



XVI AGRICULTURAL SCIENCE CONGRESS 2023 (16ASC2023) & ASC EXPO



**10-13 October 2023
Kochi, Kerala**



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Kochi, Kerala



XVI AGRICULTURAL SCIENCE CONGRESS 2023 (16ASC2023) & ASC EXPO

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Co-Organising Secretary XVI ASC

Dr. A. Gopalakrishnan
Director CMFRI Kochi &
Organising Secretary XVI ASC



Prelude

The National Academy of Agricultural Sciences (NAAS), New Delhi has been organizing the Agricultural Science Congress in a biennial cycle since 1992. The XVI edition of the Agricultural Science Congress (XVI ASC) was hosted by the ICAR-Central Marine Fisheries Research Institute (CMFRI), Kochi during 10 to 13 October 2023 in offline mode at the International Convention Centre, Le Méridien, Kochi, Kerala.

The theme of the Congress was “Transformation of Agri-Food Systems for Achieving Sustainable Development Goals”. With the increasing demand for food, degrading environmental conditions, and looming climate change challenges, it becomes imperative that we transform our agri-food systems into sustainable enterprises to facilitate its benefits to be just, equitable and last for generations to come. The Congress aimed to bring together leading academicians, researchers, students, farmers, entrepreneurs, etc. to exchange and share their research findings, ideas and experiences on all aspects of agri-food systems to enable formulation of the way forward to transform our agri-food system to meet the Sustainable Development Goals (SDGs) of the United Nations. More than 1800 delegates attended the Congress. The delegates and participants were given ample opportunities to highlight their views and share knowledge on all issues related to agriculture and allied subjects and sustainability issues. The interactions covered various interdisciplinary subjects such as land and water, agricultural production systems, products, agricultural machinery, economics, renewable/ alternative energy, precision farming, alternative farming systems, coastal agriculture, next-generation technologies, etc. It is hoped that the outcomes from the Congress will pave way for renewed efforts towards finding solutions to the problems confronting India's Agricultural and allied sectors.

Dr. A. Gopalakrishnan

Director, ICAR-CMFRI, Kochi &
Organizing Secretary,
16ASC2023



XVI AGRICULTURAL SCIENCE CONGRESS 2023 (16ASC2023) & ASC EXPO

10-13 October 2023

Organized by
National Academy of Agricultural Sciences, New Delhi

Hosted by
ICAR-Central Marine Fisheries Research Institute,
Abraham Madamakal Road, Ernakulam North P.O.,
Ayyappankavu, Kochi, Kerala 682018, India

Published by
Dr. A. Gopalakrishnan
Director, ICAR-CMFRI

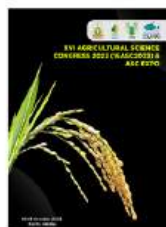
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2024



It is a pleasure to learn about the XVI Agricultural Science Congress 2023 organized by National Academy of Agricultural Sciences in collaboration with ICAR-Central Marine Fisheries Research Institute, Kochi. The topic of deliberations at the Congress which is related to transformation of agri-food systems for achieving Sustainable Development Goals (SDGs) is relevant to our times.

Agriculture is the heart of every civilisation, nation and economy. For centuries, agriculture has been an integral part of our economy and culture. Living in harmony with nature is an integral part of our value system.

With such illustrious traditions, today, the nation is increasingly looking at natural farming as a way to make agriculture sustainable and farmers self-reliant. The adoption of traditional practices in agriculture is making a key contribution to further sustainable agriculture.

Additionally, the need of the hour is to rescue agriculture from monoculture and cultivate diverse crops such as millets. At India's initiative, the whole world is celebrating the International Year of Millets. This encourages a form of agriculture that is not resource-intensive, is resilient and also guarantees nutrition security. The popularisation of millets also increases incomes for our small farmers.

Water access and management is another crucial aspect. Through sustained efforts, a positive transformation has been injected into the agriculture ecosystem. The "For Drop More Crop" initiative heralded the beginning of a concerted effort to expand micro-irrigation methods. Micro-irrigation is playing a vital role in preserving our precious water resources.

The SDGs reflect humanity's commitment to collectively address various challenges facing humanity, from eliminating poverty, reducing inequalities, increasing agricultural productivity, to ending hunger by providing food security and furthering access to nutritious food. With India's voice gaining respect at the global level, conventions such as these help in bringing together various experts who can enrich the global discourse and direction.

I am sure that the deliberations at the Congress will help prepare a futuristic blueprint to further sustainable development in the agriculture sector and attain SDGs. May the discussions be fruitful, making XVI Agriculture Science Congress 2023 be a huge success.

New Delhi
सोमवार 17 अक्टूबर 1945
09th October, 2023

(Narendra Modi)

Message



Dr. Himanshu Pathak
Secretary (DARE) &
Director General (ICAR)
Government of India
Department of Agricultural Research and
Education (DARE)
& Indian Council of Agricultural Research (ICAR)
Ministry of Agriculture and Farmers Welfare
Kirti Bhawan, New Delhi-110 001
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Message

I am delighted that the National Academy of Agricultural Sciences, New Delhi and the ICAR-Central Marine Fisheries Research Institute, Kochi are jointly organizing the XVI Agricultural Science Congress during October 10-13, 2023 at Kochi, Kerala.

The vast majority of Indian population depends on farming, especially at rural areas. Providing food, nutrition and livelihoods sustainably to the growing millions in our country is a major challenge given the depleting natural resources, reduced size of the land holdings and adverse effects of changing climate on agriculture. To meet the forthcoming demand and challenges, all the stakeholders including scientists, farmers and policy makers have to come together to provide innovative research technologies, policy support and packages of practices. The topic of this Congress 'Transformation of Agricultural Systems for Achieving Sustainable Development Goals' is extremely relevant not only for the benefit of our countrymen but also for the entire world with the Sustainable Development Goals (SDGs) set for the United Nations by the year 2030. I am confident that the XVI Agricultural Science Congress will provide an excellent platform for sharing new knowledge and formulating action plans towards the SDGs.

I extend my best wishes to the participants and the organizers for the grand success of the Congress.

8th October 2023

Himanshu Pathak

Sponsors



XVI AGRICULTURAL SCIENCE CONGRESS 2023 (16ASC2023) & ASC EXPO

10-13 October 2023

Venue

International Convention Centre, Le Méridien, Kochi, Kerala

Organised by

National Academy of Agricultural Sciences (NAAS), New Delhi

Hosted by

ICAR-Central Marine Fisheries Research Institute (CMFRI), Kochi



Hosted by
ICAR-CMFRI



XVI AGRICULTURAL
SCIENCE CONGRESS
& ASC EXPO

INAUGURATION





Welcome Address & About the Congress:

Dr W. S. Lakra
Secretary, NAAS

Address by Guest of Honour:

Shri Hibi Eden
Hon'ble Member of Parliament Ernakulam

Address by Guest of Honour:

Shri P. Prasad
Hon'ble Minister for Agriculture
Govt. of Kerala

Presidential Address:

Dr Himanshu Pathak
Secretary, DARE & DG, ICAR
President, NAAS

Inauguration:

Shri Parshottam Rupala
Hon'ble Minister for Fisheries
Animal Husbandry & Dairying
Govt. of India

Vote of Thanks:

Dr A. Gopalakrishnan
Organizing Secretary 16ASC 2023 &
Director, ICAR-CMFRI









EXHIBITION INAUGURATION

The XVI ASC Agri-Expo showcased a dazzling array of institutions, technologies, and services, offering a captivating glimpse into the future of agriculture, fisheries, and animal husbandry.

Inauguration:

Shri Parshottam Rupala
Hon'ble Minister for Fisheries
Animal Husbandry & Dairying
Govt. of India

Convenor:

Dr. A. Gopalakrishnan
Director, ICAR-CMFRI





DR. A.B. JOSHI MEMORIAL LECTURE

Delivered by:
Prof. Panjab Singh
Former President of NAAS



THEME 1: ENSURING FOOD & NUTRITIONAL SECURITY: PRODUCTION, CONSUMPTION AND VALUE ADDITION

Theme Convenor :
Dr. M.S. Bamji
INSA Emeritus Scientist &
Former Director-Grade Scientist,
ICMR-NIN, Hyderabad

TECHNICAL SESSION 1:
PROBLEM OF MALNUTRITION IN INDIA





**TECHNICAL SESSION 2:
FARM AND FOOD-BASED STRATEGIES FOR COMBATING HIDDEN HUNGER**





TECHNICAL SESSION 3: RESOURCE EFFICIENT AND ENVIRONMENT FRIENDLY PRODUCTION OF PULSES

Recommendations: To build a resilient and nutrition-secure food system, it is essential to diversify India's predominantly cereal-based diet, reduce anti-nutrients, and foster behavioral changes that promote dietary diversity alongside nutrition literacy; we must also address food loss and waste, encourage youth to embrace agriculture as a career, advance food fortification to tackle micro-nutrient deficiencies, optimize production systems for nutrient-rich crops like pulses and millets, improve non-bovine milk production, monitor food contamination by microbial toxins, and promote direct-seeded rice and other sustainable crop practices.





THEME 2 : CLIMATE ACTION FOR SUSTAINABLE AGRI- FOOD SYSTEMS

Theme Convenor :
Dr. Anil K. Singh
Vice President, NAAS

Recommendations: To create a sustainable and climate resilient food and energy system, investment in emerging disruptive technologies like single-cell protein, microbial fuel cells, and green ammonia is essential, alongside strengthening indigenous practices in the NE Himalayan region for adaptation and mitigation, cataloging and improving them through R&D; conducting granular vulnerability and risk assessments commodity-wise using advanced tools like remote sensing; applying big data and machine learning to bridge rice yield gaps, monitor GHG emissions, and enhance resource efficiency; and identifying areas to reduce paddy fertilizer use without compromising yields to alleviate economic and environmental burdens.

TECHNICAL SESSION 1: CLIMATE ACTION FOR SUSTAINABLE AGRI- FOOD SYSTEMS





THEME 3: FRONTIER SCIENCE AND EMERGING GENETIC TECHNOLOGIES: GENOMICS AND GENE EDITING

Theme Convenor :

Dr. C. Viswanathan
Joint Director (Research),
ICAR-IARI, New Delhi



TECHNICAL SESSION 2: APPLICATION OF CRISPR-CAS SYSTEMS FOR CROP IMPROVEMENT AND SUSTAINABLE DEVELOPMENT



TECHNICAL SESSION 3: GENOME EDITING: IPR POLICY, BIOSAFETY FOR PRODUCT DEVELOPMENT AND SOCIO-ECONOMIC CONSIDERATIONS

Recommendations: To enhance crop resilience and productivity, it is essential to bring about transformation in chickpea production systems, study pathogen interactions for BB resistance, optimize gene-editing systems, and develop time-based target traits. This requires a deep understanding of gene biology for commercial use, increased funding for genomics-assisted breeding, a comprehensive biotechnology roadmap, and exploratory research for valuable genes. Additionally, boosting investments in CRISPR-Cas, streamlining regulations for SDN-1 and SDN-2 editing, engaging the private sector in research, resolving IPR issues, and fostering societal dialogue on the sociocultural and sustainability impacts of new technologies are crucial.



THEME 4: LIVESTOCK SECTOR TRANSFORMATION FOR FOOD SECURITY

Theme Convenor :
Dr. K.M. Bujarbaruah
Former VC, AAU, Jorhat





Theme Convenor :
Dr. Triveni Dutt
 Director, ICAR-IVRI,
 Izatnagar

Recommendations: Establishing a National Phenomics Facility for livestock and poultry to support precision breeding, implementing a National Mission on animal feed and fodder security, conducting GHG mitigation pilot projects, and harnessing specialty animal products from India's indigenous biodiversity, along with programs for non-bovine milk for nutraceutical uses, operational research on portable slaughterhouses, initiatives to double rural poultry farmers' incomes, and pilot studies on sex-sorted semen-embryo transfer, are crucial steps toward transforming and enhancing sustainability in the livestock production sector while significantly improving productivity and farmer livelihoods.



TECHNICAL SESSION 2: LIVESTOCK PRODUCTS, HEALTH AND SUPPORT SCIENCES



THEME 5: HORTICULTURE BASED TRANSFORMATIONS OF FOOD SYSTEMS

Theme Convenor :
Dr. Sanjay Kumar Singh
Director, ICAR-IIHR, Bengaluru

TECHNICAL SESSION 1: FRUIT AND PLANTATION CROPS





**TECHNICAL SESSION 2:
VEGETABLE AND TUBER CROPS**

**TECHNICAL SESSION 3:
SPICES, ORNAMENTAL & MEDICINAL PLANTS**





Recommendations: To transform food systems through horticulture, the Government of India's Clean Plant Program should focus on monitoring certified nurseries for genetic fidelity and disease-free scions/rootstocks, while promoting large-scale multiplication of QPM through public-private partnerships. It is essential to confine organic production to surplus fruit crops with low pest pressures for export, prioritize breeding and gene editing for disease resistance, reduce pesticide use through need-based applications, enhance research on bio-fortification and bioremediation, and implement mechanization to reduce labor in the value chain. Transformation of horticulture requires commodity-specific protocols for industrialized practices, standardization of speed breeding technologies, genomic tools for exploring genetic diversity, and capacity building for detecting seed-borne pathogens under the "One Health" framework.



TECHNICAL SESSION 4: NUTRACEUTICALS AND VALUE ADDITION



THEME 6 : AQUACULTURE & FISHERIES-BASED TRANSFORMATION OF FOOD SYSTEMS

Theme Convenor :
Dr. J.K. Jena
DDG (Fisheries Science) ICAR



TECHNICAL SESSION 1: AQUACULTURE SYSTEMS & FISHERIES



**TECHNICAL SESSION 2:
GENETICS, HEALTH & NUTRITION**





Recommendations: Promote sustainable aquaculture through smart technologies, climate-resilient management, and carbon footprint reduction, while advancing species improvements via genomic tools. Additionally, prioritize reducing post-harvest losses with innovative preservation methods and broaden gender research in fisheries and aquaculture.



THEME 7: NATURE-BASED SOLUTIONS FOR SUSTAINABLE AGRI-FOOD SYSTEMS

Theme Convenor :
Dr. Anil K. Singh
Vice President, NAAS

TECHNICAL SESSION 1:
WATER HARVESTING AND ENHANCING WATER PRODUCTIVITY





TECHNICAL SESSION 2: SOIL HEALTH AND ITS RESTORATION





Recommendations: Enhance water productivity through demand-driven irrigation, nature-based solutions, and wastewater reuse, and promote micro-irrigation to improve efficiency, particularly in groundwater areas. Additionally, integrate sustainable agronomic practices, soil health management, carbon farming, and research on rhizosphere microbiomes to promote nutritional security, mitigate climate change, and enable sustainable agroecosystems.





THEME 8 : NEXT GENERATION TECHNOLOGIES: DIGITAL AGRICULTURE, PRECISION FARMING AND AI-BASED SYSTEMS

Theme Convenor :
Dr. Rajender Parsad
Director, IASRI



TECHNICAL SESSION 1: DIGITAL AGRICULTURE





TECHNICAL SESSION 2: ARTIFICIAL INTELLIGENCE-BASED SYSTEMS



Recommendations: Develop standardized data platforms following FAIR principles and advanced analytics for smart farming, and promote interdisciplinary collaborations to scale digital agriculture infrastructure and foster innovation. Additionally, strengthen AI infrastructure, enhance data quality protocols, advance AI applications in plant phenomics and pest management, and establish Centers of Excellence in AI to support capacity building and digital solutions in agriculture.



THEME 9: ROLE OF POLICIES AND INSTITUTIONS IN TRANSFORMING AGRI-FOOD SYSTEM

Theme Convenor :
Dr. P.K. Joshi
Former Director,
South Asia International
Food Policy Research Institute

TECHNICAL SESSION 1:
FOOD SYSTEM TRANSFORMATION: ROLE OF POLICIES
AND INSTITUTIONS



TECHNICAL SESSION 2: DIET DIVERSIFICATION AND FOOD SYSTEM TRANSFORMATION



TECHNICAL SESSION 3: AGRI-FOOD SYSTEM TRANSFORMATION TOWARDS HIGH-VALUE COMMODITIES

Recommendations: Foster inter-ministerial convergence, infrastructure investment in water and sanitation, and inclusive policies for women empowerment to improve health and nutrition. Additionally, address agri-food system heterogeneity, promote dietary diversification in food safety-net programs, and increase investment in value chain infrastructure and agri-industry linkages to support food system transformation.



THEME 10 : INTERNATIONAL PARTNERSHIP FOR RESEARCH, EDUCATION AND DEVELOPMENT

Theme Convenor :
Prof. Kadambot Siddique
UWA, Australia

Recommendations: Establish international partnerships for research, education, and development through strategic planning and ensure proper follow-up actions for their success. Focus on translational research without duplication and secure adequate funding to support effective international collaborations.



PANEL DISCUSSION 1 : QUALITY EDUCATION FOR TRANSFORMING AGRI-FOOD SYSTEMS

Theme Convenor :
Dr R C Agrawal
DDG (Ag. Edu.), ICAR

Recommendations: Multidisciplinary approaches, STEM integration, professional development, and non-agri food systems can enhance academic legitimacy, employability, and effectiveness in agri food systems. Incorporating courses like Systems Agriculture, Agri food systems and transformation, and Synthetic Biology can further strengthen the sector. Modern infrastructure can improve service delivery.



PANEL DISCUSSION 2 : INNOVATION IN INFORMATION DISSEMINATION

Theme Convenor :
Dr Ashok K Singh
Vice-Chancellor,
RLBCAU, Jhansi

Recommendations: Digital agriculture is essential for bridging yield gaps and enhancing farmer incomes. Knowledge models, coherent research-teaching-extension, customized advisories, multimedia platforms, and integrated databases can empower farmers with information and resources. By addressing macro-issues and adopting a platform-based approach, digital coverage can be scaled up and its reach and effectiveness in rural areas can be ensured.



PANEL DISCUSSION 3 : FARMING SYSTEMS FOR ENHANCING NUTRITION AND SUSTAINABILITY

Theme Convenor :

Dr V K Singh

Director, ICAR-CRIDA,
Hyderabad

Recommendations: Integrated farming systems are crucial for sustainable agriculture and food security. They offer diverse benefits, from improved soil health and productivity to enhanced nutritional security and reduced environmental impact. By embracing these systems and supporting their adoption, we can create a more resilient and equitable food system for generations to come.



SYMPOSIUM 1 : COASTAL AGRICULTURE: LIVELIHOOD AND SUSTAINABILITY

Convenor :

Dr Parveen Kumar

Director, CCARI, Goa

Recommendations: Crop diversification, IFS, climate adaptation, natural farming, and agro-eco-tourism can boost coastal productivity, income, and sustainability.

Transformation of Agri-Food Systems for
Achieving Sustainable Development Goals

10-13 October 2023 Kochi, Kerala, India



SYMPOSIUM 2: IYM 2023 – MAINSTREAMING MILLETS

Convenor :

Dr C Tara Satyavathi

Director, ICAR-IIMR, Hyderabad

Recommendations: Exploring millet germplasm, applying modern tools and techniques for enhancing productivity, mapping areas for integrated cropping, adopting standard agronomic practices, establishing grades and standards for enhanced shelf life, and determining the degree of millet polishing are key strategies for boosting millet production.





SYMPOSIUM 3 : REPURPOSING AGRICULTURE FOR ACHIEVING SDGs

Convenor :
Dr P S Birthal
Director, NIAP

Recommendations: For sustainable agriculture, invest in supply chains, technology adoption, and rationalized subsidies. Converge FPOs with agri-startups for better development.



PLENARY LECTURE 1: RETHINKING FOOD CRISIS RESPONSES

Chair :
Dr R S Paroda
Chairman, TAAS

Convenor :
Dr P K Joshi
Former Secretary,
NAAS

Speaker :
Dr Channing Arndt
Senior Director for Transformation
of Strategies of CGIAR and IFPRI

Recommendations: Develop a database of regional agri-innovators, enhance their skills to address technological challenges, implement early warning systems to mitigate risks, integrate risk and resilience into investment decisions, and establish flexible social safety nets.



PLENARY LECTURE 2 : THE CONTRIBUTIONS OF GENE EDITING TOWARDS ACHIEVING THE SUSTAINABLE DEVELOPMENT GOALS

Chair :

Dr P L Gautam
Former Chairperson,
PPV&FRA

Convenor :

Dr Malavika Dadlani
Editor, NAAS

Speaker :

Prof Stuart Smyth
Agri-Food Innovation and
Sustainability Enhancement Chair,
The University of Saskatchewan, Canada

Recommendations: Crop losses from biotic and abiotic stress are a significant concern. Gene editing protocols SDN1 and SDN2 are promising for agricultural applications that can potentially address this issue by developing more resistant crops, leading to increased production and improved overall efficiency.



PLENARY LECTURE 4 : BIOTECHNOLOGY FOR SUSTAINABLE USE OF BIODIVERSITY TO TRANSFORM AGRI-FOOD SYSTEM

Chair :

Dr Himanshu Pathak
President, NAAS,
Secretary DARE & DG, ICAR

Convenor :

Dr A K Singh
Vice-President, NAAS

Speaker :

Dr Trilochan Mohapatra
Chairperson, PPV&FRA

Recommendations: A duplicate National Gene Bank and institutional support for farmer-conserved seeds are essential for genetic resource preservation. Gene prospecting, allele mining, pangenomics, landscape genomics, benefit sharing, and expert consultation are crucial for effective utilization and management of genetic resources.



FARMER-SCIENTIST INTERFACE

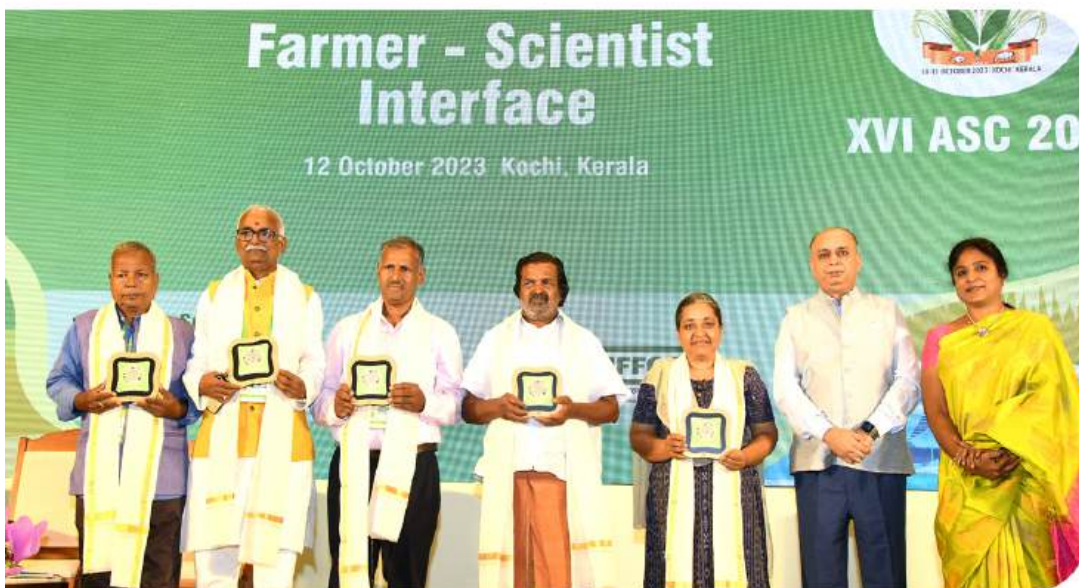
Chaired by :

Dr Ashok K. Singh
Vice Chancellor,
Rani Lakshimbhai Central
Agricultural University, Jhansi

Farmer - Scientist Interface

12 October 2023 Kochi, Kerala

XVI ASC 2023



INDUSTRY MEET

Convenor :

Dr Shyam Narayan Jha
DDG (Engineering)

Recommendations: Research and development are crucial for sustainable fisheries and animal husbandry. Need-based research, private investment, indigenous feed formulation, CSR funding, low-cost alternatives, market-driven research, and incubation can drive innovation and improve the economic conditions of fishers and farmers.





TECHNOLOGY PRODUCT PROMOTIONS

Convenor :
Dr Shyam S Salim
Principal Scientist,
ICAR-CMFRI, Kochi

Recommendations: Research and development are crucial for the growth of the agri-food industry. Collaboration between research institutions, farmers, and industries can lead to innovative products, reduce costs, and improve the socio-economic conditions of rural communities.



STUDENT'S ELOCUTION CONTEST

Convenor :

Dr. Anupama Singh

Joint Director (Education), ICAR-IARI, New Delhi

Sponsored by NANSEN Scientific Society, Norway



SPECIAL SESSION : ROLE OF PPV&FRA IN TRANSFORMATION OF AGRI- FOOD SYSTEMS FOR ACHIEVING SUSTAINABLE DEVELOPMENT GOALS

Theme Convenor :

Dr. T. Mohapatra

Chairperson, PPV&FRA, New Delhi

Recommendations: Protection, registration and promotion of farmed varieties; promotion of community seed banks to ensure quality seed supply; encouraging farmers in conserving biodiversity and making them aware about the PPV&FR Act 2001 by providing the document in different languages.

Sponsored by PPV&FRA



WORKSHOP : WORKSHOP ON ADVANCEMENTS IN RESEARCH FOR MARINE MAMMAL CONSERVATION IN INDIA

Convenor :

Dr. Ratheesh Kumar R

Co-Chairs :

**Dr. Grinson George,
Dr. Sreenath K.R.**

Recommendations: Conservation strategies must prioritize research, monitoring, threat mitigation, capacity building, community engagement, and coordinated action. This involves assessing species populations, reducing threats like bycatch and pollution, training stakeholders, engaging communities, and developing comprehensive action plans. Effective conservation requires interdepartmental collaboration and international cooperation to address the migratory nature of many species.

Sponsored by MMSAI Project, ICAR-CMFRI, Kochi



POSTER PRESENTATION



EXHIBITION



CULTURAL EVENTS



VALEDICTORY FUNCTION



Transformation of Agri-Food Systems for Achieving Sustainable Development Goals

10-13 October 2023 Kuchi, Kerala, India



Theme 8: Next Generation Technologies: Digital agriculture, Precision farming and AI-based systems

- Best poster: Abstract No: T852-63
- Title: Long short-term memory based deep learning approach for freshwater aquaculture of Genetically Improved Farmed Tilapia
- Authors: Murali, S., et al.



Theme 9: Policies and Institutions for Transforming Agri-food Systems

- Best poster: Abstract No: T951-10
- Title: Rebuilding via performance - OT model analysis of stakeholders' consultation in water fisheries sector in India
- Authors: K. K. S. et al.



Theme 7: Nature-based Solutions for Sustainable Agri-food Systems

- Best poster: Abstract No: T753-36
- Title: Coastal habitat evolution and improving community resilience by artificial reefs along the Indian coast
- Authors: S. K. et al.



Theme 6: Aquaculture and Fisheries-based Transformation of Food Systems

- Best poster: Abstract No: T651-52
- Title: Good Management Practices in Seaweed Farming
- Authors: J. et al.







Dr. Himanshu Pathak, Secretary, DARE; DG, ICAR & President, NAAS visited CMFRI on 12.10.2023



Executive Council Meeting of NAAS held at Kochi during 16ASC2023



NAAS Administrative Staff

