



CONTENTS

From the President's Desk	1
New Year Get Together	5
Congratulations to Padma Awardees	5
130th Executive Council Meeting	6
NAAS Program	7
Brainstorming Session on Agriculture in Harsh Environment: Challenges, Opportunities and Way Forward	7
Activities of the Regional Chapters	7
Coimbatore	7
Hyderabad	8
Lucknow	10
Forthcoming Programs	10
Obituary	11
Announcement	11
XVI Agricultural Science Congress	12

Editors

Dr Malavika Dadlani
Dr V.K. Baranwal

From the President's Desk

India Leads the World in Transforming the Food System with *Shree Anna* (Millets)



The year 2023 ushered a new chapter in food and nutritional security as India swings into action to commemorate the International Year of Millets. Pioneering the cause of millets, the Hon'ble Prime Minister of India, inaugurated the Global Millets

Conference on 18th March, 2023, in New Delhi. The conference aimed at expanding the cultivation as well as consumption of millets by creating awareness about their several benefits both to the farmers and consumers. Earlier the intent and support were announced in the Union Budget Speech to make India, the largest producer and exporter of *Shree Anna*, the Global Hub for millets.

Millets are a group of diverse small grain crops adapted to different climatic conditions and cropping systems that enrich biodiversity, and help diversify our food grain basket. For centuries, millets have provided food and nutritional security to people in diverse and often disadvantaged geographical regions. Besides being nutrition-rich, they are highly adapted to low rainfall conditions. Their ability to withstand fairly long dry spells, and recover fast after delayed rain, makes them good contingent crops. Though millets presently constitute only about 5.7% of our food basket, they are strategically important as they are grown and consumed, in areas where no other food crop can grow, including less fertile soils, hilly regions, drylands and harsh agro-climates where other crops fail to survive. Being climate resilient, these are best suited for sustainable agriculture production and attaining nutrition security. Owing to these unique qualities millets were renamed as ***Shree Anna*** by the Hon'ble PM of India.

India, the leading producer of *Shree Anna*

During 2021-22 about 16 million tons (Mt) of *Shree Anna* food grains were produced in India from nearly 12.3 million ha area constituting about 5.7% of the national food grain basket. The highest production



was of pearl millet (9.78 Mt), followed by sorghum (4.15 Mt), finger millet (1.7 Mt), and small millets (0.37 Mt). These crops are grown for both grain and fodder purposes. To promote millets and meet the additional demand, the Department of Agriculture and Farmers Welfare (DA&FW) implemented a Sub-Mission on Nutri-Cereals (Millets) under the National Food Security Mission (NFSM) in 212 Districts of 14 States in 2018-19. As a result, India exported 1,56,453 tons of millet during the export year 2022-23 (April to February) worth Rs. 562 crores.

Shree Anna are climate resilient for a sustainable future

Shree Anna are the most dependable food crops, especially to the resource-poor dryland farmers of the world as they are resilient to climate change and assure sustainable grain production under harsh environments. These short duration, C4 crops are well adapted to low input conditions and suited for both early and delayed sowings, very low and medium rainfall areas, various elevations, and different soil regimes.

Pearl millet, sorghum, and small millets are primarily dryland crops grown in 200-600 mm rainfall areas and are water efficient. Being short duration, many millets fit well into drought situations arising due to the late arrival or early withdrawal of monsoon rains. With the return of favorable conditions after the alleviation of stress, millets recuperate fast and grow luxuriantly. They can withstand the adverse effects of all parameters of climate change except for high ozone concentrations, found around urban zones.

Being C4 crops, Shree Anna are efficient users of water and nutrients for growth. They are highly tolerant to warmer temperatures and also have limited tolerance to flooding. Their tolerance to salinity results in good germination, early growth good plant stand. As millets possess physiological mechanisms for rapid recovery from abiotic stresses like drought and heat, they are therefore, the most promising sources for food security during climate change.

Shree Anna are eco-friendly crops for near organic foods

Natural resilience against pest attacks make millets an ideal choice when planning for mixed cropping system using low/non pesticide management approaches. Interspersing rows of millets with more susceptible leguminous crops is a common practice in different parts of the world. These are called eco-friendly crops due to their low requirement of water, fertilizers and management interventions. Besides, some millets can come up in marginal lands under

harsh weather conditions where no other crop can grow. In India, pearl millet grows well in the hot and dry weather of Rajasthan. Sorghum is a valuable crop in the receding moisture regimes of rabi environments of Karnataka and Maharashtra. Little millet, foxtail millet, brown top millet and barnyard millet are known to assure minimum yield even in case of failure of monsoon, thanks to their short life cycle. Finger millet farmers realize good yields even with reduced rains and minimum inputs. As these crops are resilient to climate change and provide yield assurance despite environmental risks, they remained in cultivation, in spite of the dominance of rice and wheat, though there has been a drastic reduction in their cultivated area.

Shree Anna are highly nutritious food grains

Shree Anna are our own superfoods. Millets having complex carbohydrates, high dietary fibre, proteins, unique phenolic compounds and other phytochemicals, offer unique nutritional value. Millets are natural sources of iron, zinc, calcium and other nutrients that are essential for curbing the problem of malnutrition in India. They also have higher content of niacin, B6 and folic acid, potassium, and magnesium. Finger millet is the richest source of calcium (300-350 mg/100 g), while pearl millet and barnyard millet are good source of iron. Pearl millet is also a rich in beta carotene and energy. Epidemiological studies have revealed that populations with millets-based diets recorded lesser incidence of oesophageal cancer. Millets are rich in anti-oxidants, which help in managing stresses and are good for our immunity system. Above all, millet-based diets, characterized by lower glycemic index, are excellent for preventing the incidence of life-style diseases like diabetes and reducing obesity.

With growing awareness, demand is increasing for millets in urban and semi-urban societies. Both conventional staple foods, as well as “ready to cook” and “ready to eat” processed foods made from millets are available in the market in a big way.

India's move in transformation from Food security to Nutritional security

Celebrating the National Year of Millets in 2018, in a land mark move towards nutritional security, the ICAR-All India Coordinated Research Program on Pearl Millet introduced benchmark levels of micronutrients (Iron: 42 ppm, Zinc: 32 ppm) in the promotion criteria for cultivar/variety identification and release. Since then, a total of 35 Pearl millet hybrids with more



than or equal to benchmark levels of iron and zinc were released for cultivation in the country promoting nutritional security.

International Year of Millets – 2023

Based on India's proposal, the year 2023 was declared as the International Year of Millets (IYM) by the United Nations General Assembly (UNGA). Also, in line with the Prime Minister's vision to make the celebrations of IYM 2023 a 'people's movement' and position India as the 'global hub for millets', all concerned Central Government Ministries/ Departments, States/UTs, farmers, start-ups, exporters, retail businesses and other stakeholders, are promoting and spreading awareness about the benefits of millets (Shree Anna). The seven sutras adopted by the Govt. of India for millets promotion are:

1. Enhancement of Production/Productivity of millets (DA&FW/DARE), (Ministry of Agriculture & Farmers' Welfare)
2. Nutrition & Health benefits (Ministry of Health/ FSSAI),
3. Value Addition, Processing & Recipe Development (Ministries of Food Processing Industries & Tourism),
4. Entrepreneurship/Startup/Collective Development (Ministry of Commerce & Ministry of Farmers' Welfare)
5. Awareness creation including Branding, Labelling & Promotion (All Ministries),
6. International Outreach (Ministry of Commerce & Ministry of External Affairs)
7. Policy Interventions for Mainstreaming millets (Dept of Food & Public Distribution and DA&FW).

Global Millets (Shree Anna) Conference

Hon'ble Prime Minister Shri Narendra Modi inaugurated the Global Millets (Shree Anna) Conference at Subramaniam Hall, NASC Complex, Pusa, New Delhi on 18th March, 2023. The Inaugural function was graced by the Union Minister of Agriculture & Farmers Welfare, Shri Narendra Singh Tomar, Union Ministers Shri Piyush Goyal and Shri Mansukh Mandaviya, MoS Shri Kailash Choudhary and visiting Ministers of other countries. Prime Minister Narendra Modi released a customised postal stamp as well as a commemorative currency coin to mark the 'International Year of Millets'. A Book on Millets (Shree Anna) FSSAI Standards was digitally released by the Prime Minister. Further, Prime Minister digitally

inaugurated ICAR-Indian Institute of Millets Research (IIMR), Hyderabad as the Global Centre of Excellence for R&D in millets.

Global Centre of Excellence for R&D in Millets

In continuation of the declaration of ICAR-Indian Institute of Millets Research as the Global Centre of Excellence for R&D in millets, it is envisaged to focus more on areas such as Millet Value Chain and Business Facilitation for nurturing global entrepreneurs; International Knowledge Exchange & Skill Development Hub for millets R&D exchange; augmentation of global millets germplasm and establishing Long-term Germplasm Storage Facility; Global Crop Improvement Technology Innovation Facility; Developing International Referral Laboratory for nutrition and food safety, besides supporting Pilots on biofuels, malting, brewing, feeds etc for industrial utilization of millets. Expertise from other countries will be harnessed to refine the processes to suit global needs. The Centre of Excellence is envisioned to show case the world class facilities and achievements of millets R&D, value addition, business development, and act as a hub for knowledge and skill development for millet enterprises.

Celebration of IYM 2023

The ICAR institutes including the Indian Institute of Millets Research, KVKs and SAUs are organising various programs throughout the International Year of Millets 2023, to promote production, create awareness and enhance consumption of millets. These include millet crop cafes, field demonstrations of improved production and value-added technologies of millets to impress upon the farmers and consumers through live experiences.

India aims to make IYM 2023 a people's movement for the overall benefit of the farmers, consumers and ecosystem. To take the momentum forward, India has taken a multi-stakeholder engagement approach by involving farmers, startups, exporters, retail businesses, hotel associations and various arms of the government in India and abroad to achieve the objectives of IYM 2023 and positioning India as the 'Global Hub of Millets'.

Several state governments have begun millet missions for promoting production, procurements, utilization and distribution of these Shree Annas. The states of Odisha, Karnataka, Uttar Pradesh, Tamil Nadu, Chhattisgarh, Assam have launched various programs for creating awareness, enhancing production, incentivising millet cultivation, making millets available in PDS and mid-



day meals, etc. Various seed production agencies including ICAR institutes, IIMR, seed hub centres, NSC, seed corporations, SAUs and KVKs are making millets seeds available to farmers and arranging demonstrations of millet crops and their innovative products to farmers and consumers.

Revitalizing millets into mainstream dryland agriculture and diversifying the food basket is important for sustaining the food and nutritional security of consumers, as well as the livelihood security of the rural households. For achieving this, the major challenges are to deliver millet-based technologies which are sustainable and market oriented. This can be achieved by focussing millets research in view of the present and future demands; resolving specific production constraints through improved agronomic practices to enhance productivity, development of value addition and processing technologies; marketing strategies and policy measures that would generate more income and employment to the farmers and

rural youth, without sacrificing overall goal of attaining sustainable food and nutritional security. Scientific and technological interventions involving convergence of efforts of agricultural and food scientists, policy makers and media is needed to revalorize millets in attaining food and nutritional security.

Policy and incentive support for creating Farmer Producer Organizations, farm-gate warehouses and processing facilities in village clusters, linking farmers to the millet value chains and marketing platforms and export opportunities can ensure better price, and incentivize farmers to produce millets. Adoption of improved and sustainable technologies would ensure cost efficient, environment friendly food and nutritional security in a sustainable manner.

Himanshu Pathak
President



New Year Get-Together 2023

A get-together of NAAS Fellows and Associates was organized on 2nd January, the first Monday of 2023, in hybrid mode. At the outset, Prof. K.C. Bansal, Secretary, NAAS welcomed the newly elected President NAAS, Dr. Himanshu Pathak, Secretary, DARE & DG, ICAR. He also welcomed Past Presidents, Dr. R.S. Paroda, Dr. R.B. Singh and Dr. T. Mohapatra; all office bearers and distinguished NAAS Fellows. The contributions of outgoing members were appreciated, and the newly elected office bearers, Fellows and Associates were welcomed. On the occasion, various publications along with the Year Book 2023, Planner and Newsletter of last quarter of 2022 were released.

Addressing the Fellowship, the past Presidents, Dr. R.S. Paroda, Dr. R.B. Singh and Immediate Past President Dr. T. Mohapatra emphasized on a more dynamic role of the Academy on agricultural research and policy in India.

Dr. Himanshu Pathak greeted the fellowship and wished a very happy and fruitful New Year 2023 to all. In his Presidential Address, Dr Pathak laid emphasis on following points:

- Bringing more visibility and greater role of the Academy on policy issues for a more vibrant agricultural research and transformation of Indian agriculture.
- Generation of resources to sustain the activities of academy. Inclusion and involvement of all agricultural Professionals in the public and private sectors, farmers, academia and other stakeholders to broaden the base of NAAS activities.
- More effective use of ICT in NAAS for wider reach of activities.



Congratulations to Padma Awardees

The National Academy of Agricultural Sciences takes pride that three of its distinguished Fellows were honoured by the GOI by conferring Padma Shri Awards this year for their extra-ordinary contributions in various fields of agricultural research. The Academy congratulates the following Padma awardees.

Dr. Modadugu Vijay Gupta

Born on 17th August 1939 Dr. Modadugu Vijay Gupta has contributed for over 60 years in improving the food and nutritional security of resource-poor through aquaculture in Asia, Pacific and





Africa. His special focus has been the empowerment of rural poor and landless in developing countries through simple, low-cost fish farming technologies developed by him.

His ground breaking research in early 1970s led to doubling the production in aquaculture and laid the foundation for “Blue Revolution” Dr. Gupta has worked for over 30 years as Fisheries Expert/Advisor with various international organisations including the United Nations Economic and Social Commission for Asia-Pacific (UN-ESCAP), Food and Agriculture Organization of United Nations (FAO) of UN) and the World Fish Center (CGIAR), and oversaw implementation of programs in some 20 countries of Asia, Africa and the Pacific. It contributed in increasing incomes and food security of millions of rural poor in developing countries and led to empowerment of rural women.

Dr. Gupta has served several high level national and international bodies and received many prestigious awards, honors, and recognitions including the World Food Prize in 2005.

Prof. Arvind Kumar

Prof. Arvind Kumar is a renowned agricultural scientist, reformer, and eminent educationist, who made exemplary contributions in agricultural science and technology during his 47 years of professional career.



Dr. Kumar contributed significantly in developing four improved HY mustard varieties including India’s first *mori*-CMS based hybrid, and identifying 53 varieties for different ecologies under his leadership.

His visionary leadership played a pivotal role in creating the new Central Agricultural University (RLBCAU,

Jhansi), an Institution of National Importance. The University features world-class self-sustainable infrastructure and amenities for the Colleges of Agriculture, Horticulture, and Forestry. As Deputy Director General (Agri. Education), ICAR, Dr. Kumar effectively coordinated and improved educational quality in India through several innovative approaches and policies, formulation of the World Bank-aided National Agricultural Higher Education Project, Student Rural Entrepreneurship and Awareness Development Yojana, and many other reforms. Dr. Kumar’s achievements have been recognized by several awards and fellowships.

Dr. Bakshi Ram

Dr. Bakshi Ram, a renowned sugarcane breeder, has the distinction of being the Director of ICAR-Sugarcane Breeding Institute, Coimbatore and UP Council of Sugarcane Research, Shahjahanpur, the two oldest sugarcane institutions of the country established in 1912.



Following the Modified Selection Procedure he developed 22 sugarcane varieties, including the wonder variety Co 238, which combine early maturity with high cane yield and high sugar recovery. He also made commendable extension efforts to popularise these varieties so that the farmers get benefitted. As a result, varieties developed by him occupied 29.94 lakh hectares in Punjab, Haryana, UP, Uttarakhand and Bihar during 2020-21, which was about 89.9 per cent of total sugarcane area in these states and 58.8 percent of the total sugarcane area in the country. Dr Bakshi Ram has more than 435 publications and is recipient of many prestigious awards and recognitions.

Executive Council Meeting

130th Meeting

The 130th Meeting of the NAAS Executive Council was held through hybrid mode at 9.30 A.M. on 14th February 2023 under the Chairmanship of the President, Dr. Himanshu Pathak, Secretary, DARE & DG, ICAR.

At the outset the EC of the Academy observed one-minute silence as a mark of respect to one of its very senior and distinguished Fellows Dr. Kirti Singh, who had passed away on January 23, 2023, and congratulated three of its distinguished Fellows, Dr. M. Vijaya Gupta, Dr. Arvind Kumar, and Dr. Bakshi

Ram, for being awarded Padma Shri this year. The President then extended a warm welcome to all the members attending the EC meeting and wished them well for the New Year 2023. Thereafter, the meeting was conducted as per the items listed in the agenda besides discussing the preparations of the XVI ASC to be held in Kochi. Some of the important points emerging from the 130th meeting of the EC were,

- **Reorienting the programs of NAAS** : Detailed deliberations were held on reorienting the programs of the Academy and aspired initiatives for (i) Enhancing the scope of activities; (ii) Reorienting the activities; (iii) Enlarging the span of NAAS (iv)



Improving the governance, and (v) Generating resources. Possibility of NAAS undertaking consultancy, initiating certification courses, and training of stakeholders for resource generation, were discussed.

- **Foundation Day** : It was decided that instead of having presentations by the newly-elected

Fellows during the Foundation Day Programme, 2 or 3 panel discussions may be planned every year.

- It was decided to introduce Online system on submission of applications for Fellowship, Associateship, and other awards from this year.

NAAS Program

Brainstorming Session on Agriculture in Harsh Environment: Challenges, Opportunities and Way Forward (Convener: Dr Rakesh K Singh, Co-Convener: Dr Rod A Wing)

A brainstorming session was organised in hybrid mode on “Agriculture in Harsh Environment: Challenges, Opportunities and Way Forward” on February 24, 2023. The program was chaired by Dr. KM Bujarbaruah, Vice President of the Academy and co-convener by Dr. Rakesh K. Singh, Program Leader and Principal Scientist (Plant Breeding), Crop Diversification and Genetics, International Centre for Biosaline Agriculture; and Dr. Rod A. Wing, Director, Centre for Desert Agriculture, University of Arizona; King Abdullah University for Science and Technology, Kingdom of Saudi Arabia.

The adverse effects of the rise in sea levels and erratic rainfall pattern resulting in saline water intrusion, frequent droughts, floods and cyclones leading to soil degradation and crop losses were deliberated. Crops also suffer due to deficiencies and toxicities of major and minor nutrients, especially in harsh environments and poor soil organic matter

(organic carbon, microbiomes) in most of the soils. The problem is specially acute in the sandy soils of the Middle East. Therefore, the primary goal of this BSS was to look for ways to improve agriculture in areas that face challenging/harsh environments such as extreme temperatures, salt-affected soils, limited/poor quality water, poor soil quality and coastal agro-eco-systems.

The expert group identified opportunities, which included diversification of crops to help farmers reduce their dependence on a single crop and improve resilience to climate and weather-related shocks; climate resilient integrated farming system models for different agro-ecological conditions for the year-round income to the farmers; implementing soil improvement techniques such as composting, mulching, and cover cropping; implementing community-based approaches such as farmer cooperatives, pooling resources and knowledge improving productivity and reducing risks; as well as soil remediation for improving the quality of soil by removing contaminants and adding nutrients. Additionally, agroforestry was suggested as an option to prevent soil erosion, restore soil fertility, and provide additional income to the farmers.

Activities of the Regional Chapters

Coimbatore

- To mark the International Year of Millets, ICAR-Sugarcane Breeding Institute along with NAAS



Chapter, Coimbatore, launched year-long activities by sowing seven kind of millets (Pearl millet, Finger millet, Foxtail millet, Kodo millet, Banyard millet, Little millet and Proso millet) under the leadership of Hon'ble Smt. Sangeetha Yadhav Maurya, MP, Rajiya Sabha on 10 January 2023. She addressed the scientists and students highlighting the Government's plans to take the Millets Mission to a global level.

- On National Science Day, February 28, 2023, NAAS Chapter in collaboration with ICAR-SBI, Coimbatore made special campaigns for school students and impressed upon them the relevance and scope of Agriculture Education in India.



Over 1000 students from schools and colleges visited ICAR-SBI. Nearly 200 B.Ed. students were educated on the need for classroom lectures and practical sessions in Agriculture from the middle school level onwards. They were also apprised of the nutritional value of millets for including in the mid-day meal scheme.

- On 17th & 18th March 2023, an awareness program was held at the Tribal settlement at Agali, Kerala, in which 87 tribal villagers participated particularly women, and children.



Scientists distributed Ragi seeds and encouraged farmers to cultivate millets, process and market their produce through women's self-help groups. Children were guided about the necessity of education and opportunities for higher education.

- The Chapter with ICAR-SBI participated in the Mega Exhibition on Azadi Ka Amrit Mahotsav organized by the Central Bureau



of Communication, Ministry of Information & Broadcasting at Coimbatore by putting up a stall on 18th & 19th March 2023 where a large number of students participated.

Hyderabad

- Bulletin on the profile of NAAS Fellows and Associates.** A Bulletin containing the profiles of Fellows and Associates of NAAS Hyderabad Chapter covering the regions of Andhra Pradesh and Telangana, was compiled and published for the year 2023. It was shared with Fellows and Associates of NAAS Hyderabad chapter, and other stakeholders including government departments in AP and Telangana, Industry, and press personnel.
- Sensitization on Nutrition literacy.** NAAS Hyderabad Chapter organized a Sensitization Program on Nutrition Literacy for High School students at ICAR-NAARM, Hyderabad on January 10, 2023. Dr Ch. Srinivasa Rao, Director, ICAR-NAARM and Convener, NAAS Hyderabad Chapter interacted with the students on various aspects of nutrition. Students of 7th and 8th Classes from Progressive School, Hyderabad participated in the programme.





- **Interaction with agri students on Entrepreneurship.** An Interactive Program with agriculture students on 'Entrepreneurship Development in Agriculture' was organised on

February 6, 2023, at ICAR-NAARM. in which 170 students of 3rd year B.Sc (Hon) from the Faculty of Agriculture, KL University, Vaddeswaram, Andhra Pradesh participated.



- **Training on Vermicomposting for Farmers of Telangana.** NAAS Hyderabad Chapter in association with ICAR-NAARM organized a Skill Development Training Programme on 2-3rd Feb 2023 on "Vermicompost Production Technology"

- **Training on Value addition.** NAAS Hyderabad Chapter joined hands with ICAR-NAARM in conducting two 3-day training programs on "Improved Crop Management Technologies and Value Addition" for SC farmers at Rythu Bharosa Kendram (RBK), Jagannathpuram and RBK, Kadiyam, Rajamahendravarm, East Godavari district, Andhra Pradesh from 13-15 February and 16 – 18 February 2023, in collaboration with Agricultural College (ANGRAU), Rajamahendravaram. Farmers including 24 women participated in the training program. Dr. Ch. Srinivasa Rao, Director, ICAR-NAARM and Convener, NAAS Hyderabad Chapter, highlighted the present status of production and productivity of various crops, and the role of farmers in nation building.



at SAIRD KVK, Gaddipally, Suryapet District, Telangana. 58 farmers participated in the training program.





- **National Science Day.** NAAS Hyderabad Chapter in association with ICAR-NAARM celebrated National Science Day on February 28, 2023 with Girls High School Students, who were encouraged to observe their surroundings to learn scientific experiences. Highlighting the role of agriculture research and development towards India's food security and sustainable development



goals (SDGs), Dr Srinivas Rao also addressed the issues of harmful impacts of excessive usage of cell phones.

Lucknow

ICAR-Indian Institute of Sugarcane Research at IISR, Lucknow and Indian Sugar Mills Association, New Delhi along with NAAS Chapter, Lucknow organized a National Seminar on “Mechanization in Sugarcane Farming – Challenges and Solutions” on 28th March 2023 at IISR, Lucknow. Prof. Vijay Paul Sharma, Chairman, Commission for Agricultural Costs and Prices, Ministry of Agriculture and Farmers Welfare, Government of India, the Chief Guest emphasized mechanization of sugarcane cultivation as the need of the hour. Prof. Sharma cited the human labour

component as the biggest contributor to the cost of production and urged the scientists to provide a complete package of mechanization of all agricultural activities. He also emphasised setting up Farm Machinery Banks. Shri Sanjay R. Bhoosreddy, Additional Chief Secretary, Sugar Industry and Sugarcane Development, Government of Uttar Pradesh apprised that Farm Machinery Banks are established in U.P. to cater to the needy farmers. Sh. Subodh Kumar Singh, Additional Secretary (Sugar), Ministry of Food, Govt. of India said that sugar production in India has been increasing continuously for the last 5-6 years and as a result India is now exporting sugar. Dr. R. Viswanathan, Director, ICAR-IISR, and chapter Convener highlighted various farm machineries developed by the Institute for the mechanization of sugarcane cultivation.

Forthcoming Programs

1. Brainstorming Session on Enhancing Agri-Infrastructure and Agri-Business Development through Public-Private Partnerships (PPPs) in India (Dr. Ch Srinivasa Rao)
2. Brainstorming Session on Export Potential of Agricultural Commodities and Challenges (Dr. Naveen P. Singh)
3. Brainstorming Session on Revisiting Soil Health Mission (Dr. B.S. Dwivedi)
4. Brainstorming Session on Water Auditing in Indian Agriculture (Dr. K. Palanisamy)
5. Brainstorming Session on Enhancing Investment in Research for Indian Agriculture (Dr P.S. Birthal)



6. Strategy Workshop on Honey Bees: Harbinger for Sweet Revolution (Dr. S.C. Dubey).
7. Brainstorming Session on Multiple uses of Solar Energy in Agriculture (Dr N.S.L. Srivastava)
8. Brainstorming Session on Greening of Livestock and Poultry Sector (Convener: Dr B.M. Naveena)
9. Strategy Workshop on Food Safety Strategies for Indian Fishery Sector (Convener: Dr. G. Jeyashekar)
10. Brainstorming Session on Prospectus of dsRNA based Biopesticides for Crop Protection in Indian Agriculture (Dr. B. Mandal)
11. Expert Consultation on Ethics and Current State of Research Publication (Inter-Academy) (Dr. G. Taru Sharma)
12. Brainstorming Session on Artificial Intelligence and IoT in Agriculture (Dr. Rajender Parsad)
13. Brainstorming Session on Collaborative Programme with World Food Prize Foundation (Prof. Rajeev Varshney)
14. Expert Consultation on Digital Sequence Information (DSI) (Prof. Rajeev Varshney)
15. Expert Consultation on COP 28: Preparedness for Indian Agriculture (Dr. P.K. Aggarwal)

Obituary



Dr. Kirti Singh

(May 26, 1934-January 23, 2023)

The Fellows of the National Academy of Agricultural Sciences deeply condole the sad demise of most respected Dr. Kirti Singh, a visionary leader and a scientist *par excellence*.

Dr. Singh left an indelible impression among the agricultural fraternity in various positions especially as Vice Chancellor, Narendra Deva University of Agriculture & Technology, Faizabad (UP); Vice Chancellor, Himachal Pradesh Agricultural University, Palampur; Vice-Chancellor, Indira Gandhi Agricultural University, Raipur; Member, and Chairman, Agricultural Scientists Recruitment Board; Advisor, Govt. of Nepal for Establishment of Agriculture University; FAO Consultant in Cambodia, and many more.

In recognition to his contributions Dr. Kirti Singh received several fellowships and award including

Leonard Vaughan Award of American Society of Horticultural Science 1961; Horticulture Society of India Gold Medal 1993; PNSAF Gold Medal 2002; Purvanchal Ratna Award, 2003; HSI Shiv Shakti Life Time Achievement Award, 2007; World Wellness Open University Life Time Achievement Award, 2008; D.Sc. (h.c), TNAU 2000; OUAT 2010; and SDAU, 2011; Krishi Ratna, MKV, 2013; Noni Ratna ISNS 2016 and Rajarshi Samman by RASSA, 2017; Recipient of Dr. A.P.J. Abdul Kalam Memorial Award of National Academy of Biological Sciences, 2021. He was Senior Vice-President, Horticulture Society of India; and President, International Society for Noni Science.

In his demise, the scientific community has lost a brilliant scientist, administrator, teacher, and wonderful human being. The Fellowship of the Academy prays to the Almighty to give peace to the departed soul, and solace and strength to the bereaved family to bear this great loss.

Announcement

The XVI Agricultural Science Congress will be organised in Kochi with ICAR-CMFRI as the host institute. The theme of the Congress shall be 'Transformation of Agri-Food Systems for Achieving Sustainable Development Goals'. The Congress will be held during 10-13 October, 2023. The registration and submission of papers are on. The last date for receiving abstracts for the Congress is 30 June, 2023.

For more details please check the Academy website or visit **XVI ASC website: <https://16asc2023.in>** or contact:

Dr A. Gopalakrishnan, Organizing Secretary and Director, ICAR-Central Marine Fisheries Research Institute, Kochi-682 018. www.16asc2023.in; +91-484-2394867; 16asc2023@gmail.com



XVI AGRICULTURAL SCIENCE CONGRESS & ASC EXPO



Transformation of Agri-Food Systems for Achieving Sustainable Development Goals

10-13 October 2023 | Kochi, Kerala, India

Events

- Plenary, Special and Invited Lectures by Eminent Scientists to discuss the most recent trends, innovations and concerns as well as challenges and solutions
- Technical Sessions on Thematic Areas
- Symposia and Panel Discussions
- Poster Presentations
- Interaction with Farmers and Industry
- Student Activities
- Agri Expo
- NAAS Business Meeting



Poster Presentation

The extended summaries for the poster presentation will be reviewed before acceptance. Each poster session will have a Convener who will present a summary of the concerned session which will aid in the formulation of substantial recommendations. Selected abstracts in all the thematic areas will be included in the Book of Abstracts, and the concerned author will present the poster.

Themes

No.	Theme Area
1.	Ensuring Food & Nutritional Security: Production, Consumption and Value Addition
2.	Climate Action for Sustainable Agri-food Systems
3.	Frontier Science and Emerging Genetic Technologies: Genome Breeding, Gene Editing
4.	Livestock-based Transformation of Food Systems
5.	Horticulture-based Transformation of Food Systems
6.	Aquaculture-based Transformation of Food Systems
7.	Nature-based Solutions for Sustainable Agri-food Systems
8.	Next Generation Technologies: Digital Agriculture, Precision Farming and AI-based systems
9.	Policies and Institutions for Transforming Agri-food Systems
10.	International Partnership for Research, Education and Development

Important Dates

Start of registrations	: 01 January 2023
Start of receipt of abstracts	: 01 February 2023
Last date for submission of abstracts	: 30 June 2023
Acceptance of abstracts	: 31 July 2023
Regular registration closing date	: 31 August 2023

Website: www.16asc2023.in

Editors: Drs. Malavika Dadlani and Virendra K. Baranwal

Published by: Executive Director, on behalf of the National Academy of Agricultural Sciences, NASC, Dev Prakash Shastri Marg, New Delhi 110012; Tel. (011) 25846051-52, Fax. 25846054; Email: naas-mail@naas.org.in; Website: <http://naas.org.in>