

The IRRI logo consists of the letters "IRRI" in a bold, serif font, centered within a white square. The background of the entire cover is a photograph of a lush green landscape with rolling hills and a rice field in the foreground, overlaid with a dark green semi-transparent filter and abstract organic shapes in shades of green and yellow.

IRRI

# AT THE NEXUS

OF FOOD, NATURE, AND CLIMATE

ANNUAL REPORT 2025



# AT THE NEXUS

OF FOOD, NATURE, AND CLIMATE

**ANNUAL REPORT 2025**



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# RICE SYSTEMS AT THE INTERSECTION OF FOOD, NATURE, AND CLIMATE ACTION

Rice systems are confronting a profound contradiction.

Rice feeds billions of people and sustains entire economies across Asia and parts of Africa, yet the systems that produce it are increasingly under strain. Farmers are being asked to produce more food under difficult conditions, while conventional production practices remain resource-intensive and vulnerable to climate pressures. This places rice systems at the center of both the food security challenge and the solutions needed to address it.

Meeting this challenge will require a rethinking of how innovation is developed, scaled, and connected to the realities facing farmers, markets, and governments. This idea sits at the center of the International Rice Research Institute's new strategy, recognizing that rice systems now operate where food production, environmental sustainability, and climate resilience intersect, and that the pressures facing them can no longer be addressed in isolation.



## Message from the Director General

For 65 years, the International Rice Research Institute (IRRI) has helped shape the course of global food security. But the world IRRI was created for is no longer the world we face today. Globally, food systems are coming under growing strain as climate shocks, market volatility, environmental degradation, and geopolitical instability increasingly disrupt how food is produced, traded, and accessed. More than 2 billion people still cannot access adequate food, underscoring the scale and urgency of the challenge ahead.

In 2025, IRRI redefined itself not simply as a research institution, but as an integrator of solutions across rice-based food systems. This shift came into focus during IRRI's 65th Anniversary Forum in June, where the World Bank, ADB, and other global partners launched new initiatives alongside IRRI to help accelerate coordinated action and scalable solutions for the interconnected challenges reshaping today's food systems.

Against this backdrop, the Board officially endorsed the IRRI 2025–2030 Strategy, positioning the Institute to move science further, faster, and at greater scale. Built around six integrated solutions, the strategy brings together IRRI's strengths in genetics, agronomy, environmental science, and digital innovation to help countries deliver better nutrition, lower emissions, stronger resilience, and improved farmer livelihoods.



**Dr. Yvonne Pinto**  
 Director General  
 International Rice Research Institute

Built into this strategy is IRRI's innovation roadmap which informs the fit-for-purpose alliances required to enable the sustainable scaling of IRRI's science. We are leveraging Singapore's fast moving agrifood innovation ecosystem through new collaborations with Enterprise Singapore and Temasek Life Sciences Laboratory, to unlock the next frontier of rice science from predictive analytics and AI to soil microbiome science and next generation crop improvement. Within the CGIAR, IRRI is hosting the Asia Pacific Hub, a regional platform that connects countries with CGIAR's collective expertise, innovation, and partnerships to address the region's pressing food systems and climate challenges.

Increasingly, IRRI is also shifting toward co-creation, working alongside governments, farmers, investors, research institutions, and the private sector to design solutions that are grounded in country realities and built for long term scale. The ambition is not simply to pilot innovation, but to stay engaged until solutions are sustainably embedded into food systems and delivering measurable impact for communities.

Within our research, the space of innovation accelerated significantly in 2025. IRRI developed more than 60 next generation rice varieties with improved yields, nutrition, and climate resilience; expanded digital advisory and precision agronomy platforms reaching hundreds of thousands of farmers; supported the scaling of low emission rice systems across nearly two million hectares; and deepened investments in AI, data science, and frontier biology to power the next era of agricultural innovation.

As global development financing continues to shift, IRRI's response is not to scale back ambition, but to sharpen it. Honoring our legacy now means building something even greater, leveraging the full force of IRRI's strengths, from science and data to partnerships, to move solutions faster, further, and at the scale today's food systems demand.

## Upholding the mission: Statement by the Chair of Board of Trustees

In 2025, the Institute advanced a clear direction with the approval of its 2025-2030 strategy, setting out a focused pathway to translate scientific excellence into scalable, demand-driven solutions.

This has been a particularly challenging year for the global development community, and IRRI has adapted to respond to the increasingly complex and rapidly evolving environment. Through strengthened partnerships and country-driven engagement across Asia and Africa, the Institute advanced efforts to enhance the resilience, sustainability, and productivity of rice-based food systems while expanding access to innovation and scientific knowledge. These efforts reinforce IRRI's role as a globally trusted institution committed to delivering public-good impact in support of farmers, consumers, and future generations.

While these achievements demonstrate the continued relevance and demand for IRRI's work, they were realized amid a difficult funding environment that has affected research and development organizations across the sector. The Institute reported a net deficit of USD 3.4 million, alongside a 23% reduction in its CGIAR funding portfolio, from USD 82 million in 2024 to USD 64 million in 2025. Total assets declined to USD 81 million, while reserves remained stable at 114 days. In response, IRRI has undertaken measures to strengthen financial discipline, enhance cost management, and improve alignment between expenditures and secured funding. Actions to reinforce internal controls, accountability, and financial sustainability are being implemented as part of an institutional optimization effort and will continue in 2026.

IRRI's financial statements for the year ended 31 December 2025 have been subject to external audit, and the Institute has maintained appropriate financial reporting standards. Based on the audit and associated assurances, the Board is satisfied that the financial statements present a true and fair view of IRRI's financial position.

Meanwhile, the Board further strengthened its collective expertise during the year through the addition of Masa Iwanaga and Frank Harnischfeger, further reinforcing IRRI's governance, strategic oversight, and fiduciary capacity through their combined experience in finance, science, and international development.

On behalf of the Board, I extend my respectful thanks to IRRI's leadership team, its scientists, staff, and partners for their dedication. Our gratitude as well to our donors and government partners for their continued trust, engagement, and support.


The year ahead will require continued discipline, focus, and adaptation. While the funding environment remains uncertain and financial pressures persist, IRRI enters 2026 with a clear strategy, a commitment to strengthening its financial position, and a determination to align resources with the areas where its science can deliver the greatest impact.

The Board remains confident in the Institute's mission and committed to ensuring its long-term sustainability and effectiveness.



**Fayezul Choudhury**  
Chair, Board of Trustees  
International Rice Research Institute

## Our Global Footprint




**60+** IMPROVED RICE VARIETIES

Developed and shared across Asia and Africa with higher yields, improved nutrition, and stronger resilience to floods, drought, pests, and diseases.

**120,000** RICE ACCESSIONS

Number of genebank accessions screened in just two years using AI-assisted tools, reducing screening time to one-tenth and costs to one-sixteenth of conventional methods.




**US\$2.88 BILLION ANNUALLY IN THE PHILIPPINES**




Eight leading IRRI rice varieties now grow across more than half of the country's rice area, generating an estimated US\$2.88 billion in annual value.

**183 CROPPING CYCLES COMPLETED**



IRRI's Long-Term Continuous Cropping Experiment became the world's longest-running rice experiment, spanning 62 years.

**21 DAYS OF FLOOD SURVIVAL**



IRRI's new flood-tolerant rice varieties can now survive up to 21 days of complete submergence, up from 14 days previously

**441 PUBLICATIONS**



covering thematic areas such as climate change mitigation and adaptation, food security, sustainable agriculture, cropping systems, and innovation adoption.

**1.9 MILLION HECTARES REACHED**

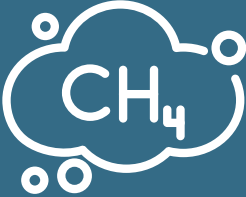


Climate-smart and low-emission rice farming practices were scaled across South and Southeast Asia.

**17 COUNTRY OFFICES**



across Asia and Africa



**50% LOWER METHANE EMISSIONS**

Alternate Wetting and Drying (AWD) reduced methane emissions by up to 50% in India, while lowering water use by 20% and greenhouse gas emissions by 30% in Bangladesh.

**125,000 FARM RECOMMENDATIONS DELIVERED**

Indonesia's Rice Crop Manager provided field-specific recommendations that improved yields and reduced fertilizer use.



**35,000+ STAKEHOLDERS ENGAGED**

IRRI's Mechanized Direct Seeded Rice initiatives connected farmers, scientists, government agencies, and private sector partners across India.




**101 NEW AND AMENDED PROJECTS**

Implemented across Asia and Africa to support sustainable rice systems



**200,000 HECTARES REACHED**

Indonesia expanded biofortified zinc rice, Inpari IR Nutri Zinc, to support healthier diets and improved nutrition.



**198 SCHOLARS AND TRAINEES SUPPORTED**

resulting in more efficient, inclusive, and globally connected scholar engagement.

IRRI Director General Dr. Yvonne Pinto opens IRRI's 65th Anniversary celebration, welcoming partners and guests to mark decades of rice science and innovation and launch the Institute's 10-year vision and 5-year strategy.



## 65 Years of IRRI: The Sum-of-Our-Parts and the Journey Ahead

IRRI's 65th anniversary was more than a milestone. The 3-day celebration served as a springboard for the next chapter. While honoring decades of contributions to global food security, IRRI also brought together partners around a shared agenda for climate-resilient, low-emission rice systems.



Co-hosted with the Asian Development Bank and the World Bank, the celebration featured the Future of Global Systems Forum, highlighting multisectoral perspectives on building a healthier, more sustainable, and more equitable world.



The Grain Quality and Nutrition Center showcased its low-GI rice innovation to partners, calling for their support in scaling this vital initiative.



Philippine Department of Agriculture Undersecretary for Rice Industry Development Engr. Christopher V. Morales and IRRI Director General Dr. Yvonne Pinto unveiled a commemorative marker for the Long-Term Continuous Cropping Experiment (LTCCE) as it sets the global record of cropping seasons with the planting of its 183rd crop in April 2025.



IRRI-ADB forum spotlights science, investment, and partnerships for global food system transformation; soft launched the "ADB-CGIAR Clearinghouse Facility," a key platform to expand the adoption of proven agricultural technologies.



The forum highlighted the CGIAR Asia Pacific Hub, which serves as a bridge between country demand and CGIAR's global science, partnerships, and innovation capabilities to advance sustainable and resilient food systems across the region.



The Philippine Crop Insurance Corporation (PCIC), Philippine Rice Research Institute (DA-PhilRice), Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), the International Rice Research Institute (IRRI), and the International Center for Tropical Agriculture (CIAT) of the Alliance of Bioversity International and CIAT signed a memorandum to work together in piloting a program for satellite-based crop insurance and agro-advisory services for farmers.



In a video message, His Excellency President Ferdinand R. Marcos Jr. delivered a message of support to IRRI for its 65th Anniversary. "Food systems are not just technical concerns, they are moral choices, they speak of who gets to eat, who gets to grow, and how the world honors those who feed it," said President Marcos.



During the event, the World Bank launched the Scaling NextGen Rice Impact Program, a regional platform that brings together experts and policymakers from Bangladesh, Cambodia, China, India, Indonesia, the Philippines, and Vietnam to scale innovative and sustainable rice production practices through collaboration, knowledge sharing, and strategic partnerships.



Experts discuss the uncertainties of Global Rice Markets amid trade policy shifts and changing climate.



After three days of high-level engagements and meaningful discussions with partners, donors, and scientists, the IRRI 65th Anniversary wrapped up in high spirits.



# INTEGRATING SOLUTIONS AT THE NEXUS, AMPLIFYING IMPACT

Developing a climate-resilient rice variety is only one part of the solution. Its real impact depends on whether farmers can access quality seeds, receive timely agronomic advice, connect to markets, and operate within systems that support adoption at scale. Progress in rice systems now increasingly depends on how effectively these different pieces work together. Many of our most impactful partnerships and innovations in 2025 were built around this reality.

## IRRI 2025–2030 Strategy Framework



### **Delivering interconnected impact goals:**

Improved Nutrition, Sustainable Planet, Inclusive Livelihoods



### **Through a portfolio of demand-driven integrated solutions:**

Enhance Food Security, Strengthen Nutritional Security, Expand Demand-driven Supply, Combat Diet-Related Non-Communicable Diseases, Catalyze Climate Resilience, Accelerate Tech Transfer



### **Leveraging IRRI’s core domains in a sum-of-the-parts approach:**

Genetic Resources and Discovery, Accelerated Breeding Systems, Sustainable Production Systems, Environment and Ecosystems, Scaled Delivery Systems



### **And guided by demand-driven delivery mechanisms:**

Integrated Rice-based Innovations, Data and AI Support Systems, Market Enabling Catalysts, Strategic Partnerships, Global Innovation Ecosystem

Early results are already visible: improved rice varieties, digital advisories, and climate-smart technologies are reaching farmers at greater scale, alongside advancements in nutrition and market innovation. With a sharper geographic focus and stronger alignment of resources, IRRI is entering 2026 with a commitment to deepening impact and accelerating system-wide transformation with partners worldwide.



## Food: Shaping rice systems that nourish and sustain

### Better seeds, now in farmers' fields

Seeds are the foundation of a good harvest. Yet, many farmers today still plant rice varieties released decades ago. These “mega varieties” once helped feed nations and strengthen food security, but many are now being pushed beyond the conditions they were originally built for by rising temperatures, worsening droughts and floods, and emerging pests and diseases. At the same time, consumers are seeking higher-quality rice with improved nutrition and better grain quality.

To respond, IRRI and its national partners are accelerating the release and delivery of climate-resilient rice varieties. In India alone, 31 new rice varieties were released in late 2024 for cultivation beginning in 2025. Several varieties, including CR Dhan 108 and CR Dhan 807, were specifically developed for direct-seeded rice systems, which can reduce labor and water use by up to 30% while lowering greenhouse gas emissions.

Additionally, two advanced Dry Direct Seeded Rice (DDSR) lines, DRR Dhan 92 (IR144572-20-4-1-1-B) and CR Dhan 217 (IR129477-4026-249-15-1-4), identified for release through India's national varietal testing system for 2026. DRR Dhan 92

offers dual adaptability to both direct-seeded and transplanted systems, while CR Dhan 217 combines strong early establishment, root vigor, and drought resilience. Notably, these may represent the first Indian DSR varieties emerging from a dedicated DSR breeding pipeline developed through a genomic-assisted breeding approach.

Other varieties address nutrition and climate challenges simultaneously. Zinc-enriched varieties such as Spoorthi and DRR Dhan 79 contain nearly double the zinc content of conventional rice, while CR Dhan 808 was developed for drought-prone environments.

According to Dr. R. M. Sundaram, Director of The ICAR-Indian Institute of Rice Research (ICAR-IIRR), Hyderabad, the recent release of climate-resilient rice varieties and hybrids reflects the growing collaboration between India's national testing systems and IRRI's rice improvement efforts.

## Integrated solutions



Enhance Food Security



Catalyze Climate Resilience



Expand Demand-driven Supply



Combat Diet-related Non-communicable Diseases

Similar efforts are underway in the Philippines through OneRicePH, which is accelerating the release of elite rice lines with improved disease resistance, grain quality, and yield potential. In East and Central Africa, four IRRI-developed rice varieties released through the Accelerated Innovation Delivery Initiative are expected to benefit approximately 1.2 million households across the Democratic Republic of Congo, Burundi, and Rwanda.

In Tanzania, a new 10-year initiative is launched, focusing on development and adoption of breakthrough products for a major DSR, rainfed market segment in Tanzania, which occupies 65% of the current rice area in the country, but also is relevant for neighboring countries in ESA such as Mozambique, Malawi, Zambia, Uganda.

The next generation of rice varieties is already emerging. The challenge now is ensuring farmers can access these innovations faster and more reliably.

*“This partnership has helped accelerate the development and evaluation of rice varieties better suited for emerging climate and production challenges.”*

*Dr. R. M. Sundaram,  
Director of ICAR–IIRR, Hyderabad, India*



## Can rice save millions from hidden hunger?

Beyond productivity, rice is increasingly being positioned as part of the solution to malnutrition and diet-related diseases. Across Asia, zinc deficiency remains linked to stunting and poor health outcomes, while diabetes continues to rise in rice-dependent populations.

IRRI and its partners are developing healthier rice varieties, including zinc-enriched, high-protein, and low-glycemic index (GI) rice, designed to improve nutrition without compromising the grain quality and resilience farmers and consumers prefer.



In India, initiatives supported by the Department of Agriculture and Farmers Empowerment (DAFE), Odisha are helping scale nutrient-rich rice through women’s self-help groups and farmer organizations, creating both nutrition and livelihood opportunities. Low-GI varieties ‘Telangana Sona,’ ‘BRRI dhan 69,’ and ‘zinc-DRR Dhan 67’ (BRRI dhan 84) were released in India through the Seeds Without Border Agreement.

Odisha’s Deputy Chief Minister Shri Kanak Vardhan Singh Deo and Health Minister Dr. Mukesh Mahaling visited the demonstration sites, met with participating farmers and appreciated the effort to advance specialty rice for the benefits of the producers and consumers.





In the Philippines, low-GI rice is now being cultivated in two pilot sites in Cagayan and Isabela, supported by varietal development, seed production, commercialization, market and consumer studies and nutrition impact assessments. Meanwhile, Indonesia expanded the cultivation of Inpari IR Nutri Zinc across more than 200,000 hectares to help address zinc deficiency and childhood stunting.

### Integrated solutions



Enhance Food Security



Catalyze Climate Resilience



Expand Demand-driven Supply



Combat Diet-related Non-communicable Diseases





## Connecting innovations to farmers

Across Asia and Africa, IIRI and its partners are strengthening seed systems, digital platforms, and market networks to help innovations move more efficiently from research fields into farmers' hands.

In Nepal, IIRI and the Nepal Agricultural Research Council (NARC) are forging partnerships with cooperatives, seed laboratories, municipalities, and private companies to strengthen local seed systems while creating new livelihood opportunities, particularly for women. In recent years, IIRI following its On Farm Trials, helped enabled the release of improved varieties such as Hardinath 5, Ghaya 3, and Hardinath 6.

In Tanzania, IIRI is working closely with the Tanzania Agricultural Research Institute (TARI), other national partners such as Tanzania Official

Seed Certification Institute (TOSCI) and Agricultural Seed Agency (ASA), farmers' cooperatives, women-centric NGOs and millers to popularize new high-yielding variety TARI RIC2 and strengthening seed systems to ensure quality seed availability and accessibility to the smallholder farmers.

In collaboration with Nafaka Kilimo, a quality-declared seed-producer NGO, and Norges Vel, the SeedCast platform is being piloted in Mbarali area of Southern Highlands in Tanzania to manage seed demand and supply.





In Bangladesh, IRRI is supporting Bangladesh Agricultural Development Corporation (BADC) to design the SeedCast digital platform to forecast seed demand more accurately using farmer preferences, seasonal data, and agro-climatic information, improving the responsiveness of national seed systems during climate-related disruptions.

*“With this tool, our goal is to create resilient systems that effectively address the needs of farmers and align with our national food security objectives.”*

*Md. Ruhul Amin Khan,  
former Chairman of the Bangladesh Agricultural Development Corporation (BADC)*

Md. Ruhul Amin Khan noted that the platform is part of a broader effort to build more responsive and climate-resilient seed systems.

Meanwhile, IRRI’s suite of digital innovations is strengthening capacity development in Viet Nam. Digital platforms, such as the Rice Crop Manager, Easy Farm, ‘Lúa Việt’ e-extension, and ViRiCert are helping farmers improve production decisions while connecting them more directly to service providers and markets. Together, these tools are not only enhancing knowledge exchange and capacity development but also creating tangible economic opportunities and productivity gains for Vietnamese farmers.



## Integrated solutions



Enhance  
Food Security



Expand  
Demand-driven Supply



Accelerate Tech  
Transfer

# Nature: Building sustainable and nature-positive rice systems

## Scaling direct-seeded rice systems

Scientists from IRRI and the Indian Council of Agricultural Research under the Indian Institute of Rice Research (ICAR-IIRR) developed new rice lines specifically designed for dry direct-seeded rice (DDSR) systems. The new lines combine important traits such as drought resilience, anaerobic germination, lodging resistance, and pest resistance.

Across Asia and Africa, DSR systems are already demonstrating strong environmental and economic gains. In India, optimized DSR systems reduced water use by approximately 20–30%, while in East Africa, combining DSR with Alternate Wetting and Drying (AWD) reduced irrigation demand by up to 60% without compromising yields.

Mechanization is accelerating these gains across regions and continents. In the Philippines, drone-assisted direct seeding reduced seeding rates and labor costs, while mechanized DSR systems in Cambodia and Viet Nam improved yields, farmer incomes, and emissions reductions.

To further support DSR adoption, IRRI established advanced phenotyping hubs in the Philippines, India, and Kenya. Using drones, automated irrigation systems, and digital sensors, researchers can evaluate breeding lines under real-world DSR conditions and accelerate the development of rice varieties suited for resource-efficient farming systems.

A global breeding network was also convened to support DSR testing across the target environments. Many DSR phenotyping technologies developed in these phenotyping hubs were deployed into various partner sites and a cohesive network of highly trained partners with the capacity to phenotype breeding population for DSR. The efforts have also led to these partners becoming part of the DSR variety release network of India which now coordinates large number of sites for testing and release of breeding lines for DSR systems.



## Integrated solutions



Enhance  
Food Security



Catalyze Climate  
Resilience



Expand  
Demand-driven Supply



Accelerate Tech  
Transfer



## Smarter input use and low-emission systems

Improving fertilizer efficiency and soil health is another key component of sustainable rice production. Through Rice Crop Manager (RCM) and localized advisory platforms such as Indonesia's Layanan Konsultasi Padi (LKP) 2.0, farmers are receiving field-specific recommendations that improve yields while reducing excess fertilizer use and greenhouse gas emissions.

In Indonesia, IRRI and the Agency for Agricultural Development and Modernization (BRMP - Badan Perakitan dan Modernisasi Pertanian) generated more than 125,000 field-specific recommendations across eight provinces through LKP 2.0.

By 2025, the platform had increased yields by approximately 0.6 t/ha, improved farmer incomes by around USD 140/ha, and reduced nitrogen fertilizer use by 28 kg/ha. Reducing excess nitrogen use is particularly important because nitrogen fertilizers are associated with nitrous oxide emissions, one of the most potent greenhouse gases.

*“With tools like LKP 2.0, we are ready to scale up technology adoption that supports Indonesia’s targets for rice self-sufficiency and farmers’ welfare”*

*Dr. Husnain, BRMP Executive Secretary, Indonesia*

Similar gains are also being observed in Viet Nam, where RCM improved fertilizer-use efficiency by 40–70% while increasing profits by approximately USD 40–110/ha. Together, these digital advisory tools reflect a broader transition toward climate-smart agriculture, where localized and data-driven recommendations help farmers improve productivity while reducing environmental risks.



### Integrated solutions



Enhance Food Security



Catalyze Climate Resilience



Accelerate Tech Transfer

## Supporting national transitions toward low-emission systems

As countries increasingly align food security priorities with climate commitments, rice systems are becoming central to national sustainability strategies. Across Asia, IRRI and its partners are supporting the transition toward low-emission and resource-efficient rice production systems that reduce environmental impacts while sustaining farmer livelihoods.

One of the largest efforts underway is Viet Nam’s 1-Million Hectare Low-Emission Rice Program. The initiative integrates precision mechanized direct seeding combined with fertilizer deep placement, AWD water management, rice straw-based circular economy and low-emission rice straw management innovations.



IRRI has supported Vietnam’s Ministry of Agriculture and Environment (MAE) to develop and issue related policy and national technical guidelines on low-carbon rice (One-Million-Ha) and implemented 8 pilot models (50 ha per each). The innovation demonstrated strong technical, economic, and environmental benefits. On average, seed rates were reduced by 50%, nitrogen use by 20%, and pesticide applications by 20%. Yields increased by 5% while input costs declined by 20%, raising net profits by at least 20%. Moreover, GHG emissions decreased by an average of 2 t CO<sub>2</sub>-eq/ha/season, enhancing both sustainability and competitiveness.

The initiative is also helping strengthen coordination among farmers, cooperatives, service providers, and government agencies, demonstrating how low-emission rice systems can be scaled through integrated partnerships.

Beyond Viet Nam, IRRI is supporting countries across Southeast Asia in developing national mitigation roadmaps, MRV frameworks, and spatial suitability maps for water-saving technologies such as AWD. Digital and AI-supported monitoring systems are also helping governments strengthen greenhouse gas accounting, improve transparency, and prepare for emerging carbon market opportunities.

### Integrated solutions



Enhance Food Security



Catalyze Climate Resilience



Accelerate Tech Transfer



## Climate: Transformative rice science in the age of extremes

### Climate-resilient breeding at scale

Climate-resilient breeding continued to expand across regions in 2025 as countries faced increasingly unpredictable growing conditions. In India, IRRI and its partners released new rice varieties capable of yielding 10–30% more under drought and flood conditions, while several lines developed for direct-seeded rice systems also helped reduce water use, labor requirements, and emissions.

Beyond India, IRRI and its partners strengthened breeding pipelines designed for vulnerable rice-growing environments. In Bangladesh, the five-year Haor-KGF project developed more than 2,000 promising rice lines and screened over 30,000 progenies to identify short-duration, cold-tolerant rice suitable for flood-prone Haor wetlands. The initiative also established a cold screening facility and strengthened breeding protocols at the Bangladesh Rice Research Institute (BRR), helping protect approximately 16% of the country's rice production.

*“Through this project we have built a robust breeding pipeline, modern facilities, and knowledge that will continue to serve rice research long after the project’s close.”*

*Dr. K.M. Iftekaraddaula,  
Chief Scientific Officer and Head of Plant  
Breeding Division, BRR*

### Integrated solutions



Enhance  
Food Security



Catalyze Climate  
Resilience



Expand  
Demand-driven Supply

## Digital tools and big data for climate resilience

Digital innovations are helping farmers and governments respond more effectively to climate-related risks. In the Philippines, the Area-Based Yield (ARBY) index insurance product developed in partnership with the Philippine Crop Insurance Corporation (PCIC) and the Philippine Rice Research Institute (PhilRice) uses yield data from the Philippine Rice Information System (PRiSM), a satellite-based rice mapping and monitoring system to support faster and more reliable agricultural insurance payouts following climate shocks. By reducing the need for time-consuming and subjective field assessments, ARBY offers a more efficient safety net for farmers in disaster-prone rice growing regions.

Complementing this effort is Climate+, a digital agro-advisory system that integrates the Rice Crop Manager Advisory Service (RCMAS), climate and weather data from the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) and satellite-derived data from PRiSM. Climate+ translates weather forecasts into actionable farm-level guidance on planting schedules, fertilizer timing, irrigation management, and harvest decisions helping farmers make more weather-informed decisions under increasingly variable climate conditions.

In 2025 alone, Climate+ has provided weather-informed advisories to nearly 10 thousand farmers in the Bicol and Isabela regions. In addition, Climate+ was benchmarked by the Philippine Department of Agriculture's FishCoRe project to support climate information services beyond rice systems.

A parallel effort in Odisha, India, called PaddyMitra, is advancing digital crop advisories by bringing RCM science into a WhatsApp based advisory tool. Launched in September 2025, PaddyMitra provides farmers with localized fertilizer, weather, and weed management advice through simple text or voice messages. Piloted during the 2025 Kharif season among 1,500 farmers, it has already reached about 7,500 farmers in Odisha. Field results showed yield gains of about 7–12% over farmers' existing fertilizer practices.



The next version, PaddyMitra 2.0, will add AI-enabled advisories on nutrient management, seed suitability, pest and disease management, and weather intelligence, helping farmers make more timely and informed decisions as climate conditions become less predictable.

Together, these digital platforms signal the transition toward data-driven agriculture, where real-time information, localized recommendations, digital solutions and institutional partnerships are helping farmers strengthen resilience while improving productivity and resource efficiency.

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### Integrated solutions



Enhance  
Food Security



Catalyze Climate  
Resilience

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## Sustainable rice meets AI

Artificial intelligence is also accelerating how rice varieties are developed, evaluated, and managed. In 2025, IRRI launched the Global AI-Hybrid Rice Platform (GAI-HRP), which uses machine learning and genomic data to identify high-performing hybrid rice combinations more efficiently. Hybrid rice varieties can increase yields by up to 30% while improving resilience to environmental stress and reducing resource requirements.

AI is also helping researchers better understand how rice systems respond to long-term environmental change. The same year, IRRI used artificial intelligence and machine learning to analyze more than 50 years of data from its Long-Term Continuous Cropping Experiment (LTCCE). The analysis identified how climate, nutrient management, and varietal turnover influence long-term productivity, generating insights that can help guide future breeding and management strategies for climate-stressed rice systems.

Together with its global partners, IRRI is leveraging AI, digital technologies, and climate-smart innovations to help build rice systems that not only feed and nourish populations, but also conserve resources, strengthen resilience, and support a more sustainable future for farming communities.

### Integrated solutions



Enhance  
Food Security



Catalyze Climate  
Resilience

Across food, nature, and climate, IRRI's work increasingly demonstrates that productivity, sustainability, nutrition, and resilience are not mutually exclusive. Better varieties, climate-smart production systems, digital innovations, stronger seed systems, and strategic partnerships are helping countries build rice systems that not only feed populations but also improve nutrition, strengthen livelihoods, conserve resources, and reduce environmental impacts.

As IRRI moves forward with its 2025–2030 strategy, the institute and its partners are advancing a more integrated vision for rice research—one where innovation at the nexus of food, climate, and nature can help shape a more resilient and sustainable future for rice-growing communities worldwide.



# TOGETHER, KEEPING THE MOMENTUM

Behind every scientific breakthrough, climate-smart technology, or improved rice variety is a network of people and partnerships working together to translate research into real-world impact. In 2025, we continued strengthening this ecosystem across the institute and expanding regional and global collaborations, reinforcing how much progress in rice systems depends on the people, institutions, and partnerships working behind the science.

## Impact in our People

IRRI's 2025 milestones tell a story not only of results achieved, but of the people and partnerships that made them possible.

962

Total Number of Staff

42%

Percentage of Women Staff

31%

Percentage of Women Leaders

37

Number of Nationalities







I am grateful to be a part of, to witness, and to learn from the many women leaders across the Institute. When there are women leaders, it sends a clear message that diversity of thought and perspectives are welcomed at the table. I hope that IRRI's increased opportunity for women in leadership sends a clear message to the next generation of IRRI leaders, scientists, partners, and staff to pursue growth, and to know that your contributions are important and welcome.

**Joy Gimena,**

Head of Information Technology, IRRI



IRRI's new strategy is both timely and transformative. Its stronger emphasis on integration will help better connect breeding, agronomy, climate science, socioeconomics, policy, and digital innovation to generate more scalable and inclusive solutions that advance the '3Hs' — the Health of Humans, the Health of the Planet, and the Health of Markets. Importantly, the strategy recognizes that sustainable rice systems must operate within planetary boundaries while remaining responsive to the needs of vulnerable stakeholders, including smallholders, women, service providers, value-chain actors, and the ecosystems that sustain rice production.

**Dr. Prakashan Veetil,**

Senior Scientist I - Agricultural and Behavioral Economics, IRRI

## Partnerships Geared for the Future

### A Convener for Agricultural Transformation

30

Country  
Partners

101

Grant  
agreements

25%

Growth in the  
total number of  
grants secured

18

partnerships  
formalized  
through signed  
MoA and MoU



#### 29th Council of Partnership on Rice Research in Asia (CORRA) Annual Meeting

Hosted by Uzbekistan's Ministry of Agriculture and Rice Research Institute in partnership with IRRI, the 29th CORRA Annual Meeting marked Uzbekistan's first time hosting the event as one of CORRA's newest member countries. The event brought together delegates from 17 member countries to strengthen regional collaboration on climate-smart technologies, low-carbon rice production, pest and disease management, and capacity building.

In 2025, we strengthened our role as a convener for transformation across Asia’s rice sector, bringing together governments, universities, research institutions, and private-sector partners around climate-resilient and farmer-centered rice systems. Through these collaborations, we are advancing scalable solutions in direct-seeded rice, regenerative agriculture, digital innovation, mechanization, and looking into more nascent areas such as microbiome science, reinforcing the importance of partnerships that connect science, policy, investment, and local action.



### Strengthening Partnerships in Thailand

IRRI convened with partners from Thailand's public, private, and academic sectors to listen to stakeholder priorities, strengthen relationships, and explore areas for future collaboration. The discussions provided valuable insights into Thailand's evolving rice sector and highlighted opportunities to align IRRI's strategy with the country's national needs and regional priorities.



### 1st Direct-Seeded Rice (DSR) Conclave

The DSR Conclave in Varanasi, India convened leaders and experts to advance the transition to resource-efficient rice cultivation. Organized by the IRRI South Asia Regional Centre (ISARC) and India’s Ministry of Agriculture and Farmer’s Welfare, the event reinforced DSR as a key climate-mitigation strategy and highlighted major commitments, including India’s goal to expand DSR adoption to 16 million hectares by 2030.

## From Shared Visions to Joint Action

What began as shared priorities and technical exchanges translated into formal commitments, creating platforms for joint research, innovation, and capacity development.



### **IRRI and Kasetsart University partnership to advance climate-resilient and sustainable rice-based systems in Southeast Asia**

This partnership will advance joint research, innovation, and capacity development for sustainable rice-based systems across Southeast Asia.

### **IRRI and the Government of Uttar Pradesh for climate-resilient rice production**

As part of the Uttar Pradesh Agriculture Growth and Rural Enterprise Ecosystem Strengthening (UPAGREES) project, this collaboration will support climate-smart production practices, improved seed systems mechanization, digital agriculture, and sustainable resource management.

### **IRRI and the Government of Kerala for low-emission rice farming**

This initiative aims to implement resource-efficient rice farming practices across approximately 22,000 hectares to reduce emissions while sustaining productivity and farmer livelihoods.

### **IRRI and Enterprise Singapore (ESG) for agricultural innovation and financing**

Together with leading agri-tech innovators, this partnership strengthens Singapore's role as a regional hub for agri-innovation, collaboration, and financing through the Solutions Centre for Smallholders.

### **IRRI and Temasek Life Sciences Laboratory (TLL) for regenerative agriculture and microbiome science**

This partnership will advance pioneering research on soil and microbiome science, regenerative agriculture, crop improvement, and sustainable agriculture. It also aims to strengthen regional engagement aligned with ASEAN priorities, and build capacity through shared expertise, facilities, and data.

## Strategic Global Engagements

### IRRI Partners' Reception and Africa Launch of IRRI's 2025-2030 Strategy

10 April 2025 | Nairobi, Kenya

IRRI hosted a high-level networking reception on the margins of CGIAR Science Week in Nairobi, Kenya, bringing together leaders from research, policy, and development to discuss the urgent challenges facing food, nutrition, and climate security. The reception also served as the soft launch of IRRI's new 10-year vision and 2025–2035 strategy, offering CGIAR and regional partners an early view of IRRI's future research direction and institutional priorities.



### International World Rice Conference

6-9 November 2025 | Cambodia

At the 2025 International World Rice Conference, IRRI joined the stage to pay homage to its shared history with the Royal Government of Cambodia and ignite new opportunities for partnership. Through its partnership with The Rice Trader, IRRI brought together scientific research and market expertise to provide practical and data-driven insights for policymakers, traders and stakeholders across the rice industry.

During the event, IRRI called for stronger cooperation between governments, researchers, private sector partners and farming communities to help expand the use of low-emission and high-yield rice farming practices across Asia and other rice-growing regions.

### Investing in Rice Innovations Event at the Agri-Food Tech Expo Asia (AFTEA) 2025

5 November 2025 | Singapore

At AFTEA 2026, IRRI announced the return of the IRRI Singapore Fund, a platform designed to harness Singapore's agrifood innovation ecosystem to accelerate the next frontier of rice science, from gene editing and climate-smart production systems to digital breeding technologies. The fund also aims to expand new pipelines for innovative financing and partnerships that can help scale transformative solutions for global food security and climate resilience.



## Stories of Impact Across Platforms

This year, IRRI continued contributing scientific evidence, technical perspectives, and field-based insights to solutions-focused global conversations on food security, climate change, nutrition, and sustainable livelihoods. Through international, regional, and national media platforms, IRRI helped elevate the role of rice science, innovation, and partnerships in shaping more resilient and sustainable food systems.

Beyond flagship features, IRRI's research and partnerships were referenced in reporting related to rice trade, climate resilience, nutrition, and sustainable development. Strategic initiatives such as the Global Rice Market Briefs, international collaborations, and major convenings contributed evidence and scientific perspectives to discussions among policymakers, researchers, development partners, and the broader public.



In January 2025, [BBC's The Food Chain](#) podcast featured IRRI Director General Dr. Yvonne Pinto discussing emerging technologies, innovation in rice-based systems, and sustainable farming approaches that can support more resilient and equitable food systems.

In March 2025, Australian Broadcasting Corporation's flagship agricultural documentary program [Landline](#) featured IRRI's work on low-carbon rice production and climate-resilient breeding efforts. Filmed at IRRI Headquarters in the Philippines, the segment highlighted the role of science and international collaboration in helping farmers adapt to increasing climate pressures.



FOOD, WATER AND CLEAN AIR

### How much is a bowl of rice? Why the challenges facing the world's most popular foodstuff are coming to the boil

Oct 16, 2025

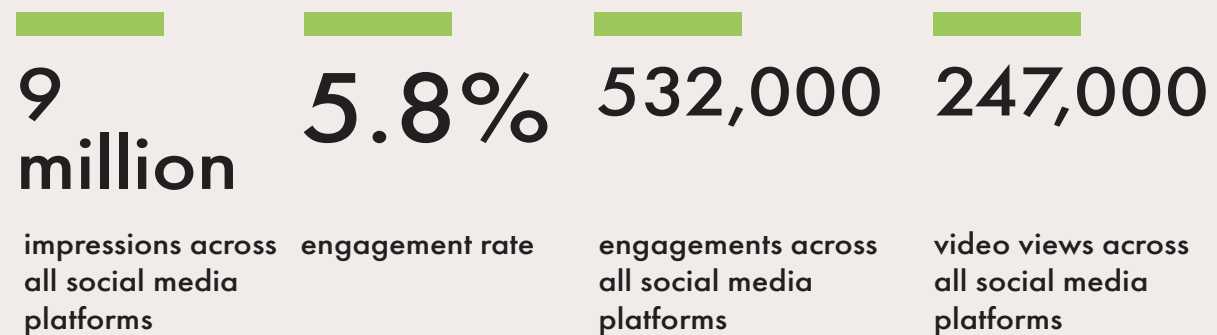


IRRI interventions also formed part of a [World Economic Forum](#) think piece examining pathways to decarbonize global rice production. The article underscored the importance of coordinated action among governments, farmers, research organizations, and private-sector actors to scale climate-smart rice systems and accelerate progress toward more sustainable food futures.

## Supporting solutions-focused conversations through science, evidence, and collaboration



## Driving Visibility Through Long-term, High-Impact Institutional Campaigns



The IRRI Featured Partners video series served as a powerful platform to highlight and reinforce IRRI’s strategic and long-standing collaborations with key partners such as the Crop Trust, Vietnam, and the Global Methane Hub, to name a few. By showcasing shared goals, co-developed solutions, and tangible outcomes, the series exemplifies trust and alignment among partners while elevating their collective visibility.

By amplifying these partnerships, the series not only deepened engagement but also accelerated the translation of science into scalable technologies.

At the same time, sharing the message of IRRI’s 65 years of impact in the Philippines through our Seeds of Science campaign underscored the enduring value of working hand in hand with national partners to deliver rice science on demand. The country’s experience demonstrates how sustained collaboration enables context-specific solutions that are both relevant and scalable. This legacy reinforces IRRI’s message that meaningful agricultural transformation is rooted in strong country partnerships, where science is co-created, adapted, and deployed to meet local needs.

## IRRI's Featured Partners



**Dr. Stefan Schmitz**  
Executive Director  
Global Crop Diversity Trust

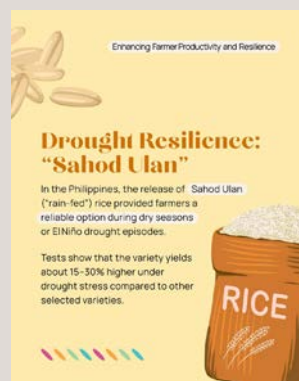
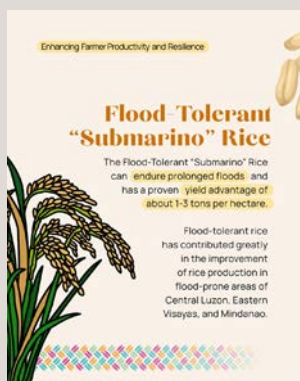
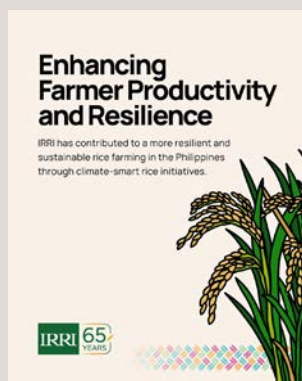


**Dr. Nguyen Do Ahn Tuan**  
Director  
Department of International  
Cooperation, Ministry of  
Agriculture, Vietnam



**Dr. Kofi Konadu Boateng**  
Program Officer (Agriculture)  
Global Methane Hub

## Seeds of Science: IRRI's 65 Years of Impact in the Philippines



## Seeds of Science: 65 Years of Improved Rice Varieties



## Recognizing Excellence Behind the Science

2025 has proven to be another landmark year for IRRI, marked by prestigious global honors that reflect the institute's enduring contributions to global food security and environmental sustainability.

## Paving Way for a Sustainable Future



From breeding to sustainable farming systems, our integrated approach to building resilient and low-emission rice systems was front and center at the Asian Innovation Excellence Awards 2025, securing two major wins:

**Philippines Sustainability Innovation of the Year:** Awarded for the work of the IRRI International Rice Genebank (IRG), which maintains the world's largest rice diversity collection with over 132,000 seed samples.

**Vietnam Sustainability Innovation of the Year:** Recognized for its work on the "One Million Hectares of High-Quality and Low-Emission Rice" (1MHa) program, which promotes climate-smart farming, bundled with high-productivity, low-emission technologies.

IRRI IRG Head Dr. Venuprasad Ramaiah and 1MHa Program Leader Dr. Hung Nguyen received the awards in Singapore.

## A Global Transformation Partner for Agricultural Development

The recognitions this year reflect decades of collaboration in strengthening food systems, supporting farmers, and accelerating innovation across regions.



**Lao PDR:** His Excellency Dr. Linkham Douangsavanh, Lao PDR Minister for Agriculture and Forestry (MAF), presented the prestigious Cross of Friendship Medal to IRRI last February 2025, celebrating IRRI and Lao PDR’s longstanding partnership dating back to 1987.



**Cambodia:** During IRRI’s 65th Anniversary partnership night, the Royal Government of Cambodia led by His Excellency Sok Chenda Sophea, Deputy Prime Minister of the Kingdom of Cambodia conferred a token of appreciation for the institute’s outstanding service to the nation’s rice industry over six decades.



**Viet Nam:** The RiceMoRe and FarMoRe apps were nominated for Viet Nam National Television’s Impressive Digital Transformation Application of the Year, highlighting IRRI’s contributions to modernizing Viet Nam’s rice sector. RiceMoRe is a digital system that supports the Viet Nam Government in advancing strategic management, monitoring, and reporting of rice production.

## IRRI at the Forefront of Excellence

Behind IRRI's global impact is a community of scientists, researchers, and experts whose dedication and excellence continue to be recognized worldwide.

**IRRI Director General Yvonne Pinto** received a Lifetime Achievement Award at the 2025 World Rice Conference for her lifelong commitment to science and partnerships for sustainability and global food and nutrition security.



**Dr. Abdelbagi M. Ismail**, IRRI Regional Director for Africa, received the 2025 World Sustainability Award of MDPI for his pioneering work on climate-resilient rice across Asia and Africa.



**Dr. Sudhanshu Singh**, IRRI South Asia Regional Center (ISARC) Director, was conferred as a Fellow of the Indian Society of Agronomy for his three decades of work in scaling climate-resilient and low-emission production systems.





**Dr. Valerien Pede**, Senior Scientist for Agricultural Economics, was awarded Purdue University's Apex Award, the highest honor from the Department of Agricultural Economics, for his work in spatial econometrics and food security policy.



**Dr. Prakashan Veetil**, Senior Scientist for Agricultural and Behavioral Economics, won the British Academy of Management Developmental Paper Award for his study on building resilience in agrifood supply chains.



**Dr. Ajay Kumar Mishra**, Senior Associate Scientist for Soil Science received the Young Scientist Award 2025 for empowering over 0.35 million farmers with site-specific nutrient management (SSNM).



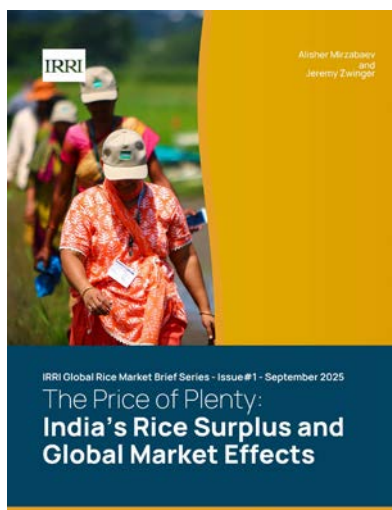
**Dr. Jauhar Ali**, Principal Scientist for Hybrid Rice Breeding, received the Silver Shield for Global Rice Breeding Research at the International Plant Breeders Congress (IPBC) in Antalya, Turkey, where he also delivered a keynote talk on "Advances in Hybrid Rice Breeding."

# Shaping Resilient Rice Futures: Navigating the Global Rice Economy

How do we keep rice affordable, sustain farmer incomes, and secure supply amid growing uncertainty? Volatility in global rice markets is raising this and other urgent questions for governments, farmers, and consumers alike.

In 2025, we launched the IRRI Global Rice Market Briefs series to help decision-makers navigate rapidly changing market conditions through timely analysis, policy research, and market intelligence. From trade disruptions to price pressures, the series translates complex market trends into practical insights for governments, development partners, and the broader rice sector.

The impact of this series has been evident in its legislative and public reach. IRRI's Policy team has contributed to congressional and senate hearings in the Philippines, providing expert testimony on topics such as the rice import ban and the Rice Tariffication Law review. The briefs have also reached an audience of approximately 17,000 newsletter readers and have been referenced by at least nine international news organizations in the United Kingdom, and national-level news publications in Cambodia, Vietnam, and the Philippines, such as the [Financial Times](#), [The Phnom Penh Post](#), [VietnamBiz](#), [The Philippine Star](#), and [Business Mirror](#).



**#1 The Price of Plenty:** India's surplus and Global Market Effects



**#2 Striking the Balance:** Philippine Rice Policy between Farmers' Livelihoods, Consumer Welfare, and National Self-Sufficiency



**#6 Rethinking Rice Reserves:** Policy Pathways for Stability amid Market Turbulence

Visit [irri.org](http://irri.org) to download the full IRRI Global Rice Market Brief series.



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