



# Thailand and IRRI

Rice holds significant economic and cultural importance in Thailand. It is the country's most important food crop, grown by over 60% of Thailand's 13 million farmers in more than half of the nation's 50 million hectares of agricultural land. Rice is the staple food of the Thai people, with each person consuming an average of 115 kilograms per year. In Thai culture the phrase "let's eat" or "kin khao" literally means to eat rice.

Thailand is one of the world's top rice producers and exporters. Rice production contributes around 15% to the country's agricultural GDP, and in 2018 the country exported over 10.3 million metric tons of rice, second only to India. Thailand's native jasmine rice consistently ranks as among the best rice in the world, and the country's rice sector enjoys royal patronage from the Thai Royal Family.

IRRI and Thailand started their collaboration in 1960, the year the institute was established, working together to improve rice production, plant breeding, and to enhance the capacity of Thai rice researchers.

His Royal Highness Prince M.C. Chakrabandhu became a founding member of the IRRI Board of Trustees, while His Majesty King Bhumibol Adulyadej and Her Majesty Queen Sirikit visited IRRI in 1963 to show their support for the institute. The IRRI Thailand office was established in 1966.

In 1974, the Royal Thai Government and IRRI established a joint research and training facility for deepwater rice, which became the Prachinburi Rice Research Center, now one of Asia's leading centers in deepwater rice research. During Her Royal Highness Princess Maha Chakri Sirindhorn's first visit to IRRI in 1991, Thailand and the institute signed a memorandum of understanding to further strengthen research on deepwater rice as well as to support the development of new rice varieties and farming practices for Thai farmers and others in the region.

In 1996, IRRI awarded the International Rice Award to His Majesty Bhumibol Adulyadej in special recognition of his devotion to improving the well-being of rice farmers and consumers.

Thailand has been a stalwart supporter of rice research at IRRI, contributing more than USD 1,127,000 from 1997 to 2017. In 2015, the Royal Thai Government approved an annual donation of USD 100,000 to the institute, tied to the intensification of the joint research and development program between the Thai Rice Department and IRRI.

## Key achievements

**Increased rice production.** Since the 1960's, IRRI has supported government initiatives and investment in agricultural development, extension, and infrastructure. Through improved seeds and crop management, Thailand was able to triple rice production in over six decades.

**Deepwater rice research.** In the 1970s, Thailand had 9 million hectares of deepwater rice land. To stabilize yield from these unfavorable areas, Thailand and IRRI established a joint research and training facility for deepwater rice, the Prachinburi Rice Research Center, now one of Asia's leading deepwater rice research centers.

**Climate-smart agriculture.** Through IRRI-led CURE (Consortium for Unfavorable Rice Environments), climate-smart seeds and crop management technologies were disseminated to farmers in collaboration with the Thai Rice Department and rice research centers in Nakhon Ratchasima, Prachinburi, Suphanburi, and Ubon Ratchathani.

**Sustainable pest management.** IRRI supported the Thai government's efforts to stop the misuse of pesticides, borne in part through IRRI findings that indiscriminate use of certain chemical pesticides is a major cause of the brown planthopper outbreaks in the country and other parts of Asia.

**Salinity-tolerant rice.** In 2017, IRRI developed the salt-tolerant, aromatic line RD73, which has been promoted by the Thailand Rice Department for seed multiplication and dissemination in salt-affected areas.

**Enhancing capacity.** Since 1963, IRRI has provided scientific training to more than 950 Thai nationals, including scholars.

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## Current collaborations

**Regional cooperation in rice breeding programs.** In 2019, the Thai Rice Department hosted the initial meeting of *Rice Genetic Solutions for Climate Resilience and Value Addition in ASEAN*. Governments in Southeast Asia are investing in the rice sector through policy and resource allocations in order to address production constraints, while IRRI will undertake initiatives to better align to NARES investments and complement these with strategic investments in key areas. The aim will be to ensure ASEAN's national rice breeding programs are able to deliver the annual increases in rice yield of 1.2-1.5% that is needed to meet future rice demand.

**Climate mitigation for the rice sector.** IRRI, the Thai Rice Department, and other partners from the public and private sector are collaborating on a rice sector NAMA (Nationally Appropriate Mitigation Actions) prototype, which will target six provinces in Central Thailand and assess GHG savings under different mitigation scenarios, as well as implement various sustainable crop management options such as AWD and laser land leveling.

**Collaborative R&D.** In 2016, the Thai Rice Department and IRRI deepened their partnership with joint research and development programs on various issues, including climate change, grain quality, and knowledge systems. Thai scientists will also come to IRRI to build capacity on mechanization, phenotyping, breeding, and bioinformatics.

**Flood-tolerant rice.** New flood-tolerant rice germplasm were identified in Thailand, and improved management practices in nutrient management and seeding rate for promising submergence lines were tested. Thailand was able to select and release the IRRI-developed RD45, a deepwater variety that is able to survive flooding for extended periods and produce aromatic grain. More than 1,200 tons of registered RD45 seeds has been distributed to farmers.

**Crop management.** In Northeast Thailand, farmers' yields are often relatively low due to a number of constraints. With the help of IRRI, the Thai Rice Department adopted modern crop management practices, including improved weed management, mechanized dry seed drill, and Site-Specific Nutrient Management (SSNM).

**Farming innovations.** IRRI is working with Thailand to improve availability of technological innovations at farm level to enhance productivity and reduce environmental impact. This includes minimizing GHG emissions, lowering labor requirements, precision farming, and digital systems like remote sensing and laser land-leveling.



IRRI aims to improve livelihoods and nutrition, abolishing poverty, hunger, and malnutrition among those who depend on rice-based agri-food systems. In doing so, IRRI's work protects the health of rice farmers and consumers, and the environmental sustainability of rice farming in a world challenged by climate change. IRRI's work promotes the empowerment of women and supports opportunities for youth in an equitable agri-food system.

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