IRRI

BILL & MELINDA GATES foundation

INNOVATIONS IN SEED EVALUATION & DELIVERY SYSTEMS :

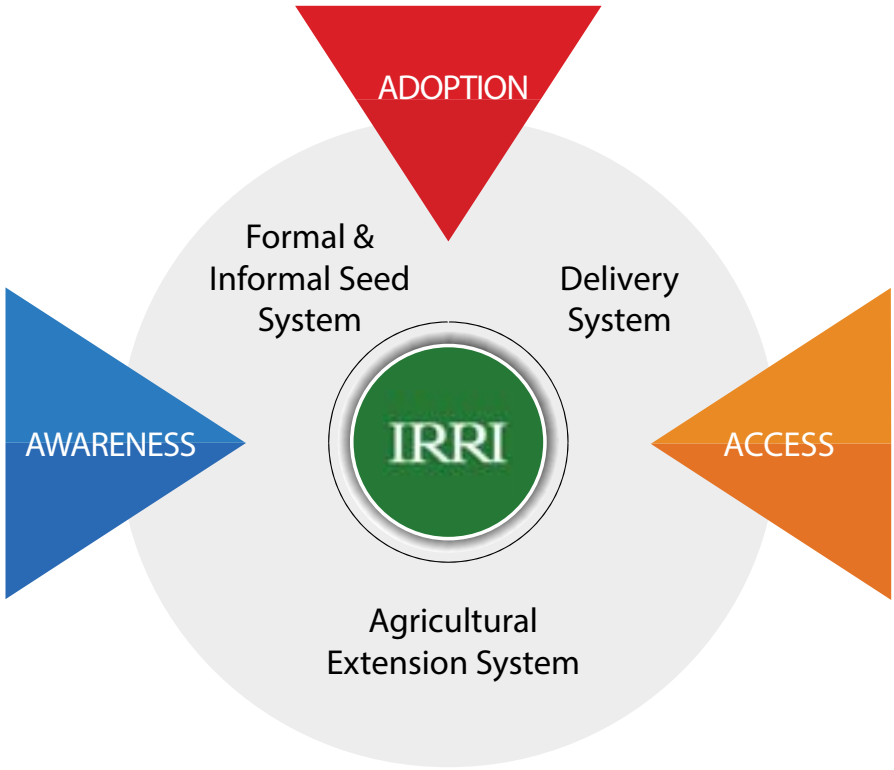
THE RICE VARIETAL ADOPTION STRATEGY

STRASA — Innovations for Stress-Prone Regions of South Asia

Since 2007, IRRI, through the Stress-Tolerant Rice for Africa and South Asia (STRASA) project, supported by the Bill & Melinda Gates Foundation, and in partnership with AfricaRice, has developed and delivered rice varieties tolerant to abiotic stresses, benefitting nearly 18 million farmers in South Asia and Sub-Saharan Africa who cultivate rice in unfavourable environments.

In partnership with national agricultural research and extension systems (NARES) in India, Bangladesh, and Nepal, the project is focused on seed multiplication and distribution of new stress-tolerant rice varieties (STRVs) in South Asia.

IRRI's Integrated Approach for Seed Delivery and Varietal Adoption



Innovations in Seed Evaluation & Delivery Systems : The Rice Varietal Adoption Strategy

The rice varietal adoption strategy of STRASA has catalyzed a 'demand-driven approach' for stress-tolerant rice varieties (STRVs), creating sustainable delivery points, especially around seed delivery and extension systems in the agricultural extension system. These have improved varietal replacement and adoption rates through better access and availability of quality seeds of STRVs.

Evidence Hubs

Varietal evaluation and exhibition by way of IRRI's 'Evidence Hubs' enhance the diffusion of new and upcoming STRVs among key stakeholders in the rice seed value chain.

Challenge

Slow adoption of new stress-tolerant rice varieties is caused by lack of awareness and knowledge on STRVs of extension staff and farmers, and lack of information by seed distributors on farmers' demand.

Impact

- Stakeholder interaction helps identify the preferred traits in rice varieties, and encourages selection and rapid adoption, while validating the typical seed demand in a region.
- Evidence-based learnings from Evidence Hubs builds knowledge and improves awareness of seed dealers, distributors, producers, government & private market agents, and helps convey feedback to state authorities and policy makers.
- A demand-driven seed system that has better varietal selection, and sustainable, rapid adoption of STRVs was established.

Head-To-Head Trials

IRRI is supporting head-to-head (H-2-H) trials, which are field evaluations in which one new STRV and one variety presently cultivated by a farmer are cultivated in the same field. Comparisons are drawn on yield performance and/or tolerance to different biotic/abiotic stresses, with all other farm interventions remaining constant.

Challenge

Seed diffusion in South Asia usually takes place via the informal seed systems or 'farmer-to-farmer' networks. The conventional approach of field demonstrations of STRVs for farmers to encourage wider adoption of new rice varieties has limitations: farmers can only witness the outcomes during the demonstration, but are unable to see the gains that take place over time.

Impact

- H-2-H trials provide farmers with experiential learning, so they can make comparisons between rice varieties under their direct supervision and management.
- This gives rise to improved decision-making by farmers, leading to better varietal adoption and faster diffusion through the informal seed system.
- H-2-H trials facilitate a robust seed system, by ensuring that farmers have sustained understanding of varietal yield differences. This practice extends farmer buy-in beyond STRV adoption, and catalyzes informal word-of-mouth endorsement among their networks, so other farmers can reap similar benefits.

Integrative Demonstrations

IRRI encourages integrative demonstrations that bring together key stakeholders, especially the seed dealers who liaise between farmers and seed suppliers. These demonstration plots are further used as 'seed production plots' and linked to the formal seed system networks. During integrative demonstrations, farmers are also trained in different aspects of quality seed production, certification, and storage.

Challenge

Field demonstrations introduce farmers to new rice varieties that are suitable for specific soil and climate conditions. However, most conventional demonstrations on large farm plots show rice varieties planted in ideal farming conditions, which makes it difficult for farmers from unfavorable rice-growing areas to compare stress-tolerant rice varieties with those grown in typical soil and climate conditions. Conventional demonstration plots must be linked with the seed system in order for it to showcase the benefits of new STRVs and of quality seed production, certification, and storage to seed dealers and farmers.

Impact

- The feedback generated from integrative demonstrations help seed dealers and farmers improve their capacity to assess and address the seed demand and supply gap.
- Linking demonstration plots to the formal seed system networks (public and private seed sectors) ensures local seed availability even in remote areas.
- Training farmers during integrative demonstrations strengthens their capacity to produce quality seeds and enhance local seed security in the longer run.

Dealer-led Demonstrations

IRRI encourages dealer-led demonstration plots, engaging seed dealers in the awareness and diffusion process of promoting STRVs. Making them better knowledge agents in the rice value chain helps pass on their feedback on demonstrated STRVs to farmers.

Challenge

Farmers are regular customers of dealers, agro-vets, and seed distributors, and often rely on them for information and knowledge on new seeds. Thus, seed dealers are key mediators and a crucial link in the dissemination of information on STRVs. Uninformed or misinformed seed dealers can negatively affect the adoption and dissemination of rice varieties, especially that of STRVs.

Impact

- Dealer-led demonstrations are a promising method for improving STRV adoption rates and replacing older rice varieties.
- As key mediators, seed dealers help in rapid dissemination of information and promote the adoption of STRVs among farmers while enabling better and new business prospects for themselves.

Encouraging Women Entrepreneurs with Training

Women farmers have strong social networks and linkages in the rice farming community. STRV seed generation, quality maintenance, storage, certification, and diffusion can be boosted by investing in the training and skill-building of women farmers and women's self-help groups (SHGs).

Challenge

Women farmers have been traditionally engaged in seed production and preservation, and play a crucial role in the formal seed system and dealer networks in promoting STRVs. However, women do not have access to capacity-building activities that hone their skills and technical knowledge on quality seed production and storage.

Impact

- Investing in and training women farmers encourage their leadership and entrepreneurship spirit, driving them to be 'seed custodians' in the farming community.
- Local seed security and varietal replacement are improved when women SHGs are empowered
- Providing women farmers with better skills and knowledge in seed and farming practices, contributes to improved livelihood security for their household and economic and social welfare in the community.

SeedCast

The IRRI-developed mobile app SeedCast is a web-based digital platform that enables forecasting of seed demand and supply. It helps dealers convey the seed demand of newly demonstrated varieties in a fast and efficient manner.

Challenge

Accurate and timely information on rice seed demand is needed for the planning, production, and supply of quality seeds to farmers.

Impact

- SeedCast is an effective method of demand aggregation and information sharing for key stakeholders, especially cooperative and private sector seed dealers, who make seeds available to farmers.
- Sharing updated information on the demand and supply of STRVs and other seeds improves the varietal replacement process.
- Up-to-date and reliable information on rice seed varieties can be used by public and private seed corporations to improve their plan for seed production and supply.

IRRI aims to improve livelihoods and nutrition, and abolish poverty, hunger, and malnutrition among those who depend on rice-based agri-food systems. In doing so, IRRI is working toward protecting the health of rice farmers and consumers, and ensuring environmental sustainability of rice farming in a world challenged by climate change. The institute's initiatives promote the empowerment of women and support opportunities for youth in an equitable agri-food system.

Our research for development is characterized by its collaborative nature: from alliances with advanced research institutes to strong collaborations and joint capacity development initiatives with governments and national agricultural research and extension systems, to partnerships with the development sector and our ability to broker novel delivery channels through the private sector. All these are supported by a diverse network of investors aligned to common goals.

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For more information:

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