



WORKSHOP REPORT

Strengthening Seed Systems and Markets for Healthier Rice in Odisha

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CITATION

Mohapatra, S., Hossain, S. K., and Nayak, S. (2026). *Strengthening Seed Systems and Markets for Healthier Rice in Odisha - Workshop Report*. Bhubaneswar: International Rice Research Institute.

ACKNOWLEDGMENTS

This work was undertaken as part of the on-going Government of Odisha funded project 'Promotion, Scaling and Market Positioning of Specialty Rice in Odisha' in partnership with International Rice Research Institute (IRRI).

ABOUT INTERNATIONAL RICE RESEARCH INSTITUTE

IRRI is dedicated to abolishing poverty and hunger among people and populations that depend on rice-based agri-food systems. Through our work and partnerships, we aim to improve the health and welfare of rice farmers and consumers; promote environmental sustainability in a world challenged by climate change; and support the empowerment of women and the youth in the rice industry. IRRI is a member of One CGIAR.

CONTACT

Mailing address: Plot No- 340/C, Saheed Nagar, Bhubaneswar, Odisha,
Pin – 751007, Phone - +91 674 258 4949

Headquarters: Pili Drive, Los Baños, Laguna 4031, Philippines,
Phone: +63 2 8580 5600, Email: info@cgiar.org

WORKSHOP REPORT

Strengthening Seed Systems and Markets for Healthier Rice in Odisha

Two-Day Multi-Stakeholder Workshop

12-13 January 2026 | Bhubaneswar, Odisha

ORGANIZED BY

International Rice Research Institute (IRRI) in collaboration with Department of Agriculture and Farmers' Empowerment (DA&FE), Government of Odisha

PREPARED BY

Seed System and Product Management Team, Rice Breeding Innovation, IRRI

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LIST OF ABBREVIATIONS AND ACRONYMS

AGMARK	Agricultural Mark (or) Agriculture Marketing
AICRP	All India Coordinated Research Project
APEDA	Agricultural and Processed Food Products Export Development Authority
BBSSL	Bharatiya Beej Sahakari Samiti Ltd
CBBO	Cluster-Based Business Organization
CBO	Community-based Organizations
CRRI	Central Rice Research Institute
CSIR	Council of Scientific and Industrial Research
DA&FE	Department of Agriculture & Farmers' Empowerment, Odisha
DGI	Dietary Guidelines for Indians
DMI	Directorate of Marketing & Inspection
FCI	Food Corporation of India
FPC	Farmer Producer Company
FPO	Farmer Producer Organization
FRK	Fortified Rice Kernel
FSSAI	Food Safety and Standards Authority of India
GI	Glycaemic Index
ICAR	Indian Council of Agricultural Research
ICDS	Integrated Child Development Services
ICMR	Indian Council of Medical Research
IFPRI	International Food Policy Research Institute
IIRR	Indian Institute of Rice Research
IRRI	International Rice Research Institute
ISARC	IRRI South Asia Regional Centre
KVK	Krishi Vigyan Kendra
MoA&FW	Ministry of Agriculture and Farmers Welfare
MSP	Minimum Support Price
NABARD	National Bank for Agriculture and Rural Development
NABKISAN	NABARD's subsidiary finance arm
NIN	National Institute of Nutrition
NSC	National Seeds Corporation
ONDC	Open Network for Digital Commerce

OSSC	Odisha State Seeds Corporation
OSSOPCA	Odisha State Seed & Organic Products Certification Agency
OUAT	Odisha University of Agriculture and Technology
PDS	Public Distribution System
PMGKAY	Pradhan Mantri Garib Kalyan Anna Yojana
PM POSHAN	Pradhan Mantri POSHAN
RDA	Recommended Dietary Allowance
SAU	State Agricultural University
SHG	Self Help Group

EXECUTIVE SUMMARY

The two-day Workshop on “Positioning and Scaling Healthier Rice in Odisha’s Agri-Food System” brought together scientists, policymakers, seed agencies, market actors, farmer-producer company (FPC) leaders, nutrition experts, and development partners to deliberate on pathways for mainstreaming healthier rice in Odisha and beyond. The discussions reflected a growing recognition that rice is not merely a production commodity but a strategic lever for nutrition security, farmer livelihoods, and sustainable agri-food systems. This event was a part of IRRI’s ongoing project—Promoting, Scaling and Market Positioning of Speciality Rice in Odisha.

Participants acknowledged that Odisha is uniquely positioned to lead this transition, given its large rice production base, proactive policies of Govt. Odisha’s Department of Agriculture and Farmers’ Empowerment (DA&FE), and strong scientific ecosystem supported by ongoing collaborations with research institutions such as the International Rice Research Institute (IRRI), International Food Policy Research Institute (IFPRI), and HarvestPlus. Field experiences from districts including Bhadrak, Mayurbhanj, Bolangir, and Ganjam demonstrated that farmers are increasingly open to cultivating biofortified and low glycaemic index (GI) rice or specialty rice when supported with reliable seeds, technical guidance, and assured market linkages or procurement prices.

A central theme across sessions was the importance of strengthening seed systems as the foundation for scaling healthier rice. Deliberations highlighted the need for better demand forecasting, rolling seed production plans, stronger breeder–foundation–certified seed linkages, and greater involvement of community seed enterprises and farmer-producer organizations (FPOs). While several biofortified varieties show promising performance, participants noted that consistent availability, quality assurance, and farmer incentives remain decisive factors for adoption.

On the market and commercialization front, the workshop made it clear that production alone will not drive scale. Sustained progress depends on credible branding, identity preservation, quality certification, and clear consumer communication around nutritional value. Export opportunities for healthier rice were discussed, with the Agricultural and Processed Food Products Export Development Authority (APEDA) sharing early successes in profiling Indian varieties for markets such as Japan. Private sector experiences illustrated that demand creation requires long-term investment in awareness, trust, and repeat consumption rather than short-term price signals alone.

From a policy and public systems perspective, discussions pointed to the need for better alignment between biofortified rice, fortified rice programs, and existing food and nutrition initiatives such as the public distribution system (PDS), Anganwadi services, and school meals. Participants emphasized that biofortified rice should be viewed as a complementary, food-based nutrition strategy rather than a replacement for fortification. Institutions such as IFPRI and the Indian Council of Medical Research–National Institute of Nutrition (ICMR–NIN) recommended generating evidence on nutrition impacts, while regulatory bodies such as the Directorate of Marketing & Inspection (DMI) and Food Corporation of India (FCI) highlighted the importance of clear standards, testing protocols, and credible certification mechanisms.

The role of FPOs, cooperatives, and local institutions emerged as critical to last-mile scaling. Experiences shared by farmer collectives from Odisha and Uttar Pradesh showed that when farmers receive training, access to quality seed, and early market exposure, healthier rice can become both a nutrition intervention and a viable enterprise. However, challenges remain in milling, packaging, branding, testing costs, and consistent quality control—areas where institutional and infrastructural support will be crucial.

Overall, the workshop revealed a shared understanding that scaling healthier rice requires an integrated approach spanning research, seed systems, markets, and policy. While significant progress has already been made through pilots and partnerships, participants broadly agreed that a clearer pathway, combining evidence, institutions, and market incentives, is needed to move from localized successes to statewide and national scale. The deliberations set the stage for developing a practical roadmap for Odisha that strengthens collaboration among government agencies, research institutions, seed corporations, private enterprises, FPOs, and development partners with the dual objective of improving farmer incomes and expanding access to more nutritious rice for consumers.

BACKGROUND AND PURPOSE OF THE WORKSHOP

India is experiencing a gradual but visible shift in consumer and policy thinking around staple foods, particularly rice. While the country has achieved remarkable success in ensuring adequate rice production and food availability, emerging challenges related to micronutrient deficiencies and non-communicable diseases have prompted renewed attention to the nutritional quality of diets. Rising prevalence of anaemia, zinc deficiency, and diabetes has highlighted the need to complement productivity-focused agriculture with nutrition-sensitive food systems.

In this context, specialty and healthier rice varieties, including biofortified, high-protein, zinc-rich, and low GI types, are gaining attention as potential tools for improving nutrition outcomes while maintaining the cultural centrality of rice in Indian diets. Advances in rice breeding, including marker-assisted selection and genomic approaches, have led to the development of regionally adapted varieties that combine enhanced nutritional traits with climate resilience and acceptable agronomic performance. However, translating these scientific advances into large-scale adoption remains a complex challenge requiring coordinated action across research, seed systems, markets, and public policy.

Odisha occupies a strategic position in this evolving landscape. With nearly 11 million metric tonnes of annual paddy production, a strong network of agricultural research institutions, and an active state policy environment, Odisha has already made meaningful progress in testing and promoting healthier rice varieties. Collaborative initiatives involving IRRI, state agricultural universities, Indian Council of Agricultural Research (ICAR) institutions, Krishi Vigyan Kendras (KVKs), FPOs, and community-based organizations (CBOs) have demonstrated the feasibility of on-farm evaluation, participatory varietal selection, and localized seed multiplication. These efforts have generated valuable field evidence on farmer preferences, yield performance, grain quality, and market potential across districts such as Bhadrak, Mayurbhanj, Ganjam, and Bolangir.

Despite these encouraging developments, several systemic barriers continue to limit scale. Seed availability for specialty varieties remains uneven; market linkages are often fragmented; quality certification frameworks are still evolving; and public awareness about the nutritional benefits of healthier rice is limited. At the same time, existing public food systems, particularly the PDS, rely heavily on fortified rice kernels (FRK), raising important questions about how biofortified rice could complement or integrate with current approaches in a cost-effective and consumer-acceptable manner.

Against this backdrop, the workshop **"Positioning and Scaling Healthier Rice in Odisha's Agri-Food System"** was convened to create a structured, multi-stakeholder dialogue on these issues. The purpose of the workshop was not merely to showcase ongoing projects, but to build a shared understanding of what is required to move from pilots to mainstream adoption.

Specifically, the workshop sought to:

- Examine how seed systems can be strengthened to ensure reliable availability of quality seed for healthier rice varieties
- Explore policy pathways for integrating specialty rice into existing agricultural, nutrition, and food security programs
- Identify strategies for developing viable domestic and export markets through branding, certification, and private-sector partnerships

- Share empirical evidence from multi-location trials and farmer-led assessments to inform future scaling strategies
- Assess how healthier rice can contribute simultaneously to farmer incomes and improved consumer nutrition

By bringing together scientific institutions, government agencies, seed corporations, market actors, nutrition experts, and farmer representatives, the workshop aimed to generate a practical, context-specific roadmap for Odisha that could also offer lessons for other rice-growing states in India. The discussions were designed to bridge the gap between research innovation and real-world implementation, ensuring that healthier rice is not only scientifically promising but also economically viable, institutionally supported, and socially acceptable.

KEY FOCUS AREAS OF THE WORKSHOP

A comprehensive baseline study was planned across four districts to capture the pre-implementation status of the target intervention areas. The study aimed to develop a detailed understanding of the socio-demographic profile of the population, patterns of landholding and rice cultivation, and the varieties of rice commonly grown. It further explored the production, consumption, and marketing dynamics of rice, including the major seed procurement and selling points within the local

The workshop focused on a set of interlinked thematic priorities aimed at strengthening both the supply and demand ecosystem for healthier rice in India, with particular attention to Odisha. These themes facilitated dialogue across research, policy, market, and farmer institutions, ensuring that discussions remained grounded in practical implementation while also addressing strategic considerations for scaling healthier rice.

1

Strengthening Seed Systems for Healthier Rice

A central focus of the workshop was to examine how seed systems could be improved to support the adoption of biofortified, low-GI, and specialty rice varieties. This included discussions on breeder and foundation seed availability, farmer access to quality seed, varietal performance across agro-ecological zones, and mechanisms to scale seed multiplication through public and private channels, including FPOs.

2

Integrating Healthier Rice into Policy and Public Programs

Deliberations emphasized the need to align healthier rice with national and state-level nutrition, food security, and agricultural policies. This included exploring pathways for inclusion within public distribution, school feeding, and other government nutrition programs, while considering regulatory standards, quality assurance mechanisms, and evidence requirements for policy adoption.

3

Developing Markets and Value Chains for Specialty and Biofortified Rice

The workshop placed significant attention on market creation rather than production alone. Discussions covered branding, consumer awareness, certification, export opportunities, digital commerce platforms, and the role of private enterprises in building demand for healthier rice domestically and internationally.

4

Strengthening Farmer Institutions and Local Enterprises

Recognizing the role of FPOs, cooperatives, and community-based organizations, the workshop focused on how these institutions could be better supported through infrastructure, financing, processing facilities, and market linkages. The aim was to move farmer collectives from production-focused entities to organized market players.

5

Linking Nutrition Science with Agricultural Practice

A cross-cutting theme was the integration of nutrition science with agricultural production. Experts from public health, research institutions, and medical sectors discussed the bioavailability of nutrients, dietary implications of biofortified rice, and the importance of credible evidence in shaping both consumer behavior and policy decisions.

6

Promoting Public-Private-Farmer Partnerships

The workshop confirmed the need for collaborative models involving government agencies, research organizations, private companies, and farmer institutions. Such partnerships were seen as essential for innovation, risk-sharing, and long-term sustainability of healthier rice initiatives.

The workshop confirmed the need for collaborative models involving government agencies, research organizations, private companies, and farmer institutions. Such partnerships were seen as essential for innovation, risk-sharing, and long-term sustainability of healthier rice initiatives.

Together, these focus areas shaped the structure of the technical sessions and panel discussions, ensuring that the workshop addressed not only the agronomic and nutritional potential of healthier rice but also the institutional, commercial, and policy pathways necessary for its large-scale adoption.

INAUGURAL SESSION

1. OVERVIEW REMARKS | Dr. Mosharaf Hossain (IRRI, India)



Dr. Mosharaf Hossain formally welcomed participants to the two-day workshop titled "Positioning and Scaling Healthier Rice in Odisha's Agri-Food System." He noted that the workshop was part of a project supported by DA&FE, Govt. of Odisha, aimed at advancing, evaluating, and mainstreaming healthier rice varieties in the state.

He highlighted that healthier rice is still an emerging concept in Odisha, with multiple stakeholders experimenting with varietal performance, nutritional benefits, and market pathways. The central questions guiding the workshop were:

- Can healthier rice deliver better nutrition outcomes?
- Can it also improve farmers' incomes?

Dr. Hossain acknowledged the presence of key institutions and partners, including DA&FE, Mission Shakti, Odisha University of Agriculture and Technology (OUAT), Odisha State Seed & Organic Products Certification Agency (OSSOPCA), ICAR- Central Rice Research Institute (CRRRI) and Indian Institute of Rice Research (IIRR), ICMR-NIN, National and State Seeds Corporations, Consultative Group on International Agricultural Research (CGIAR) institutions, HarvestPlus, APEDA, National Bank for Agriculture and Rural Development (NABARD), private companies, start-ups, FPOs, and farmer representatives.

He then invited dignitaries to the dais and handed over the floor to Dr. Swati Nayak (IRRI South Asia) for the inaugural and welcome remarks.

2. INAUGURAL & WELCOME REMARKS | Dr. Swati Nayak (IRRI, South Asia)



Dr. Nayak framed the workshop as a multi-stakeholder effort rather than a single-institution initiative, emphasizing the need for convergence across research, policy, seed systems, markets, and nutrition.

She noted that India has successfully achieved rice self-sufficiency and emerged as a major exporter but stressed that the next frontier must move from food security to nutrition security. The priority should now be rice that delivers health benefits, not just calories. She mentioned recent scientific advances that have led to zinc-rich rice, protein-rich rice and low glycemic index (GI) rice. She noted that these varieties were beginning to enter formal seed systems, but that significant work remained to ensure they reached farmers, markets, and consumers at scale.

Dr. Nayak thanked the Government of Odisha, particularly Dr. Arabinda Kumar Padhee, Additional Chief Secretary, DA&FE, Govt. of Odisha, for his visionary leadership in making Odisha nutrition-sensitive in its agricultural planning. She presented key achievements of the ongoing project:

- Targeted 15,000 households across 6,000 ha
- Established 32 varietal cafeterias
- Conducted demonstrations across 4,030 ha
- Supported 800 farmer-led mini trials featuring 16 healthier rice varieties
- Infused 1.8 tons of breeder seed, enabling multiplication of 95 tons of quality seed
- Three FPOs marketed 3 tons of milled specialty rice at an average premium of ₹80/kg
- Nearly 30 tons processed into value-added products such as flattened rice

She also emphasized the central role of women farmers and women-led FPCs, positioning them as seed entrepreneurs, aggregators, and market actors.

Dr. Nayak concluded that healthier rice represents not just an agricultural intervention but a shift from acceptance to adoption, and from pilots to statewide scale.

A short documentary film showcasing project progress was screened following her address.

3. WELCOME REMARKS | Dr. Sudhanshu Singh (Director, IRRI South Asia Regional Centre, Varanasi)



Dr. Singh commended DA&FE, Govt. of Odisha, for its leadership in promoting specialty rice, describing the state as one of India's most proactive players in this space.

He noted that India's massive rice production (over 150 million tons) came at a cost- high water use and fertilizer subsidies- making diversification toward specialty rice both economically and environmentally necessary.

He argued that Odisha has the potential to become the "Australia of India" in low-GI and specialty rice exports, citing Australia's success in commanding premium prices in global markets.

Dr. Singh emphasized that this project goes beyond "lab-to-land," integrating:

- On-farm varietal testing
- Seed system strengthening
- Women's empowerment
- Value chain development
- Market linkage creation

He highlighted the importance of agronomy for specialty rice, noting that proper nutrient and water management are critical to achieving desired grain quality and nutritional traits. He also made a strong public health case:

- India faces widespread hidden hunger (zinc, iron, and protein deficiencies).
- Simultaneously, diabetes prevalence is rising due to excessive refined carbohydrate intake.
- Specialty rice can address both problems simultaneously.

He concluded that Odisha could lead a national transformation in healthier rice value chains.

4. WELCOME REMARKS | Dr. Michael Quinn (IRRI, Philippines))



Dr. Quinn described the initiative as part of a global shift from “more rice” to “better rice” as consumers are increasingly concerned about nutrition, glycaemic index, and grain quality.

He highlighted IRRI's efforts in:

- Genomics-assisted breeding
- High-throughput phenotyping
- Sensory and cooking quality evaluations
- Multi-location on-farm trials

He noted that Odisha plays a critical role as a *real-world testing ground*, with trials across Bhadrak, Mayurbhanj, Ganjam, and Bolangir helping refine varietal targeting. He stressed that scaling healthier rice requires:

- Reliable seed systems
- Identity preservation
- Certification mechanisms
- Branding and market alignment

Dr. Quinn concluded that the ultimate goal is a sustainable product pathway linking breeding innovations to farmer incomes, consumer health, and public nutrition outcomes.

5. SPECIAL ADDRESS | Dr. G.A.K. Kumar (Director, ICAR-CRRI, Cuttack)



Dr. Kumar raised two critical bottlenecks for scaling specialty rice:

1. MSP Parity Issue:

- Specialty rice receives the same MSP as regular rice.
- Many specialty varieties have slightly lower yields.
- Without higher MSP or incentives, farmers avoid these varieties.

2. Seed System Sustainability:

- He referred to CRRI's **4S4R model** (Self-Sufficient, Sustainable Seed System for Rice).
- Strong FPO-based seed infrastructure is essential.
- Continuous breeder seed supply must be ensured beyond project timelines.

He also highlighted Odisha's strength in aromatic small-grain rice exports from Koraput, Kandhamal, and Mayurbhanj, positioning the state as a natural hub for specialty rice.

6. SPECIAL ADDRESS | Dr. R.M. Sundaram (Director, ICAR-IIRR, Hyderabad)



Dr. Sundaram called the workshop a historic moment in India's transition from food security to nutrition security.

Key points:

- Rice contributes 60-70% of caloric intake in Odisha and other coastal states.
- If rice is nutritionally poor, other interventions will have limited impact.
- Biofortification is therefore a public health strategy, not just an agricultural one.

He highlighted scientific progress under the All India Coordinated Research Project (AICRP) on Rice, noting that many new varieties now combine:

- High yield
- Climate resilience
- Higher zinc and iron
- Lower glycemic index

Examples cited included:

- High-protein varieties: CR Dhan 310, CR Dhan 324
- High-zinc varieties: DRR Dhan 45, DRR Dhan 48, DRR Dhan 49, DRR Dhan 63, Spoorthi

- Low-GI lines: improved Samba Mahsuri and Telangana Sona

He proposed five strategic directions:

1. Mainstream biofortification in breeding programs
2. Integrate biofortified rice into public nutrition programs (PDS, Pradhan Mantri (PM) POSHAN, Integrated Child Development Services (ICDS))
3. Develop premium domestic and export markets
4. Promote women-led FPO value chains
5. Use digital tools for traceability and identity preservation

He recommended launching an *Odisha Healthier Rice Mission*, similar to the successful Odisha Millet Mission.

7. KEYNOTE ADDRESS | Smt. Lity Pattanaik (Additional Director, DA&FE, Govt. of Odisha)



Smt. Pattanaik emphasized that rice is not just a crop but the cultural foundation of Odisha's food system.

She noted:

- Odisha cultivates ~36 lakh ha in Kharif and 3.5 lakh ha in Rabi seasons.
- Fertilizer use has risen sharply (5.5 lakh tons of urea in 2025), signalling the need for more sustainable pathways.

She outlined DA&FE's efforts in specialty rice, including:

- Trials of farmers' varieties
- Value addition initiatives (biofortified cookies, nutritious flattened rice)
- Export stakeholder consultations
- Exploration of a state-level export policy

She identified four pillars for scaling healthier rice:

1. Stable seed system
2. Climate resilience
3. Women's leadership
4. Market demand & consumer awareness

She strongly supported the inclusion of specialty rice in PM POSHAN (mid-day meals) and other public nutrition programs.

8. ADDRESS BY THE CHIEF GUEST | Prof. Prabhat Kumar Roul (Vice Chancellor, OUAT)



Prof. Roul linked rice to Odisha's identity, culture, and history. He highlighted persistent malnutrition despite agricultural success, particularly deficiencies in iron, zinc, and vitamin A.

He outlined that OUAT's contributions include the development of biofortified varieties such as Prabha, Padmaja, Sampada, Namrata, and Shreepada

He made an important point about changing food perceptions: foods once considered "poor man's food" (millets, jaggery, colocasia, red rice) are now premium products. The same shift can happen with healthier rice.

He noted that six popular Odisha varieties screened by IRRI showed low GI, including Lalata and improved Samba Mahsuri.

He emphasized that low GI is influenced not only by genetics but also by processing and cooking methods, calling for collaboration with food technologists and civil society.

9. VOTE OF THANKS | Ms. Subhasmita Mohapatra (IRRI, India)



In her Vote of Thanks, Ms. Mohapatra expressed gratitude to:

- DA&FE, Govt. of Odisha;
- Dr. Arabinda Kumar Padhee for his strategic leadership;
- Chief Guest Prof. Prabhat Kuar Roul and other dignitaries;
- Institutions under ICAR, ICMR, and other Government of India agencies;
- FPOs, the private sector, and the media; and
- The organizing team led by Dr. Mosharaf.

She concluded the session by inviting participants to a group photograph.

TECHNICAL SESSIONS

SESSION OVERVIEW | Moderator: Dr. Arindam Samaddar (IRRI, India)



The Technical Session was designed to bridge strategic vision with practical implementation pathways for healthier rice in Odisha and India. The moderator emphasized that the session was not conceptual but action-oriented, aimed at consolidating Odisha's emerging experience into a scalable roadmap that connects research, seed systems, markets, policy, and community institutions.

Odisha was highlighted as uniquely positioned to lead this transition, given its substantial paddy production (nearly 11 million tonnes annually), strong research ecosystem, proactive state government engagement, and demonstrated experience with participatory varietal selection, decentralized seed multiplication, and multi-district capacity building.

The session was structured around six interlinked dimensions:

1. Global research strategy on healthier rice
2. Scientific advancements in biofortification
3. Research-policy alignment
4. Nutritional positioning of rice
5. State-level policy leadership
6. Field-level delivery and seed system innovations

SESSION 1 - IRRI'S GLOBAL STRATEGY AND VISION FOR HEALTHIER RICE

Speaker: Dr. Sankalp Bhosale, Deputy Platform Leader – Rice Breeding Innovations, IRRI



Dr. Bhosale outlined IRRI's evolving global strategy that moves beyond yield-centric rice production toward a more integrated vision encompassing nutrition, health, climate resilience, farmer livelihoods, and market value.

He emphasized that rice is consumed daily by nearly two billion people, making it a powerful and scalable vehicle for improving nutrition. Rather than treating rice as merely a calorie source, IRRI is working to reposition it as a healthier staple through:

- Low glycaemic index (GI) rice
- Zinc- and protein-rich biofortified varieties
- Climate-resilient high-performing cultivars

He clarified that IRRI is not seeking to convert rice into a "multivitamin pill," but to ensure that commonly consumed rice varieties deliver measurable health benefits without compromising yield or farmer income.

Dr. Bhosale noted that IRRI's 2023 Global Strategy explicitly integrates:

- Nutrition security
- Climate adaptation
- Environmental sustainability
- Farmer profitability
- Consumer health

Markets were identified as a central driver of change. While rice has sometimes been criticized for its carbohydrate content, improved nutritional profiles and diversified product portfolios can reshape consumer perception.

Odisha was described as a potential "lighthouse state" for healthier rice, demonstrating how breeding innovations, seed systems, value chains, and policy alignment can converge into a replicable model for other states and countries.

SESSION 2 - RECENT DEVELOPMENTS IN BIOFORTIFIED RICE IN INDIA

Speaker: Dr. Krishnendu Chattopadhyay, Principal Scientist, ICAR-CRRI



Dr. Chattopadhyay presented a comprehensive scientific overview of biofortified rice development in India, particularly focusing on high-protein and high-zinc varieties.

Key points included:

- Biofortification approach: Genetic enhancement of crops to improve nutrition through regular consumption- a one-time breeding investment with long-term benefits.
- Development of high-throughput screening using Near Infrared Spectroscopy (NIRS).
- Identification of donor germplasm (ARC 10075) with 12-14% protein content.
- Successful backcross breeding with popular varieties such as Swarna and Naveen.
- Zinc screening using XRF, with germplasm ranging from 7.3 to 52.7 mg/kg in brown rice.

He highlighted several nationally released biofortified rice varieties, including:

- CR Dhan 310, CR Dhan 311, CR Dhan 315, CR Dhan 324, CR Dhan 411
- DRR Dhan 45, DRR Dhan 48, DRR Dhan 49, DRR Dhan 63

- Chhattisgarh Zinc Rice-1 and Chhattisgarh Zinc Rice-2
- Zinco Rice-MS

Since 2016-17, breeder seed demand for biofortified rice has expanded significantly, with estimated coverage exceeding 1.68 million hectares. CR Dhan 310 has emerged as a wide biofortified variety at scale.

Dr. Chattopadhyay stressed that public procurement integration (PDS and PM POSHAN) and structured incentives are critical for sustained adoption.

SESSION 3 - RESEARCH AND POLICY PATHWAYS FOR HEALTHIER RICE

Speaker: Dr. Meenakshi Singh, Chief Scientist, CSIR



Dr. Singh focused on the intersection of nutrition policy and rice fortification.

She explained India's rice fortification strategy using FRKs blended with normal rice, regulated under the Food Safety and Standards Authority of India (FSSAI) Fortification Standards (2018).

She highlighted integration with major national programs:

- Public Distribution System
- ICDS through Anganwadi centres
- PM POSHAN (Mid-day school meals)

“Fortification addresses immediate deficiency; biofortification builds long-term nutritional resilience.”

Dr. Meenakshi Singh

- PM Garib Kalyan Anna Yojana (PMGKAY)

By March 2024, fortified rice coverage reached 100% across central welfare schemes, with ₹17,082 crore allocated for 2024-2028.

She positioned biofortified rice as a complementary strategy, more sustainable and embedded in agriculture, rather than an alternative to fortification.

SESSION 4 - POSITIONING HEALTHIER RICE FOR NUTRITIONAL SECURITY

Speaker: Mr. Ravinder Grover, COO, HarvestPlus Solutions



Mr. Grover emphasized that healthier rice must reach scale, not remain a niche premium product.

His three core principles:

1. Nutrition must be *easy to adopt*
2. Must be *affordable*
3. Must become *normalized in daily diets*

He warned against treating healthier rice like organic food, beneficial but limited in reach.

He highlighted that women are the primary decision-makers in household food choices and must be central to awareness campaigns. Children were identified as another priority demographic for long-term nutritional impact.

SESSION 5 - ODISHA'S POLICY PRIORITIES FOR SPECIALTY RICE

Speaker: Mr. Shubhramshu Mishra, Additional Secretary, DA&FE, Govt. of Odisha



Mr. Mishra reiterated that rice must remain central to Odisha's food system while evolving to become more nutritious. He stressed the importance of reinforcing integrated food system alongside specialty rice promotion, rather than encouraging over-reliance on a single commodity.

Key policy directions included:

- Recalibrating incentives to favor specialty rice (e.g., Samruddha Krushak Yojana)
- Anchoring healthier rice within government procurement and distribution mechanisms (e.g. PDS with 90% coverage in Odisha)
- Sustainability and regenerative agriculture to prevent further soil degradation
- Developing district-level FPO-based production clusters and seed hubs
- Promoting women-led FPOs in processing activities
- Strengthening certification and traceability
- Branding specialty rice with a focus on consumer awareness
- Exploring premium domestic and export markets

He also highlighted plans for a specialty rice and millet processing facility in Bhubaneswar in collaboration with IRRI.

SESSION 6 - SEED SYSTEM INNOVATIONS AND FIELD LEARNINGS

Speaker: Dr. Swati Nayak, South Asia Lead for Seed Systems, IRRI



Dr. Nayak emphasized that farmers adopt varieties based on yield first, nutrition second, making competitive agronomic performance essential.

She highlighted:

- Rising breeder seed demand for nutritious rice
- Importance of both formal and informal seed systems
- Hub-and-spoke seed model piloted in Odisha
- “Seeds Without Borders” approach for faster varietal exchange
- Participatory varietal selection and farmer-managed trials

Her conclusion:

“Scaling healthier rice requires convergence across seed systems, markets, consumer awareness, and enabling policies.”

Audience Recommendations

1. Agronomy & Nutrient Integrity

- Develop localized agronomic practices
- Promote low-input systems where appropriate

2. Standardization & Trials

- Multi-location trials for nutrient consistency
- Variety-specific management protocols

3. Incentives & Traceability

- Production bonuses for specialty rice
- Portable nutrient testing analyzers (XRF analyzers)
- End-to-end traceability systems

4. Seed Systems

- Strengthen the supply of indigenous aromatic and nutrient-rich varieties
- Provide technical support to farmers

5. Market & Export Infrastructure

- HSN codes for specialty rice
- Port-linked export ecosystem
- Container-scale shipment facilities

6. Indigenous Landraces

- Catalog and profile local varieties
- Promote Kalijira, Bora, and Govind Bhog for premium markets

PANEL DISCUSSION 1:

STRENGTHENING SEED SYSTEMS FOR HEALTHIER RICE

MODERATOR | Dr. Pallavi Sinha (IRRI, India)



The session focused on how seed systems can enable the scaling of healthier rice by ensuring the right varieties, in the right quality, at the right time, and at the right price. The moderator emphasized that strengthening seed systems requires simultaneous action on supply (quality seed production), demand (clear market signals), and policy (procurement and incentives).

She highlighted that farmers need reliable access to certified seed that delivers good yield and stable performance, while seed producers require predictable demand to plan multiplication and reduce business risk. The discussion brought together state seed corporations, national seed agencies, cooperatives, and private-sector actors to examine practical pathways to strengthen seed systems for healthier rice.

KEY PANEL INSIGHTS

1. Sri Niti Ranjan Sen, MD, OSSC (Odisha) on Demand for Healthier Rice and Institutional Enablers

- OSSC works with 6,000 registered seed growers linked through the SATHI portal and produces, processes, and markets certified seed, including biofortified and low-GI rice varieties.
- There is a visible and growing demand for healthier rice in Odisha, particularly for varieties such as DRR Dhan 63, DRR Dhan 67, DRR Dhan 69, DRR Dhan 48, and CR Dhan 411.



- Certification is ensured through two-stage testing by OSSOPCA- field inspection and laboratory testing.
- While Odisha already offers MSP + 27-30% for fine, superfine, and scented rice, he recommended higher premiums for healthier rice to motivate farmers.
- Proposed the idea of "Seed on Wheels"- mobile seed delivery to ensure last-mile access to certified seed and reduce reliance on uncertified seed in local markets.
- Suggested a state-targeted production programme for healthier rice, with OSSC playing a lead role in multiplication and dissemination.

2. Dr. Pankaj Kumar Tyagi, GM (Production) & Head (QC), NSC on National-Level Seed Deployment and Future Scale-Up

- National Seeds Corporation (NSC) produces 15-20 lakh quintals of seed annually, of which around 2.5 lakh quintals are paddy seed, and only ~15% currently belongs to healthier rice.
- The major bottleneck is weak demand, not weak supply. If demand rises, NSC is fully capable of scaling production.
- Demand must originate from consumer awareness, which then transmits backward to retailers, millers, and seed producers.
- Suggested a 5-year rolling seed plan with clear targets for healthier rice, so breeder seed can be multiplied in advance.
- Recommended pre-agreed procurement quantities and prices to reduce risk for seed growers.



- Proposed formal MoUs with states/agencies to align breeder seed indents with long-term demand.
- Highlighted the usefulness of the SATHI portal for tracking biofortified seed uptake and planning future production.
- Concluded that NSC is ready to partner with states like Odisha through structured agreements.

3. Dr. Jayaprakash T., Head - Supply Chain & R&D, BBSSL on Building Credible Demand for Healthier Rice

- BBSSL (est. 2023) works with 3,000+ cooperatives, with a strong focus on traditional varieties.
- Suggested that scaling should be market-led, not research-led; demand must be anchored first.
- Identified key challenges:
 - Fragmented markets, as in the case of varieties with GI (Geographical Indication) tagged varieties
 - Weak and inconsistent demand
 - Risk of losing nutritional uniqueness while improving yield
- Emphasized that the premium minimum support price (MSP) alone is not enough; value chain development is essential.
- Recommended decentralized scaling models for landraces, as their nutritional qualities are location specific.



- Suggested leveraging cooperatives as seed producers and market aggregators, especially in Koraput, where many landraces originate.
- Proposed linking landrace projects with BBSSL for faster commercialization and community ownership.

4. Dr. Manjul Pratap Singh, Founder, Oryzo Riceghar Agroworld Pvt. Ltd on Commercialization and Marketization of Healthier Landraces



- Stressed that consumer demand drives everything; once consumers demand healthier rice, seed systems, farmers, and investors will follow.

- Called for a mass national awareness campaign for healthier rice, similar to historic campaigns for milk or eggs.
- Cited the example of Kalanamak rice in Uttar Pradesh:
 - If even 40% of the potential area were shifted to Kalanamak, seed demand would rise to ~15,000 tons, forcing a strong seed system response.
- Farmers need at least 15-20% higher profit than HYVs to switch to specialty rice.
- Highlighted the need for:
 - Farmer training on seed quality
 - Local seed testing and storage facilities
 - District-level training centres
 - Government-supported processing infrastructure
- Warned that high-priced niche markets will not scale as affordability is essential for mass impact.

5. Mr. Yogesh Kumar, Joint Chief Seed Production Officer, Uttar Pradesh Beej Vikas Nigam on Constraints in Uttar Pradesh



- UP Beej Nigam produces about 20,000 quintals of paddy seed annually, including some biofortified varieties.
- Key constraints:
 - Limited number of suitable biofortified varieties for UP agro-ecologies

- Very low farmer awareness
- No procurement premium over MSP
- Farmers prefer high-yielding varieties, especially in western UP (Basmati belt)
- Biofortified rice quality varies across regions, affecting trust and demand.
- UP Beej Nigam can supply seed if demand is confirmed well in advance but will not produce without an assured offtake.
- Recommended state-level subsidies or price incentives to motivate farmers to adopt healthier rice.

AUDIENCE DISCUSSION- KEY TAKEAWAYS

On seed access and market linkages

- Dr. Tyagi (NSC) reiterated that seed availability is not the problem, but demand is.
- NSC is willing to train FPOs and farmers in seed production.
- Farmers will adopt biofortified rice only if it is high-yielding or comes with a price premium.

On the Draft Seed Bill and farmer varieties

- Concern raised that the draft bill lacks provisions for registering farmer varieties/landraces.
- Dr. Tyagi clarified that registrations under the PPV&FR Act (2001) will continue, even after the new Seed Bill.
- Dr. Jayaprakash stressed that 98% genetic purity should be the standard target, even for traditional varieties.

Additional suggestions from Dr. R.M. Sundaram (ICAR-IIRR)

- Demonstrate the health benefits of biofortified rice through Anganwadi distribution, scientific studies, and peer-reviewed publications.
- Introduce nutrient testing devices in mandis and markets to verify claims.
- Clearly display the unique selling point (USP) of the products (zinc, protein, low-GI, etc.) on seed labels.

Dr. Tyagi agreed that clearer labeling norms are needed and suggested bringing organic certification agencies onto platforms like SATHI to ensure end-to-end traceability.

OVERALL CONCLUSIONS FROM PANEL DISCUSSION

The panel collectively agreed that:

1. Seed systems are not failing due to supply, but they are constrained by demand and policy clarity.
2. Scaling healthier rice requires:
 - A five-year rolling seed plan
 - Assured procurement and price incentives
 - Stronger consumer awareness campaigns
 - Cooperative and FPO-led seed production
3. Traditional landraces need decentralized, community-driven scaling models.
4. Trust, traceability, and labelling are as important as seed quality itself.

PANEL DISCUSSION 2: BUILDING MARKETS FOR HEALTHIER RICE

MODERATOR | Dr. Mosharaf Hossain (IRRI, India)



Dr. Mosharaf Hossain positioned the discussion around a critical shift - from a production-first mindset to a market-first approach for healthier and specialty rice. He emphasized that while agronomic and nutritional advancements are essential, the real bottleneck for scaling healthier rice lies in demand creation, value chain development, institutional coordination, and financing mechanisms.

He guided the panel to focus on:

- How public institutions, private companies, research organizations, and FPOs can collaborate to build reliable markets.
- The role of branding, certification, and quality consistency.
- The importance of evidence-based marketing rather than generic promotion.
- Financing and institutional support for FPOs to participate meaningfully in markets.

The session brought together perspectives from exports (APEDA), private health-food markets (Sugar Watchers), development finance (NABARD), organic exports (PraTithi), and policy-linked value chains (Palladium).

KEY PANEL INSIGHTS

1. Smt. Vinita Sudhanshu, General Manager (FFV), APEDA on Positioning Indian Specialty Rice in Global Markets



- Rice constitutes 24% of APEDA's total agri-exports, and India currently holds 29% of the global rice export market.
- India has traditionally been a commodity rice exporter, but APEDA is now deliberately repositioning the country as a supplier of specialty and healthier rice.
- APEDA is collaborating with IRRRI to scientifically profile specialty rice varieties based on nutritional attributes to strengthen export credibility.

Case of Japan - A strategic market entry

- APEDA identified Japan as a promising destination for Indian sticky rice.
- Fourteen varieties were shortlisted; IRRRI profiled them for stickiness and cooking quality.
- Seven varieties were found suitable for Japanese cuisine.
- Roadshows were conducted in Tokyo and Osaka, with international chefs preparing dishes using Indian rice.
- Positive reception led to buyer interest- signalling that market building requires patience, demonstration, and credibility rather than quick sales.

New export classification breakthrough

- Earlier, India exported rice only under two categories: Basmati and Non-Basmati.
- A third category, Low GI Rice, has now been officially recognized for exports.
- This is a significant policy shift that creates space for healthier rice in global trade.

APEDA's strategic priorities for specialty rice exports

- Quality consistency
- Scientific profiling
- Branding ("India as a trusted supplier")
- Value addition rather than raw commodity exports

2. Mr. Treman Singh Ahluwalia, Founder & MD, Sugar Watchers on Creating and Sustaining Consumer Demand in India



Mr. Ahluwalia was very direct:

"Health must be affordable, tasty, and trustworthy, otherwise it won't scale."

Key points:

- Post-COVID, Indians are more health-conscious, but taste and price still dominate decisions.
- Indian households, especially women, are extremely careful about food spending. They will pay more only if they see clear value.

- Sugar Watchers spends around ₹60 per kg on marketing and promotion, because demand does not emerge on its own.
- Traditional TV advertising is declining; D2C platforms (Amazon, social media, digital marketing) are now critical.
- Nutritionists and dieticians act as brand ambassadors as they test products within their own families before recommending them.
- Repeat purchase is the true test of success; without it, the business model fails.

On contracting farmers

- Sugar Watchers pays 20% above the regular procurement price to compensate for lower yields of specialty varieties.
- They commit to buying the entire produce, even if they incur losses (as happened during COVID).

On processing and quality

- Cutting corners in processing destroys brand reputation.
- A brand can take years to build but minutes to lose.

On exports and standards

- Countries like Singapore do not accept Indian lab reports; startups must test products in approved international labs, thus raising costs.
- Singapore teaches glycemic index in Class 10, which he suggested India should emulate for inducing health consciousness in future generations

His closing message:

If research agencies, government, seed companies, and entrepreneurs align, India can become a global hub for branded, healthier rice.

3. Mr. Deepak Kumar Sahoo, DDM, NABARD, Bhubaneswar on Supporting FPOs and Agri-Enterprises

NABARD's role includes:

- Promoting FPOs since 2012 to strengthen farmer incomes through collective marketing.
- Providing training, capacity building, infrastructure grants, and business development support.
- Offering credit through NABKISAN Finance Limited for infrastructure such as processing units and storage.
- Supporting branding, packaging, and retail outlets for FPO products.
- Running agri-incubation centres where startups can test, innovate, and refine products, including biofortified and low-GI rice.

On market access for healthier rice



- NABARD does not expect FPOs to do everything themselves. Instead, they should plug into existing market networks.
- NABARD promotes ONDC (Open Network for Digital Commerce) to help FPOs access digital markets.
- Through the AgriSURE Fund, startups working on healthier rice can receive support.

Model examples

- In Karnataka, NABARD supported FPO clusters with common processing facilities (e.g., chilli processing).
- Similar models can be adapted for healthier rice, especially milling, sorting, and packaging, as current volumes are low

4. Dr. Tapan Ray, Founder Director, PraTithi Organic Foods on Integrating Specialty Rice into Domestic and Global Value Chains

Dr. Ray emphasized that India's non-basmati basket is a hidden treasure that remains largely unexplored.

Key insights:

- APEDA has helped place Indian rice on the global map, but much more can be done.
- India should first perfect domestic profiling, branding, and quality before aggressively pushing exports.
- Soil health and microbial diversity in organic farming contribute to superior grain quality- something global consumers value.



Export experiences

- PraTithi began with Kalijira (Tripura), red rice, bao, and bora (Assam) for Europe and North America.
- Retailers like SPAR now sell Govind Bhog, backed by full varietal profiling.
- For red rice, PraTithi developed innovative recipes (e.g., red rice salad with quinoa) to make it more acceptable to Western consumers.

Challenges in Europe

- Strict testing for heavy metals (especially arsenic).
- Indian lab reports are often not accepted; additional international testing is required.
- Consistency in quality remains a major hurdle.
- Odisha rice sometimes faces a higher arsenic risk due to soil conditions, requiring careful management.

Because of these challenges, PraTithi invested in its own processing facilities to control quality.

His recommendation to IRRI:

“Start with rigorous profiling and identification of the right varieties and markets will follow.”

5. Mr. Abhijeet Mohapatra, Palladium Consulting on Supporting Odisha’s Rice-Based Industry

Palladium is helping the Government of Odisha design an FPO-linked rice export policy, focusing on:

- Strengthening institutional frameworks for FPOs



- Improving market readiness and compliance
- Upgrading quality standards
- Building business skills among farmer collectives

He stressed that:

- Production alone will not create markets.
- Awareness, processing infrastructure, branding, and buyer confidence are equally important.

He highlighted ongoing work by IRRI and IFPRI at the farm level and suggested aligning their research with FPO-led business models so that healthier rice becomes embedded in Odisha's rice economy rather than remaining a project-based initiative.

OVERALL CONCLUSIONS FROM PANEL 2

The panel collectively agreed that:

1. Markets, and not seed or production, are the binding constraint for healthier rice.
2. Exports require:
 - Scientific profiling
 - Consistent quality
 - International lab validation
 - Strong branding
3. Domestic demand requires:
 - Mass awareness campaigns

- Affordable pricing
 - Trusted certification and labeling
 - Visible health benefits
4. FPOs need:
- Infrastructure support
 - Digital market access (ONDC)
 - Incubation and branding assistance
 - Access to affordable credit
5. The path forward should integrate:
- APEDA's export strategy
 - NABARD's financing and FPO support
 - Private sector branding (like Sugar Watchers, PraTithi)
 - IRRI/IFPRI's research and field engagement

This panel effectively set the stage for Panel 3 (Embedding Healthier Rice in Policy and Public Programs) by establishing that without structured markets, healthier rice will remain promising, but not transformative.

PANEL DISCUSSION 3: EMBEDDING HEALTHIER RICE IN POLICY AND PUBLIC PROGRAMS

MODERATOR | Dr. Uma Maheswar Singh (IRRI, India)



Dr. Singh framed the discussion around a necessary shift in India's rice narrative, from food sufficiency to nutritional adequacy. While the country has achieved impressive gains in rice production, emerging challenges such as micronutrient deficiencies, anaemia, diabetes, and soil degradation call for a reorientation of rice policy toward health, quality, and sustainability.

He emphasized that policy is the most powerful lever shaping what farmers grow, what FCI procures, what states distribute, and what consumers ultimately eat. The panel therefore examined how biofortified and low-GI rice could be systematically embedded within India's public food, nutrition, and procurement systems.

The session brought together perspectives from nutrition science (ICMR-NIN), development research (IFPRI), public procurement (FCI), market standards (DMI), and clinical nutrition (CARE Hospital).

KEY PANEL INSIGHTS

1. Dr. Mamata Pradhan, IFPRI on Adoption of Biofortified Rice—Barriers and Pathways

Drawing on IFPRI's work with HarvestPlus, Dr. Pradhan shared that biofortified crops have succeeded in certain contexts (notably zinc wheat), but rice faces unique challenges in India because:



- Rice is highly heterogeneous in consumer preference across regions, making uniform scaling difficult.
- Public procurement and PDS dominate the rice economy, yet biofortified rice is not clearly integrated into these systems.
- Consumers are unwilling to pay a premium for biofortified rice without clear, trusted information on benefits.
- Farmers hesitate without assured markets, yield parity, or price incentives.
- Biofortification remains largely "invisible" to consumers due to weak public awareness and branding.

She also pointed to two layers of competition:

1. Between biofortified rice and biofortified millets

The moderator added that IRRI is developing eight to ten promising biofortified rice lines, suggesting that yield constraints may no longer be a major barrier in the near future.

2. Dr. Guru Prasad Das, Nutritionist, CARE Hospital on Public Health Value of Biofortified Rice & Role of Health Institutions

Mr. Das emphasized that biofortified foods generally offer better nutrient bioavailability than external supplementation, though absorption depends on food composition (e.g., phytic acid and polyphenols can inhibit iron and zinc uptake).

“Valuation must precede demand - credible information on health benefits, visible branding, and either yield parity or price incentives are essential for scaling.”

Dr. Mamata Pradhan



He drew parallels with iodized salt as a successful nutrition intervention and noted that:

- Zinc supports immunity and respiratory health.
- Vitamin A supports vision.
- Vitamin C enhances iron absorption.
- Fat improves vitamin A bioavailability.

**Medical endorsement
builds legitimacy and trust.**

Dr. Guru Prasad Das

He suggested that the Health System can be a game changer by:

- Training doctors, nurses, and paramedics on the benefits of healthier rice.
- Disseminating educational materials in hospitals and clinics.
- Advising outpatients on consumption of biofortified foods.
- Procuring healthier grains for hospital meals.

3. Mr. Pushp Vanam, AGM (QC), FCI on Fortified vs Biofortified Rice in PDS – FCI Perspective

Mr. Vanam explained that FCI currently distributes around 40 million tonnes of fortified rice annually, enriched with iron, folic acid, and vitamin B12 through FRKs. This entails an additional government cost of approximately ₹3,000 crore.

He acknowledged that biofortified rice could reduce this expenditure in the long run, but emphasized that:

- Biofortified rice must meet FSSAI-approved standards before PDS inclusion.
- Bioavailability of nutrients must be scientifically documented.
- Fortified rice provides multiple micronutrients, whereas biofortified rice may not cover all.

- Long-term studies are needed before large-scale replacement.



His pragmatic view: biofortified rice should be complementary, not a replacement, especially in high-anaemia regions.

He also clarified that FCI supplies rice as per state preference; hence, Odisha receives parboiled rice in line with local consumption habits.

4. Mr. Bijay Kumar Prusty, Directorate of Marketing & Inspection, MoA&FW on Standards, Regulation & Market Credibility for Healthier Rice

Mr. Prusty noted that while DMI has a mandate for quality assurance and awareness, it has historically focused more on standards than on the promotion of healthy food.

Key points:

- Agriculture Marketing (AGMARK) standards exist for basmati and certain aromatic non-basmati rice (e.g., Kala Jeera, Govind Bhog).
- No standards yet exist for low-GI or biofortified rice, but DMI is open to developing them upon stakeholder request.
- Establishing standards requires about 200 samples from multiple geographies and can take up to 1.5 years.

On supporting FPOs and cooperatives

- DMI provides AGMARK certification at a highly subsidized rate (₹500) to eligible FPOs with processing facilities.
- Over 5,000 FPOs are integrated with eNAM (National Agricultural Market), enabling national market access.
- Certification helps FPOs sell value-added rice products across India with credibility.



He also noted that Odisha has not yet formally requested standards for healthier rice, but DMI is ready to act once samples are submitted.

5. Dr. Rajendra Ananthan, Scientist, ICMR–NIN on Public Health & Policy Feasibility of Biofortified/Low-GI Rice



Dr. Ananthan highlighted ICMR-NIN's role in shaping nutrition policy through:

- Indian Food Composition Tables (latest 2017).

- Recommended Dietary Allowances (RDA).
- Dietary Guidelines for Indians (DGI, 2024).

He stated that biofortified rice is not a replacement, but a strong complement to existing nutrition strategies. However, he cautioned that:

- More large-scale dietary studies are needed, especially on bioactive compounds like anthocyanins.
- Cooking methods significantly affect nutrient retention and absorption.
- A standardized framework is required to decide which biofortified traits should be prioritized.

He referred to the new ICMR-ICAR initiative “*Agriculture for Health*”, which aims to link crop science with nutrition outcomes.

His programmatic recommendation:

- Begin with vulnerable groups- children, adolescents, and women.
- Use PDS as an entry point for mainstreaming healthier rice.
- Encourage farmer self-consumption of nutritious varieties.

AUDIENCE DISCUSSION- KEY TAKEAWAYS

- Odisha's Millet Mission offers a model for promoting biofortified rice through state-led campaigns.
- Branding, labelling, and digital media communication will be critical to create urban demand.
- Clear nutritional claims and certification are needed to build trust.
- Integration with PDS, ICDS, and PM POSHAN can accelerate adoption.

OVERALL CONCLUSIONS FROM PANEL 3

Policy alignment is essential - biofortified rice must be linked with procurement and PDS.

1. Standards must be developed- AGMARK frameworks for low-GI and biofortified rice are needed.
2. Evidence must precede scale; nutrition impact studies are non-negotiable.
3. Health system engagement is crucial- doctors and hospitals should advocate for healthier rice.
4. Fortified and biofortified rice should coexist, and they should be seen as complementary tools.
5. Consumer awareness drives demand; without visibility, adoption will remain limited.

This panel effectively set up Panel 4 by showing that **without policy pathways, institutional standards, and public endorsement, farmer-led market efforts would remain fragmented rather than systemic.**

PANEL DISCUSSION 4: ANCHORING HEALTHIER RICE IN LOCAL BUSINESSES AND FARMERS' INSTITUTIONS

MODERATOR | Dr. Bidhan Mohapatra (IRRI, India)



Dr. Mohapatra highlighted this as one of the most critical sessions of the two-day workshop, as it grounded the broader discussions in real-world experience and practice. While earlier sessions focused on science, policy, and market frameworks, this panel represented the implementation layer - where concepts intersect with farming realities, institutional capacities, and market dynamics.

The discussion centered on:

- What motivates farmers and FPOs to transition from conventional to specialty and healthier rice
- The practical bottlenecks in seed systems, processing, quality assurance, and marketing
- The economic viability of healthier rice for farmers and producer organizations
- The nature of institutional and policy support required for scaling such initiatives.

KEY PANEL INSIGHTS

1. Mr. Abhay Kumar Samantaray, President, UBSS, Odisha on Experience of a Cluster-Based Business Organization (CBBO) in Scaling Healthier Rice

Mr. Samantaray emphasized that healthier rice cannot compete with conventional rice solely on price; therefore, *market development* rather than production must be the central strategy for scaling. To illustrate this, he drew a sharp comparison: South Indian foods such as dosa have become ubiquitous



due to sustained and organized cultural marketing, whereas comparable traditional foods from Odisha remain localized because of limited promotion.

While acknowledging IRRI's technical and institutional support, he argued that research organizations must also play a ***stronger facilitative role in market linkage***, as FPOs are capable of production but still lack the structured marketing capacity to link to markets.

**“Production is ready;
markets are not.”**

Abhay Ku Samantaray

Key points from his intervention:

- He oversees 20 FPOs across 15 districts, which are ready to produce but lack marketing capacity.
- Farmers are hesitant to shift from familiar varieties, especially when the government distributes fortified rice through the PDS.
- Quality is a persistent concern. Healthier rice must be treated more like basmati: with clear grading, branding, and premium positioning.
- He suggested that specialty rice should be viewed as a cash crop, not a staple, enabling higher farmer returns if supported by proper market structures.
- Platforms such as workshops, exhibitions, and buyer-seller interactions can generate tangible business outcomes (supported by an example from a contract finalized at the exhibit stall during the two-day workshop)
- State government involvement is necessary to upgrade processing infrastructure, certification systems, and export readiness for FPO-led rice enterprises.

2. Mr. Motilal Mishra, Chairman, Puitala FPC, Odisha on the Journey of Puitala FPC, Bolangir – From Scarcity to Seed Enterprise



Mr. Mishra described how his drought-prone region moved from dependence to diversification through healthier rice.

Key highlights:

- Engagement with healthier rice began after initial sensitization by IRRI, following which the FPC consulted the local KVK and the State Agriculture Department to assess technical and market feasibility.
- Structured capacity building provided by IRRI, KVK, and state officials enabled the FPC to transition from grain production to organized seed production.
- The FPC commenced seed production with 20 quintals in 2023–24, expanded to nearly 100 quintals in 2025–26, and now plans to scale up to 3,000 quintals, indicating growing institutional confidence and operational capability.
- Farmers experimented with eight IRRI-supported varieties, strategically differentiating them for seed production, grain sales, and value-added products (such as idli-grade rice).
- The FPC's working capital increased from ₹10 lakh to ₹1 crore, reflecting measurable economic gains from diversification into healthier and specialty rice.

“Farmers will scale if markets pay; skills and machines are the bottleneck.”

Motilal Mishra

However, he flagged major challenges:

- Lack of processing machinery for value addition
- High cost of cultivation
- Need to target premium consumers

- Need for higher procurement prices for specialty rice
- Gaps in farmer knowledge on soil testing, inputs, and crop management
- Need for support in packaging, branding, and testing

3. Smt. Bina Pani Mangal, CEO, Kuntesar FPC, Odisha on Women-Led FPC Experience in Adopting Healthier Rice



Smt. Bina Pani Mangal presented one of the most compelling accounts of consumer-led adoption, driven by lived experience, personal health outcomes, and collective decision-making.

Key points:

- Kuntesar FPC, Bhadrak, was formed in 2020 with NABARD support and has 700 small and marginal farmers.
- Popular varieties yield 25-30 q/acre, while healthier rice yields 18-20 q/acre - making price incentives essential for sustained adoption.
- Following awareness sessions on low-GI rice, several women farmers began cultivating these varieties primarily for household consumption rather than immediate commercial sale
- Some diabetic members reported a perceived reduction in medication dependence over time, which strengthened confidence in these varieties and generated strong internal demand within the FPC
- Expansion beyond self-consumption will depend on assured markets and remunerative prices

“Health experience can drive adoption even before markets mature.”

Bina Pani Mangal

- Many members farm uplands; she requested IRRI's support in identifying and supplying healthier varieties suited for upland agro-ecologies.

4. Mr. Biswambar Sahoo, Secretary– Netaji Yuvak Sangh, Odisha on NGO-Led Mobilization of Farmers Towards Healthier Rice



Mr. Biswambar Sahoo described how Netaji Yuvak Sangh, Bhadrak, worked as a trusted intermediary between IRRI, farmers, and local institutions, gradually building confidence in healthier rice through a deliberate, phased approach rather than a rushed push for commercialization.

His two-phase strategy for adoption and scaling

Phase I (Year 1) – Adoption First, Market Later (Trust-building and farmer adoption)

- Distributed small seed quantities (5-10 kg per farm household to reduce risk)
- Emphasis was on awareness of health benefits rather than market returns
- Women farmers under Mission Shakti were actively engaged in demonstrations and meetings
- Two varieties gained clear acceptance among farmers: DRR 37 and BRRI Dhan 69.

Trust + evidence + local institutions can mainstream healthier rice.

Biswambar Sahoo

Phase II (Year 2) –Market Orientation and Quality Focus

- IRRI-bags were introduced for better seed storage and identification
- District-level meetings were convened with agriculture and allied departments to build institutional backing
- Emphasized packaging, quality maintenance, and collective marketing through FPOs.

Varietal performance and farmer preferences

- DRR 37 was widely preferred due to its reliable yield performance
- BRRI Dhan 69 was also accepted for household consumption and market potential
- BRRI Dhan 84 (brown rice) yields less but has high nutritional value - needs better marketing support and consumer awareness

Institutional support needed for scale

Broader institutional endorsement would accelerate adoption, particularly:

- Involvement of district health officials and Anganwadi workers in awareness efforts.
- Integration of healthier rice into local nutrition and food security programs, where feasible.
- Continued collaboration between NGOs, FPOs, KVKs, and line departments.

5. Mr. Abhay Shankar Tiwari, CEO, NavPargayan FPC, Uttar Pradesh on FPO-led pathways for healthier rice in Uttar Pradesh



Mr. Tiwari brought a multi-state perspective based on 15 years with HarvestPlus and more than five years of collaboration with IRRI.

Field experience and varietal deployment

- Deployed specialty rice varieties, including BRRI Dhan 100, BRRI Dhan 84, and CR Dhan 315 in Eastern UP.

- Yields have been acceptable, but marketing is the biggest gap.
- Cropping calendar remains a practical constraint, as farmers must harvest rice early enough to sow wheat by November, making duration a critical factor in varietal choice
- Large millers avoid small lots of specialty rice, forcing farmers to rely on small tractor-mounted huskers and polishers, which results in higher breakage and lower quality output.
- He is actively exploring access to small but high-quality rice mills that can serve FPO-scale production.



Production and seed availability are largely in place; the next frontier is better milling infrastructure and assured markets.



Abhay Shankar Tiwari

On farmer perception

- Farmers are increasingly aware of the health benefits of biofortified rice
- Adoption happens when yield meets expectations.
- Seed access through IRRI has been reliable.
- Retailers have begun placing sample orders, indicating early signs of market interest

He strongly recommended integrating healthier rice into mid-day meals and nutrition programs.

6. Smt. Jyotsna Pradhan, Secretary - MAA FPC, Odisha on women-led enterprise in aromatic rice: Experience of MAA FPC, Phulbani



Smt. Jyotsna Pradhan presented one of the most compelling examples of a women-led transition from subsistence farming to agribusiness through aromatic rice.

Key achievements:

- From a few farmers in year one, MAA FPC expanded aromatic rice cultivation to 100 acres in the second year of engagement
- The FPC sold 60 tonnes of produce and generated ₹26 lakh in revenue.
- Despite initial resistance from some members, the group successfully adopted organic farming, maintaining yields comparable to conventional methods.
- Aromatic rice delivered nearly 100% higher price margins compared to traditional varieties, demonstrating clear economic viability.



Women-led FPCs can build profitable and sustainable specialty rice enterprises with a clear market positioning.

Jyotsna Pradhan

Shifts in business model:

- The FPC initially sold produce as paddy, but now plans to sell processed rice to capture a higher value
- Members observed growing consumer demand for traceability, varietal identity, and credible packaging
- To reduce dependency and transport costs, the FPC has begun in-house seed production rather than procuring seeds from West Bengal

While most aromatic rice is sold commercially, an increasing number of women farmers are now retaining a portion for household use, particularly for special dishes, indicating gradual cultural acceptance alongside market success.

VOICES FROM THE FLOOR

Media Visibility Created Demand (Puitala FPC)

- A cafeteria demo of healthier rice was visited by the State Agriculture Minister.
- Media coverage created massive local demand, far beyond FPC's supply capacity.
- Lesson: Government-backed visibility can rapidly scale demand.

Direct-to-Consumer Sale Success (Maa Maheswari FPC, Bolangir)

- Varieties Specialty varieties, including BRRI Dhan 100, BRRI Dhan 84, and Telangana Sona, were marketed at district-level agricultural fairs.
- Prices increased from ₹100 per kg to ₹150 per kg within a day, demonstrating a strong buyer response
- The same rice retails in supermarkets at ₹250-300/kg - proving huge value capture potential for FPOs.

- Inclusion of contact details on packaging generated repeat private orders

Nutri-Rice Cluster Model (Unchin Foundation, Nuapada)

- Introduced and promoted high-protein rice (CR Dhan 310 and CR Dhan 311) in a cluster approach
- Built an integrated value chain model with:
 - Rice milling
 - Poha processing
 - Ready-to-eat products
- Adoption of a circular economy approach, where processing by-products is converted into animal feed rather than discarded.

This initiative demonstrates how healthier rice can transition beyond primary production to an end-to-end value chain that links farmers, processing, and markets.

OVERALL CONCLUSIONS FROM PANEL 4

Farmers are willing to grow healthier rice if markets pay.

1. Seed systems are emerging, but processing is a major bottleneck.
2. Branding, packaging, and certification are critical for FPO success.
3. Women-led FPCs can be strong drivers of specialty rice scaling.
4. Government endorsement dramatically boosts demand.
5. Health experience within households is a powerful adoption driver.
6. Small, high-quality mills are urgently needed.
7. Nutrition programs (PDS, ICDS, Mid-Day Meals) are the biggest scaling lever.

CROSS-CUTTING THEMES ACROSS SESSIONS

The deliberations across the inaugural session, technical presentations, and four panel discussions revealed several interlinked themes that collectively shape the pathway for positioning and scaling healthier rice in Odisha and beyond. These themes reflect the interplay between science, policy, markets, institutions, and community action.

KEY CROSS-CUTTING THEMES

1 Science must meet markets, not just fields

While significant progress has been made in developing biofortified, low-GI, and specialty rice varieties, their impact remains limited unless they are embedded within functioning value chains. Research credibility exists, but commercial pathways are still emerging.

2 Seed systems are the foundation of scale

Reliable access to quality seed- breeder, foundation, and certified seed emerged as the most critical bottleneck. Community-based seed enterprises and FPO-led seed production were identified as essential for last-mile reach..

3 Public programs shape farmer and consumer behaviour

Procurement policies, PDS, nutrition schemes, and state missions strongly influence adoption. Without alignment to these systems, healthier rice risks remaining niche rather than mainstream.

4 Markets require identity, not just nutrition

Consumers respond to clear branding, traceability, and trust signals. Certification (AGMARK, quality standards, profiling of varieties) is as important as nutritional claims.

5 FPOs are necessary but not sufficient

FPOs are central to aggregation and collective marketing, yet they require support in processing, packaging, testing, and buyer linkages to compete in formal markets.

6 Nutrition gains depend on bioavailability and diets, not just grains

Biofortified rice is promising, but cooking practices, food matrices, and dietary diversity determine real health benefits.

7 Export potential is real but demanding

International markets offer high-value opportunities, but strict testing, consistency, and compliance requirements pose major challenges for Indian producers.

MARKETING BY FPCS

PRODUCT DISPLAY AND DIRECT SALES AT SPECIALTY RICE WORKSHOP (12–13 JANUARY 2026), BHUBANESWAR



During the Specialty Rice Workshop held at Mayfair Bhubaneswar, four FPCs actively participated in product exhibition and direct marketing. Their presence added a field-level business dimension to the technical discussions on specialty and biofortified rice.

The exhibition enabled the FPCs to:

- Showcase diversified and value-added products
- Test urban consumer response
- Establish institutional and B2B linkages
- Assess branding and packaging competitiveness

1. BANABHUMI FPC

Location: Mayurbhanj District, Shamakhunta Block

FPC Head: Mr. Gatikrishna Triwar

Composition: Men and women farmers

Business Nature: Banabhumti FPC operates as a diversified agri-producer collective dealing in paddy, pulses, vegetables, turmeric, and processed products like pickles, engaged in both primary production and limited value addition.

Products Displayed: healthier rice varieties Rice (BRRI dhan 84, Telangana Sona), greengram, blackgram, turmeric and pickle

Marketing Approach

- Displayed both raw produce and processed products
- Combination of staples (rice, pulses) and higher-margin processed goods (pickle).

2. NANDI SURAVI FPC

Location: Ganjam District, Aska Block

FPC Head: Mr. Siddheswar Panigrahi

Composition: Men farmers

Business Nature: Primarily engaged in millet and rice production with visible emphasis on millet-based value addition.

Products Displayed: millet laddoo, millet biscuit, healthier rice (BRRI dhan 84, Telangana Sona)

Marketing Approach

- Clear value-addition focus through ready-to-eat millet products
- Products aligned with health-conscious urban consumers
- Diversification from grain sales to processed goods

3. PUITALA FPC

Location: Bolangir District, Puitala Block

FPC Head: Mr. Motilal Mishra

Composition: Men and women farmers

Business Nature: Focused on rice and pulse production with some value addition.

Products Displayed: healthier rice (Telangana Sona, Zinco Rice, CR Dhan 315), red poha, greengram

Marketing Approach

- Focus on varietal diversity in healthier rice
- Introduction of Red Poha as a value-added product within traditional food category

4. KUNTESWAR FPC

Location: Bhadrak District, Bhandaripokhari Block

FPC Head: Smt. Binapani Mangal

Composition: Men and women farmers

Business Nature: Specialized in rice cultivation (including multiple improved and biofortified varieties) and pulses, with traditional value-added products.

Products Displayed: healthier rice (BRRI dhan 84, BRRI dhan 69, Telangana Sona, CR Dhan 315, CR Dhan 411, Swarna Shakti, Protizen), greengram, traditional sweets made from biofortified rice (Arisa Pitha)

Marketing Approach

- Strong varietal portfolio in rice
- Value addition through traditional sweets made from biofortified rice- an effective strategy to promote nutritional rice through familiar food formats

OBSERVATIONS AND RECOMMENDATIONS

The participation of the four FPCs at the exhibition indicated a clear transition from conventional commodity marketing to differentiated and value-oriented agribusiness models, through healthier rice, millet-based products, and traditional value-added items. While product diversity and production capacity were evident, there remains a significant opportunity to strengthen market competitiveness through improved branding, standardized packaging, nutritional labeling (especially for biofortified rice), and stronger consumer awareness

The FPCs would benefit from structured marketing support including retail-grade packaging design, brand development, certification facilitation, buyer-seller linkages, digital marketing enablement, and integration with institutional and premium urban markets. With targeted handholding in these areas, the exhibited products have strong potential to move beyond event-based sales toward scalable market presence.

WORKSHOP OUTCOMES

The workshop catalyzed a shared understanding among stakeholders and produced a clear set of strategic directions for positioning, scaling and mainstreaming healthier rice in Odisha and beyond, reflected in the following outcomes:

Shared understanding of the opportunity

There was a clearer consensus that healthier rice is not a marginal innovation but a viable component of Odisha's agrifood future. It can serve as a strong complement to the nutrition security initiatives of both the central and state governments.

Stronger alignment among institutions

The discussions improved coordination between IRRI, IFPRI, ICAR institutions, HarvestPlus, FCI, APEDA, NABARD, DMI, and Odisha state agencies.

Evidence of farmer willingness

Experiences from FPCs demonstrated that farmers will adopt healthier rice when seed access, training (production, processing, and marketing), infrastructure support, and reasonable price incentives exist.

Clear need for state leadership

Scaling cannot be donor- or project-driven alone; it requires sustained policy backing from the Government of Odisha.

ACTIONABLE RECOMMENDATIONS AND ROADMAP FOR SCALING HEALTHIER RICE

Building on the evidence, experiences, and debates from the workshop, this section outlines practical recommendations and a roadmap for coordinated action to mainstream healthier rice across production, policy, and markets.

I. Policy and Programmatic Recommendations

1. Integrate healthier rice into public food systems (selectively, not universally)

- Pilot inclusion of biofortified rice in high-anaemia districts through PDS or nutrition schemes.
- Maintain fortified rice as the primary PDS instrument, using biofortified rice as a complementary intervention.

2. Recognize healthier rice as a strategic crop category

- Create a formal category under state programs for “nutritionally enhanced rice” (biofortified, low-GI, high-protein, aromatic, or landrace-based).

3. Align procurement with nutrition goals

- Explore price incentives for healthier rice varieties where evidence supports both yield and nutrition benefits.

II. Seed System Roadmap

Short Term (1- 2 years)

- Strengthen breeder and foundation seed production of priority varieties- use better demand forecasting and rolling seed production plans
- Expand community seed production through FPOs and women-led enterprises.
- Use digital tools to forecast demand and track seed flow.

Medium Term (3 - 5 years)

- Establish district-level seed hubs for healthier rice.
- Reduce dependence on external seed suppliers through local multiplication.

III. Standards, Certification, and Quality Assurance

- Initiate AGMARK standards development for low-GI and biofortified rice upon stakeholder request.
- Create a variety profiling system covering nutrition, cooking quality, milling recovery, and taste.
- Development of clear labelling standards that allow verified nutritional and health-related claims, enabling both consumer trust and market differentiation
- Develop traceability protocols to improve market trust, especially for exports.
- Promoting the deployment of portable nutrient testing devices (such as XRF analyzers) at mandi and aggregation points to enable rapid, on-site verification of micronutrient content

IV. Market Development Strategy

Domestic Market

- Support FPO branding and packaging through NABARD and state programs.
- Provide matching grants for processing infrastructure.
- Promote healthier rice in urban retail, hospitals, and wellness channels.
- Encourage digital marketing rather than traditional mass media.

Export Market

- APEDA to prioritize specialty rice profiling with IRRI support.
- Strengthen laboratory capacity to meet international testing requirements.
- Identify niche markets (e.g., red rice, aromatic varieties, sticky rice).

V. Role of Farmer Institutions (FPOs & Cooperatives)

- Collective marketing via eNAM and ONDC platforms.
- Partnerships with private processors where infrastructure is a constraint

VI. Nutrition and Awareness Strategy

- Engage the Health Department, Anganwadi workers, and district hospitals in awareness creation.

ANNEXURES

ANNEXURE I: WORKSHOP AGENDA

PROGRAM AGENDA		
Time	Session/Activity	Speaker
12th January 2026 (Day 1)		
09:30 - 10:00 AM	Registration	
10:00 - 10:05 AM	Workshop Overview Remark	Dr Mosharaf Hossain Scientist- Seed Systems, IRRI
10:05 - 10:10 AM	Inaugural & Welcome Remark	Dr. Swati Nayak South Asia Lead – Seed Systems & Country Manager-India, IRRI
10:10 - 10:20 AM	Video Documentary on Specialty Rice Project	
10:20 - 10:30 AM	Welcome Remark	Dr. Sudhanshu Singh Director, IRRI South Asia Regional Centre (ISARC)
10:30 - 10:40 AM	Welcome Remark	Dr. Michael Quinn (Virtual) Director, Rice Breeding Innovation, IRRI
10:40 - 10:50 AM	Special Address	Dr. G. A. K. Kumar Director, ICAR-Central Rice Research Institute
10:50 - 11:00 AM	Special Address	Dr. R. M. Sundaram Director, ICAR- Indian Institute of Rice Research
11:00 - 11:15 AM	Keynote Address	Smt. Lity Pattanaik Additional Director - Agriculture, DA&FE, Govt. of Odisha
11:15 - 11:35 AM	Address by Chief Guest	Prof. Pravat Kumar Roul Vice-Chancellor, OUAT
11:35 - 11:45 AM	Vote of Thanks & Group Photo	Ms. Subhasmita Mohapatra National Consultant – Seed Systems, IRRI
11:45 - 12:00 PM	Tea Break	
12:00 - 01:30 PM	PANEL DISCUSSION 1: Strengthening Seed Systems for Healthier Rice MODERATOR: Dr. Pallavi Sinha, Scientist-Plant Breeding, IRRI PANELLISTS - Mr. Niti Ranjan Sen, OAS (SAG), Managing Director, OSSC - Dr. Pankaj Kumar Tyagi, GM (Production) & Head of Quality Control Division, NSC - Dr Jayprakash T., Supply Chain & R &D Head, BBSSL	

	- Mr Yogesh Kumar, Joint Chief Seed Production Officer, UP Beej Nigam - Dr. M. P. Singh, Director, Oryzo Riceghar Agroworld Pvt Ltd.
01:30 - 02:30 PM	Lunch Break
TECHNICAL SESSIONS	
02:30 - 02:40 PM	Session Overview and Speakers' Introduction Dr. Arindam Samaddar Senior Manager, M&E, IRRI
02:40 - 03:00 PM	IRRI's Global Strategies and Vision for Healthier Rice Dr. Sankalp Bhosale (Virtual) Deputy Platform Leader - Rice Breeding Innovation, IRRI
03:00 - 03:20 PM	Recent Developments in Biofortified Rice in India Dr. Krishnendu Chattopadhyay Principal Scientist, Plant Breeding, ICAR-Central Rice Research Institute
03:20 - 03:40 PM	Research, Policy Advancement and Opportunities of Healthier Rice Varieties Dr. Meenakshi Singh Chief Scientist, CSIR
03:40 - 04:00 PM	Positioning Healthier Rice Varieties for Nutritional Security Mr. Ravinder Grover COO, HarvestPlus Solutions
04:00 - 04:20 PM	Policy & Priorities in Specialty Rice in Odisha Mr. Shubhanshu Mishra , OAS Additional Secretary, DA&FE, Odisha
04:20 - 04:40 PM	Ensuring Access and Adoption of Healthier Rice Varieties through Seed System Innovations and Learnings from Field Dr. Swati Nayak South Asia Lead – Seed Systems & Country Manager-India, IRRI
04:40 - 04:50 PM	Open House Discussion and Q&A Dr. Mosharaf Hossain Scientist – Seed Systems, IRRI
04:50 - 05:00 PM	Felicitation of the Speakers
13th January 2026 (Day 2)	
10:00 - 11:30 AM	PANEL DISCUSSION 2: Building Markets for Healthier Rice MODERATOR: Dr. Mosharaf Hossain, Scientist – Seed Systems, IRRI PANELLISTS - Smt. Vinita Sudhanshu, General Manager (FFV), APEDA, New Delhi - Mr. Deepak Kumar Sahoo, DDM, NABARD, Bhubaneswar - Mr. Abhijeet Mohapatra, Senior Technical Expert, Palladium Consulting India Pvt. Ltd. - Mr. Tapan Ray, Founder Director, PraTithi Organic Foods - Mr. Treman Singh Ahluwalia, Founder & MD, Sugar Watchers

11:30 – 11:45 PM	Tea Break
11:45 – 01:15 PM	PANEL DISCUSSION 3: Embedding Healthier Rice in Policy and Public Programs MODERATOR: Dr. Uma Maheswar Singh, Scientist, Innovative Breeding, ISARC PANELLISTS • Dr. Mamata Pradhan, Research Coordinator, DSG Unit, IFPRI • Mr. Bijay Kumar Prusty, Deputy Agricultural Marketing Adviser, Directorate of Marketing & Inspection, MoA&FW • Dr. R. Ananthan, Scientist, ICMR - National Institute of Nutrition • Mr Pushp Vanam, AGM (Technical) - Quality Control, FCI • Mr. S. Mandal, Regional Head, APEDA, Kolkata • Mr Guru Prasad Das, Nutritionist, CARE Hospital, Bhubaneswar
01:15 – 02:15 PM	Lunch Break
2:15 – 03:45 PM	PANEL DISCUSSION 4: Anchoring Healthier Rice in Local Businesses and Farmers' Institutions MODERATOR: Dr. Bidhan Kumar Mohapatra, Socio-economist, IRRI PANELLISTS • Mr. Abhay Kumar Samantaray, President, UBSS, Odisha • Mr. Motilal Mishra, Chairman, Puitala FPC, Odisha • Smt. Binapani Mangal, CEO, Kuntewar FPC, Odisha • Mr. Biswambar Sahoo, Secretary, Netaji Yuvak Sangh, Odisha • Mr. Abhay Shanker Tiwari, CEO, NavPargayan FPC, UP • Smt. Jyotsna Pradhan, Secretary, MAA FPC, Odisha
03:45 – 04:10 PM	Felicitatation of the Partners
04:10 – 04:15 PM	Vote of Thanks and High Tea

ANNEXURE II: LIST OF PARTICIPANTS

#	Name	Organization
Dignitaries & Speakers (Inaugural Session)		
1	Prof. Pravat Kumar Roul	OUAT
2	Smt. Lity Pattanaik	DA&FE, Govt. of Odisha
3	Dr. G. A. K. Kumar	ICAR-CRRI
4	Dr. R. M. Sundaram	ICAR-IIRR
5	Dr. Michael Quinn (Virtual)	IRRI
6	Dr. Mosharaf Hossain	IRRI
7	Dr. Sudhanshu Singh	IRRI
8	Dr. Swati Nayak	IRRI
Technical Session Speakers		
9	Mr. Shubhranshu Mishra, OAS	DA&FE, Govt. of Odisha
10	Dr. Meenakshi Singh	CSIR
11	Dr. Krishnendu Chattopadhyay	ICAR-CRRI
12	Mr. Ravinder Grover	HarvestPlus Solutions
13	Dr. Sankalp Bhosale	IRRI
14	Dr. Swati Nayak	IRRI
Panellists		
15	Mr. Bijay Kumar Prusty	DMI, MoA&FW
16	Mr. Pushp Vanam	FCI
17	Dr. Pankaj Kumar Tyagi	NSC
18	Smt. Vinita Sudhanshu	APEDA
19	Mr. Sitakant Mandal	APEDA
20	Mr. Deepak Kumar Sahoo	NABARD
21	Dr. Jayprakash T.	BBSSL
22	Dr. Rajendra Ananthan	ICMR-NIN
23	Mr. Niti Ranjan Sen	OSSC
24	Mr. Yogesh Kumar	UP Beej Nigam
25	Dr. Mamata Pradhan	IFPRI
26	Dr. M. P. Singh	Oryzo Riceghar Agroworld Pvt. Ltd.
27	Mr. Abhijeet Mohapatra	Palladium Consulting Pvt. Ltd.
28	Mr. Tapan Ray	PraTithi Organic Foods
29	Mr. Treman Singh Ahluwalia	Sugar Watchers
30	Mr. Guru Prasad Das	CARE Hospital
31	Mr. Abhay Kumar Samantaray	UBSS (CBBO)
32	Mr. Biswambar Sahoo	Netaji Yuvak Sangh (NGO)
33	Smt. Bina Pani Mangal	Kuteswar FPC
34	Smt. Jyotsna Pradhan	MAA FPC
35	Mr. Motilal Mishra	Puitala FPC
36	Mr. Abhay Shankar Tiwari	Navpragyan FPC
Other Dignitaries and Participants		
37	Mr. Anil Kumar Singh	DMI, MoA&FW

38	Dr. Biswajeet Mandal	ICAR-CRRI
39	Dr. Mridula Devi	ICAR-CIWA
40	Dr. Elly Ouma Atieno	CIP
41	Dr. Narayan Banik	FAO
42	Mr. Kishore Behera	ICARDA
43	Dr. Aviraj Datta	ICRISAT
44	Dr. Amit Barmun	IFPRI
45	Dr. Dinesh Balam	WASSAN
46	Smt. Madhusmita Jena	DA&FE, Govt. of Odisha
47	Smt. Nandini Dalei	DA&FE, Govt. of Odisha
48	Smt. Sasmita Jena	DA&FE, Govt. of Odisha
49	Smt. Subhadra Mallick	DA&FE, Govt. of Odisha
50	Dr. Ajay Kumar Kara	DA&FE, Govt. of Odisha
51	Mr. Aditya Kumar Panda	DA&FE, Govt. of Odisha
52	Mr. Arun Kumar Behera	DA&FE, Govt. of Odisha
53	Mr. Babuli Charan Sethy	DA&FE, Govt. of Odisha
54	Mr. Basant Kumar Dey	DA&FE, Govt. of Odisha
55	Mr. Byamkesh Mishra	DA&FE, Govt. of Odisha
56	Mr. Dharendra Nath Singh Barhia	DA&FE, Govt. of Odisha
57	Mr. Dilranjan Mallick	DA&FE, Govt. of Odisha
58	Mr. Dwijabara Sethy	DA&FE, Govt. of Odisha
59	Mr. Lokanath Mishra	DA&FE, Govt. of Odisha
60	Mr. Nagendra Kumar Mallick	DA&FE, Govt. of Odisha
61	Mr. Nakshatra Roul	DA&FE, Govt. of Odisha
62	Mr. Rabindra Panda	DA&FE, Govt. of Odisha
63	Mr. Sangram Keshari Pattnayak	DA&FE, Govt. of Odisha
64	Mr. Sashibhusan Mohapatra	DA&FE, Govt. of Odisha
65	Mr. Sishir Kumar Panigrahi	DA&FE, Govt. of Odisha
66	Mr. Sitanshu Behera	DA&FE, Govt. of Odisha
67	Mr. Sudhakar Nanda	DA&FE, Govt. of Odisha
68	Dr. Monica Priyadarshini	Mission Shakti, Govt. of Odisha
69	Dr. Nabakishore Parida	Mission Shakti, Govt. of Odisha
70	Dr. Deepak Mohanty	OUAT
71	Dr. Laba Soren	OUAT
72	Dr. Niranjana Panda	OUAT
73	Dr. Sanghamitra Pattnayak	OUAT
74	Dr. Sanjay Mohanty	OUAT
75	Dr. Sashanka Lenka	OUAT
76	Dr. Satanu Satpathy	OUAT
77	Dr. Satyamaya Satpathy	OUAT
78	Dr. Tusar Ranjan Mohanty	OUAT
79	Dr. Uma Sankar Nayak	OUAT
80	Mr. Satyanarayan Biswal	Gopaljee Seeds Pvt. Ltd.
81	Mr. Jaykrushna Pradhan	JKBK Seed Pvt. Ltd.
82	Mr. Deepak	Kanak -Bio Science Pvt. Ltd.

83	Mr. Satish Mittal	MM Foods Pvt. Ltd.
84	Mr. Biswajit Pradhan	Palladium Consulting Pvt. Ltd.
85	Mr. Manoj Kumar Dash	Puspa Rice Mill Pvt. Ltd.
86	Mr. Saurav Agrawal	Santholia Rice Mill Pvt. Ltd.
87	Mr. Narayan Chaudhury	UBSS (CBBO), Odisha
88	Mr. Santosh Kumar Panda	UBSS (CBBO), Odisha
89	Mr. Satyabrata Biswal	Agro Ecology FPC, Odisha
90	Mr. Gati Krushna Tiwari	Banabhumii FPC, Odisha
91	Mr. Narayan Khetri	Puitala FPC, Odisha
92	Mr. Pradeep Kumar Pradhan	FPC, Odisha
93	Mr. Jaganyaseni Bagarti	FPC, Odisha
94	Mr. Ajit Prasad Mohanty	Loksebak (NGO), Odisha
95	Mr. Giridhari Pattnaik	NIRDES (NGO) Odisha
96	Mr. Sushil Kumar Dash	SEWA (NGO), Odisha
97	Mr. Bipin Kumar Khatei	WISDOM (NGO), Odisha
98		Unchin Foundation
99	Mr. Abhisekh Gaurab	IRRI
100	Mr. Amit Choudhary	IRRI
101	Mr. Amit Dutta	IRRI
102	Dr. Anirban Nath	IRRI
103	Dr. Arindam Samaddar	IRRI
104	Mr. Ashis Kumar Mohapatra	IRRI
105	Dr. Ashok Kumar Yadav	IRRI
106	Dr. Bidhan Mohapatra	IRRI
107	Mr. Biswa Ranjan Sahu	IRRI
108	Mr. Chakradhara Panda	IRRI
109	Mr. Dayam Khan	IRRI
110	Mr. Devi Prasad Mohapatra	IRRI
111	Mr. Dillip Kumar Rout	IRRI
112	Mr. Girija Prasad Swain	IRRI
113	Dr. Girija Prasad Patnaik	IRRI
114	Mr. Gyandip Pandia	IRRI
115	Mr. Kranti	IRRI
116	Mr. Manas Sahoo	IRRI
117	Mr. Manoj Kumar Mohanty	IRRI
118	Mr. Md. Sultan	IRRI
119	Ms. Mitali Mohanty	IRRI
120	Dr. Neeraj Kumar Tyagi	IRRI
121	Mr. Nitesh Gupta	IRRI
122	Dr. Pallavi Sinha	IRRI
123	Ms. Preeti Bharti	IRRI
124	Mr. Priyabrata Ray	IRRI
125	Mr. Puneet Khurana	IRRI
126	Mr. Rabindra Moharana	IRRI
127	Mr. Sampad Kumar Nayak	IRRI

128	Mr. Srigopal S. Mohapatra	IRRI
130	Ms. Subhasmita Mohapatra	IRRI
131	Mr. Swara Santosh Rao	IRRI
132	Mr. Udit Kumar Roy	IRRI
133	Dr. Uma Maheswar Singh	IRRI

ANNEXURE III: WORKSHOP PHOTOGRAPHS





















IRRI is dedicated to abolishing poverty and hunger among people and populations that depend on rice-based agri-food systems. Through our work and partnerships, we aim to improve the health and welfare of rice farmers and consumers; promote environmental sustainability in a world challenged by climate change; and support the empowerment of women and the youth in the rice industry.

INTERNATIONAL RICE RESEARCH INSTITUTE

IRRI is a member of One CGIAR.

Mailing address: Plot No- 340/C, Saheed Nagar, Bhubaneswar, Odisha,
Pin – 751007, Phone - +91 674 258 4949

Headquarters: Pili Drive, Los Baños, Laguna 4031, Philippines,
Phone: +63 2 8580 5600, Email: info@cgiar.org