Dedicated service to sugar industry since 1975

ISO 9001:2015
Certified Institute

January - March 2022

VSI BULLETIN

www.vsisugar.com

Vol.-22, Issue-1

Foreword

Foreword ...

During the 2021-22 crushing season, 197 sugar mills in Maharashtra started their crushing season of which, 98 are in cooperative and 99 are in private sector. As of March 31, 2022, sugar mills in the state had crushed 114.27 Mt (Million Tonnes) of sugarcane and produced sugar of 11.88 Mt with average sugar recovery of 10.49%. It is expected that the sugar mills in the state will continue their crushing operations till the end of May 2022 due to excess availability of sugarcane for crushing. The state is likely to produce 13.00 Mt of sugar by crushing of around 125.00 Mt of sugarcane and around 1.00 to 1.50 Mt of sugar will be diverted for ethanol production by use of BH molasses, sugarcane juice/sugar syrup as a feedstock.

At National level, 517 operating sugar mills up to March, 2022 have produced 28.31 Mt of sugar by crushing of 282.28 Mt of sugarcane. It is expected that the country's sugar output will be around 33.30 Mt during the season 2021-22. Around 3.50 Mt of sugar will be diverted for ethanol production.

India's average sugar recovery has increased from 10.23% to 10.70% and sugarcane yield has increased from 64.7 t/ha to 71.1 t/ha, mainly through varietal improvement. India now produces a surplus of sugar, an average of 30 Mt of sugar per year against its domestic consumption of 26.5 Mt.

The introduction of a new environment-friendly Bio-Fuel Policy, the Indian industry is transforming itself into a hub of 'Green Energy', with a focus on ethanol, power and compressed biogas. The Indian Government has set a target of 20% ethanol blending by 2025, requiring 10500 ML (Million Litres) of ethanol. Currently, the industry produces 6000 ML, so there are many projects in the pipeline to meet the 2025 deadline. This will soak up the excess sugar from the domestic market and pave the way for a sustainable and profitable sugar industry for years to come.

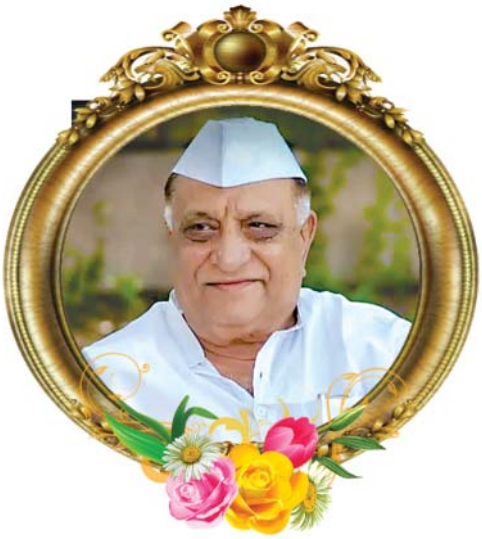
In this quarter, the 45th Annual General Meeting (AGM) was conducted in hybrid mode on January 4, 2022 under the Chairmanship of Mr. Sharad Pawar, Hon. President of VSI, and highlighted the issues of sugar industry and its sustainability. Apart from this, a training programme for sugarcane sectors, workshops and other events update is given in this issue.

RM Devarumath

(RM Devarumath)
Editor

HOMAGE

HOMAGE



Late Shankarrao Genuji Kolhe

(24 March 1929 - 16 March 2022)

Late Shankarrao Genuji Kolhe was a Founder member Trustees and member of Vasantdada Sugar Institute Board of Trusties. He also worked as a Chairman of the Technical Committee Meeting of VSI, Pune. He was the cabinate Member of the Legislative Assembly (MLA) and a Minister in Government of Maharashtra.

He was born in Yesgaon village, Tal. Kopragaon, Dist. Ahmednagar. He attended Pune University to earn a B.Sc degree in Agriculture. He received a Ford Foundation scholarship to receive additional training in the United States and Europe. In 1953, he travelled to Salt Lake City, Utah as a trainee in agricultural education program.

He started his political career as a sarpanch in 1950 and moved up to the Minister in the Maharashtra State Cabinate post. He was elected as an independent candidate to the State assembly in 1972. As a Cabinate Minister he handled revenue (1991) and transport (1992) portfolios.

He also served as the vice-chairman of Shri Saibaba Sansthan Trust, Shirdi from 2004 to 2012 and the executive committee of Rayat Shikshan Sanstha. He was a Director & then became a Chairman of Kopragoan SSK sugar mill. Then in 1963, he founded the cooperative sugar factory *Sahakar Maharshi Shankarrao Kolhe Sahakari Sakhar Karkhana Ltd.* (previously *The Sanjivani (Takli) Sahakari Sakhar Karkhana Ltd.*) near Sahajanand Nagar, Shingnapur in Kopragaon. It is a unique sugar mill in India having nine co-product units of which Acetic acid, Ethyle acetate, Acetic unhydrided, R. S., Country liqur and ethanol production units are presently in operation. He also started the National Heavy Engineering Co-operative Ltd. in Pune, Godavari (Khore) Co-operative Milk Society (1976), Amrut Sanjivani sugar transport company, Suvarna Sanjivani sugar Transport Company, Yashwant Poultry, Sanjivani Sahkari Patsanstha, and Devayani Co-operative Bank (1996).

He was instrumental in the construction of Kolhapuri Type Weir at Hingani (near Kopargaon). The Sanjivani Rural Educational Society started in 1983, operates 12 Institutes offering education to more than 15,000 students.

He received many local and National Level awards. Nationally, he received the *Sahakar Ratna* award in 2006 from Indian Farmers Fertiliser Co-operative (IFFCO) and *Jeevan Gourav Award* from Sugar Technology Association in 2013. At State level, he received *Aaryabhushan* from Maharashtra Sahakari Mudranalaya Pune (2003), *Jeevan Sadhana* (2007) from Pune University, *Girna Gaurav* (2007), *Adarsh Rayat Sevak* from Rayat Shikshan Sanstha Satara (2012), *Shivajirao Nagvade Addrash Sahakar* (2013), and *Jeevan Gourav* from The Deccan Sugar Technologist's Association (India) Pune and The Sugar Technologist's Association of India, New Delhi. He was felicitated by Mr. Narendra Modi, Hon. Prime Minister of India during 1st International Conference organised by VSI for his outstanding contribution to Indian sugar industry through VSI (2016).

He published *Satyagrahi Shetkari (सत्याग्रही शेतकरी : आत्मचिंतन) (in Marathi,), July 2012; (आंतरराष्ट्रीय शेती करार पुस्तिका) (in Marathi), March 2001; (महाराष्ट्र : विकासाचे नवे प्रवाह) (in Marathi), September 1991.*

He passed away on March 16, 2022 at the age of 93. On behalf of the VSI staff, we express our condolences to the family and pray for the eternal peace of his soul.

FAREWELL

Dr. SV Patil, Head and Technical Adviser, Department of Alcohol Technology & Biofuels (AT & B), VSI retired from the services of the Institute on February 28, 2022. (He started his career at VSI in 1984) after 38 years of dedicated service at VSI.

He took a charge of Head, AT & B in 2007-08. During his service period, he gave technical guidance to distilleries for installation of new distilleries, modernization of existing distilleries and guidance to achieve Zero Liquid Discharge (ZLD), DPRs (Detailed Project Report) etc. He also worked as a expert member for various committees formulated by GoM, GoI as well as from other states.

He was a very excellent teacher and teaching was his passion. Under his visionary, first time in a country, VSI started M.Sc. (Wine, Brewing & Alcohol Technology) course which is affiliated to Savitribai Phule Pune University, Pune from year 2010-11. Under his guidance, VSI has installed pilot winery and nano brewery which is very beneficial for conducting research as well as getting hands on training of wine and beer making to students.

In his service period, he worked around 40 R & D projects funded by DBT, DST, PSA, SDF etc. successfully. Out of which, vWa (valorization of waste) Project was an International project funded by DBT under Indo-UK Newton funds and VSI was the lead Institute from Indian side. Dr. SV Patil was the project coordinator for Indian consortium that includes IITB, IITD, IIPD and industry partners such as Dhampur Sugar, Lokmangal Agro and Vivira Process Technologies.

Under his leadership and guidance, the molasses pre-clarification project was successfully completed on lab scale as well as on pilot scale. Also the trials on industrial scale are going on in industries. Apart from production of ethanol from molasses, he has successfully developed technologies for ethanol production from sugar beet, ethanol production from sweet sorghum, ethanol production from sweet potato, cashew apple, mahua flowers and ethanol production form cellulosic waste.

Under his guidance, VSI has achieved five patents to various technologies developed under R & D projects. During his service period, he has published 115 research papers on state, national and international level.

He was actively involved for getting permission from State Excise for analysis of molasses, alcohol (RS, ENA, Ethanol), grain, denaturant, country liquor and Indian Made Foreign Liquor samples (IMFL) at AT & B department of VSI. Under his visionary, AT & B Department received NABL accreditation for analysis of various parameters of alcohol, beer, wine and IMFL samples.

He was actively involved for giving technical information to various government and semi government organizations (Excise, CPCB, CoS, MPCB, DFPD, SDF etc.) of the state and national level. Under the **'Clean Ganga'** project of Central Government, under the guidance of Dr. SV Patil, VSI has visited 50 distilleries of Uttar Pradesh, Uttarakhand, Bihar and West Bengal and prepared Adequacy Reports to achieve ZLD. Apart from this, Central Pollution Control Board has given work of third party inspection (GPIs) of 317 industries of Ganga and Yamuna basin in the year 2020-21 and the work of 373 industries is in process in year 2021-22.

In the Governing Council Meeting held on March 5, 2022, under the Chairmanship of Mr. Shard Pawar, Hon. President of VSI. He was felicitated by Mr. Dilip Walse-Patil, Hon. Vice-President.

EVENTS

The 45th Annual General Meeting of Vasantdada Sugar Institute

The 45th Annual General Meeting (AGM) of Vasantdada Sugar Institute (VSI) was held on January 4, 2022 at VSI campus, Manjari (Bk) under the Chairmanship of Mr. Sharad Pawar, Hon. President of VSI, Mr. Ajit Pawar, Hon. Dy. Chief Minister of Maharashtra, Mr. Dilip Walse- Patil, Home Minister of Maharashtra & Vice-President of VSI, members of Board of Trustees & the Governing Council members of VSI and Mr. Shivajirao Deshmukh, DG,VSI, Mr. Sambhaji Kadupatil, OSD, VSI and other members like Sugar Commissioner, Commissioner of Agriculture, Chairman, Board of Directors were present.

Mr. Shivajirao Deshmukh, DG, VSI welcomed the Hon. President of VSI Mr. Sharad Pawar, and dignitaries. This was followed by observation of two minutes silence as a mark of respect to those who passed away during the year.

Mr. Shivajirao Deshmukh read the agenda points of the annual general meeting. On this occasion, Annual publications of VSI viz. *Annual Report, Technical Performance of Sugar Mills in Maharashtra - season 2020-21, Technical Performance of VSI Member Distilleries in Maharashtra - Financial year 2020-21, Financial Performance of Sugar Mills in Maharashtra -financial year 2019-20* and Mr. RA Chandgude, Head, Sugar Engineering, VSI has written a book on '*साखर अभियांत्रिकी यंत्र आणि तंत्र*' (In Marathi) were released at the hands of Mr. Sharad Pawar. The VSI awards were announced. Due to Covid-19 situation we are not invited all award winners. (List of award winners is given below).

Mr. Sharad Pawar in his concluding remarks said that in 2021-22, the global sugar production is 182.87 Mt. This year's sugar production has increased by 3.79 Mt than the last year. Next year, India is expected to produce 33.30 Mt tonnes sugar, out of which 3.50 Mt will be used for ethanol production. Maharashtra alone is expected to produce 13.00 Mt of sugar.

He suggested that industries should reduce the sugar production and focus on ethanol production. The central government has implemented the ethanol blending program well and has given higher rate to ethanol produced from different sources.

Regarding the sugar industries in Maharashtra, he said that, "The sugar industries in Maharashtra are progressing well in the ethanol production. Although the district banks may face difficulties, ethanol appears promising for the sugar economy. Therefore, to elevate the living standards of hard-working farmers and workers, industries should be open to new ideas."

He further said that "Mere sugar production is not sufficient. Citing the example of Brazil he said that being the highest ranked in the world sugar economy, Brazil has also shifted from sugar to ethanol and we should follow the suit. Ethanol is a powerful alternative to sugar."

Against the backdrop of massive sugar production this season, he also mentioned that using B heavy molasses for ethanol production can reduce the sugar production by 1.00 to 1.50 Mt tonnes which will still retain surplus sugar produce. He also expressed his concern regarding the surplus production of sugar affecting the sugar prices in the market.

He also suggested that to increase the sugarcane production per hectare, every three years, pure sugarcane stalks should be used for cultivation. Such stalks are provided by Vasantdada Sugar Institute on

List of Award Winners for the Season 2020-21

ZONE-WISE *OOS BHUSHAN* AWARDS

a. SOUTH ZONE

First Prize (Pre-season) : **Mr. Ashok T. Jadhav,** Post:Punadi, Tal.:Palus, Dis.: Sangli
Padmabhushan Krantiveer Dr. Naganathanna Nayakwadi Hutatma Kisan Ahir SSK Ltd., Dist.:Sangli

First Prize (Suru-season) : **Mr. Vishwas R. Shedage,** Post: Angapur tarf, Tal. & Dist.:Satara
Ajinkyatara SSK Ltd., Dist.: Satara

First Prize (Ratoon-season) : **Mr. Balwant M. Patil,** Wategaon, Tal.:Walwa, Dist.:Sangli
Rajarambapu Patil SSK Ltd., (Unit-2), Dist.: Sangli

b. CENTRAL ZONE:

First Prize (Pre-season) : **Mr. Gulab D. Kakuste** Post:Kokale, Tal.:Sakri, Dist.:Dhule
Dwarkadhish Sakhar Karkhana Ltd., Dist.: Nasik

First Prize (Suru-season) : **Mr. Anandrao Namdeo Bondre** Post:Nimsakhar, Tal.:Indapur, Dist.:Pune
Nira Bhima SSK Ltd., Dist.: Pune

First Prize (Ratoon-season) : **Mr. Abasaheb Tulshiram Bodke** Post: Pimpari, Tal.: Indapur, Dist.: Pune
Nira Bhima SSK Ltd., Dist.: Pune

c. NORTH-EAST ZONE:

First Prize (Pre-season) : **Mr. Sunil Sangram Kunthe** At:Anandwadi, Tal.: Udgir, Dist.: Latur
Vilas SSK Ltd. (Unit-2), Dist.: Latur

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

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

STATE LEVEL OOS BHUSHAN AWARDS

a. **Late Yashwantrao Chavan Award (Pre-season):**
Smt. Vimal D. Pawar, Post: Varne, Tal. & Dist.: Satara
Ajinkyatara SSK Ltd., Dist.: Satara

b. **Late Vasantrao Naik Award (Suru-season):**
Mr. Vishwanath D. Holsambare, Post: Gudsur, Tal.:Udgiri., Dist.: Latur
Vilas SSK Ltd. (Unit-2), Dist.: Latur

c. **Late Annasaheb Shinde Award (Ratoon-season):**
Sou. Sulochana M. Kadam, Kundalwadi, Tal.:Walwa, Dist.: Sangli
Rajarambapu Patil SSK Ltd., (Unit-2), Dist.: Sangli

List of Award Winners for the Season 2020-21

INDIVIDUAL AWARDS

1. **Best Chief Engineer** : **Mr. Sandeep V. Patil**
   Udagiri Sugar and Power Ltd., Dist.: Sangli
2. **Best Chief Development Officer** : **Mr. Somnath P. Bhalekar**
   Shree Pandurang SSK Ltd., Dist.: Solapur
3. **Best Environment Manager** : **Mr. Kalyan A. Gaikwad**
   Nira Bhima SSK Ltd., Dist.: Pune
4. **Best Chief Chemist** : **Mr. Sunil T. Sawant**
   Rajarambapu Patil SSK Ltd., (Unit-1), Dist.: Sangli
5. **Best Chief Accountant** : **Mr. Vijaykumar R. Sawrikar**
   Daund Sugar Pvt. Ltd., Dist.: Pune
6. **Best Distillery Manager** : **Mr. Pravinkumar S. Kale**
   Daund Sugar Pvt. Ltd. (Distillery Unit), Dist.: Pune
7. **Best Managing Director** : **Mr. Anil P. Shewale**
   Loknete Marutrao Ghule Patil Dnyaneshwar SSK Ltd.,
   Dist.: Ahmednagar
8. **Best VSI employees** :
   1. **Mr. Prasad G. Patil**
      Technical Advisor, Sugar Engineering
   2. **Mr. Pradeep V. Ghodke,** Scientist & Head, Agronomy
   3. **Mr. Avinash B. Deshmukh,**
      Scientist, Alcohol Technology & Biofuels
   4. **Mr. Lahu S. Dalvi,** Sr. Analytical Chemist, Sugar Technology
   5. **Mr. Jalindar D. Raybhar,** Driver, Administration Section

TECHNICAL EFFICIENCY AWARDS

A. SOUTH ZONE

1) **First Prize** — **Yashwantrao Mohite Krishna SSK Ltd.,** Dist.: Satara
2) **Second Prize** — **Dr. Patangrao Kadam Sonhira SSK Ltd.,** Dist.: Sangli
3) **Third Prize** — **Jaywant Sugars Ltd.,** Dist.: Satara

B. CENTRAL ZONE

1) **First Prize** — **Daund Sugar Pvt. Ltd.,** Dist.: Pune
2) **Second Prize** — **Nira Bhima SSK Ltd.,** Dist.: Pune
3) **Third Prize** — **Sahakar Maharshi Shankarrao Kolhe Sanjivani SSK Ltd.,**
   Dist.: Ahmednagar

List of Award Winners for the Season 2020-21

C. NORTH-EAST ZONE

1) First Prize	**Karmayogi Ankushrao Tope Samarth SSK Ltd.(Unit-1)** Dist.: Jalna
2) Second Prize	**Baramati Agro Ltd. (Unit-2),** Dist.: Aurangabad
3) Third Prize	**None**

BEST CANE DEVELOPMENT WORK AWARDS

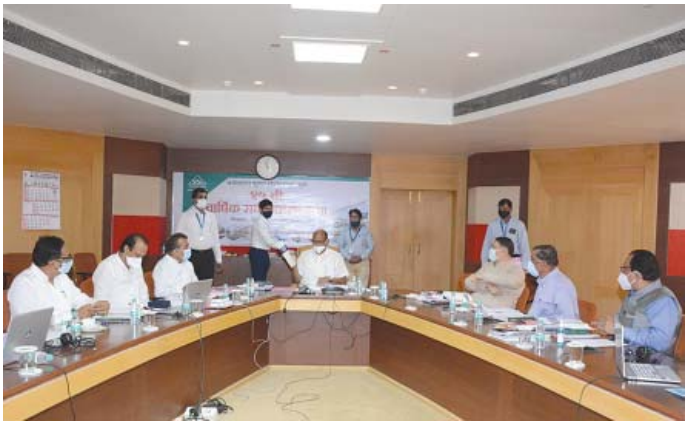
A. SOUTH ZONE :	**Jawahar Shetkari SSK Ltd.,** Dist.: Kolhapur
B. CENTRAL ZONE:	**Dwarkadhish Sakhar Karkhana Ltd.,** Dist.: Nasik
C. NORTH-EAST ZONE	**Natural Sugar and Allied Industry Ltd. (Unit-I),** Dist.: Osmanabad

BEST FINANCIAL MANAGEMENT AWARDS (FY : 2019-20)

A. SOUTH ZONE	**Sahyadri SSK Ltd.,** Dist.: Satara
B. CENTRAL ZONE	**Dwarkadhish Sakhar Karkhana Ltd.,** Dist.: Nasik
C. NORTH-EAST ZONE	**Karmayogi Ankushrao Tope Samarth SSK Ltd., (Unit-2),** Dist.: Jalna

- **LATE RAOSAHEBDADA PAWAR AWARD FOR THE BEST DISTILLERY IN MAHARASHTRA**
  Sharayu Agro Industries Ltd., Dist.:Satara
- **LATE KISAN MAHADEV ALIAS ABASAEHB VEER AWARD FOR THE BEST ENVIRONMENTAL CONSERVATION IN MAHARASHTRA**
  Rajarambapu Patil SSK Ltd.(Unit-1), Dist.: Sangli
- **LATE Dr. APPASAHEB ALIAS SR PATIL AWARD FOR THE BEST CANE DEVELOPMENT PERFORMANCE IN MAHARASHTRA**
  Dr. Patangrao Kadam Sonhira SSK Ltd., Dist.: Sangli
- **LATE KARMAYOGI SHANKARRAOJI PATIL AWARD FOR THE BEST FINANCIAL MANAGEMENT IN MAHARASHTRA**
  Udagiri Sugar and Power Ltd., Dist.: Sangli
- **LATE VILASRAOJI DESHMUKH AWARD FOR THE MOST INNOVATIVE SUGAR FACTORY IN MAHARASHTRA**
  Daund Sugar Pvt. Ltd., Dist.: Pune
- **LATE VASANTDADA PATIL AWARD FOR BEST OVERALL PERFORMANCE OF THE SUGAR FACTORY IN MAHARASHTRA**
  Krantiagrani Dr. G.D. Bapu Lad SSK Ltd., Dist.: Sangli

Mr. Sharad Pawar, Hon. President of VSI and all Board of Trustees with GC members present in AGM



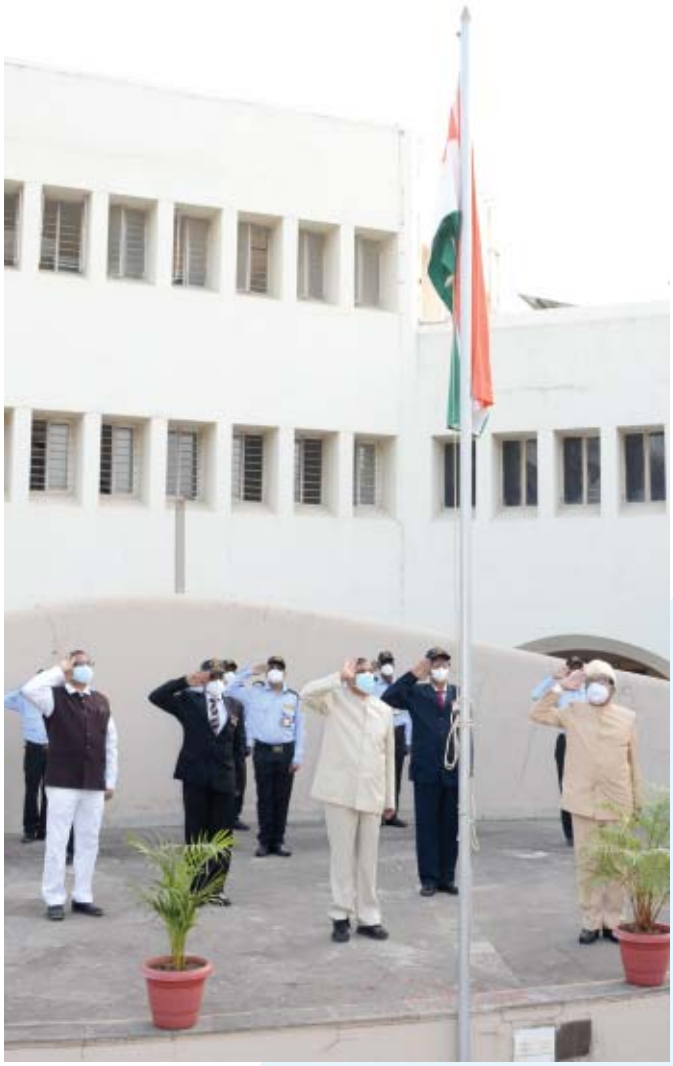
Mr. Sharad Pawar, Hon. President of VSI releases Annual Publication of VSI during AGM

Mr. Sharad Pawar, Hon. President of VSI released a book on '*साखर अभियांत्रिकी यंत्र आणि तंत्र*' in AGM

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

The 73rd Republic Day of India

The 73rd Republic Day of India was celebrated on January 26, 2022. As per tradition, Mr. Shivajirao Deshmukh, Director General, unfurled the National Flag which was followed by the National Anthem. On this occasion, Mr. Sambhaji Kadupatil, OSD, staff members and students were present on the VSI campus.



Memorandum of understanding (MoU) between VSI and DFR

ICAR's Directorate of Floriculture Research (DFR) Manjari Pune and Vasantdada Sugar Institute, Pune signed a MoU on February 28, 2022 for collaborative research work. Dr. KV Prasad Director, DFR, Dr. Naveen Kumar, Principle Scientist (Floriculture) Dr. PG Kawar, Principle Scientist (Genetics & Plant Breeding) from DFR side and Mr. Shivajirao Deshmukh, Director General, Mr. Sambhaji Kadupatil, Officer on Special Duty, Dr. SG. Dalvi Scientist (Tissue Culture) from VSI were present. Operational details of research effort and collaboration will be made in common research programmes in Research, training and extension work in Plant Tissue culture, Molecular Biology and Genetic Engineering, Plant Microbiology, Food Science & Technology, Soil Science and Environmental Sciences etc. Research instrumentation facility and library facilities available with organizations will be made available to the faculty and research scholars. There shall be an exchange of students for academic, research and training purposes. The Advisory Committee will be set & meet at least once in a year alternatively in the institutions to review the activities. Collaborative projects will be submitted for financial grants. The technologies available both institutes will be evaluated and recommended for improving sustainability of sugarcane and floriculture crops. Under the MOU the bisotimulators from the VSI will be evaluated and recommended for enhancing the quality (essential oils, color, post-harvest quality, vase life etc) and quantity as yield in floriculture crops and different floriculture crops will be evaluated for their integration in sugarcane agriculture as intercrops, development of biopestices/ bioinsecticides etc.

Prospective use of Artificial Intelligence in Sugar & Allied Industries

Dr. Sanjeev Tambe, Adjunct Prof. ICT Mumbai and Ex Head, Chemical Engineering & Process Division, NCL, Pune had visited VSI on March15, 2022 and given a talk on **'Prospective use of artificial intelligence in sugar & allied Industries'**. Mr. Shivajirao Deshmukh, Director General, VSI and Mr. Sambhaji Kadupatil, OSD, VSI were present. Mr. Sambhaji Kadupatil gave a brief introduction of Dr. Tambe and started the meeting cum discussion.

Dr. Tambe started his presentation with special focus to sugar & allied industries with application of artificial intelligence (AI). He emphasized the possibility of simulation of human intelligence in machines (software or hardware). He said that the input variables will be mapped with output (yield, conversion, selectivity, profit, production and efficiency) in AI. He described different types of process models (phenological models, Empirical models and Black-box models) can be used to map data. He informed about the principal components of AI such as artificial neural network (ANN), deep learning, fuzzy logic, evolutionary algorithms etc. He explained few case studies of AI (polyethylene plants and gross power plant) used in Industrial application. After the discussion, Director, General, VSI recommended AI and advised all Departments to identify projects for AI implementation.

TRAINING
TRAINING

Traditional vs Scientific Technologies for Mahua Spirit and Heritage Alcoholic Beverages Production-Optimization, Evaluation and Training (Heritage Wine Policy)

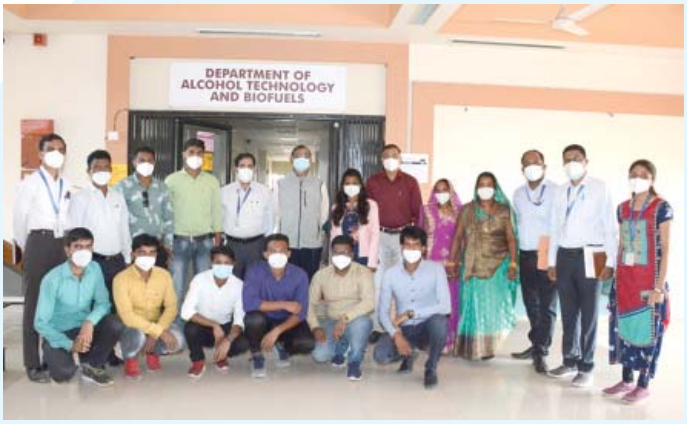
A training programme for tribal representatives was conducted from January 10-28, 2022 under the research project entitled **'Traditional vs scientific technologies for Mahua spirit and heritage alcoholic beverages production-optimization, evaluation and training (heritage wine policy)'** was carried out by Department of Alcohol Technology and Biofuels (AT& B), VSI. This project is sanctioned by Principal Secretary, Department of Commercial Tax, Govt. of Madhya Pradesh and funded by Ministry of Tribal Affairs, Govt. of India.

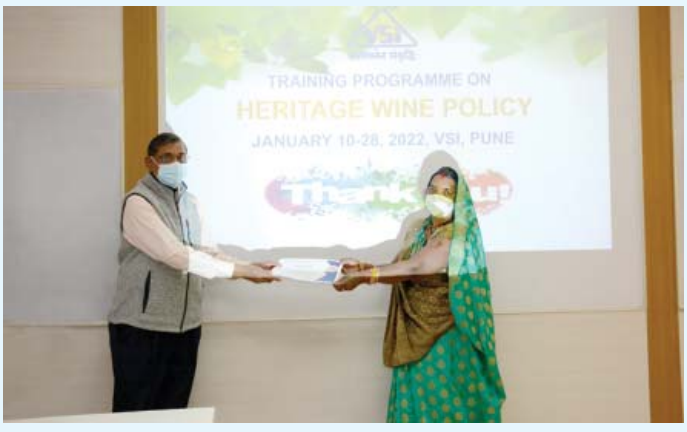
Total 13 participants and Mr. Anirudh Mookerjee, project consultant attended the training programme. The participants were from Dindori and Alirajpur Dist. of Madhya Pradesh (MP) and most of the participants were tribal people. Participants were from various backgrounds such as farmer, Excise Officer and science students. Mr. Rajesh Henry, Additional Excise Commissioner, GoMP attended the training programme for one day. As instructed by GoMP, the training programme was conducted in Hindi.

Prof. SV Patil, Technical Adviser & Head, Department of AT & B briefly explained to the participants regarding all departmental activities with special reference to the Mahua project.

The training programme covered different topics such as alcoholic & non-alcoholic beverages, Mahua tree & its importance, traditional vs scientific fermentations & distillation, analysis of total reducing sugar, ethanol& total organic volatile acidity, concept of sensory evaluation, isolation & maintenance of yeast culture, understanding pilot & effluent treatment plant, ideal packaging methods and rules & regulations linked to the Excise Department. The course also included hands-on practical based on the above topics which will be helpful for the participants while working at pilot demo plant at MP. During the training period, there was a one-day visit to BrimaSagar Maharashtra Distilleries Ltd, Shreepur, Solapur, Maharashtra in which participants were acquainted about the Industrial pot distillation and foreign liquor.

On the occasion of the concluding session on January 28, 2022, the training certificates were given to the participants by Mr. Shivajirao Deshmukh, DG, VSI. He also briefed importance of this project about Mahua liquor. All the participants introduce their self and gave their positive feedback. During the session, discussion was also held and session was concluded with vote of thanks by Dr. S. Behera, Scientist, VSI.





Overview of Distilleries and Alcoholic Beverage Industry

Mr. Prasad Survey, Deputy Divisional Commissioner, Pune, State Excise, Government of Maharashtra State requested VSI to arrange half day training programme on **'Overview of distilleries and alcoholic beverage industry'** for their 113 trainee officers. In this regard Department of Alcohol Technology & Biofuels (AT & B), VSI conducted half day training programme on 18th February 2022 for the trainee State Excise Officers, Government of Maharashtra. Mr. SR Jadhav, Deputy Superintendent, Hadapsar, Pune, Mr. Yuvraj Shinde, Deputy Superintendent, Pimpri Chinchwad and other few officers of training center Khandala were also present for the training programme.

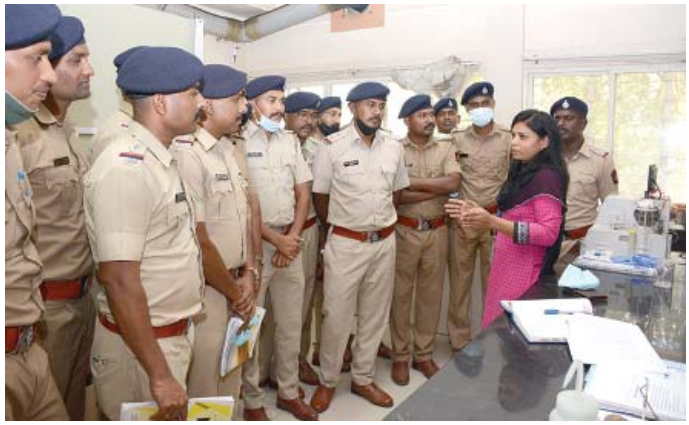
In the training Mr. DA Patil, Assistant Professor & Joint Technical Adviser, AT & B. elaborated the importance of the course to the participants.

The first lecture was delivered by Mr. RV Godage, Assistant Professor & Joint Technical Adviser, AT & B. He has briefly presented his presentation on the topics such as Molasses quality, Storage of molasses, Batch fermentation, Continuous fermentation, Atmospheric and Multipressure distillation, Characteristics of rectified spirit, Extra neutral alcohol, Fuel ethanol, Azeotropic distillation, Molecular sieve dehydration and DFPD Guidelines,

Mr. DA Patil has presented his presentation on topics such as Role of Excise in distillery unit, Alcoholic fermentation process, Factors affecting on distillery performance, Atmospheric distillation process, Production process of country liquor, Indian made foreign liquor (Whisky, Brandy, Rum, Gin & Vodka), records and registers to be maintained in CL & IMFL, taxes and duties on molasses and alcohol .

Dr. KS Konde, Associate Professor & Technical Adviser, AT & B, thanked to the Commissioner, State Excise, GoM and their Officers for sending their trainee officers for training. He has also taken the review of the lectures.

In the concluding session of the training programme, Mr. Prasad Survey thanked to the management of VSI and concern staff of AT & B for giving valuable information about training to the trainee officers.



Oos Sheti Dnyanyag & Dnyanlaxmi

In the memory of founder president of VSI late Padmabhushan Dr. Vasantdada Patil, ***Oos Sheti Dnyanyag & Dnyanlaxmi*** - residential training programmes were organized for sugarcane growers of Maharashtra at VSI in two batches during December 21 - 24 & 28 – 31, 2021 reported in previous issue of VSI Bulletin and remaining batches were conducted during January to March 2022 is reported in the present issue of VSI Bulletin. Details as given below;

Batch No	Date	Area from which the farmers participated	No. of Participants	No. of sugar mills & individuals
***Oos Sheti Dnyanyag* programme (Men farmers)**				
I	21st to 24th Dec. 2021	Kolhapur Districts and Vidarbha region	101	Sugar mills: 05 Individual: 04
II	28th to 31st Dec. 2021	Sangli and Satara Districts	120	Sugar mills: 04 Individual: 01
III	4th to 7th Jan. 2022	Pune, Ahmednagar and Nashik Districts	119	Sugar mills: 05 Individual: 03
IV	22nd to 25th Feb. 2022	Solapur Districts and Marathwada region	79	Sugar mills: 05 Individual: 03
V	2nd to 5th Mar. 2022	Marathwada region (special batch)	86	Sugar mills: 04
***Oos Sheti Dnyanlaxmi* programme (Women farmers)**				
VI	8th to 11th Mar. 2022	Sangli, Satara and Solapur Districts	53	Sugar mills: 04
		Total participants (Women + Men)	**558**	

In *Oos Sheti Dnyanyag* and *Dnyanlaxmi* training programs total 558 (11 sugarcane farmers were participated individually and rest of the farmers were deputed by 22 sugar mills) sugarcane farmers were participated from different parts of Maharashtra. The training programs were conducted under the guidance of Mr. Shivajirao Deshmukh, DG and Mr. Sambhaji Kadupatil, OSD, VSI.

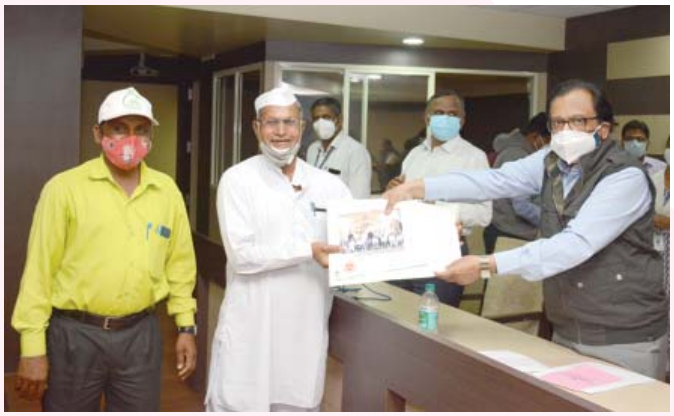
Mr. BH Pawar, Senior Scientist & Head, Plant Pathology Section coordinated this program with the help of members of the different committees belongs to different disciplines of AST Division.

In the training lectures on various topics related to sugarcane agriculture like varieties & varietal planning for planting & harvesting, seed nursery management, tissue culture use, modern planting techniques, weed management, soil fertility and fertilizer management, irrigation water management, use of bio-fertilizers & bio-control agents, farm mechanization, economics of cultivation, ratoon management and integrated disease & pest management were conducted by Subject Matter Specialists. More emphasis was given on practical and field demonstrations. The information on different types of Agriculture inputs developed by VSI and academic activities of VSI was also given to them.

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 and overall coordination of the training. The certificates along with group photos were distributed to the trainees. In *Oos Sheti Dnyanlaxmi* plenary session invited Mrs. Snehlata Kadupatil as guest of honor and felicitated. She distributed the certificates along with group photos to woman participants.

Oos Sheti Dnyanyag programme (Men farmers)

Batch No. : III

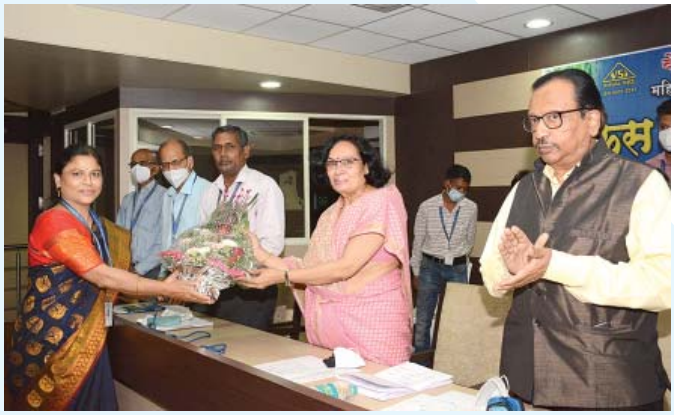


Batch No. : IV

Batch No. : V

Oos Sheti Dnyanlaxmi programme (Women farmers)

Batch No. : VI



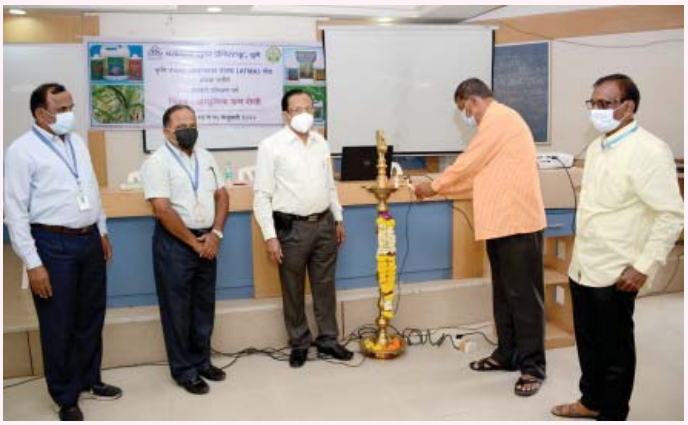
Modern Technologies in Sugarcane Agriculture

The residential training program was organized for farmers from Beed (Maharashtra) under Agricultural Technology Management Agency (ATMA). The objective of the training was to train the farmers, about modern technologies in sugarcane agriculture. The three days training program was conducted in two batches during February 23, 2022 to March 5, 2022. Total 87 participants were participated from different Taluka places viz., Ambejogai (25), Majalgaon (10), Beed (15), Georai (11) Kaij (03), Parali (03), Ashti (12) and Wadvani (06).

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

In the technical sessions 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 experts. More emphasis was given on practicals and field demonstrations.

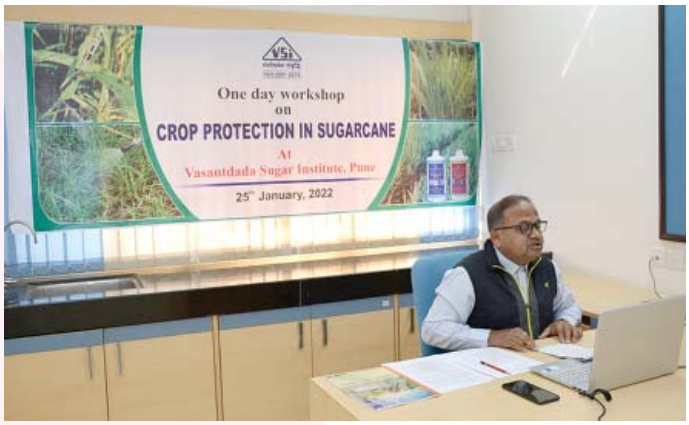
In the plenary session of every batch, the trainees got their doubts cleared fbythe subject experts. In the concluding function, the representative trainee farmers expressed satisfaction with the training, lodging and boarding facilities. The certificates along with group photos were distributed to the trainees.



WORKSHOP

Crop Protection in Sugarcane

A one-day workshop on '**Crop protection in sugarcane'** was organized by Agriculture Science & Technology Division (AS&T), VSI on January 25, 2022 through virtual mode. Mr. BH Pawar, Senior Scientist & Head, Plant Pathology Section welcomed Mr. Sambhaji Kadupatil, OSD, Heads of Sections in AS & T Division and all the participants. The workshop was inaugurated by Mr. Sambhaji Kadupatil, OSD. In his inaugural speech, he highlighted the importance of the topic of the workshop. He briefed about climate change and its impact on all important pests in sugarcane. Total 87 participants from 30 sugar mills attended this workshop by virtual mode.



During the technical session Dr. TD Shitole, Scientific officer, Entomology Section delivered the lecture on **'Integrated management of insect pests in sugarcane'**. He explained about important insect pests of sugarcane, losses caused by them and their management. He appealed 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 and release of egg parasitoid *Trichogramma chilonis* in field @ 3-5 lac parasitized eggs /ha in suitable installments helpful for **Management of borers** in suru and ratoon crop of sugarcane.

Dr. GS Kotgire, Scientist, Plant Pathology Section presented the topic on **'Management of sett and soil borne diseases of sugarcane'**. He briefed about history of sugarcane diseases and transmission of sugarcane diseases and the losses caused due to soil & sett borne diseases. He appealed to sugar mills and farmers to follow practices for the management of sett and soil borne diseases *viz.*, implementation of three-tier seed nursery programme for the supply of healthy seed, selection of recommended varieties of sugarcane for commercial planting, sett treatment with pesticides before planting, field survey and crop monitoring for pests occurrence, field demonstrations for disease management practices, scientific irrigation management, integrated nutrient management, timely application of agricultural inputs, crop rotation practices and restriction on seed movement.

Mr. GE Atre, Scientific Officer, Plant Pathology section delivered talk on **'Foliar diseases of sugarcane and their management'**. He explained the foliar application of systemic and contact fungicides alone or in combination may be useful for management of foliar diseases. He further insisted for use of TC plantlets and management of sucking pest at right time is the best way for management of viral diseases in sugarcane.

Mrs. KG Nigade, Scientific Officer, Microbiology section delivered a talk on **'Biological control of sugarcane pests'**. She highlighted the importance of biological control and gave remedies for control of soil borne fungal diseases like application of 1 lit./ acre liquid Bio-fungicides along with 500 kg. of farm yard manure in soil or this mixture in fields equally before planting or drenching of 1 lit. liquid biofungicide in 250 lit. of water at the time of planting. Drenching of 1 lit./ acre Entomopathogenic Nematodes (EPN) in 400 lits. of water or through drip irrigation. After application of EPN, maintain field moisture level for better result. Mr. PV Ghodke, Scientist & Head, Agronomy Section

delivered talk on **'Management of sugarcane crop in suru crop season'**. He told that sugarcane grown in suru season always profitable than adsali season. Planting of sugarcane in pre-season & suru should be encouraged in the operational area of the sugar mills in South & Central Maharashtra, where adsali planting is more than 20%.

Mr. MA Jadhav, CDO, Dr. Patangrao Kadam Sonhira SSK, Ltd, Sangli explained the scheme implemented in the area of operation on integrated management of white grub in sugarcane and discussed about efforts made by sugar mill for control of sugarcane white grub.

Mr. CM Jahagirdar, CDO, Vilas SSK Ltd., Vaishalinagar, Nivali, Latur explained the status of sugarcane pests in Marathwada region and discussed about efforts made by sugar mill for management of sugarcane pests.

The interactive session was held in presence of Mr. Shivajirao Deshmukh, DG. The participants raised their queries about Grassy Shoot Disease, Yellow Leaf Disease and Brown Spot Disease. Mr. Shivajirao Deshmukh mentioned that due to climate change there is introduction of new pests in sugarcane and appreciated to both the participated sugar mill for their efforts made for management of sugarcane pests. The program was concluded with a vote of thanks by Mr. RG Yadav, Scientist & Head, Entomology Section.

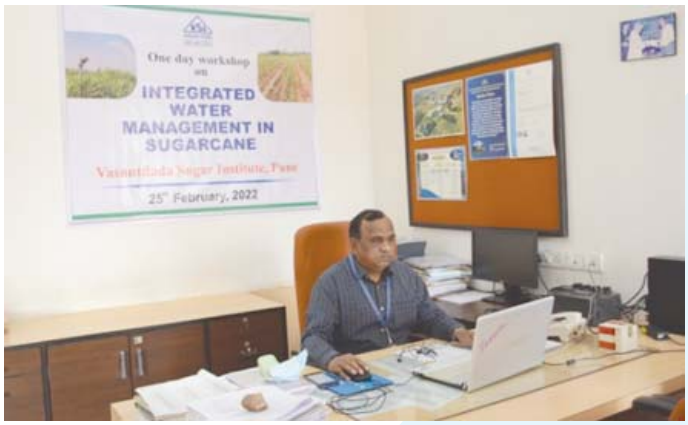
The following are the recommendations of the workshop;

- Sett and soil borne diseases of sugarcane can be effectively managed through the strategies like use of healthy diseased free seed collected from three tier seed nursery program, mass eradication of infected stool/ clumps and sett treatment with recommended pesticides before planting.
- Foliar application of systemic and contact fungicides alone or in combination may be useful for management of foliar diseases. While, use of TC plantlets and management of sucking pest at right time is the best way for management of viral diseases in sugarcane.
- **Management of borers in** sugarcane crop in suru season and ratoon crop
  a. Trash mulching particularly in ratoon crop should be encouraged,
  b. Avoid late planting after March and light earthing up at 45 to 60 days after planting.
  c. 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.
  d. Spraying of Chlorantraniliprole 18.5% SC@ 375 ml per ha (0.4 ml/ lit of water) if necessary.
  e. Release of Egg parasitoid *Trichogramma chilonis* in field @ 3-5 lac parasitized eggs /ha in suitable installments.
- For control of soil borne fungal diseases add1 ltr/acre (2.5 ltr/ha) of liquid Bio-fungicides in 500 kg FYM/compost and mix it uniformly. Apply this mixture in fields equally before planting or add 1 ltr liquid bio-fungicide in 250 ltr of water and drench in furrows at the time of planting.
- For control insect pests, add 2ltr /acre (5 ltr/ ha) of liquid Bio-pesticides in 500kg of FY M/compost and mix it uniformly. Apply this mixture in fields equally before planting or add 2 ltr liquid bio-pesticides in 250 ltr of water and drench in furrow at the time of planting
- For the control of white grub, mix 1000 ml Entomopathogenic Nematodes (EPN) in 200 lit water properly and apply preferably by drenching at the root zone or through drip irrigation. After application of EPN, maintain field moisture level for better result.
- Sugarcane grown in suru season always profitable than adsali season as it is long duration crop. It should be encouraged in the operational area of the sugar mills in south & central Maharashtra, where adsali plantings is more than 20 %.

Integrated Water Management in Sugarcane

One-day workshop on **'Integrated water management in sugarcane'** was held in virtual mode at VSI Pune on February 25, 2022 for the Agricultural Officers, Cane Development Officers and Agricultural Graduates working in the sugar mills of Maharashtra State. Total 62 participants from 30 sugar mills attended the Workshop.

The workshop was inaugurated with the inaugural address by Mr. Sambhaji Kadupatil, OSD, VSI, Pune. In his speech he highlighted the importance of integrated approach to water management in sugarcane so as to improve the sugarcane productivity in Maharashtra State.



In the technical session, Mr. PP Shinde, Scientist, & Head, Agricultural Engineering, presented the work done on micro irrigation systems in sugarcane at VSI and stressed the need to bring maximum possible area of sugarcane under drip irrigation for sustained productivity in Maharashtra State.

Dr. AS Patil, Scientific Officer, Agronomy Section made presentation on **'Agronomic practices for sugarcane crop management under water stress condition'**. He stressed need of adoption of various agronomical practices for managing the sugarcane crop in water stress condition.

Dr. SA Surawase, Scientific Officer, Soil Science Section made presentation on **'Fertilizer management in water stress condition in sugarcane'**. He highlighted various techniques of fertilizer management in sugarcane in water stress condition.

Dr. SG Dalvi, Scientist, Tissue Culture section made presentation on **'Application of chitosan on plant responses with special reference to abiotic stress'**. He highlighted the research work done on use of chitosan for water stress management and application of Vasant Urja.

Mr. SP Bhalekar, CDO, Shri. Pandurang SSK Ltd. Dist. Solapur and Mr. Sujay Patil, CDO Rajarambapu Patil SSK Ltd. Dist. Sangli, shared their experience on **'Integrated water management in sugarcane'** at operational area.

Discussion and concluding session was chaired by Mr. Shivajirao Deshmukh, DG and Co- chaired by Mr. Sambhaji Kadupatil, OSD, VSI. The participant took part in the discussion and narrated their experience on various issues related to water management. Mr. Shivajirao Deshmukh addressed the participant and stressed the importance of water in sugarcane cultivation. He narrated his experience of micro irrigation systems and its use for efficient management of water and fertilizer in sugarcane crop.

The workshop was concluded with vote of thanks by Mr. PP Shinde and the following are the recommendations of the workshop;

- The micro irrigation systems like drip and rain gun sprinkler irrigation should be adopted on large scale for efficient water management in sugarcane.
- Fertigation should be mandatory for micro irrigation systems in sugarcane for improving fertilizer use efficiency.
- In situ trash mulching without shredding is a useful technique to conserve soil moisture and reduce the impact of moisture stress and atmospheric draught.
- Use of drought tolerant sugarcane varieties and early planting of sugarcane in suru season is useful for combating the adverse effect of moisture stress on sugarcane productivity.
- Foliar application of VSI's Multimacronutrient and Multimicronutrient 2 lit/acre in 200 lit. of water at 60 days after planting and 3 lit./acre

in 300 lit. of water at 90 days after planting along with Vasant Urja, a biostimulator @ 5 ml/lit. of water boosts the growth of sugarcane. The Vasant Urja alone is also beneficial for management of abiotic stress in sugarcane.

- Application of bagasse ash @1.5 t/ha is beneficial for sustaining sugarcane crop in water stress condition.

Sugarcane Management in Stress Condition

The one day workshop on **"Sugarcane Management In Stress Condition** was held on 26th March, 2022 from the yearly scheduled workshops of the year 2021-22 under the Chairmanship of Mr. Sambhaji Kadupatil, Officer on Special Duty, VSI, Pune. The welcome address was given by Dr. JM Repale, Sr. Scientist (Pl. Br.). The lighting of lamp and the introductory speech was given by Mr. Sambhaji Kadupatil. In his speech he highlighted the impact of the sugarcane crop on economy of the Maharashtra State and guided for collaborative work for increasing the cane productivity through management of various kinds of stress.

Total 42 participants from 21 sugar factories were attended the workshop. Mr. PR Hapase, Scientist (Pl Br.) took review of the **'Importance of sugarcane management in stress condition'** and highlighted the role of stress tolerant sugarcane varieties in drought situation.

Mr. PV Ghodke, Head & Scientist, Agronomy guided on **'Sugarcane trash management: A Novel technology for sustaining soil health and sugarcane yield'** and highlighted the importance of trash management in stress condition for increasing cane yield.

Mr. BG Mali, Scientific Officer, Microbiology delivered the lecture on **'Use of endophytic nitrogen fixing bacteria for water stress management in sugarcane'** and emphasized on the role of *Acetobacter diazotrophicus* bioinoculant in stress condition for increasing cane yield.

Dr. TD Shitole, Scientific Officer, Entomology in his lecture on **'Integrated management of pests in sugarcane during stress condition'** and given information on control of major pests and diseases occurred in stress condition.

The speakers from sugar factories spoke on the work done at their factories under stress condition. Mr. KS Kamble, Chief Agricultural Officer, Jawahar Shetkari S.S.K, Ltd., Kolhapur; Mr. AR Chine, Cane Development Officer, K. Shankarrao Kale S.S.K. Ltd., Ahmednagar and Mr. AB Gavane, Asstt. Cane Development Officer, K. Ankushrao Tope Samarth S.S.K. Ltd., Jalna were highlighted their work done for the increasing the cane productivity under flood and stress condition.

The concluding session was chaired by Mr. Shivajirao Deshmukh, Director General and Mr. Sambhaji Kadupatil, Officer on Special Duty, VSI, Pune. Mr. Shivajirao Deshmukh interacted with the participants and took feedback from the participants about the performance of sugarcane varieties under drought situation and highlighted the results of VSI 08005 at K. Ankushrao Tope Samarth S.S.K. Ltd, Jalna, importance of compost in increasing cane yield and took review of the crushing season having surplus cane for crushing. The workshop was concluded with the vote of thanks and the following recommendations were emerged from this workshop;

1. The planting of drought tolerant varieties like CoC 671, VSI 434 and VSI 08005 should be undertaken in the drought prone area of Maharashtra.
2. The early planting (Pre-season planting) should be preferred (October-November) in the drought prone area.
3. Distance between two rows can be reduced upto 90 cm in the drought prone area.
4. Incorporation of sugarcane trash in soil instead of burning OR in situ decomposition with trash mulching to increase the fertility of soil, it has a major role in soil conservation, checks the weed growth, helps to minimize the impact of water stress as well as salt stress on crop.
5. The application of *Acetobacter diazotrophicus* bioinoculant @ 3 lit/ha in 500 lit of water as foliar application after 60 days of planting in morning hours.
6. To control sugarcane mealy bug or scale insects infestation in stress condition by removal of lower 2-3 dry leaves and spraying of Imidachloprid 17.8 % SL @ 300 ml/ha (0.3 ml/lit) is recommended.
7. For the management of Early shoot borer and Internode borer in stress affected sugarcane crop, the release egg parasitoid *Trichogrammachilonis* @ 3-5 lac parasitized eggs /ha in suitable instalments in the field and soil application of granular insecticide Fipronil 0.3 GR @ 25 kg/ha or Chlorantraniliprole 0.4 GR @ 22.5 kg/ha or Spraying of Chlorantraniliprole18.5% SC @ 375 ml per ha (0.4 ml/ lit of water) is recommended.
8. Under abiotic stress condition the incidence of sugarcane diseases *viz*, pokkah boeng, rust, red rot, wilt, pineapple and whip smut is increasing as well as abnormalities *viz*., leaf scorching, drying of leaves, rotting of leaves, decaying of leaves, defoliation and banded chlorosis are also observed. To control these diseases and abnormalities the recommended prophylactic measures should be adopted for the management of sugarcane diseases and abnormities under stress condition.

Valorizing Waste from Sugar & Allied Industries

One-day workshop entitled **'Valorizing waste from sugar & allied industries'** was jointly organized by the Department of Alcohol Technology and Biofuels, VSI and UK partners at Vasantdada Sugar Institute (VSI), Manjari (BK), Pune, India on March 31, 2022 with the active participation of sugar mills and distilleries from different States across the Country.

For this workshop following eminent Delegates & Speakers viz, Mr. Jayprakash Dandegaonkar, Chairman, NFCSFL & MRSSK Sangh Ltd., InMr. Prakash Naiknaware, MD, NFCSFL, India; Mr. Sanjay Khatal, MD, MRSSK Sangh Ltd., India; Prof. V. V. Ranade, Professor Emeritus, Queen's University Belfast, UK; Prof. SV Patil, Professor Emeritus, Alcohol Tech &

Biofuels, VSI, India; Prof. Yogendra Shastri, Department of Chemical Engineering, IIT Bombay, India; Mr. Joseph Vimal, MD, J & FBiogas, Chennai, India; Mr. Gajendra Singh,Dhampur Sugar Mills Ltd., UP, India (Online); Dr. Vinod Kumar, CranfieldUniversity, Cranfield, UK (Online); Dr. Ines Baptista, Green Fuels ResearchLtd., Berkeley, UK (Online); Mr. Shivajirao Deshmukh, Director General, VSI, India; Mr. Sambhaji Kadupatil OSD, VSI, India and apart from this, total 133 participant (Sugar Mills: 79 and VSI; 54) were present and

The workshop was inaugurated and welcome address was given by Mr. Shivajirao Deshmukh. He welcomed all the guests, sugar mill representatives and VSI staff. He told that Sugar and Allied Industries has huge opportunities for utilization of sugarcane bagasse (SCB) and press mud cake (PMC) for value added products such as bio-CNG, lactic acid, bio-butanol, succinic acid, xylitol, etc. He informed that VSI has collaborated with NiraBhima SSKL for installation of two pilot scale anaerobic digesters to study various aspects and retrofit Compressed biogas (CBG) facility in existing sugar mill complex.

Introductory remarks were given by Mr. Jayprakash Dandegaonkar. He informed that India is importing 77% crude oil requirements and 50% of natural gas requirement and Government of India has set a target of reducing this import by at least 10% by 2022. He also told that India has set a target of 10% blending of fuel ethanol with petrol by 2022 and 20% blending by 2025 for ethanol blending programme. He also informed that GOI has invited expression of Interest by Oil Marketing Companies (OMCs) for production & supply of CBG under Sustainable Alternative towards Affordable Transportation (SATAT) programme. He further informed that Indian Sugar Mills generates 8-10 million tons of PMC and 100 million tons of SCB every year. He told that both PMC & SCB can be utilized for CBG production through anaerobic digestion (AD). SCB can be used to produce value added products such as bio-ethanol, bio-butanol, lactic acid, succinic acid and xylitol, etc.He emphasized that if 50 % of Sugar mills out of total 540 Sugar mills will adopt CBG technology, they will produce 3.75 lakh ton of CBG per annum with revenue of Rs. 1750 crore per annum to India and this will create employment opportunities.He also explained the market potential of lactic acid and succinic acid.

Technical Session-I

During the 1st technical section, Prof. VV Ranade gave a presentation on **'Valorising waste biomass via hydrodynamic cavitation and anaerobic digestion'**. He briefly discussed the visions of vWa project. He told that the PMC & SCB produced from sugar & allied industries could be converted in to bio-CNG & other value added products. He specially focused on hydrodynamic cavitation pretreatment method using vortex based devices for cavitation. He also also discussed biogas improvement for spent wash digester on commercial scale using cavitation pretreatment.

The 2ndtechnical presentation was delivered by Prof. SV Patilon the topic entitled **'Value added products from waste biomass'**. Prof. SV Patil started his presentation with the explanation of vWa project concept and the role of VSI in the project. In his talk, Prof. Patil emphasized mainly on bio-CBG and lactic acid production. He also explained about the achievement of biogas production of 480 M^3 per ton of dry PMC or 120 M^3 per ton of wet PMC. He also explained about the 45% enhancement of biogas production rate in case of PMC feed when the retention time was changed from 30 days to 20 days. On aspect of CBG production, Prof. Patil described 5 different types of CBG production models on Sugar Industry perspective.

The third technical presentation was delivered by Prof. Yogendra Shastrion the topic entitled **'Technologies for Sugar Industry Waste Valorization: Development and Scale-up Potential'**. He explained life cycle analysis for different products (lactic acid, succinic acidxylitol & CBG) in vWa. He mentioned regarding the techno-economic & life cycle assessment of different value added products (Rs. 215/kg lactic acid, Rs. 37/kg of CBG, Rs. 121/kg for succinic acid & Rs. 230/kg for xylitol). He also explained biomethane and lactic acid purification work at IIT Bombay.

Technical Session II

During the 2nd technical session, Mr. Gajendra Singh, Dhampur Sugar Mills Ltd., UP, India gave a presentation on **'Biomethane production: An opportunity'.** He explained the single stage anaerobic digestion with cavitation and two stage anaerobic digestion. He explained anaerobic digestion data for $1M^3$ and $7M^3$ digester. He also shown flame test for $7M^3$ digester. He also explained production of volatile fatty acids (acetic, propionic and butyric acids) during biogas production for two stage anaerobic digestion.

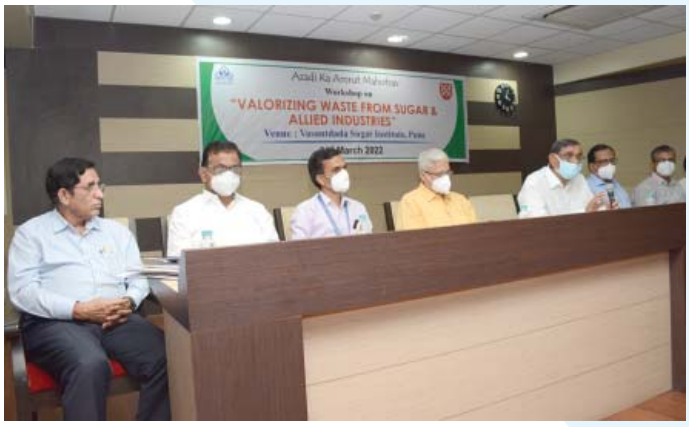
The 2ndtechnical presentation was delivered by Dr. Vinod Kumar on the topic entitled **'Sugarcane bagasse-based Production of Biochemicals'**. He focused on production of xylitol and succinic acid from SCB. He informed that 102.5 g/L of xylitol was produced through fed-batch fermentation from pure xylose in comparison to 86.6 g/L of xylitol from SCB xylose hydrolysate. He further informed that 36.7 g/L of succinic acid was produced from pure xylose in comparison to28.7 g/L of succinic acid from SCB xylose hydrolysate.

The 3rdtechnical presentation was delivered by Dr. Ines Baptista on **'Towards biobutanol production: ABE fermentation of sugarcane bagasse hydrolysate'**. She emphasized on biobutanol production from synthetic media and SCB hydrolysate containing both glucose and xylose.

The 4thtechnical presentation was delivered by Mr. Joseph Vimalon on **'CSTR Semi dry fermentation technology'**. He described in detail about pros and cons of semi-dry fermentation technology in the field of bio-digestion for various different substrates (paddy straw, press mud, cane trash, Napier grass).
The technical session I & II was coordinated by Dr. Kakasaheb Konde, Head, Professor and Technical Adviser, AT & B, VSI, India.

In the panel discussions, Mr. Shivajirao Deshmukh, Mr. Sambhaji Kadupatil, Mr. Prakash Naiknavare, Prof. Yogendra Shashtri, Mr. SD Bokhare, Prof. Vivek Ranade, Prof. SV Patil and Dr. KS Konde were present on the dias. There was lot of deliberation made on use of vWa technologies for production of value added products (bio-CNG, bio-butanol, lactic acid, succinic acid, xylitol) and their adoption in sugar and allied industries. The participants of the workshop raised many questions and doubts about the use of feed stocks released from sugar & allied industries and necessary explanation were provided by the delegates.

The programme was concluded with vote of thanks given by Mr. Sambhaji Kadupatil.



VSI COMMITTEE MEETINGS

VSI COMMITTEE MEETINGS

Governing Council Meeting

Governing Council Meeting was held on January 4, 2022 under the Chairmanship of Hon. President, Mr. Shard Pawar in presence of Governing Council members. In this meeting various issues of VSI were discussed and followed by Investment and Selection Committee Meeting was held under the Chairmanship Hon. Vice-President of Mr. Dilip Walse-Patil

Technical Committee Meeting

The Technical Committee Meeting was held on February 2nd & 10th, 2022 for the review of completed experiments during 2021-22; ongoing technical performance of each experiment and future research program for 2022-23 of each Department and Section.

On February 2, 2022: The Technical Committee Meeting following members were present as Mr. Narendra Murkumbi, Chairman, followed with members as; Mr. Vijaysinha Mohite-Patil, Dr. Indrajit Mohite, Mr. Ganapatrao Tidke, Mr. Arun Lad, Mr. Shivajirao Deshmukh, Director General, VSI and Mr. Sambhaji Kadupatil, Officer on Special Duty.

Mr. Shivajirao Deshmukh, Director General, VSI, Pune welcomed the Chairman and the members of the Technical Committee.

In this meeting, Sugar Engineering, Sugar Technology, Alcohol Technology and Biofuel, Environment Science, Electronics and Computer departments were presented their progress research work and extension activities of their departments. During presentation/ discussion the committee members gave their suggestions and guidelines for the research work.

On February 10, 2022: This meeting was conducted for the Agriculture Sciences and Technology Division. In this meeting following members were present as Mr. Arun Lad, Chairman, followed with members as; Mr. Vijaysinha Mohite-Patil, Mr. Shivajirao Deshmukh, Director General, VSI and Mr. Sambhaji Kadupatil, Officer on Special Duty.

Mr. Shivajirao Deshmukh, Director General, VSI, Pune welcomed the Chairman and the Members of the Technical Committee.

During the meeting all agriculture sections presented their progress of research work, extension activities. In presentation/discussions the committee members gave their inputs and the suggestions for improvement of the activities.

Building and Purchase Committee Meeting

Building and Purchase Committee Meeting was held on February 27, 2022 held under the Chairmanship Hon. Vice-President of Mr. Dilip Walse-Patil

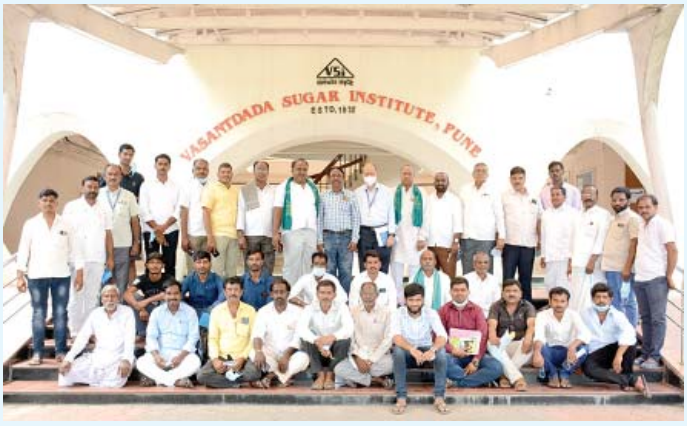
Governing Council Meeting

Governing Council Meeting was held on March 5, 2022 under the Chairmanship of Hon. President, Mr. Shard Pawar in presence of Governing Council members. On this occasion various issues of VSI were discussed. On this occasion, Dr. SV Patil, Technical Adviser & Head, Department of AT & B, VSI was felicitated by Hon. Vice-President of Mr. Dilip Walse-Patil in presence of Governing Council members for his retirement from the services of the Institute on February 28, 2022

VISITORS TO VSI

VISITORS TO VSI

The team of Mr. Venkata Ravi, Assistant Cane Commissioner Bodhan, EX-Officio Cane Development Council Maggi, Telagnana State, Mr. Ganga reddy, Chairman Cane Council and 32 progressive farmers visited to Institute on March 23, 2022. Mr. Shivajirao Deshmukh Director General, VSI welcomed team and briefed about Institute activities. Team visited Tissue culture Section and Agriculture Microbiology. Mr. BJ Takalkar, Statistical Officer from Statistics & Informatics Section, VSI accompanied with delegates.



Following visitors visited to Information and Service Centre, VSI (Jan to March 2022).

Name of Institutions	Visitors	Total
January - 2021		
Individual Farmers from Maharashtra State	Farmers	**149**
SDO Jalgaon	Officers and Farmers	**62**
February - 2022		
Individual Farmers from Maharashtra State	Farmers	**313**
SDO Aurangabad	Officers and Farmers	**72**
SDO Latur	Officers and Farmers	**72**
SDO Nandurbar	Officers and Farmers	**126**
SDO Kolhapur	Officers and Farmers	**124**
KVK Latur	Scientists and Farmers	**18**
Uchagaon Seva Society, Kolhapur	Directors	**10**
March - 2022		
Individual Farmers from Maharashtra State	Farmers	**284**
Sarthi Institute	Officers	**2**
SDO Hingoli	Officers and Farmers	**50**
Annasaheb Magar College, Hadapsar, Pune	Lecturers and Students	**65**
Individual Farmers from Outside State	Asst. Can Commissioner, Telengana, Chairman Cane Council	**35**
Total :		**1382**

UPCOMING EVENTS

UPCOMING EVENTS

Vasantdada Sugar Institute Monthly Workshop Schedule for the Year of 2022-23

S.No.	Date	Topics	Co-ordinators
1	16.4.2022	Role of microbial consortium in increasing sugarcane productivity	Mrs. SD Ghodke
2	28.5.2022	Seasonal and Varietal planting, planning and maturity wise harvesting: merits and demerits	Dr. RS Hapase Dr. KH Babu
3	27.8.2022	Advances in planting methods and ratoon management in sugarcane	Mr. P V Ghodke
4	24.9.2022	Importance of three tier seed nursery in sugarcane production	Mr. SS Katake Dr. PN Tawar
5	22.10.2022	Management of soil health in changing climate	Dr. PS Deshmukh
6	28.1.2023	Integrated management of major pests in sugarcane	Mr. RG Yadav
7	25.2.2023	Preventive measures for management of disease in sugarcane	Mr. BH Pawar
8	25.3.2023	Use of mechanization in sugarcane cultivation	Mr. PP Shinde

राज्यस्तरीय साखर परिषद - २०२२

स्थळ : वसंतदादा शुगर इन्स्टिटयूट, मांजरी (बु.।।), पुणे
दिनांक : ४ व ५ जून, २०२२

आपल्या संस्थेने ४ व ५ जून, २०२२ रोजी राज्यस्तरीय साखर परिषदेचे आयोजन केले आहे. सदर परिषदेचे महत्व लक्षात घेऊन सर्व शास्त्रज्ञ, तंत्रज्ञ, संशोधकांना आणि साखर उद्योगातील अधिकाऱ्यांना आवाहन करण्यात येत आहे की त्यांनी या परिषदेच्या निमित्ताने प्रकाशित होणाऱ्या पुस्तकासाठी लेख लिहावेत. सदर परिषदेचा मुख्य उद्देश हा या उद्योगाला सध्या भेडसावत असणाऱ्या ज्वलंत समस्या, तसेच नजिकच्या भविष्यातील मुख्य आव्हाने हा आहे. त्यामुळे या उद्देशाला धरुन खालील विषय निश्चित करण्यात आले आहेत.

१) ऊस प्रजातिची पैदास, बेणे बदल रोपवाटिका व्यवस्थापन, शुध्द बेणे निर्मिती व उपलब्धता
२) प्रशासकीय व आर्थिक व्यवस्थापन आणि उत्पन्न वाढीचे शाश्वत स्त्रोत
३) जमीन सुपिकता व्यवस्थापन, क्षारयुक्त जमीन सुधारणा आणि ऊस पीक व्यवस्थापन
४) भविष्यातील अद्ययावत तंत्रज्ञान
५) ऊस शेतीतील यांत्रिकीकरण आणि आधुनिक सिंचन पध्दती
६) इथेनॉल निर्मिती - भविष्य वेध

वरील विषयांवर लेख लिहीताना खालील सुचनांचे पालन करावे.

- हे लेख मराठी किंवा इंग्रजी भाषेमध्ये असावेत.
- लेख लिहीताना विषयाचा इतिहास किंवा पार्श्वभूमीवर जुने संदर्भ किंवा तत्सम बाबी प्रकर्षाने टाळाव्यात.
- सद्यस्थितीबाबत अनावश्यक माहिती देणे टाळावे.
- आपण निवडलेल्या विषयानुरुप/घटकानुरुप प्रमुख उपाययोजना, मार्गदर्शक तत्वे, सूचना यावर मुख्य भर असावा.
- तसेच भविष्यातील आव्हाने आणि त्यासाठी करावयाची तयारी यांचा प्रामुख्याने समावेश असावा.
- शब्द मर्यादा साधारणतः २००० ते २५०० आहे, त्याप्रमाणे मुद्देसूद लेख अपेक्षित आहेत.
- सदर लेख दि.३०/०४/२०२२ पर्यंत किंवा त्यापूर्वी डॉ. दीपाली निंबाळकर यांना ds.nimbalkar@vsisugar.org.in या ईमेलद्वारे वा प्रत्यक्षात सादर करावेत.
- इंग्रजीतील लेख हे एरियल-११ या फॉन्ट आकारामध्ये असावेत, मराठीतील लेख श्रीलिपी-१६ फॉन्ट व दोन ओळीमध्ये १.१५ इतकी मोकळी जागा असावी (line spacing 1.15).

LIBRARY NEWS

LIBRARY NEWS

LIBRARY UPDATE (January 2022 to March 2022)

1. **FAI (2019)** *The Fertiliser (Control) Order 1985: (As Amended up to February 2019*. (18th ed.) New Delhi: Fertiliser Association of India. (p. 330)
2. **STAI (2019)** *Year Book and Technical Data Directory of Indian Sugar Factories: 2019-20 & 2018-19* New Delhi: Sugar Technologists Association of India. (p. 478)
3. **Marpakwar P. C. (2021)** *Maharashtra Civil Services Rules (with Government Resolutions, Circulars and Notifications) and up to Date Notes Alongwith 7th Pay Commission Maharashtra Government Pay Rules 2019*. (5th ed.) Nagpur: Shanti Law House. (p. 1424)
4. **FAI (2021)** The *Fertiliser (Inorganic, Organic or Mixed) (Control) Order 1985: (As Amended up to July 2021)*. (19th ed.) New Delhi: Fertiliser Association of India. (p. 352)
5. **Hemaprabha G., Alarmelu S. (2018)** *Database of Coimbatore Cane (1918 - 2017)*. Coimbatore: ICAR-Sugarcane Breeding Institute. (p. 132)
6. **Kulkarni, B. (2021)** *Sahakar Maharshi*. (1st ed.) Pune: Sahakar Bharati. (p. 892)
7. **Singh, U., Praharaj, C. S. (2021)** *Nutrient Use Efficiency through Next Generation Fertilizers*. New Delhi: Brillion Publishing. (p. 440)
8. **B. K. Ramachandrappa, Jayadeva, H. M. (2021)** *Research Techniques in Agronomy*. New Delhi: Brillion Publishing. (p. 310)
9. **Srivastava, P. (2008)** *Copyright in Academic Libraries in Digital Environment*. (1st ed.) New Delhi: Ess Publishing. (p. 159)
10. **Sunil Kumar (2021)** *Digital Library Development*. New Delhi: Rajat Publishing. (p.148)
11. **Dwivedi, S. L. (2022)** *The Factories Act 1948: With the Maharashtra Factories Rules 1963*. Mumbai: Labour Law Agency. (p. 468)
12. **Professional Book (2022)** *The Factories Act 1948 :(State Amendments)* Mumbai: Professional Book Publisher. (p. 70)
13. श्रीधर जोशी (२०२१) *महाराष्ट्र नागरी सेवा* (शिस्त व अपील) नियम १९७९ : वर्तणुक नियम १९७९ सह. (५ वी आवृत्ती), पुणे, यशदा (पा. ४३६)
14. **Pada Harish, Aduda Barnardo (2011)** *Nanotechnology: Present Status and Future Prospects in Developing Countries*. New Delhi: NAMS&T. (p. 269)
15. **Tan Kim H. (2017)** *Principles of Soile Chemistry*. (4th ed.) New York: CRC Press. (p. 362)
16. **Yawalkar, K. S., Agrawal, J. P. (2016)** *Manures and Fertilisers*. (12th ed.) Nagpur: Agri - Horticultural Publishing House. (p. 366)
17. चांदगुडे, रा.अ. (२०२१) *साखर अभियांत्रिकी यंत्रआणि तंत्र'* (१ ली आवृत्ती), पुणे, वसंतदादा शुगर इन्स्टिट्यूट (पा. ५४५)

VSIBulletin is published by the Vasantdada Sugar Institute, Pune.

VASANTDADA SUGAR INSTITUTE
Manjari (Bk), Pune - 412 307; Maharashtra. **E-mail :** admin@vsisugar.org.in
Phone - (020) 26902100; **Fax -** (020) 26902244 **Website:** www.vsisugar.com