

Without vibrant, dedicated, and caring young scientists, IRRI would not have much of a future. Indeed, rice research and the resulting progression of rice farmers and consumers out of poverty would also be threatened.



So in 2012, we held a unique first-of-its-kind event at IRRI headquarters in the Philippines, the IRRI Young Scientists Conference: Sustaining Excellence in Rice Research. Very timely, since 2012 marked the golden jubilee of the arrival of the first scholars and trainees at IRRI, the conference provided a venue

for budding scientists to share their research across different disciplines with a wider audience. The 2-day program featured around 80 presentations, which showcased the enormous breadth and depth of the innovative and high-quality research being done by IRRI's young researchers. I and other representatives of IRRI management were proud to pose in the photo below with the participants. The future of rice science is indeed in good hands!

I am pleased to report that the IRRI workplace is as positive, harmonious, and productive as ever—for both our young and veteran staff members. Our key asset remains our personnel who represent a wide

range of disciplines, talents, cultures, and nationalities. In 2012, the IRRI workplace continued to be dynamic and exciting, with the attraction, retention, and development of high-quality, motivated, and innovative staff given high priority, including many of the new young scientists I laud above. As a result, we continue to have a reputation as a Center that delivers.

In April, Bruce Tolentino began his duties as Deputy Director General (DDG) for Communications and Partnerships. In September, Bas Bouman took over the reins of the Global Rice Science Partnership (GRiSP) from Achim Dobermann. Achim can now focus full-time on guiding our dy-

namic research agenda as he continues as the DDG for Research.

Those of you who have been reading our annual report in recent years are seeing a major format change in this printed version. Knowing how busy you are, we hope this brochure format will give you a quick glimpse of our research highlights, achievements, and financial support. As this abbreviated account entices you to want more, just go to www.irri.org/AnnualReport/2012 for all the details of our research highlights summarized here and other exciting activities! 🍌

Robert S. Zeigler
Robert S. Zeigler
Director General

Director General's message

Scientific publications



IRRI scientists have a long-standing reputation for academic excellence as shown by their prolific publishing of cutting-edge research results in preeminent peer-reviewed scientific journals—nearly 840 over the last five years. In 2012 alone, IRRI scientist-authors published more than 150 articles across a wide discipline array of journals including *Nature*, *Science*, *Genome*, *Field Crops Research*, *Crop Science*, *Weed Science*, *Advances in Agronomy*, *Theoretical and Applied Genetics*, *Genes and Genomics*, *Molecular Breeding*, *Journal of Cereal Science*, *Seed Science Technology*, *Journal of Applied Entomology*, *Journal of Experimental Botany*, *Euphytica*, *Plant Soil*, *Plant Disease*, *Food Policy*, *Crop Protection*, *Review of Development Economics*, and numerous others.

In another significant aspect of our science publishing, IRRI, in partnership with Google Book Search (GBS), is providing for free full-text versions of hundreds of our science-based books. Since December 2007, when IRRI went online with GBS, nearly 450 IRRI books—new and classic—have generated more than 1.6 million book visits with an astounding 17.2 million page views and more than 136,000 PDF downloads. 🍌

Target-driven breeding

IRRI redefined its breeding agenda into a target-driven and product-oriented strategy to speed up adoption and be more resource efficient. IRRI is treading into this new territory by streamlining its processes, regionalizing the development of breeding material, and conducting market research to guide breeding priorities.

Hot spots mapped

Extreme heat damages rice production. IRRI has mapped areas where high temperatures are causing heat stress in rice. This knowledge can be used to target the delivery of technologies—such as heat-tolerant rice varieties—to help farmers cope with increasing temperatures that are predicted to worsen due to climate change.

Banking high-quality seeds

To help preserve rice seed purity and conserve traditional rice varieties, an IRRI-led team trained farmers in a Philippine province on seed health management practices and the adoption of improved varieties. The resultant community seed bank guarantees high-quality heirloom rice seeds and empowers farmers to choose new varieties suited to their area.

Bagging postharvest gains

The problems that farmers face don't end in their fields. Molds spoil moist grains, while rats, birds, and insects eat stored grains. IRRI's Super Bags and moisture meters are now commercially available to help farmers store their grains properly and keep them dry to avoid losses after the harvest.



Maps to outsmart pests

Farmers' fields are always a battleground for pests and diseases and, typically, 37% of rice production is lost to them. IRRI has mapped projected rice production losses caused by pests and diseases to help focus research and policy efforts to better manage them and limit the damage they do.

Gene unlocks potential

IRRI has pinpointed a gene that enables rice plants to produce around 20% more grain by increasing uptake of phosphorus, an important, but limited, nutrient. This discovery can improve the food security of rice farmers with the lowest-value phosphorus-deficient land, thus allowing them to grow more rice and earn more.

Higher salinity tolerance

Breeders have tried for decades to cross the wild rice *Oryza coarctata* with Asian rice (*O. sativa*) in an effort to combine the remarkable salt tolerance of *O. coarctata*

with the popular traits of *O. sativa*. In 2012, IRRI achieved the cross for the first time, opening the door to producing new salt-tolerant high-yielding rice varieties.

A pest shield from wild rice

Scientists have been scouring the "wild" end of the rice gene pool to find traits and genes to help develop new rice varieties that thrive in difficult environments. Scientists have succeeded in developing Anmi, a new variety that is resistant to brown planthopper, a pest that has been causing damage worth millions of dollars across Asia.

Call for advice and credit

The lack of money to buy inputs such as fertilizer—and information on its efficient use—can frustrate farmers and limit their rice productivity. The mobile app Nutrient Manager for Rice provides farmers with access to financial loan services and fertilizer advice to optimize rice yields. 🍌

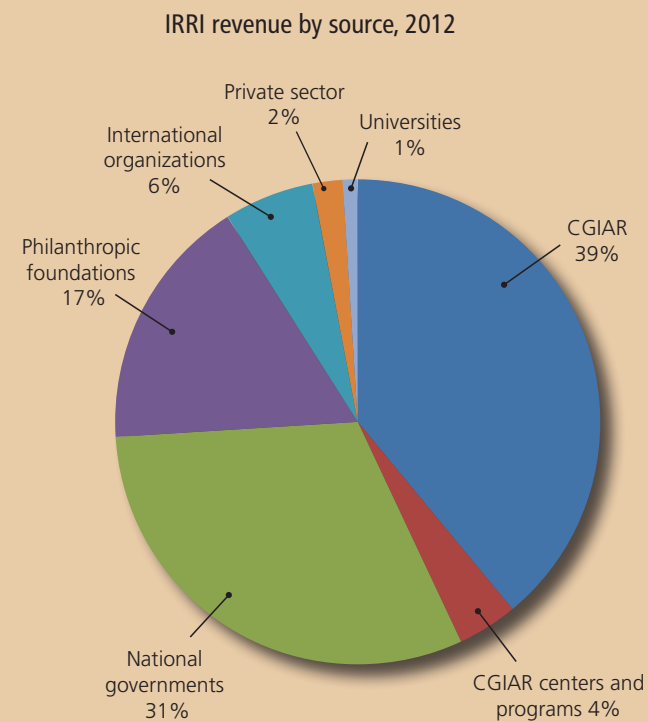


IRRI's young scientists: the future of rice research

Financial information

IRRI's total revenue for 2012 was around US\$96 million, including \$13 million that was invested in Africa Rice Center (AfricaRice) and the International Center for Tropical Agriculture (CIAT) to carry out Global Rice Science Partnership (GRiSP) activities. This is an increase of total revenue from 2011, which was around \$88 million, including \$12 million invested in AfricaRice and CIAT.

Donor investment is fundamental to achieving our goals and in 2012 major donor groups included CGIAR (\$37 million), CGIAR centers and programs (\$4 million), national governments (\$30 million), philanthropic foundations (\$16 million), international organizations (\$6 million), the private sector (\$2 million), and universities (\$1 million).



Human resources

Our expert international and national scientific and support staff at headquarters and our country offices grew to nearly 1,300 in 2012. Our international staff of around 100 is now double what was in 2005. In these numbers, we find an ever-increasing diversity with 31 countries represented on the staff.

IRRI is proud to be an engendered workplace, with 37% of all IRRI staff worldwide, 57% of all headquarters-based nationally recruited scientists, and 33% of IRRI's senior management committee being women.

The year 2012 was another significant year for human resource modernization activities that include the development of new career paths, the introduction of additional individual and team performance recognition programs, and a continued consultative workplace relations program. IRRI continues to provide a wide range of learning and development opportunities. It continues to be a family-friendly organization with an annual calendar of social and wellness activities to support our staff in their work-life balance.

Milestones

The year was packed with significant events and activities, media coverage, activities, and awards, including:

- The first-ever IRRI Agronomy Challenge saw IRRI DDG for Research Achim Dobermann and Experiment Station Head Leigh Vial plant and manage their own rice crop.
- Retired IRRI staff members and British citizens Michael Jackson and John Sheehy were named Officers of the Order of the British Empire (OBE), which recognizes distinguished service to the arts and sciences.
- More than 500 rice farmers from 22 municipalities around IRRI headquarters in the Philippines attended the annual IRRI Field Day.
- IRRI formally opened the new home for its Social Sciences Division in Drilon Hall at IRRI headquarters.
- The 6th International Hybrid Rice Symposium: Hybrid rice heads for the tropics, was held.
- The IRRI Board of Trustees held its regular October meeting in Shenzhen, China.
- IRRI joined the Asian Development Bank in World Food Day activities by staging a rice-tasting event for hundreds of ADB staff and visitors.
- The 1st IRRI-Smart Bigas Hackathon brought together young technology-savvy Filipinos to develop apps for rice science.
- China presented a friendship award to Roland Buresh, an IRRI Senior Scientist.
- IRRI celebrated a breeding landmark with the 100,000th cross of different rice plants.



Training

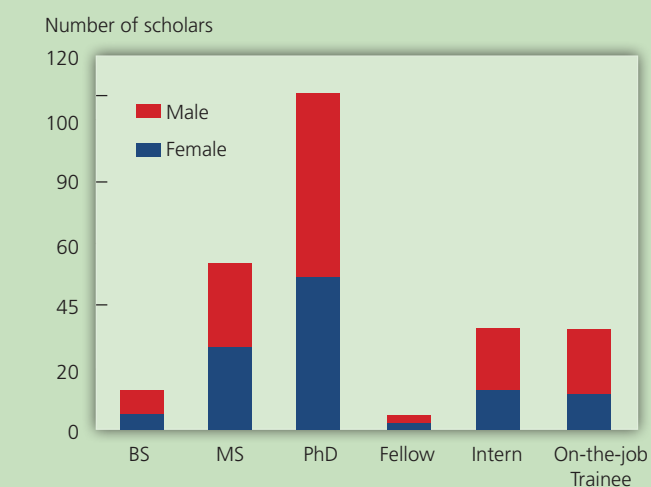
The impact of new rice technologies depends on their adoption by farmers and the ripple effects they send throughout a country's economy. These technologies are rapidly disseminated from research laboratories to the farmers' fields mainly through training programs.

Since 1962, more than 15,000 scientists have been trained at IRRI and now assume lead roles in many agricultural research systems. From 2007 to 2012, a total of 685 scholars completed their programs, 50% of which were women. In 2012, IRRI hosted 245 scholars.

IRRI conducted 137 training courses and workshops attended by 5,190 participants in 2012. The topics covered rice production and postharvest technology (photo), farming extension, research data analysis and management, leadership, information technology, seed conservation and management, pest and disease management, community livelihood, human resource development, and field and laboratory safety.



Gender distribution of scholars, 2012



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