

ISARC Cultivate

IRRI's hub for South-South Cooperation on Rice Research

ISARC
IRRI South Asia Regional Centre



International
Rice Research
Institute



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Dear Readers,

Warm greetings from ISARC! I am pleased to share the tenth issue of Cultivate, our newsletter highlighting various innovations in rice agrifood systems at ISARC across South Asia.

ISARC is committed to bringing partners together to scale new technologies, making rice-based systems more sustainable, nutritious, and viable for farmers.

This edition begins with highlights from the 13th National Seed Congress (NSC) 2024, held in the culturally rich city of Varanasi from November 28-30, 2024. The newsletter captures the event's essence and significant discussions, bringing together over 700 stakeholders to envision a collaborative and innovative future for the seed sector.

With the theme "Fostering Regional Cooperation, Partnership, and Knowledge Exchange in the Seed Sector," the Congress emphasized the importance of collective action in addressing challenges and seizing opportunities within the global seed sector. Over three days, the Congress served as a vibrant platform for dialogue, fostering partnerships, and promoting the exchange of ideas and innovations essential for developing a resilient and sustainable national seed sector.

On behalf of ISARC, I extend my gratitude to the Ministry of Agriculture and Farmers' Welfare, the Government of India, the National Seed Research and Training Centre (NSRTC), and our esteemed partners and sponsors for their invaluable contributions to the success of this event. Your support has been instrumental in making this Congress a beacon of collaboration and transformative solutions.

This issue of Cultivate also features:

- Stakeholder meetings with the IRRI Director-General during her first visit to India
- A workshop on stewardship guidelines for herbicide-tolerant rice in India
- Training sessions, farmers' fairs, exhibitions, visits, and other initiatives led by ISARC

We also invite you to provide feedback through a quick survey to help us improve our content.

Enjoy reading!

Sincerely,
Sudhanshu Singh
Director, ISARC

NSC HIGHLIGHTS

13th National Seed Congress focus on strengthening India's seed sector



Dr. Devesh Chaturvedi, Agriculture Secretary, Uttar Pradesh, Smt. Shubha Thakur, Additional Secretary, Ministry of Agriculture & Farmers' Welfare; IRRI Deputy Director General for Research Dr. Ajay Kohli, ISARC Director Dr. Sudhanshu Singh, and other key dignitaries from the country's seed sector joined Shri Surya Pratap Shahi and Dr. Pinto in the inaugural ceremony.

Varanasi, India (November 28-30, 2024)

The 13th National Seed Congress (NSC) 2024, hosted at ISARC in collaboration with the National Seed Research & Training Centre, concluded successfully, marking a transformative step for India's seed sector. Organized by the Ministry of Agriculture & Farmers' Welfare, Government of India, this three-day event from November 28-30, 2024, brought together over 700 delegates, including policymakers, researchers, industry leaders, and farmers, to deliberate on innovation, sustainability, and inclusivity in seed systems.

Inaugurated by Union Minister of Agriculture and Farmers' Welfare Shri Shivraj Singh Chouhan, the Congress served as a platform for knowledge exchange and partnership building. Shri Chouhan highlighted India's leadership in the global seed sector, stressing the role of biodiversity, research, and innovation in addressing challenges such as climate change and food security. "The National Seed Congress provides a vital platform for exchanging knowledge, fostering partnerships, and driving innovation to strengthen seed systems. This Congress reflects India's commitment to ensuring food security, addressing

climate challenges, and empowering smallholder farmers with access to quality seeds. I encourage the experts and participants to develop actionable strategies to make seeds more accessible, affordable, and impactful through strengthened public-private partnerships," he stated.



IRRI Director General Dr. Yvonne Pinto, among the event's chief patrons, underscored the critical need for collaboration, "This Congress is a vital platform to foster collaboration, innovation, and shared solutions in the seed sector. The theme, 'Fostering Regional

Cooperation, Partnerships, and Knowledge in the Seed Sector,' could not be more relevant as we face global challenges such as climate change, food insecurity, and and promoting practices that are both equitable and resilient.”

NSC 2024 highlighted Uttar Pradesh's agricultural contributions, including initiatives like seed parks and research centers, while plenary sessions focused on strengthening India's global seed sector through public-private collaborations, fostering South-South partnerships, and advancing seed quality. A side event showcased geo-spatial technologies for Eastern India's agriculture, and technical discussions addressed emerging seed technologies and regulatory frameworks. “Uttar Pradesh has a rich tradition of advancing agriculture and is honored to host this Congress in Varanasi. This event allows us to align with cutting-edge innovations and promote sustainable practices that reach every farmer. Initiatives like ISARC and the upcoming International Potato Center will further strengthen seed systems in the state and South Asia. Our plans for 200 seed parks, alongside increased oilseed and millet cultivation, will bolster Uttar Pradesh's agricultural leadership,” said Agriculture Minister of Uttar Pradesh, Shri Surya Pratap Shahi in the inaugural ceremony.

The Congress concluded with a roadmap for transforming India's seed systems. At the closing

ceremony of the 13th National Seed Congress, Shri Dinesh Pratap Singh, Hon'ble Minister of State for Horticulture, Agriculture Marketing, Agriculture Foreign Trade, and Agriculture Export, Uttar Pradesh, emphasized the Congress's pivotal role in shaping the future of agriculture in the state. He highlighted how the deliberations and recommendations from the event would serve as a blueprint for strengthening Uttar Pradesh's seed systems and transforming the state into a hub for quality seed production. Noting the state's diverse agro-climatic conditions, extensive agricultural base, and hardworking farmers, he stressed the importance of adopting strategies that empower farmers by improving access to high-quality seeds, including hybrids, biofortified crops, and vegetable seeds, to enhance productivity and profitability. He envisioned a resilient agricultural landscape in Uttar Pradesh, which could serve as a model for the entire nation.

With its emphasis on innovation, partnerships, and sustainable practices, the 13th National Seed Congress 2024 has charted a visionary path for the future of India's seed systems. By bridging research, technology, and policy with the needs of farmers and industry stakeholders, this congress demonstrated how collective efforts can build a resilient agricultural framework capable of addressing both regional and global challenges.



Experts weigh in on ways to revolutionize the Indian seed sector at NSC 2024



Plenary Session 1 - India's Role in the Global Seed Sector: Opportunities and Expectations

Varanasi, India (November 28, 2024)

Varanasi recently hosted an engaging session entitled “India's Role in the Global Seed Sector: Opportunities and Expectations.” This gathering brought together esteemed experts, policymakers, industry leaders, and researchers to discuss India's seed industry's vast potential and significant challenges. The dialogue highlighted the promising opportunities presented by India's rich biodiversity, technological advancements, and strategic role in the global agricultural landscape.

A distinguished panel featuring Dr. Hans Bhardwaj from the International Rice Research Institute (IRRI), Mr. Ajai Rana from the Federation of Seed Industry of India (FSII), Mr. Mohan Babu representing Corteva Agriscience, and Dr. Srivalli Krishnan from the Bill & Melinda Gates Foundation, shared their valuable insights during the session. The discussion was skillfully moderated by Dr. Swati Nayak, Organizing Secretary, and South Asia Seed Systems lead at IRRI, who guided the conversation on key opportunities and expectations concerning India's seed sector.

India's extraordinary biodiversity was central to the discussion and recognized as a crucial asset for developing climate-resilient seed varieties. The experts conveyed that these varieties could be vital in

addressing global challenges, including unpredictable weather patterns, pest resistance, and declining crop productivity. By leveraging this biodiversity, India is well-positioned to lead in ensuring global food security.



Fostering public-private partnerships emerged as a key strategy for advancing seed technology and enhancing farmers' access to high-quality seeds. Panelists urged collaboration among industry stakeholders, research institutions, and policymakers to streamline efforts, minimize duplication, and amplify the benefits of innovation.

Moreover, the speakers emphasized the significance of regional and international cooperation in seed production and distribution. They posited that exchanging knowledge, sharing resources, and adopting best practices across borders would enable India to enhance its contributions to the global seed industry. Such partnerships could further establish India as a center of seed innovation in South Asia and beyond.

The discussions highlighted the crucial need for clear and supportive regulatory frameworks to foster innovation and facilitate testing and distributing new seed varieties. It was widely agreed that a predictable and transparent policy environment would encourage investment and innovation, thereby strengthening India's position in the global market.



The session culminated in a collective call to action. Stakeholders from various sectors recognized the urgency of fostering innovation, collaboration, and ongoing support for India's seed industry. The collective sentiment underscored the belief that India possesses the potential to lead the global seed sector, but realizing this vision will require a concerted effort at all levels. With its unique strengths and a shared commitment, India's seed sector is poised to significantly contribute to global agriculture and food security.



Seed Congress called for south-south collaboration for global agricultural transformation



Plenary Session 2 - Fostering South-South Collaboration in the Seed Sector

Varanasi, India (November 28, 2024)

The 13th National Seed Congress (NSC) held important discussions on improving cooperation in the seed industry among countries in the Global South. Experts from various regions shared ideas on how to work together better and exchange knowledge in the seed sector.

The discussion highlighted the need for South-South collaboration to tackle shared issues like climate change, pest control, and food security. Panelists emphasized using each country's strengths and resources to create stronger seed systems. They presented successful examples of seed production and distribution, showing how collaboration can help overcome challenges in agriculture.



A major point was the benefit of regional and international partnerships in sharing resources and improving seed technologies. The panel noted that public-private partnerships are key to driving innovation, with governments playing an essential role

in supporting these partnerships. Strong regulations are also needed to make the exchange of seeds and technologies smooth and sustainable.

The session also stressed the importance of developing climate-smart seed varieties to ensure sustainability. With changing climate patterns affecting farming, new seed technologies are vital for food security and resilience. Aligning policies with collaborative efforts is crucial for strengthening agricultural systems in the Global South.

The session ended with a strong call for increased collaboration in the seed sector. By sharing knowledge and resources, countries in the Global South can tackle major agricultural challenges together, build more resilient food systems, and secure food for future generations. The insights from the panelists reinforced the need to foster these partnerships for a sustainable agricultural future.

The panel featured respected speakers, including Dr. Md. Harunur Rashid from SAC Bangladesh, Dr. Yacouba Diallo from the African Seed Trade Association (AFSTA), Dr. Rabe Yahaya from IRRI, Mr. Ganga Acharya from the SAARC Agriculture Centre, Dr. Pratibha Singh from the Australian Centre for International Agricultural Research (ACIAR), Mr. B.P. Prasai from the Ministry of Agriculture and Livestock Development, Government of Nepal, and Mr. Ruhul Amin Khan from the Bangladesh Agricultural Development Corporation (BADC).

Strengthening the seed sector through public-private partnerships



Plenary Session 3 - Strengthening the seed sector through public-private partnerships

Varanasi, India (November 28, 2024)

Leading experts and stakeholders from the public and private sectors gathered for a pivotal plenary session at NSC 2024, titled “Strengthening the Seed Sector through Public-Private Partnerships.” This session explored collaborative strategies to improve seed quality and accessibility.

Moderated by Dr. Jauhar Ali, Principal Scientist at IRRI, the session featured distinguished panelists, including Dr. A.K. Singh, Former Director of ICAR-IARI; Dr. Rajendra Barwale, Chairman of Mahyco; Dr. Raghavan Sampathkumar, Executive Director of FSII; Mr. Yogesh Kumbhejkar, IAS, Managing Director of Maharashtra State Seed Co. Ltd.; Dr. Venkatesh Hubli, Director of Research at Savannah Seeds; and Dr. Sangeetha Dawar, Head of Public Affairs and Sustainability at Bayer Crop Science. Together, they discussed the challenges and significant opportunities involved in strengthening India’s seed sector through strategic public-private partnerships (PPPs).

The session covered several critical themes, starting with distrust, unequal benefits, and limited adoption of innovative technologies. Panelists emphasized the importance of leveraging public research and private resources to overcome these barriers and ensure a more effective and inclusive seed sector.



One core topic was the equitable sharing of intellectual property rights (IPR). The panel discussed the need for mechanisms that ensure the benefits of seed innovations are fairly distributed, which would help sustain long-term, mutually beneficial partnerships between public and private entities.

A significant focus was placed on scaling innovation and delivery. Panelists agreed that public-private collaborations are essential for accelerating the development of improved plant genetics and for ensuring that these innovations reach farmers more efficiently. They also explored robust measures to address seed piracy, including implementing traceability systems, educational campaigns, and stronger enforcement to prevent the spread of counterfeit seeds.

The role of decentralized distribution networks, especially through Farmer Producer Organizations (FPOs) and Farmer Producer Companies (FPCs), was highlighted as a key strategy for enhancing seed distribution in rural areas, where access to quality seeds is often limited.

Participants also discussed the importance of government policies in fostering successful PPPs. Clear regulatory frameworks, guidelines, and incentives were deemed necessary to encourage private-sector investment and streamline collaboration between the public and private sectors.

Another crucial theme that emerged was the integration of digital tools. The panel stressed that digital solutions could enhance transparency, efficiency, and quality assurance in PPP projects, particularly in the seed sector, by enabling better traceability and access to information.

Finally, the session underscored the urgent need for developing climate-resilient seeds through PPPs. With climate change increasingly affecting agricultural



productivity, partnerships to develop drought-resistant, disease-resistant, and overall more resilient seed varieties are essential for ensuring long-term food security.

The session concluded with a strong consensus on the importance of trust, transparency, and shared commitment from all stakeholders in driving the growth of the seed sector. By addressing challenges and seizing opportunities through strategic public-private collaborations, the seed sector can continue to evolve, ensuring sustainable growth and meeting the diverse needs of farmers and agriculture for years to come.



Women as custodians of seeds: Pioneering a sustainable agricultural future



Plenary Session 4 - Custodians of Seeds: Women, youths and smallholders in seed systems

Varanasi, India (November 29, 2024)

Throughout history, women have played a crucial role in agriculture as custodians of seeds, preserving biodiversity, ensuring food security, and nurturing sustainable farming practices. Despite their immense contributions, their efforts often go unnoticed in formal agricultural systems. NSC 2024 explored this vital topic in a plenary session, focusing on how women's traditional wisdom and modern innovations can converge to shape the future of agriculture.

Moderated by Dr. Sugandha Munshi at IRRI, this session highlighted the transformative potential of empowering women and youth as equal stakeholders in agriculture. The discussions revealed how integrating traditional seed preservation practices with cutting-edge technologies can foster resilient agricultural systems and address emerging global challenges such as climate change, food insecurity, and economic disparity. Panelists included Dr. Malvika Dadlani, Former Joint Director (Research), ICAR-IARI, New Delhi; Ms. Sabarmatee Tikki, Co-founder, Sambhav, Odisha; Prabhakar Adhikari, Founder and Secretary, Pragati Koraput; Ms. Archana Yadav, Rural Development Specialist, Coordinator, Transforming Rural India Foundation.

Women's role in seed systems extends beyond simple custodianship. Across rural communities, they

safeguard indigenous seed varieties, conserving biodiversity while supporting local ecosystems. Community seed banks, often led by women, serve as a vital tool in combating climate change and preserving traditional seed varieties. These banks empower women to take charge of biodiversity conservation and provide farmers with access to resilient seeds during uncertain times.



However, the path forward requires greater institutional support. Scaling these initiatives calls for financial investments, technical training, and community-level collaboration to ensure their sustainability and broader reach.

Modern agricultural challenges necessitate blending age-old seed conservation practices with innovative

technologies. Participatory plant breeding programs, where women actively contribute to evaluating and selecting climate-resilient seed varieties, have emerged as a promising solution. These programs honor traditional knowledge while equipping women with scientific tools to address today's agricultural challenges.

The session also highlighted the transformative impact of custom hiring centers, where women entrepreneurs provide modern agricultural tools to their communities. The labor and drudgery-saving technologies like DSR were cited as examples. These centers not only bridge the technology gap but also create new economic opportunities, empowering women as leaders in agriculture.

The session underscored the importance of engaging youth alongside women to create inclusive agricultural systems. Programs like training “seed mothers” have demonstrated how localized, community-driven solutions can preserve traditional practices while fostering innovation. For example, in tribal areas, combining seed conservation with organic treatments has led to the cultivation of premium rice varieties, boosting local economies.

These collaborative efforts showcase how youth and women can together transform seed systems, fostering

resilience and innovation while addressing productivity gaps.

Empowerment also requires robust financial and policy frameworks. Financial literacy programs and targeted investments can enable women to adopt innovative agricultural practices while strengthening their roles as decision-makers. Furthermore, supportive policies that recognize and reward women's contributions to seed systems are essential for fostering gender equality in agriculture.

The session concluded with a clear vision: recognizing women and youth as equal stakeholders is not just about equity but about building a sustainable agricultural future. By blending traditional knowledge with modern technologies, fostering collaborations, and investing in empowerment initiatives, agriculture can evolve into a more resilient and inclusive sector.

This discussion at the National Seed Congress served as a reminder of the untapped potential of women as custodians of seeds and agents of change. By supporting their efforts, we take a step closer to securing global food systems, conserving biodiversity, and building a sustainable future for generations to come.



Experts discuss India's seed policies and trade strategies to foster inclusive growth



Plenary Session 5 - Indian seed sector policies and regulations - strides made, roadblocks and way ahead

The National Seed Congress 2024 delved into the intricacies of India's seed sector policies and regulations, shedding light on the strides made so far, the challenges that persist, and the way forward. This dynamic discussion provided a comprehensive overview of India's current systems and policies related to seed regulation and sectoral development.

The session emphasized the need to maintain genetic diversity and streamline the exchange of genetic materials between public and private agencies. It brought to light critical challenges that impede these processes and explored enabling policies that balance the interests of public institutions, private enterprises, and community-based organizations engaged in seed production and trade. The panel underscored the importance of aligning export and import policies with regulatory frameworks to enable faster and more efficient mobility of genetic resources. Such alignment is vital for ensuring India remains competitive and self-reliant in the global seed market.

A consensus emerged among the panelists on the urgent need for a new seed bill to serve as a progressive policy tool. This bill would aim to strengthen the seed sector, foster innovation, and ensure inclusivity. The session called for collective action to address roadblocks through an inclusive framework and

reinforced institutional mechanisms. This approach is essential to drive sustainable growth and foster innovation in the seed sector.

The panel comprised eminent experts: Dr. G. P. Singh, Director, NBPGRI; Dr. Malavika Dadlani, Former Joint Director (Research), ICAR-IARI; Mr. Rajvir Rathi, Director of Agricultural Affairs & Policy and Lead of Traits Licensing Business at Bayer CropScience; and Dr. Paresh Verma, Director of Research at Shriram Bioseed Genetics India Ltd. Dr. Shiv Kumar Agarwal, Regional Coordinator for South Asia and China at ICARDA, moderated the session.

The session was a robust exchange of ideas and strategies, with the panelists offering diverse perspectives on enhancing productivity, resilience, and technological advancements in agriculture. Their discussions highlighted the importance of a collaborative and inclusive approach to overcoming challenges in the seed sector and paving the way for a resilient and sustainable agricultural future.

This dialogue reflects the commitment of stakeholders to fostering innovation and inclusivity, ensuring that the Indian seed sector continues to thrive in an ever-evolving global landscape.

NSC deliberates on bridging formal and informal seed systems for sustainable agrisystems



Plenary Session 6 - Harnessing Informal Seed Systems for a sustainable seed business: Challenges and opportunities in India

The sixth session of the National Seed Congress focused on the critical role of informal seed systems in promoting biodiversity, grassroots entrepreneurship, and sustainable agricultural practices. The discussions highlighted the challenges, successes, and opportunities within these systems, proposing actionable solutions to bridge the gap between informal and formal seed networks.

A recurring theme of the session was the need to connect informal seed systems with formal frameworks to leverage their complementary strengths. Informal systems were recognized as vital for fostering biodiversity and supporting grassroots innovation, despite challenges like limited regulatory oversight and inadequate quality assurance mechanisms.

The role of women in biodiversity conservation and their traditional knowledge of seed management were celebrated as key enablers of sustainable agriculture. The panel called for gender-responsive policies to amplify their contributions and ensure equitable participation in the seed sector.

Successful case studies showcased how informal systems could effectively support native crop varieties while aligning with market-driven solutions. This approach not only preserves genetic diversity but also addresses the demand for locally adapted seeds.

The panel emphasized the importance of robust quality assurance frameworks and targeted investments to

enhance the sustainability and scalability of informal seed systems. Strengthening these frameworks is essential to ensure that informal networks can meet quality standards and effectively contribute to agricultural development.

The esteemed panel included: Ms. Kavitha Kuruganti, Social Activist; Dr. Sanjay Kumar, Director, ICAR-IISS, Mau; Dr. Veenita Kumari, Deputy Director of Gender Studies at MANAGE; Dr. P. Sethuraman Sivakumar, Principal Scientist, ICAR-CTCRI; and Dr. J. C. Rana, Senior Scientist and Country Representative for India, Alliance of Bioversity International and CIAT. The session was moderated by Dr. Srinivasulu Rajendran, Agricultural Economist at the International Potato Center (CIP).

The session underscored the immense potential of informal seed systems to contribute to sustainable agriculture and biodiversity conservation. By bridging informal and formal systems, promoting gender-responsive policies, and strengthening quality assurance frameworks, these systems can play a pivotal role in transforming the seed sector.

This dialogue reflects the collective commitment to fostering inclusive and sustainable growth, ensuring that informal seed systems remain a cornerstone of resilient and equitable agricultural practices.

Seed congress explores market intelligence for enhanced genetic gains



Plenary Session 7 - Leveraging market intelligence in the seed industry for enhanced genetic gains

Varanasi, India (November 29, 2024)

The 13th National Seed Congress (NSC), co-organized by the International Rice Research Institute and the National Seed Research and Training Centre under the aegis of the Ministry of Agriculture & Farmers' Welfare, Government of India, showcased a dynamic plenary session on "Leveraging Market Intelligence in the Seed Industry for Enhanced Genetic Gains." The session brought together a diverse group of experts from research institutions, private companies, and farmer organizations. They discussed how data-driven insights can improve breeding programs and seed systems to better meet agriculture's changing needs. The session encouraged engaging discussions and practical insights, highlighting how Market Intelligence (MI) can transform farming practices.

Discussions on various subtopics were abundant as speakers emphasized how Market Intelligence bridges policy, research, and local-level decisions. In his introduction, Dr. Prakashan C.V. from IRRI emphasized the CGIAR initiative's global relevance and introduced the MI framework, focusing on its integration with platforms like the Global Market Intelligence Platform (GloMIP) to guide evidence-based breeding programs.

Adding to this, Dr. K.V. Raju, Economic Advisor to the Chief Minister of Uttar Pradesh, called to establish a

robust national Market Intelligence system. Reflecting on the success of market-based approaches by organizations like the National Dairy Development Board (NDDB), he suggested, "A comprehensive Market Intelligence framework can empower stakeholders across the agricultural value chain. With public-private partnerships and effective data-sharing mechanisms, we can create a resilient system that improves productivity and ensures fair returns for farmers."



Furthering his thoughts on the role of public-private partnerships in leveraging MI into agriculture, driving innovation, and aligning R&D with market realities, Dr. Raman Babu, Seed Product Development Lead for South Asia from Corteva, shared insights and examples

to leverage MI in private-sector breeding programs. The examples included the development of heat-tolerant germplasms and downy mildew-resistant millets, demonstrating MI's transformative role in ensuring high returns for farmers.

Dr. Smitha Kurup, Group Leader at Mahyco Private Limited, underscored the importance of tailoring breeding strategies to meet local and premium market demands. She shared how MI has driven her organization to refine product profiles, such as fine-grain rice varieties, for specific geographies and consumer segments. "When breeding strategies align with consumer and market demands, adoption rates and stakeholder satisfaction rise across the value chain," she remarked, illustrating how targeted innovations enhance market impact.

Dr. Arun Kumar, Principal Scientist – Seed Science & Technology at ICAR-IARI, delved into the practical applications of MI in addressing logistical and regulatory challenges. He provided examples of how farmers use MI to meet export quality standards and combat issues like pest infestations. "From tackling pest infestations to meeting export criteria, MI is a game-changer. It equips farmers with the tools they need to thrive in domestic and international markets," he said, reinforcing MI's value in improving efficiency and readiness across breeding pipelines.

The grassroots perspective brought a practical lens to the discussion, as Mrs. Rita Rai, President of Om Gaura

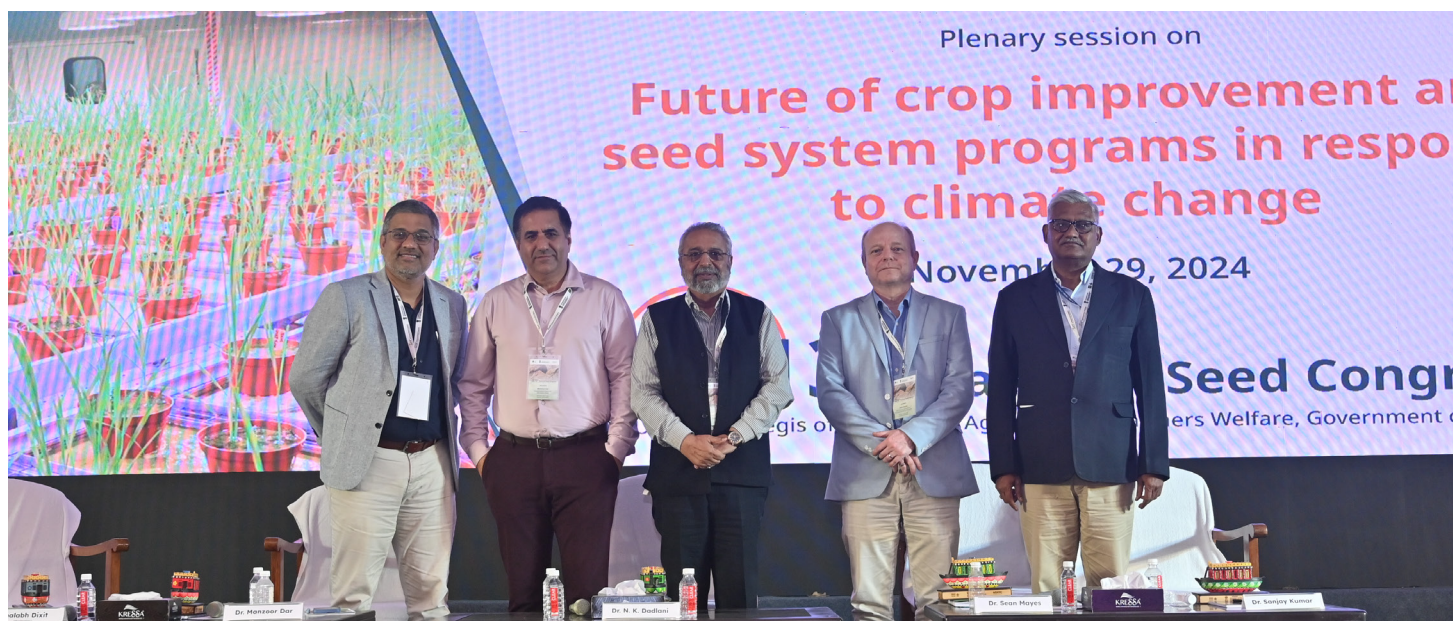
Sewa Sansthan, shared. She highlighted how varietal traits, such as crop duration, influence farmers' decision-making processes. "Farmers rely on actionable information, and that's where collaboration with research institutions and Krishi Vigyan Kendras (KVKs) becomes critical," she emphasized, showcasing how farmer feedback forms a crucial part of effective MI systems.

The session concluded with Dr. Pallavi Sinha, Scientist – Plant Breeding at IRRI, emphasizing the power of transdisciplinary collaboration. She explained how combining field data with laboratory insights, supported by geographically segmented databases, ensures precision in breeding programs. "The fusion of field data with laboratory insights ensures that breeding programs remain precise and impactful," she remarked, advocating for seamless knowledge exchange across the agricultural ecosystem.

This plenary session illuminated the transformative potential of Market Intelligence in reshaping breeding programs and seed systems. The discussions underscored MI's role in driving agricultural innovation and resilience by weaving together insights from policymakers, scientists, industry leaders, and farmers. The collective commitment to leveraging MI promises a future where the seed sector remains agile, impactful, and aligned with global sustainability goals.



Targeted solutions to advance climate-resilient agriculture explored at NSC



Plenary Session 8 - Future of crop improvement and seed systems programs in response to climate change

The eighth session of the National Seed Congress highlighted the urgent need to adapt crop improvement and seed systems to the challenges posed by climate change. Discussions emphasized integrating climate resilience into agricultural practices through innovative approaches such as speed breeding, genomic selection, and advanced seed technologies. These tools are essential for developing stress-tolerant crops that can withstand extreme weather conditions like drought and salinity while enhancing agricultural productivity and sustainability.

Panelists underscored the critical importance of streamlining the variety release process to keep pace with the accelerating impacts of climate change. Addressing gaps between breeding programs and seed delivery systems was identified as a priority to ensure farmers receive timely access to climate-resilient crop varieties. Market-driven variety development was highlighted as a key strategy, along with the establishment of flexible local seed systems tailored to the specific needs of smallholder farmers.

The session also showcased advancements in stress-tolerant crops and explored novel technologies, such as using root exudates to enhance microbial activity and improve resource use efficiency. These innovations, coupled with strengthened public-private

partnerships, were seen as pivotal in scaling solutions and fostering sustainable growth in the agricultural sector.

Moderated by Dr. Shalabh Dixit, Lead - Direct Seeded and Upland Rice Breeding at IRRI, the session brought together an expert panel comprising Dr. Manzoor Dar from ICRISAT, Dr. Sanjay Kumar, Director, IISS, Mau, Dr. N. K. Dadlani, Former Director, NSAI and APSA, and Dr. Sean Mayes, Global Research Program Director - Accelerated Crop Improvement at ICRISAT, Patancheru, Telangana. Their collective expertise facilitated a robust discussion on the future of crop improvement and seed systems in response to climate change.

Key recommendations included prioritizing climate-mitigation traits in breeding programs, fostering farmer-centric solutions to enhance adoption rates, and investing in emerging technologies to boost resource use efficiency. By implementing these strategies, the session concluded, stakeholders can create a more sustainable and resilient agricultural system capable of addressing the pressing challenges of climate change.

Opportunities for the seed sector to contribute to nutrition, sustainability, and livelihoods tackled at NSC 2024



Plenary Session 9 - Emerging opportunities in seed sector to include value-added traits, landraces, and crops

Varanasi, India (November 30, 2024)

Various topics related to emerging challenges and opportunities in the allied areas of the seed sector were deliberated during the 2024 National Seed Congress. One such plenary session, entitled “Emerging opportunities in seed sector to include value-added traits, landraces, and crops,” focused on the potential of value-added traits, traditional landraces, and diverse crops and how they can be harnessed to improve both the nutritional value and marketability of agricultural produce.

The panel brought together a distinguished group of experts, including Dr. Praveen Kumar Singh, Agriculture Commissioner, Government of India; Dr. Dinesh Kumar Agarwal, Registrar General, PPVFRA, New Delhi; Dr. R.C. Chowdhury, Chairman, PRDF, Gorakhpur; Dr. M. Govindaraj, Senior Scientist at Alliance of Bioversity International and CIAT; and Dr. Amit Sharma, Principal Scientist at IIWBR, Karnal. The session was moderated by Dr. Saurabh Badoni, Grain Quality and Nutrition scientist at IRRI. Together, they explored the multifaceted opportunities in the seed sector that can positively impact nutritional health, agricultural sustainability, and farmers' livelihoods.

Key highlights of the discussion

The session centered on leveraging the seed sector to address nutrition-related challenges, promote sustainable agriculture, and improve farmers' income through a multitude of innovative approaches, including:

Bio-fortified crops: The panel advocated for the promotion of bio-fortified crops, such as millets, Kalanamak rice, and nutrient-rich cereals and legumes, to combat malnutrition and enhance the nutritional value of the food supply.

Traditional varieties: The potential of indigenous landraces, including nutrient-dense rice and millets, was emphasized as a way to offer healthier food options without the need for additional fortification. These crops, deeply rooted in the country's agricultural heritage, can support more sustainable and nutritious diets.

Post-harvest innovations: Participants highlighted the importance of increasing investment in post-harvest technologies to preserve the nutritional integrity of crops during storage and cooking. Innovations in processing and packaging were identified as essential to retaining the value of produce and minimizing losses.

Export standards for non-Basmati varieties: The need for establishing export standards for non-Basmati rice and other nutrient-rich crops, similar to Basmati rice, was proposed to expand global markets and bolster India's agricultural presence on the world stage.

Regulatory measures: There was a strong call for enforcing nutritional standards to prevent the sale of nutrient-poor grains, such as over-polished rice. This measure aims to improve consumer health by ensuring that only nutritionally rich grains reach the market.

Food diversification: Panelists recommended promoting diversified diets that incorporate millet, legumes, and vegetables. Such dietary diversification is essential to tackling malnutrition and encouraging a balanced diet across rural and urban populations.

Integrated value chains: The session underscored the importance of building integrated value chains for crops like millet and legumes. These value chains should be equipped with strong market linkages, adequate storage infrastructure, and modern processing facilities to ensure that farmers benefit from fair prices and efficient distribution.

School nutrition programs: The inclusion of millet in government nutrition programs, such as midday meals, was suggested as a means to increase their consumption and raise awareness about their nutritional benefits among children and the broader population.

Farmer education and support: Panelists stressed the need for comprehensive education programs to inform

farmers about the advantages of growing protected, notified, and biofortified varieties. By empowering farmers with this knowledge, they can make informed decisions that contribute to improved productivity and healthier food systems.

The session concluded with a unified vision to enhance the seed sector's role in promoting sustainable agriculture and improving public health. By integrating value-added traits, promoting traditional varieties, and adopting innovative practices, the seed sector can transform agricultural systems, improving both nutritional outcomes and farmers' livelihoods.

The recommendations presented offer a clear roadmap for a more resilient and inclusive agricultural value chain, ensuring that India remains at the forefront of addressing global challenges related to nutrition and food security.



NSC 2024: Organic farming systems can unlock greater sustainability and climate resilience for India's food systems



Plenary Session 10 - Advancing natural and organic farming systems for resilient agriculture

Varanasi, India (November 30, 2024)

At the 13th National Seed Congress (NSC 2024), a transformative plenary session illuminated the critical role of natural and organic farming systems in creating a resilient and sustainable agricultural future. The session brought together experts, farmers, and thought leaders to discuss the opportunities and strategies that can drive India's agricultural sector toward greater sustainability. The message was clear: organic farming holds the key to a thriving agricultural landscape, one that can withstand the challenges of climate change and ensure long-term food security.

Moderated by Dr. Ajay K. Mishra, Associate Scientist at IRRI, the session featured a distinguished panel of speakers, including Prof. Janardan Singh, Head of the Department of Organic Agriculture & Natural Farming at CSKHPKV, Palampur; Dr. Gagnesh Sharma, Director of the National Centre for Organic and Natural Farming; Sh. C. P. Srivastava, Former Deputy Director at GoUP; Ms. Nikki P. Choudhary, Founder of Mango Dairies; and Shri Chandra Shekhar Singh (Padma Shri), Founder of Vasundhara Naturals. Together, they shared their

collective insights on the transformative potential of organic farming systems for a sustainable future.

The conversation centered on how organic farming, with its focus on biodiversity, soil health, and sustainable practices, can be scaled up across the country. At the heart of the discussion was the importance of making organic farming accessible, economically viable, and scientifically grounded.

One of the key recommendations for advancing organic practices was the need to improve accessibility to organic inputs. Affordable, ready-to-use bio-fertilizers, bio-pesticides, and bio-fungicides are essential to ensuring that organic farming can deliver consistent yields while reducing the reliance on chemical inputs. These organic solutions are not just a tool for farmers—they are a vital step in transitioning to sustainable agricultural practices that protect both the environment and human health.

The session also highlighted the importance of soil fertility in organic farming. Practices such as crop rotation, intercropping, and green manuring were discussed as essential strategies to restore and maintain

soil health. These methods not only enrich the soil with organic matter but also promote microbial activity, which is critical for nutrient cycling and overall soil vitality. By enhancing soil health, farmers can improve productivity while reducing the need for synthetic fertilizers and pesticides.

Another key focus was the recycling of crop residues. Incorporating post-harvest residues back into the soil is a powerful practice for nutrient recycling, helping to replenish the soil with essential nutrients and promoting the health of soil microbes. This process, while simple, plays a pivotal role in maintaining long-term soil fertility and promoting the sustainability of farming systems.

As the discussion continued, the importance of training farmers in soil health and organic farming practices was underscored. To make organic farming a widespread success, farmers must be equipped with the knowledge and tools to understand soil dynamics, the role of microbes, and how to maintain healthy soil ecosystems without relying on chemical inputs. This knowledge sharing can empower farmers to make informed decisions that align with sustainable farming practices.

Investment in research for organic-specific crop varieties was also identified as a critical priority. Developing pest-resistant, disease-resistant, and nutrient-rich crop varieties suited for organic farming can help farmers achieve greater yields while overcoming the challenges of pests and diseases. Such innovations can support the growth of organic agriculture by improving crop resilience and productivity.



The session also stressed the importance of preserving traditional and organic seed varieties. Establishing seed banks to conserve drought-tolerant, disease-resistant varieties is a critical step in ensuring resilience against

climate change. These seed banks serve as a safeguard, helping farmers access the best seeds for their specific conditions and preserving biodiversity for future generations.

To support the transition to organic farming, the need for dedicated organic farming zones was discussed. These zones, backed by regulatory support, infrastructure, and incentives, would streamline the adoption of organic practices. Creating such zones could make it easier for farmers to transition to organic systems, providing them with the support needed to overcome initial challenges and increase their market access.

Finally, the importance of certification and quality assurance for organic products was emphasized. Simplifying the certification process and making it more affordable for farmers will increase trust in organic products and expand market opportunities. Additionally, offering price premiums for organic products could incentivize farmers to adopt these practices, ensuring economic viability alongside environmental sustainability.

In conclusion, the plenary session called for a unified effort from all stakeholders—government, industry, research institutions, and farmers—to prioritize organic farming as a solution to the challenges of modern agriculture. By embracing natural farming systems, India has the opportunity to lead the way in creating a more sustainable agricultural future. Through innovation, collaboration, and a focus on soil health, biodiversity, and farmer empowerment, the country can build a resilient agricultural sector that will thrive for generations to come.

This session provided a roadmap for integrating organic practices into India's agricultural value chain, offering actionable steps to build a healthier, more sustainable farming and food system.



Transforming Uttar Pradesh's seed sector: Collaboration, innovation, and strategies emphasized in NSC 2024



Plenary Session 11 - Strengthening seed sector in the state of Uttar Pradesh

Varanasi, India (November 30, 2024)

The 13th National Seed Congress (NSC 2024) concluded with a dynamic plenary session centered on strategies to enhance Uttar Pradesh's seed sector. Moderated by Dr. Vikram Patil, Agricultural Economics Scientist at IRRI, the session brought together a broad spectrum of stakeholders—from government officials and academic leaders to industry experts—to discuss actionable strategies that can improve seed quality, infrastructure, and market access in the state. The overarching goal was to strengthen Uttar Pradesh's seed sector to better serve the needs of farmers and foster sustainable agriculture.

A distinguished panel of speakers led the session, including Prof. Panjab Singh, Chancellor of Rani Lakshmi Bai Central Agricultural University, Jhansi; Dr. K.V. Raju, Economic Advisor to the Chief Minister of Uttar Pradesh; Dr. A.K. Singh, Former Director and Vice Chancellor of IARI, New Delhi; Dr. J.S. Tomar, Director of Agriculture, UP; Dr. Sudhanshu Singh, Director of ISARC; Dr. Sanjay Singh, Director General

of Uttar Pradesh Council of Agricultural Research; Mr. Pankaj Tripathi, Managing Director of Beeja Vikas Nigam, UP; and Prof. Sanjeet Kumar, Head of the Department of Genetics and Plant Breeding at ANDUAT, Ayodhya.

Highlights of the discussion

The session delved into several critical areas for strengthening the seed sector in Uttar Pradesh, with a focus on fostering innovation, improving infrastructure, and ensuring accessibility for farmers.

A key focus was enhancing seed quality and certification. Panelists emphasized the need for expanding seed testing and quality control facilities across the state. Simplifying the certification process, especially for small-scale producers, was also highlighted as a vital step. By offering training and financial incentives, the state can help local seed producers meet national and international standards, ensuring high-quality seeds are readily available to farmers.

Infrastructure development emerged as another critical area of focus. Experts underscored the importance of investing in cold storage units, warehouses, and transportation systems to preserve seed quality and ensure timely delivery to farmers. This infrastructure would not only support seed producers but also ensure that farmers have consistent access to the seeds they need, particularly during crucial planting seasons.

In today's digital age, digital solutions were highlighted as a means of enhancing transparency and efficiency in the seed supply chain. Panelists called for the development of mobile applications and digital platforms that connect seed producers, suppliers, and farmers. These platforms can provide real-time information on seed varieties, market prices, and weather updates, ensuring farmers can make informed decisions and access the best available seeds.

Strengthening Farmer Producer Organizations (FPOs) and non-governmental organizations (NGOs) was also seen as essential for empowering farmers. These organizations can serve as valuable intermediaries, providing farmers with access to new seed varieties, training on best practices, and resources to improve their farming techniques.

The session also focused on the promotion of bio-fortified and climate-resilient seeds, with a strong push for developing drought-tolerant and pest-resistant varieties. Implementing pricing mechanisms and offering incentives for cultivating nutrient-rich varieties could improve both food security and farmers' economic viability.

An important point of discussion was the conservation of indigenous landraces. The creation of a Landrace Conservation Committee was proposed to catalog and promote indigenous seed varieties, ensuring they are preserved for future generations. Additionally, the establishment of a digital repository to document the traits and benefits of these varieties was recommended as a way to support their continued use in modern agriculture.

To foster the growth of organic seed production, the session advocated for financial incentives and simplified certification processes, making it easier for farmers to produce and access organic seeds. This would help meet the growing demand for organic produce and encourage environmentally friendly

farming practices.



In addition, capacity building was emphasized as a key pillar of the seed sector's growth. Training programs for farmers, seed inspectors, and extension agents will ensure that all stakeholders are equipped with the knowledge and skills needed to implement innovative practices effectively. Collaboration between public institutions and private companies was also encouraged to drive research and innovation in seed production.

Finally, the session highlighted the importance of market linkages and expanding export potential. Strengthening connections between seed producers and agro-processing industries could help improve the economic viability of the seed sector. Establishing export systems for high-quality seeds would not only boost competitiveness in global markets but also support the state's economic growth by tapping into international demand.

The session concluded with a clear call to action: all stakeholders—government bodies, research institutions, the private sector, and farmer organizations—must collaborate to implement these strategies and drive the growth of Uttar Pradesh's seed sector. By investing in infrastructure, embracing digital innovations, and fostering public-private partnerships, Uttar Pradesh has the potential to position itself as a leader in India's seed industry, supporting sustainable agriculture and improving farmers' livelihoods.

With these actionable recommendations, the session outlined a roadmap for transforming the seed sector in Uttar Pradesh, ensuring it is well-equipped to meet the challenges of the future while providing farmers with the tools and resources they need to succeed.

THEMATIC TECHNICAL SESSIONS AT NSC

NSC 2024 brought together experts, speakers, and researchers for insightful technical sessions and parallel poster presentations under six critical themes. With nearly 200 submissions, surpassing previous records, the conference showcased innovations vital to the seed sector. Eminent chairs, moderators, and presenters enriched the sessions with groundbreaking research findings and discussions.

Theme 1: Emerging Seed Technologies, Quality Assurance, and Regulatory Standards

Key topics discussed included:

- SATHI: A blockchain-based platform ensuring seed traceability.
- Hi-tech potato seed production in Eastern India.
- Expanding access to quality seed pulses through seed hubs.
- Apical Rooted Cutting (ARC) technology for smallholder farmers.
- Role of quality standards and regulations in the seed sector.
- Emerging technologies for seed quality testing.

The session was moderated by Dr. Uma Maheshwar Singh (IRRI), chaired by Dr. Sanjay Kumar (ICAR-IISS), and co-chaired by Dr. Dilip Srivastava (GoI). The keynote was delivered by Dr. Bharath Kumar Davda (Tara International). The session highlighted innovative technologies such as the SATHI blockchain platform and ARC technology for disease-free planting materials. Emphasis was laid on robust quality assurance systems and advanced seed testing methods.

Best Oral Presenter:

“Emerging Technologies for Seed Quality Testing and Their Tradeoffs” by Mr. Sakthivel I.

Best Poster Presenter:

- 1) “Novel salinity screening method and reliable trait using a mathematical model and alleviation of salinity stress through seed priming in chili (*Capsicum annuum* L.)” by Shivam Kumar Rai et al.
- 2) “SATHI: The digital ecosystem driving quality assurance in Indian agriculture” by Shahil Kumar et al

Theme 2: Innovative Crop Improvement Tools, Methods, and Strategies

Highlighted topics included:

- Evaluating maize inbred lines for ideal plant architecture.
- Breeding quinoa for Asian environments.
- Strengthening rice breeding programs through the IRRI-NARES Breeding Network.
- Climate-resilient seeds for saline environments.

Moderated by Dr. Jyothi Badri (ICAR-IIRR), the session was chaired by Dr. Arun Kumar Joshi (BISA-CIMMYT) and co-chaired by Dr. Gopala Krishnan S (IARI). Dr. K.C. Bansal (Ex-NBPGR) delivered the keynote address. Discussions emphasized the importance of climate-resilient seeds and collaborative breeding networks like IRRI-NARES. Innovations in salt-tolerant seeds and architectural advancements in maize inbreds were recognized as transformative.

Best Oral Presenter:

“Cultivating Tomorrow: Future Climate-Resilient Seeds for Saline Environments” by Dr. Mahender Anumalla

Best Poster Presenter:

- 1) “Genome-wide association study identified quantitative trait loci (QTLs) governing seed vigor and early establishment traits in rice” by Sanchika Snehi et al
 - 2) “Genetic study of hybrid operate with for enhancing grainy and attributing trades using Line x tester analysis” by Bhagyashri Acharya et al
-

Theme 3: Unleashing the Potential of Landraces and Indigenous Crops

This theme explored the role of indigenous crops in empowering farmers and developing high-yielding, nutritionally enhanced varieties. Key presentations included:

- Conservation and commercialization of indigenous paddy in Odisha.
- Regulatory compliance for GI-tagged rice production.
- Unlocking the genetic potential of pulse landraces.
- Nutritional profiling of indigenous rice varieties from Assam.
- Rice flakes muesli: A value-added product from Indian rice landraces.

The session was moderated by Dr. Saurabh Badoni, chaired by Dr. B.N. Singh, and co-chaired by Dr. Haritha Bollinedi (IARI). Dr. V. Sankaran (Ex-National Seeds Corporation) delivered the keynote address. Discussions highlighted the potential of landraces in addressing food security and enhancing farmer livelihoods. Successful initiatives, such as Kalanamak rice improvement and gluten-free rice flakes muesli, were showcased.

Best Oral Presenter:

“Rice Flakes Muesli: Nutritious, Gluten-Free Cereal from Indian Rice Landraces” by Dr. Hameeda Itagi

Best Poster Presenter:

- 1) “Exploring non-Basmati traditional varieties for varied textural traits while ensuring nutrition” by Neha Chakrawarti et al
 - 2) “Evaluating indigenous collections of bread wheat for their potential uses in developing climate-resilient wheat varieties” by Priyanka Parihar et al
-

Theme 4: Innovations and Impacts of Seed Entrepreneurship, Delivery, and Scaling Systems

Presentations explored innovative seed delivery and entrepreneurship strategies, including:

- Comparative analysis of community-based seed systems in India, Nigeria, and USAID interventions.
- Business Investment Decision (BID) tool for seed sector decision-making.
- Village-Based Seed Enterprises (VBSEs) for rural employment and quality seed production.
- Adaptive minikit testing for climate-resilient seeds.

Dr. Vikram Patil (IRRI) moderated the session, with Dr. Shivkumar Agarwal (ICARDA) as Chair and Dr. Srinivasulu Rajendran (CIP) as Co-Chair. The keynote was delivered by Dr. P.K. Singh (BHU). VBSEs were recognized for addressing rural challenges, while the BID tool was introduced as a key resource for optimizing seed investments. Minikit testing highlighted sustainable solutions for coastal regions.

Best Oral Presenter:

“Enhancing Seed Sector Decision-Making with the Business Investment Decision (BID) Tool” by Mr. R. Sai Shiva Jayanth.

Best Poster Presenter:

“Public-private partnership and farmer-participatory seed production: Towards sustainable rice farming in Telangana – A success story” by Jhansi Rani Kaparathi et al

Photo Gallery Awardees of the technical sessions





SIDE EVENTS AT NSC 2024

The National Seed Congress 2024 featured five crucial side events focusing on critical issues that extend beyond seed system innovations. These sessions addressed contemporary challenges and opportunities in agricultural research and development, with organizers such as the Ministry of Agriculture & Farmers Welfare, IRRI, Bayer Crop Science, and Savannah Seeds Pvt. Ltd.

1. Targeting Rice-Fallows and System Intensification through Geospatial Technology of Eastern India

Organizer: IRRI

Key expert participants: Session Chair - Additional Secretary (Crops, Admin. & Seeds), MoA&FW, Smt. Shubha Thakur; Head, Crop Science, IIPR, Kanpur, Dr. P.K. Katiyar; Director of Agriculture and Food Production, Government of Odisha; Dr Sunil Dubey, Deputy Director, MNCFC, New Delhi, Shri Prem Chandra Chaudhary; Senior Assistant Professor of Remote Sensing, BHU, Varanasi; Dr Amitava Rakshit, Professor, Department of Soil Sciences and Agricultural Chemistry, BHU, Varanasi, Dr. Prashant Srivastava; Dr. Mann Singh, Director, DRD, Patna.

Key Outcomes:

- Identified 11 million hectares of rice-fallow areas in six Eastern Indian states for pulses and oilseeds cultivation.
- Highlighted geospatial technologies' role in mapping and crop targeting.
- Emphasized policy and program support (NFSM, RKVY) for subsidies and training.
- Addressed challenges like soil health and irrigation, recommending stronger seed systems, soil health management, and real-time tools for crop diversification.



2. Greener Horizons: Resource-Efficient Agriculture for a Resilient Global South

Organizer: Savannah Seeds Pvt. Ltd.

Key expert participants: CEO and MD, Savannah Seeds Pvt. Ltd., Mr. Ajai Rana; Director, Science for Sustainability and Regenerative Agriculture, Bayer Crop Science, Dr. S. P. Kamath; The World Bank, Mr. Ajith Radhakrishnan; Interim Department Lead, SIRS, IRRI, Dr. Virender Kumar; Scientist, IRRI, Dr. Anthony Fulford; Scientist, IRRI, Dr. P. Panneerselvam (Event Moderator).

Key Outcomes:

- Explored regenerative agriculture, Direct Seeded Rice (DSR), and Alternate Wetting and Drying (AWD).
- Demonstrated labor and cost savings, higher incomes, and reduced crop duration with DSR.
- Highlighted carbon and water credit opportunities and benefits of AWD in soil health.
- Recommended scaling DSR, engaging women farmers, and adopting digital monitoring tools for irrigation and decarbonization efforts.



3. Harnessing Genetic Diversity of Millets for Food Systems

Organizer: Ministry of Agriculture & Farmers Welfare

Key expert participants: Deputy Commissioner, DA&FW, New Delhi, Dr. Dilip Kumar Srivastava; Professor, UAS, Bengaluru, Dr. M. S. Sheshshayee; Global Lead Seed System, ICRISAT, Dr. Manzoor Dar; Principal Scientist (Seed Technology), IIMR, Hyderabad, Dr. B. Venkatesh Bhat; HarvestPlus, Dr. Mahalingam Govindaraj (event moderator)

Key Outcomes:

- Showcased millets' potential for climate-resilient, nutrient-rich farming.
- Stressed integrating millets into food systems like PDS and enhancing local processing.
- Proposed scaling millet production, creating a national task force, and fostering public-private collaborations for seed quality assurance and value-added products.



4. Roundtable on Direct Seeded Rice: Needs, Challenges, and Opportunities

Organizer: Bayer Crop Science

Key expert participants: Rice Team Lead-Asia, Bayer Crop Science, Mr. Ajeet Chahal; IRRI, RBI Interim Platform Lead, and Scale Direct PI, IRRI-Bayer Partnership, Dr. Sankalp Bhosale; IRRI DSR Flagship Lead (Agronomy) and Interim Department Lead (SIRS) IRRI, Dr. Virender Kumar; IRRI DSR Flagship Lead (Breeding), Dr. Shalabh Dixit; Rice Venture Lead, Bayer Crop Science, Ms. Vinny Gandham; DSR Portfolio and Agronomy Manager-Asia, Bayer Crop Science, Mr. Saiyed Imam; Director Public Affairs and Sustainability, Bayer Crop Science, Dr. Sangeeta Dawar; The World Bank, Mr. Ajith Radhakrishnan; Ex-Director, NRRI, Cuttack, Dr. B. N. Singh; Head Division of Genetics, IARI, New Delhi, Dr. Gopala Krishnan S; Savannah Seeds Pvt Ltd., Mr. Mrinmoy Choudhary; Agronomist, Rice Research Station (Government of West Bengal), Chinsurah (R.S, Hooghly), Dr. Malay K. Bhowmick; Breeding Partnership lead, Bayer Crop Science, Dr. Amaresh Chanddel.

Key Outcomes:

- Highlighted DSR's water and labor efficiency, cost reduction, and resilience to climate challenges.
- Emphasized mechanization's role in DSR adoption and the development of DSR-specific rice varieties.
- Proposed organizing an international DSR conference and expanding modular machines for multi-crop use to foster rural entrepreneurship.



5. Bridging Tomorrow's Yield Gaps: Boosting Maize Productivity for a Sustainable Future

Organizer: Bayer Crop Science

Key expert participants: Bayer Crop Science, Dr. Ram Sirohi; Director, ICAR-IIMR, PAU Campus, Ludhiana, Dr. S. L. Jat; Principal Scientist, CIMMYT, Dr. P. H. Zaidi; Director R&D, Yaganti Agrotech Pvt. Ltd., Dr. Jagadeesha Gouda; Director Bioseed Research India, Dr. Paresh Verma.

Key Outcomes:

- Focused on market-driven traits for maize breeding (drought tolerance, pest resistance, high yield).
- Recognized public-private collaborations and supportive government policies as crucial for advancing maize breeding and production.
- Recommended targeted R&D, farmer capacity building, input management, and policy frameworks to meet demand in poultry feed, bioethanol, and starch sectors.



PHOTO GALLERY - EXHIBITION AREA





13th National Seed Congress

{ Under the aegis of Ministry of Agriculture & Farmers Welfare, Government of India }

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Strengthening Global-Local Partnerships for Agricultural Transformation in South Asia



IRRI Director General Dr. Yvonne Pinto with women service providers in Odisha. These women farmers have adopted mechanised DSR and are scaling the initiative within their communities.

Odisha & New Delhi, India (December 01-03, 2024)

During her recent visit to India, Dr. Yvonne Pinto, the Director General of the International Rice Research Institute (IRRI), embarked on a mission to forge powerful partnerships and ignite agricultural transformation. Engaging in meaningful discussions with government officials, researchers, and policymakers, she illustrated IRRI's unwavering commitment to crafting science-driven solutions for sustainable rice farming.

On December 2, Dr. Pinto took center stage at a captivating lecture organized by the Department of Agriculture & Farmers' Empowerment in Odisha, where she shared insights on IRRI's pioneering initiatives. The event garnered attention with a special appearance from Deputy Chief Minister Shri Kanak Vardhan Singh Deo. During her talk, Dr. Pinto highlighted key advancements in seed systems, innovative farming practices, women's entrepreneurship, and the vital area of rice value addition. She praised Odisha's leadership in tackling climate change and sustainability, and she also invited Shri Singh Deo to visit IRRI Headquarters in the Philippines, fostering hopes of enhanced collaboration.



Dr. Pinto's journey continued as she met with Dr. Arabinda Kumar Padhee and Shri Prem Chandra Chaudhary, diving deep into programs tailored to empower local farmers. Their discussions revolved around sparking innovation and ensuring that research breakthroughs reach the hands of farmers, ultimately improving their livelihoods. She also had the opportunity to meet with farmers who successfully implemented mechanized Direct-Seeded Rice (DSR) methods, revolutionizing their rice cultivation through efficiency and sustainability. The interactions with service providers, including dedicated women farmers, showcased how DSR is not just a farming technique but a means to transform lives while significantly reducing labor needs.



On December 4, Dr. Pinto met with Dr. Devesh Chaturvedi, the Ministry of Agriculture and Farmers' Welfare Secretary, to discuss how IRRI's programs can align with India's agricultural aspirations. Their dialogue emphasized utilizing science-based strategies to elevate climate resilience, enhance food security, and promote sustainable rice production.

In another crucial meeting with Dr. Himanshu Pathak from the Indian Council of Agricultural Research (ICAR), Dr. Pinto expressed her admiration for ICAR's contributions to agricultural innovation, reinforcing the importance of collaboration in research and capacity-building to uplift rice farmers across India. Conversations with Prof. Ramesh Chand from NITI Aayog explored how IRRI's research can seamlessly integrate into India's agricultural policy, highlighting the pivotal role of public-private partnerships in ensuring that smallholder farmers benefit from innovations. Prof. Chand acknowledged IRRI's contributions to the crucial fight for food security and sustainability.



Networking with Dr. Auguste Tano Kouama, the Country Director of the World Bank India, Dr. Pinto discussed exciting collaborations for low-emission, climate-resilient rice practices. She thanked the World Bank for backing initiatives like the APART project in Assam and various efforts in Odisha, Kerala, and Uttar Pradesh. The discussions centered around vital priorities such as breeding low methane rice varieties, enhancing carbon finance systems, and sharing invaluable knowledge with other rice-producing nations, including Bangladesh, Vietnam, and countries in Africa.



Dr. Pinto passionately advocated for investments in climate-smart rice varieties and practices to improve water efficiency, soil health, and pest resistance. She proposed strategies that include building capacity, integrating farming systems, and diversifying crops to mitigate climate risks, all while promoting stronger post-harvest management and value-added rice products that enhance food security and nutrition.

Engaging with Mr. Sanjay Agarwal from ICRISAT and representatives from various centers, Dr. Pinto brainstormed ways to bolster sustainable farming and regenerative agriculture initiatives. Her discussions exemplified IRRI's commitment to creating innovative, science-based solutions that support farmers, address the challenges of climate change, and champion sustainable practices. Together, these conversations are paving the way for a brighter agricultural future for rice growers in India and far beyond its borders.

Experts draft stewardship guidelines on HT rice for a resilient rice cultivation in India



Experts discussion in the session to develop stewardship guidelines for herbicide-tolerant rice technology in India. The event focused on sustainable farming practices, addressing concerns like gene flow, herbicide resistance, and environmental impact while promoting effective weed management.

Varanasi, India (December 01, 2024)

As India works to adopt more resource-efficient and environmentally friendly Direct-Seeded Rice (DSR) systems, herbicide-tolerant (HT) rice technology offers a promising solution to manage weeds. However, concerns such as the risk of gene flow to wild and weedy rice, the development of herbicide-resistant weeds, possible harm to non-target species, and effects on future crops highlight the need for careful and responsible use of HT rice technology. This balance is crucial for sustainable farming and to reduce risks.

The International Rice Research Institute (IRRI), along with the Indian Council of Agricultural Research (ICAR) Directorate of Weed Research (DWR), and ICAR Indian Agricultural Research Institute (IARI), organized a workshop focused on creating stewardship guidelines for HT rice technology in India. This event was a significant step towards promoting sustainable rice farming practices in the country.

In his opening remarks, Dr. J.S. Mishra, Director of ICAR-DWR, emphasized the importance of developing stewardship guidelines for HT rice and adapting the technology to Indian farming conditions.

Dr. P.K. Singh, the Agriculture Commissioner from the Government of India and the chief guest at the session, stressed the need for further testing of HT rice technology to build confidence in its effectiveness. He discussed the importance of resource allocation and suggested cluster-based initiatives to support technology adoption. He also highlighted key benchmarks, such as developing location-specific varieties and integrating HT traits into existing varieties while addressing market access issues.



IRRI Director General Dr. Yvonne Pinto shared her vision for a future where HT rice technology helps

farmers manage weeds effectively, ensuring productivity and environmental sustainability. She emphasized IRRI's commitment to advancing sustainable farming practices that support food security.

Dr. Sudhanshu Singh, Director of ISARC, stressed the importance of HT rice research in informing policymakers. He highlighted the need for stewardship guidelines to achieve sustainable rice production and improve food security and farmers' livelihoods.



Former ICAR-IARI Director Dr. A.K. Singh presented the history and development of HT rice in India, mentioning non-transgenic varieties like PB 1979 and PB 1985 and hybrids like Sava 127 FP and Sava 134 FP. He discussed the successful adoption of HT basmati varieties in Punjab and Haryana and the collaborative efforts of IRRI, ICAR, and private partners to develop HT rice. He urged all stakeholders to enhance efforts to tackle the significant challenges faced by DSR. He also pointed out the potential benefits of connecting HT rice cultivation to carbon credits.

IRRI Interim Research Director Dr. Virender Kumar discussed the Global Stewardship Guidelines on HT rice, leading to discussions about creating guidelines tailored for India. Participants shared insights and suggestions on ten key points.

The workshop also included technical sessions with contributions from institutions like ICAR-DWR, ICAR-IARI, CCS Haryana Agricultural University, Punjab Agricultural University, BASF, and Savannah Seeds. Breakout discussions covered resistance management, minimizing environmental harm, and establishing regulations for safely using HT rice technology.

In the closing session, participants worked together to draft practical stewardship guidelines suited to India's agricultural environment. These guidelines aim to empower farmers, encourage sustainable practices, and address ecological concerns, setting the stage for a resilient and efficient rice cultivation system.



ACTIVITIES AT A GLANCE

Awards & Recognition



Congratulations to Dr. Swati Nayak for being conferred with the NDTV "Climate Impact of the Year 2024" for her contributions in promoting the adoption of climate-resilient varieties in South Asia. She has also been recognized for developing inclusive programs for women on the farms and enhancing their livelihood.

Congratulations to Dr. Sugandha Munshi for being awarded with 'Women Empowerment Award 2024' by the Bihar state's Sony Art Center in an event supported by Women Development Corporation (WDC), Govt of Bihar. This award was given to the women of the state for their contribution in the field of art & culture, media, journalism, law, gender rights, health and education. Dr. Sugandha was felicitated for her work in agriculture, gender and development for the last 16 years.



An educational exposure visit organized for 40 final-year B.Sc. Agriculture students from Mahayogi Gorakhnath University, Gorakhpur. The program featured guided tours of ISARC's GIS and Computational Biology labs, interactive sessions with agricultural experts, and field demonstrations on sustainable practices. This initiative aimed to enhance students' understanding of advanced agricultural research and equip them with practical skills to address sectoral challenges.



Varanasi (October 18, 2024)



Varanasi (October 26, 2024)

ISARC scientists were felicitated at the international conference “Emerging Paradigm Shifts in Food & Dairy Processing: Advances in Food Safety, Quality, and Sustainability” held at Banaras Hindu University (BHU), Varanasi. Organized on October 25-26 at Swatantrata Bhawan, the event brought together researchers, academicians, and industry experts to discuss advancements in food safety and sustainability.

ISARC's Centre of Excellence for Rice Value Addition (CERVA) team received a Certificate of Recognition for prototyping instant poha made from low Glycemic Index (GI) rice, a collaborative project with BHU's Dairy Science Department. The conference underscored the importance of academic-industry partnerships for impactful research in rice value addition and food systems.

ISARC hosted its Annual Rice Varietal Cafeteria Evaluation Event. Attended by farmers, seed growers, SHGs, scientists, and officials, the event showcased 36 rice varieties, including stress-tolerant and premium-quality options. Participants assessed varieties based on traits like yield, quality, and adaptability, providing feedback to guide rice variety development.

Sessions focused on seed entrepreneurship, community seed production, and IRRI's efforts to improve seed systems.



Varanasi (November 8, 2024)



Varanasi (November 13-14, 2024)

ISARC, in collaboration with the Department of Biotechnology (DBT), organized a two-day training program titled "Improvement, Scaling, and Exploring Micro-entrepreneurial Opportunities around Kalanamak and Other High-value Aromatic Rice Varieties" at ISARC, Varanasi. The program aimed to boost economic growth, food security, and rural livelihoods by focusing on genetic improvement, value chain development, and entrepreneurial strategies for aromatic rice varieties.

Over 30 scientists, entrepreneurs, and industry stakeholders participated, with special focus on empowering women scientists. Distinguished guests, including Dr. H.S. Gupta and Dr. B.N. Singh, shared insights during sessions and panel discussions. Participants also toured ISARC's state-of-the-art facilities, gaining hands-on knowledge on advanced breeding technologies and value-added rice products.

We want to hear from you!

As our valued partner in South Asia, we would like to hear your thoughts about ISARC Cultivate.

Please scan this QR code to give us your feedback on the newsletter.



VISITS AT ISARC



November 23, 2024: Visit of Varanasi DM
Shri S Rajalingam



December 14, 2024: Visit of Ambassador of Switzerland to India and Bhutan, Ms. Maya Tissafi, Head of International Cooperation at the Swiss Agency for Development and Cooperation (SDC) India office, Mr. Philippe Sas, and First Secretary and Head of Culture and Legal Affairs at the Embassy of Switzerland Mr. Simon Schaefer.



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