It's my pleasure to share with you the activities of the Vasantdada Sugar Institute and other happenings in the country particular to Maharashtra sugarcane growers and sugar & allied industry through this issue of VSI Bulletin. In the year 2019 we saw lots of happenings and developments shaping the future course of the Indian sugar Industry. In the past two sugar seasons i.e. 2017-18 and 2018-19 the country saw back to back record sugar production 32.3 MT and 33.1 MT owing to significant increase in sugarcane yield and sugar recovery though the area under sugarcane cultivation saw marginal increase.

The STAI represents, sugar production for the sugar season 2019-20 is expected to come down to 26 MT from 33 MT in sugar season 2018-19 due to drought in parts of South India and floods in western India. However, according to Govt. data, India’s 120 main reservoirs held about 140 billion cubic meters of water as of Dec. 2019, 48% more from a year earlier and about 38% higher than the 10-year average. It is a boon to the cane crop, which is being planted now and would boost acreage in major producing regions of the country.

With the tightening of global supplies due to shortage of sugar which has come at an opportune time for the country after a gap of four years, India stands a good chance to export sugar this year to the tune 6 MT, a target fixed by the Govt. of India. However, for a viable and sustainable sugar industry, we will have to produce quality sugar on sustained basis to meet the bulk consumers/exporters requirements and gradually move towards biorefinery where each component of sugarcane is utilized for revenue generation.

As per ISMA report in India 457 sugar mills crushing operation during 2019-20 SS. 232.74 lac tons of sugar have been produced till 31st March 2020. In Maharashtra, sugarcane crushing season 2019-20 around 131 mills open for crushing and the sugar production of 58.70 lac tons. Most mills were closed in March it was the shortest season in the last five years.

This year the entire world is facing problem of Covid-19 (Corona Virus) due to this entire country is at lock down. This will affect the day to day life and global economy. During this period the people should follow the guidelines given by the Government to fight against covid-19.

(RM Devarumath)
Editor
The 71st Republic Day of India was celebrated on 26 January, 2020. On this occasion the National flag was hoisted by Mr. Shivajirao Deshmukh, DG, along with Mr. Vikas Deshmukh, Director, AST in the Institute. During this event staff members and students were present.

Purchase Committee Meeting was held on November 19, 2019 and Governing Council Meeting was held on 02 February 2020 at VSI.
The 2nd International Conference & Exhibition on Sustainability – Innovation & Diversification in Sugar and Allied Industry was inaugurated on 31st January, 2020 at Vasantdada Sugar Institute, Manjari-Pune, India.

The event was attended by nearly 2000 delegates from across the country and 100 delegates from other countries. The following dignitaries graced the occasion during the Inaugural Session:

Mr. Sukhjinder Singh Randhawa, Hon’ble Minister for Cooperation & Jails, Punjab State for special guest, Dr. Jose Orive, Executive Director of the International Sugar Organization (ISO,) UK as key note speaker, Mr. Sharad Pawar, Hon’ble President, VSI, honoring this event as the Chief Guest, Mr. Dilip Walse-Patil, Hon’ble Vice President, VSI & Minister for Labour, Maharashtra State, Mr. Jayant Patil, Hon’ble Minister for Water Resource, Maharashtra State, Mr. Balasaheb Patil, Hon’ble Minister for Cooperation & Marketing, Maharashtra State, Mr. Shankarrao Gadakh Hon’ble Minister for Soil & Water Conservation, Maharashtra State, Mr. Satej Patil Hon’ble Minister of State Home (Urban), Mr. Rajendra Yadravkar, Hon’ble Minister of State Public Health & Family Welfare, Mr. Jayprakash Dandegaonkar, President, Maharashtra Rajya Sakhar Karkhana Sangh, Mumbai and Mr. Vivek Pittie, President, Indian Sugar Mills Association (ISMA), Mr. Ajit Chougule, President of Western Indian Sugar Mills Association (WISMA), Members of Board of Trustees and members of Governing Council of VSI viz. Mr. Vijaysinh Mohite-Patil, Dr. Indrajit Mohite, Mr. Arvindrao Gore, Mr. Kallapanna Awade, Mr. Arun Lad, Mr. Harshavardhan Patil, Mr. Madandada Bhosale, Mr. Ashok Pawar, Member of Legislative Assembly of Shirur, Mr. Chetan Tupe, Member of Legislative Assembly of Hadapsar constituency, Dr. Ashok Dhawan, Vice Chancellor of Vasantrao Naik Marathwada Krushi Vidyapeeth, Parbhani and Dr. Vishwanatha, The Vice Chancellor of Mahatma Phule Krushi Vidyapeeth, Rahuri were present on dias. Apart from these sponsor exhibitors, delegates’, sugarcane industry officials and farmers were present.

Mr. Walse-Patil welcomed all the dignitaries and participants. The dignitaries on the dias inaugurated the event with lighting of lamp and felicitation of distinguished guest and dignitaries on dias. The key note address by Dr. Jose Orive gave the overview of world sugar market. Apart from this he also pointed out that sugar industries diversifying in to green energy and other byproducts is essential for improving sugar industry resilience against commodity cycles and weather.

Mr. Sukhjinder Singh Randhawa talked on present scenario of sugarcane and sugarbeet cultivation in Punjab State.

Mr. Sharad Pawar in his inaugural speech he welcomed all the participants. He briefed the role of VSI and their activities relevant to the evolving needs of the sugar & allied industry and sugarcane growers. He
emphasized demand of sugar in country by 2025 will be around 30-33 million tonnes. Taking into this requirement of land for food grain crops, there are constraints to increase area under sugarcane cultivation will achieve this demand only by increasing productivity per unit of land by increasing sugar recovery. He also stressed on other challenges assured water, vagaries of monsoon and uncertain behavior of weather this kind of stress contributed to occurrence of pest and diseases. All these issues need to be analyzed and appropriate measures will have to be taken by scientist, sugar industry policy makers, to thrive profitability for growers and millers. He expressed his wish that the deliberation and discussions in this conference will be benefited to sugarcane growers and sugar industry.

The inauguration event was concluded with vote of thanks by Mr. Dilip Walse-Patil
The plenary session-I of the program was chaired by Dr. Sushil Solomon, Vice Chancellor, Chandrasekhar Azad University of Agriculture & Technology, Kanpur, U.P., India and Coordinator by Dr. RS Hapase, Principal Scientist, Plant Breeding Department, VSI. In this session following topics were presented by speakers:

- **Present status and perspectives of ethanol production in Brazil** by Mr. Jaime Finguerut, Former Director, CTC, Brazil.
- **Beet sugar industry and sugarbeet cultivation in Egypt** by Dr. Salah F. Abou Elwafa, Associate Professor of Plant Molecular Breeding and Genetics, Assiut University, Egypt.
- **An overview of sugar industry and sugarcane cultivation in Indonesia** by Mr. Lilik Koesmihartono Putra, Director, Indonesian Sugar Research Institute, Indonesia.
- **Status of sugar industry in the Philippines** by Mr. Terence Uygongco, President, Capiz Sugar Central, Philippines.
- **Sugar industry in Sri Lanka** by Mr. Keerthipala, Former Director, Sugarcane Research, Sri Lanka.
- **Thai sugar industry: 2020 and beyond** by Mr. Rangsit Hiangrat, Director General, Thai Sugar Millers Corporation Limited, Thailand.
- **Sugar industry scenario in India** by Mr. Vivek Pittie, President, ISMA, New Delhi, India.
- **Present status of sugar industry in Sudan** by Mr. Ihab Abdo Hassan, Farm Manager, Kenana Sugar Company, Sudan

The session was conducted under the chairmanship of Dr. SV Patil, Head & Technical Adviser, Co-chaired by Dr. KS Konde, Joint Technical Adviser, and Rapporteur Dr. ST Devkar and Mr. RV Burase, Technical Officer, Dept. of Alcohol Technology & Biofuels, VSI, India.

Following speakers participated and presented their company overview and their services to the stakeholders.

- Mr. Dilip Dighe, General Manager, The Maharashtra State Co-operative Bank Ltd. (MSCB), Mumbai, India
- Mr. Bharat Bhusan, Assistant Manager, M/s. Mojj Engineering Systems Ltd, Pune, India
- Mr. Miguel Verhein, Executive Director, AquaTuta, Spain
- Mr. Mahendra Gholop, Chief Executive Officer, Universal Forces Industries, Pune, India
Agriculture Session I was chaired by Dr. KP Vishwanatha, Vice-Chancellor, MPKV, Rahuri, Coordinator by Dr. K. Harinath Babu, Sr. Scientist, MB & GE Lab., VSI, Pune India and Rapporteur Dr. JM Repale, Senior Scientist, Plant Breeding, VSI & Dr. SG Dalvi, Scientist, Tissue Culture, VSI.

In this session, Dr. Jagadish Rane, Director, ICAR-National Institute of Abiotic Stress Management, Baramati, Pune, India presented Management of abiotic stress in sugarcane: challenges and opportunities.

Agriculture Session I: SUGARCANE IMPROVEMENT THROUGH BREEDING-BIOTECHNOLOGY FOR ABIOTIC AND BIOTIC STRESS

Dr. Bakshi Ram, Director, Sugarcane Breeding Institute, Coimbatore, India had given presentation on topic ‘Sugarcane breeding In India: prospects and problems’ and Dr. Prakash Lakshmanan, Sugarcane Research Institute, GXAAAS, Guangxi, China talked on topic ‘Molecular improvement of sugarcane for biotic and abiotic stress tolerance: What have we learned and what is the way forward!’ He explained that the sugarcane cane yield improvement is very slow and molecular strategies for improving water stress tolerance.

Dr. KP Vishwanatha, Chairman gave concluding remarks and session was concluded with vote of thanks.
This session was conducted under the chairmanship of Mr. Arvind Chudasama, Editor, International Sugar Journal, United Kingdom, Mr. Sanjay Khatal, MD, Maharashtra Rajya SSK Sangh Ltd., Mumbai Coordinate the session and Rapporteur. Mr. MR Shinde, Sr. Statistician, Statistics & Informatics Section, Mr. VN Pawar, Finance Officer, Finance Section, VSI. Following speakers talked various topics viz.

Mr. Arvind Chudasama extended warm welcome to all speakers of the session and participants. He presented Present global scenario on sugar production and consumption.

Mr. Prakash Naiknaware, Managing Director, NFCSF, New Delhi, India presented India’s continued presence in the global sugar.

Mr. Mikhail Soroko, Head of Raw Sugar Trading, BH-1206, Geneva, Switzerland talked on a topic ‘Recent global sugar price trends: off the lows’. He explained role of Alvean in trading of raw and white sugar globally.

Mr. Kiran Wadhwana, Director, COMDEX INDIA, New Delhi, India presentation on ‘World sugar trade’ highlighted the importance of raw sugar, having significant share in international sugar trade.

Mr. Rajesh Tope, Governing Council Member of VSI and Chairman, Karmayogi Ankushrao Tope Samarth SSK Ltd., felicitated Chairman of the session and other speakers were felicitated by the Chairman of the session. The session was concluded with vote of thanks by Mr. Sanjay Khatal.

The session was conducted under the chairmanship of Dr. Ashok Dhawan, Vice-Chancellor, Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani, India and Co-chairman Dr. BD Bhakare, Head, Dept. of Soil Science & Agri. Chemistry, MPKV, Rahuri, India. The session was coordinated by Dr. Preeti Deshmukh, Scientist & Head, Soil Science Section, VSI and Rapporteur were Mrs. JP Kharade, Scientific officer, Soil Science Section, VSI and Mr. BG Mali, Scientific officer, Microbiology Section, VSI

Following speakers presented their topics as, Dr. Takashi Kosaki, President International Union of Soil Science, Faculty of International Communication, Japan presented the topic on ‘Site specific fertilizer management for enhancing sustainability and productivity of soil resources’

Dr. (Ms.) Eleanor Milne, International Coordinator Leicester, Leicestershire United Kingdom delivered a topic on ‘Estimating the impacts of agricultural practices on soil organic carbon in tropical agriculture’

Dr. AL Pharande, Dean, Faculty of Agriculture & Director of Instruction, MPKV, Rahuri, India presented a topic on ‘Integrated reclamation technology for salt affected shrink-swell soil’.

The session was concluded with the vote of thanks by Mrs. SD Ghodke.
This session was inaugurated by Mr Sukhjinder Singh Randhawa, Hon’ble Minister for Cooperation & Jails, Punjab State along with Mr. Rajesh Tope, Hon’ble Minister for Health, Govt. of Maharashtra, Mr. Shivajirao Deshmukh DG, VSI and Mr. Vikas Deshmukh, Director, AST, VSI were present. Total 100 posters were displayed in poster presentation area by the scientist and research students from different disciplines of agriculture as well as technology & engineering. The posters were evaluated by the external committee members and they selected following for best posters awards in both areas.

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Title of Poster</th>
<th>Name of Author(s)</th>
<th>Prize</th>
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<tr>
<td></td>
<td></td>
<td>Agriculture Section</td>
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</tr>
<tr>
<td>1</td>
<td>Mechanization of sugarcane planting</td>
<td>PP Shinde</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
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<td>2</td>
<td>Earthing up equipment for sugarcane cultivation</td>
<td>PP Shinde</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
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<td>3</td>
<td>Effect of foliar application of consortium of endophytic fixing bacterial inoculant on yield and quality of sugarcane</td>
<td>MW Pawar, SD Ghodke &amp; PV Ghodake</td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
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<td></td>
<td>Technology Section</td>
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<tr>
<td>1</td>
<td>Biorefinery process for valorization of sugarcane biomass: from constituents sugars and lignols to value added products</td>
<td>Vishnu Prabhakar Srivastava, Tushar Mishra &amp; Narendra Mohan</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
</tr>
<tr>
<td>2</td>
<td>Hydrothermal Pretreatment Of Sugarcane Bagasse For Biogas Production</td>
<td>Nitin Kumar Agarwal, Madan Kumar, Virendra Kumar Vijay &amp; Vivek Kumar</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
</tr>
<tr>
<td>3</td>
<td>Head space solid phase micro extraction-gas chromatography mass spectrometry (HS - SPME - GC- MS) technique for determination of volatile compounds in alcoholic beverages</td>
<td>Sukeshani Havale &amp; Sanjay Patil</td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
</tr>
<tr>
<td>4</td>
<td>Reduction in SO&lt;sub&gt;2&lt;/sub&gt; emission in sugar production</td>
<td>VP Sidanale, RV Dani, RR Patil &amp; LS Dalvi</td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
</tr>
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</table>
Above awards were given by the hands of Dr. (Ms.) Eleanor Milne, International Coordinator Leicester, Leicestershire United Kingdom and Mr. Jaime Finguerut, Advisor to CTC, Brazil. The poster session was coordinated by Dr. RM Devarumath, Scientist, MB & GE Lab. VSI along with Dr. Deepali Nimbalkar, Head & Sr. Scientist, Dept. of Environmental Sciences, VSI and other committee members.

The technical session-I was conducted under the chairmanship of Mr. DK Goel, Honorary Editor, STAI, New Delhi, India. The session was coordinated by Mr. RA Chandgude, HOD, Sugar Engineering, VSI. Rapporteur is Dr. VP Sidanale, Sugar Technology, VSI and Mr. P. G. Patil, Sugar Engineering, VSI.

During the session following topic were presented by speakers, Dr. Jose Luiz Oliverio, Senior Consultant, Dedini, Matriz, Brazil has presented ‘Increase your profit by using sustainable mill technologies - A new reality to Brazilian sugarcane mills’

Dr. Geoff Kent, Principal Research Fellow, Centre for Tropical Crops, Australia has presented talk on ‘Latest technologies in sugarcane milling’ Prof. Mohammed Mathlouthi, President, Association Andrew VanHook, Reims, France has presented topic on ‘Sugar crystallization and drying - basics and practical aspects’.

Mr. Sanjay Awasthi, President, STAI, New Delhi, India has presented ‘Diversification through biofuels and by products in bio-refinery’.

The session was concluded with Vote of thanks by Mr. RA Chandgude.
Agriculture Session III: INNOVATION IN MICRO-IRRIGATION AND MECHANIZATION

This session was chaired by Dr. SS Magar, Former Vice Chancellor, Dr. BSKKV, Dapoli, India and Mr. PP Shinde, Head, Agril. Engg., VSI, Pune Coordinated with Rapporteur are Mr. SR Patil, and Ms. MA Gaikwad, VSI.

The following speakers presented their topics; Dr. Felix Reinders, President, International Commission on irrigation and drainage, South Africa presented ‘Micro irrigation practices used in different countries’.

Dr. VM Mayande, Former Vice Chancellor Dr. PDKV, Akola, India talked on ‘Importance of mechanization in sugarcane cultivation’.

Dr. SS Magar, Former Vice Chancellor, Dr. BSKKV, Dapoli, India presented ‘Status and prospectus of micro-Irrigation system for sugarcane water management’.

In concluding remarks by chairman, he suggested that VSI, ICAR, Agricultural universities and sugar mills should focus on sugarcane mechanization with automation and robotics in future. The session concluded with vote of thanks.

Technical Session II: RECENT DEVELOPMENTS IN BIOETHANOL TECHNOLOGIES

The Technical session-II conducted under the chairmanship of Dr. GSC Rao, Managing Director, Global Tech, New Delhi, India. The session was coordinated by Dr. SV Patil, Head & Technical Adviser, Dept. of Alcohol Technology & Biofuels, VSI, Pune, India along with Rapporteur are Dr. KS Konde, Joint Technical Adviser and Mr. DA Patil, Scientist, Department of Alcohol Technology & Biofuels, VSI.

In this session following topics were presented by invited speakers; Prof GD Yadav, Former Vice Chancellor, ICT, Mumbai, India presented Biochemical conversion technologies for advanced biofuels and value added products’.

Mr. YB Ramakrishna, Member- Working Group of Biofuels, Ministry of Petroleum and Natural Gas, New Delhi, India delivered talk on ‘New policy on biofuel -2018: Opportunities for the sugar industry in creating bioeconomy’.

Mr. Jaime Finguerut, Advisor to CTC, Brazil presented ‘Present status and perspectives of ethanol production in Brazil’.
Mr. Roman Rudkowskyj, Deputy Managing Director, TomsaDestil, Spain talked on the topic ‘Technical aspects of converting cellulose to ethanol’.

Dr. GSC Rao, Chairman concluded the session with his presentation on ‘Ethanol blending program with dual feed distilleries’. He presented worldwide energy consumption and global ethanol production data. Dr. SV Patil concluded the session with vote of thanks.

Agriculture Session IV : ADVANCED AGRO-TECHNIQUES FOR SUSTAINABLE SUGARBEET PRODUCTION

This session chaired by Dr. Imad Eujayl, Sugarbeet Molecular Geneticist, USDA-ARS, Northwest Irrigation & Soil Research Laboratory, USA. The session was coordinated by Mr. PV Ghodke, Scientist & Head, Agronomy Section, VSI, and Rapporteur is Dr. AS Patil, Scientific Officer, and Mr. GE Atre, Scientific Officer, VSI.

During the session following Speakers presented their topics; Dr. Salah F. Abou-Elwafa, Faculty of Sugar & Integrated Industries Technology (FIIST), Assiut University, Egypt presented ‘Beet sugar industry and sugar beet cultivation in Egypt’ Dr. Imad Eujayl, Sugarbeet Molecular Geneticist, USDA-ARS, Northwest Irrigation & Soil Research Laboratory, USA delivered his speech on ‘Applied research Strategies for sugarbeet, drought, heat tolerance and seed production’.

Dr. Timothe Masson, Executive Secretary, WABCG, France delivered his talk on ‘Activities of WABCG for increasing sugarcane and sugarbeet productivity’.

Dr. Jean-Noel Evrard, Head of marketing and Communication, SeSVenderHave, Belgium presented the topic on ‘Sugar beet seed production for tropical condition’.

Dr. Imad Eujayl, Chairman of the session summarized the session and thanked all the speakers and session was ended with vote of thanks by Mr. P. V. Ghodke.

Technology Providers’ Session-II

The session was chaired by Dr. RV Dani, Head & Technical Adviser, Dept. of Sugar Technology, VSI, and co-chaired by Mr. RA Chandgude, Head & Technical Adviser, Dept. of Sugar Engineering, VSI, Pune, India. Rapporteur is Dr. RN Bhosale, and Mr. SP Nalvade, VSI

Mr. RA Chandgude welcomed all the delegates, audience & technology providers. The following technology providers presented their company profile and activities;


Maharashtra Energy Development Agency (MEDA), Pune. This session was concluded with Vote of thanks by Dr. RV Dani.
Day 3 - Date: 02/02/2020

Technology Providers’ Session-III

The session was conducted under the chairmanship of Mr. Vikas Deshmukh, Director, AST, VSI, Pune, Co-Chairman, Mr. BH Pawar, Head, Sr. Scientist, Plant pathology Section, VSI, Pune and Rapporteur are Mr. US Manjul, and Dr. MW Pawar, Microbiology section, VSI.

The following speakers participated and presented their company activities:

- Mr. Sudhir Chandna, Regional Marketing Head on behalf of KBK Chem Engineering Pvt. Ltd., a subsidiary of Shree Renuka Sugars Ltd., Athani, Karnataka

Mr. Govind Misale, Vice-President (Ethanol)

Mr. Sanjay Jagavkar, Co-founder and Director of Pharmazone Services Ltd., on behalf of The Maharashtra State Chemists & Distributors Association, Mumbai

Mr. Satish Naib, State Manager – Marketing, Indian Farmers Fertilizer Cooperative Ltd., Pune

Mr. Sanjay Singh, Managing Director, SLAVS AGRO

Mr. MV Patil, Managing Director of Shree Datta SSK Ltd., Shirol, Dist. Kolhapur

The concluding remark by chairman and session was concluded with vote of thanks.

Technical Session III: BIOCHEMICAL CONVERSION TECHNOLOGIES FOR ADVANCED BIOFUELS & VALUE ADDED PRODUCTS

The session was chaired by Mr. Pramod Choudhari, Chairman and Managing Director, Praj Industries, Pune, India. Dr. SV Patil, Head & Technical Adviser, Dept. of Alcohol Technology & Biofuels, VSI, Pune, coordinated the session. Rapporteur is Dr. S. Behera, Scientist and Mr. RV Godage, Scientist Department of Alcohol Technology & Biofuels, VSI.

Following invited speakers delivered the talk; Mr. Pramod Choudhari opened the session with his presentation on session theme Dr. Sasisankar Padmanabhan, Associate Staff Scientist R & D, Praj Matrix, Pune, India presented ‘Bioethanol, biofuels and biorefinery opportunity: Market, industry and emerging technologies’ Prof. Luuk van der Wielen, Director, Bernal Institute and Bernal Chair Biosystems Engineering and Design, University of Limerick, Limerick, Ireland presented on the topic ‘Next Gen Biorefinery development for a profitable, low-carbon economy’ Mr. Dhirendra Oke, Whole time Director, Mojj Engineering Systems Ltd., MIDC, Bhosari, Pune, India presented ‘Least utilization of water and supporting fuel in distillery’.
Agriculture session V: INTEGRATED MANAGEMENT OF PESTS IN SUGARCANE - NEW PERSPECTIVE

The Agriculture session V was chaired by Dr. SD Sawant, Vice Chancellor, Dr. BSKKV, Dapoli, Ratnagiri, India. The session was coordinated by Mr. BH Pawar, Senior Scientist & Head, Plant Pathology Section, VSI, Pune. Dr. GS Kotgire, Scientist and Dr. TD Shitole, Scientific Officer VSI were Rapporteur of the session. The following invited speakers presented their research activities as; Dr. (Mrs.) Chandish R. Ballal, Director, NBAIR, Bengaluru, India presented ‘Biological control of sugarcane pests: strategies and challenges’

Dr. RS Viswanathan, Principal Scientist & Head, Plant Pathology, SBI, Coimbatore, India presented ‘Impact of climate change on sugarcane diseases and development of new diseases in sugarcane’ Dr. SN Sushil, Principal Scientist, Division of Crop Protection, ICAR-IISR, Lucknow, India delivered talk on ‘Plant protection regulations with reference to sugarcane in India’.

Dr. SD Sawant, gave his speech on ‘Overview of sugarcane diseases and management strategies’ and also summarized the session.
Exhibition area was inaugurated on 31st January, 2020 by Mr. Sukhjinder Singh Randhawa, Hon’ble Minister for Cooperation & Jails, Punjab and Mr. Shard Pawar along with other dignitaries. They visited live crop demonstration area and exhibition area comprises of Prime Conference Sponsor (01), Conference Sponsor (06), Platinum Sponsor (15), Diamond Sponsor (02), Gold sponsor (15), Silver sponsor (45), Stall Sponsor (3m X 3m: 60), Stall Sponsor (2m X 2m: 39) Open Stall Sponsor (12) participated. Apart from this advertisement of full Page & Half Page (50) were given in the souvenir book and sponsor for food/catering were also contributed in this event. In the exhibition area sponsor displayed their products and their activities.

VSI displayed the live sugarcane crop demonstrations with different plots of sugarcane varieties, performance of tissue culture raised plant, bio-stimulator performance plots in different crops including sugarcane comparison with control plants, drip irrigation plots, Performance of micronutrient, macronutrient, bio-inoculants etc. and intercropping with sugarcane plots were demonstrated. VSI Stall was exhibited with all the information and activities were displayed for visitors. More than 1.2 Lakh visitors visited the exhibition and crop demonstrations area during the conference.
Three residential training programmes on ‘Advanced technologies in sugarcane cultivation’ were organized by VSI and details of participations were given below;

<table>
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<tr>
<th>Sr.No.</th>
<th>Date</th>
<th>Particular</th>
<th>No. of participants</th>
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<tr>
<td>I</td>
<td>15th to 17th Jan. 2020</td>
<td>ATMA Satara</td>
<td>122</td>
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<td>ATMA, Latur</td>
<td>49</td>
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<td></td>
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<td>ATMA, Vasmat -Hingoli</td>
<td>20</td>
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<td></td>
<td></td>
<td><strong>Total</strong></td>
<td><strong>191</strong></td>
</tr>
<tr>
<td>II</td>
<td>11th to 13th Feb. 2020</td>
<td>Farmers training of ATMA, Kolhapur, Hingoli and Ahmednagar</td>
<td>150</td>
</tr>
<tr>
<td>III</td>
<td>25th to 27th Feb. 2020</td>
<td>Women farmer training of OLAM Agro, Chandgad sponsored by Solidadridad Asia Network</td>
<td>100</td>
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In the concluding session, discussions were held and participants expressed their view about training facilities. At the end certificates were distributed and training concluded with vote of thanks.

The certificate course on ‘Sugarcane Development’ was organized for 14 officials from Kenana Sugar Company (KSC), Sudan, Republic of Sudan at VSI, Pune. This certificate course was conducted for 8 weeks during 01 December, 2019 to 31 January, 2020. The training was inaugurated on 02 December, 2019 in presence of Mr. Shivajirao Deshmukh Director General, Mr. Vikas Deshmukh, Director, AST, officials of Kenana Sugar Company, Sudan and scientists from VSI. Dr. R. V. Dani, Head, Sugar Technology Division, welcomed all participants. During the inaugural speech, Mr. Shivajirao Deshmukh highlighted the importance of the course and appealed to all participants to learn the modern technologies of sugarcane agriculture recommended and implemented by the sugarcane growers in Maharashtra State in particular and in India. He said that, there is need to adopt modern technologies of sugarcane agriculture for development of sugarcane farm and improvement in sugarcane and sugar yield per unit area per unit time in Republic of Sudan. He thanked KSC for giving an opportunity to VSI to serve to train their officials in respect of sugarcane development. He also wished the grand success for the training course.

On day one, Sudanese visited all the departments in VSI for the introductory study and lecture given by Shri Vikas Deshmukh, Director, AST, on ‘Overview of sugar industry at National and International level’. During eight weeks training program lectures on various topics of sugarcane viz., varieties of sugarcane & varietal planning for planting and harvesting, three tier seed nursery program and its importance in sugarcane agriculture, planting systems adopted in sugarcane agriculture, modern cultivation practices for sugarcane based cropping system, ratoon management in sugarcane, intercropping in sugarcane, use of tissue culture in sugarcane agriculture, micro-propagation for rapid seed multiplication in sugarcane weed management, improvement in soil fertility, integrated fertilizer management, integrated irrigation water management, use of bio-fertilizers and bio-control agents in sugarcane agriculture, mechanization in sugarcane agriculture, economics of sugarcane agriculture, integrated disease management in sugarcane & integrated insect- pest management, role of genetic engineering and molecular biology, statistical methods & data analysis, composting/ bio-composting and vermin-composting methodology and...
other related topics were conducted. The practicals on various subjects were also conducted either in laboratories or research fields.

They also visited following places as study tour; Central Sugarcane Research Station, Padegaon, Satara; College of Agriculture, Pune; Mahatma Phule Krishi Vidyapeeth, Rahuri; Bhimashankar SSK Ltd., Pune; ICAR-National Research Center for Grapes, Pune; Krishi Vidnyan Kendra, Baramati, Pune, Sugarcane Breeding Centre, Amboli; Shri Datta Shetkari SSK Ltd., (Sugar Mill), Kolhapur; Wheat Rust Research Centre, Mahabaleshwar and Paddy Research Center, Lonawala

The valedictory function was scheduled on 30th January 2020. Dr. RV Dani welcomed all the dignitaries, faculties and Sudanese attending the program and thanked all who concerned with the organizing the course. Mr. Vikas Deshmukh, Director, AST reviewed the total program of course and appealed to the trainees for the implementation of modern technologies of sugarcane cultivation in Republic of Sudan. The trainees gave their opinion about the training and expressed satisfaction about the course content. Mr. Shivajirao Deshmukh, Director General, put forth the final remark in the valedictory function. He thanked all who concerned to conduct of course and expressed his views about the prosperity of the sugar industry in Sudan. He also assured to help KSC in days to come as regards to cane development and to improve efficiency of the sugar mill. The trainees were honored with certificates along with copy of group photos. Mr. BH Pawar was coordinator for this event.
The one day workshop on ‘Sugarcane management in stress condition’ was held on 22nd February, 2020 under the chairmanship of Shri. Vikas Deshmukh, Director, AST, VSI. Total 49 participants from 28 sugar factories attended the workshop. The welcome address was given by Dr. JM Repale, Senior Scientist, Plant breeding followed by lighting of lamp. Mr. Vikas Deshmukh spoke on theme of workshop stressed on the importance of drip irrigation, alternate furrow irrigation and trash mulching in the sugarcane management under drought situation.

Mr. PP Shinde, Head & Scientist, Agriculture Engineering delivered the speech on ‘Sugarcane management in water stress condition’. He highlighted the importance of drip and raingun sprinkler to achieve the higher water use efficiency as compared to the furrow irrigation.

Mr. PV Ghodke, Head & Scientist, Agronomy delivered a lecture on the subject ‘Sugarcane crop management under water stress condition’ and concise about the integrated moisture stress management practices in sugarcane crop. Dr. Preeti Deshmukh, Head & Scientist, Soil Science in her speech on ‘Nutrient management in water stress condition’ highlighted the importance of application of fertilizers by foliar sprays in the water stress situation.

Dr. SG Dalvi, Scientist, Tissue Culture Section talked on ‘Vasant Urja: Chitosan based elicitor for mitigating multiple stresses and adopting climate change sustainability’ He focused on application of ‘Vasant Urja’ on sugarcane and other crops in water stress situation to sustain the crop. The following recommendations emerged from the deliberations:

1. The use of drip irrigation on large scale area is needed to save the water and increase the cane yield during shortage of water and in stress condition.

2. The agronomical practices like trash mulching in ratoon crop, alternate furrow irrigation, spraying of urea and muriate of potash (2.0 % each) under moisture stress condition will help to sustain the crop.

3. The next page schedule of fertilizers application / spraying will be helpful to sustain the crop under moisture stress condition.
The workshop was concluded with the vote of thanks to the participants by Dr. SG Dalvi, Scientist (Tissue Culture).

**Package of practices for nutrient management in water stress condition**

<table>
<thead>
<tr>
<th>Name of fertilizer</th>
<th>Method of application</th>
<th>Time of application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vasant Urja</td>
<td>Foliar application of Vasanturja @ 1 lit/acre in 200 lit water (75 ml for 15 lit spray pump)</td>
<td>30 DAP or ratooning</td>
</tr>
<tr>
<td>Multinutrient + Vasant Urja</td>
<td>Foliar application of Multimacronutrient &amp; Multimicronutrient @ 2 lit/acre each + Vasanturja @ 1 lit/acre in 200 lit water OR (150 ml Multimacronutrient &amp; Multimicronutrient each + 75 ml Vasant Urja for 15 lit spray pump)</td>
<td>60 DAP or ratooning</td>
</tr>
<tr>
<td>Plant health</td>
<td>Foliar application of Plant health @ 1 lit/acre in 200 lit water (75 ml for 15 lit spray pump)</td>
<td>75 DAP or ratooning</td>
</tr>
<tr>
<td>Multinutrient + Vasant Urja</td>
<td>Foliar application of Multimacronutrient &amp; Multimicronutrient @ 3 lit/acre each + Vasanturja @ 1.5 lit/acre in 300 lit water (150 ml Multimacronutrient &amp; Multimicronutrient each + 75 ml Vasant Urja for 15 lit spray pump)</td>
<td>90 DAP or ratooning</td>
</tr>
<tr>
<td>Muriate of potash</td>
<td>Foliar application of MOP @ 800 gm/acre in 400 lit water</td>
<td>100 DAP or ratooning</td>
</tr>
</tbody>
</table>
PARTICIPATION BY VSI STAFF

One Day National Seminar on Biofuel production in India: Potential, Prospect and Technology

National Seminar organized by North Indian Sugarcane and Sugar Technologists’ Association (NISSTA) in collaboration with Council of Scientific and Industrial Research (CSIR)- Indian Institute of Petroleum (IIP), Dehradun was held in Dehradun (Uttarakhand) at “CSIR-Indian Institute of Petroleum” on 21st February 2020. More than 100 representatives of distillery Industry, policy makers, research institutes, technology developers and plant suppliers attended the seminar.

The inaugural function was chaired by chief guest Prof. RK Khandal, President (R & D and Business Development), India Glycol Ltd., Kashipur. Other dignitaries namely Mr. Amar K. Jain, Acting Director, CSIR-IIP, Dr. R. M. Singh, President, NISSTA, Mr. Prakash Naiknavare, Managing Director, National Federation Cooperative Sugar Factories (NFCSF) and Dr. Thallada Bhaskar, Principal Scientist, CSIR-IIP were present on the dais.

Dr. SV Patil, Technical Adviser and Head, Department of Alcohol Technology & Biofuels, VSI, Pune also addressed the participants during the inaugural session. He explained about the activities of VSI in the field of sugar & alcohol industry. He briefed about the work done by VSI and interaction of VSI with officers of Ministry of Environment and Forest (MoEF), Central Pollution Control Board (CPCB) and State Pollution Control Board (SPCB) regarding issues related to effluent treatment technologies for achieving zero spent wash (ZSD).

In the third session, Dr. SV Patil, Technical Adviser & Head, Department of Alcohol Technology & Biofuels, VSI, Pune presented a paper on, “A case study – Optimizing cost economics of fuel ethanol production from Sugar cane juice, B-heavy molasses and C-molasses”. He described the current scenario, demand and supply of ethanol in India and scope of utilization of several alternative raw materials for enhancing ethanol production in India to meet the increasing alcohol demand. He gave emphasis on B-Heavy route as the most suitable and economic raw material for enhancing production of ethanol.
An eight member’s delegation from Germany visited VSI on 05 February, 2020. This delegation was led by Ms. Gurr-Hirsch, State Secretary, from the Ministry of Rural Affair of the State of Baden Wurttemberg, Germany. The aim of visit to know the Sugar, Allied Sector, Agriculture and Agriculture Machinery, including Winery and Allied Technology industries in Maharashtra. Mr. Vikas Deshmukh, Director, AST welcomed and felicitated them. Mr. Vikas Deshmukh highlighted the activities of the Institute. The delegation visited to various departments.

Press conference was held on 28th Jan. 2020 at VSI for Event International Conference & Exhibition. During the Press meet DG VSI gave the detail information about conference.
January to March 2020


7. STAI, India (2020) Proceedings: All India Seminar other Technologies for Condensate Treatment and Recycling in a Distillery held at Shreenath Nagar, Pune. The Sugar Technologists Association of India (p. 38)


