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Editors

Dr. V.K. Baranwal
Dr. R.K. Jain

From the President's Desk

Strengthening Agri-Extension for a Strong Farm Sector

1. Introduction

The history of agricultural extension in India is quite rich. The beginning was marked by early efforts such as the Etawah Pilot Project (1948) and the Community Development Program (1952), both of which formed the base for planned extension. Subsequently, a host of large programs structured the system viz., the Intensive Agricultural District Program (1960), the National Demonstrations (1964-65), the High-Yielding Variety Program (1965-66), the Operational Research Projects (1974-75), the Training and Visit Program (1974), the Lab to Land Project (1979) and the National Agricultural Extension Project (1983). The launch of Krishi Vigyan Kendras (KVKs) in 1974 was a landmark, bringing into the fold the Institutions of on-farm testing and vocational training.



In recent years, programs like Farmer FIRST (Farm, Innovation, Research, Science and Technology), Mera Gaon Mera Gaurav (MGMG), ARYA (Attracting and Retaining Youth in Agriculture), NARI (Nutri-Sensitive Agricultural Resource and Innovation), VATICA (Value Addition and Technology Incubation Centre in Agriculture), and KSHAMTA (Knowledge Systems and Homestead Agriculture Management in Tribal Areas) have stretched the extension function towards participatory, inclusive, and technology-based paradigms. This shift is in response to repositioning extension in the face of a transforming agricultural and socio-economic environment and to meet diverse information needs of the farmers and other stakeholders.

2. Constraints in the Agricultural Extension System

During the Green Revolution and thereafter, extension services played a crucial role in transferring improved technologies, empowering farmers and enhancing their skills, thereby increasing food production and



making India self-sufficient. Agricultural extension, however, has not received due attention, particularly from the state governments, during the last two decades. The present-day agricultural extension system is constrained by structural and operational challenges. One of the pressing issues is the severe under investment in extension services, which has stagnated at merely 0.12–0.16% of agricultural GDP over the past two decades. This limited financial support has resulted in critical gaps in infrastructure, human resource development, and capacity building. Some of the major constraints are:

- Limited manpower, around 0.12 million extension professionals employed in India, as against China's 7.13 million.
- Low extension worker-to-farmer ratio below 1:5000, as against the National guideline of 1:1100 in irrigated, 1:750 in rainfed and 1:400 in Hilly areas.
- Lack of coordination between public institutions, private sector, and civil society organizations, resulting in fragmented efforts and overlapping activities.
- Insufficient feedback between research and extension systems at the field level, leading to disconnect between innovation and the needs of farmers.
- Over-reliance on KVKs (731) for transferring technology, while other extension agencies at the state, district, block, and village levels are underutilized.

3. Repurposing Agricultural Extension

Traditionally, agricultural extension has been production-centric. In changing landscape, focus should shift to a more holistic agri-business model that includes value addition, food processing, branding and access to better markets. In view of this, the modern agricultural extension must focus on:

- Smallholder and marginal farmers, ensuring inclusion and equity
- Promotion of sustainable and climate-smart agricultural practices
- Market-oriented, value chain-based, and export-driven advisory services.
- Strengthening of agri-business literacy, food processing, branding, and market access.
- Integration of service providers, agro-industries, and exporters into the extension framework.

4. Restructuring Agricultural Extension

A paradigm shift is required to restructure the agricultural extension system to meet the diverse needs to make farming more productive, sustainable, climate-resilient, market-driven, and export-oriented. Many innovations succeed locally but fail to expand beyond their pilot phase due to institutional silos, inadequate coordination, and the absence of enabling policy and financing frameworks. Furthermore, rapid changes in markets, climate, and technology demand a more adaptive and networked extension approach that can respond dynamically to farmers' evolving needs. Several institutional innovations have emerged in response to these limitations, indicating the gradual development of an agricultural innovation system in India. Scaling up and scaling out these innovations are crucial for enabling agricultural extension to effectively facilitate knowledge generation, access, and transfer across regions. A robust agricultural extension policy is essential to ensure convergence within the pluralistic system and to establish mechanisms and frameworks for stakeholder coordination. The existing extension system needs complete upgradation and the following key actions are suggested:

- (i) Strengthening Krishi Vigyan Kendras (KVKs):** Provide a uniform administrative structure for KVKs, expand their mandate to cover the entire agri-food system, and establish block-level agricultural extension offices. Each KVK demonstration has been found to benefit nine additional farmers, and the benefit cost ratio of investment in KVKs ranges between 11 and 12. The KVKs should assume specific role of Agri-Clinic in single window delivery approach through public private partnership for enhancing its outreach through production of seeds, planting materials, livestock materials, fingerlings value-added products, publications, prototypes of small implements, etc.
- (ii) Integrated Digital and Data-Driven Advisory:** Facilitate digital and data-driven decision-making by leveraging artificial intelligence, remote sensing, and mobile platforms. Implement virtual KVKs for expanding outreach and allowing farmers to access customised advisories on weather, soil health, and pests. KVKs should also create and maintain district level database and identify district specific needs, primary and secondary factors/biotic and abiotic causes of each prioritized problem and plan for appropriate interventions.



- (iii) **Research-Extension Linkages:** Encourage synergy between research and extension through enhancing the feedback mechanisms and propagating “Science of Discovery to Science of Delivery” paradigm. Situate technology adoption behaviour at the household level and secure impact studies of extension tools and approaches.
- (iv) **Public-Private Partnerships (PPPs):** Build strong collaboration between government, private sector, and civil society. Encourage joint demonstrations, shared use of laboratories and fields, digital agro-advisories, and training programmes on precision and climate-smart agriculture.
- (v) **Policy and Institutional Reforms:** Reform the Agricultural Technology Management Agency (ATMA), foster youth-centric entrepreneurship, and assist agri-startups in ensuring market-led extension. Establish a national cadre of professional extension advisors and enhance financial provisions for state and district-level extension operations.
- (vi) **Capacity Building and Human Resource Development:** Continuous capacity building of extension personnel and strong partnerships with academia and the private sector will ensure up-to-date knowledge flow. Besides, strengthen State Agricultural Management and Extension Training Institutes (SAMETIs) and Extension Education Institutes (EETIs) for continuous

professional development of extension personnel and encourage participation of women & youth in extension services.

- (vii) **International Learning:** Learn lessons from the best practices followed in different parts of the world to restructure our extension model. For example, in the United States of America, it is decentralized and research-driven, whereas in China, it is integrated and public-funded. In Israel, it is high-tech and farmer-centric, whereas in Australia, it is decentralized and market driven. Compared to these models, the Indian extension is supply-driven, with a limited feedback mechanism to the research system.

5. Conclusion

The future of agricultural extension in India lies in unlocking its potential through increased investment, effective coordination, and innovative service delivery. A restructured and repurposed extension ecosystem will enable Indian agriculture to achieve higher productivity, profitability, and sustainability. This transformation aligns with the vision of “Better Production, Better Nutrition, Better Environment, and Better Life,” as endorsed by the FAO and echoed in the NAAS framework for an aspiring India by 2047.

Himanshu Pathak
President



Executive Council Meeting

142nd Meeting

The 142nd meeting of the Executive Council (EC) of the Academy was held in hybrid mode on September 16, 2025 under the Chairmanship of Dr. Himanshu Pathak (President). Following agenda items were deliberated upon by the EC:

- Review of the Bye-laws and Rules & Regulations of the Academy: The Committee chaired by Dr. K. M. Bujarbaruah (Vice-President) constituted for the purpose so far held four meetings and the review process is still in progress.



- Participation in the World Food Prize Foundation event 2025: Prof. K. M. Maredia (Foreign Secretary) informed that five to six high school students selected through NAAS-YUVA would represent India at the Global Youth Institute in Des Moines, Iowa from October 21- 23, 2025. NAAS will also have a booth at the event and MoU between NAAS-YUVA and the World Food Prize Foundation is proposed to be formalized for future collaborations.
- Recommendations of the Sectional Committees and the Joint Conveners' Group for the election of Fellows, Associates, and Young Scientist Awardees for 2026 were approved for inclusion in the ballot paper.
- Establishing two international chapters of the Academy, one for North America, Europe, Africa and Latin America, and another for Asia-Pacific regions to strengthen global outreach and engagement of Pravasi Fellows was proposed by Prof. K. M. Maredia and a committee to be chaired by Dr. P. K. Joshi (Vice-President) was constituted to prepare a detailed proposal in consultation with the Ministry of External Affairs on legal aspects for consideration in the next meeting of the EC.
- Hosting the XVIII Agricultural Science Congress in 2027: Of 11 proposals received from various State Agricultural Universities, Central Agricultural Universities and ICAR Institutes, two venues were shortlisted. The final venue will be decided in the next meeting after reviewing the available infrastructure and logistics. Members were also requested to suggest an appropriate theme for the Congress.
- The Council approved in principle the proposal for organizing an International Conference on "Best Practices in Agricultural Cooperatives in the Global Arena" to be held in New Delhi on December 15-16, 2025, aligned with the 2025 NAAS theme "Agri-Food Innovations for Rural Transformation." A committee to be chaired by Dr. P. K. Joshi (Vice-President) was constituted to finalize the conference roadmap, funding, and partnerships.
- After due deliberation, nominations for filling up various positions were finalised by the EC for the initiation of balloting process.
- The Council took note of the activities undertaken by the Academy since the last meeting. These included Youth Session organized by NAAS-YUVA during MSS@100 Celebrations on August 8, 2025; updating the NAAS Journal Rating to be released on January 1, 2026; and provision of dedicated office space for the editorial staff of Agricultural Research journal at the Academy Secretariat.
- The Council welcomed Dr. Ch. Srinivasa Rao (Director, IARI), as ICAR Nominee to the EC for a term of three years from July 1, 2025.
- Two virtual round-table meetings were held for the Foreign and Pravasi Fellows in July and August 2025. Besides, two Brainstorming Sessions on "Trade-related Challenges" and "Artificial Intelligence in Agriculture" were identified.
- The Council recommended that all concept notes for Brainstorming Sessions be peer-reviewed by two experts before approval and the final publications such as Policy Papers or Policy Briefs should also be reviewed by the same experts to ensure quality assurance.

The meeting concluded with formal vote of thanks to the Chair and Members of the EC.



NAAS Programs

BRAINSTORMING SESSIONS

“Managing Emerging Environmental Contaminants in Aquaculture and Fisheries” (Conveners: Dr. B.K. Das, Director, ICAR-Central Inland Fisheries Research Institute (CIFRI), and Dr. Kishore K. Krishnani, Joint Director (Academics), ICAR-Indian Institute of Agricultural Biotechnology (IIAB))

The Academy organized a Brainstorming Session (BSS) on “Managing Emerging Environmental Contaminants in Aquaculture and Fisheries” on July 18, 2025, in hybrid mode. The Session was Chaired by Dr. Himanshu Pathak (President), and Co-chaired by Dr. B.S. Dhillon (Vice-President).



Dr. W.S. Lakra (Secretary), in his welcome address, emphasized India's leading role in global fish production and the urgent need for policies to manage emerging environmental contaminants in aquaculture systems.” In his opening remarks, Dr. Himanshu Pathak underscored aquaculture and fisheries as sunrise sectors and highlighted the critical need for monitoring, regulation, and mitigation strategies to address contaminants of emerging concern (CEC). Subsequently, the Conveners delivered key presentations on “Managing CECs in Culture-based Reservoir Fisheries” and “Managing CECs in Freshwater, Brackish Water, Coastal Water and Inland Saline Aquaculture.”

The event featured panel discussions and expert insights from national and international participants, including representatives from ICAR Institutes; Marine Products Export Development Authority (MPEDA); Export Inspection Council of India (EIC); State fisheries departments; industry; academic institutions; and international organizations such as United States Environmental Protection Agency

(USEPA) and Commonwealth Scientific and Industrial Research Organisation (CSIRO). The discussions focused on sources, impacts, and management strategies for chemical and microbial contaminants, as well as policy development, risk assessment, monitoring systems, and sustainable aquaculture practices. The Session was concluded with remarks by Dr. B.S. Dhillon (Vice-President) and vote of thanks by Dr. A.K. Singh (Secretary).

“Marine Nutraceuticals for Boosting Bio-Economy in India” (Convener: Dr. R. Jeya Shakila, Director, Directorate of Incubation and Vocational Training in Fisheries; Co-Convener: Dr. Kajal Chakraborty, Director, ICAR-National Bureau of Fisheries Genetic Resources (NBFG))

A BSS on “Marine Nutraceuticals for Boosting Bio-Economy in India” was organized on July 28, 2025 in hybrid mode to deliberate on the immense potential of marine-derived nutraceuticals in enhancing the bio-economy of India. The Session was chaired by Dr. Himanshu Pathak (President).



The session began with welcome address by the Secretaries (Dr. W.S. Lakra and Dr. A.K. Singh), who emphasized India's leading role in integrated efforts in research, policy, and industry to realize India's potential as a global hub for marine nutraceuticals. Subsequently, the Conveners delivered key presentations on “Marine Nutraceuticals in India: Scientific Innovations, Regulatory Frameworks, and Policy Strategies” and “Marine Natural Products: Exploring Chemical Diversity for Nutraceuticals and Therapeutics in Human Health”.

The program also featured keynote presentations highlighting the scientific innovations, chemical diversity, and regulatory frameworks surrounding



marine nutraceuticals in India. A focused panel discussion followed, engaging technical experts from institutions, such as ICAR-Central Institute of Fisheries Technology (CIFT), CSIR-Central Salt & Marine Chemicals Research Institute (CSMCRI), NITTE University, ICAR-Central Institute of Fisheries Education (CIFE), and International academia. Key topics covered included seaweed-based products, carotenoids from marine algae, fish by-product utilization, marine proteins, and export prospects. Government agencies including Export Inspection Council and the Ministry of Fisheries provided critical insights into regulatory, quality assurance, and promotional strategies. Industry participation brought in a commercial perspective, emphasizing innovation and market potential.

Actionable Recommendations

(i) establishing a dedicated desk for marine nutraceuticals in the Ministry of Fisheries, reducing GST from 18% to 5%, and setting up regional incubation centers; (ii) updating regulations by FSSAI to include seaweed and seaweed-derived products and introducing third-party verification; (iii) launching of a national mission for marine nutraceuticals with a single nodal agency and harmonizing HSN codes; (iv) supporting research initiatives like a marine nutraceuticals network project by the Ministry of Science and Technology (v) focusing on branding, marketing, and good manufacturing practices by the industry; and (vi) advancing research on seaweed products, bioactive compounds, and safety evaluations by ICAR and CSIR; and promoting the commercialization of marine nutraceuticals and coastal entrepreneurship by state governments.

In his concluding remarks, Dr. A.K. Singh (Secretary) emphasized the need for integrated efforts across research, policy, and industry to fully harness India's untapped marine resources, positioning the nation as a global leader in the marine nutraceutical market.

“Precision Irrigation System Using AI and IoT” (Convener: Dr. T.B.S. Rajput, Former Principal Scientist, ICAR-Indian Agricultural Research Institute (IARI); Co-Convener: Dr. D.K. Singh, Professor, ICAR-IARI, New Delhi)

The academy organised a BSS on “Precision Irrigation System Using AI and IoT” on August 22, 2025 in hybrid mode. The session was Chaired by Dr. Himanshu Pathak (President), and Co-chaired by Dr. P.K. Joshi (Vice-President).

Dr. A. K. Singh (Secretary), in his welcome address, emphasized the need for cutting-edge technologies in agriculture and particularly in irrigation management.



He was of the view that the application of AI (Artificial Intelligence) and IoT (Internet of Things) could provide superior solutions for optimizing the use of scarce water resources, thus helping to achieve sustainability in farming systems.

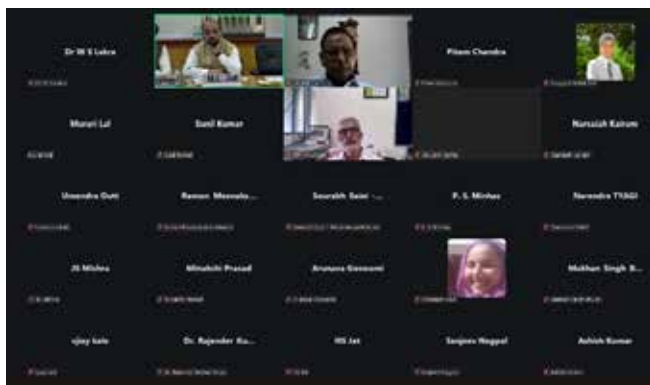
A focused panel discussion engaged technical experts, including Dr. P.K. Singh, (Agriculture Commissioner, Government of India); Dr. S.K. Ambast (Chairman, CGWB); Dr. K.N. Tiwari (former Head, Department of Agricultural Engineering, IIT Kharagpur); Prof. Jaspal Singh (CDAC, Mohali) and Mr. Surender Makhija (Strategic Advisor and Vice- President, Jain Irrigation Systems Limited). The session concluded with a discussion on the need to promote sustainable farming practices, pilot projects demonstrating AI and IoT-based irrigation systems, and greater public–private partnerships to ensure successful technology transfer.

Actionable Recommendations

(i) to develop a comprehensive policy document by the Academy on harnessing AI and IoT for precision irrigation; (ii) encourage State Agricultural Universities to create data storage and processing infrastructure for AI and machine learning applications; (iii) strengthening of faculty capacity in AI and IoT within agricultural institutions to receive priority; (iv) industry–research collaborations, for instance with institutions like CDAC, Mohali, to develop affordable sensors and IoT systems suited for Indian farms; and (v) to initiate sustained awareness and demonstration programs for farmers to facilitate adoption of these emerging technologies, in a cluster-based approach.

“Innovative Approaches for Sustainable Crop Residue Management” (Convener: Dr. Rajbir Singh, Deputy Director General (Agricultural Extension), ICAR; Co-Convener: Dr. H.S. Sidhu, Former Dean, Punjab Agricultural University, Ludhiana)

A brainstorming session on “Innovative Approaches for Sustainable Crop Residue Management” was



organized on September 15, 2025 in hybrid mode. The session was Co-Chaired by Dr. Himanshu Pathak (President) & Dr. M.L. Jat (Secretary, DARE and Director General, ICAR).

Experts deliberated on strengthening institutional mechanisms, deploying remote sensing technologies for monitoring crop residue burning, and scaling up the use of bio-decomposers for paddy straw management. Industry representatives presented innovative approaches to converting crop residues into bioenergy, biochar, and other value-added products, while highlighting opportunities for circular economy solutions in agriculture. Farmers representatives contributed valuable ground-level perspectives, stressing the need for affordable machinery, more efficient use of farm-machinery available at Custom Hiring Centres (CHCs), and the urgent need of capacity building at the grassroots level.

Actionable Recommendations

(i) identification of stubble-burning hotspots and preparation of localized action plans, (ii) incentivization of Gram Panchayats for excellence in residue management, (iii) development of sustainable business models for CHCs, (iv) mechanisms to monetize ecosystem services and link them to carbon markets, while stressing the need for intensified Information, Education and Communication (IEC) campaigns in high-risk regions; and (vi) preparation of a mid-term status paper on the Crop Residue Management (CRM) Scheme, accurate biomass estimates, and the creation of a national database of residue-related solutions.

Concluding the session, Dr. A.K. Singh (Secretary) emphasized that integrated research, policy, and industry action will be critical to harnessing India's agricultural potential, reducing environmental challenges, and positioning the country as a global leader in sustainable agriculture and bio-resource management.

“Harnessing the Functional Plant Microbiome for Next-Generation Plant Health Management” (Convener: Dr. M.S. Saharan, Head, Division of Plant Pathology, ICAR-IARI, New Delhi; Co-Convener: Dr. Aundy Kumar, Professor, Division of Plant Pathology, ICAR-IARI, New Delhi)

The Academy organized a BSS on “Harnessing the Functional Plant Microbiome for Next-Generation Plant Health Management” on September 26, 2025 in hybrid mode. The session was Chaired by Dr. Himanshu Pathak (President) along with Dr. B.S. Dhillon (Vice-President) and Prof. Anupam Varma (INSA Emeritus Scientist) as Co-Chairs. Dr. Pathak in his introductory remarks emphasized the plant microbiome as a frontier area and a sunrise sector for plant health management. He further underlined the crucial role of the private sector and start-up ecosystem in translating microbiome research into scalable innovations for agriculture.

Dr. A.K. Singh (Secretary), with a brief welcome address, underscored India's pivotal role in fostering integrated research, policy, and industry linkages to harness the potential of plant microbiome-based solutions for sustainable agriculture. Dr. Saharan (Convener) set the tone for the brainstorming through his presentation on “Harnessing the Functional Plant Microbiome for Next-Generation Plant Health Management”. This was followed by



another presentation from Dr. Kumar (Co-Convener) on “Functional Plant Microbiome for Next-Generation Plant Health” along with a panel discussion with contributions from academic, research, and industry experts on the translational potential of microbiome research. Prof. Jos Raaijmakers from the Netherlands in his online presentation on “Microbiomes of Wild Plants: A Way Forward to Restore the Lost Microbial Diversity in Agricultural Settings” introduced the innovative concept of rebuilding modern agriculture by



exploring the lost microbiomes in the centres of origin of crops. These deliberations collectively highlighted the potential of microbiome-based approaches for advancing sustainable crop management, enhancing resilience to climate change, and creating pathways for commercialization in next-generation agricultural technologies.

Actionable Recommendations:

(i) exploration of wild plant microbiome in key biodiversity hot spot in India; (ii) establishing dedicated research and network centres for plant microbiome innovations; (iii) crop breeding for agriculturally important microbiome; and (iv) guidelines for inclusion of microbiome and metabolome-based products for commercialization.

In his concluding remarks, Prof. Anupam Varma emphasized integrating microbiome research with policy initiatives and extension services across NAREES (National Agricultural Research, Education and Extension System) of India to ensure practical adoption by farmers.

OTHER ACTIVITIES

Virtual Interaction Meetings with NAAS Foreign and Pravasi Fellows

Two virtual interactive meetings were held with NAAS Foreign and Pravasi Fellows on July 18, 2025 and August 19, 2025 under the Chairmanship of Dr. Himanshu Pathak (President). In his introductory address, he emphasized the following aspects during both the meetings:

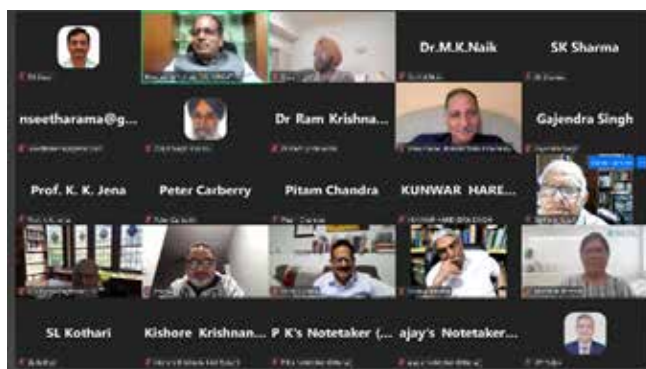
- Greater need for the Academy to harness global expertise and diverse viewpoints to advance India's research, education, and extension.
- Active engagement of Pravasi/Foreign Fellows in order to expand the Academy's global outreach.



- Highlighted Academy's existing MoUs (11) with foreign academies, including the African Academy of Sciences.

Following President's address, suggestions offered by the Foreign and Pravasi Fellows were as follows:

- Greater need for networking and mentoring of students and early career researchers.
- Joint Ph.D. programs with foreign universities.
- Webinar series and workshops with international experts on Artificial Intelligence (AI) applications in agriculture, Global Trade and Tariffs, Genome editing etc.
- Establish at least two International Chapters of the Academy for better facilitation, coordination and greater engagement of Pravasi and Foreign Fellows.



- Creation of online repository of fellowships/scholarships on Academy's website with email alerts.
- Utilize existing MoUs to co-organize symposia and joint programs.
- Encouraging South-South collaborations, particularly India-Africa partnerships.
- Showcase India at the 2026 International Horticulture Congress (Japan).
- Use of GIAN & SPARK programs to invite foreign experts for short courses in India.

The meetings ended with formal vote of thanks by Dr. A. K. Singh (Secretary).

Special Seminar

Dr. W.S. Lakra (Secretary, NAAS) delivered a seminar on "Blue Revolution in India" on August 01, 2025 at College of Agriculture and Natural Resources, Michigan State University, USA.

Activities of the Regional Chapters

Barapani Chapter

Barapani Chapter in collaboration with Bharat Vikash Parisad (Assam Prant) and Spread NE, launched an initiative for the holistic development of Jagra village in Nalbari district, Assam, on August 11, 2025. The program aimed at transforming the village into a model of integrated rural development.



The program was supported by the active involvement of eminent experts and stakeholders, including Dr. Kishore Baruah (General Body Member, ICAR); Dr. Hemen Bhattacharyya (Former Director of Extension, Assam Agricultural University); Shri Samir Bordoloi (Progressive Farmer and Founder, Spread NE); Dr. A.A.P. Milton (Scientist, ICAR Research Complex for NEH Region and Treasurer, NAAS-Barapani Chapter); and Dr. S. Wasifur Rahman (Spread NE). Their collective expertise and commitment would help in shaping the Jagra Model Village into a replicable model of sustainable rural transformation, demonstrating how science, technology, and community participation can converge to uplift livelihoods in rural Assam.

Karnal Chapter

- Karnal Chapter in collaboration with Dr. Gurbachan Singh Foundation for Research, Education and Development (GSFRED) and Kisan Chamber



of Commerce organized a seminar on “Climate Smart Agriculture Practices for Farmers’ Welfare and Safe Environment” on August 10, 2025, at GSFRED, Karnal. About 35 eminent scientists, including NAAS Fellows, experts, and progressive farmers participated.

- An interactive visit for small, marginal, and landless farmers (about 70) was organized on August 13, 2025, at the GSFRED centre, Karnal in collaboration with Haryana Vigyan Manch, Department of Agriculture and Farmers Welfare, Karnal, Gramin Ajivika Mission, and Village Panchayats of Kachhwa, Birmajra, Zarifabad, and Sagga. The farmers (mostly women) were exposed to integrated farming system models, climate-smart agriculture practices, seed plots of improved rice varieties, agroforestry models, soil and water conservation measures, demonstrations on natural and organic farming, safe food production, and nurseries of fruits, flowers, medicinal, aromatic, and landscaping plants



Kolkata Chapter

- One-day workshop on “Inland Fisheries Management” was organized in collaboration with ICAR-CIFRI on July 22, 2025 to educate





undergraduate students of Serampur College to the scientific, ecological, and practical aspects of managing inland fishery resources. Dr. B. K. Das (Convener) highlighted the significance of inland fisheries resources such as rivers, reservoirs, lakes, and wetlands in supporting fish biodiversity and rural livelihoods along with importance of fish taxonomy for accurate identification of fish species,

- On August 23, 2025, Kolkata Chapter along with ICAR-CIFRI and Sasya Shyamala Krishi Vigyan Kendra, RKMVERI, South 24 Parganas, organized a mass awareness programme on backyard pond fish culture. About 350 villagers from eleven villages of Sonarpur Block were present. Dr. B. K. Das (Convener) sensitized the gathering on inland open water fisheries and emphasized the long-term benefits of backyard pond culture in enhancing



livelihoods and nutritional security. Smt. Lalita Bar (Panchayat Pradhan) addressed the gathering and praised the initiative for empowering rural women by improving livelihood through demonstration of various fisheries technology. The programme resonated deeply with the beneficiaries. "I never imagined our small pond could become a source of income," said Parbati Purkait from Sonarpur. Another participant, Bablu Mondal, shared, "This initiative has given us hope. We now understand how fish farming can improve our children's nutrition and help us earn without leaving our homes."

Ludhiana Chapter

- Organised an awareness program on 'Career Opportunities in Agriculture and Adolescent Nutrition' at Government Senior Secondary Smart School, Channo in collaboration with Krishi Vigyan Kendra (KVK), Sangrur on July 10, 2025 to inspire



students and equip them with vital knowledge about career avenues in agriculture and the importance of proper nutrition during adolescence.

- Organised awareness programs on 'Dairy Farming as a Subsidiary Occupation' and 'Scope and importance of agro-processing of different agricultural produce's at Village Jaijon (District Hoshiarpur) in association with Krishi Vigyan Kendra, Bahawal, Hoshiarpur on July 30, 2025. On this occasion, Dr. Parminder Singh delivered a lecture to farmers and farm women, educating



them about different breeds of milch animals, their nutritional requirements, seasonal management practices, and the importance of timely vaccination to prevent infectious diseases. He emphasized the critical role of proper animal husbandry in enhancing productivity and ensuring animal welfare. Dr. Singh also encouraged participants to consider dairy farming as a subsidiary occupation, highlighting its significance in promoting sustainable agriculture and rural development. Besides, Dr. Ajaib Singh delivered an insightful lecture on the scope and importance of agro-processing of agricultural produce. He discussed advanced agro-processing technologies developed by Punjab Agricultural University, Ludhiana, and emphasized the need to establish agro-processing centres in rural areas to strengthen the local economy and generate employment through value addition. About 27 farmers/farm women participated in this awareness programs.

- Organised an awareness program on 'Paddy Residue Management' at Village Moranwali, Block Garhshankar (District Hoshiarpur) in association with Krishi Vigyan Kendra, Bahawal, Hoshiarpur on August 29, 2025. On this occasion, Dr Maninder Singh Bons highlighted the harmful effects of burning of paddy residue burning and discussed various technological options for paddy residue management in detail. He also informed the farmers about the benefits of adopting paddy residue management techniques. Dr Bons also exhorted the farmers for pursuing this noble cause of non-burning of paddy residue.



- Organised an awareness program on 'Mushroom Cultivation as a Subsidiary Occupation' and 'Career Opportunities in Agriculture, Veterinary Science and Allied Agricultural Vocations' at Krishi Vigyan Kendra, Bahawal, District Hoshiarpur on September 9, 2025. On this occasion, Dr Karmvir Singh Garcha gave a useful talk on mushroom farming as an extra source of income. Besides, Dr Maninder Singh Bons gave an impactful talk on career opportunities in available in agriculture, veterinary science and allied agricultural vocations. The programme was attended by 32 farmers and farm women, who actively participated and appreciated the information shared.
- Organised an awareness seminar on 'Water-Saving Techniques in Paddy-Wheat Cropping System' at KVK



Sangrur on September 11, 2025. The seminar brought together a large gathering of progressive farmers and agriculture enthusiasts from across the district.

- Organized a special lecture on 'Flower Power and Biotechnology' on September 12, 2025. Dr. Rajinder Singh Ranu (Professor Emeritus, Colorado State University, USA) was the Guest Speaker and the event was chaired by Dr. Ajmer Singh Dhatt (Convener).



- Organized another special lecture on 'Food Processing: Catalysing Upliftment of Rural Livelihood' on September 19, 2025. Dr Bhupinder Singh Katkar (Former National President, Association of Food Scientists and Technologists of India and Dean, Faculty of Environmental and Bio-sciences and Technology, Guru Jambheshwar University of Science and Technology, Hisar) was





the Guest Speaker and the event was chaired by Dr. Mahesh Kumar (Additional Director of Research, Agricultural Engineering, PAU).

Palampur Chapter

The inaugural meeting of the Palampur Chapter was organized on September 24, 2025 at CSIR-Institute of Himalayan Bioresource Technology (IHBT), Palampur in hybrid mode. In his opening remarks, Dr. Ram Kumar Sharma (Convener) provided a comprehensive overview of NAAS's mission and outlined a strategic roadmap for the newly formed Chapter, focusing on impactful academic and outreach activities. Dr. Sudesh Kumar Yadav (Director, CSIR-IHBT) emphasized enhanced collaboration and knowledge sharing among NAAS Fellows to deepen the impact of the Academy's outreach and advisory initiatives.

The event witnessed the active participation of several eminent NAAS Fellows of Himachal Pradesh, Jammu & Kashmir, and Ladakh, including Dr. P.L. Gautam, Prof. Sudhir K. Sopory, Prof. S.K. Khosla, Dr. C.L. Acharya, Dr. S.K. Sharma, Dr. Pradeep Sharma, Dr. Manoj Dhar, Dr. Ranjodh Singh, Dr. D.P. Abrol, Dr. A.K. Sharma, Dr.



A.K. Choudhary, and Dr. Dharm Pal. The interactive session featured valuable inputs and forward-looking suggestions from the Fellows, focusing on the Chapter's future course of action. Key discussion areas included organizing brainstorming sessions, releasing policy papers, and targeted initiatives to address regional agricultural, horticultural, and medicinal plant-related challenges.

Varanasi Chapter

Varanasi Chapter in collaboration with the Institute of Agricultural Sciences, Banaras Hindu University organized two major events.

- A poster presentation competition for students on the theme "Indian Agriculture by 2047: Innovation & Sustainable Strategies" on July 26, 2025. Students from various disciplines, including Agriculture, Environment, Botany, Zoology, Biochemistry, & Biotechnology participated and winners were awarded.



- A special lecture on "Transforming the Agricultural Landscape of Uttar Pradesh." by Dr. Himanshu Pathak (President, NAAS) on August 02, 2025.



Activities of NAAS-YUVA

NAAS-YUVA Youth Session

(Rapporteurs: Dr. Subhash Babu, Dr. Ratna Prabha, Dr. P. R. Shashank & Dr. Kuldeep Tripathi)

During M. S. Swaminathan Centenary International Conference held at NASC Complex, New Delhi on August 09, 2025, a Youth Parliament Session and Agri-Idea Pitching were held to engage young agricultural professionals in policy-oriented discussions and innovative solutions.

The program successfully demonstrated how young, informed and science-aware leaders can help in shaping agricultural policy and innovation. It provided a unique platform to bridge research, policy, and grassroots realities, empowering the next generation to lead Indian agriculture towards a sustainable and resilient future.



Publications

Policy Papers (PP)

PP-135: Accelerating Farm Mechanization to Achieve the Goal of Viksit Bharat

PP-136: Crop Grouping and Harmonization of Maximum Residue Limits: Solution to Off-Label Use of Pesticides

PP-137: Restoration and Improvement of Soil Health

PP-138: Climate Adaptive Conservation of Fisheries Resources

PP-139: dsRNA-Biopesticides for Crop Protection

Strategy Paper (SP)

SP-21: Honeybees : Harbinger of Sweet Revolution



Forthcoming Programs

- Semio-Chemicals Driven Pest Management Strategy
- Horticultural Innovation to Enhance Export Promotion
- Genome Editing in Agriculture – Prospects and Challenges
- Fisheries Research and Development Priorities for Partnership in South Asia
- Enhancing Efficiency and Sustainability of Farmer Producer Organizations in India

Obituaries



Dr. Kanthadai Raghu
(1936 -2025)

Dr. K. Raghu, former Head, Nuclear Agriculture Division, Bhabha Atomic Research Centre (BARC) passed away on July 27, 2025 in Mumbai.

He completed his Ph.D. from the Department of Botany, University of Madras, Chennai in 1964, and subsequently did his Post-Doctoral research at the International Rice Research Institute (IRRI), Philippines, University of Houston, Houston, USA and University of Illinois, Urbana Champaign, USA. He served BARC in various capacities, including Scientific Officer (1972-77), Head, Plant Pathology and Pesticide Residues Section (1977-90) and Head, Nuclear Agriculture Division (1990-96).

His main research interests included fate, persistence and metabolism of recalcitrant pesticides, especially organochlorines in soils as well as plants. Dr. Raghu successfully completed several International

Atomic Energy Agency (IAEA) projects on the fate of pesticides using radio-labelled compounds, including soil-bound residues. He was instrumental in promoting the release of the high yielding Trombay Groundnut variety, TAG24, which continues to remain popular even today. His exceptional intellect, innovative spirit, humility, meticulous attention to details and unwavering commitment to excellence was highly appreciated by all his colleagues. He was honored with the Lifetime Achievement Award (2016) by the Society of Pesticide Science. Besides, he was an elected Fellow of the National Academy of Agricultural Sciences and Maharashtra Academy of Sciences.

Dr Raghu is survived by his wife (Nalini), son (Gautam), Daughter in Law and grand-children. May almighty give him eternal rest and his family, friends, students, and colleagues strength to overcome this huge loss.

Dr. T. K. Adhya
*Professor, School of Biotechnology
KIIT University, Bhubaneswar*



Dr. Ajit Varma
(1939-2025)

Dr. Ajit Varma, a distinguished microbiologist, visionary academician, and mentor to generations of scientists, passed away on August 27, 2025. He made outstanding contributions to the fields of microbiology, biotechnology, and agricultural sciences.

Dr. Varma earned his M.Sc. (1959) and Ph.D. (1964) from Allahabad University. He served with distinction at the Indian Agricultural Research Institute (IARI), Jawaharlal Nehru University (JNU), and later as Distinguished Scientist and Professor of Eminence at Amity Institute of Microbial Technology, Amity University, Noida. He also held the position of Group Dy. Vice-Chancellor, Amity University, and Vice-Chairman, Amity Science, Technology & Innovation Foundation.

Dr. Varma was never scared of new opportunities and did everything with honesty and integrity. The landmark discovery of *Piriformospora indica*, a root colonizing endophytic fungus from Thar desert, by a group led by him at JNU generated considerable interest globally. "Rootonic-the Magic Fungus"- a unique innovative product developed by him improves soil fertility, provides resistance against diseases and boost growth and yield of plants. The technology was licensed to different companies to enhance its commercial production.

Those who knew Dr. Varma, will remember him for his infectious smile and overwhelming laughter, and his unwavering commitment to spreading love and kindness to everyone he encountered. He had a young-at-heart quality that sailed him through a long academic career. He had a rare gift for making others smile and laugh, leaving a lasting impact on all who crossed his path particularly the research scholars. His family had also emulated his nature of compassion, hard work and stewardship. His wife Mrs. Usha Varma remained associated with Tammana, a school for differently abled children. He guided over 100 Ph.D. scholars and mentored many more, leaving behind an enduring legacy of excellence in science.

He was globally recognized through his visiting professorships and fellowships across leading universities and research institutions worldwide. With more than 409 research articles and 120 books to his credit, Dr. Varma's contributions have significantly advanced knowledge in soil biology and microbial technology. His editorial leadership with Springer-Verlag and IK Internationals further strengthened scientific literature in the field.

Dr. Varma was the proud recipient of numerous prestigious awards, including the Lifetime Achievement Awards from Bombay University and Amravati University, as well as national and international fellowships from institutions in Germany, USA, Canada, Switzerland, and others.

The NAAS fraternity salutes his lifelong dedication to science and education. His passing is an immense loss to the scientific community and the nation. We extend our heartfelt condolences to his family, colleagues, students, and admirers worldwide.

May his soul rest in eternal peace

Dr. Anil Saxena

Former Director, ICAR-National Bureau of Agriculturally Important Microorganisms, Kusmaur, Mau



Dr. Uma Lele
(1941-2025)

Dr. Uma Lele, a pioneering agricultural economist and internationally respected development scholar, passed away on August 01, 2025.

Born in Koregaon, Satara (India),

Dr. Lele served as President, International Association of Agricultural Economists (IAAE) from 2021-2024. She was also Fellow of the National Academy of Agricultural Sciences (NAAS), India, and a Visiting Professor at the Institute of Economic Growth (IEG), University of Delhi. Her distinguished career spanned over five decades, including senior roles at the World Bank (1971–2005), where she served as Senior Adviser in the Independent Evaluation Group. She also held key advisory positions with the International Initiative for Impact Evaluation (3IE), the Global Water Partnership, and the Daugherty Water for Food Institute, and served on the boards and expert panels of CGIAR, CIFOR, FAO, and the Carter Center.

A passionate advocate for sustainable and inclusive growth, Dr. Lele worked tirelessly to improve the livelihoods of farmers and rural communities. Her research and policy work, grounded in analytical rigor and empirical evidence, significantly influenced development strategies in India and across the globe. She collaborated with governments, advised international organizations, and empowered local institutions to advance food security and rural transformation. Dr. Lele was also a dedicated mentor and institution builder. She established the Uma Lele AERA India/AAEA Mentorship Program, entrusting the Agricultural Economics Research Association (AERA), India with managing one of its international chapters. Her engagement with NAAS was equally



impactful. As President (IAAE), she was instrumental in bringing the 32nd International Conference of Agricultural Economists (2024) to India, inaugurated by the Hon'ble Prime Minister—a major achievement for the agricultural economics community.

Beyond her professional accomplishments, Dr. Lele was admired for her humility, warmth, and unwavering support for young scholars. Her legacy lives on through her mentorship, her visionary research, and her lifelong commitment to equitable and sustainable development. The Fellows of NAAS and members of the agricultural research community deeply mourn her passing and extend heartfelt condolences to her family. Her life's work will continue to inspire generations to come.

Dr. Anjani Kumar

Senior Research Fellow, International Food Policy Research Institute, New Delhi



Dr. Mata Prasad Pandey
(1946-2025)

Dr. Mata Prasad Pandey, an internationally known plant breeder breathed last on September 08, 2025 at Kathmandu (Nepal) at the age of 79. He survived by two illustrious sons and a daughter married in the legendary Pant family of Uttarakhand besides a number of grand-children. His caring wife preceded him in the final journey.

Dr. Pandey was born on September 08, 1946 in Pratapgarh district of Uttar Pradesh and obtained B. Sc. (Ag) from Government Agriculture College, Kanpur and M.Sc. (Ag) from GBPUA&T, Pantnagar, Uttarakhand. In his scientific career spanning over four decades, he worked as Assistant Professor, Professor and Head, Genetics & Plant Breeding at GBPUA&T, Pantnagar (1971-2006); Director, ICAR-Central Rice Research Institute, Cuttack (2006-08); and Vice-Chancellor, Indira Gandhi

Agricultural University, Raipur (2009-11) & Birsa Agricultural University, Ranchi (2011-14). He also served as Visiting Scientist/ Faculty at several international organizations at Philippines, Netherland, China and Germany and as Consultant (FAO). Dr. Pandey is still remembered with great reverence for his administrative, scientific, academic and human qualities at the two universities where he served in the capacity of Vice-Chancellor.

As a plant breeder, he developed 20 varieties of Rice, Pigeon pea, Chickpea and Lentil. He is also credited with developing Pant Shankar Dhan-1, the first public bred hybrid rice released for North India in 1977. Dr. Pandey had to his credit over 250 research papers published in reputed national and international journals and guided 32 students of Genetics & Plant Breeding for Ph.D. and M.Sc. Degrees. For his yeoman services to agricultural science, he was awarded by over a dozen institutions in India and abroad.

He was a dynamic, hardworking and visionary plant geneticist with a passion for scientific writing and traveling the world.

Driven by an endless thirst for knowledge, Dr Pandey was a life long learner, a devoted teacher and had a passion for discovering new things. Reading books, magazines and web contents and playing with grand-children was his favourite pastime in retired life.

During his journey of 79 years, he touched many lives with his wisdom, knowledge, simplicity, humour, caring and understanding nature and an unwavering spirit of perseverance. He will be remembered for his kindness, integrity, emotion and warmth for friends and love for his family. His laughter and wisdom were gifts to everyone who knew him. It is difficult to paint the picture of his life in the form of writing.

Dr. S. C. Dubey

*Vice-Chancellor, Birsa Agricultural University
Kanke, Ranchi*

Editors: Drs. V.K. Baranwal and R.K. Jain

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