

VSI BULLETIN


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Foreword

I am glad to share my thoughts through the issue of VSI Bulletin. During the sugar season 2021-22, total 200 sugar mills in Maharashtra started their crushing season of which, 101 are in cooperative and 99 are in private sector. All the operating sugar mills have closed their crushing operations and state made historical record of sugar production of 137.36 lakh tonnes by crushing 1321.05 lakh tonnes of cane with average sugar recovery of 10.40%. Sugar mills in the state has taken benefit of the national bio-fuel policy on Ethanol Blending Programme (EBP) and 105 sugar mills have diverted around 10 to 12 lakh tonnes of equivalent sugar for ethanol production by use of BH molasses, sugarcane juice and sugar syrup as a feedstock. At national level, 523 operating sugar mills up to 30th May, 2022 have produced 352.45 lakh tonnes of sugar by crushing 3489.21 lakh tonnes of sugarcane. It is expected that the country's sugar output will be reached to around 355.00 lakh tonnes at the end of season 2021-22. Around 35.00 lakh tonnes of sugar will be sacrificed due to diversion of BH molasses and sugarcane juice for ethanol production.

In view of the congenial scenario of Sugar/Ethanol, VSI has successfully organized a state level '**Sugar Conference – 2022**' on 4th and 5th June, 2022 with the support of Commissionerate of Sugar, Government of Maharashtra, Maharashtra Rajya Sahakari Sakhar

Karkhana Sangh Ltd., Mumbai, and West Indian Sugar Mills Association as guided by VSI's Hon. President, Shri Sharadchandraji Pawar. The objective of this conference was to deliberate on the burning issues confronting the sugar and allied industry as also to brainstorm on their possible solutions. The conference was attended by around 2500 delegates from the sugar industry including management & technical staff from cooperative & private sugar mills, distilleries, technology suppliers, staff from sugar Commissionerate, State federation of cooperative sugar factories etc. A detailed write-up on the same is given in this issue. On this occasion, the VSI's Annual Award function of prize distribution ceremony for the year 2019-20 and 2020-21 to the outstanding performers of sugarcane growers, official at sugar mills and distilleries in their respective fields. to the outstanding performers of sugarcane growers, official at sugar mills and distilleries in their respective fields was commenced.

VSI conducted two one day workshops for the sugarcane agriculture officers of sugar mills detailed update on the same and other activities of VSI are given in this issue of VSI Bulletin.


(RM Devarumath)
Editor



EVENTS

62nd Maharashtra Day

VSI celebrated 62nd Maharashtra Day popularly known as Maharashtra Din which is celebrated annually on May 1 to commemorate the formation of western Indian state on May 1, 1960. On this occasion

National flag was hoisted by Mr. Shivajirao Deshmukh, DG along with Mr. Sambhaji Kadupatil, OSD. All the staff members and students were present.





National Technology day

National Technology day is held annually on May 11 to honor the contributions of India's scientific community including scientists, researchers and engineers. The theme for this year was "Integrated approach in science and technology for a sustainable future".

Dr. Sanjay Patil, Resources Scientist & Head, Maharashtra Remote Sensing Application Centre (MRSAC), Pune was invited as a chief guest for the technology day celebration at VSI on May 11, 2022. All staff members and students of VSI were present on the occasion. The program was coordinated by Dr. JM Repale. The function began with lighting of the lamp by the chief guest and the OSD, Mr. Sambhaji Kadupatil who also welcomed the guest with flowers. Dr. Deepali Nimbalkar briefed the audience about the significance of technology day and introduced the guest. After this, Dr. Sanjay Patil

delivered a lecture on '**Application of geoinformatics technology in agriculture**'. He explained basics of remote sensing like remote sensing process, types of remote sensing, kinds of satellite, visual and digital image interpretation. He also explained remote sensing application in crop inventory, acreage estimation, cropping system analysis, production estimation, crop monitoring and condition assessment. He also explained use of hyper spectral sensors for identification of stress detection, varietal discrimination and disease identification. He briefed the work done in MRASC in the entire sector. The interactive session after the lecture was very interesting with lot of questions on varied applications of remote sensing, activities of MRSAC etc. from staff as well as students. The program concluded with a vote of thanks by Dr. Vivek Patil.





State Level Sugar Conference 2022

INAUGURAL FUNCTION

Vasantdada Sugar Institute (VSI), Pune, Commissionerate of Sugar, Government of Maharashtra, Maharashtra *Rajya Sahakari Sakhar Karkhana Sangh Ltd.*, Mumbai, and West Indian Sugar Mills Association jointly organized a two days' state level '**Sugar Conference – 2022**' on June 4 & 5, 2022 at VSI as guided by VSI's President Hon. Shri Sharadchandraji Pawar. The objective of this conference was to deliberate on the burning issues confronting the sugar and allied industry as also to brainstorm on their possible solutions. The conference was attended by around 2500 persons from the sugar industry including management & technical staff from cooperative & private sugar mills, distilleries, technology suppliers, staff from sugar Commissionerate, state federation of cooperative sugar factories etc.

The inaugural session began with the lighting of the lamp by the dignitaries on the dais which included the chief guest Shri Nitin Gadkari, Hon. Minister for Road Transport, Highways & Shipping, Government of India; VSI President Hon Shri Sharadchandraji Pawar; Shri Ajit Pawar, Deputy Chief Minister of Maharashtra; Shri. Dilip Walse-Patil, Home Minister; Shri Rajesh Tope, Minister for Health; Shri Balasaheb Patil, Minister for Cooperation & Marketing; Shri Shambhuraj Desai, Minister of State, Home (Rural); Shri Vishwajeet Kadam, Minister of State, Coop & Agri; Shri Rajendra Patil Yadavkar, Minister of State, Public Health & Family Welfare; Shri Satej Patil, Minister of State, Home (Urban); Shri Shriniwas Patil, MP; Shri Hemant Patil, MP, Shri Vijaysinh Mohite-Patil former Deputy CM Maharashtra, Shri Jaiprakash Dandegaokar, Chairman, National Federation of Cooperative Sugar Factories, New Delhi. Shri Jaiprakash Dandegaonkar welcomed the chief guest Shri Nitin Gadkari and Shri Sharadchandraji Pawar with a bouquet of flowers. He also welcomed the participants to the conference and gave the background for organizing the event. This was followed by the release of two publications at the hands of the chief guest. These

included '**Adharstambh**' the contribution of Hon. Padmavibhushan Shri Sharadchandra Pawar to the Sugar Industry and State Level Sugar Conference- 2022 containing articles of speakers from the conference, sugar mills and VSI scientists.

Shri Balasaheb Patil delivered the opening address where he gave the details about the record breaking current crushing season which had to be extended owing to the bumper harvest of sugarcane.

This was followed by the presidential address of Shri Sharadchandraji Pawar in which he gave a detailed analysis of the current scenario in the Indian sugar industry covering sugar exports, cogeneration, fuel ethanol production, environment, computerization, cost of production and various facets of agriculture. He also took a review of the sugarcane production in the state. He concluded with the highlights of VSI's works and its contribution to the sugar industry since its establishment in 1975.

Shri Nitin Gadkari in his address talked about the various developments in the ethanol sector and the role of the Central Government in promoting biofuels and alternative fuels. He began his speech with the dream for a self-reliant India which was a 5 trillion dollar economy but which was impossible without agricultural and rural development. The sugar industry is deeply connected with this and there are 188 lok Sabha constituencies with heavy influence of sugarcane farmers in the country. He discussed about the 3Fs i.e. Food, Fuel & Fertilizers and how their need could be met from the sugar industry. He mentioned about the rapid growth of the automobile industry in the country as also the highways which have reduced travel times between important destinations. All this would increase the demand for fuel and alternative fuels like ethanol, methanol, biodiesel, bio CNG, bio LNG, green hydrogen etc. would be significant which are also connected to the sugar industry. He talked in great detail about fuel ethanol, electric vehicles and how the government was promoting these. He stressed upon the importance of water conservation



especially in rural areas. Shri Gadkari also appreciated the work of VSI under the visionary guidance of Hon. Shri Pawar. He ended by asking the Director General Shri Shivajirao Deshmukh to focus VSI's work on waste to wealth and knowledge to wealth especially for the agriculture sector.

The conference was inaugurated by the Hon. Chief Minister of Maharashtra Shri Uddhav Thackeray who had joined the session online. In his virtual inaugural address he talked about the various problems faced by the sugar mills in the state especially the issue of cane harvesting. He said that market research surveys like in Brazil were essential based on which crops should be chosen. Adopting appropriate technology

was necessary in these challenging times. He stressed upon the importance of ethanol in the future. He also informed about the problems of sugarcane harvesting labour and the formation of Gopinath Oostod Kamgar Mahamandal to resolve their problem. He ended his address by appreciating the role of VSI and VSI President Shri Sharadchandraji Pawar in addressing all important issues before the industry through this conference.

The session was coordinated by Dr. Deepali Nimbalkar.

After the session Shri Nitin Gadakari visited exhibition area along with Shri Shivajirao Deshmukh, DG, VSI.





Session-I : Problems and Remedies of Sugar Industry

The session was chaired by Mr. Balasaheb Patil, Hon'ble Minister Co-operation and Marketing, Maharashtra State. The experts for this session were Mr. Balasaheb Thorat, Hon. Minister of Revenue, MS; Mr. Babandada Shinde, MLA, Chief, Vitthalrao Shide SSK Ltd.; Mr. Vishal Patil, Trustee, VSI; Mr. PA Raut, Shrinath Maskoba Sugar Pvt., Ltd. The speakers of this session were Mr. Ravi Gupta, Director, Shree Renuka Sugars Ltd. Mr. Shekhar Gaikwad, Sugar Commissioner, Maharashtra State Mr. Prakash Naiknavare, Managing Director, National Sugar Federation

Dr. RV Dani, VSI welcomed all the delegates and introduced all the experts and speakers of the session. In this session, Mr. Ravi Gupta spoke on the topic **'Improving source of revenue for sugar co-operatives in Maharashtra'**. He highlighted about market oriented measures for increase in profit margin of sugar industry. He explained the benefits achieved by the Indian sugar industry due to diversion of different feed stock for ethanol production and sugar export. He also showed the importance of producing CBG using press mud cake and bagasse to improve profitability of sugar & allied industries.

Mr. Shekhar Gaikwad spoke on the topic **'Administrative improvement for sugar industry in Maharashtra'**. He explained about sugar season 2021-22, there is 13.67 lakh hectare under sugar cane

cultivation. During this season 199 sugar mills in the state are in operations which have crushed 1317.22 Lakh MT sugarcane and he highlighted on the administrative measures taken such as issue of Online crushing license to sugar mills after confirming 100 % FRP payment to the sugarcane farmers, grading of sugar mills based on FRP paid by the Department of Sugar Commissioner for improvement of sugar mills in Maharashtra. He encouraged sugar mills producing various by-products and development of new value added products in addition to sugar production so as to make industry sustainable.

Mr. Prakash Naiknavare discussed on the topic **'Expectation of sugar industry from State and Central Government'**. He told that first time in the history of Indian sugar industry the farmer, owner of the sugar mill/ management of the co-operative sugar mills & consumer of the sugar in the country are happy due to increase in the prices of the ethanol and higher export of the sugar. He explained about the necessary support from central as well as state government to the sugar industries to resolve some issue such as income tax as well as the policy formulated in 2019 regarding 'Aadhunik Proctsahan Yojana' in which co-operative sugar mills are excluded. The session was coordinated and concluded with vote of thanks by Dr. RV Dani.





Session-II : Future Prospectus Innovative Research, Technology and Applications-Its Vision and Implementation in Sugar and Allied Industries

The session was chaired by Dr. AK Vidyarthi, Director & Scientist-F, CPCB, Delhi. Experts for this session were Mr. Vijaysinh Mohite-Patil, Ex-Deputy Chief Minister, Govt. of Maharashtra; Advocate Ashok Pawar (MLA), Chairman, Raosahebada Pawar Ghodganga SSK Ltd.; Mr. Mansingrao Naik (MLA), Chairman, Vishwasrao Naik SSK Ltd.; Mr. Narendra Ghule-Patil, Chairman, Loknete Marutrao Ghule-Patil Dnyaneshwar SSK Ltd.; Mr. Arvind Gore, Chairman, Dr. Babasaheb Ambedkar SSK Ltd., and Mr. Bipin Kolhe, Chairman, Sahakar Maharshi Shankarrao Kolhe SSK Ltd. The speakers for this session were Dr. SV Patil, Professor, Emeritus, VSI; Mr. SD Bokhare, Executive Director, Bhaurao Chavan SSK Ltd. and Prof. GD Yadav, Ex-Vice Chancellor, ICT, Mumbai.

In this session, Dr. SV Patil presented on the topic **'Beyond Ethanol: Bio-circular economy and bio-refining for sustainability for sugar industry'**. He emphasized on valorization of sugar industry waste for production of bio-CNG, 2G ethanol, biobutanol, green hydrogen, aviation fuel, lactic acid, succinic acid, gluconic acid xylitol and potash fertilizer etc. through bio-refining and bio-circular economy. He also discussed about the current scenario of ethanol blending in country.

Mr. SD Bokhare talked on the topic **'Future technological innovations in sugar industry'**. He focused on future technological innovations with its

importance in sugar industry which included utilization of sugarcane biomass for conversion in to CNG, LNG, 2G ethanol, chemicals, pellets and power, etc. He suggested adapting flex vehicles which can be operate using fuel ethanol. He also explained the latest technology of drone which can be used for fertilisers, ripeners, pesticides & mineral sprinkling which save time and manpower requirement.

Prof. GD Yadav talked on the topic **'Green hydrogen-new opportunities for sugar sector'**. He emphasized on the effect of biomass burning, water intensive crops and their impact on climate change and global warming. He conceptualized transformations of Indian sugar industry through biorefinery approach to create zero-waste society with net-(carbon)-zero economy from biomass sources through the options like reduce, reuse, recycle, recovery and land filling. He specified on green ammonia and green H₂ production with its impact on environment.

In concluding remarks, Dr. AK Vidyarthi, the session chairman explained the issues linked to sugar & allied industries and their possible solutions. He discussed several problems related to environment, technology, resource, administration, infrastructure, manpower, lack of association and financial crisis in Indian industrial sector.

The session was coordinated by Dr. KS Konde, VSI and session concluded with vote of thanks.





Agriculture Session-III : Breeding of Sugarcane Varieties, Seed Replacement, Multiplication and Production Technology

The session was chaired by Mr. Harshvardhan Patil, Hon. Ex-Minister of Cooperation and Chairman, Nira-Bhima SSK Ltd. The experts for this session were Mr. Arun Lad, MLA & Chairman, Kranti Agrani Dr. GD Bapu Lad SSK Ltd., Mr. PR Patil, Chairman, Rajaram Bapu SSK Ltd., and Mr. Purushottam Jagtap, Chairman, Shri. Someshwar SSK Ltd., The speakers for this session were Dr. RS Hapase, Head & Principal Scientist, Plant Breeding, VSI Dr. BS Raskar, Sugarcane Specialist, Central Sugarcane Research Station, Padegaon and Mr. SS Katake, Scientist and Farm Manager, VSI

The session coordinator Mrs. Sudha Ghodake, VSI welcomed all the delegates and introduced all the speakers of the session. In this session, the first presentation on **'Importance of planting planning of sugarcane varieties for higher cane yield and sugar recovery'** was given by Dr. RS Hapase. He highlighted the role of Sugarcane Breeding Institute, Coimbatore in development of new sugarcane varieties like Co 86032. VSI has established its own Sugarcane Breeding Center at Amboli in Sindhudurg Dist. in 2006 with an objective to develop the sugarcane varieties suitable for different agro climatic regions of the Maharashtra State. He enumerated that the variety VSI 08005 (VSI 12121) developed from SBC, Amboli has occupied about 80 % area in the North-East zone of the Maharashtra State.

The second presentation on **'Sugarcane varieties developed by the Central Sugarcane Research Station, Padegaon'** was given by Dr. BS Raskar. He

emphasized on the new sugarcane varieties developed by them like MS 10001, CoM 09057, CoM 11082 and PDN 15012 and these varieties are serving for increasing the cane yield and sugar recovery of the Maharashtra State.

The third presentation on **'Sugarcane seed multiplication and production technology'** was given by Mr. SS Katake. He pointed out that the seed multiplication ratio of the Maharashtra state is very low i.e. only 6% and it needs to be increased by 25 to 30%. He stated that the sugar mills are not willing to supply quality seed to cane growers, most of mills do not have their own seed nursery for further multiplication of breeder seeds and they have to produce foundation seed at progressive farmer's field having assured water pockets as per the requirement of sugar mills. He also highlighted the important role played by VSI in production of breeder's seed and its timely supply.

The Chairman concluded that the research organizations like VSI and Mahatma Phule Krishi Vidyapeeth, Rahuri in collaboration with Sugar Commissionerate should prepare the draft on **'Changing sugarcane varieties and seed with available technologies'** for increasing cane yield and sugar recovery. He also stated that, Sugar Commissionerate should monitor strictly the programme for its implementation by the sugar mills in Maharashtra State.

The session was concluded with the vote of thanks.





Technology Session-III : Administrative and Financial Management and Sustainable Sources of Income Generation

Chairman of this session was Mr. Vidhyadhar Anaskar, Administrative, Maharashtra State Co-op. Bank Ltd. Mumbai and experts were Mr. PG Medhe, Honorary Expert Advisor, Chhatrapati Rajaram SSK Ltd., Mr. Manohar Joshi, Managing Director, Jawahar SSK Ltd., and Mr. Jitendra Ranavare, Managing Director, Vikasratna Vilasrao Deshmukh Manjra SSK Ltd.

The speakers were Mr. BB Thombare, President, WISMA & Chairman & Managing Director, Natural Sugar Mill Ltd.; Mr. RD Mahuli, Managing Director, Rajarambapu Patil SSK Ltd.; Dr. YS Kulkarni, Managing Director, Shri Pandurang SSK Ltd., and Mr. Vidhyadhar Anaskar, Administrator, Maharashtra State Co-op. Bank Ltd. Mumbai. Mr. SR Khengare, VSI was coordinator for this session.

Mr. SR Khengare welcomed and introduced Chairman, experts and speakers of this session. Also he briefed about the importance of this subject to sugar industry.

The session begins with the presentation of Mr. BB Thombare on subject '**Beyond Sugar**'. He emphasized mainly on production of ethanol, Bio-CNG and hydrogen which can give economic stability to sugar industry in future.

Mr. RD Mahuli, made presentation on '**Sustainable sources of income for sugar factory**'. He explained that during crushing season 2021-22, around 3.80 million tonnes of sugar from state as well as country was diverted

to syrup to ethanol route in response to central government's ethanol blending programme. Moreover, due to drought in Brazil this helped to increase the sugar export from India. He pointed out that keeping in view central government's 20% ethanol blending programme up to 2025 there is urgent need to divert some portion of sugar to ethanol to add as sustainable source of income.

Dr. YS Kulkarni made his presentation on '**Cost cutting and remedial measures in the sugar industry**'. He explained that there is wide variation in cost of production of sugar of each sugar mill. He emphasized that cost cutting in variable as well as fixed cost parameters will be additional source of income.

Mr. Vidhyadhar Anaskar, talked on '**Sugar Factories: Financial discipline and management**'. He told that before preparing any loan proposal, the management of sugar factory should take information of various lending schemes of nationalized banks and Financial Institutions and study these schemes in regards to minimal rate of interest, moratorium period and repayment schedules. There is urgent need to stop cash transactions completely. The sugar mill should keep in mind that the provision of 1/3rd amount out of the total income should be made available and accordingly decide type of loan i.e. short term, medium and long term loan.

The session concluded with vote of thanks by Mr. SR Khengare.





Date: 05 / 06 / 2022

Agriculture Session-IV : Soil Fertility Management & Use of Advanced Technology

This session was chaired by Dr. AS Dhavan, Former Vice Chancellor, Vasantrao Naik Marathwada Agriculture University, Parbhani and experts were Mr. Prakash Awade, MLA, Chairman, Jawahar Shetkari SSK Ltd.; Mr. Shriram Shete, Chairman, Kadwa SSK, Ltd.; Mr. Shankrarao Sawant, Chairman, Dwarkadish SSK Ltd.; Mr. Balasaheb Taware Patil, Chairman, Malaegaon SSK, Ltd.; Dr. AL Pharande, Former Dean of Agriculture and Director of Education MPKV, Rahuri; and Mr. Vikas Patil, Director of Agriculture Extension and Training, Commissionerate of Agriculture, Maharashtra State Pune.

The speakers for this session were Dr. BB Kale, Director General, CMET Pune; Dr. BD Bhakre, HOD, Department of Soil Science and Agril. Chemistry, MPKV, Rahuri; Udyan Pandit Shri. Ganpatrao Patil, Chairman Datta Shetkari SSK. Ltd.; and Dr. AM Navale, HOD, Department of Plant Pathology and Agriculture Microbiology, MPKV, Rahuri.

Dr Preeti Deshmukh, VSI, was coordinator for this session. She welcomed chairman, panelist, speakers and all the participants.

Dr BB Kale delivered the speech on **'Use electronic materials in agriculture'**. He explained degradation of spentwash powder is possible by electronic material. He also explained about nutrient sensor and its use in agriculture.

Dr. BD Bhakare, HOD delivered the lecture on **'Management of salt affected soil'**. He explained about characterization of saline, sodic and saline sodic

soil. He warned that area under salinity and sodicity is increasing day by day and it disturbs the soil physical condition, destroys beneficial micro flora and fauna and nutrient availability and their uptake. Udyanpandit, Mr. Ganpatrao Patil explained the success story of reclamation of saline sodic soil at sugar mill site. He highlighted that subsurface drainage is beneficial for reclamation of saline sodic soil. He succeeded the soil reclamation programme on large area by holding the farmers meetings and emphasizing the farmers regarding the importance of reclamation. He appealed that approximately 8000 ha area reclaimed till now and work is going on approximately 2000 ha area by the sugar mill in cooperation with farmer.

Dr. AM Navale presented the topic on **'Use of Beneficial Microorganisms in Sugarcane'**. He briefed that there are many types of micro-organisms in the soil and these microorganisms' helps to increase the nutrient availability to sugarcane crop as well sustain the soil fertility. He warned that is needed to create awareness in the farmers regarding use of biofertilizer.

Dr AS Dhavan, chairman of the session given his concluding remarks. He suggested that salt affected soil is a burning issue in this era and appreciated the reclamation work done by Datta SSK and suggested all officers to visit Datta SSK for monitoring the work of reclamation. The programme was concluded with vote of thanks.





Technical Session-IV : Challenges and Futuristic Approach in Technology

This session was chaired by Mr. Rajesh Tope Hon'ble Minister of Health, Government of Maharashtra and Mr. Sameer Dhodake, General Manager (MEDA) as an expert of this session.

Dr. RV Dani, Technical Adviser & Head, Department of Sugar Technology, VSI; Mr. RA Chandgude, Technical Adviser & Head, Department of Sugar Engineering, VSI; Dr. KS Konde, Professor, Technical Adviser & Head, Department of Alcohol Technology and Biofuels, VSI and Dr. Deepali Nimbalkar, Senior Scientist & Head, Environment Sciences VSI, as speakers for this technical session.

Mr. DN Shitole, VSI coordinator for this session, welcomed all chairman, speakers, various officers from cooperative & private sugar mills and distilleries and participants.

In this session Dr. RV Dani addressed on '**Challenge and futuristic approach in sugar processing**'. It was explained on the diversion of syrup & B-heavy molasses as feedstock for ethanol highlighting the major issues of evaporator and vapour load on the condenser. He advised that the sugar laboratory should be equipped with modern equipment for analysis.

Mr. RA Chandgude has presented on '**Sustainability through innovative and viable technologies in sugar industry**' and highlighted the adoption of modern technology in sugar mills. In juice extraction system, it is advised to install mills with GRPF, TRPF, two roller mills, and diffuser technology for increasing the extraction and saving of power.

Dr. KS Konde, spoke on '**Critical investigation of sugar juice/syrup to ethanol production**'. He elaborated ethanol production on the syrup route, and insisted for systematic design of plant and machinery to attain an optimum capacity utilization of the fermentation and distillation section of the distillery. Also, enlightened the techno-economical route for disposal of spent wash through incineration boilers and spent wash drying technology.

Dr. Deepali Nimbalkar talked on '**Changing environmental norms and its Implication on future development in sugar and allied industry**'. She highlighted the stringent norms stipulated by MPCB and CPCB and advised sugar and distillery projects to adhere to them for a better environment. She emphasized on reduction of raw water consumption for processing of feedstock to production of RS, ENA and Ethanol. Highlighted the use of CO₂ released during the fermentation process in distillery and considering the utilization of the gas for defecation process in sugar cane juice processing in clarification thus, reducing the emission of CO₂ into the atmosphere.

After technical presentations, chairman of the session expressed his views on the topics presented, stressing the adaptation of new technologies to reduce the steam, water and power consumption during the processing of sugar cane juice for production of plantation white crystal sugar and ethanol. The session concluded with vote of thanks.





Agriculture Session-V : Mechanization and Advanced Irrigation System in Sugarcane

Mr. Rajendra Patil-Yadravkar, Hon'ble State Minister, Public Health Department, Maharashtra State was Chairman and Mr. Dilip Zende, Director, Quality Control, Commissionerate of Agriculture, MS was an expert and the speakers were Mr. Sanjay Khatal, Managing Director, Maharashtra State Co-operative Sugar Factories Federation Ltd., Mumbai; Mr. PP Shinde, Scientist and Head, Agriculture Engineering Section, VSI and Mr. Subhash Jamdade, Vice President, Rajarambapu Patil Oversees Business Ltd.

The session Coordinator Mr. PP Shinde, VSI welcomed all the delegates. In this session Mr. Sanjay Khatal talked on **'Sugarcane Harvesting through Harvester and their Problems In India'** briefed about companies doing production of sugarcane harvesters but M/S. Case New Holland Industrial India Pvt. Ltd. and M/S. Shaktiman Tirth Agro Technology Pvt. Ltd. Gujrat have higher manufacturing capacity. The total fifty percent harvesters are sold in Maharashtra only, followed by Karnataka. The cost of sugarcane harvester is higher due to less demand of the machines. He also pointed that, In Brazil, 92 percent sugarcane is harvested by harvester and clean with help of dry cleaning system hence productivity and recovery are better.

Mr. PP Shinde **presented talk on 'Advanced technologies of micro-irrigation system in sugarcane'**. He briefed about micro-irrigation technology its impact on more sugarcane production in lesser water quantity. He emphasizes drip irrigation saves 45 to 50 % water,

40 % fertilizers, and increases 30 to 35% sugarcane yield as compared to conventional irrigation. Rain sprinkler irrigation increases the sugarcane yield by 15 to 20% and saves the water by 30 to 35%. He stressed on a separate wing in sugar factories is needed for implementation of drip irrigation schemes.

Mr. Subhash Jamdade talked on **'Use of drone in sugarcane agriculture'**. He,. Briefed about a drone technology is a promising source of precision farming. Spraying of agro inputs as bio stimulants, water soluble fertilizer, insecticides, pesticides sugarcane is possible. With the help of drone it is possible to spray 1 acre area in 10 lit. of water within 8 to 10 min. The pilot of drone should be well trained. The cost of drone spraying is 500-700 Rs. Per acre

After presentation, expert Mr. Dilip Zende pointed out that Government has given subsidy to farmers who installed ISI mark drip irrigation system. In last year large number of farmers applied for subsidies hence allotments of subsidy is in progress.

Mr. Rajendra Patil-Yadravkar in his concluding remarks suggested that, there is a need to study on materials of blades of sugarcane harvester and its cutting angles and drone operator should take care of well; animal shelters; living areas and water sources while spraying. There is a need to research on spraying of inputs, its concentrations and quantities of water required through drone and session was concluded with vote of thanks.





Technical Session-V : Ethanol Production : Futuristic Perspective

This session was chaired by Mr. Promod Chaudhary, Chairman, Praj Industries Ltd., Experts for this session were Mr. Ashutosh Kale (MLA), Chairman, Karmaveer Shankarrao Kale SSK Ltd.; Dr. Indrajeet Mohite, Trustee, VSI; Mr. Kantilal Umap, Commissioner, State Excise Department, Maharashtra; Dr. Sanjay Bhosle, Assistant Director, Co-product, Dept. of Sugar Commissioner, Maharashtra; Dr. Ketki Bapat, Scientist, PSA to Govt. of India, Delhi. The speakers for this session were Mr. CN Deshpande, President, Jaywant Sugars Ltd.; Mr. DM Raskar, CEO, Shrinath Maskoba Sugar Factory Ltd., and Mr. Ghansham Deshpande, President-Technology & Engineering, Praj Industries Ltd.

Mr. DA Patil, VSI coordinator welcomed all delegates and introduced all the speakers of the session. In this session, Mr. CN Deshpande presented on the topic '**Additional ways to propel ethanol production**'. He shared his experience on cane bio syrup manufacturing and its utilization for ethanol production. He focused on its processing and storage.

Mr. DM Raskar talked on the topic '**Compressed biogas (CBG) - sustainable fuel potential**'. He explained the importance of CBG production. He briefly explained

the industrial processes of biogas production and its purification.

Mr. Ghansham Deshpande talked on the topic '**Advanced bio-fuels and chemicals (other than fuel ethanol) from bio-mass**'. He explained the possibility of different fuels and chemicals through biorefinery concept. He explained about the advanced biofuel such as 2G ethanol, CBG, sustainable aviation fuel, green hydrogen, polylactic acid (PLA), polyhydroxyalkanoate (PHA), iso-butanol, solid, liquid fertilizer, CO₂ and some high value chemicals.

Mr. Pramod Chaudhary, the session Chairman in his concluded remarks suggested that sugar industry should divert other value added product like CBG, green hydrogen, aviation fuel, solar energy, iso-butanol, polylactic acid, liquid fertilizer etc. He also suggested that sugarcane & BH-molasses will not be sufficient to produce 1200 crore liters of fuel ethanol in 2025. Therefore, it is essential to produce balance fuel ethanol from grains. He appreciated VSI for organizing such type of conference which will be fruitful to all sugar and allied industries.

The session was concluded with vote of thanks by Mr. DA Patil.





VALEDICTORY SESSION

Vasantdada Sugar Institute (VSI) has organized two days State Level Sugar Conference on June 4 & 5, 2022 at VSI premises. On successful completion of the two days sessions, a valedictory session was chaired by Mr. Dilip Walse-Patil, Hon. Minister of Home Affairs, Government of Maharashtra and Vice President of VSI. Other dignitaries who were present on the dais and were honoured for this session are Shri. *Sharad Pawar* Hon'ble President, VSI, Mr. Balasaheb Patil, Minister of Co-operation & Marketing; Mr. Rajesh Tope, Minister of Public Health & Family Welfare, Mr. Jayprakash Dandegaonkar, President, National Federation of Cooperative Sugar Factories Ltd, New Delhi, Mr. Vijaysinh Mohite-Patil, Former Deputy Chief Minister, Government of Maharashtra, Mr. Harshavardhan Patil, Former cooperative minister, Government of Maharashtra and Mr. Narendra Murkumbi, Director, M/s. Ravindra Energy was honoured as Chief Guest for the valedictory session.

Mr. Nrdendra Murkumbi, addressed the delegates and summarised about two days activities. He emphasized on new business opportunities to be adopted in sugar mills, which are technically and economically viable. Also, elaborated the global sugar scenario i.e. sugar production, sugar stock & export potential to the other countries. Further, the sugar rates were increased due to higher crude oil

prices at USD 120 /barrel because of the ongoing Russia –Ukraine war. Enlighten the need for Flexible engines in vehicles to operate on multi-fuel also future ethanol demand for vehicles will enhance due to the upcoming production of automobiles. Explaining on the Agriculture front, the effect of Climatic changes and the necessity of Generic modification in agriculture. In India, Generic modification in agriculture is almost stopped. Need to encourage for Generic modification in India is very much required.

Mr. Dilip Walse-Patil, expressed his views regarding cane development, cane yield & recovery improvement. During the session, discussion explained the cane development programme being implemented at Bhima Shankar SSK Ltd., and improve cane yield from 66 to 130 tonne/h. He also highlighted various important aspects of the overall development of the sugar industry by the expert speakers during the session. He thanked to all dignitaries on the dais, farmers, sugar mill directors, various expert speakers, officers of sugar mills and VSI personnel.

The session was concluded by vote of thanks and followed by the VSI's Annual Award Function of prize distribution ceremony to the outstanding performers of sugarcane growers, official at sugar mills and distilleries in their respective fields for the year 2019-20 and 2020-21 was commenced.







Annual Awards for the year 2019-20



Late Raosahebada Pawar Award for Best Distillery being presented to Shri Ambalika Sugar Pvt.Ltd., Dist. Ahmednagar



Late Kisan Mahadev Alias Abasaheb Veer Award for Best Environmental Conservation being presented to Daund Sugar Pvt.Ltd., Dist. Pune



Late Dr. Appasaheb Alias SR Patil Award for Best Overall Cane Development Performance to Udgiri Sugar and Power Ltd., Dist. Sangli,



Best Cane Development Officer (South Zone) being presented to Shree Chhatrapati Shahu SSK Ltd., Dist. Kolhapur



Best Cane Development Officer (Central Zone) being presented to Bhimashankar SSK Ltd., Dist. Pune



Best Cane Development Officer (North-East Zone) being presented to Purna SSK Ltd., Dist. Hingoli



Annual Awards for the year 2019-20



Oss Bhusan (Late Yashvantrao Chavan Award) being presented to Mr. Prakash V. Jadhav, Dist. Kolhapur, Shree Datta Shetkari SSK Ltd., Dist. Kolhapur



Oss Bhusan (Late Vasantrao Naik Award) being presented to Mr. Suresh K. Salunkhe, Dist. Sangli, Udagiri Sugar and Power Ltd., Dist. Sangli



Oss Bhusan (Late Annasaheb Shinde Award) being presented to Mr. Ashok H. Khot, Dist. Sangli, Rajarambapu Patil SSK Ltd., Sangli



Best Cane Development Officer Award being presented to Mr. Sarjerao S. Walte, Karmayogi Ankushrao Tope Samarth SSK Ltd., Dist. Jalna



Best Environmental Officer Award being presented to Mr. Sagar B. Patil, Krantiagrani Dr. G.D. Bapu Lad SSK Ltd., Dist. Sangli



Best Chief Engineer Award being presented to Mr. Vijay M. Khalkar, The Kadwa SSK Ltd., Dist. Nashik



Annual Awards for the year 2019-20



Best Chief Chemist Award being presented to
Mr. Shashikant V. Giramkar, Daund Sugar Pvt. Ltd.,
Dist. Pune



Best Distillery Manager Award being presented to
Mr. Sayyadnur I. Shaikh, Shree Pandurang SSK Ltd.,
Dist. Solapur



Best Managing Director Award beign presented to
Mr. Yashwant S. Kulkarni, Shree Pandurang SSK Ltd.,
Dist. Solapur



Best Employee Award (VSI) beign presented to
Mr. SR Khengare, Cheif Accountant,
Accounts & Purchase Section



Best Employee Award (VSI) beign presented to
Mr. VD Ghule, Assistant Material Officer,
Purchase Section,



Best Employee Award (VSI) beign presented to
Mr. SK Sable, Scientist, Soil Sciences Section



Annual Awards for the year 2019-20



Best Employee Award (VSI) beign presented to
Dr. PS Deshmukh, Scientist & Head,
Soil Science Section



Best Employee Award (VSI) beign presented to
Mr. RR Dhumal, Driver, Administration Section, VSI

Annual Awards for the year 2020-21



Late Raosahebada Pawar Award for the Best Distillery
being presented to Sharyu Agro Industries Ltd.,
Dist. Satara



Late Kisan Mahadev Alias Abasaheb Veer Award for
Best Environmental Conservation being presented to
Rajarambapu Patil Pvt.Ltd., Dist. Sangli



Late Kkarmayogi Shankarrao Patil Award for
Best Overall Financial Management being presented to
Udgiri Sugar and Power Ltd., Dist. Sangli



Late Dr. Appasaheb alias SR Patil Award for Best
Overall Cane Development Performance being
presented to Dr. Patangrao Kadam Sonhira SSK Ltd.,
Dist. Sangli



Annual Awards for the year 2020-21



Late Vilasraoji Deshmukh Award for Most Innovative Factory Award being presented to Daund Sugar Pvt. Ltd., Dist. Pune



Late Vasantdada Patil Award for Best Overall Performance being presented to Krantiagrani Dr. GD Bapu Lad SSK Ltd., Dist. Sangli



Best Technical Efficiency Award (South Zone) being presented to Yashwant Mohite Krishana SSK Ltd., Dist. Satara



Best Technical Efficiency Award (Central Zone) being presented to Daund Sugar Pvt.Ltd., Dist. Pune



Best Technical Efficiency Award (North-East Zone) being presented to Karmayogi Ankushrao Tope Samarth SSK Ltd. (Unit-1), Dist. Jalna



Best Cane Development Officer Award (South Zone) being presented to Jawahar Shetkari SSK Ltd., Dist. Kolhapur



Annual Awards for the year 2020-21



Best Cane Development Officer Award
(Central Zone) being presented to
Dwarkadhish Sakhar Karkhana SSK Ltd., Dist. Nashik



Best Cane Development Officer Award
(North-East Zone) being presented to Natural Sugar and
Allied Industries Ltd., Dist. Usmanabad



Best Financial Management Award
(South Zone) being presented to Sahyadri SSK Ltd.,
Dist. Satara



Best Financial Management Award
(Central Zone) being presented to Dwarkadhish Sakhar
Karkhana Ltd., Dist. Nashik



Best Financial Management Award
(North-East Zone) being presented to Karmyogi
Ankushrao Tope Samarth SSK Ltd. Unit-2), Dist. Jalna



Oss Bhusan (Late Yashvantrao Chavan Award) being
presented to Smt. Vimal Dhondiram Pawar, Dist. Satara,
Ajinkyatara SSK Ltd., Dist. Satara



Annual Awards for the year 2020-21



Oss Bhusan (Late Vasant Rao Naik Award) being presented to Mr. Vishwanath D. Holsambare, Dist. Latur, Vilas SSK Ltd. (Unit-2), Dist. Latur



Oss Bhusan (Late Annasaheb Shinde Award) being presented to Mrs. Sulochana M. Kadam, Dist. Sangli, Rajarambapu Patil SSK Ltd. (Unit-2), Dist. Sangli



Best Cane Development Officer Award being presented to Mr. Somnath P. Bhalekar, Shree Pandurang SSK Ltd., Dist. Solapur



Best Environmental Officer Award being presented to Mr. Kalyan A. Gaikwad, Nira Bhima SSK Ltd., Dist. Pune



Best Chief Engineer Award being presented to Mr. Sandip V. Patil, Udgiri Sugar and Power Ltd., Dist. Pune



Best Chief Chemist Award being presented to Mr. Sunil T. Sawant, Rajarambapu Patil SSK Ltd., Dist. Sangli



Annual Awards for the year 2020-21



Best Chief Accountant Award being presented to
Mr. Vijaykumar R. Sawarikar, Daund Sugar Pvt. Ltd.,
Dist. Sangli



Best Distillery Manager Award being presented to
Mr. Pravinkumar S. Kale, Daund Sugar Pvt. Ltd.,
Dist. Pune



Best Managing Director Award being presented to
Mr. Anil P. Shewale, Loknete Marutrao Ghule SSK Ltd.,
Dist. Ahmednagar



Best Employee Award (VSI) beign presented to
Mr. PG Patil, Technical Advisor, Sugar Enginnering, VSI



Best Employee Award (VSI) beign presented to
Mr. LS Dalvi, Senior Analytical Chemist,
Sugar Technology, VSI



Best Employee Award (VSI) beign presented to
Mr. AB Deshmukh, Scientist, Alcohol Technology &
Biofuels, VSI



Annual Awards for the year 2020-21



Best Employee Award (VSI) beign presented to Mr. PV Ghodke, Scientist & Head, Agronomy, VSI



Best Employee Award (VSI) beign presented to Mr. JD Raybhar, Driver, Administration, VSI



Receiving prize of contribution for book written by Mr. RS Chandgude





WORKSHOP

Role of Microbial Consortium in Increasing Sugarcane Productivity

The monthly workshop on 'Role of microbial consortium in increasing sugarcane productivity' was organized on April 16, 2022. Dr. TK Narute, Head, Dept. of Plant Pathology & Agriculture Microbiology, MPKV, Rahuri invited as a chief guest. Mr. Maruti Jadhav, CDO, Patangrao Kadam Sonhira SSK, Kadegaon, Sangli, Mr. SP Bhalekar, CDO, Pandurang SSK, Shripur, Solapur, Mr. Devkar SM S Kolhe SSK, Kopargaon, and Mr. KB Patil Chh. Shahu Kagal SSK, Kagal, Kolhapur was also invited as a speaker.

Mrs. Sudha Ghodke, Scientist & Head, Agriculture Microbiology Section welcomed the chief guest, speakers, heads of Sections in AS & T Division and all the participants. the event was inaugurated by chief guest, sectional heads of AS & T Division and representative from the sugar mills by lighting the traditional lamp. Total 48 participants from 27 sugar mills attended this workshop.

In the introductory address by Dr. RS Hapase, Principle Scientist & Head, Plant Breeding section, highlighted the importance of the topic of the workshop. He also briefed importance of beneficial microorganisms and its impact on yield & quality of sugarcane.

Dr. (Prof). TK Narute talked on '**Role of microbial consortia in sugarcane productivity**'. He explained about importance of microorganisms in universe and without them life is impossible. Micro- organisms are tremendously essential for maintaining soil fertility.

Mrs. SD Ghodke presented '**Concepts in microbial control of pests in sugarcane**'. She explained about losses caused by disease & pests and multi-strain biological control agents have successfully controlled these diseases and pests of valuable crops especially sugarcane.

Mr. BG. Mali, Scientific Officer, Agril. Microbiology Section, delivered speech on '**Role of microorganisms in soil fertility & carbon sequestration**' and '**Use of Microorganisms in Sugarcane under stress condition**'. He emphasized on Soil microorganisms are responsible for most of the nutrient release from organic matter. He expressed in his presentation that microbial CO₂ sequestration is a promising strategy to reduce global warming and optimize production of chemical substances. He also briefed on role of microorganisms in water stress management. He explained that the microbes have developed strategies to survive and even proliferate under harsh conditions like water unavailability. He also briefed on enhancing drought tolerance can be achieved by consortium of endophytic bacteria and increase yield of sugarcane. Stress-tolerant PGPR also can be used to enhance sugarcane drought tolerance.

Mr. Maruti A. Jadhav, CDO, Dr. PK Sonhira SSK. Ltd., Tal. Kadegaon, Dist. Sangli delivered speech on '**Use of biofertilizers and biocontrol agents in sugarcane agriculture**'. The mill has taken lbf & biocontrol





agents in large quantity and got good results in increasing sugarcane yield & controlling pest especially white grub in area of operation.

Mr. SR Deokar, CDO, S M Shankarrao Kolhe SSK, Kopargaon, Dist. Ahmednagar, talked on **'Biocomposting & its enrichment by beneficial microorganisms'**. He informed that the mill has established biocomposting unit where mill uses VSI's biofertilizers & biocontrol agents giving remarkable results.

Mr. SP Bhalekar, CDO, Pandurang SSK, Dist. Solapur delivered lecture on **'Impact of liquid biofertilizers production unit in sugarcane agriculture'**. He briefed on how mill has established the liquid biofertilizers production unit and supplies to farmers under the guidance of VSI. Mr. KB Patil, Agriculture Officer, Chh. Shahu Kagal SSK, Kagal, Sangli gave the information regarding the biofertilizers and biocontrol agents taken from VSI & supplied to the farmers in area of operation, which has given good results in sugarcane production.

In the interactive session was held with the participants on the topics of microbial consortium of biofertilizers, biocontrol agents and water stress management.

The workshop was ended with vote of thanks by Mr. BG Mali

The recommendations of the workshop are as follows,

- Use of Soil health @ 10lit/ha at planting, 30,60, & 90 DAP in 500lit water and foliar spray of plant health @ 3.0 lit/ha in 500lit water at 60DAP in morning hours.
- 50 kg Urea + 50kg Single Super Phosphate + Spraying of Decomposing Culture @ 2.5lit /ha in 200 lit water on trash.
- Use of 125kg Urea + 125kg Single super phosphate and then spraying of liquid Decomposing culture @ 2.5lit/ha in 500lit water on trash.
- Drenching of BVM @ 2 lit/acre in 200 lit water at the time of planting and earthing up as precautionary measure or Drenching of EPN @ 2.5 lit/ha in 500 lit water when infestation seen for control of white grubs in sugarcane.
- If infestation of white grubs seen, drenching of EPN @ 1 lit/acre in 200 lit water.

Seasonal and Varietal Planting Planning and Maturity Wise Harvesting: Merits and Demerits

The one day workshop on 'Seasonal and varietal planting planning and maturity wise harvesting: merits and demerits' was held on May 28, 2022 from the yearly scheduled workshops of the year 2022-23 under the Chairmanship of Mr. Sambhaji Kadupatil, OSD, VSI, and Chief guest Dr. BS Raskar, Sugarcane Specialist, Central Sugarcane Research Station, Padegaon. The welcome address was given by Dr. RS Hapase, Head & Principal Scientist (Pl. Br.). The inauguration of the workshop was done by lighting of lamp by hands of Mr. Sambhaji Kadupatil, Dr. BS Raskar and invited speakers from three sugar mills. Total 46 participants from 23 sugar mills were attended the workshop.

Mr. Sambhaji Kadupatil highlighted the importance of sugarcane seed and achievements of Indian sugar industry as compared to the Brazilian sugar industry during the season 2021-22. He also emphasized the importance of planting and harvesting planning.

Dr. BS Raskar in his presentation pointed out the importance of sugarcane planting planning and harvesting program. He also informed about the new sugarcane varieties and assured the proper planning and management by sugar mills will help to achieve the cane yield and sugar recovery.

Dr. JM Repale, Senior Scientist, Plant Breeding, briefed about role of sugar mill officers in development of new sugarcane varieties by conducting the multi-location and adaptive trials. He also informed about the present new sugarcane varieties available to include in the planting planning and harvesting management.

Dr. K Harinath Babu, Senior Scientist and Head, Molecular Biology and Genetic Engineering Laboratory in his presentation on **'Developments in transgenic sugarcane, present status, Pros & Cons'**



highlighted the importance and constraints of the transgenic technology in sugarcane.

The speakers from sugar mills talked on the work done at their operational area on new sugarcane varieties, planting planning and harvesting program. Mr. KB Patil, Cane Development Officer, Shri Chh. Shahu SSK, Ltd., Kolhapur; Mr. SS Morde, Cane Development Officer, Bhimashankar SSK Ltd., Pune and Mr. RS Chavan, Agriculture Officer, SM Shankarrao Mohite Patil SSK Ltd., Solapur highlighted their work done for increasing the cane yield and sugar recovery by implementation of the proper planting planning and maturity wise harvesting schedule.

The concluding session, Dr. RS Hapase interacted with the participants and took feedback from the participants about the new sugarcane varieties and their planning. He guided the participants about the conduct of adaptive trials of new promising genotype

CoVSI 18121 and stressed on involvement of sugar mills in identifying the location specific varieties. The following recommendations were emerged from this workshop,

- To achieve high cane yield and sugar recovery, every sugar mill should follow the ideal planting planning and maturity wise harvesting program with computerization.
- Maximum sugar mills should be involved in VSI's adaptive research programme like multilocation trials, adaptive trials, mill trials and ORP for the selection of location specific varieties.
- The sugar mills should not encourage the commercial planting of unauthorized sugarcane varieties like Co 62175 in their area of operation.
- Juice analysis laboratories needs to be upgraded with the guidelines of VSI to facilitate sampling of more number of cane samples per day.
- The seed nurseries in the area of operation should be visited to confirm the source of seed and it should be intimated to Govt. Seed Officer/ Agriculture Officer (TAO), if any lapses by nursery owner.

The workshop was concluded with the vote of thanks by Mr. US Manjul, Scientist (Pl. Br.).





VSI COMMITTEE MEETINGS

Governing Council Meeting

Governing Council Meeting was held on June 5, 2022 under the chairmanship of Hon. President, Mr. Shard Pawar in presence of Governing Council members.



VSI PARTICIPATION

The two days seminar on '**Sustainability of sugar industry by improving sugarcane productivity and sugar recovery**' was organized by the South Indian Sugarcane & Sugar Technologists Association (SISSTA) on May 20 and 21, 2022 at the Hotel Park, Chennai. Dr. JM Repale, Senior Scientist, Plant Breeding and Mr. S. Panda, Technical Advisor, Sugar Technology attended the seminar.

The research paper entitled '**VSI 12121 / VSI 08005-High sugar, midlate maturity, drought tolerant variety for Peninsular India**' by RS Hapase, JM Repale and

Shivajirao Deshmukh was presented by Dr. Repale and deliberated the performance of variety VSI 12121/ VSI 08005 in Peninsular Zone.

The two papers entitled '**Sustainability of sugar industry by improving sugarcane productivity and sugar recovery**' by Panda S, Narayan Mahana, RV Dani and N. Gopalkrishnan and '**Case study on enhancement of sugarcane productivity and sugar recovery using conventional practice and digital technology**' by Panda S., RV Dani, N Gopalkrishnan and P Baskar were presented by Mr. S Panda.



VISITORS TO VSI

Visit of Hon. President VSI to Patharwala farm

Honorable President of VSI Shri Sharad Pawar visited to Patharwala farm on April 16, 2022 along with members of governing council Mr Rajesh Tope, Balasaheb Patil, Mr. Jayprakash Dandegaonkar, Mr. Arvind Gore, Mr. BB Thombare and Mr. Rohit Pawar. Officers from revenue, home, irrigation Departments of state Government were also attended during visit. Mr. Shivajirao Deshmukh, DG, VSI welcomed the president and other dignitaries at the farm. They took round of the farm & seen the sugarcane seed plots under drip irrigation, soybean, moong as intercrop, farm pond, solar pump system etc. and briefed about farm activities & developmental works.

All the dignitaries arrived in the pendol where about 500 farmers, sugarcane growers were gathered. Mr. PV Ghodke, Scientist & Head Agronomy explained the activities of the farm

Mr. Shivajirao Deshmukh explained brief history and background for the establishment of this farm around 51.33 h. (127 acre) land purchased by VSI and possession was taken up on January 2, 2021 after planning was done to develop the farm as an ideal sugarcane research & Development farm. Execution of farm development work was taken up by the team of Agronomist, irrigation engineer, civil engineer and electrical engineer.

Demarcation of sizable plots, internal roads, leveling of land was carried out on priority basis. Existing three

open wells were brought in operation by installing water pumps. Planting of Work of lift irrigation scheme of about 4.8 km length from Godavari river, erecting the pump house, excavation of farm pond with a water storage capacity of 800 lakh liter, barbed wire fencing on all over the farm boundaries has been started. It has been decided to irrigate the sugarcane crop with drip irrigation. Initially, 35 acres area developed and brought under sugarcane cropping system during January 2022 with irrigation & Fertigation through drip system. Seed nursery of 09 recommended sugarcane varieties have been raised. Second phase of drip irrigation on 40 acres area will be completed by May 2022. Considering the interruptions in electric supply for the irrigation pumps a solar system with a capacity of 14.4 KW/22AMP has been installed near a well. Building plans for construction of farm structures, staff quarters, administrative office, training hall etc are being prepared and explained by architect.

Mr. Sambhaji Kadupatil OSD, VSI, explained the benefits of solar system, follow up with the irrigation department for canal lining and drainage nala repairing work.

Mr. Rajesh Tope, Minister of Health assured that, the center will definitely useful for the cane growers, sugar mills in Marathwada region. All the necessary help will be offered for the development of an ideal farm & center.





Mr. President told in his speech that, all the VSI inputs will be made available at the farm, training facilities for cane growers, sugar mill staff will also be started for the sake of convenience of the region. He also constituted a committee for identification of drought resistant, thermo sensitive suitable cane varieties for

seed production and distribution in Marathwada, Vidarbha and Khandesh area. Mr. Rajesh Tope, Mr. Jaiprakash Dandegaonkar, Mr. Arvind Gore, Mr. BB Thombare, Mr. Dilip Deshmukh and DG VSI will be the members of this committee. The visit was concluded with the vote of thanks.

Visit of Hon. President VSI to Patharwala farm

A delegation of Bujumbura, Burundi, South Central Africa visited Vasantdada Sugar Institute on June 8 & 13, 2022, comprising Hon'ble Mr. Jean Claud, Minister of Agricultural, Govt. of Burundi; Mr. ADG Aloys, Director General, Govt. owned Sosumo Sugar Factory, Burundi; Mr. Muteriteka Prosper, Mr. Nzangomba Juvenal, Mr. Nsabumuremyi Marius, Mr. Mahesh Brahmbhatt, Mr. Sukumar Patel, and Mr. Vijaysinh Savane Patil.

Mr. Shivajirao Deshmukh, DG, Mr. Sambhaji Kadupatil, OSD with Head of the Departments, welcomed the delegates and explained various R & D Activities, extension, and academic services of VSI towards the

progress of the sugar industry for State and National level.

A short film encompassing various activities of VSI was shown and the delegation visited various departments. They discussed with concerned department personnel and collected the information about the various research and development activities, extension services and achievements of the departments.

They are delighted with the hospitality extended and expressed they desire to consider the help in Agriculture & Technical development for Burundian Sugar Mills.





Visit of Govt. of Bihar Delegates to VSI

A delegation of Govt. of Bihar led by Mr. Pramod Kumar Hon'ble minister (Cabinet) Sugarcane Industry Department and Law Department, Govt. of Bihar along with team comprising Mr. Giriwar Dyal Singh (IAS), Cane Commissioner, Mr. Sunil kumar (BAS) PS to Hon. Minister, Mr. Onkarnath Singh, Joint Director, Mr. JPN

Singh, Joint Cane Commissioner, Mr. Harishankar Kumar, Private Secretary and Mr. Ram Narayan Kumar, Assistant visited to Institute on June 17, 2022. Mr. Sambhaji Kadupatil, OSD with Head of the Departments, welcomed the delegates and briefed about Institute activities. Team also visited various Departments.

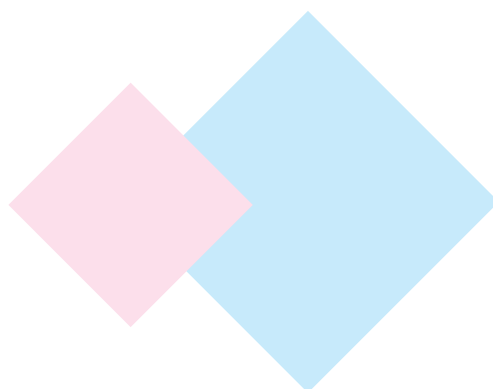




Following institutions Minister, Boards Director, Officers, farmers and students visited to Vasantdada Sugar Institute, Pune to see new innovations

technologies developed by VSI and plots of experiments during last three months (APR-MAY-JUN 2022)

Name of Institutions	Visitors	Total
April - 2022		
Yeshwantrao Chavan College of Arts, Science and Commerce, Earandwane, Pune – 411 036	Students	5
S.M. Joshi College, Hadapsar, Pune	Lecturers and Students	92
College of Engineering, Manjari (Bk.), Pune -412307	Lecturers and Students	198
Dada Patil Mahavidyalaya (Arts Commerce and Science) Karjat, Dist: Ahmednagar – 414 402	Lecturers and Students	87
TAO Belganga Dist : Jalgaon	Officers and Farmers	37
Individual Farmers from Maharashtra State	Farmers	181
May - 2022		
Bhartiya Jain Sanghata's Arts, Science & Commerce College, Wagholi, Pune – 412 207	Lecturers and Students	42
Padmashri Manibhai Desai College, Urli Kanchan, Pune	Lecturers and Students	32
MIT College, Loni, Dist : Pune	Lecturers and Students	33
Miraj Mahavidyalaya, Miraj, Dist : Sangli	Lecturers and Students	114
Individual Farmers from Maharashtra State	Farmers	202
Jun - 2022		
Law college, Hadapsar, Pune - 411028	Lecturers and Students	22
Yashwantrao Chavan College of Science, Karad Dist: Satara	Lecturers and Students	108
Individual Farmers from Maharashtra State	Farmers	330
Bihar Sakhar Udog Minister and Team State : Bihar	Minister and Officers	07
Total :		1490





बीव्हीएम व ईपीएन या जैविक कीडनियंत्रकाद्वारे ऊसातील हुमणीचे नियंत्रण

सौ. सुधा घोडके आणि सौ. क्रांती निगडे

शास्त्रज्ञ व प्रमुख आणि संशोधन अधिकारी

वसंतदादा शुगर इन्स्टिट्यूट, पुणे

महाराष्ट्रात मागील काही वर्षांमध्ये हुमणीचा प्रादुर्भाव वाढत चाललेला आपणांस दिसून येत आहे. प्रामुख्याने हुमणीच्या दोन प्रजाती आपणांस महाराष्ट्रात आढळून येतात. यामध्ये होलोट्रकिया आणि ल्युकोफोलिस या प्रजातींचा समावेश होतो. सध्या महाराष्ट्रात फायलोग्लाथस ही हुमणीची प्रजाती नव्याने आढळून आली आहे. हुमणी ही कीड प्रामुख्याने पिकांच्या मुळांवर उपजिविका करत असल्यामुळे पिकांचे नुकसान फार मोठ्या अवस्थेत होते.

हुमणीची जीवनावस्था चार प्रमुख टप्प्यांमध्ये करण्यात आली आहे. - भुंगेरे, अंडी, अळी व कोष

- प्रथम अळी अवस्था पांढरीशुभ्र, पिवळे डोके, सुमारे ८ मी.मी. लांबी असते.
- पूर्ण विकसीत अळ्या पिवळट-सफेद, डोक्याचा रंग बदामी व इंग्रजीच्या 'सी' अक्षराप्रमाणे अर्धगोलाकार असते.
- पूर्ण विकसित अळीची लांबी सुमारे ४० ते ४५ मी.मी. असते.
- प्रौढ भुंगेरा - तपकिरी किंवा बदामी रंग १८ ते २० मी.मी. लांब व ८ मी.मी. पर्यंत जाड पंखाची प्रथम जोडी ढालीप्रमाणे मजबुत, पंखाची दुसरी जोडी पातळ असते.

जीवनक्रम

पहिल्या पावसानंतर मे किंवा जूनमध्ये प्रौढ भुंगे सुप्तावस्थेतून बाहेर येतात. कडुलिंब, बांभूळ, बोर यासारख्या झाडांवर मिलनासाठी जमतात. सुर्योदयापूर्वी मादी जमिनीमध्ये अंडी घालते. एक मादी ५० ते ७० अंडी घालते. अंड्यातून अळी बाहेर पडते. दोनदा कात टाकून ५ ते ९ महिन्यांमध्ये पूर्ण वाढते. त्यानंतर पूर्ण वाढ झालेली अळी कोषावस्थेत जाते. साधारणतः १४ ते २९ दिवसांनी प्रौढ भुंगे बाहेर पडतात.

- मे, जून, जुलै : प्रौढ सुप्तावस्थेतून निघतात व मादी अंडी घालते.
- ऑगस्ट ते नोव्हेंबर : अळी पिकांची मुळे खाऊन उपजीविका करते.
- नोव्हेंबर : जमिनीत कोशावस्था असते.
- जानेवारी ते मे : प्रौढ भुंगेरे जमिनीमध्ये सुप्तावस्थेत राहतात.

नुकसानीचे प्रकार

प्रथम अवस्थेतील हुमणीच्या अळ्या अंड्यातून बाहेर निघाल्यानंतर जमिनीतील कुजलेल्या सेंद्रीय पदार्थावर किंवा जिवंत मुळांवर उपजिविका करतात. त्यानंतर दुसऱ्या व तिसऱ्या अवस्थेतील अळ्या ऊस व इतर पिकांची मुळे खातात. मुळे खाल्यामुळे पिकाचे अन्न व पाणी घेण्याचे कार्य बंद पडते. ऊस निस्तेज दिसतो. पाने हळूहळू पिवळी पडण्यास सुरुवात होते. प्रादुर्भावग्रस्त उसाला हलका झटका दिल्यास ऊस सहजासहजी उपटून येतो.

नियंत्रण

एक हुमणीची अळी प्रति एकर एक घनमीटर अंतरात आढळून आल्यास कीड नियंत्रण करावे. सरासरी २० अगर त्यापेक्षा जास्त भुंगेरे आढळल्यास, कडुलिंब अथवा बाभळीची पाने अर्धचंद्राकृती खाल्लेली आढळल्यास नियंत्रणाचे उपाय योजावेत.

हुमणीच्या नियंत्रणासाठी जीवनक्रमानुसार उपाययोजना

- मे, जून व जुलै-प्रौढावस्थेचे नियंत्रण-प्रौढ भुंगेरे सायंकाळी जमिनीतून बाहेर येतात व बांधावरील यजमान झाडांची पाने खातात. रात्रीच्या वेळी प्रकाश सापळे लावून त्यांना आकर्षित करावे.
- संध्याकाळी व रात्री या झाडांच्या फांद्या जोरात हालवून प्रौढ खाली पाडावेत. ते गोळा करून केरोसीन व कीटकनाशक मिश्रीत पाण्यात टाकून नष्ट करावेत. हे काम सामुदायिकरित्या करणे अधिक फायदेशीर ठरते.
- उन्हाळ्यात खोल नांगरट करावी त्यामुळे किडींच्या अंडी व अळी सुर्यप्रकाशात संपर्कात येऊन नष्ट होतात.
- शेणखत व कंपोस्ट खत आदींद्वारे हुमणीची अंडी व अळ्यांचे शेतात प्रसरण होते. रासायनिक पध्दतीने त्यांचे नियंत्रण करता येते.
- अळी अवस्थेच्या नियंत्रणासाठी शेतकरी वर्गाकडून मोठ्या प्रमाणात रासायनिक औषधांचा वापर केला जातो. या रासायनिक औषधांचे दुष्परिणाम टाळण्यासाठी कीड नियंत्रणाच्या विविध जैविक पध्दतींचा विकास झाला आहे. त्यामध्ये कीडींवर पोसणाऱ्या अथवा नैसर्गिक शत्रूंचा वापर, कामगंध सापळ्यांचा वापर तसेच एकात्मिक कीड नियंत्रण पध्दतीचा समावेश होतो.



- जैविक पध्दतीने हुमणीचे नियंत्रण-यामध्ये प्रामुख्याने हुमणी कीडीच्या नैसर्गिक शत्रूंचा वापर केला जातो. हुमणीचे नैसर्गिक शत्रू-जीवाणू, बुरशी, परोपजीवी सुत्रकृमी यांचा वापर कीडीचा नायनाट करण्यासाठी केला जातो.

१) बुरशीचा वापर

बव्हेरिया बसियाना, मेटारायझियम ऍनिसोपली या बुरशीचा वापर हुमणी नियंत्रणासाठी केला जातो. या बुरशी कीडीच्या शरीरात वाढतात. त्यामुळे हुमणी कार्यहीन होऊन संपुष्टात येते.

वसंतदादा शुगर इन्स्टिट्यूट ने 'जैविक कीड नियंत्रक' विकसीत केले आहे. यामध्ये बव्हेरिया बसियाना, मेटारायझियम ऍनिसोपली, व्हर्टिसिलियम लेकानी या बुरशीसह बॅसिलस थुरिनजेनेसिस या जीवाणूंचा समावेश आहे. हे जैविक कीड नियंत्रक म्हणजे हुमणीच्या अळी व भुंगेरे यावर वाढणाऱ्या परोपजीवी बुरशीचा समुह असलेले द्रवरूप कीड नियंत्रक आहे. या जैविक कीड नियंत्रकाचा वापर एकरी २ लिटर ४०० लिटर पाण्यात मिसळून जमीन वाफश्यावर असताना बेटाजवळ आळवणी करावी. ही आळवणी साधारणपणे मे महिन्याच्या दुसऱ्या पंधरवड्यात व त्यानंतर जून किंवा जुलैमध्ये प्रत्येकी एकदा याप्रमाणे वापर केल्यास हुमणीचे प्रभावीपणे नियंत्रण करता येते.

वसंतदादा शुगर इन्स्टिट्यूटच्या प्रक्षेत्रावर बीव्हीएम या जैविक कीड नियंत्रकाची उसाच्या शेतात चाचणी घेतल्यावर असे आढळून आले की, बीव्हीएम वापरल्यास हुमणीचे नियंत्रण ८६.३२% पर्यंत झाले. तसेच ऊस उत्पादन देखील वाढल्याचे दिसून आले.

२) परोपजीवी सुत्रकृमीचा वापर

एंटोमोपॅथोजेनिक निमॅटोड (ईपीएन) म्हणजे कीडीच्या शरीरावर वाढणारे सुत्रकृमी. हुमणीला रोगग्रस्त करणारे सुत्रकृमी हेटेरोरॅबडिटीस व स्टर्ननिमिटीडीस या दोन प्रकारचे आहेत. वसंतदादा शुगर इन्स्टिट्यूटने

हुमणी नियंत्रणासाठी द्रवरूप स्वरूपातील ईपीएन हे जैविक कीड नियंत्रक विकसित केले आहे. हे जमिनीमध्ये आढळणारे सुत्रकृमी असून जमिनीमध्ये हुमणीला शोधून तिच्या शरीरात त्वचेवरील छिद्रांद्वारे किंवा तोंडाद्वारे प्रवेश करतात. किडीला रोगग्रस्त करून तिच्या शरीरात वाढतात. मृत किडीच्या शरीरातून बाहेर पडून जमिनीमध्ये दुसऱ्या हुमणीला शोधून तिला रोगग्रस्त करतात. ईपीएन या जैविक कीड नियंत्रकाचा वापर प्रति एकर १ लिटर २०० लिटर पाण्यात मिसळून जमीन वाफश्यावर असताना बेटाजवळ आळवणी पध्दतीने करावा.

वापर केल्यानंतर जमिनीमध्ये वाफसा स्थिती सतत ठेवल्यास चांगला परिणाम दिसून येतो. ईपीएन हे हुमणीचे नैसर्गिक शत्रु असल्याने त्यांचा जमिनीतील उपयुक्त जीवाणू, वातावरण, पिकांवर तसेच मानवी आरोग्यावर विपरीत परिणाम होत नाही. वसंतदादा शुगर इन्स्टिट्यूटच्या प्रक्षेत्रावर ईपीएन या जैविक कीड नियंत्रकाची चाचणी घेतली असता ८६% पर्यंत हुमणीचे नियंत्रण ईपीएन वापरलेल्या प्रयोगामध्ये दिसून आले. तसेच ऊस उत्पादनात देखील वाढ आढळून आली.

हुमणीचे नियंत्रण किडीचा जीवनक्रम लक्षात घेऊन कीड व्यवस्थापन पध्दतीचा अवलंब सामुदायिक मोहिम राबवून केला तर प्रादूर्भाव आटोक्यात येतो.

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