

**e-NEWSLETTER**  
**INDIAN SOCIETY OF**  
**AGRICULTURAL ENGINEERS**  
..... Connecting Engineers in Agriculture

Jan.-Feb. 2023



5600 + Life Members

36 Chapters

2 Scientific Journals

Published by  
**INDIAN SOCIETY OF AGRICULTURAL ENGINEERS**

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## Message From The President



**Dear ISAE members!** The present executives of the Indian Society of Agricultural Engineers have entered into the second year of its tenure. You have witnessed first year went in restructuring of ISAE and finally hope most of you have received the revised and updated ISAE constitution, bye-laws and rules sent by e-mail. In addition you have observed a lot of activities and achievements of the society during last one year. Now the new revised and updated ISAE constitution, bye-laws and rules are effective. Copy of the same you have, so please remain vigilant to see that society should work in line of this written document now and in future.

**Dear ISAEians!** The world is celebrating the International year of millet on initiative taken by India. The leadership of the country at world level is being accepted more than ever before, so this is the time for Agrineers. Please come forward and give your leadership in your own way and make the Agrineering as the most sought for profession in India and abroad. Our students in some universities are on agitation because of major share of work which they can do better than any other professionals. I request not only to Agrineers, but all citizens of the country to see who is better suited for which kind of job and whether the same is being employed correctly or not. If not, it shall retard the potential economic growth of our country. All should come and support such kind of demands and point out such agencies' wrongdoings. Pointing out wrongdoings is also a kind of service to the nation for correct and better development. If we have to be truly developed country by 2047, we have to allot correct jobs to correct professional at correct time.

**Dear Agrineers!** During the two months period executive committee, ISAE Council, AET and JAEI editorial boards meetings were organized and several decisions were taken. A truly online journal management system of the society was unveiled. A milestone decision of publishing AET online in Hindi and some other regional languages were taken to reach in deep core of the country. All the 36 chapters shall also work as 36 reporters for AET and e-newsletter. Hope things will go as thought of and Agricultural Engineering mouth piece shall reach to lakh of peoples eye piece in rural India. Your cooperation and motivation shall work like a catalyst.

**Friends!** We are planning to conduct several online trainings, workshops and also thinking to start developing ISAE standards for Indian Agri-machinery manufacturers and work with BIS. We are also thinking to have ISAE capacity to test the manufactured machinery and give test report onsite etc. To initiate such new kind of activities, we need active involvement of experienced ISAE members. I am giving a call of support and invite interested members in these activities. Please come forward and send your detail to me or secretary general as soon as possible.

**S N Jha**  
President, ISAE

## From the Chief Editor's Desk



*The Indian Society of Agricultural Engineers (ISAE), is continuously work hard for betterment of this society and towards a growing reputation and reach to Agricultural Engineering professionals/ Agrineer. It is pleasing to note that The Indian Society of Agricultural Engineers (ISAE) is moving into a new phase of its development, and Several steps has been taken for betterment of Agricultural Engineering professionals and to encourage the students for research oriented approach. We congratulate all the members for launch ISAE online journal management system, which is ready to use.*

*This newsletter is featured with glimpses of efforts made through activities, training program and advancement in the field of agriculture engineering, and happenings during this period of Jan.-Feb. 2023 across the country by various agricultural engineering institutes, activities related to Agriculture & Agricultural engineering professionals for dissemination of knowhow to all stakeholders. I hope the content on various technologies & activites through this e-newsletter will give takeaways on latest technologies to Agricultural Engineering professionals in introducing and implementing the same.*

**Chandra Shekhar**  
Chief Editor



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## ISAE Happenings

### Executive Council Meetings held on dated 08.01.2023

The Secretary General discussed about the action taken based on the proceedings of previous EC meeting after his welcome address and a brief address by the President ISAE. The proceedings of previous EC meeting were accepted and following important points were discussed and decided with consensus.

1. Dr. Balakrishna, Organizing Secretary of the 56th ISAE convention held at TNAU, Coimbatore informed that total expenditure was Rs.60 lakhs+ and total revenue received was Rs.48 lakhs+. It was suggested that Convention Secretariat may need to bring some additional sponsorship.
2. It was informed by Dr. Ambrish Kumar that the balance amount of Rs.45544/- from the 55<sup>th</sup> ISAE Annual Convention was returned to ISAE headquarter and rest seed money will be returned soon in instalments.
3. The issue of pending dues with Punjab Chapter will be taken up with the newly constituted Executive Body of Punjab Chapter.
4. The annual activity plan-2023 was presented by Vice-President (Technical council) and Vice-President(Activity council) and it was decided that the comprehensive plan of both the councils may be prepared, get approval of the same from the President, ISAE and put up on the website.
5. As per the revised constitution, Chairman of all state chapters may be included in ISAE council WhatsApp group.
6. The ISAE in general and Executive Committee in particular appreciates the contribution of Late Bal Chandra Babu and pays homage to the departed noble soul. It was unanimously decided to nominate Mr. Kumar Bimal, Chief of Sales and Marketing, CNHi as Director (Industry, Start-up and Entrepreneurship) for ISAE Council. He should be contacted and, if agreed notification should be out within a week.



## ISAE Happenings

### Executive Council Meetings held on dated 08.01.2023

7. As per the revised constitution few names were suggested by the members and agreed upon by the EC subject to consent by the honourable member to be in the Advisory Committee. The names approved for Advisory Committee are Dr. V.M. Mayende, Dr. S.R. Verma, Dr. Bangali Babu, Dr. K N Tiwari, Shri. Kesavan, Shri Kulkarni, CEO M/s Jain Irrigation, Shri Neeraj Srivastava, Dr. V N Kale.
8. It was decided to organize an Industry-academia meet with special focus on Millets in NASC Complex, New Delhi by ISAE Delhi Chapter. The symposium may be organized in July, 2023. The meet mostly should focus on industry problems and solutions by academia. The details may be chalked out in a joint meeting with the Executives of Delhi Chapter. It was suggested to organize one symposium on Emerging technologies appropriate for agricultural structure (Bamboo) in the North Eastern region of the country.
9. It was decided to conduct online training programme for
  - a) writing winnable research project proposal and
  - b) skill development in technical paper writing. The training programmes will be on payment basis in online mode as an annual plan.
10. A target was set to make at least 10 institutional members, 10 corporate members and 100 life members by 31<sup>st</sup> March 2023. The President, ISAE has sent letters to concerned Directors of ICAR institutes and Vice Chancellors of State Agricultural Universities. The meeting with State Chapters may be organized quarterly and membership enrolment and drive for updating data of exiting members should be intensified during for January-March, 2023.
11. The advertisement price per page in AET was raised to Rs. 25,000/- . A meeting at ISAE HQ will be organized to reduce the printing price of AET in line of India today or some similar magazine. The issue of AET should be submitted to NAAS immediately after publication. The open access of the old JAEI after 3 or 5 years of publications will be decided after discussion with Indian Journal.com.
12. The online system of JAEI manuscript processing is ready. All efforts should be made to re-apply for SCOPUS, Elsevier and other indexing and online system for JAEI manuscript processing be launched on the 26th January 2023



## ISAE Happenings

### Meeting of President, ISAE with members of ISAE, Odisha chapter

A meeting of the ISAE members of Odisha Chapter was held in the chairmanship of Dr. S. N. Jha, President, ISAE in Radhey Lal Hall of College of Agricultural Engineering and Technology, OUAT, Bhubaneswar on 20<sup>th</sup> Jan, 2023. At the outset, Dr. A.K. Goel, Chairman, ISAE, Odisha Chapter welcomed the President and presented the activities of the Odisha chapter. Dr S. N. Jha briefed about the achievements of ISAE and the efforts taken during the year to make the society vibrant. He urged upon the members to go through the by-laws and activities related to ISAE which are available in the website. He advised the members to complete their personal profile so as to generate the unique identity cards for them. He mentioned that five thousand rupees was allotted to each centre to carry out different activities such as awareness programmes in schools. He suggested the chapter to conduct two general body meetings and communicate to the ISAE head quarter with good quality photographs. He also mentioned that best chapter award will be given to the chapter based on the criteria of timely submission of audit report and other activities. Dr. Jha requested the chapter to circulate ten copies of Agricultural Engineering Today journal to the local bookseller for publicity. Prof. S. K. Dash, Dean, College of Agricultural Engineering and Technology, Bhubaneswar suggested to make the ISAE published journals open access. Dr. (Mrs.) K. Rayaguru, Director (Gender Issues) suggested to dedicate one section in Agricultural Engineering Today journal for popular articles based on the scientific technology developed by the members. Dr. D. M. Das, Executive Member of the chapter suggested to include list of entrepreneurs and manufacturing companies in AET. About 35 ISAE members and 15 students participated in the programme.



### Delhi Chapter Meeting at ISAE HQ on 24.01.2023

On dated 25.01.2023, at 3.00 PM, a meeting of executives of ISAE Delhi Chapter at ISAE HQ was held to discuss the one day workshop on engineering aspects to be organized by ISAE Delhi Chapter at New Delhi.

The meeting was chaired by the President ISAE Dr. S.N. Jha, President, during the meeting Dr. P.K. Sahoo, Secy. General, Dr. A.K. Mishra, President Delhi Chapter, Dr. Sushma Sudhishre, Dr. T. K. Khura, Secretary-I ISAE, Dr. H.L. Kushwaha, Dr. J. Rajput were present



## ISAE Happenings

### Interaction with Agricultural Machinery Manufacturers, ISAE, Odisha Chapter

An interaction meeting with Agricultural Machinery Manufacturers was organised by ISAE, Odisha Chapter at College of Agricultural Engineering and Technology, OUAT, Bhubaneswar on 19.01.2023. Dr. S. N. Jha, President, ISAE, Dr. S. K. Dash, Dean, College of Agricultural Engineering and Technology, Bhubaneswar, Dr. C. R. Mehta, Director, CIAE, Bhopal, Dr. P. L. Singh, ADG (FE), Dr. K. K. Singh, Retd. ADG (FE), Dr. A. K. Goel, Chairman, ISAE, Odisha chapter, Dr (Mrs.) K. Rayaguru, Director (Gender Issues) and about twenty manufacturers attended the meeting. Dr. A. K. Goel welcomed the dignitaries and manufacturers to the interaction meeting and highlighted the efforts of manufacturers in agricultural mechanisation of the state.

The manufacturers elaborated their activities and interacted about the issues related to farm machinery manufacturing and post-harvest operations. Dr. S. N. Jha briefed the manufacturers about ISAE and suggested them to be the corporate member of ISAE to avail the technical benefits. He also suggested that manufacturers should be credited for scientific intervention if they have contributed. He also assured to advertise the manufacturing company and their machineries in the ISAE e-newsletter free of cost.



### ISAE Jabalpur Chapter, Organised lecture on Natural Resource Management

ISAE Jabalpur Chapter organized a Guest Lecture by Dr. D.H. Ranade, Dean Faculty of Agriculture, RVSKVV, Gwalior on "Natural Resource Management" in the College of Agricultural Engineering, Jabalpur.





## National Conference organized at ICAR-NINFET, Kolkata

ICAR-National Institute of Natural Fibre Engineering and Technology (NINFET) in collaboration with The Indian Natural Fibre Society (TINFS); ICAR-Central Research Institute of Jute and Allied Fibres (CRIJAF), Barrackpore; National Jute Board (NJB), Kolkata; Jute Corporation of India (JCI), Kolkata; Central Wool Development Board, Jodhpur & NABARD, Kolkata has organized a 2 days National Conference on “*Natural fibre for sustainable societal development*” during January 03-04, 2023.

Dr. S.N. Jha, DDG (Agricultural Engineering), ICAR and Chief Guest of the inaugural session has praised the efforts of ICAR-NINFET in organizing this conference and urged the delegates for use of natural fibre-based products. He also suggested for strengthening TINFS through more collaboration with fibre related organizations. Dr. K Narsaiah, ADG (PE), ICAR and Guest of Honour has addressed the delegates and spoken about the application of latest technologies in the R&D of natural fibres.



*Dr SN Jha, DDG (AE),  
addressing the audience*

Dr. GS Bhatti, Executive Director, CWDB has suggested for blending of wool with other natural fibres for diversified products. Dr. Gouranga Kar, Director, ICAR-CRIJAF has spoken about sustainable production strategies of natural fibres. Dr. A Sahoo, Director, ICAR-NRC on Camel in his address has stressed upon more and more use of animal fibres in research and development.

Issues and strategies for growth and sustenance of natural fibres were presented and discussed in nine technical sessions including the poster session during this conference. The menace of plastic in connection with environmental degradation and the call for “ban on single use plastics” were also discussed in details in various themes and sub-themes during the conference. Concurrent to this conference, a farmers’ fair-cum-exhibition was also organized where KVKs, Startups, FPOs and nearby ICAR Institutes have participated.

Recent issues of journal and newsletter published by The Indian Natural Fibre Society (TINFS) and Souvenir- cum- Technical Volume of the conference were released on this occasion. TINFS awards were also distributed in this inaugural session. Exchange of Memorandum of Understandings (MoUs) between ICAR-NINFET and manufacturers was a highlighting feature in this event. Technologies viz. Banana Pseudo-stem Fibre Extractor, Pineapple Leaf Fibre Extractor, Natural Fibre Grading Instruments, Jute leaf Drink, Jute Activated Carbon were licensed through this MoU. About 200 delegates representing research organization, academia, industry, startups etc. have participated in these two days event. Dr. L.K. Nayak, Organizing Secretary has coordinated this two days National Conference.

*(Source: ICAR- National Institute of Natural Fibre Engineering and Technology, Kolkata)*



## National Conference organized at ICAR-NINFET, Kolkata

### *Glimpses of the event:*



*Address by Director, ICAR-NINFET*



*Release of Souvenir-cum-Technical Volume*



*Distribution of Awards*



*Exchange of MoUs*



*Delegates attending conference*



*Presentation of paper*



*Poster session*



*View from Planery session*



The journal of Agricultural Engineering (India) is a peer reviewed journal and publishes interdisciplinary basic and applied research manuscripts of engineering and technology to address the problems of agricultural, food and biological system. The journal publishes papers of both theoretical and applied nature, with as special focus on experimental research news design criteria, mathematical modelling and innovative approach relating to all fields of agricultural engineering and technology.



  
**GRAND**  
**INAUGURATION**  
**JANUARY 26th**  
Inauguration of Online Journal Management  
System for  
Indian Society of Agricultural Engineers  
*By Dr. S. N Jha, Deputy Director General*



Jan.-Feb. 2023





## Maharashtra Agrineers on Sit-in Protests for their rights for past 35 days, 110 hospitalized so far ....

Maharashtra State Agricultural Engineering Association comprising of more than 2500 Agricultural Engineering Undergraduate and Post Graduate students from four State Agricultural Universities (SAUs) Mahatma Phule Krishi Vidyappeth (Agricultural University), Rahuri, Dist. Ahmednagar, Dr. Balasaheb Sawant Konkan Krishi Vidyappeth, Dapoli, Dist. Ratnagiri, Dr. Panjabrao Deshmukh Krishi Vidyappeth, Akola and Vasantrao Naik Marathwada Krishi Vidyappeth, Parbhani of Maharashtra State, are on indefinite sit-in protest from Jan. 25, 2023 that is nearly for last 35 days, 110 are hospitalized so far due to health deterioration, for their legitimate demands against unjustifiable change in syllabus, withdrawal of optional subject of Agricultural Engineering, reducing weightage of total Agricultural Engineering Syllabus, etc. through impugned advertisement Dated 18/02/2022. and 30/09/2022 published by Maharashtra Public Services Examination (MPSC) (The Commission) for Mains exams for recruitments of Agricultural Officers' in the State. The commission decided all that at its own without notice of all Hon'ble Vice-Chancellors of four SAUs of Maharashtra and examinees in a row. The written exam of Agri. MPSC (Mains)-2021/2022 were seen only on core subject of (1) Compulsory subject Code No. 511 of the Agricultural related General Knowledge and (2) that too Compulsory subject Code No. 512 entitled Agricultural Sciences and Technology, wherein in name of Technology syllabus, the Agricultural Engineering has been allotted mere 16 marks out of 200 (i.e., just 8 questions out of 100 questions).

### महाराष्ट्र कृषि सेवा, (मुख्य) परीक्षा

Maharashtra Agriculture Services, (Main) Exam

परीक्षेचे टप्पे :- लेखी परीक्षा - ६०० गुण व मुलाखत - ७५ गुण.

प्रश्नपत्रिकांची संख्या:- दोन (एक अनिवार्य व एक वैकल्पिक)

OLD SYLLABUS upto 2018-19

-: परीक्षा योजना :-

पेपर क्रमांक	विषय व संकेतांक	प्रश्नसंख्या	गुण	माध्यम	कालावधी	दर्जा	प्रश्नपत्रिकेचे स्वरूप
१ (अनिवार्य)	कृषि - विज्ञान (संकेतांक ०१५)	१००	२००	इंग्रजी	एक तास	कृषि पदवी	वस्तुनिष्ठ
२ (वैकल्पिक)	कृषि (संकेतांक १०१) किंवा कृषि अभियांत्रिकी (संकेतांक १०२)	२००	४००	इंग्रजी	दोन तास	त्या त्या विषयाची पदवी	वस्तुनिष्ठ

वैकल्पिक विषय : कृषि (संकेतांक-१०१) अथवा कृषि अभियांत्रिकी (संकेतांक-१०२) या दोन विषयांपैकी कोणताही एक विषय निवडावा.

### महाराष्ट्र राजपत्रित तांत्रिक सेवा (मुख्य) स्पर्धा परीक्षा कृषि सेवा (मुख्य) परीक्षा

Maharashtra Gazetted Technical Services (Main) Competitive Examination  
Agriculture Services (Main) Examination

परीक्षेचे टप्पे - लेखी परीक्षा - ४०० गुण

NEW SYLLABUS FROM 2021-22

-: परीक्षा योजना :-

पेपर क्रमांक व संकेतांक	विषय	प्रश्नसंख्या	गुण	माध्यम	कालावधी	दर्जा	प्रश्नपत्रिकेचे स्वरूप
१ (संकेतांक ५११)	कृषि - विषयक सामान्य ज्ञान	१००	२००	इंग्रजी	एक तास	कृषि पदवी	वस्तुनिष्ठ बहुपर्यायी
२ (संकेतांक ५१२)	कृषि विज्ञान व तंत्रज्ञान	१००	२००	इंग्रजी	एक तास	कृषि पदवी	वस्तुनिष्ठ बहुपर्यायी

In the old syllabus, effective from 1992 to till date of an Advt. dated July 24, 2018, the Mains of Agriculture MPSC exam was being conducted as (1) Paper 1 based on Agricultural Science (Code 015) was compulsory and (2) Paper 2 had two separate optional subjects namely (a) Agriculture (Code No. 101) or (b) Agricultural Engineering (Code No. 102). In some advertisements, the number of questions and marks of optional subjects seemed to have changed as 100 and 200, respectively. However, there was choice to opt one complete Agricultural Engineering subject paper parallel to that of Agriculture.

The aggrieved students are sitting in front of University Administrative buildings **are demanding to cancel all those Agri. MPSC exams conducted on basis of new and impugned syllabus and reinstitute the previous syllabus to effect the said recruitment process again from beginning.** The University Authorities and Dr. P. G. Patil, Hon'ble Vice Chancellor, MPKV, Rahuri and Dr. S. D. Sawant, Hon'ble Vice Chancellor, Dr. BSKKV, Dapoli personally conveyed the issue to the Hon'ble Governor and submitted request to look into the matter. Dr. S. R. Gadakh, Hon'ble Vice Chancellor, Dr. PDKV, Akola and Dr. Indra Mani Mishra, Hon'ble Vice Chancellor of VNMKV, Parbhani also extended their supports and sympathetically dealt with submissions of the students on strike. Besides, the students Delegations held detailed and convincing discussions with Hon'ble Chief Minister of the State Shri. Eknathji Shinde, with Hon'ble Dy. Chief Minister Shri. Devendraji Fadanvis and with Hon'ble Agricultural Minister Shri. Abdulji Sattar. The issue has been constantly in Newslines. But the actions needs to be undertaken in favour of the students as early as possible so as to relieve the hardship imposed thereupon.



Meanwhile, as the new regular Chairman of the Commission posted during Nov., 2021, all of a sudden, the Commission announced change in Syllabus as on 11/02/2022 and within next seven days, imposed an advertisement dated 18/02/2022 for a total of 203 posts of Agricultural Officers in TOTO. Due to this unfair policy of the Commission, there has been a huge injustice to the Agricultural Engineering candidates and a violation of equal natural justice. Therefore, with insecure minds, the students of the Agricultural Engineering of all four SAUs in Maharashtra staged a sit-in protest on March 4, 2022, against the unjustifiable policies of the Commission. Taking cognizance of this movement, the Hon'ble Vice-Chancellors of all four SAUs in the state, through formal correspondence, informed to the then Hon'ble Governor of Maharashtra that the advertisement published on 18/02/2022 should be suspended immediately to cancel this unfair change in syllabus and restore it as previous one which existed before 11/02/2022. Hon'ble Governor took notice of the matter and subsequently followed up with the Maharashtra Public Service Commission.





**कृषी अभियांत्रिकी विद्यार्थ्यांचे  
आंदोलन पाचव्या दिवशीही सुरूच**

लोकसत्ता प्रतिनिधी

[illegible]

सुल्तान अगम्या निधारी विद्यासायनी  
ज्याकरा जेला,  
राज्यासह राज्य कुपी अभियांत्रिकी  
राज्यासह नेतृत्वाखाली आदीलान  
आहे, संघटनेच्या निवेदनात  
जेलणे की वकील अगम्यासह मातुले  
कुपी अभियांत्रिकी पदवीधारांकर  
होत असलेले अगम्या त्याकाळ  
साधवाचा, हे धोरण बदलावे व कुपी  
अभियांत्रिक्यांना त्यास जिल्ह्यातून सन  
२०२१ व २०२२ च्या परीक्षांना  
त्याकाळाला परीक्षा घ्यावी, राज्यसेवा  
आणि परीक्षा २०२३ साठी  
राज्यसेवा वैयक्तिक विषयप्रमाणे  
कुपी अभियांत्रिकी शाखेचा

वैकल्पिक विषयात समाविष्ट करावा, मुद्दम जलसंचारण विभागतर्फे अभियांत्रिकी शाखेत उपदेशवारी करणे करावी, राज्यातील कुप्री अभियांत्रिकी शाखेसाठी स्वतंत्र कुप्री अभियांत्रिकी संस्थानालय स्थापन करावे आदी मागण्या आहेत.

यासंबंधी सरकारचे या प्रश्नात त्वरित लक्ष घालावे व मागण्या मान्य कराव्यात, अन्यथा विद्यार्थ्यांनी टोकाचे पाऊल उचलल्यास त्यास सरकार संयतबद्ध राहील, असा इशाराही संघटनेने दिला आहे.



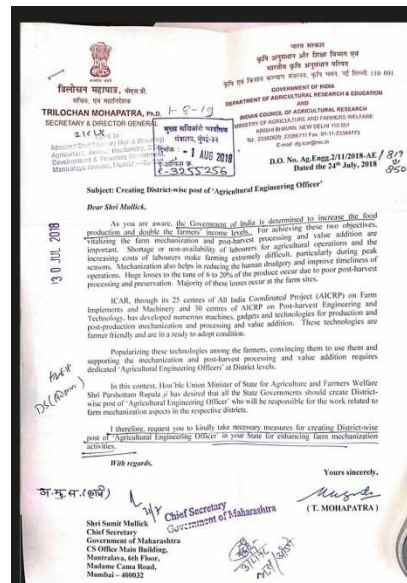
**लोकसेवा आयोगाचा खेळ; कृषी अभियंत्यांवर स्वयंपाकाची वेळ**  
५३ आंदोलकांची प्रकृती खालावली : पाचव्या दिवशी आंदोलन सुरूच

[illegible][illegible]

अभियानांतिकी साक्षेच्या  
भरती करावी.  
राज्य सेवा २०२३ मुख्य  
अभियानांतिकी साक्षेसाठी  
विषयाचा समावेश करावा  
लक्षांच्या मुख्य मागण्या



Separate Directorates of Agricultural Engineering, as suggested by ICAR, New Delhi to all States of India, should be established in the state. In this regard, letters, dated 24.07.2018, 03.08.2018, and 01.02.2023 were issued by the Secretary & Director General, Govt. of India, Dept. of Agricultural Education & Research and another by State Agricultural & Farmers Welfare Minister, New Delhi and President of Indian Agricultural Engineering Society, respectively. In this regard, the Addl. Secretary, Agri, & AH&D, Mumbai vide letter, dated 04.10.2022 has also issued directives to the Commissioner (Agri.), Pune to create posts of Agricultural Engineers in each district, but till today action in the matter is awaited. Agricultural Engineers are specialized in the application of engineering principles to the agricultural industry, for increasing production and betterment in the quality of produce. Agricultural Engineers are at the forefront of developing and applying new technologies to the agricultural industry. This can be valuable in government services, where there is a need to stay with current technological advancements and their potential impact on agriculture. This is possible by having a separate directorate of Agricultural Engineering that can develop required policies and apply this rationally in the entire state. The ISAE requests the State Government to look into the matter and resolve the issue fruitfully. ISAE extends its support to these students and wish them a success and bright future! (*Source: Students' Representative*)



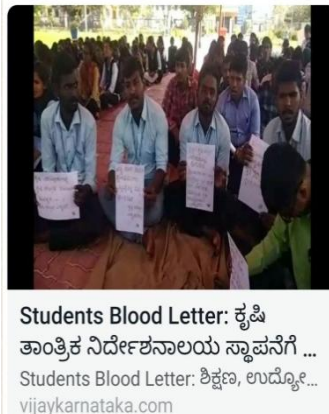


## Karnataka Agrineers on hunger strike for Directorate of Agricultural Engineering and share in jobs of State Services in field of Agriculture

Nearly 600 Students of College of Agricultural Engineering, UAS, Raichur and Bengaluru were on indefinite strike to get Appropriate portion of jobs of AO/AAO in the state services of Karnataka and also with demand to get created Directorate of Agricultural Engineering in the state for nearly 40 days.

Dr. P.P. Salimah, Hon'ble Vice Chancellor of UAS, Raichur had discussed the issue with the Department Secretaries and said that they have assured a solution. Besides, the students also raised the issue with Mrs Shobha Karandlaje, Hon'ble Minister of State for Agriculture and Farmers' Welfare, Govt. of India.

The matter was raised in the Karnataka Assembly. The present Government has taken due cognizance of the matter and assured the students of appropriate solution. Presently the students have called off the hunger strike and started attending their classes tying black ribbon on arms till the demands are fulfilled.



**ಸುದ್ದಿಮೂಲ**  
www.epaper.suddimoola.in

ರಾಯಚೂರು ಕೃಷಿ ವಿವಿ ವಿದ್ಯಾರ್ಥಿಗಳ ಪ್ರತಿಭಟನೆ  
ಸದನದಲ್ಲಿ ಶಶೀಲ್ ನಮೋಶಿ ಧ್ವನಿ

● ಸುದ್ದಿಮೂಲ ವಾರ್ತೆ ಬೆಂಗಳೂರು, ಫೆ.20

ರಾಯಚೂರು ಕೃಷಿ ವಿಶ್ವವಿದ್ಯಾಲಯದ ಬಿ. (ಕೃಷಿ ತಾಂತ್ರಿಕ) ಪದವೀಧರ ವಿದ್ಯಾರ್ಥಿ ಕರ್ನಾಟಕದಲ್ಲಿ ಪ್ರತ್ಯೇಕ ಕೃಷಿ ತಾಂತ್ರಿಕ ಶಾಲೆಯ ಸ್ಥಾಪನಾಬೇಕೆಂಬ ಬೇಡಿಕೆ ಯ ಪ್ರತಿಭಟನೆ ನಡೆಸುತ್ತಿರುವುದನ್ನು ವಿವರಿಸುತ್ತ ಪರಮಪೂಜ್ಯ ಶ್ರೀ ಶ್ರೀ ಜಿ. ನಮೋಶಿವ ಪರಮಹಂಸ ಸರ್ಕಾರದ ಗಮನ ಸೆಳೆದರು.

ವಿಧಾನ ಪರಿಷತ್ತಿನಲ್ಲಿ ಸೋಮವಾರ  
ವೇಳೆಯಲ್ಲಿ ವಿಷಯ ಪ್ರಸ್ತಾಪಿಸಿದ ನವ  
ಕೃಷಿ ಇಲಾಖೆ ಸಚಿವರು ಈ ಬಗ್ಗೆ ಸೂಕ್ತ  
ಕ್ರಮಗಳನ್ನು ಕೈಗೊಂಡು ಒತ್ತಾಯ ಮಾಡಿ  
ಪ್ರಜಾಪ್ರಭುತ್ವ ವ್ಯವಸ್ಥೆಯಲ್ಲಿ ತಮ್ಮ  
ಗಣಗಾಗಿ ಹೊರಹಿಡಿದುಬಿಟ್ಟಿದ್ದು ಗುರು  
ತಿಸಿದ ಮೂಲಭೂತ ಹಕ್ಕನ್ನು ಸಂವಿಧಾನ  
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ಲಯವನ್ನು ಸ್ಥಾಪಿಸಬೇಕೆಂಬ ಬೇಡಿಕೆಯ  
ಪ್ರತಿಭಟನೆಯನ್ನು ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಹ  
ಪ್ರವೇಶ ನಿರ್ವಾಹಿಸಿರುವುದಲ್ಲದೆ,



ಬಿ.ಟೆಕ್ (ಕೃಷಿ ತಾಂತ್ರಿಕ) ಪದವೀಧರ  
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ನಿರ್ದೇಶನಾಲಯ ಸ್ಥಾಪನೆಗೆ ವಿಧಾನ  
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ಸದನದಲ್ಲಿ ಪ್ರಸ್ತಾಪಿಸಿ ಸರ್ಕಾರದ  
ಗಮನ ಸೆಳೆದರು.

ಸರ್ಕಾರ ಈ ಕೂಡಲೇ ಮಧ್ಯಪ್ರವೇಶಿ  
ಸಬೇಕು.

ಕೃಷಿ ವಿಶ್ವವಿದ್ಯಾಲಯ ಹೊರಡಿಸಿರುವ ಆದೇಶವನ್ನು ರದ್ದುಗೊಳಿಸಿ, ವಿದ್ಯಾರ್ಥಿಗಳ ಕೊಂದಿಗೆ ಸಮಾಲೋಚನೆ ನಡೆಸುವ ಮೂಲಕ ಸಂಬಂಧಪಟ್ಟ ಅಧಿಕಾರಿಗಳಿಗೆ ಕೃಷಿ ಸಚಿವರು ಸೂಕ್ತ ನಿರ್ದೇಶನ ನೀಡಬೇಕು ಎಂದು ಹೇಳಿದರು.

**KK Govt. takes cognizance of the matter and assured the appropriate solution**

ಗುಡ್ಡು ಬೆಟ್ಟದ ಹಿಡ್ಡು, ತಾಳೂರು.



## Dr. Digvir Singh Jayas addressed as Chief Guest of National Science Day celebration to the Scientists of CIPHET, Ludhiana

CIPHET, Ludhiana and ISAE Panjab Chapter celebrated National Science Day on Feb. 28, 2023. On this Occasion, Dr. Digvir Singh Jayas, President and Vice Chancellor, University of Lethbridge, Canada was Chief Guest of the function. He addressed to gathering of Scientists.



Dr. Nachiket Kotwaliwale, Director, CIPHET and ISAE, Panjab Chapter, felicitated him for peerless contribution to the field of Agricultural Engineering at International level. ISAE congratulates Dr. Jayas on his high achievements!

## A Tableau From The Indian Council And Agricultural Research (ICAR) Department Was Among The Special Attractions During The 26<sup>th</sup> Jan 2023 Parade

A tableau from the Indian council and Agricultural Research (ICAR) department was among the special attractions during the parade on the theme 'International year of millets 2023' as India is the largest producer of millet in the world with an annual production of around 10 million tonnes. It is followed by Niger, China and Mali, in terms of millet production in the world.

The government spearheaded the United Nations General Assembly (UNGA) resolution to declare the year 2023 as the International Year of Millets and the proposal was supported by 72 countries. UNGA declared 2023 as the International Year of Millets in March 2021.





# Entrepreneurship Development Program on Food Processing Technology

Entrepreneurship Development Program on Food Processing Technology was organised from 20-24 Feb, 2023. Applications were invited for Entrepreneurship Development Program, in virtual/online mode under ICAR- NRRI-ABI

## How to apply?

Interested candidates may apply Online by filling up the application form. Training fee of Rs.300/- have to be paid through online payment gateway, while filling the application form for the program at the following link

<https://forms.gle/Gsub4NBj8wseYmZb9>

## Online essentials

- ❖ Camera and microphone enabled computer desktop/laptop or Tab/Mobile device with good internet connectivity
- ❖ Soft copy of the compendium of lectures will be provided to each participant
- ❖ Online certificates will be provided which can be printed by the participants



## Course Director

❖ **Dr. G.A.K. Kumar**  
PI-ABI  
Principal Scientist & Head  
Social Science Division  
ICAR-NRRI, Cuttack

## Course Coordinator

❖ **Dr. M. Sivashankari**  
Scientist  
Crop Production Division  
ICAR-NRRI, Cuttack

## For registration & more details contact

❖ **Dr. Sai Krishna Repalli**  
Business Manager  
Agribusiness Incubation Centre  
ICAR-NRRI, Cuttack  
Ph: 9938996514

❖ **Mr. Rakesh Kumar Nayak**  
Business Executive  
Agribusiness Incubation Centre  
ICAR-NRRI, Cuttack  
Ph. 8984433004

## Director

**Dr. Amaresh Kumar Nayak**

ICAR- National Rice Research Institute  
Cuttack-753006, Odisha, India  
Website: <https://icar-nrri.in/abi-unit/>  
Email: [nrri.abi@gmail.com](mailto:nrri.abi@gmail.com)



## Entrepreneurship Development Program on Food Processing Technologies

**20-24 Feb, 2023**



## FOOD PROCESSING



**Organised by**  
**Agribusiness Incubation (ABI) Centre**  
**ICAR-National Rice Research Institute (NRRI),**  
**Cuttack 753006 (Odisha)**

## Scope of the program

Agriculture plays a pivotal role in the Indian economy. Over 70 per cent of the rural population depend on agriculture. It contributes about 17% to the Gross domestic product (GDP) of the nation and provides employment to over 60% of the population. Out of this Food Processing Industry (FPI) alone contributes to 12.8% of Indian GDP. Availability of abundant agriculture raw material predominantly in the form of horticulture products has given an immense scope for the flourishing of FPI in India. Moreover, with the burgeoning increase in population, the requirement of processed food has immensely increased. By the year 2030, Indian annual household intake is predicted to triple, making India the 5th largest customer in the world. Availability of online food ordering facilities, and increase in the tendency of people's choice for processed foods have given a wide scope for entrepreneurship and startup opportunities in this sector. This zone is anticipated to generate nine million jobs by 2024.

In this scenario, this Entrepreneurship Development Program (EDP) on Food Processing Technologies holds significant to provide thorough information to the budding entrepreneurs and startups in this sector. This training program deals with the entrepreneurship opportunities available in rice, millets, spices, tuber and horticulture crops along with fermented products. This program also emphasizes on the minimal processing, packing branding and labeling methods and aims in providing complete holistic picture in this sector by covering the government schemes, laws, regulations and business plan preparation to support entrepreneurship development in food processing technologies.

## About NRRI-ABI

Agribusiness Incubation (ABI) Centers were established in different ICAR-Institutes for technology commercialization and also to train the youth in their respective fields of interest. Entrepreneurship development remains the major objective of the ABIs to support the youth for their agribusiness start-ups. In this sequence, Agribusiness Incubation Centre of ICAR-National Rice Research Institute, was started in the year 2016 as a part of component II under the scheme "NAIF" to replace Business Planning & Development (BPD) unit.

## Course coverage

- ❖ Overview of entrepreneurship development in food processing
- ❖ Food Laws and Regulations
- ❖ Schemes and Funding Opportunities for Food Start-ups
- ❖ Advances in food packaging and branding
- ❖ EDP through generation of wealth from banana and its by-products
- ❖ Spices processing for entrepreneurship development
- ❖ Tamarind processing for entrepreneurship development
- ❖ Minimal processing & its scope for entrepreneurship
- ❖ Entrepreneurship opportunities in Rice based products
- ❖ Entrepreneurship opportunities in Traditional fermented foods
- ❖ Entrepreneurship development through baking technology
- ❖ Promoting entrepreneurship by processing technologies of millets
- ❖ Value addition of tuber crops for entrepreneurship development
- ❖ Entrepreneurship development technologies for millets
- ❖ Drafting a business plan on food processing enterprises

## Experts

- ❖ **Dr. M. Sivashankari**, Scientist, ICAR-NRRI, Cuttack
- ❖ **Dr. R. Vidyalakshmi**, Associate Professor, NIFTEM, Thanjavur
- ❖ **Dr. R. Meenatchi**, Associate Professor, NIFTEM, Thanjavur
- ❖ **Dr. Anandakumar**, Associate Professor, NIFTEM, Thanjavur
- ❖ **Dr. Ravindra Naik**, Principal Scientist, ICAR-CIAE Bhopal
- ❖ **Dr. Rakesh Kumar Raigar**, Asst. Professor, CAU, Ranipool, Gangtok
- ❖ **Dr. V. Palanimuthu**, Professor, UAS, Bangalore
- ❖ **Dr. Sadvatha Haromuchadi**, Scientist, ICAR-CIAE, Bhopal
- ❖ **Dr. Soumya Ranjan Purohit**, Asst. Professor, Tezpur University, Assam
- ❖ **Dr. Vasudha**, Associate Professor, Jamia Hamdard, New Delhi
- ❖ **Dr. Saraswathy Eeswaran**, Associate Professor, TNAU, Coimbatore
- ❖ **Dr. Dipika Agrahar-Murugkar**, Principal Scientist, ICAR-CIAE Bhopal
- ❖ **Dr. M.S. Sajeev**, Principal Scientist, ICAR-CTCRI, Thiruvananthapuram
- ❖ **Dr. Debabandhya**, Principal Scientist, ICAR-CIAE, Bhopal
- ❖ **Dr. D.M. Kadam**, Head TTD, ICAR-CIRCOT, Mumbai
- ❖ **Sri Laxman Kumar Palatasingh**, Former DDA, BBSR

## Selection

- ❖ The course will be offered online to the participants on first come first serve basis.

## Who can apply?

Any person who wish to be an agriprenure and start agribusiness venture in food processing technologies. Basic knowledge of computers/computing devices is essential. The participants are also expected to have their own arrangements for attending online training modules through video conferencing.



## MoU Signed between CSIR-IMMT Bhubaneswar and OUAT Bhubaneswar

CSIR-Institute of Minerals and Materials Technology and Odisha University of Agriculture & Technology (OUAT) have inked a Memorandum of Understanding on Monday for enabling collaborative research, technology development and transfer.

This MoU is aimed to catalyze knowledge exchange and translation of ideas from laboratory to industries through intervention of science & technology powered by CSIR-IMMT InTEC (Innovative Technology Enabling Centre) and IMMT-DSIR-CRTDH (Common Research & Technology Development Hub).

The MoU is also aimed to nurture joint research pursuits between both the premier organizations on developing technologies related to sustainable and modernized agricultural methods and innovative products and processes. The works covered under the MoU includes technologies for advanced CO<sub>2</sub> sequestration, 3rd generation biofuel production and advanced plasma based postharvest techniques for improved shelf-life, germination and yield.

Prof. Garikapati Narahari Sastry, Director CSIR-IMMT and Prof. Sanjay Kumar Das, Dean College of Agricultural Engineering and Technology, OUAT were present in the signing event.



## President ISAE, Written letter to Chief Ministers of State for Opening Directorates of Agricultural Engineering

In continuation to the letters from Shree Rupala jee Hon'ble central Cabinet minister, Dr. S N Jha, DDG (Engg.) & President ISAE, has written a letter to all the chief ministers along with a copy of JAEI and AET for opening of Directorate of Agricultural Engineering.

Some states like UP, Chhattisgarh etc. have already initiated work in this direction. Dr. Jha requested all IASE chapters to follow it up at local level.

Secretary of UP had officially announce in one of the ICAR regional committee meeting, which is being continuously followed up by IASE at local level for implementation.



## AARDO's Day 3 Millet Training Programme Emphasizes On Value Processing And Challenges In Millet Production

The day 3 session of African Asian Rural Development Organization's four-day international online training programme "Millets for Global Food Security" concluded successfully on Wednesday. The training session was organized keeping in mind the International Year of Millets 2023.

The training session was moderated by Prof. M Moni, Ex-DG of the National Informatics Centre (NIC) and Professor Emeritus at Shobhit Institute of Engineering and Technology addressing the participants from across African and Asian countries.

Dr. Debabandya Mohapatra (Principal Scientist, Agro-Produce Processing Division, ICAR-Central Institute of Agricultural Engineering, Bhopal, Madhya Pradesh), and emphasized on value addition and improved production of millets. She talked about various machineries used in the primary and secondary processing of millets. The key points from her speech are listed below:

- History of millets
- Production status worldwide
- Types of Millet
- Millet production and processing mechanization
- Millet Employment opportunities

Mr James Rema Masisa (Directorate of Food and crop Ministry of Agriculture Migori, Kenya), talked about the challenges in millet cultivation from the African perspective. According to him millet negligence in science, agricultural programmes, and policies are some of the major drawbacks.

Millets, like other agricultural crops, encounter several challenges in their quest for greater productivity and output. One of the main issues is the loss of millet cultivation areas due to the conversion of millet-growing fields to more lucrative crops. Several elements contribute to millet cultivation restrictions; like lack of awareness, weed infestation, high cost of farm Inputs, labour intensive crops, limited research and many more.

The main speakers of the final day will be Adeniran Ayodeji Bobby (Deputy Director, Federal Ministry of Agriculture Nigeria) and Prof. Moni Madaswamy. The two will speak about global perspective of millets and startups involved in its production & processing. It will be followed by a Valedictory Session by Dr. C.V. Ratnavathi (Director, ICAR-Indian Institute of Millets Research Hyderabad and Mr. Rami Qtaishat (Assistant Secretary General, AARDO)

Source : <https://krishijagran.com/news/>



## A Webinar Was Organized On The Budget Announcements Related To Agriculture Ministries

On 24 February 2023, Prime Minister Shri Narendra Modi addressed the post-budget webinar on 'Agriculture and Cooperatives'. This is the second in a series of 12 post-budget webinars organized by the government with an aim to brainstorm ideas for effective implementation of the initiatives announced in the Union Budget-2023. In this, the Prime Minister said that like in the last 8-9 years, a lot of importance has been given to agriculture in this budget also. The agriculture budget which was less than Rs.25 thousand crore in 2014 has now been increased to more than Rs.1.25 lakh crore. Shri Modi said, "In recent years, every budget has been called the budget of the village, the poor, the farmer."



In the beginning of the webinar, in his keynote address, Prime Minister Shri Modi said that after independence, our agriculture sector remained under the pressure of scarcity for a long time. We depended on the world for our food security, but our farmers have not only made us self-reliant, but today because of them we have also been able to export. Today India is exporting many types of agricultural products. We have made it easy for farmers to access domestic and international markets, it is also to be kept in mind that whether it is self-reliance or exports, the target should not be limited to rice and wheat. For example, in 2021-22, 17 thousand crore rupees will be spent on the import of pulses. Had to spend 25 thousand crores on value added food products import was spent. One and a half lakh crore rupees on edible oil import in 2021-22 was Spent. About 2 lakh crore rupees were spent on the import of so many things. Spent, means so much money has gone out, which can reach our farmers, if we become self-sufficient in these products also. For the last few years, decisions are being taken in the budget to take these sectors forward. We increased the MSP, promoted pulses production, increased the number of food processing food parks. Along with this, work is going on in mission mode to become completely self-sufficient in the matter of edible oil.

The Prime Minister said that unless we address the challenges related to the agriculture sector, the goal of all-round development cannot be achieved. Today, many sectors of India are progressing rapidly, our energetic youth are actively participating in it, but their participation in agriculture is less, while they also know about its importance and possibilities to move forward in it. Various announcements have been made in this year's budget to fill the gaps of private innovation and investment. For example, the promotion of open source based platforms in the agriculture sector. We have put forth the digital public infrastructure as an open source platform. This is exactly the same as the open platform of UPI, through which digital transactions are taking place today. Today, as revolution is taking place in digital transactions, in the same way immense possibilities of investment and innovation are being created in the agri-tech domain. It has the potential to improve logistics, it has the opportunity to make it easier to reach the mass market, it has the opportunity to promote drip irrigation through technology, as well as the right advice, our youth to reach the right person in time can work .





Private soil testing labs can be set up in the same way as labs work in the medical sector. Our youth can become a bridge of information between the government and the farmer with their innovation. They can tell which crop can give more profit. They can use drones to estimate the crop. They can help in policy making. You can also provide real time information about the changes in the weather at any place. There is a lot for the youth to do in this sector, by actively participating in which they will help the farmers, as well as they will also get an opportunity to move forward.

Mr. Modi said that this year's budget has also made an important announcement about the provision of accelerator funds for agri-tech startups, we are not only building digital infrastructure, but we are also preparing funding avenues. Now it is the turn of our young entrepreneurs, they should move forward with enthusiasm and achieve their goals. It should also be kept in mind that 9 years ago there were very few agri startups in the country, but today they are more than three thousand. Still, we have to move forward at a faster pace. He said that on the initiative of India, this year has been declared as the International Millet Year. Millets getting international recognition means that the global market is getting ready for our small farmers the country has now given the identity of 'Shrianna' to coarse grains in this budget itself. The way ShriAnn is being promoted, it will greatly benefit small farmers. There is an increased scope for growth of such startups in this sector, which make it easier for farmers to access the global market.

The Prime Minister said that a new revolution is taking place in the cooperative sector. Till now it was limited to some states and some regions, now it is being expanded across the country. Important tax related reliefs have been given to the cooperative sector in the budget. New co-operative societies forming will get the benefit of lower tax rate. On cash withdrawal up to Rs. 3 crore by cooperative societies, TDS will not be applicable. There has always been a feeling in the cooperative sector that they are discriminated against in comparison to other companies, this injustice has been removed in the budget. Under the important decision, tax exemption has been given by the sugar co-operatives on the payments made before 2016-17, due to which they get benefit of Rs 10,000 crore.

In the concluding session, Union Minister Shri Tomar said that it is easy to understand the ground reality from the post-budget webinar. A good government is there, which zeroes in on the questions, the government is doing this work well under the leadership of Modiji. The more consultations are held on various forums, the more people's participation will take place. This practice also improves the quality of implementation. Many new initiatives have been taken in this budget. The budget is very good and far-reaching, important provisions have been made for agriculture and allied sectors.



Webinars on Digital Public Infrastructure for Agriculture, Accelerator Fund for Agri-Tech Startups, Self-sustaining Horticulture Clean Plant Program, Making India Global Hub for 'ShriAnn', Prosperity through Co-operation and Strengthening Value Chain Competencies in Fisheries Sector Experts and officers put forth their views on the subject of expanding markets.

During the webinar Secretaries, Additional Secretaries, Joint Secretaries, other officers and representatives of various organizations were present.

## First meeting of Agriculture Working Group under G-20 in Indore from 13 to 15 February, 2023

Indore / New Delhi, 12 February, 2023, Under the G-20 chairmanship of India under the leadership of Prime Minister Shri Narendra Modi, the first agricultural representative meeting of the Agriculture Working Group was scheduled from 13 to 15 February, 2023 in Indore (Madhya Pradesh). Around 100 delegates from G-20 member states, guest countries and international organizations participate in the meeting. Under the direction of the Union Minister Shri Narendra Singh Tomar, the Ministry of Agriculture and Farmers Welfare, Government of India has completed the preparations for this meeting in collaboration with the local administration and the state government.

On the first day of the meeting, Chief Minister of Madhya Pradesh Shri Shivraj Singh Chouhan inaugurate the exhibition at 1 pm. Stalls on Srianna (Millets) and its value-added food products as well as animal husbandry and fisheries stalls were the major attractions of the exhibition organized here

During the first ADM of the Agriculture Working Group, bilateral programs have been scheduled on the first day to deliberate on agriculture related matters. On the second day, on 14 February, the Union Minister for Civil Aviation, Shri Jyotiraditya Scindia delivered the welcome address, which will be followed by a general discussion among the participating members and international organizations

The third day will be devoted to discussions on the key deliverables of the AWG. It will be a technical session, with discussions and participation from all relevant members and international organizations. Apart from host India, representatives from Indonesia, Brazil, Argentina, Australia, Canada, China, European Union, France, Germany, Italy, Japan, Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, United Kingdom and the United States are also participating in the event. Will take Besides these, representatives from Bangladesh, Egypt, Mauritius, Netherlands, Nigeria, Oman, Singapore, Spain, United Arab Emirates and Vietnam were invited.

In the three-day meeting of agricultural representatives based on the theme of India's presidency in G-20, "Vasudhaiva Kutumbakam", the representatives of the group countries deliberated on topics such as increasing agricultural production, sustainable agriculture, agriculture, impact of climate change, use of digitalization.





## Ozonation System For Sanitization/ Disinfestation Of Horticultural Produce: PAU Steps in with new technology



**Dr. M. S. Alam**

Minimally processed in the form of peeled and cut onion have gained a lot of importance among the consumers based on their ready to use status. The shelf life of cut onions is relatively less than their intact counterparts as a result of injury to tissues and availability of more exposed surface for microbial contamination. In the case of minimally processed onion exposed to environmental conditions, contamination with pathogenic bacterial and fungal species has been a cause of great concern. Ozone is being seen as a potent alternative to chlorine based sanitation because of its strong oxidizing and antimicrobial properties.

It has been labelled as Generally Recognised as Safe (GRAS) agent by the USFDA, which does not produce any harmful by-products. Furthermore, raw material required and final decomposition product during ozone generation is atmospheric oxygen, which is non-polluting, inexhaustible and abundantly available.

In this context, a novel aqueous ozone sanitization system was designed, developed and evaluated for two types of minimally processed onion (fresh-cut slices and whole peeled) in the Department of Processing and Food Engineering, Punjab Agricultural University, Ludhiana for masters' research project by Er. Raouf Aslam under the supervision of Dr. M S Alam (Principal Scientist).



The developed system was evaluated for the kinetics of degradation, application methods, homogeneity of dissolution, and specific energy consumption. The results obtained showed that degradation kinetics of dissolved ozone followed a first-order reaction with a half-life of 18.23 min. Among the different methods of ozone application tested at 5 ppm ozone concentration, the splashing method yielded the highest microbial log reductions (5.04) followed by dipping (4.5) and spraying (4.22) methods. For the sanitization of cut slices of onion, it was observed that aqueous ozone at 5 ppm concentration splashed on the surfaces for 8 min and an aqueous pH of 3.01 yielded optimized sanitization, whereas microbial log reductions, pyruvate content, and overall acceptability were recorded as 5.6 log reductions, 0.127  $\mu\text{M/mL}$ , and 8.2, respectively. For whole peeled onion, aqueous ozone at 4.51 mg/L exposed to the onions for 8 min at a pH of 3 provided optimized sanitization that resulted in the most favourable reductions in microbial load (3.74 log CFU/g), pyruvate content (14.2 % less than fresh untreated) and a good overall acceptability score (8.5). Ozone sanitization using the developed system was found to be effective in increasing the shelf-life of treated onion along with retention of important biochemical properties.

The idea was recently shortlisted for the Stage-1 of the Grand Challenge for the development of 'Technologies for Primary Processing, Storage and Valorisation of Onions' announced by the Department of Consumer Affairs (DoCA), Ministry of Consumer Affairs, Food and Public Distribution (MoCAFPD) to receive ideas about technical interventions needed in onion processing. The university authorities including Dr T C Mittal, Head Dept of Processing and Food Engineering, PAU, Ludhiana, Dr Ashok Kumar, Ex-Dean, COAET, PAU, Ludhiana and Dr SS Gosal, Hon'ble Vice Chancellor, PAU, Ludhiana have always extended their kind support and encouragement during the research work.

Congratulations Dr. Alam and your student Er. Rouf Aslam for your great achievements!

## Agricultural Engineering: A future life-line for the development of Agriculture

Agriculture Engineering has been in lime light in the recent past mainly due to its huge potential to increase the production and productivity of Indian agriculture. It is high time to unleash proven and efficient Agricultural Engineering principles and technologies to use them in a scientific and technological way to find solutions to all possible problems the Indian agriculture is facing at present. Though the agriculture is the back bone of the country in terms supporting industrial growth, food safety, employment generation and ultimately GDP of the country, but facing many daunting challenges like fragmented land holding, less fertile land resource, highly uncertain climatic conditions, season based cropping system, inadequate power availability, price fluctuation, huge post harvest losses, market glut/ less demand for certain crops, traditional and unscientific agricultural practices due to illiterate farming community, low productivity, least innovative approach which led agriculture uneconomical etc.

With respect to present Indian agriculture condition is concerned, there is one area which is most neglected and did not give much attention though having huge potential is “Agricultural Engineering”. Though, it has its huge role to play in bringing significant change and contribute in a meaningful way for the betterment of agriculture, but it is unfortunate that, not much explored so far. Many Leader always talk about improved agriculture and even trying to see them (Israel model and other developed countries) which is nothing but adapting agricultural engineering principles and practices in all pre, present and post harvest agricultural practices, but not giving required attention to adapt the same. Can anyone deny agricultural engineering potential in terms of its role in boosting agriculture in leap and bounds in terms of increased production and productivity through farm mechanization and soil water conservation, reduced cost of cultivation through improved agri-engineering package of practice, reduced drudgery of tedious agricultural practices, wise and sustainable use of available natural resources (Soil, water, biomass, renewable energy), ecological balance through better soil water conservation including rain water harvesting and ground water recharge, reduced post harvest losses of agriculture produce through improved post harvest technology, creating demand for all crops through customized value addition technology, better market stability to agriculture produce due to enhanced shelf-life through improved storage and packaging systems so and so forth? Hence, it requires a paradigm shift towards utilizing efficient agri-engineering principle and practices in all agriculture practices to make Indian agriculture economically viable and sustainable.

### **The way the agricultural engineering play its role for the development of agriculture**

**Soil and water conservation practices:** Without soil and water, there won't be any agriculture. Hence, it is very important to take at most care about these valuable resources for sustainable agriculture development.

**Technologies for comprehensive development of watershed and common area:** Watershed approach for agriculture development has its own significance and helps conserve the natural resource in a better way. The role of agricultural engineering in effective watershed management is immense.

**Region and crop specific farm mechanization:** As Indian agriculture is highly diversified in terms agro-climatic zones and socio-cultural practices. Each and every crop has its own package of practice. Hence, there is huge scope and challenge to meet this farming requirement to adapt for efficient mechanization practices for all crops.





**Reclamation of problematic (salt affected) soils:** Nowadays, because of many ill practices like over irrigation and fertigation, soil and water erosion, deforestation etc., the soil health has greatly been affected and it requires immediate attention to reclaim them for their potential usage.

**Rain water harvesting and management:** Water is the life line for any crop and becoming very scarce resource. Because of erratic and uncertain rainfalls, the role of many agri-engineering proven technologies are crucial to harvest the rain water wherever and whenever it falls and make available to crops for their critical irrigation requirement

**Improved and efficient irrigation practices:** Efficient Irrigation to any crop is highly scientific oriented and it requires optimum field capacity for better irrigation efficiency. In order to use the most valuable resource 'water' in a better way (more crop per drop), there are no better methods other than agri-engineering irrigation practices.

**Post harvest processing and management of agriculture produce to mitigate post harvest losses:** Though the production has been increased in a significant way, but the post harvest losses is also in direct proportion because of no proper efforts to mitigate the same. Hence, every year we are losing not only crop but huge investment made on the crop development as well. So, there is huge scope for post harvest management practices of crop for loss mitigation and to make available the harvested crop for yearlong usage through post harvest management practices

**Crop specific value addition to create demand for diversified agriculture produce:** This area has its own importance to convert unpalatable raw produce into consumer acceptable value added products. Value addition not only protects the produce but also increases the overall value to a commodity (Both food and nutritional security). There is huge scope for value addition of any crops and at the same time huge potential for creation of employment opportunity in the grassroots.

**Technologies for Agriculture waste and by products utilization:** This is the area which is almost untouched and unexplored. In spite of huge bio-mass and by product generation from each and every crop, it is either burnt at the field (having its own adverse consequences) or left unused.

**Utilization of renewable energy resources and technology for conversion it in to useful energy:** As our country is bestowed with highly suitable climatic conditions for diversified cropping system and also abundant natural resources (Solar, wind, hydro). The same can be utilized to their fullest potential but, not explored much at present (Not reached the grassroots) All the above interventions are very relevant and highly efficient in all walks of agriculture practices in order to make agriculture a sustainable and highly profitable business venture. In order to change the mind set of farmers from visualizing agriculture a mere activity in to highly profitable enterprise, it is the need of an hour to adapt all agricultural engineering interventions in a systematic approach. Adaption and implementation of above principle and practices is possible only when educated youth are attracted towards agriculture so that, they only can understand and implement the above principles and practices to make agriculture a profitable business. For effective adaption and implementation of above agri-engineering interventions, it require systematic approach in terms of Teaching (establishment of more agri-engineering colleges across the country to produce quality human resource: Agri-engineering graduates), Research (Establishing exclusive Agri-engineering research wing to explore region specific research and development) and Exclusive extensional set-up in all agri-engineering related areas like department of agriculture, horticulture, animal husbandry, rural development, minor irrigation, watershed and command area development, food corporations etc. (establishment of separate directorate of agri-engineering to cater the needs of human resource for effective implementation of all agri-engineering interventions) across all levels starting from rural areas to harness the real benefits.

Last but not least, there won't be any substantial growth in agriculture without agricultural engineering and the future of agriculture is agricultural engineering.

*(Authored by Dr. Ramappa, K. T., Assistant Professor, College of Agricultural Engineering, UAS, Raichur, Mail:ramukt@yahoo.com)*



## Do You Know?



**Dr Digvir Jayas**

President & vice-chancellor  
University of Lethbridge,  
Canada

Born and raised in India, Dr. Jayas earned a Bachelor of Agricultural Engineering at G.B. Pant University of Agriculture and Technology, and went on complete a graduate degree and PhD in agricultural engineering at the Universities of Manitoba and Saskatchewan, respectively. He began teaching at University of Manitoba in 1985, eventually ascending to the position of Vice-President (Research and International), which he held for 12 years. An internationally renowned researcher, Dr. Jayas studies the drying, handling and storing of grains and oilseeds, and digital image processing for grading and processing operations in the agri-food industry. From 2002 to 2009, he was a Tier I Canada Research Chair in Stored-Grain Ecosystems, and in 2009 was inducted as a Fellow of the Royal Society of Canada. In 2018, Dr. Jayas was appointed an Officer of the Order of Canada. In 2022, Dr. Jayas was selected for induction into the Manitoba Agricultural Hall of Fame and Canadian Agricultural Hall of Fame in recognition of his engineering contributions to grain preservation.

Before assuming the position of President & vice-chancellor University of Lethbridge, Canada he was Vice-President (Research and International) for twelve years, Vice-President (Research) for two years, and Associate Vice-President (Research) for eight years. Prior to this, he was Associate Dean (Research) in the Faculty of Agricultural and Food Sciences, Head of the Department of Biosystems Engineering, and Interim Director of the Richardson Centre for Functional Foods and Nutraceuticals. For a year, he has served as Interim President of Natural Sciences and Engineering Council of Canada (NSERC) and 4.5 months he served as Interim Director (CEO) of TRIUMF-Canada's particle accelerator centre. He is a Registered Professional Engineer and a Registered Professional Agrologist. He has collaborated with researchers in several countries and has had significant impact on the development of efficient grain storage, handling and drying systems in Canada, China, India, Ukraine and the United States. He has authored or co-authored nearly 1000 technical articles in scientific journals, conference proceedings and books dealing with issues of storing, drying, handling and quality monitoring of grains.

Dr. Jayas has received awards in recognition of his research and professional contributions from the Agriculture Institute of Canada, Applied Zoologists Research Association (India), American Society of Agricultural and Biological Engineers (ASABE), Canadian Institute of Food Science and Technology, Canadian Academy of Engineering, Canadian Society for Bioengineering, Engineers Canada (formerly Canadian Council of Professional Engineers), Engineers and Geoscientists Manitoba (formerly Association of Professional Engineers and Geoscientists of Manitoba), Engineering Institute of Canada, Indian Society of Agricultural Engineers, Manitoba Institute of Agrologists, National Academy of Agricultural Sciences (India), National Academy of Sciences (India), and Sigma Xi. He was the recipient of the 2017 Sukup Global Food Security Award from ASABE, and the 2008 Brock house Canada Prize from NSERC. In 2009, he was inducted as a Fellow of the Royal Society of Canada and in 2018, he was appointed as an Officer of the Order of Canada for "his advancements to agricultural practices worldwide, and for his promotion of academic and scientific research in Canada". In 2019, he received the RSC Sir John William Dawson Medal for "important contributions of knowledge in multiple domains".

Dr. Jayas has served/serves on the boards or committees of many organizations such as ArcticNet, Churchill Marine Observatory (CMO), Centre for Innovative Sensing of Structures (SIMTReC), Genome Prairie, GlycoNet, Manitoba Centre for Health Policy, North Forge Technology Exchange, NRC Council, NSERC Council, Research Manitoba, and TRIUMF. He has served as the President of the Agriculture Institute of Canada, the Canadian Institute of Food Science and Technology, the Canadian Society for Bioengineering, Engineers Canada, Engineers and Geoscientists Manitoba, and the Manitoba Institute of Agrologists. He chaired NSERC Council, the board of directors of TRIUMF, Board of RESOLVE, a prairie research network on family violence and the Smartpark Advisory Committee





## New Appointments



Dr. Kanchan Kumar Singh, is recently appointed as Dean in Sanskriti University, Mathura, UP. Previously, he has served ICAR, New Delhi as ADG, Farm Engineering.

The ISAE family congratulate all you on your great achievements

## Awards



Dr. Dhananjay D. Nangare, Principal Scientist at ICAR-NIASM, Baramati, Maharashtra has been awarded as Best Scientist of the Institute on occasion of its 15<sup>th</sup> Foundation Day function.. Hon'ble Director of NIASM, Baramati Dr. K. Sammi Reddy praised his outstanding works for the cause of Institute. Sir, the ISAE family congratulate all you on your great achievements!

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