govt. of India
2. Dr. Paul Bloom,Chief Carbon Officer and Chief Innovation Officer, Gevo, USA
3. Mr. Mainak Chakraborty,CEO & Co-founder, GPS Renewables, Bangalore, India
4. Prof. SV Patil, Emeritus Professor, Vasantdada Sugar Institute, Pune, India
5. Mr. Ajay Nair, Managing Director, DEIF India Pvt. Ltd., Mumbai, India

In this session, Shri Atul Mulay given talk on "**Bio-Fuels Opportunities in India"**. He explained the opportunities for2nd generation ethanol, sustainable aviation fuel and compressed biogas in India. He also presented the importance of sustainable alternative import substitution & reduction in greenhouse gases. He also explained the future ethanol demand, potential challenges and opportunities in its production.

Mr. YB Ramkrishna gave talk on "**Emerging Policy Ecosystem in India for Advanced Biofuels & Opportunities for the Sugar Industries to Reposition as Energy Companies"**. He presented past and current ethanol policies by GoI to meet ethanol demand by oil marketing companies under ethanol blending programme. He told possibility of ethanol production from sweet sorghum, corn, sugar beet, cassava& second generation biomass. He also mentioned that importance of sugarcane productivity improvement in the context of sugarcane based biocircular economy.

Dr. Paul Bloom had given talk on "**The Technology and Opportunities for Carbohydrates to Hydrocarbon Chemicals and Fuels"**. He explained global low-carbon energy trends and evolution in low-carbon energy share. He told about the market potential for sustainable aviation fuel. He also showed the importance of renewable natural gas as transportation fuel which can reduce fossil gas footprint of net-zero plants. He further emphasized on the conversion of ethanol to more valuable chemicals such as ethylene, propylene, butanes & pentenes.

Mr. Mainak Chakraborty gave talk on "**BioCNG Production Opportunities in Sugar Industry"**. He explained BioCNG production opportunities in India with different case studies. He explained that the BioCNG will boost the circular bioeconomy. He informed that the expected capital deployment on BioCNG will be $20 billionin India. He explained the recent policy interventions for BioCNG and future possibilities.He explained BioCNG production techno-economics with 12000 TCD sugar mill case study.

Prof. SV Patil has given talk on "**Emerging Trends, Opportunities and Challenges for Bioethanol Production in India.** He explained the ethanol demand for ethanol blending program. He also explained possibility of grain ethanol production from surplus rice and corn in India. He highlighted the impact of restriction on the use of B-heavy molasses and sugarcane syrup for ethanol production on sugar industry. He explained challenges in distillation, downstream ETPs & achieving zero liquid discharge for various feedstocks.

Mr. Ajay Nair gave talk on "**Sustainable Power Management Systems in Industrial Plants".** He explained the energy electrification stepwise. He explained integration of energy sources with present energy source, nature's infrastructure, speed of electrification, customer motives and regulations. He explained the strategies with an intelligent power management system.

Dr. KS Konde concluded the session with vote of thanks.

Agricultural Session - VI : Pest in Sugarcane: Facts & Management Approach

Chairman : Dr. ZP Patel, Vice Chancellor, Navsari Agricultural University, Navsari, Gujarat (India)
Coordinated : Mr. BH Pawar, Sr. Scientist and Head, Plant Pathology Section, VSI
Mr. RG Yadav, Scientist, Agril. Entomology Section
Rapporteurs : Dr. GS Kotgire, Scientist, Plant Pathology Section VSI
Speakers:

1. Dr. Govind Pratap Rao, Emeritus Scientist, Indian Institute of Sugarcane Research, New Delhi and Director, Institute of Agricultural & Natural Sciences, DDU Gorakhpur University, Gorakhpur, Uttar Pradesh (India)
2. Dr. Rasappa Viswanathan, Director, ICAR-Indian Institute of Sugarcane Research, Lucknow (India)
3. Dr. Satya Nand Sushil, Director, ICAR-National Bureau of Agricultural Insect Resources, Bengaluru (India)
4. Dr. Francois-Regis Goebel, Senior Entomologist & IPM Expert, CIRAD, Montpellier (France)

In this session, Dr. Govind Pratap Rao presented his speech on **"Phytoplasma Diseases Causing Serious Losses to Sugarcane Crop in Asia: A Recent Update"**. He elaborately presented the status of phytoplasma diseases of sugarcane, their importance and management strategies.

Dr. Rasappa Viswanathan gave talk on **"Global Changes In Disease Dynamics in Sugarcane and Ways to Address Them for A Sustainable Cultivation"** and appealed to the concerned to mitigate the disease problems in sugarcane cultivation. He emphasized the need of tissue culture for the production of quality seed free from viruses to boost the productivity of sugarcane.

Dr. Satya Nand Sushil presented speech on **"Safeguarding Sugarcane Cultivation From Bio-Security Threats Through Plant Quarantine Regulation in India: Challenges and Way Forward"**. During his speech Dr. Sushil gave the details about spread of pests of sugarcane, put forth the strategies of quarantine measures be adopted to prevent the spread of pests from one place to another and suggested ways to overcome the problems during transportation Agriculture Inputs.

Dr. Francois-Regis Goebel presented his speech on **"Rethinking Crop Protection by Mobilizing Natural Pest Regulation and Agro-Ecological Practices in Sugarcane Agro Systems'** and shared his experiences regarding management of pests in sugarcane. He emphasized the real need for more sustainable and ecological solutions for crop protection in sugarcane.

Dr. ZP Patel, Chairman of the session summarized the presentations made during the session. He also shared his experience about the success story of biological control of pyrilla infestation in sugarcane in Gujarat State. Session ended with vote of thanks.

Technical Session - IV : Environmental Sustainability in the Sugar and Allied Industry

Chairman : Mr. J S Kamyotra, Former Member Secretary of the Central Pollution Control Board, New Delhi

Coordinator : Dr. Deepali Nimbalkar, Sr. Scientist and Head Department of Environmental Science, VSI,

Rapporteurs : Dr. Eknath Alhat and Dr. Vivek Patil, VSI

Speakers:

1. Dr. PW Leenes, Associate Professor, Integrated Research on Energy, Environment and Society (IREES), University of Groningen, Netherland
2. Mr. Santosh Nair, CEO,Progressive management consultants, Goa, India
3. Dr. Yashpal Singh, Chairman, The Wealthy Waste School, Lucknow, IndiaTop of Form
4. Mr. Pankaj Tanwar, Vice President- Technical at Organic Recycling Systems Limited, Navi Mumbai, Maharashtra

In this session, Mr. Kamyotra emphasized the importance of reducing water consumption and effluent generation in the sugar and allied industry. He also threw a light on reducing greenhouse gas emissions from this industry. He also emphasized on reducing power consumption and its significance in the context of environmental sustainability within the sugar and allied sector.

The first speaker was Dr. PW Leenes focused on "**Water Fotprints of the Sugar and Bioethanol Industry**". She explained green, blue, and grey water footprints. Green water footprint refers to the amount of rainwater consumed, blue water footprint is related to surface and groundwater usage, and grey water footprint involves the amount of water required to dilute pollutants. She highlighted the importance of water footprint assessment for the sugar and allied industry. A step ahead, she emphasized that such assessments can provide crucial insight of water usage patterns, its environmental impact and sustainability. Understanding and managing the water footprint is essential for any industry, including sugar

and bioethanol. Hence, to adopt responsible water management practices is essential. She shared some data related to sugar cane water footprints in various cane-producing countries and their comparison. Notably, India stands at the third position in terms of both green and blue water footprints per unit of cane, following Pakistan. This information likely shed light on the water efficiency of sugarcane production in different countries, offering valuable benchmarks and considerations for sustainable water management practices within the sugar and allied industry.

Mr. Santosh Nair gave talk on **"Availing Carbon and Water Credits for Sugar and Allied industries"**. He emphasizing the significance of these credits, the speaker highlighted its role in reducing pollution, particularly greenhouse gas (GHG) emissions reduction. The speaker pin pointed the financial incentives associated with carbon and water credits. It can serve as an additional source of income for the sugar and allied industry. The system's dual advantage also extends to the conservation of water by implementing strategies such as reduction, recycling, and reusing of water as part of the assessment for water credits. The speaker brought to attention that earning carbon and a water credit demonstrates the commitment to environmental protection and sustainability. Thus, it helps in enhancing the brand reputation of the industry. His presentation covered various types of water and carbon credits and outline of steps involved in availing those credits. Case studies from cogeneration units in Haryana and Uttar Pradesh were briefly covered, to provide practical insights and experiences. This part of the presentation added depth and practical relevance of the topic.

Dr. Yashpal Singh presentation on **"Penalty, Damages Assessment and Environment Compensation- The Indian context".** He covered details about the regulatory framework, highlighting the legal aspects and standards set forth by the authorities. This was supported by an examples of handling of cases pertaining to violations of environmental laws, along with the corresponding compensation and penalties imposed for such violations in India. He also addressed the critical role of authority and regulations in the Environmental Compensation and Damage Assessment process. This included an overview of various environmental protection laws and guidelines issued by the Central Pollution Control Board (CPCB) and the National Green Tribunal in India. Top of Form Mr. Pankaj Tanwar presentation discussed on **"By Product Valorisation Aligning with Various GoI Intiativ Policies Towards Sustainability"** He highlighted the goal of reducing natural resource consumption, reusing materials, and minimizing waste. The presentation covered sustainable waste management in detail, encompassing the collection, transportation, valorisation, and disposal of various types of waste without risking the environment, human health, or future generations.

Under By-product (Press mud) valorisation and available technologies, the speaker addressed recovery technologies such as Bio-methanation & Composting for biodegradable fractions. Further, he explained thermal conversion of waste through incineration, pyrolysis, gasification and a trademarked technology called DRYAD™, based on thermophilic bio-methanation principles. The speaker highlighted DRYAD™ benefits, such as suitable operating temperature range (50-55°C suitable for Indian cities), high loading rate, odourless operation, and efficient bio gas generation (110-130 nm3/ton of waste). The digestion & composting period is 14 to 21 days, and the compost quality is superior due to pre-treatment and digestionat high-temperature. The presentation concluded with listof various product development activities by 'Organic Recycling Systems Limited' under Sustainable Waste Management and highlighting relevant government policies in India.

Industry operators, environment officers mainly from sugar industry, researchers, students and staff of various departments of VSI attended this informative session covering diverse topics. Dr. Amol Deshmane proposed vote of thanks.

Agricultural Session - VII : Sustainable Sugarcane Production and Management Practices

Chairman : Mr. Shivajirao Deshmukh, Advisor, VSI, Pune
Coordinator : Dr. AS Patil, Head, Agronomy section, VSI
Rapporteurs : Dr. SA Survase, Scientific officer, Soil Science and Dr. TD Shitole, Scientific Officer, Agril. Entomology section

Speakers:

1. Dr. AS Tayade, Head, Division of Crop Production, ICAR-CICR, Nagpur, India,
2. Dr. Mohammed Ahamed J. Scientist, RRSC-South, NRSC, ISRO, Bengaluru, India
3. Dr. AD Kadlag, Principal Scientist & Head, Division of Crop Production & Protection, VSI, Pune, India

Dr. AS Tayade delivered his presentation on **"Climate smart Agronomic Interventions for Improving Sugarcane Productivity and Profitability under Tropical Indian Conditions"**. He elaborated that the impact of temperature, rainfall and elevated CO_2 considering the climate change has been widely influence on sugarcane yield. He stated that the concentration of atmospheric CO_2 increased from 280 ppm to 400 ppm in recent time and the sugarcane is the clear champion crop at carbon sequestration. Sugarcane can sequestrate up to 0.66 tonnes of CO_2 per ha per year in plant stones while many other crops sequestrate comparatively little or no CO_2 by this process**.** He also mentioned various reasons for the decline the sugarcane production including poor soil fertility, inadequate fertilization, weed infestation, saline, sodic soil, soil compaction, poor quality seed, poor quality irrigation and poor crop management and at the same time he also explain the good management practices i.e. conservation tillage, crop residues retention, crop diversification, green manuring, quality seed material, INM etc. should be used for increasing the sugarcane production.

Dr. Mohammed Ahamed briefed the **"Role of Remote Sensing Technology in Improving Sugarcane Monitoring"**. He was explaining the role of remote sensing in Agricultural area assessment, cropped area assessment, crop condition assessment, crop impact assessment and crop production estimation. He was also introducing the 'Bhoonidhi' website of ISRO which facilitates the dissemination of open satellite data products and priced data products to online users on web.

Dr. AD Kadlag delivered his presentation on **"Challenges & Opportunities in Sugarcane Farming"**. He elaborated that the current scenario of Indian sugarcane farming and at the same time he also

highlighted the problems facing of sugar mills and sugarcane growers and also explain the strategies to be adapted by farmers and sugar mills for maximizing sugarcane productivity. He was focused on good quality seed, climate resilient sugarcane variety, INM, Water & pest management, mechanization in sugarcane, proper timing of planting and harvesting, strengthening of extension and cane development activities for better sugarcane production.

After the presentation of the session is opened for discussion, some of the participants were exchanging the ideas, also asked their doubts and which was answered by respective speakers.

The session chairman summarizes, and pressed on what's the problems facing the sugar industry at present and what we can do for its improvement in his concluding remarks. Finally, vote of thanks by Dr. AS Patil.

International speakers, exhibitors and delegates from 28 countries namely Argentina, Australia, Belgium, Brazil, China, Denmark, Fiji, France, Germany, Ireland, Italy, Japan, Netherland, Nigeria, Norway, Oman, Philippines, Saudi Arabia, South Africa, Sri Lanka, Thailand, Uganda, UK, USA, Vietnam, Tanzania, Sweden and Malawi participated in this conference and exhibition.

Poster Presentation

In Agriculture and Science and Technology Division for IC 2024, Seven themes were selected for poster presentation. Dr. SV Patil acted as convener and Dr. GS Kotgire acted as co-convener of poster committee. Total 127 abstracts received in different themes among that 84 abstracts were received from other institute/ organization and 43 abstracts were received from different sections of VSI, the poster evaluation has been done on 11th and 12th January, 2024 and name of awardees declared on 13th January, 2024 during the conference 2024. The name of awardees according to the theme as follow;

Poster Presentation Evaluation Result (Agriculture and Technology sessions)

S.No.	Name of Theme	Name of Paper	Name of Awardees	Rank
1	Modern Developments in Processing and Engineering	Enabling Sustainable Operations Through Smart Motor Management	**Aadnya A Bhiap** and Sandeep Pawar	1st
		Sustainable Irrigation by Using Off Grid Standalone Solar Power System to Agriculture Pumps, Case Study	**Ravindra Takale**, R.A. Chandgude and H. Patil	2nd
		Sucrose To Pol. Ratio Evaluation– An Important Tool to Improve the Sugar Recovery	**Simanchala Panda** and R.V Dani	3rd
2	GreenTechnology: Circular Bio-economy	Prospects of Hydrogen Production in Sugar & Allied Industry	**Sangram Patil** and Pranav Nikam	1st
		CBG Opportunity in Sugar Industry: Biomethantion of Press Mud Cake for Biogas Production	**Kalyan Gaikwad**, R. V. Burase and Somnath Sutar	2nd
		Lignin Valorization: A Sustainable Alternative to The Construction Industry	**Moushmi Chakraborty** and Siddhartha Pal	3rd
3	Challenges and Opportunities in Bioethanol	Food Waste, A Sustainable Feed Stock for Bioethanol Production	**Ajaykumar Soni,** Leena Kulkarni, Sudha Kumbhar, Sneha Patil and Pramod Kumbhar	1st

Sr. No.	Name of Theme	Name of Paper	Name of Awardees	Rank
		Sugarcane Syrup Production Through Inversion: An Alternative Substrate for Ethanol Production in Sugar and Allied Industries	**Shuvashish Behera,** Tejaswini Patil, Kakasaheb Konde, Sanjay Patil	2nd
		Cane Juice/Syrup to Ethanol: Opportunities for Dryer Technology in Distillery	**Vishal Deshmukh**, Pranav Nikam, Dinesh Patil, Kakasaheb Konde	3rd
4	Environmental Sustainability in the Sugar and Allied Industry	Green Initiatives in SDSSSKL to Achieve Cane to Clean	**Deepa Bhandare**, Digvijay Dhavale	1st
		Bio-extraction of Bacterial Cellulose from the Sugarcane Bagasse for the Production of Bio-Leather	**Aishwarya Buyyakar**, Anushka Sapte, Priyanka Kad	2nd
5	Perspectives in Sugarcane Improvement	CRISPR/Cas9 mediated genome editing for improved tolerance to drought and *salinity*	**Appunu Chinnaswamy**, *SR Harish Chandar, Surya Krishna Sakthivel, Sreenivasa Venkatrayappa, Mahalakshmi Subramanian and Prakasika Balakrishnan*	1st
		Identification of promising true sugarcane seed families to explore the feasibility of direct commercial cultivation	**Mallikarjun P K** *and Sanjay B. Patil*	2nd
		Newly released high yielding Sugarcane variety Phule Sugarcane 15012 (MS 17082)	***S.S. Ubale**, M.A. Shelake, K.D. Bhoite and R.L. Bhilare*	3rd
6	Soil Sustainability: Challenges and Priorities	Growth, yield and quality response of sugarcane to micronutrient application in sugarcane growing soil	**J.P Kharade**, *P.S. Deshmukh, S.A. Surwase and J.S. Rawade*	1st
7	Micro- irrigation and Mechanization	Efficient water management through micro irrigation systems in sugarcane	***P. P. Shinde***	1st
8	Sustainable Sugar beet Industry–Emerging Challenges	Sugarbeet: Climate resilient crop for rainfed area	***A.S. Patil,** G.R. Pawar and A.D. Kadlag*	1st
9	Microbes and Potential Bio-agents in Sustainable Sugarcane product	Effect of application of microbial slurry containing natural agricultural beneficial microorganisms on yield and quality of sugarcane	***Shraddha. B.Shinde**, Bibhishan. G.Mali and Sudha D. Ghodke*	1st
		Bioefficacy of entomopathogenic nematode against white grub pest in sugarcane	***Kranti G. Nigade**, Sudha D. Ghodke, U.S. Manjul, D.S. Jadhav and K.B. Kamble*	2nd

Sr. No.	Name of Theme	Name of Paper	Name of Awardees	Rank
		Effect of application of consortium of agriculturally beneficial soil microbes &microbial consortium of endophytes nitrogen fixing bacteria on yield and quality of sugarcane in nutrient exhausted soil	***Sudha D. Ghodke*** *and Bibhishan. G.Mali*	3rd
10	Pest in Sugarcane: Facts and Management Approach	Management of brown spot disease in sugarcane	***G.S. Kotgire,*** *B.H. Pawar and J.H. Yadav*	1st
		Identification of whip smut resistant sugarcane clones using activity profile of pathogenisis related defence enzymes and SSR primer	**S.V. Nalawade,** *D.V. Indi, A.A. Kale, A.M. Navale and R.L. Bhilare*	2nd
		Chitosan-enhanced growth media for improved biocontrol potential of Bacillus thuringiensis subspecies krustaki: A Comprehensive evaluation	**Bhagyashri Shinde**, *Tushar Shitole and Sunil Dalvi*	2nd
11	Sustainable Sugarcane Production and Management Practices	Selectivity and efficiency of herbicide application in sugarcane	**Anusha S.,** *Geetha P. and Krishnapriya Vengavasi*	1st

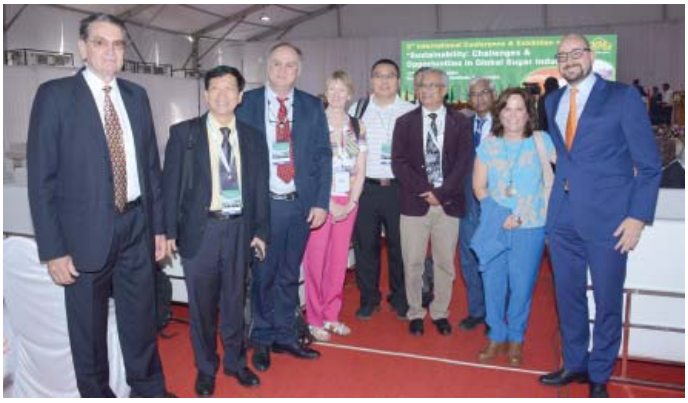
The 3rd International Conference was a massive event in the sense that exhibition of international standard with total 276 sponsors from the country and abroad has participated in this exhibition. In this exhibition, the new technologies developed by sugar factories, refineries, manufacturers of machinery for projects, agricultural implements related to farmers, seeds, agricultural inputs were displayed. Agricultural universities, organizations related to the Sugar Industry displayed their new technologies in this conference. State-of-the-art machinery such as harvesters, planters and drones was also displayed. The participants had the opportunity to see a pilot project for the production of green hydrogen displayed by VSI.

A unique aspect of this event was the live crop demonstrations of sugarcane through 96 live demo plots in the field. The live crop demo exhibited various advanced technologies and agricultural practices covering major sugarcane varieties from India, three-tier seed nursery programme, planting of tissue cultured plantlets for seed nursery programme, intercropping in sugarcane, modern methods of sugarcane cultivation technology, integrated nutrient management for sugarcane, use of biofertilizers, various irrigation systems, integrated disease and pest management etc. Similarly, demonstrations have been organized on remediation of salt affected soil and scientific method of soil sampling.

New aspect of this conference was the farmer's gallery where interviews on the success stories of the sugarcane growers that have received awards and also of the award winning Cane Development Officers, Agricultural Officers, Managing Directors and Chairman of the award winning sugar mills were broadcasted.


International Conference & Exhibition on
ustainability: Challenges &
ies in Global Sugar Industry"
Pune, India


3rd International Conference & Exhibition on
"Sustainability: Challenges &
Opportunities in Global Sugar Industry"
12th-14th January, 2024
Vasantdada Sugar Institute, Pune, India




"Sustainability: Challenges &
Opportunities in Global Sugar In
12th-14th January, 2024
Pune, India


Sustainability: Challenges &
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The 75th Republic Day of India

The 75th Republic Day of India was celebrated on January 26, 2024. As per tradition, Mr. Sambhaji Kadupatil, Director General, hoisted National Flag was unfurled followed by the National Anthem. On this occasion Mr. Shivajirao Deshmukh, Advisor, Mr. DB Ghule Principal / Registrar and staff members and students were present in the campus.

TRAINING

Advanced Technologies in Sugarcane Agriculture

Special training program on "Advanced Technologies in Sugarcane Agriculture" was organized at VSI for progressive sugarcane growers from Uttar Pradesh during February 11 to 16, 2024 by Agricultural Sciences and Technology Division. Lal Bahadur Shastry Ganna Kisan Sanstha (LBSGKS), Lucknow, UP has sponsored the program and deputed 20 selected progressive sugarcane growers from different districts of Uttar Pradesh along with 2 officials. The program was inaugurated on February 13, 2024 by Dr. AD Kadlag, Principal Scientist, Crop Production and Protection Division, VSI, Pune in presence of Mr. Praveen Kumar, Assistant Director, LBSGKS, Lucknow, UP, all the Heads of the Sections & staff of AST&D and participating sugarcane growers.

Dr. AD Kadlag, in his inaugural speech welcomed all the participants and thanked LBSGKS for giving us an opportunity to serve the progressive farmers from Uttar Pradesh. He elaborated the sugarcane crop situation in India, in general & in Maharashtra, in particular and emphasized the need of the training.

Mr. Praveen Kumar thanked Vasantdada Sugar Institute (VSI) for accepting the task of training, briefed the sugarcane agriculture situation in Uttar Pradesh and highlighted the constraints before the sugar sector in Uttar Pradesh. He also emphasized the need of training to the sugarcane growers for improvement in the sugarcane and sugar productivity in Uttar Pradesh.

Mr. BH Pawar, Senior Scientist & Head, Plant Pathology Section and Training Coordinator welcomed all the participants on behalf of VSI and briefed the activities of the VSI in terms of education, training, short-term courses, research, consultancy and extension. He also appealed to the participants to take the benefit of the different services of VSI.

Lectures and practical's on various topics like sugarcane varieties and varietal planning , three-tier seed nursery program, tissue culture in sugarcane agriculture, modern planting methods, settling transplanting (STP), soil fertility & nutrient management, irrigation water management, use of bio-fertilizers, farm mechanization, ratoon management, economics of sugarcane agriculture and integrated disease & pest management were conducted by scientists of VSI. More emphasis on practical's and field demonstrations was given during the training. Trainees got their doubts cleared from the subject experts during the 4 days in-house training.

In addition to the regular course curriculum, the information about the VSI academic facilities and use of solar energy in agriculture is also provided to the participants.

As a part of the training, the exposure visit was arranged to Daund Sugars Pvt. Ltd., Alegaon, Pune and Karmveer Shankarrao Kale SSK Ltd., Kopargaon, Ahmednagr and sugarcane farms of progressive

sugarcane growers in the operational area of the mills. Officials of both the sugar mills briefly highlighted the Cane Development Projects undertaken by the mills and harvesting planning followed by their mills. During the farm visit to the progressive growers, the participating farmers learned the modern technologies of sugarcane cultivation for the yield maximization. The test on the basis of the topics covered during the training was conducted for evaluation of knowledge of the farmers.

The farewell function was held in presence of Mr. Sambhaji Kadupatil, Director General, VSI. During farewell, certificates and copies of the group photos to the participants. in his farewell remarks thanked LBSGKS for opting VSI for the training of progressive farmers from Uttar Pradesh. He also appealed to the farmers for the adoption of appropriate technology for increasing the yield of cane & sugar per unit area and per unit time. The event concluded with , vote of thanks by Dr. GS Kotgire.

Modern Technologies in Sugarcane Agriculture

The residential training program was organized for farmers from Beed and Nashik Dist. of Maharashtra under Agricultural Technology Management Agency (ATMA) and ICAR sponsored Schedule Caste Tribal Sub Plan Project. The objective of the training was to train the farmers, about modern technologies in sugarcane agriculture.

The three days training program was conducted and total 35 farmers participated during February 21 – 23 2024.

Dr. GS Kotgire, Scientist, Plant Pathology section welcomed all the participants and others. The training was inaugurated by Mr. Sambhaji Kadupatil, Director General, in presence of Heads of sections and representative staff members. During the inaugural speech, he highlighted the importance of the training and appealed to all farmers to adopt modern technologies during sugarcane cultivation.

In the technical program lectures on various topics like sugarcane varieties & varietal planning, seed nursery management, tissue culture, modern planting techniques, weed management, soil fertility and fertilizer management, irrigation water management, use of bio-fertilizers, farm mechanization, sugarcane economics, ratoon management and integrated disease & pest management were conducted by Subject Matter Specialists. More emphasis was given on practicals and field demonstrations. In the plenary session of every batch, the trainees got their doubts cleared from the subject experts. In the concluding function, the representative trainee farmers expressed satisfaction about the training, lodging and boarding facilities. The certificates along with group photos were distributed to the trainees.

Concepts of Statistical Design and Analysis of Data

The two-day refresher training programme-"Concepts of Statistical Design and Analysis of Data," was conducted on March 21-22, 2024 for all staff of technical and Agricultural Sciences Technology Division at VSI, Pune. Dr. AD Kadlag, Principal Scientist & Head of the Agricultural Science & Technology Division, introduced Dr. Swati Shinde, Assistant Professor, Department of Statistics, MPKV, Rahuri. In welcome address, He said that she has around 22 years of experience. Mr. Sambhaji Kadupatil, Director General, VSI felicitated the.

Dr Swati Shinde conducted lectures on general statistics averages, measures of dispersion, correlation and regression analysis techniques. She also explained tests of significance and important terms involved in the testing of hypothesis viz. Type I & II errors, level of significance, standard error and critical difference. t-test, F-test, and Chi-square test were discussed with examples. She delivered lectures on the important topic useful related with data analysis of agricultural research experiment conducted at field and laboratory viz. Design of Experiments (DOE), covering an introduction to DOE, ANOVA, and types of designs, including Completely Randomized Design (CRD) and its application with agricultural field examples.

The second day commenced with discussions on Randomized Block Design (RBD) and Latin Square Design (LSD) design in agricultural contexts, accompanied by agricultural field examples. Factorial experiments were then introduced, along with explanations on their necessity. Designs like Split-plot design and Strip-plot design were elaborated upon. The concept of pooled analysis and its step-by-step procedure using software like canprg was explained, followed by a discussion on data transformation. Throughout the lectures, emphasis was placed on crucial points for agricultural analysis, including the importance of maximum replications, ensuring a minimum of 12 degrees of freedom for error, and the reliability of data. Precautions for agricultural experiments, such as considering soil fertility gradients and experiment layout, were highlighted.

Approximately 60 to 65 participants attended the program, raising various queries related to agricultural experiment analysis, including drone experiments, augmented designs, data transformation, and Principle Component Analysis (PCA), all of which were addressed by the guest lecturer.

The program concluded with a vote of thanks delivered by Mr. MR Shinde, Head of Statistics and Information Section at VSI Pune, who invited participants to reach out to the department for any further statistical queries or assistance.

Short Term Training Program for officers from Ronsa Engineering Solutions Pvt. Ltd., Pune

Department of Alcohol Technology & Biofuels (AT & B), VSI conducted tailor made short term training programme entitled "Alcohol production from various raw materials and analysis of raw material and alcohol" for officers from Ronsa Engineering Solutions Pvt. Ltd., Pune on March 26-28, 2024. Total four participant's namely Mr. Diego Madero Avilez & Mr. Heriberto Ruiz Gonzalez from Mexico and Mr. Anil Rohidas Narawade & Ms. Shrutik Sunil Tarte from Ronsa Engineering Solutions Pvt.Ltd., Pune are attended this training.

The course overview was given by Dr. KS Konde, Head, Professor & Technical Adviser. He elaborated the activities of the department. The courses covered topics such as Alcohol Production: World Scenario & Trends, Overview of B-Hy & C-Hy molasses composition, grades, storage and cost, Raw materials used for ethanol production (Sugar beet, grain, Sugarcane juice & molasses), Continuous/ Fed-batch fermentation, Multipressure distillation & Molecular Sieve dehydration technology for production of R.S., ENA & ethanol as well as by products of distillery industry. Distillery effluent treatment norms and present status, Incineration & Dryer technologies for distillery sector to achieve zero liquid discharge as per CPCB norms. Demonstration practicals of determination of Brix, T.R.S.%, pH & Sludge % of molasses and starch content of grains, analysis of R.S., ENA & Ethanol on GC and Alcolyzer were covered.

On the occasion of the concluding session of the training, certificates distributed to the officers by Mr. Sambhaji Kadupatil, Director General, VSI. He also thanked the Ronsa Engineering Solutions Pvt. Ltd., for sending the officers for the training at VSI. The participated officers appreciated the overall training programme organized by VSI.

WORKSHOP
WORKSHOP

Advanced Management Practices for Sugarcane Crop

A one-day workshop on '**Advanced Management Practices for Sugarcane Crop'** was organized by AS&T Division on February 24, 2024. Mrs. JP Kharade, Scientist, Soil Science Section welcomed Hon. Director General, key speakers, Heads of Sections in AS & T Division and all the participants. The workshop was inaugurated by Mr. Sambhaji Kadupatil, Director General, VSI. In the inaugural speech, he highlighted the importance of the topic of the workshop. He briefed about importance of the climate smart agriculture and different interventions for improving sugarcane productivity and farm profitability. Total 33 participants from 21 sugar mills attended the workshop.

During the technical session Dr. KV Prasad, Director, DFR, ICAR Manjari, Pune delivered the lecture on Sugarcane Based Floral Intercropping System. he has presented brief glimpse of floriculture industry in India and worldwide. He appealed favorable agro climatic conditions, adequate natural resources in terms of land, water, diverse soils and other inputs, India has enormous potential to become a leader in floriculture. However, to attain the leadership position there is need to develop forward and backward linkages for domestic and export markets, value chain for each commodity and link the same to the One District One Crop (ODOC), encourage start-ups and FPOs. He mentioned Owing to slow establishment of sugarcane crop canopy in the initial 90- 120 days, scope exists for growing short duration intercrops to maximize net returns per unit area.

Dr. AD Kadlag,Principal Scientist& Head, Division of Crop Production & Protection delivered his talk on Sugarcane Crop Management Under Water Stress Condition. He briefed about over situation and production scenario of sugarcane in Maharashtra and India, further he discussed the limitations of sugarcane production. He explained the management strategies to overcome the different abiotic stresses on sugarcane crop.

Mr. PP Shinde, Agril. Engg.Section presented his topic on Efficient Water Management with Advanced Irrigation methods in Sugarcane Crop. Hepops up the different advanced micro irrigation techniques which helps for improving water use efficiency. He told we can sustain the crop productivity even under limited water supply through intervening the micro irrigation system in sugarcane agriculture. He further briefed about new inventions in irrigation management like inverted sprinkler irrigation.

Mr. BG Mali, Sci. Officer, Agril. Microbiology Section, delivered a lecture on Application of Bio fertilizers in Sugarcane Agriculture. He highlighted the importanceof bio fertilizers in sugarcane crop for improving nutrient use efficiency. He has elucidated the role of bacteria in water stress management.

Mr. DS Rode, Cane Development officer, Shree NathMaskobaSSK, Ltd, Patethan, Pune. In hiS talk he explained various scheme implemented under cane development program and discussed about how it is beneficial to the farmers.

Mr. SC Kale, Cane Development Officer, Malegaon SSK Ltd.,Shivnagar,Pune,explained the development activities implemented in the operational area of

sugar mill. He also mentioned the enriched organic manure production made by sugar mill.

The interactive session was held in presence of workshop coordinator and co-coordinator. The participants raised their queries regarding on various aspects of crop management and which were replied by concern expert. The program was concluded with a vote of thanks by Dr. AS Patil, Scientific officer& I/C Head, Agronomy Section of VSI, Pune.

Mechanical, Biological and Chemical Management of Pests in Sugarcane

A one-day workshop on 'Mechanical, biological and chemical management of pests in sugarcane' was organized on March 23, 2024. Dr. AD Kadlag, Principal Scientist, Crop Production and Protection welcomed chief guest and lead speaker Dr. YA Thorat, Scientist, ICAR-IISR, Biological Control Center, Pravaranagar, Ahmednagar (MS), Shri. Sambhaji Kadupatil, Hon'ble Director General, VSI, Pune, Mr. Pankaj Patil, CDO, YM Krishna SSK, Ltd, Satara, Mr. SS Morde, CDO, Shri. Vighnhar SSK, Ltd, Pune, Heads of Sections from AST & D and all the participants. The workshop was inaugurated with lighting of lamp by Hon'ble Director General Mr. Sambhaji Kadupatil. During the inaugural speech, he highlighted the importance of topic of the workshop and briefed about climate change & its impact on occurrence of pests in sugarcane. Total, 46 participants from 19 sugar mills attended this day long workshop.

During the technical sessions Dr. Thorat, delivered lecture on 'Novel Technologies for management of insect pests in sugarcane' and appealed for the integrated use of mechanical, biological and chemical methods for the management of pests in Sugarcane. He highlighted the research work carried out by ICAR-IISR, Biological Control Center, Pravaranagr, Ahmednagar (MS), as regards to bio-fertilizers and biological management pests in sugarcane. He asks to the participants to minimize the use of chemical pesticides.

Dr. TD Shitole, Scientific Officer, Entomology Section presented topic on 'Management of borers and sucking pests in sugarcane' and emphasized the need of integrated management of insect pests in sugarcane to avoid the losses in cane and sugar in sugarcane agriculture.

Dr. GS Kotgire, Scientist, Plant Pathology Section, delivered talk on 'Management of sugarcane diseases through mechanical and chemical methods' and highlighted the importance of physical (including mechanical) means, in particular & chemical means, in general for the disease management in sugarcane. He also shown the videos about the heat therapy units & sett treatment device developed by Sugarcane Breeding Institute, Coimbatore with explanation and appealed to the sugar mills for the use of the sett treatment units for effective implementation of three tier seed nursery program.

Mrs. SD Ghodke, Scientist, Microbiology Section has delivered talk on 'Management of pests in sugarcane through biological control agents'. She emphasizes the need for management of sugarcane pests by using bio-pesticides. She has elucidated the success story of trials conducted at farmer's field in sugar mill working area about VSI developed bio-inputs.

Mr. Pankaj Patil explained the schemes implemented in the area of Y.M. Krishna SSK Ltd., about the

management of pests in sugarcane and discussed about efforts made by sugar mill on said topic. Mr. SS Morde explained the efforts made by his sugar mill for use of bio-fertilizers and bio-agents in their operational area and its success. The interactive session was also held during the workshop after finish of presentations. During interactive session, the participants raised their queries on different methods of management of pests in sugarcane. Mr. BH Pawar, Senior Scientist and Head, Plant Pathology Section compared the day one day workshop. The workshop program was concluded by vote of thanks.

Following recommendations were finalized during the workshop

1. The effective management of the sugarcane insect pests is possible by management of adult stage of insect pest at right stage, proper tillage operations and use of biological & chemical pesticides with precise dose at right time.
2. To manage the infestation of insect pests in sugarcane, the right strategy should be adopted by the farmers by collective manner.
3. Physical means like crosswise ploughing after harvest of previous crop, use of commercial seed for planting, use of organic manures along with bio-control agents, use of different kind of insect traps, integrated use of fertilizers, effective water usage supported by proper drainage, crop rotation, proper small and final earthing up, detrashing of sugarcane at fifth, seventh and ninth months age of crop should be adopted for the management of insect pests in sugarcane.
4. Use recommended bio-agents *viz., Metarrhizium anisopliae*, *Epiricania melanoleuca Beauveria bassiana*, EPN, *Trichogramma chilonis* , *Trichograma japonicam, Crysoperla carnae, Verticillium lacany etc.* at right time with right dose for the management of different kinds of insect pests in sugarcane.
5. Sett treatment before planning of sugarcane by dipping of setts in 100 lit. of water solution containing carbendazim-50 wp, 100 gm and Imidachloprid 70% WG @36 gm may prevent the spread of pests through setts.
6. Release of egg parasitoid *Trichogramma chilonis* in field @ 3-5 lac parasitized eggs /ha in suitable installments for preventive management of early shoot borer of sugarcane.
7. Soil application of Fipronil 0.3 GR @ 25 kg/ha or Chlorantraniliprole 0.4 GR @ 22.5 kg/ha at planting and 60 days after planting is recommended for the management of early shoot borer.
8. Collection and destruction of adult beetle by using light trap, drenching of EPN (*Hererorhabditis* sp.) 2.5 lit/ha and drenching of Fipronil 40% + Imidachloprid 40% WG @ 500gm in 1000liter water will manage the white grub in sugarcane, effectively.
9. *Beauveria bassiana, Metarrhizium anisopliae, Verticillium lecanii and Aschersonia placenta, Encarsia formosa* Gahan, and predators *Serangisetum parcetosum*are are the natural enemies recorded to reduce the white fly incidence in field.
10. Clipping of 2-3 leaves containing black cocoons followed by two sprayings (with 15 days interval) of Imidachloprid 17.8 % SL @ 300 ml/ha (0.3 ml/lit) plus 2 % Urea will reduce the infestation of white fly.
11. Sugar mills should implement three tier seed nursery programme for the supply of good quality pest free planting material for the prevention of spread of diseases and insect pests. The breeder seed in the form of tissue culture plantlets should be used for the raising of foundation seed.
12. The sugar mills should adopt either moist hot air treatment plant or sett treatment device for the treatment of planting material to avoid the spread of diseases through setts.
13. The disease control measures *viz.,* integrated fertilizer use on the basis of soil test, adoption of long furrow and pair row method of planting, use of fungicides at the initiation of the disease, use of inputs containing silicon & chitosan for improving the resistance against the attack of diseases, timely application of agricultural inputs etc. should be undertaken so as to keep the sugarcane crop healthy to tolerate the incidence of diseases.
14. Apply liquid Biopesticides @ 5 ltr/ha along with 500kg of FYM/compost in soil or 2 ltr liquid biopesticides along with 200 ltr of water by drenching in furrow at the time of planting for the management of soil borne pathogens.
15. Bio-pesticides offer better alternative to synthetic pesticides due to their low toxicity, biodegradability and low persistence in the environment.

VSI PARTICIPATION

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Winter School at ICAR-Sugarcane Breeding Institute, Coimbatore

ICAR-Sugarcane Breeding Institute, Coimbatore organized ICAR sponsored winter school on" Climate smart sugarcane agriculture for food and energy security in India" during January 31, 2024 to February 20, 2024. The team of four Scientists from VSI, Pune comprising Dr. KV Sushir, Senior Scientist, Plant Breeding, Dr. SD Talekar, Scientist, Plant Breeding, Mrs. Jyoti Kharade, Scientist, Soil Science and Mrs. Kranti Nigade, Scientist, Agril. Microbiology had attended the Winter school training programme at Sugarcane Breeding Institute, Coimbatore.

The inaugural function was starred with the inaugural speech of Dr. G Hemaprabha, Director, SBI, Coimbatoreon January 31, 2024 in presence of all the Head of Divisions from Agricultural Sections, SBI, Coimbatore.

During winter school total 58 lectures and 10 practical's were conducted and also arranged a field visit at ICAR SBIRC Distant Hybridization Garden, Agali (Kerala) and ICAR-IARI station Wellington.

The training program covered different topics such as the molecular approaches in plant breeding, speed breeding, development of energy canes, genomics selections, distant hybridization, germplasm maintenance, selection of abiotic stress tolerant varieties, role of plant growth promoting rhizobacteria for improving the yield and quality of sugarcane and its role in managing biotic stress in field condition, micropropagation in sugarcane, modern techniques of pest and disease management ,drone technology, crop simulation and GPS and GIS for monitoring abiotic and biotic stress, AI based techniques for phenotyping characters of sugarcane. This training was useful for conducting new research in sugarcane improvement as well as sugarcane production for the benefit of sugarcane growers in future.

VSI COMMITTEE MEETINGS

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The 47th Annual General Meeting (AGM) of VSI along with Governing Council Meeting and Investment Committee Meeting was held on January 11, 2024 under the chairmanship of Hon. President of VSI, Mr. Sharad Pawar in presence of governing council members. Building & Purchase committee meeting was held on February 12, 2024. Governing Council meeting followed by Board of Trusties Meeting was held on March 10, 2023 under the chairmanship of Hon. President of VSI, Mr. Sharad Pawar.

VISITORS TO VSI

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External Assessment (audit) of quality management system for Environmental Impact Assessment (EIA) consultancy services by National Accreditation Board for Education and Training (NABET)

Department of Environmental Sciences is providing Environmental Impact Assessment (EIA) consultancy services to sugar, distillery and cogeneration units at all India level. It is mandatory for all EIA consultant to get accreditation of National Accreditation Board for Education and Training (NABET) of Quality Council of India. The Department of Environmental Sciences is having this accreditation since 2011.

NABET conducted an office assessment for reaccreditation On March 12th and 13th, 2024 for which independent assessors Dr. Rajiv Upadhyay and Dr. Virendra Misra visited VSI. Technical and non-technical staff involved in the process, extended all cooperation for the smooth conduct of the assessment. The assessors checked the project documents and EIA reports prepared by VSI since previous assessment.

National Assessment and Accreditation Council (NAAC) in its first accreditation cycle

The Institute offers Master's programme in Environmental Sciences and Wine, brewing and alcohol technology as well as doctoral programme in Environmental Sciences and Biotechnology affiliated to Savitribai Phule Pune University (SPPU). It is now mandatory to take accreditation of National Assessment and Accreditation Council (NAAC) to run the affiliated programmes and courses. Therefore, the Institute had applied for NAAC accreditation in July 2023. It completed a self-study report (SSR) in Dec.

2023. Based on the same, NAAC conducted a physical assessment and verification on March 18 and 19, 2024.

On March 18, 2024 a peer team comprising of Dr. RA Misra (Chairman), Dr. AB Vedamurty (Member Coordinator) and Ms. Jayanthi Muthukumarswami (Member) arrived at the Institute for assessment purpose. Mr. Sambhaji Kadupatil, Director General of the Institute welcomed the team. At the outset, Mr. DB Ghule Principal/Registrar of the Institute provided all the information to the committee through his presentation. Dr. Deepali Nimbalkar, Coordinator of IQAC (Internal Quality Assurance Cell) elaborated on mechanism to maintain quality in the academic processes of the Institute. The committee visited Departments involved in the SPPU affiliated teaching and research work. They visited laboratories of concerned Departments as well as discussed with staff members on various activities and services provided by the Department. In the second half of the day, the committee visited library, computer lab, seminar hall, auditorium, boy's and Girl's hostel and the facilities provided in those hostels. They also had an interaction with students, alumni, parents as well as non-teaching staff. Cultural programme organised by students was very impressive. The committee members appreciated the cultural programme and performance of the students.

On the second day of the visit, the committee members mainly prepared the report and interacted with Principal, IQAC coordinator and concerned staff. At the exit meeting, the committee expressed happiness on overall teaching quality, its allied aspects and the facilities provided to the students. On March 28, 2024 the NAAC announced the result and the Institute is rated "A". The Institute feels proud on achieving this rating in its first assessment/ accreditation cycle.

Following Visitors were visited VSI during (Jan-Feb-Mar., 2024)

Name of Institutions	Visitors	Total
January - 2024		
Annasaheb Magar College, Hadapsar, Pune	Faculties and Students	208
Jaysingpur College, Jaysingpur of Arts, Commerce, Scince & Computer Science, Jaysingpur, Dist:Kolhapur	Lecturers and Students	59
Mahatma Gandhi College of Agricultural Biotechnology, Pokharni, Dist: Nanded	Lecturers and Students	40
K.K. Ghule, Vidyalay, Tal:Haveli, Dist:Pune	Teachers and Students	142
Sanjivani Arts, Cmmerce and Science College, At Sahajandnagar, Post:Shingapur,Tal:Kopargaon Dist:Ahmednagar	Lecturers and Students	54
Individual Farmers from Maharashtra State	Farmers	597
February - 2024		
Poona College of Arts , Science, Camp, Pune & Commerce , Camp, Pune	Lecturers and Students	25
Spicer Adventist University, Aundh, Pune	Faculties and Students	50
Shri.Vijaysihha yadav College, Peth vadgaon, Tal:Hatkangale, Dist:Kolhapur	Faculties and Students	15
Spicer Adventist University, Aundh, Pune	Faculties and Students	50

Name of Institutions	Visitors	Total
Smt.Kasturbai Walchand College of Arts & Science Sangali,Dist:Sangali	Faculties and Students	123
Dada Patil Mahavidyalaya, Karjat, (Botany Department) Tal:Karjat, Dist: Ahmednagar	Lecturers and Students	55
Dada Patil Mahavidyalaya, Karjat, (Chemistry Department), Tal:Karjat, Dist: Ahmednagar	Lecturers and Students	50
Sadguru Gadge Maharaj College, Karad, Tal:Karad, Dist.:Satara	Faculties and Students	113
TAO Shirur, Dist: Pune	Officers and Farmers	9
Abasaheb Garware College,Karve Road, Pune	Lecturers and Students	47
BJS Arts,Science & Commerce College, Wgholi, Pune	Lecturers and Students	43
Commisionare of SugarSankar Sankul, Pune	Officers	11
K.K.Ghule Vidyalaya, Manjari (Bk.)Tal:Haveli, Dist:Pune	Teachers and Students	366
Individual Farmers from Maharashtra State	Farmers	467
March - 2024		
Arihant College of Arts & Commerce & Science – Camp, Pune, Dist:Pune	Lecturers and Students	25
Agasti Arts's Comm. & Dadasaheb Rupwate Science College, Akole, Tal:Akole, Dist:Ahmednaga	Lecturers and Students	28
Tuljaram Chaturchand College of Arts, Science and Commerce	Faculties and Students	10
Dr.Sharadchandra Pawar College of Agriculture, Baramati, Tal:Baramati, Dist: Pune	StudentsUnder RAWE	8
KVK Solapur, Tal:North Solapur, Dist:Solapur	Scientist and Farmers	16
Bhivarabai Sawant Institute of Technology & Research, Wagholi, Dist:Pune	Lecturers and Students	126
MGM, Nanasaheb Kadam College of Agriculture, Gandheli, Chh. Sambhajinagar, Dist Chh. Sambhajinagar	Lecturers and Students	98
Modern College of Arts, Science & Commerece, Shivajinagr, Pune	Lecturers and Students	50
Symbiosis Institute of Health Science, Symbiosis International Instiyute, Lavale, Pune	Lecturers and Students	18
K.K.Wagh College of Agriculture Biotechnology, Panchvati, Nashik	Lecturers and Students	42
College of Agriculture Biotechnology, LoniTal : Karjat, Dist:Ahmednagar Modern College Pune	Lecturers and Students Faculties and Students	49 52
MGM Nasaheb Kadam College of Agriculture, Chh. Sambhajinagr	Faculties and Students	45
Individual Farmers from Maharashtra State	Farmers	433
	Total :	**3524**

Meeting on Carbon Credit

The carbon credit meeting was held on March 20, 2024 at VSI. During this Meeting, some of Sugar Mills Chairman and technical staff, Governing Council Members and DG, Advisor & staff of VSI were present. In this meeting, Mr. Manoj Patil and Mr. Milind Purandare from Grow India is a joint venture between Indigo Ag and Mahyco visited VSI and gave the information about Carbon Credit and role of company. They briefed that, Indigo is a committed partner who actively works to identify buyers and sell credits at premium market prices, covers credit verification and soil sampling costs, and offers experienced staff to support carbon credit journey and also agronomic support help to get the most value out of carbon farming long-term, both from carbon credit income and from soil health improvements. They also covered the terms and conditions of the operating system etc.

Team of StoneX. Brazil

A team of Brazil comprising Mr. Fillipi Cardoso & Mr. Lucas Oliveria and members of Stonex Group, Brazil visited VSI on January 29, 2024. StoneX, Brazil, a significant player in market consulting and trading, embarked on a trip to India with the main purpose of visiting gaining a deeper understanding of the sugar industry in India, during their visit they visited various departments and sugarcane field.

LIBRARY NEWS

LIBRARY NEWS

January to March 2024

1. **SISSTA- South Indian Sugarcane & Sugar Technologists' Association** (2016) *Proceedings- SISSTA 46th Annual Convention SISSTA- Sugar Journal, 15th & 16th July, 2016*; Chennai: SISSTA, (p. i – xlvii & 424).

2. **SISSTA- South Indian Sugarcane & Sugar Technologists' Association** (2021) *Proceedings- SISSTA 50th Golden Jubilee Annual Convention Eagleton- The Golf Resort- Bangalore, 1st & 2nd October, 2021***,** Chennai: SISSTA, (p. i – xxxv & 255).

3. **SISSTA- South Indian Sugarcane & Sugar Technologists' Association** (2023) *Joint Seminar on "Promotion of Ethanol Production in the Present Scenario of Indian Sugar Industry" at- S. Nijalingappa Sugar Institute- Belagavi, Karnatka, 1st April 2023*; Chennai: SISSTA, (p. i – xxxvi & 124).

4. **STAI- The Sugar Technologists' Association of India** (2019) *Proceedings- 77th STAI Annual Convention 17th – 19th July, 2019***,** *Biswa Bangala Convention Centre- Kolkata,* New Delhi: STAI (p. i – xxxiv, 660).

5. **STAI- The Sugar Technologists' Association of India** (2018) *Proceedings- 76th STAI Annual Convention & International Sugar Expo, 20th – 22nd August, 2018***,** *Brilliant Convention Centre- Indore,* New Delhi: STAI (p. i – xxviii, 582).

6. **Bhongale Sudhir** *(2022)* Krishichintan *(1st Ed),* Pune: Ulhas Latkar- Amey Prakashan, (p. 396).

7. **Bhongale Sudhir** *(2020)* Sheti Israel chi- Part- II *(1st Ed),* Pune: Ashoka Bhongale- Sudnyan Prakashan, (p. 454).

8. **Mohan Narendra** (2023) *A Glance through Sugar Industry- Compilation of My Presentations & Publications (1st Ed.)* Kanpur: Narendra Mohan, (p. 260).

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