

## Participating organizations

The International Rice Research Institute (IRRI) is a nonprofit, independent research and training organization, the largest in the world, focused on rice. IRRI is leading and coordinating this project and is directly involved in breeding, capacity building, and safety research with national partners.

National agricultural research organizations are developing Golden Rice varieties tailored to farmers' needs in each country. They will also conduct safety research needed by national regulatory authorities.

- Bangladesh Rice Research Institute (BRRI)
- Department of Agriculture-Philippine Rice Research Institute (DA-PhilRice)
- Indonesian Agency for Agricultural Research and Development (IAARD)

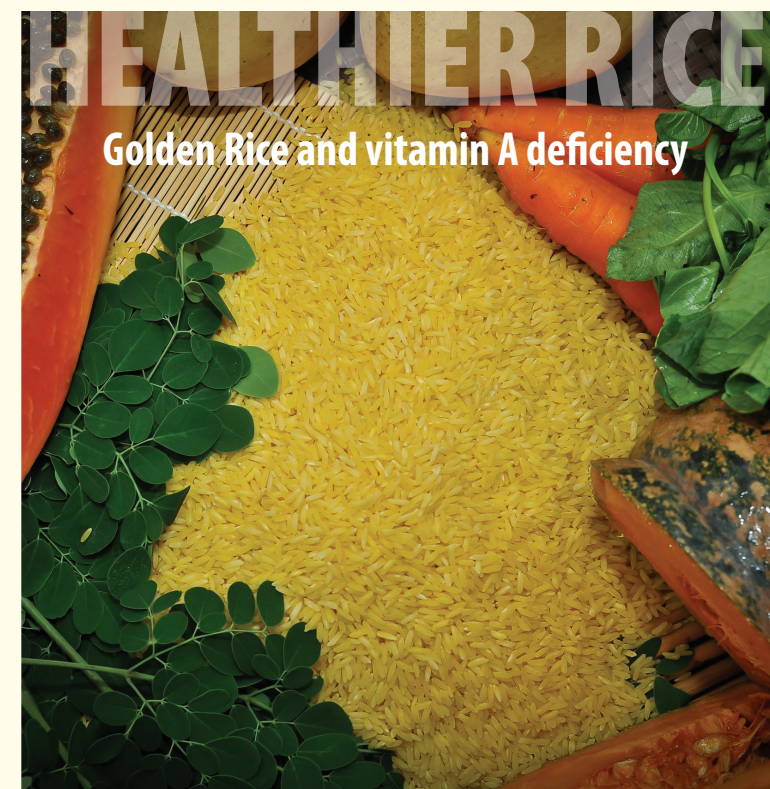
Support for these activities includes a grant from the Bill & Melinda Gates Foundation and funding from the U.S. Agency for International Development.

### References:

- 1 World Health Organization global database on vitamin A deficiency. 2009. Global prevalence of vitamin A deficiency in populations at risk, 1995-2005. Geneva: WHO.
- 2 Black, RE et al. 2008. Maternal and child undernutrition: global and regional exposures and health consequences. *The Lancet* 371 (9608):243-260.
- 3 Whitcher JP, Srinivasan M, Upadhyay MP. 2001. Corneal blindness: a global perspective. *Bulletin of the World Health Organization* 79 (3):214-221.

### International Rice Research Institute (IRRI)

IRRI is the world's premier research institute committed to convening international knowledge and expertise in the creation of a sustainable global rice sector to achieve food and nutrition security, improve the quality of life of rice-related communities, and protect the rice-growing environment for future generations. The organization works to connect dual spheres, generating and harnessing international expertise to expand the horizons of knowledge, and building local capacity to leverage best practices in agriculture, economics, and climate change management.



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## Golden Rice

- Golden Rice is a new type of rice that contains beta carotene, a source of vitamin A.
- Golden Rice was developed using genetic modification, with genes from maize and a common soil microorganism that, together, produce beta carotene in the rice grain.
- It is intended to be used as a potential new food-based approach to improve vitamin A status to complement existing nutritional interventions.



## Vitamin A deficiency challenge

The World Health Organization reports that an estimated 190 million children and 19 million pregnant women worldwide are affected by vitamin A deficiency.<sup>1</sup>

- Vitamin A deficiency impairs the immune system, which increases the risk of death from certain common infections among young children. Globally, approximately 670,000 children die every year because they are vitamin A-deficient.<sup>2</sup>
- It is the leading cause of blindness among children, with approximately 350,000 children going blind each year.<sup>3</sup>
- Vitamin A deficiency also affects women, particularly those who are pregnant or nursing, as their nutrient needs increase. Vitamin A deficiency can cause night blindness and may increase the risk of death during or shortly after pregnancy.

## The Golden Rice Project

- Breeders at the Philippine Rice Research Institute (PhilRice), the Bangladesh Rice Research Institute (BRRI), and the Indonesian Center for Rice Research (ICRR) are developing Golden Rice versions of existing rice varieties that are popular with local farmers.
- Golden Rice will be assessed according to internationally accepted guidelines for food safety. The national rice research institutions in each partner country will conduct field tests and other evaluations under local conditions to support their respective application. The government regulators will review the data as part of the approval process before Golden Rice can be made available to farmers and consumers.
- Once Golden Rice is approved by regulators and proven safe for human consumption, an independent study will be conducted to evaluate the efficacy of Golden Rice in improving the vitamin A status among deficient individuals.
- Once approved by regulators, IRRI and its partners will continue working together to ensure that Golden Rice is acceptable and accessible in vitamin A-deficient communities.

