PROCEEDINGS FROM THE

NATIONAL SYMPOSIUM ON MAKHANA

Unlocking India's Aquatic Superfood *for* Rural Prosperity

May 20, 2025 **Lemon Tree Premier, Patna, Bihar**

Proceedings from the National Symposium on Makhana

Unlocking India's Aquatic Superfood for Rural Prosperity

May 20 2025 | Patna, Bihar

Prepared by

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INTRODUCTION

Makhana, also known as gorgon nut, is a nutrient-rich aquatic crop that is primarily cultivated in India, with northern Bihar being the major production region. With a cultivation history of over 2,000 years, makhana is recognized for its nutritional profile, which includes approximately 76.9% carbohydrates, 9.7% protein, and essential minerals.

More than 85% of India's makhana is produced in the districts of Darbhanga, Madhubani, Purnia, and Katihar in Bihar, covering an estimated 15,000 hectares[1]. The annual production of makhana is around 120,000 metric tons (MT) of seeds, resulting in 40,000–50,000 MT of popped makhana[1]. The sector is expected to generate revenues of approximately ₹600 crore at the trader level[1]. However, exports are limited, with roughly 1% of the production reaching international markets such as the USA, UK, Australia, and Gulf countries.

In 2022, the Government of India registered 'Mithila Makhana' as a Geographical Indication (GI), recognizing its regional and product-specific characteristics. Under the One District One Product (ODOP) scheme, six makhana-producing districts in Bihar have been selected for focused development. Additionally, the Union Budget 2025 announced the creation of a dedicated Makhana Board in Bihar to support the sector across various stages, including production, processing, value addition, and market access. The domestic market for makhana is projected to reach ₹18.9 billion by 2032[2], indicating potential for further growth and development in the sector.

Despite its considerable potential and recent policy attention, the makhana sector faces several challenges. Traditional, labor-intensive methods reduce productivity and increase post-harvest losses. The value chain is fragmented and dominated by intermediaries, with farmers receiving only 27–30% of the final price. Limited market access and weak bargaining power further reduce farmer incomes. The absence of strong branding hampers domestic and export growth. Low mechanization inflates costs and limits scale, while the lack of a dedicated HS code and limited awareness of global standards hinder export competitiveness.

In this backdrop, the ***National Symposium on Makhana: Unlocking India's Aquatic Superfood for Rural Prosperity*** was organized on May 20 2025, in Patna by Bihar Agricultural Science Academy (BASA), in collaboration with the Agricultural Economics Research Association (AERA), the International Food Policy Research Institute (IFPRI), and Dr. Rajendra Prasad Central Agricultural University (RPCAU). The objective of the event was to develop a pathway to position makhana as a globally recognized superfood, while also

[1] Directorate of Horticulture – Government of Bihar
[2] Livemint Article: On cards, a code to unlock makhana's full potential (published 06 Feb, 2025)

promoting inclusive and sustainable growth for farming communities. Key stakeholders participating in the symposium included government officials, scientists, entrepreneurs, and policy experts.

The symposium featured four thematic sessions:

- **Modern Production Practices:** Focus on innovative cultivation technologies, agronomic research, and climate-resilient practices.
- **Processing and Value Addition:** Emphasis on mechanization, processing innovations, nutritional profiling, and health benefits.
- **Marketing, Trade, and Branding:** Discussion on international trade promotion, leveraging the GI tag, market intelligence, and consumer branding.
- **Panel Discussion:** Lessons for the Makhana Board - Insights from successful commodity boards (e.g., Tea, Coffee, Spices, Coconut) to inform the development and governance framework of the newly formed Makhana Board.

INAUGURAL SESSION

The inaugural session began with Dr. Ritambhara Singh, Associate Professor at Dr. Rajendra Prasad Central Agricultural University (RPCAU), Pusa, outlining the importance of makhana as a niche aquatic crop with strong traditional roots and considerable untapped potential. She emphasized the symposium's role in facilitating dialogue and strategic planning for the comprehensive development of the makhana value chain.

Dr. Anjani Kumar, Senior Research Fellow, International Food Policy Research Association (IFPRI) and Vice President Bihar Agriculture Science Academy (BASA), delivered the welcome address emphasizing the importance of learning from the experiences of existing commodity boards. He called for strategic planning tailored to niche crops like makhana to achieve rural prosperity, pointing to the necessity of well-structured implementation to ensure long-term sustainability. He emphasized that building on the recently signed Memorandum of Understanding (MoU) between the Government of Bihar and IFPRI, IFPRI is committed to supporting the development of makhana as a niche product through rigorous research, robust data systems, and evidence-based policy recommendations that can help advance the state's development agenda.

Shri Vijay Kumar Sinha, Hon'ble Deputy Chief Minister of Bihar, graced the event as the Chief Guest, sharing key perspectives on the makhana sector. He observed that nearly half of the makhana-related budget is currently allocated to production practices and emphasized the importance of improving farmer incomes through improved processing, branding, and promoting makhana in global markets. He affirmed the state government's commitment to carefully reviewing and acting on the expert recommendations emerging from the symposium.

In his opening remarks, **Dr. Shyam Narayan Jha, Chairman of the Bihar Agriculture Science Academy (BASA),** acknowledged Bihar's long-standing role in makhana cultivation and stressed the importance of establishing a clear and structured roadmap for the crop's development, noting both its cultural significance and future potential. He emphasized the need for standardized terminology and advocated for scientific rigor across all stages of the makhana value chain.

In his remarks **Dr. P.K. Joshi, President, Agricultural Economics Research Association (AERA),** referred to makhana as the "Black Diamond," highlighting its nutritional value and economic importance. He proposed a four-pronged strategy for the sector's development: advancing research and innovation; strengthening market systems; establishing a supportive policy framework; and enhancing awareness by integrating makhana into government programs by adopting a comprehensive production-to-consumption strategy with an emphasis on exports.

Dr. Mangala Rai, Former Secretary, Department of Agricultural Research and Education (DARE) & Director General, Indian Council of Agricultural Research (ICAR) concluded the inaugural session by highlighting the need to focus attention to multiple aspects of the value chain, including production, marketing, research, value addition, product diversification, processing, and post-harvest management, as well as the development of

secondary agriculture around makhana. Dr. Rai supported the establishment of a Makhana Board to enable coordinated sectoral development and encouraged researchers and stakeholders to leverage rising demand and prices through innovation, collaboration, and strategic planning for inclusive rural growth.

SESSION 1: MODERN PRODUCTION PRACTICES

Figure 1: In the frame: Dr. Manoj Kumar, Shri Anil Jha, Dr. Vidya Nath Jha, Dr. Dilip Kumar, Shri Rajeev Ranjan Jha, and Dr. Archana Sinha (From left to right)

This session was chaired jointly by **Dr. Dilip Kumar, Former Director & Vice Chancelor ICAR- Central Institute of Fisheries Education (CIFE)** and **Shri Anil Jha, Joint Secretary, Government of Bihar**.

Dr. Vidya Nath Jha, Former Professor of Botany at Lalit Narayan Mithila University (LNMU), presented a historical overview of makhana in India, highlighting its transformation from an "orphan crop" to one of cultural and economic significance. He discussed its agro-climatic adaptability, traditional importance across communities, and cultivation methods—stagnant water and field systems—while emphasizing the important role that women play in makhana transplantation. Dr. Jha also proposed declaring "Kosagra" as a national day for makhana and reflected on its symbolic role in marriage customs, along with traditional harvesting tools and culinary uses.

Following this**, Dr. Manoj Kumar, Senior Scientist at ICAR- National Research Centre for Makhana**, presented a technical and economic overview of makhana cultivation, highlighting its labor-intensive nature yet high profitability, earning up to ₹5 lakh per hectare with seeds

priced at ₹35,000 per quintal. He outlined key production and nutrient management practices, noted a 7% CAGR in yield growth with a forecast of 8.5% for 2024–2031, and discussed the Makhana Vikas Yojana, which focuses on regulatory reform, branding, marketing, and R&D to enhance quality and value-added products.

The discussants for the session included **Shri Rajeev Ranjan Jha, Chairman, Manigachimidas Farmer Producer Co. Ltd**. and **Dr. Archana Sinha, Principal Scientist, Central Inland Fisheries Research Institute (ICAR-CIFRI).** The discussion outlined makhana's nutritional value as a superfood, and integrating makhana cultivation with secondary agricultural practices, such as fisheries cultivation to improve productivity and farmers' income.

Insights from the session:

- Makhana cultivation remains highly labor-intensive, leading to increased production costs and limiting scalability.
- Makhana is often confused with lotus seeds despite having a unique biology – *Euryale ferox*.
- Prolonged storage of popped makhana makes it susceptible to infestation by insects and fungi.
- Water availability is a critical constraint in makhana cultivation, limiting both productivity and the scale of cultivation.
- Makhana suffers from insect-pest infestation, with Aphid insects being a critical threat to makhana plants.
- Health issues remain a major concern for farmers growing makhana.

SESSION 2: MAKHANA PROCESSING AND VALUE ADDITION

Figure 2: In the frame: Smt. Kavita Kannan Chandra, Dr. Mahesh Kumar Mummadi, Dr. R K Vishwakarma, Dr. D. C. Rai, Dr. Manesh Choubey, Smt. Sonia Verma (From left to right)

This session was chaired by **Dr. D.C. Rai, Vice Chancellor, Babasaheb Bhimrao Ambedkar University.**

Dr. R.K. Vishwakarma, Principal Scientist, ICAR-Central Institute of Post-Harvest Engineering and Technology (ICAR-CIPHET) delivered a presentation on the mechanization and automation of makhana processing. He gave an overview of the traditional makhana processing stages, involving raw seed storage, size grading, drying, primary and final roasting, and popping. He addressed the critical role of various factors, such as surface temperature and timing in the roasting process, which is the most important stage in makhana processing. He concluded his presentation by highlighting other challenges in mechanizing the makhana sector, including high capital costs, infrastructure gaps, seed variability, and the need for skilled labor to operate machines.

Following this, **Dr. Mahesh Kumar Mummandi, Scientist-D, Indian Council of Medical Research-National Institute of Nutrition (ICMR-NIN)**, presented on the nutritional value of makhana in addressing public health issues like malnutrition, diabetes, and obesity. He highlighted the rise in non-communicable diseases linked to dietary risks and shared findings from a randomized controlled trial on makhana's health benefits, emphasizing its potential in combating nutritional deficiencies.

The discussants for the session included **Smt. Kavita Kannan Chandra, a freelance journalist, Smt. Sonia Verma, Associate Professor at Sanjay Gandhi Institute of Dairy Technology (SGIDT),** and **Dr. Manesh Choubey from Sikkim University.** The discussion focused on the need for effective skilling and training programs to train people to operate makhana processing machines and the potential for farmers to transition into rural entrepreneurs with appropriate policy support and interventions.

Insights from the session:

- Labor-intensive nature of the makhana cultivation process often results in poor health and injuries among farmers.
- Capital cost for small mechanization units (₹35–40 lakhs) and large automated plants (around ₹6 crores for 2 tons/day capacity) remains high.
- Wide variation in seed size affects processing consistency.
- Shortage of skilled professionals to operate machinery effectively.
- There are regional differences in roasting and popping times due to seed diversity across the region.

SESSION 3: MARKETING, TRADING AND BRANDING

Figure 3: In the Frame: Shri Manish Anand, Dr. Nalini Ranjan Kumar, Shri Sanjay Kumar Singh, Dr. Avinash Kishore, Dr. Girish Jha, Dr. Alka Singh (From left to right)

This session was chaired by **Shri Sanjay Kumar Singh, Joint Secretary, Government of Bihar.**

Shri Manish Anand, CEO Mithila Naturals, shared insights on the makhana market, highlighting the recent growth in makhana branding could be aided by increased internet access raising awareness. He noted that with rising demand, new trends have emerged in the market, including size-based grading and sorting, with larger seeds commanding higher prices. The market for value-added and nutritionally fortified makhana products is gaining popularity, enhancing their potential for global trade.

This was followed by a presentation by **Dr. Girish Jha, Head of the Division of Agricultural Bioinformatics at ICAR-Indian Agricultural Statistics Research Institute (ICAR-IASRI)**, on the critical role of agricultural marketing in Bihar's economy. He emphasized the need for unified markets and demand-aligned production to improve farmer incomes and reduce price disparities. Highlighting the value of market intelligence in decision-making and price stability, he also shared that the Indian makhana market is projected to reach ₹19.6 billion by 2033 (CAGR 9.2%), while exports—currently at just 1% of production—have shown a steady 5% annual growth since 2013.

The discussants for the session included **Dr. Alka Singh, Head of Division of Agricultural Economics, ICAR-Indian Agricultural Research Institute (ICAR-IARI)**, **Dr. Nalini Ranjan**

Singh, Principal Scientist, ICAR-National Institute of Agricultural Economics & Policy Research (ICAR-NIAP) and **Dr. Avinash Kishore, Senior Research Fellow, IFPRI**. The discussion focused on the need to explore new export markets for makhana and the role of effective marketing and branding to expand India's market for Makhana.

Insights from the session:

- Inefficient agricultural marketing has resulted in an inability to assure a fair price to farmers.
- Marketing of makhana is dominated by a few large wholesalers who conduct bulk purchase and sale operations, further transporting it to other states.
- The makhana market remains largely untapped in Western countries like the UK and the US.
- Current trade numbers for makhana market are not very reliable because of the absence of well-defined HS code for makhana.
- Makhana currently has limited varietal diversity limiting the scope for improved yields and market for makhana.
- Makhana cultivation practices should be aligned with international food safety and quality standards.
- Rising makhana prices reflect growing demand, while supply has not kept pace.
- Lack of comprehensive data on indicators related to makhana, such as yield, prices, farmers' income etc. can be a barrier to effective policy making.

SESSION 4: PANEL DISCUSSION

Figure 4: In the frame: Shri Kaushalendra, Dr. P.K. Joshi, Shri Ajay Sahoo (From left to right)

Dr. P.K. Joshi opened the panel discussion by noting the Finance Minister's recent announcement to establish a Makhana Board in Bihar, an institutional body envisioned to coordinate policy, research, production, marketing, and trade for the makhana sector. He outlined the session's objective: to generate actionable suggestions to strengthen the Board's functioning, boost production and exports, and increase domestic consumption.

The panelists for this session included **Shri Ajay Sahoo, General Manager, National Bank for Agriculture and Rural Development (NABARD**), and **Shri Kaushalendra, Founder and Managing Trustee of the Kaushalya Foundation.**

Shri Sahoo called for a clearly mandated Makhana Board overseeing the entire value chain from production to exports. He stressed the need for stronger R&D in germplasm conservation and processing technologies, credit-linked finance for farmers using elite practices, and improved access to institutional credit. He also highlighted the importance of upgrading processing infrastructure to meet export standards, promoting product diversification, and involving domain experts through specialized sub-committees.

Shri Kaushalendra emphasized the importance of a targeted strategy to promote 'Mithila Makhana,' ensuring financial gains for Bihar's farmers. He advocated recognizing farmers as central stakeholders, expanding institutional finance across the value chain, creating a government-backed trading platform, and enhancing branding. He also recommended

integrating makhana into nutrition schemes, promoting sustainable cultivation, and increasing women's representation on the Board.

Dr. Girish Jha concluded the symposium with a vote of thanks, expressing his sincere appreciation to the speakers, panelists, participants, and organizers for their valuable contributions.

Key Recommendations and Takeaways from the symposium:

Recognizing the potential of makhana as a catalyst for income diversification, nutritional security and export-oriented growth in Bihar, the following recommendations were put together to give direction to the sector's growth:

1. **Sustainable Cultivation and Production Practices**
    - Integrate makhana farming with allied activities like fishery and dairy to diversify income and improve nutrition.
    - Promote water-efficient and sustainable field-based cultivation practices.
    - Adopt organic pest and insect management as alternatives to chemical inputs.
    - Invest in research to develop high-yielding, climate-resilient makhana varieties suited for both domestic and export markets.
2. **Focus on Technology, Mechanization and Capacity Building**
    - Scale up mechanization and automation across production and processing to reduce labor intensity, improve efficiency, and ensure consistency.
    - Develop SOPs and localized training modules for machinery use, especially popping units.
    - Strengthening infrastructure, such as storage, processing and logistics to enhance productivity and ensure fair prices.
3. **Develop Markets and Strengthen Value Chains**
    - Promote GI tagged 'Mithila Makhana' through effective branding, certification and HS code classification to boost global visibility.
    - Create targeted export strategies to tap high-value international markets and improve unit value realization.
    - Ensure quality and traceability throughout the value chain through value addition and improved standards.
    - Support entrepreneurship and farmer integration into the value chain through financial and institutional support.

4. **Policy and Institutional Framework**
    - Position the Makhana Board as a facilitative, expert-led body focused on addressing technological and financial challenges.
    - Encourage cluster-based growth through FPOs, cooperatives, and decentralized value chain models.
    - Align makhana cultivation and processing with global food safety and quality standards to improve international competitiveness.
5. **Promote Data Driven Decision-Making**
    - Establish monitoring sites/portals and leverage data systems for evidence-based policymaking and long-term planning.
    - Invest in R&D and post-harvest innovations to further enhance value chain efficiency and market readiness.

ANNEXURE 1 – AGENDA

09:00 – 09:30	Registration & Tea
09:30 – 10:20	**INAUGURAL SESSION** **Chief Guest: Hon'ble Shri Vijay Kumar Sinha, Deputy Chief Minister, Government of Bihar** **Chairperson: Dr. Mangala Rai, Former Secretary, Department of Agricultural Research and Education (DARE) & Director General, Indian Council of Agricultural Research (ICAR)**
09:30 – 09:35	**Welcome Address** Dr. Anjani Kumar *Senior Research Fellow, International Food Policy Research Institute (IFPRI)*
09:35 – 09:45	**Context Setting** Dr. Shyam Narayan Jha *Founding President, Bihar Agricultural Science Academy (BASA)*
09:45 – 09:55	**Remarks by Guest of Honor** Dr. P K Joshi *President, Agricultural Economics Research Association (AERA), India*
09:55 – 10:05	**Remarks by Guest of Honor** Shri Sanjay Jha *Member of Parliament, Rajya Sabha*
10:05 – 10:15	**Remarks by Chief Guest** Hon'ble Shri Vijay Kumar Sinha *Deputy Chief Minister, Government of Bihar*
10:15 – 10:25	**Remarks by Chairperson** Dr. Mangala Rai *Former Secretary, Department of Agricultural Research and Education (DARE) & Director General, Indian Council of Agricultural Research (ICAR)*
10:25 – 11:00	**Group Photo & High-Tea**

11:00 – 12:00	**SESSION 1: MODERN PRODUCTION PRACTICES** **Co-Chairs:** **Dr. Dilip Kumar, Former Director & Vice Chancelor ICAR- Central Institute of Fisheries Education (CIFE)** **Shri Anil Jha, Joint Secretary, Government of Bihar**
11:00 – 11:10	**Historical Perspective of Makhana Production and Consumption in India** Dr. Vidya Nath Jha *Former Professor of Botany, Lalit Narayan Mithila University (LNMU)*
11:10 – 11:20	**Makhana Production Practices** Dr. Manoj Kumar *Senior Scientist, ICAR- National Research Centre for Makhana*
11:20 – 11:30 11:30 – 11:40	**Discussants:** Shri Rajeev Ranjan Jha *Chairman, Manigachimidas Farmer Producer Co. Ltd* Dr. Archana Sinha *Head and Principal Scientist, ICAR-Central Inland Fisheries Research Institute (ICAR-CIFRI)*
11:40 – 11:50	**Q & A Session**
11:50 – 12:00	**Remarks by the Chairs**
12:00 – 13:00	**SESSION 2: MAKHANA PROCESSING AND VALUE ADDITION** **Co-Chairs:** **Dr. D. C. Rai, Vice Chancellor, Babasaheb Bhimrao Ambedkar University**
12:00 – 12:10	**Mechanization and Automation** Dr. R K Vishwakarma *Principal Scientist, ICAR-Central Institute of Post-Harvest Engineering and Technology, Ludhiana*
12:10 – 12:20	**Evolution of value-added products and health benefits of Makhana** Dr. Mahesh Kumar Mummadi *Scientist-D, Clinical Epidemiology, Indian Council of Medical Research-National Institute of Nutrition (ICMR-NIN), Hyderabad*
12:20 – 12:40	**Discussants** Smt. Kavita Kannan Chandra *Freelance Journalist* Smt. Sonia Verma *Associate Professor, Sanjay Gandhi Institute of Dairy Technology (SGIDT)* Dr. Manesh Choubey *Head, Agricultural Economics, Sikkim University*

12:40 – 12:50	**Q & A Session**
12:50 – 13:00	**Remarks by the Chairs**
13:00 – 14:00	**Lunch Break**
14:00 – 15:00	**SESSION 3: MARKETING, TRADE AND BRANDING** **Co-Chairs:** **Shri Sanjay Kumar Singh, Joint Secretary, Government of Bihar**
14:00 – 14:10	**From Bihar to World Markets: Creating the Ecosystem to Boost Makhana Exports** Dr. Girish Jha *Head, Division of Agricultural Bioinformatics, ICAR-Indian Agricultural Statistic Research Institute (ICAR-IASRI)*
14:10 – 14:20	**Traders' Perspectives on Makhana Exports** Shri Manish Anand *Chief Executive Officer, Mithila Naturals, Madhubani*
14:20 – 14:40	**Discussants** Dr. Alka Singh *Head, Division of Agricultural Economics, ICAR-Indian Agricultural Research Institute (ICAR-IARI)* Dr. Nalini Ranjan Kumar *Principal Scientist, ICAR-National Institute of Agricultural Economics & Policy Research* Dr. Avinash Kishore *Senior Research Fellow, International Food Policy Research Institute (IFPRI)*
14:40 – 14:50	**Q & A Session**
14:50 – 15:00	**Remarks by the Chairs**
15:00 – 15:30	**Tea Break**

15:30 – 16:40	**PANEL DISCUSSION: EXPERTS' PERSPECTIVES ON THE PROPOSED MAKHANA BOARD** **Chairperson:** **Dr. P K Joshi, President, Agricultural Economics Research Association (AERA), India**
15:30 – 16:00	**Panelists:** • Shri Ajay Sahoo *General Manager, National Bank for Agriculture and Rural Development (NABARD)* • Shri Kaushalendra *Founder and Managing Trustee, Kaushalya Foundation*
16:00 – 16:30	**Q & A Session**
16:30 – 16:40	**Remarks by the Chair**
16:40 – 17:00	**CONCLUDING SESSION**
16:40 – 16:50	**Key Takeaways from the Presentations** Dr. Anjani Kumar *Senior Research Fellow, International Food Policy Research Institute (IFPRI)*
16:50 – 17:00	**Vote of Thanks** Dr. Girish Jha *Head, Division of Agricultural Bioinformatics, ICAR-Indian Agricultural Statistics Research Institute (ICAR-IASRI)*
17:00 – 17:30	**Evening Tea**

Annexure II – Participants

S.no	Name	Affiliation
1	Dr. Dilip Kumar	Ex-Director, ICAR-CIFE
2	Dr. Vidya Nath Jha	Former Professor, Lalit Narayan Mithila University (LNMU)
3	Dr. Manoj Kumar	NRC-Makhana, Darbhanga
4	Dr. Alka Singh	Head, Agriculture Economics, IARI
5	Dr. Girish Kumar Jha	Head, Agricultural Bioinformatics, ICAR-IASRI
6	Dr. Avinash Kishore	Senior Research Fellow, IFPRI
7	Shri Rohit Kumar	Director, Madhubani Makhana
8	Shri Manish Anand	Mithila Naturals
9	Dr. Sunil Kumar Mandal	Assistant Professor, R.R.S., Jhanjharpur
10	Shri Md Sajid Hussain	Associate Professor, R.R.S Biraul
11	Dr. Sudhir Das	Associate Professor, Pandit Deendayal College
12	Shri Deo Karan	Head, KVK, Buxar, ICAR
13	Dr. P.K. Sundaram	Sr. Scientist ICAR RCER, Patna
14	Dr. Dhiraj Kumar Singh	Sr. Scientist ICAR RCER, Patna
15	Dr. A.K. Choudhary	Principal Scientist, ICAR RCER, Patna
16	Dr. Rohan Raman	ICAR RCER, Patna
17	Shri Ajay Kumar	Editor, BiharTimes Development Foundation
18	Smt. Swati Kumari	Professor, RPCAU
19	Subhankar Suman	
20	A.K. Palrwal	SMM, IFFCO
21	Dr. Panchanand Mishra	BNMV, Madhepura
22	Dr. Ramesh Kumar	IFFCO
23	Dr. Shiv Rai Singh	BASA Patna
24	Dr. Sonia Kumar	SGIDT Patna
25	Shri Rakesh Jha	Consulting CFO & Mentor
26	Banda Sainath	ICAR-RCER Patna
27	Dr. S.B. Tarate	NRCM Darbhanga
28	T.N. Pandey	Patna
29	Dr. Dilip Kumar	Ex-Director CFFE
30	Dr. Vinod	NRCM, Darbhanga
31	Dr. Shailendra M. Raut	NRC-Makhana, Darbhanga
32	Dr. U.K. Behera	Director Education, RPCAU
33	Dr. Mayank Rai	Dean, PGCA, RPCAU
34	Dr. Manesh Choubey	Head, Agricultural Economics, Sikkim University
35	Smt. Sonia Verma	Associate Professor, SGIDT
36	Smt. Kavita Kannan Chandra	Journalist
37	Dr. RK Vishwakarma	Principal Scientist, ICAR-CIPHET
38	Dr. Archana Sinha	Head & Principal Scientist ICAR-CIFRI
39	Dr. Ritambhara Singh	Associate Professor, RPCAU
40	Dr. Mahesh Kumar Mummadi	Scientist-D, ICMR-NIN
41	Shri Kaushlendra	Founder, Kaushlendra Foundation

42	Dr. S N Jha	President, BASA & DDG ICAR
43	Dr. PK Joshi	President, AERA
44	Dr. PK Singh	Agricultural Commissioner
45	Dr. Anjani Kumar	Senior Research Fellow, IFPRI

About the organizers

IFPRI

The International Food Policy Research Institute (IFPRI) provides research-based policy solutions to sustainably reduce poverty and end hunger and malnutrition. IFPRI's strategic research aims to identify and analyze alternative international and country-led strategies and policies for meeting food and nutrition needs in low- and middle-income countries, with particular emphasis on poor and vulnerable groups in those countries, gender equity, and sustainability. IFPRI is a research center of CGIAR, a worldwide partnership engaged in agricultural research for development. Visit the regional website at http://southasia.ifpri.info/ for more information.

AERA-India

The Agricultural Economics Research Association (India), a registered society, came into being in 1987, and has more than 1000 life members to date, 110 ordinary members, 122 institutional members and 33 honorary life members from India and abroad. Through its journal, Agricultural Economics Research Review, the Association contributes to improving quality of research in agricultural economics & policy analysis and rural development. For more information visit: http://aeraindia.in/

BASA

Bihar Agricultural Science Academy (BASA) aims to enhance agricultural practices, leading to improved crop yields, better livestock management, and sustainable resource use across Bihar's rural landscapes. Since its inception, BASA has significantly contributed to transforming agricultural practices in Bihar, fostering advancements in crop and animal husbandry. Our initiatives have empowered farmers, enhanced food security, and supported sustainability, showcasing our commitment to innovative and responsible agricultural development. For more information visit: https://basa.co.in/

RPCAU

Dr. Rajendra Prasad Central Agricultural University (RPCAU) is making sincere efforts to ensure food security for the masses, reducing poverty and protecting the environment through the transfer of agricultural technologies. The university undertakes extension activities through the Directorate of Extension and KVKs under its control. It provides on and off campus training programs, field level demonstrations, on farm trials, Kisan Melas, formation of farmers groups and developing seed villages etc. for practicing farmers, rural youth, extension functionaries, government officials and other stakeholders. The university has 16 KVKs under its direct administrative control and 2 KVKs under its technical control. For more information visit: https://rpcau.ac.in/

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