

e-NEWSLETTER INDIAN SOCIETY OF AGRICULTURAL ENGINEERS

..... Connecting Engineers in Agriculture

Nov.-Dec. 2024



Professor Jaswant Singh
1930-2024

7000 + Members

36 Chapters

3 Scientific Publications

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Message From The President



My Dear Readers! First of all I on behalf of ISAE and on my own behalf wish you very **Happy, Healthy, Peaceful and productive new year 2025! Believe in Hope! ISAE will reach a new High in years to come.** As you know ISAE organized it's the 58th Annual Convention and the International Symposium in Parbhani. Many stalwarts, industry tycoons, scientists and engineers attended it. This was the last convention of this executive committee that tried to do their best in all manners. As usual last two months was full of activities for the society. Record number of awards and other certificates were finalized. Winners of PhD thesis competition were facilitated to participate in ISAE convention, MoU with event organizer for CIGR International Conference in 2028 was finalized. ISSN number for Adhunik Krishi Abhyantriki was obtained and the directory of Agricultural Engineering colleges in India and ISAE 2025 wall calendars with theme of Agricultural Engineering Institutions were printed and released during the convention. Total number of paper published in the JAEI has become a record high, i.e. 75 in 2024. After thorough thinking, and getting GBs approval in Parbhani, we have applied to Springer for transferring the publishing work of the journal. The ISAE has now ISNI (International Standard Name Identifier) which is an ISO standard, uniquely identify persons and organizations involved in publishing activities. ISAE ISNI No is 0000000100578281. Similarly, Research Organization Registry of ISAE has also been got done and its ROR ID is 057jj1a66. All these milestones shall prove a breakthrough in the progress of ISAE and its activities in years to come.

Friends! I Interacted with faculty and students of two chapters and motivated them to do something more than usually Agricultural Engineers do. Activated them for pursuing for opening of Directorate of Agricultural engineering. I pursued a college in AAU, Jorhat talking with advisor to Farmers commission of Assam, APC of Assam Government, and VC of AAU Jorhat. All three agreed to do the needful. Met with senior people in Assam Government and discussed the strategies to build pressure for opening Directorate of Agricultural Engineering. Met Secretary DAFW, GoI and requested him to write to all chief secretaries of states to fulfil the recommendation of Hon'ble Parliament Standing Committee on Agriculture. Pursued with Agriculture minister and secretary of Bihar and now cadre of Agril. Engineering separated with many new posts sanctioned in Bihar.

Dear ISAEians! The present Executive has put efforts in all fronts, including that of increasing membership and we proudly can say that we have reached the magic figure of about 7000 membership including all categories in December 2024.

Dear members! We have conducted 36 EC meetings in last 3 years and each meeting was for one to 3 hours. Several decisions were taken and implemented. In December meeting decision for new initiatives such as selling of journal/papers through ISAE website, online portal for award applications/nominations, and certificate issuance even of participation in convention through online mode. Actions are already initiated and may be completed before the next cycle of award application in 2025. In normal conditions, we have completed our term and served you as much as we could and hope that is more than your expectation. As per our bye-laws and rules after election declaration we will not take any policy decision, however will be working for next three months. Once again I on behalf of all executive committee and ISAE council members' thank you all for giving this opportunity to serve the society more closely and intensely. **Hope sab kaa sath, sab ka prayas and sabka Vikas was truly done** and will continue to do the same. Jai Hind!

S N Jha
President, ISAE

From the Editor-in-Chief's Desk



It is pleasing to note that The Indian Society of Agricultural Engineers (ISAE) has moved to a new phase of its development, with several steps taken by the EC for betterment of the Society and expanded the activities. The Indian Society of Agricultural Engineers (ISAE) worked hard in year 2024, and will continuously work hard for betterment of agriculture profession, growing reputation and reach to Agricultural Engineering professionals/ Agrineers in the coming year.

The society and the members are working actively, to reach maximum number of Agrineers and professionals in the agriculture sector through its membership drive, publications, training session and activities across the country through ISAE chapters. This newsletter is featured with glimpses of efforts made through activities and advancement in the field of agricultural engineering conducted during this period of Nov.–Dec. 2024, especially the glimpse of 58th Annual Convention and International Symposium are presented in this newsletter highlighting the grand success of the event.

I hope the content on various technologies through this e-newsletter will give takeaways on latest technologies to Agricultural Engineering professionals in introducing and implementing the same.

Your suggestions, feedback are also solicited for further improvement of this mouthpiece of ISAE.

With our best wishes for a constructive and fruitful New Year 2025.

Chandra Shekhar
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ISAE Happenings

The ISAE Executive Council meeting was held on 12.11.2024 in Hybrid mode at Vice Chancellor Meeting Room, VNMKV, Parbhani

ISAE council was held on 12.11.2024, 6.15 pm in Vice Chancellor Meeting Room, VNMKV, Parbhani in hybrid mode, The members who were available at Parbhani for ISAE annual convention attended the meeting physical and other members joined the meeting through online video conference mode. During the meeting the following agendas were discussed :

1. Annual Report of ISAE by the Secretary General
2. Report by Treasurer
3. Ratification of ISAE wall calendar, 2025
4. Confirmation of venue of 59th ISAE Annual Convention at Bhopal
5. Discussion regarding the venue of 60th ISAE Annual Convention at Srinagar and Kharagpur
6. Ratification of MoU (CIGR conference)
7. Announcement of ISAE election 2025-28
8. Any other matter with the permission of the Chair

The meeting ended with the Presidential Address followed by Vote of thanks by the Secretary General, ISAE



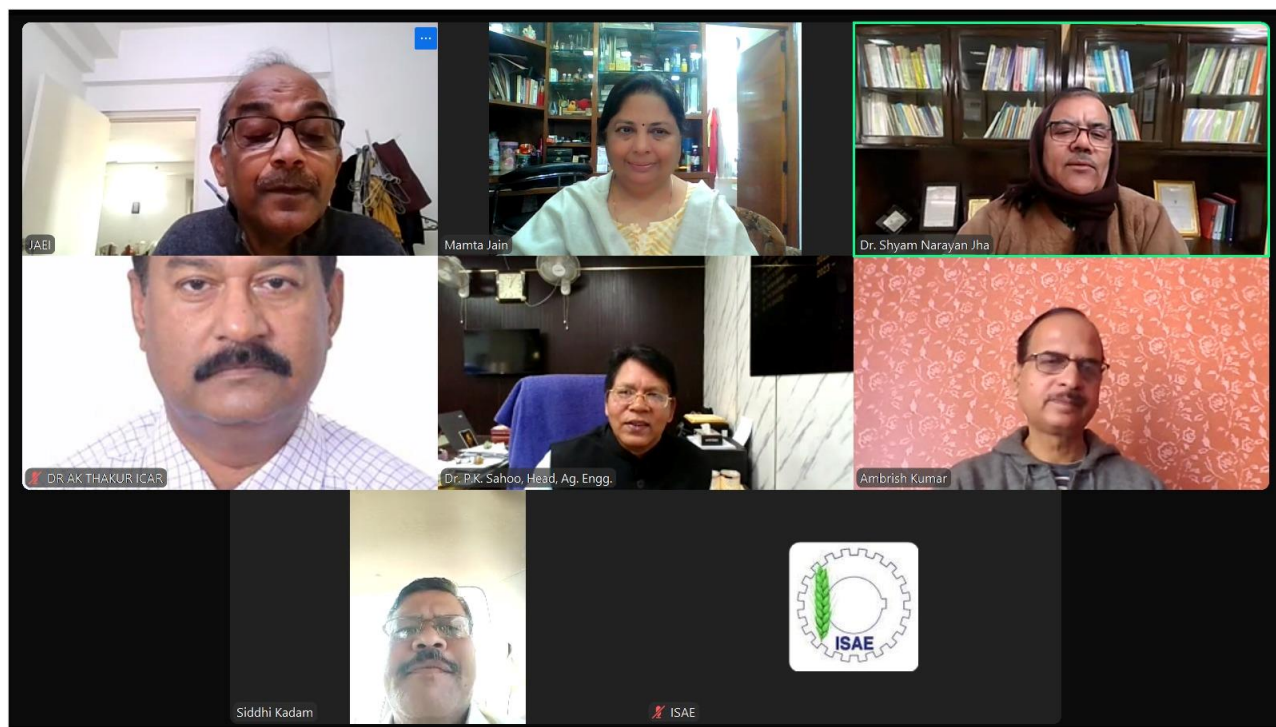
ISAE Happenings

The 36th ISAE Executive Committee meeting was held on 14.12.2024 in Zoom platform

The Secretary General welcomed all the members of Executive Committee in 33rd EC meeting and presented the action report on the last Executive Committee meeting. He also listed out the agenda items to be taken up for discussion during the meeting. After brief address of the President ISAE, the following points were discussed :

- 1- The financial statement (audited) presented in GB annual convention to be finalised
- 2- Discussion of finalization of Video documentary on Agricultural Engineering, and necessary correction at various place in audio visual was suggested.
- 3- It was decided that ID card of ISAE membership can be circulated in e-ID card form and Hard copy of ID cards can be collected from ISAE, HO Delhi.
- 4- The election schedule finalised by Dr. Chandra during the meeting held in 12.12.2024 may be circulated and notified.
- 5- Possibility of utilization of CSR funds of various organization and check for ISAE eligibility for the same

During the session it was highlighted by the General secretary and President ISAE, that the present executive committee has successfully conducted 36 EC meeting in 3 years in which several decision for the society was taken. The meeting ended with vote of thanks.



ISAE Happenings

Workshop on Food Waste Utilization to Support Circular Economy by ISAE, Odisha chapter

A workshop on Food Waste Utilization to Support Circular Economy was organized on 27-09-2024 to observe the International Day of Awareness of Food Loss and Waste by ISAE, Odisha chapter. Prof. S. N. Mohanty, Prof. Md. K. Khan, Prof. S. K. Dash, Prof. K. Rayaguru, ISAE members, faculty members and students attended the programme. At the outset, Dr. U. S. Pal, Secretary, Odisha chapter gave the welcome address and briefed about the objectives of the programme. Prof. S. N. Mohanty, Ex-Dean highlighted the importance of preventing food loss and waste for food security of the country. Prof. K. Rayaguru presented the lead talk on waste utilization to support circular economy. Dr. S. K. Dash, Dean, College of Agricultural Engineering and Technology, Bhubaneswar advised the students to take small steps in day-to-day life to reduce food waste. A debate competition was held among the students on reduction of food loss and waste for sustainable development and the winners were awarded. Dr. M. Mohapatra, Joint Secretary-cum-treasurer, ISAE Odisha chapter gave the formal vote of thanks.



ISAE is now having ISNI

ISAE society is now having ISNI (International Standard Name Identifier) which is an ISO standard, uniquely identify persons and organizations involved in involved in publishing and other creative activities.

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ISAE publication आधुनिक कृषि अभियांत्रिकी मैगज़ीन has got registered as new regular publication of ISAE and It has received ISSN no after lot of persuasions and fulfilling many requirements.

 **ISAE** | आधुनिक कृषि अभियांत्रिकी
Current Archives About +

About the journal
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अंग्रेजी: कृषि अभियांत्रिकी, जो कि Agricultural Engineering Today का हिंदी अनुवाद है, आधुनिक, समावेशीय कृषि की आवश्यकताओं और प्रमुख तकनीकी क्षेत्रों के साथ कृषि अभियांत्रिकी और प्रौद्योगिकी से संबंधित जानकारी/डेटा, उद्योग प्रेरित समाचार और अनुसंधान, सरकारी नीतियों, पर्याप्त और उपलब्धियों, इंजीनियरिंग समाचार और प्रौद्योगिकी से संबंधित जानकारी/डेटा को प्रसारित करता है।

The 58th ISAE Annual Convention and International Symposium

The 58th Annual Convention and the International Symposium of the Indian Society of Agricultural Engineers (ISAE) organized jointly by the Indian Society of Agricultural Engineers, New Delhi and Vasantao Naik Marathwada Krishi Vidyapeeth (VNMKV) was successfully conducted during 12-14 Nov. 2024 at VNMKV, Parbhani, Maharashtra

Theme of Annual Convention: Engineering Innovations for Next-gen Digital Agriculture

Theme of International Symposium: Agricultural Engineering Education for Aspiring Youth in Transforming Agriculture



The inauguration of this program took place on November 12, presided over by Vice-Chancellor Prof. (Dr.) Indra Mani. The Chief Guest for the inauguration ceremony was former Director General of the Indian Council of Agricultural Research, Padma Bhushan Dr. R.S. Paroda. Distinguished guests included Dr. Himanshu Pathak, Director General of the Indian Council of Agricultural Research (online), and Mr. Raosaheb Bhagade (IAS), Director General of the Agricultural Council. Other Special guests included Dr. Sharad Gadakh, Vice-Chancellor of PDKV Akola; Dr. Hemant Sikka, Head of the Agriculture Equipment Division, Mahindra & Mahindra Group; Mr. T.R. Kesavan of TAFE Group; Mr. Rajendra Barwale of the Mahyco Group; Mr. Kumar Bimal, Vice President of International Tractors Ltd.; former presidents of the Indian Society of Agricultural Engineers, Dr. Gajendra Singh, Dr. Nawab Ali, and Dr. V.M. Mayande; former Vice-Chancellors of Vasantao Naik Marathwada Krishi Vidyapeeth, Dr. K.P. Gore and Dr. A.S. Dhawan.

The platform also featured Dr. S.N. Jha, President of the Indian Society of Agricultural Engineers in New Delhi and Deputy Director General of Agricultural Engineering; Dr. P.K. Sahu, General Secretary of the Society; Dr. Uday Khodke, Conference Coordinator and Director of Education (VNMKV); Dr. Bhagwan Asewar, Director of Extension Education; Dr. Khizar Baig, Director of Research; Registrar Shri. Santosh Venikar; University Engineer Mr. Deepak Kashalkar; Organising Secretary Dr. Harish Awari; progressive farmers Mr. Chandrakant Deshmukh and Sumitra Shendre, among others.

During the inauguration, Padma Bhushan Dr. R.S. Paroda, former Director General of the Indian Council of Agricultural Research, was honored with the ISAE Honorary Fellowship 2024 for his contributions to the field of agriculture and agricultural engineering. In his address, Dr. R.S. Paroda mentioned that agricultural production has increased but pest infestations and natural calamities have led to a rise in crop losses and food wastage. Additionally, soil quality is deteriorating day by day. Addressing such challenges and achieving Sustainable Development Goals, along with increasing farmers' incomes, are important issues. It is necessary to establish processing industries for agricultural products. India is an agriculture-based country, and it is essential to transform it into a farmer-centric nation. Everyone must work towards making agriculture prosperous.

The 58th ISAE Annual Convention and international Symposium

Dr. Paroda emphasized that the participation of youth in agriculture is limited, and it is important to increase their involvement. Youth should aspire to become entrepreneurs in agriculture rather than solely seek white-collar jobs. This requires skill development among youth, which will lead to the emergence of excellent scientists and agricultural engineers. Sustainable resources are also essential for the agricultural business. Moreover, it is crucial to take care of soil health, and promote conservative and protected agriculture through digital systems.

He stressed that agricultural engineers play a key role in all of these activities, especially in dryland farming, where there is a need for technological and mechanization development through agricultural engineering. Collaboration across all sectors of agriculture is necessary to address these challenges. The Indian Society of Agricultural Engineers plays a vital role in this regard. Dr. Paroda noted that India is the largest producer of tractors in the world, accounting for half of the global production. Furthermore, agricultural engineering has led to the development of machinery and tools that are highly useful and easy to handle for processing food grains, soybeans, fruits, vegetables, and more, from tools like hoes and sickles to modern harvesting and threshing machines. He also suggested the need to establish a custom hiring centres for agricultural equipment at the rural level, promote extension through the private sector, develop greenhouses, and increase the use of solar energy. For all these areas, the development of the agricultural engineering sector is essential, which will lead to the advancement of modern tools and mechanization in agriculture.

In his presidential address, Vice-Chancellor Hon'ble Dr. Indra Mani stated that agriculture can achieve excellent development through coordination and unity among the three-tier system of education, industry, and government. The university is working towards bringing these sectors together. Due to research in the agricultural sector, India has developed the capability to supply food to the entire world, despite the increasing population. For the development of farmers, the university has undertaken large-scale seed production work. The irrigation facilities on the university campus have been expanded. All models of tractors are kept at the university for students to study, which will help in producing excellent tractor engineers. He further mentioned that the university has started four new colleges and is leading in educational work, while also working for Extension using farmers centric approach. Every month, on the second Wednesday, a program called "Maza Ek Diwas Mazya Baliraja Sobat" is organized where professors and scientists, from the faculty to the Vice-Chancellor, visit farmers' fields to understand their problems and work towards their solutions. Additionally, every Tuesday and Friday, online Farmer-Scientist Agricultural Dialogues are conducted. He also emphasized the need for high-level planning in the future for the development of the agricultural engineering sector.

Dr. Himanshu Pathak, Director General of the Indian Council of Agricultural Research, sent a message for the event, which was read out by Dr. Uday Khodke, Director of Education. Mr. Rausaheb Bhagade (IAS), Director General of the Agricultural Council, congratulated the organizers for conducting an excellent conference and extended his best wishes.

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Dr. S.N. Jha, President of the Indian Society of Agricultural Engineers and Deputy Director General of Agricultural Engineering, presented an overview of the achievements of the Agricultural Engineering Society in the field of agricultural engineering, including advancements in agricultural technology, machinery, mechanization, and the development of various materials. He noted that farmers in Maharashtra quickly adopt technology, but the number of people working in agriculture is steadily decreasing. To address this, he emphasized the need to generate interest in agriculture by providing them with modern technology, and stated that all-out efforts are necessary to achieve this.

Dr. Hemant Sikka, Head of the Agriculture Equipment Division, Mahindra & Mahindra Group, mentioned the significant work done by the organization in the development of technology to address climate change, soil conservation technologies, and mechanization. He also highlighted that Mahindra & Mahindra operates in over a hundred countries and, as a renowned company in the world, is working towards agricultural development by producing modern machinery for the sector. Mr. T.R. Kesavan of the TAFE Group stated that it is essential for all farmers to receive the same quality of inputs, and their usage should also be uniform. He further emphasized that since technology is reaching farmers, the educational and industrial sectors should work in coordination to provide farmers with easy-to-handle techniques.

The inaugural address was given by Dr. Uday Khodke, Director of Education, while Dr. P.K. Sahu, the General Secretary of the organization, provided information about the 58th Annual Convention. During the program, the convention souvenir, the university's newsletter, the Directory of Agricultural Engineers in India, the organization's 2025 calendar, and two issues of the organization's journal, all unveiled by the dignitaries. Additionally, the inauguration of a highly impressive and technology-rich agricultural technology exhibition was also carried out by the esteemed guests during the three-day conference.

The event was organized under the guidance of Vice-Chancellor Hon. Dr. Indra Mani, with the coordination of Dr. Uday Khodke, Director of Education and Conference Coordinator; Dr. Harish Awari, Organising Secretary; Dr. R.T. Ramteke and Dr. R.G. Bhagwanti, Co-coordinators; Dr. M.S. Pendke, Dr.

V.K. Ingale, and Dr. D.D. Tekale, Co-secretaries. The event was attended by all ADPs, department heads, professors, scientists, progressive farmers, officials, and students from various colleges of the university. The program was hosted by Dr. Veena Bhalerao and Dr. Dayanand More, and the vote of thanks was delivered by Dr. Harish Awari





The 58th ISAE Annual Convention and international Symposium



The 58th ISAE Annual Convention and international Symposium

During the program, 21 parallel technical sessions were conducted under four major themes, viz;

- i) Farm machinery and power engineering,
- ii) Food processing and technology,
- iii) Land and water management technology, and
- iv) Green and alternative energy technology.

Each session designed to address the identified sub-theme started with a lead presentation by an invited expert, so a total of 21 lead papers were delivered at the conference. Altogether 490 presentations (offline/online) were delivered in the technical sessions on various aspects. In addition, the international symposium and plenary sessions on farmers and students were major attractions of the convention.

Salient recommendations that emerged from the 3-day marathon deliberations and the discussions are given below:

International Symposium: Agricultural Engineering Education for Aspiring Youth in Transforming Agriculture

- i. Design agricultural engineering courses, including applications of Artificial Intelligence (AI) and Machine Learning (ML) in all segments of Agricultural engineering with a special focus on precision agriculture. Augmented reality (AR) and virtual reality (VR) must be encouraged as learning tools in UG/PG teaching.
- ii. Offer more elective courses that match industry demands and engage agricultural engineering students with the industry throughout the years. Industry personnel and the ICAR Agricultural Engineering division should be consulted, and input should be taken while revising the syllabus.
- iii. Encourage the students to select industry-sponsored research projects and internships in Industry only.
- iv. The National Institute of Agricultural Robotics & AI needs to be established in the NAREE system to fulfill the need for indigenous next-gen digital agriculture.
- v. Digital agriculture, machine learning, deep learning, drone technology, AI, Internet of Things (IoT), software development, Mobile apps developments, bio-informatics, and statistics/modeling are purely engineering subjects and could be better implemented by the engineering division, and therefore institutions/ICAR/SAUs should bring these activities/projects and developmental work under Agricultural Engineering.

Annual Convention :

Theme 1 – Farm Machinery and Power Engineering

- i. One of the key topics discussed was machinery designed for cash crop cultivation - cotton and sugarcane. These machines should integrate technologies like FAAS, IoT, AI, ML, DML, and Big Data to meet the demands of mechanization 4.0. Additionally, the development of cost-effective, customer-centric robots and automated guided vehicles (AGVs) with suitable capacity for Indian farms was emphasized.

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- ii. Power tillers with Rubber track systems yielded improved performance, and tractive efficiency with reduced motion resistance in soft soils may be adopted.
- iii. Efforts should be made to optimize energy utilization in small farm mechanization by utilizing multi-utility prime movers with a single chassis system for both front and rear-mounted equipment..
- iv. There is a need to focus on the mechanization of labor-intensive operations, such as weeding and interculture, particularly for small and marginal farmers. Small tractor-operated machinery, such as vegetable transplanters and sugarcane setting transplanters, can be well-suited for mechanizing small and marginal farms.
- v. Interventions are needed to enhance the multi-functionality of individual machines, enabling them to perform multiple operations (e.g., using seed drill tines for weeding purposes). This would help increase the level of mechanization in sowing and weeding operations.
- vi. The development of a low-cost precision pneumatic planter and precision calibration system for seed-cum-fertilizer drills are prerequisites for promoting precision in sowing and planting operations. Such machinery should be fine tuned and made available to farmers.
- vii. The growth of Indian agricultural machinery manufacturing could be supported through government policy interventions, modern manufacturing processes, and strong export policies.
- viii. Baling system integrated with a self-propelled combine harvester, battery operated mango harvesting tool with a telescopic pole, self-propelled high clearance vehicle for tea harvesting, high clearance self-propelled chili harvester, power-operated groundnut stripper, girdling tool and chemical injectors for litchi cultivation and brush type cotton stripper harvester, tractor operated hay rake, tractor operated banana stem shredder may be extensively tested and promoted further.
- ix. Studies need to be conducted on the application of drones in spraying, seed broadcasting, granular fertilizer, and nano-urea application, remote control as well as autonomous vehicles for small farms and polyhouses, handheld devices for disease detection and fertilizer recommendations, and sensor based fertilizer applicators. Standard Operating Procedure (SOP) of advanced technologies/machines/gadgets should be developed for their hassle-free application.
- x. Real-time interventions like computer vision-based human postural analyzers and virtual interfaces for machinery operation monitoring have great scope to improve work efficiency and reduce human discomfort.

Theme-2: Processing, Dairy and Food Engineering

- i. Emphasis should be given to developing technologies and machinery for processing and handling multi-commodities to ensure year long use of developed infrastructure. .
- ii. Colour and other bioactive components from the unexploited crops may be extracted besides value addition for better utilization of those crops.
- iii. Utilization of by-products and wastes will also be addressed during the development of the process for value addition of crops to increase the profitability



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- iv. Novel methods of processing will be adopted to a larger extent to increase efficiency and cost-effectiveness with focus on retaining nutrients.
- v. Value addition technologies proven at laboratory/pilot plant scale need to be taken to the industry level for commercial venturing.
- vi. Extending financial support through research grants for the refinement / scaling up of technologies proven at the laboratory for industry adoption.
- vii. Entrepreneurship development also need to be included in the development of the value addition process.
- viii. In the development of postharvest processes and equipment, electronic controls and automation should be incorporated to increase safety and efficiency.
- ix. The research activities also need to initiate acquiring and providing data/ information for the development of national standards

Theme-3: Land and Water Management Technologies/Soil and Water Conservation Engineering

- i. Decision support system –‘Predictive Analytics and AI Model’ using historical and real-time data, AI-powered software/mobile app to predict crop yield, pest outbreaks, and ideal planting/harvest times, helping farmers to make proactive decisions are the most sought-after tool in next-gen agriculture.
- ii. Aerial mapping and surveying using drones with high-resolution cameras map fields to create topographic maps and identify variations in soil, crop height, and plant density for more precise field management should be encouraged under R& D activities.
- iii. This information needs to be generated at the watershed/basin scale using regional and global climate models coupled with agro-ecohydrological models for adaptive management strategies to make agriculture climate resilient. Research studies should be encouraged on such aspects.
- iv. Emphasis should be given to the design of automated hydroponic structures with nutrient film techniques, and more research is required on the effect of pink light reinforced to increase photosynthesis during nighttime.
- v. Energy-efficient aeroponic and aquaponic systems need to be popularized, considering their low operational cost and usefulness in energy constraint areas.
- vi. Center Pivot Irrigation System should be promoted on a large scale through FPO for major crops, viz. wheat, rice, and sugarcane, and also more focused R&D on automated drip irrigation and fertigation systems is needed.
- vii. Managed Aquifer Recharge (MAR) could be emphasized in R&D activities to enhance sustainable groundwater Management, keeping the concept of a water-positive zone.



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- viii. Drying and dying of natural springs in the Himalayan mountains seriously threaten water availability in mid and high hills. To rejuvenate springs, rigorous studies are required to delineate the recharge zone of the springs and develop a systematic recharge plan for the spring sheds using water isotopes.
- ix. For the next- Gen Watershed Development -i.e. 'Shift in Approach', emphasis on bio-engineering based soil and water conservation measures and technologies need to be given to enhance the natural resource base, viz; water and soils in the watersheds.
- x. In the tune of the flagship program - Digital Agriculture, a number of IoT and AI-powered devices/tools/ mobile Apps are being developed by various agencies to facilitate the farmers in decision-making to manage their farms with high water use and Agri-input efficiency. The effectiveness of such tools and gadgets needs to be evaluated, and the advantages/benefits of the gadgets should be quantified.

Theme 4: Green and Alternative Energy Technologies

- i) The techno-economic evaluation of Agro-voltaic technology with reference to location, crop, structural, and overall solar geometry parameters needs to be studied and promoted for wider adaptability.
- ii) The energy saving opportunities by enhancing the energy efficiency in agro-processing industries need to be promoted.
- iii) Energy education within the agriculture education system in India needs to be strengthened and encouraged by scientists and industry professionals who are involved in R&D activities in the agricultural engineering domain..
- iv) The life cycle assessment of renewable energy technologies, along with a reduction in carbon footprints in the agriculture ecosystem, needs to be promoted.
- v) Smart Solar Irrigation systems need to be developed in integration with IoT and sensors to enable precise water delivery based on real-time soil moisture and weather data. Precision farming with solar energy based on solar sensors monitors environmental conditions and optimizes agricultural inputs like water and fertilizers need to be studied

Plenary session:

The plenary session was graced by several luminaries of Agricultural Engineering, industry personnel, farmers of repute, and students. The vice president presented the technical recommendations that emerged from all technical sessions. Thereafter, policy issues for faster growth of agricultural mechanization were discussed, and all appreciated the Honorable Parliament Standing Committee which set targets of 75% mechanization level by 2047 and also recommendation for establishing the Directorate of Agricultural Engineering in all States and Union Territories, appointment of Agricultural Engineers in each Panchayat, blocks, districts and state levels in sufficient number. During the session various policy recommendations were made.

ISAE Awards, 2024

1. ISAE GOLD MEDAL FOR LIFE TIME ACHIEVEMENT (2024)



Prof. Satyananda Swain started his career as JAE under Government of Odisha and subsequently joined BCKV and OVAT for career in agricultural education and research. He was elevated to the post of Professor, OVAT in 1988 and served as Dean, College of Agricultural Engineering and Technology, College of Engineering and Technology and Director, Consultancy Services in OVAT as well as Ex-Officio Director, Odisha Agro Industries Corporation. Dr. Swain has 110 research publications in reputed National and

International journals and 5 books to his credit. He has received numerous national awards and fellowships. In recognition of his significant contributions in Education, Research and Extension sectors of Agricultural Engineering, the Indian Society of Agricultural Engineers confers on ISAE Gold Medal 2024 to Dr. Satyananda Swain.

2. PROF. GAJENDRA SINGH ISAE EDUCATION GOLD MEDAL AWARD



Prof. Pitam Chandra has worked towards creation of agricultural engineering education avenues in India. His efforts convinced Indian Council of Agricultural Research to permit post-graduate teaching and research at ICAR-Central Institute of Agricultural Engineering, Bhopal. Dr. Chandra has played a key role in upgrading the erstwhile Paddy Processing Research Centre, Thanjavur to a national institute of food technology and the same has now been recognized as an Institution of National Importance with current name as National Institute of

Food Technology Entrepreneurship and Management-Thanjavur (NIFTEM-T) He chose to teach after superannuation from Indian Council of Agricultural Research at NIFTEM-Kundli (2014-17); ICAR-LARI, New Delhi (2019-2021); Sharda University, Greater Noida (2019- 23). He worked with Agricultural Skill Council of India (ASCI) to expand and strengthen programs for skill development in farm mechanization. Prof. Pitam Chandra is one of the pioneers of design and implementation of greenhouse technology in India and recipient of several National Awards and fellowships. In recognition of his significant contributions in education of Agricultural Engineering and Technology, the Indian Society of Agricultural Engineers confers on Prof Gajendra Singh ISAE Education Gold Medal-2024 to Dr. Pitam Chandra.

3. ISAE HONORARY FELLOWSHIP CONFERRED 2024



Dr Rajendra Singh Paroda is Chairman of the Trust for Advancement of Agricultural Sciences (TAAS) and is a renowned agricultural scientist globally. He has served as Secretary, Department of Agricultural Research and Education (DARE), Government of India and Director General of the Indian Council of Agricultural Research (ICAR) first chairman of the Global Forum on Agricultural Research (GFAR); executive secretary of the Asia Pacific Association of Agricultural Research Institutions (APAARJ); chairman, board of trustees, ICRISAT, Hyderabad; Board member of IRRI, Los Banos, Philippines; member of Advisory Council of Australian Centre for International Agricultural Research (ACIAR) Canberra and

the member of the Governing Board of Commonwealth Agriculture Bureau International (CABI) Dr Paroda received numerous national and international awards including the Padma Bhushan in 1998. Besides Fellowships of almost all Science Academies of India, he is Fellow of Third World Academy of Sciences (TWAS), Russian Academy of Agricultural Sciences, Tajik Academy of Agricultural Sciences, Armenian Academy of Agricultural Sciences and the National Academy of Agricultural Sciences. Currently, he is serving as the Chairman of the Trust for Advancement of Agricultural Sciences (TAAS) and as the Chairman of Haryana Farmers' Commission. The Indian Society of Agricultural Engineers feels proud to confer on Honorary ISAE Fellowship to Dr. R.S. Paroda for the year 2024.

ISAE Awards, 2024

5. ISAE FELLOWSHIP 2024



1- Dr. S. R. Kalbande is the Dean of the Faculty of Agricultural Engineering at Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra (F-300)

He has also served there as Registrar for three years. With over 100 scientific papers, 10 books, 16 technical compendiums, 47 book chapters, and 124 popular articles, he has made significant contributions in the field Renewable Energy. Dr. Kalbande has developed 22 rural technologies for farmers and organized many events, including ICAR-sponsored schools, conferences, and workshops. He participated in national and international trainings, including one in Japan in

2018-19, As Principal Investigator of the World Bank-sponsored NAHEP project on skill development, he established an incubation center with the Maharashtra State Innovation Society. He has guided 22 M. Tech and 9 Ph.D. scholars and delivered 32 expert lectures. His accolades include the Best Scientist Award (2022) from the Government of Maharashtra, the ICAR Best Teacher Award (2013-14), the ISAE Distinguished Service Award (2015), and the Eminent Engineer Award from the Institution of Engineers, India (Amravati Local Centre). In recognition of his significant contributions in the field of Agricultural Engineering, the Indian Society of Agricultural Engineers confers on ISAE Fellowship 2024 to Dr. Surendra Ramabhau Kalbande.



2- Dr. Kingsly Ambrose is a Professor of Agricultural and Biological Engineering and a University Faculty Scholar at Purdue University, West Lafayette, IN, USA. (F-297)

His research focuses on particle and powder characterization, modeling, design, and safety in materials handling. Dr. Ambrose has authored over 120 peer-reviewed journal articles and presented more than 130 conference papers. He is a co-inventor of 4 patents and has delivered over 50 invited talks. Dr. Kingsly Ambrose has contributed in research and training in the field of Agricultural

Engineering in India as well. He serves on the editorial boards of several journals, including Biosystems Engineering, Grain & Oil Science and Technology and Journal of Agricultural Engineering (India). A Life Member of ISAE and a member of ASABE and GEAPS, he is also involved with the US. Quality Grain Consortium. His research has advanced understanding of agricultural particulate materials, leading to developments such as a powder flow aid, a novel slow-release fertilizer, and models predicting grain damage during handling. Dr. Kingsly Ambrose has secured over \$23 million in grants from organizations like USDA and Bayer for enhancing safety and performance in the agricultural industry. In recognition of his significant contributions in the field of Agricultural Engineering both in India and abroad, the Indian Society of Agricultural Engineers confers on ISAE Fellowship 2024 to Dr. R. P. Kingsly Ambrose.



3- Dr. Ajit Kumar Verma is a Principal Scientist with specialization of Land and Water Management Engineering at ICAR-Central Institute of Fisheries Education (CIFE), Mumbai. (F-296)

Since beginning of his career as an Agricultural Research Services (ARS) Scientist, he is focused on innovative solutions to address challenges of water scarcity and sustainability in aquaculture with targets in aquaponics, biofloc, and Recirculating Aquaculture Systems (RAS). Dr. Verma has developed key technologies such as hatchery systems and automated feeders. He secured funding from both national and international agencies such as NASE, UNDP as well as international projects with AICAR, Australia. He holds patents for inventions including the CIFE eco-hatchery and has published 83 research papers. He has received several recognitions, including the best Young Scientist and Scientist awards. In recognition of his significant contributions in the field of Agricultural Engineering, the Indian Society of Agricultural Engineers confers on ISAE Fellowship 2024 to Dr. Ajit Kumar Verma.

ISAE Awards, 2024



4. Dr. Manoj P. Samuel is the Executive Director of the Centre for Water Resources Development and Management (CWRDM) in Kozhikode, Kerala, and a Principal Scientist at ICAR, (F-298)

With 29 years of experience in land and water management engineering, he is a Fellow of the Institution of Engineers (India) and a Governing Body member of Wetlands International South Asia.

Dr. Samuel has authored 58 research papers, 15 books, 36 book chapters, and 78 popular articles. He

holds one patent, six copyrights, and four design registrations. He is involved with 14 professional societies and serves as a reviewer for 24 journals. Dr. Samuel has worked in various capacities at different ICAR institutes and is an active member of numerous national and international consultative groups, including the World Water Forum-2024. He has received several awards, including the McKee Groundwater Protection Award in 2015 from WEF, USA. In recognition of his significant contributions in the field of Agricultural Engineering, the Indian Society of Agricultural Engineers confers on ISAE Fellowship 2024 to Dr. Manoj P. Samuel



5. Dr. Rajesh Kumar Singh is the Principal Scientist and Head of the Hydrology and Engineering Division at ICAR-IISWC, Dehradun. (F-299)

Dr. Singh has worked in various capacities at different ICAR institutes and has held leadership roles including Head of Divisions, as well as Project Coordinator for the AICRP on Plastics Engineering in Agriculture. He has contributed in 8 national and 9 institute funded projects

focusing on natural resource management and post-harvest processing. He has authored 52 journal articles, 2 books, 3 edited volumes, 6 technical bulletins, and 22 book chapters, and is a co-inventor of 6 patents. His accolades include as member of a team for the ICAR Vasant Rao Naik Award for Research Applications in Agriculture, the NRDC Meritorious Societal Innovation Award, and the Eminent Engineer Award (2015) from the Institution of Engineers (India). In recognition of his significant contributions in the field of Agricultural Engineering, the Indian Society of Agricultural Engineers confers on ISAE Fellowship 2024 to Dr. Rajesh Kumar Singh.

6) COMMENDATION MEDAL AWARD

1. Dr. P. Subramanian
2. Dr. Ram Mandir Singh
3. Dr. Sandip Mandal
4. Dr. J. P. Singh
5. Dr. Susama Sudhishri

7) DISTINGUISH SERVICE AWARD

1. Dr. Rahul Rajaram Potdar
2. Dr. Narendra Singh Chandel
3. Dr. Bikram Jyoti
4. Dr. Satish Devram Lande
5. Dr. Vishal Kumar

ISAE Awards, 2024

8) BEST JAEI REVIEWER AWARD

1. Dr. Jyotiprava Dash
2. Dr. S. Sriramajayam
3. Dr Ramesh Kumar Sahni
4. Dr R Pandiselvam

9) BEST JAEI RESEARCH PAPER AWARD

Name of Paper:

1. Modelling of Reference Evapotranspiration using Neural Network and Regression Approaches for Semi-humid Region of Sikkim
2. Energy Input-Output Analyses of Major Field Vegetable Crops Production in Punjab
3. Optimization of Design Parameters of Pneumatic Plug Tray Seeding Mechanism for Cabbage Seed
4. Effects of Soaking and Sprouting Time on Nutritional Parameters of Sprouted Green Colour Black Gram of Sikkim Region

10) ISAE TEAM AWARD

1. Dr P V K Jagannadha Rao (Team Leader)

Dr P Sreedevi
Dr K. Kiranmayi

2. Dr. Udaykumar Nidoni (Team Leader)

Dr. Sharanagouda H
Dr. P.F. Mathod
Dr. Ramappa K.T.
Dr. Ambrish G
Dr. Roopa Bai R.S.
Er. Geeta H.P.
Er. Sudha Devi G
Mrs. Swapna

11) ISAE OUTSTANDING BOOK AWARD

1. Dr. Hifjur Raheman
2. Dr. Pranay Sarkar

12) ISAE TAFE SIVASAILAM MEMORIAL STUDENT GOLD MEDAL AWARD

1. Dr. Nrusingh Charan Pradhan

13) WINNER OF PH.D. THESIS COMPETITION 2024

1. Er. Sidhartha Sekhar Swain
2. Dr. Pooja Goyal
3. Dr. Alfiya P V

14) ISAE BEST CHAPTER AWARD

1. ISAE Delhi Chapter

ISAE – Election 2025-28

Nominations are invited, through email (isaeelection2025@gmail.com), from Life, Corporate and Institutional members of the Indian Society of Agricultural Engineers (ISAE), in good standing as on December 31, 2024, for the following positions of Executive Council (EC) of the ISAE for the term 2025-28.

- 1) President
- 2) Vice President (Technical Council)
- 3) Vice President (Activity Council)
- 4) Secretary General*
- 5) Director (Farm Machinery and Power)
- 6) Director (Soil and Water Engineering)
- 7) Director (Agricultural Structures & Process Engineering)
- 8) Director (Energy and Bio-engineering)
- 9) Director (Industry, Start-up and Entrepreneurship) **
- 10) Director (Gender Issues) ***
- 11) Director (Membership and Public Relations)
- 12) Director (Education, Research, and Extension)
- 13) Director (Awards and Placement)
- 14) Director (State Services)
- 15) Director (E-Services) *
- 16) Director (International Co-operation) #

ISAE Executive Council Election 2025-28

NOMINATION FORM

(To be filled by a Life, Corporate, or Institutional member in good standing only)

1. Name of the candidate (Capital letters)

2. Membership/Fellow No.:

3. Position nominated for:

Proposed by

Name (Capital letters):

Membership/Fellow No.:

Address:

Email ID:

Mobile No.:

(Signature)

Secured by

Name (Capital letters):

Membership/Fellow No.:

Address:

Email ID:

Mobile No.:

(Signature)

Declaration by the Candidate

1. I hereby give my consent to contest for the position of for the term 2025-28.

2. I have read the duties and responsibilities of the position as given in the latest Constitution, Bye-Laws, Rules and Memorandum of Association for which I have been nominated and, if elected, I will perform to the best of my capability.

3. Any dispute related to the election will be referred to the Chairperson, Central Election Committee through email and his/her decision on the dispute will be final.

Signature of the Candidate

Name

*Reserved for Life Members residing in the National Capital Region (NCR) of Delhi only.

** Reserved for Life Members associated with industry, or Corporate members

*** Reserved for women Life Members only.

#Reserved for Life members residing abroad. If there is no candidate for an election, the EC shall identify and nominate a suitable candidate (with his / her consent).

All positions except the one at sl.no. 16, whether filled by election or nomination, shall be from eligible Life members residing permanently in India

The schedule of the election process:

Activity	Last Date
Start of filing of nominations	03-01-2025
Closing of nominations	18-01-2025 (mid-night)
Online voting starts	04-02-2025
Online voting closes	26-02-2025 (mid-night)
Counting of votes & preparation of results	27-02-2025
Declaration of results	28-02-2025

International Expert Online Lecture Series

6th International Experts Online Lecture Series by ISAE for All Students, Researchers, Faculty, Scientists, Industry and Entrepreneur on “Biochar: Manufacturing and Applications”, was conducted successfully on 13th December 2024 at 8.50 am (Indian Time)

The Speaker for the lecture was **Prof (Dr) Chenxu Yu, Associate Professor, Department of Agricultural and Biosystems Engineering, Iowa State University, Ames, Iowa, USA**



Education

- Ph.D. 2003 Biological Systems Engineering, University of Wisconsin, Madison, WI
- M.S. 1998 Biochemical Engineering, Dalian Polytechnic University, Dalian, PRC
- B.S. 1993 Physics and Astronomy, Nanjing University, Nanjing, PRC

Professional Experience

- 08/14-present - Associate Professor, Environmental Sciences Graduate Program, Iowa State University
- 8/10-04/14 Assistant Professor, Environmental Sciences Graduate Program, Iowa State University
- 11/07-07/14 Assistant Professor, 50% Teaching/50% Research, Department of Agricultural and Biosystems Engineering, Iowa State University
- 01/06-11/07 Postdoctoral Research Associate, Department of Agricultural and Biological Engineering, Purdue University
- 08/03-12/05 Postdoctoral Research Associate, Department of Agricultural and Biological Engineering, the Pennsylvania State University
- 08/98-08/03 Graduate Research Assistant, Department of Biosystems Engineering, University of Wisconsin-Madison
- 08/95-05/98 Graduate Research Assistant, Non-aqueous Enzymology Lab, Dalian Polytechnic University
- 08/93-07/95 Computer Engineer, China Construction Bank, Dalian Branch

Areas of Specialization

- Teaching program in the areas of fundamentals of technology, food and bioprocess engineering, and biological engineering.
- Research program in the areas of food and bioprocess engineering, functional foods, spectroscopic biosensing and bio-related nanotechnology, and their applications in food quality and safety monitoring, biomedical diagnosis, environmental risk factor/contamination evaluations and disease prevention and vaccine development.
- Member of graduate faculty in Agricultural and Biosystems Engineering and Environmental Sciences Programs

Professional Affiliations

- American Society of Agricultural and Biological Engineers (2005-present)
- Institute for Food Technologists (1999-2003, 2007-present)
- Institute of Biological Engineering (2011-present)

Sewage and Wastewater Recycling Awareness Programme under Swachhata Pakhwada 2024, ICAR IISWC

The Division of Hydrology & Engineering, ICAR-Indian Institute of Soil and Water Conservation, organized an awareness programme on 26th Dec.2024, for the farmers on 'Sewage and Wastewater Recycling' as part of Swachhata Pakhwada 2024. The event aimed to educate farmers about the importance of efficient wastewater management and the potential benefits of recycling sewage for irrigation.

Farmers were shown the "Jalopchar Technology-Based Sewage Treatment Facility" at the institute and informed that daily sewage generation in India totals 112,000 million liters, much of which can be repurposed for irrigation, saving potable water and potentially irrigating 1.5 million hectares of land.

The program aligns with national efforts to promote a clean and green India and encourage water conservation.

Thirty farmers from Badripur, Dharmawala, and nearby villages participated in the event.
(Source: ICAR-Indian Institute of Soil & Water Conservation, Dehradun)



Doubling the income of farmers, measures by Govt.

Agriculture being a State Subject, the State Governments take appropriate measures for development of agriculture in the State. However, Government of India supports the efforts of States through appropriate policy measures, budgetary allocation and various schemes/ programmes. The various schemes/ programmes of the Government of India are meant for the welfare of farmers by increasing production, remunerative returns and income support to farmers. Strategies for increasing farmer incomes include improving crop productivity, reducing cost of production, agricultural diversification, adaptation to climate change for sustainable agriculture and compensation of farmers' losses.

Various reforms and policies focus on higher income for farmers by modernizing and rationalizing use of inputs, to decrease cost, increasing production, remunerative returns, income support, old age security, etc. The Government has substantially enhanced the budget allocation of Department of Agriculture & Farmers Welfare (DA&FW) from Rs. 21933.50 crore during 2013-14 to Rs. 122528.77 crore in 2024-25. List of various programmes/schemes run by Department of Agriculture and Farmers' Welfare given below.

Major schemes/programmes initiated by DA&FW

1. Pradhan Mantri Kisan Samman Nidhi (PM-KISAN)
2. Pradhan Mantri Kisan MaanDhan Yojana (PM-KMY)
3. Pradhan Mantri Fasal Bima Yojana (PMFBY)/ Restructured Weather Based Crop Insurance Scheme (RWBCIS)
4. Modified Interest Subvention Scheme (MISS)
5. Agriculture Infrastructure Fund (AIF)
6. Formation and Promotion of 10,000 Farmers Producers Organizations (FPOs)
7. Pradhan Mantri Annadata Aay Sanrakshan Abhiyan (PM-AASHA)
8. Agri Fund for Start-Ups & Rural Enterprises' (AgriSURE)
9. Per Drop More Crop (PDMC)
10. Sub-Mission on Agriculture Extension (SMAE)
11. Sub-Mission on Agriculture Mechanization (SMAM)
12. Sub-Mission on Seed and Planting Material (SMSP)
13. Paramparagat Krishi Vikas Yojana (PKVY)
14. National Food Security and Nutrition Mission (NFSNM)
15. Digital Agriculture Mission
16. Integrated Scheme for Agriculture Marketing (ISAM) - National Agriculture Market (ISAM-eNAM)

Doubling the income of farmers, measures by Govt.

17. Integrated Scheme for Agriculture Marketing (ISAM) - Others (ISAM-Others)
18. Mission for Integrated Development of Horticulture (MIDH)
19. Soil Health Card (SHC)
20. Rainfed Area Development (RAD)
21. National Mission on Edible Oils (NMEO)-Oil Palm
22. National Mission on Edible Oils (NMEO)-Oilseeds
23. National Beekeeping and Honey Mission (NBHM)
24. Mission Organic Value Chain Development for North Eastern Region
25. Agroforestry
26. Crop Diversification Programme (CDP)
27. National Bamboo Mission

Indian Council on Agricultural Research (ICAR) has released a compilation of success stories of 75,000 farmers who have increased their income more than two times by convergence of schemes being operated by Ministry of Agriculture & Farmers Welfare and the allied Ministries/Departments.

To address the existing infrastructure gaps and mobilize investment in agriculture infrastructure, Agriculture Infrastructure Fund (AIF) was launched to transform the agriculture infrastructure. AIF is a medium - long term debt financing facility for investment in viable projects for post-harvest management infrastructure and viable farming assets, through interest subvention and credit guarantee support. Union Cabinet approved the progressive expansion of AIF on 28.8.2024 by expanding the scope of eligible projects. This includes allowing individual eligible beneficiaries for creation of infrastructure covered under 'viable projects for building community farming assets', integrated processing projects & convergence of PM Kusum 'A'. Key projects approved under AIF are 18,606 Custom Hiring Centres, 16,276 Primary Processing Units, 13,724 Warehouses, 3,102 Sorting and Grading Units, 1,909 Cold Storage Projects and around 21,394 other types of post-harvest management projects and community agricultural assets.

This information was given by the Minister of State for Agriculture & Farmers' Welfare, Shri Ram Nath Thakur in a written reply in Lok Sabha.

Source: <https://pib.gov.in/>



Digital Agriculture Mission

The Government has approved the Digital Agriculture Mission on 2nd September, 2024 with an outlay of Rs. 2817 Crore. The Mission seeks to enable a robust digital agriculture ecosystem in the country for driving innovative farmer-centric digital solutions and making available timely and reliable crop-related information to all the farmers in the country. The Mission envisages the creation of Digital Public Infrastructure for Agriculture such as Agristack, Krishi Decision Support System, Comprehensive Soil Fertility & Profile Map and other IT initiatives undertaken by Central Government/State Governments. Agristack project is one of the major components of this Mission, which consists of three foundational registries or databases in the agriculture sector, i.e., the Farmers' Registry, Geo-referenced village maps and the Crop Sown Registry, all created and maintained by the State Governments/ Union Territories. The Government is providing administrative and technical supports to the all the states for implementation of the Mission. As on 05.12.2024, a total of 29,99,306 Farmer IDs have been created and Digital Crop Survey (DCS) has been undertaken in 436 Districts in Kharif 2024. Agristack is a federated structure and the ownership of data is with the respective States only. The federated system has been built considering the privacy aspects as per Digital Personal Data Protection (DPDP) Act, 2023.

This information was given by the Minister of State for Agriculture & Farmers' Welfare, Shri Ram Nath Thakur in a written reply in Lok Sabha.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2082787>

Use of advanced machinery/tools in farming

The role of modern agricultural machines is very crucial as it helps in increasing agriculture production and productivity, improving utilization efficiency of costlier inputs such as seeds, fertilizers and irrigation water, besides reducing human drudgery associated with various agricultural operations. However, the adoption of mechanization by the farmers of various States depends on varying factors such as socio-economic conditions, geographical conditions, crops grown, irrigation facilities etc.

The emphasis of the Government is to promote mechanization with the specific aim of increasing the reach of farm mechanization to small and marginal farmers and to the regions where availability of farm power is low and promoting 'Custom Hiring Centers' to offset the adverse economies of scale arising due to small land holding and high cost of individual ownership of agricultural machines. A Centrally Sponsored Scheme 'Sub-Mission on Agricultural Mechanization' (SMAM) is implemented in all the States and Union Territories from 2014-15 including the State of Uttar Pradesh. Under this scheme, financial assistance @ 40% to 50% of the cost of machines depending on the categories of farmers is provided for purchase of agricultural machines. Financial assistance @ 40% of the project cost is also provided to rural entrepreneur, (Rural youth and farmer as an entrepreneur), Cooperative Societies of Farmers, Registered Farmers Societies, Farmer Producer Organizations (FPOs) and Panchayats for establishment of Custom Hiring Centres (CHCs)



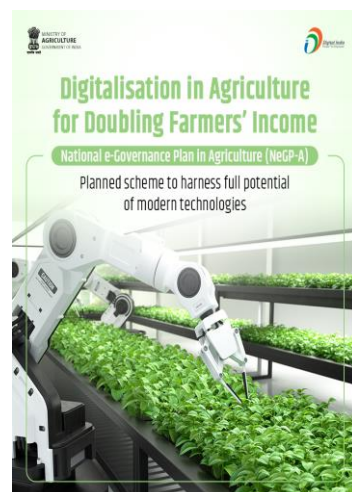
and Hi-tech hubs of high value agricultural machines. Financial assistance @ 80% of the project cost for the projects costing up to Rs. 30 lakhs is provided to the Cooperative Societies of farmers, Registered Farmer Societies, FPOs, Self Help Groups (SHGs) and Panchayats for setting up of village level Farm Machinery Banks (FMBs). The scheme promotes almost all agricultural machines and equipment's for crop production and post production activities.

The Department of Agriculture & Farmers Welfare, (DA&FW) is implementing Crop Residue Management Scheme from 2018-19 to support efforts of the State Governments of Punjab, Haryana, Uttar Pradesh & NCT of Delhi to address air pollution caused due to paddy stubble burning and to subsidize machinery required for management of crop residue. Under this scheme, financial assistance @ 50% is provided to the farmers for purchase of crop residue management machinery and @ 80% is provided to Rural Entrepreneurs (Rural youth & Farmer as an entrepreneur), Cooperative Societies of farmers, Registered Farmers Societies, Farmers Producer Organization (FPOs) and Panchayats for establishment of Custom Hiring Centers (CHCs) of crop residue management machines. The scheme promotes the usage of machines such as Super Straw Management System, Happy Seeder, Super Seeder, Smart Seeder, Surface Seeder, Zero Till Seed cum Fertilizer Drill etc. for in-situ management of crop residue and Balers & Straw Rakes for collection of straw for further ex-situ utilization. Financial assistance @ 65% on the capital cost of machinery costing up to Rs. 1.50 crores is also provided for establishment of paddy straw supply chain projects with a view to ensure continuous supply of paddy straw to end user industries in biomass power generation and biofuel sectors

The Government has also approved Central Sector Scheme for providing drones to the Women Self Help Groups (SHGs) with an outlay of Rs. 1261 Crores for the period from 2023-24 to 2025-26. The scheme is implemented in entire country including the State of Uttar Pradesh. Under this scheme, there is a provision of Central Financial Assistance (CFA) @ 80% of the cost of drone and accessories/ancillary charges up to a maximum of Rs. 8.00 lakhs per drone to the selected women SHGs.

During the period from 2014-15 to 2024-25 (as on 30 November 2024), central funds amounting to Rs. 656.56 crores have been released to the State of Uttar Pradesh under SMAM and the State has supplied 176722 machines and equipment to the farmers on subsidy and established 10769 CHCs/Hi-tech Hubs/FMBs. Under the Crop Residue Management Scheme, the central funds amounting to Rs. 763.67 crores have been released to the State of Uttar Pradesh during the period from 2018-19 to 2024-25 (as on 30 November 2024) and the State have supplied more than 70500 crop residue management machines to the farmers and established 8804 CHCs of crop residue management machines. Under Namo drone Didi Scheme, out of the total 15,000 drones targeted to be supplied, the Lead Fertilizer Companies (LFCs) have procured the first 500 drones in 2023-24, using their internal resources and distributed to the selected SHGs, which include 32 drones supplied to SHGs of the State of Uttar Pradesh. This information was given by the Minister of State for Agriculture & Farmers' Welfare, Shri Ram Nath Thakur in a written reply in Lok Sabha

Source: <https://pib.gov.in/PressReleasePage.aspx?PRID=2082790>



Integrating Artificial Intelligence - AI to Improve Agriculture

Government has employed Artificial Intelligence (AI) methods to address various challenges in the agricultural sector to aid farmers. Some of the initiatives are given below:

1. 'Kisan e-Mitra' an AI-powered chatbot to assist farmers with queries about the PM Kisan Samman Nidhi scheme. This solution supports multiple languages and is evolving to assist with other government programs.
2. National Pest Surveillance System for tackling the loss of produce due to climate change. This system utilizes AI and Machine Learning to detect crop issues, enabling timely intervention for healthier crops.
3. AI based analytics using field photographs for crop health assessment and crop health monitoring using Satellite, weather & soil moisture datasets for rice and wheat crop

Further, Government is implementing a Centrally Sponsored Scheme of Per Drop More Crop (PDMC) in the Country from 2015-16. PDMC focuses on enhancing water use efficiency at farm level through Micro Irrigation namely Drip and Sprinkler Irrigation Systems. The Micro Irrigation helps in water saving as well as reduced fertilizer usage through fertigation, labour expenses, other input costs and overall income enhancement of farmers. The Government provides financial assistance @ 55% for small and marginal farmers and @ 45% for other farmers for installation of Drip and Sprinkler systems under the PDMC. Additionally, Indian Council of Agricultural Research (ICAR) has also developed IoT based irrigation system and tested it in the field for selected crops.



This information was given by the Minister of State for Agriculture & Farmers' Welfare, Shri Ram Nath Thakur in a written reply in Lok Sabha today.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2082784>

Govt. of J&K on action mode for Directorate of Agricultural Engineering

For creation of Directorate of Agricultural Engineers in state and Dist./ Block wise "Agricultural Engineering Officer" Post for accelerating agricultural mechanization in the state, Govt. of J&K Agriculture Deptt. is making continuous follow-up with the concerned Deptt. and issuing reminders for action taken in this regards.



Agricultural Education Day Celebrated

ICAR-Indian Institute of Soil and Water Conservation, Dehradun, celebrated agricultural education day with engaging and interactive activities for students of Government Higher Secondary School, Smalata, in the Kalsi block of Chakrata Hills, Dehradun. Organized under the institute's Tribal Sub-Plan (TSP) initiative, the programme aimed to educate and inspire students about the importance of agriculture and its allied fields.

In his inaugural address, Dr M. Madhu, Director, ICAR-IISWC, highlighted the institute's role in natural resource management and linked it to the significance of agricultural education. He urged the students to actively interact with teachers and scientists to gain insights into soil and water conservation.

To enhance practical understanding, 36 students visited the institute's museum.

The initiative reflects ICAR-IISWC's dedication to foster awareness about agriculture and empower tribal students to consider agriculture as a promising career path.

Around 50 attendees, including students, teachers, school staff, and ICAR-IISWC officials participated in the programme



Source: <https://www.en.krishakjagat.org/india-region/agricultural-education-day-celebrated/>



ICAR-CIRCOT Marks 100 Years of Excellence

The 100th anniversary of ICAR-Central Institute for Research on Cotton Technology, Mumbai, was graced by the presence of Honourable Mr. Jagdeep Dhankhar, Vice President of India. In his address, Mr. Dhankhar emphasized the challenges faced by farmers and the vital role of ICAR in supporting them. He highlighted the Prime Minister's vision of transforming India into a developed nation and stressed the need to provide farmers with technical and economic assistance. The Vice-President urged ICAR and Agricultural Universities to collaborate to help farmers add value to their produce and secure fair prices, recognizing the importance of empowering farmers in India's growth.

During the event, the Vice President of India unveiled three important publications. Additionally, Mr. Dhankhar, planted saplings as part of the 'Ek Ped Maa Ke Naam' initiative. Mr. Shivraj Singh Chouhan, Union Minister, Agriculture & Farmers' Welfare & Rural Development; Mr. Ramnath Thakur, Union Minister of State for Agriculture & Farmers' Welfare; Dr Himanshu Pathak, Secretary (DARE) and Director General (ICAR); Mr. C.P. Radhakrishnan, Governor, Maharashtra; and Dr S.N. Jha, Deputy Director General (Agricultural Engineering), ICAR were also present during the programme.

At the same time, the Pilot Plant Facility for Protein Extraction and the Genome Editing Laboratory were inaugurated by Dr Himanshu Pathak, Secretary (DARE) and Director General (ICAR), designed to advance cutting-edge research into practical market applications through translational initiatives. In the morning session, a panel discussion on 'Post-harvest Processing of Cotton in Amrit Kaal' took place. During the award ceremony, the dignitaries unveiled three publications and a Cotton Dashboard.

As part of the institute's Centenary Celebration, ICAR-CIRCOT RAFTAAR Agri Business Incubator hosted the Agri Startup Conclave 2024 on 3rd–4th December 2024, under the theme Fuelling Agri-Innovation: Empowering Entrepreneurial Passion for a Sustainable Future. The event showcased 30 pioneering startups, each presenting advancements in agricultural innovation. Around 400 delegates from across the country, participated in the grand concluding ceremony of ICAR-CIRCOT's centenary celebration



In Memory of Professor Jaswant Singh: A Teacher, Philosopher and Guide



**Professor Jaswant Singh
1930-2024**

Professor Jaswant Singh, one of the stalwarts in Agricultural Engineering, died on December 18, 2024, in California, USA. Professor Singh is survived by a respectable family comprising children and grand and grandchildren, and a very large family of his students and colleagues spread through the country and abroad.

Prof. Singh Born on September 21, 1930, he received his bachelor's degree in agricultural engineering from Allahabad Agricultural Institute in 1952 and his master's degree from Utah State University in Logan, USA, in 1957. He is known for his groundbreaking research on the process of soil infiltration. His lifelong passions were surface irrigation hydraulics and dimensional analysis, two subjects in which he excelled and was able to solve complex problems using basic principles. He was, in a way, the real philosopher, who didn't care much about academic credentials. An excellent speaker, he could captivate the audience with his deep voice and sound logic.

Professor Singh held positions at seven esteemed universities over his lengthy career, including AAI Allahabad, IIT Kharagpur, GBPUAT Pantnagar, CCSHAU Hisar, SKUAST Jammu, and VNMKV Parbhani. He made significant impacts on every organization, wherever he worked. But at GBPUAT Pantnagar, where Professor Singh spent more time, he produced a truly enduring contribution to agricultural engineering education. He put the Agricultural Engineering Department on a solid foundation by implementing innovative curriculum, research projects, and syllabuses.

Professor Singh was instrumental in establishing a strong foundation of Agricultural Engineering Education and Research in India, making an indelible mark on the lives of many students and professional colleagues. He was more than just a teacher; he was a mentor, a guide, and an inspiration to everyone who had the opportunity to work with him. As we honour his memory, we start on a passionate journey, weaving together the shared experiences that have shaped the rich fabric of our lives. He leaves behind a great legacy that will guide the path of Agricultural Engineers for decades to come.

A luminary in the field of Agricultural Engineering, Professor Jaswant Singh's passing leaves an unfillable void. His remarkable journey, spanning over five decades, was marked by excellence, dedication, and a passion for teaching. As a respected professor, staff advisor, and Water Management Scientist, he inspired generations of students and professionals. His expertise in Irrigation Engineering and Soil Mechanics was unparalleled, and his contributions to the field will be remembered forever.

Our heartfelt condolences to the family members, extended families, relatives, and the entire agricultural engineering community on the passing of Professor Jaswant Singh. May the Almighty grant eternal peace to his soul and strength to those who mourn his loss.



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LM-14102	Dr. Rejani R.

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SM-7018	Kinjal Prashant More
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