Rice Fortification

Ready to be scaled up by the global development community

MEETING A GLOBAL NEED

Billions of people around the world suffer from micronutrient malnutrition—a factor that substantially contributes to the global burden of disease. Vitamin A and zinc deficiencies contribute to 1 million deaths in children, iron deficiency depletes the learning capacity of nearly 2 billion people, and a lack of folic acid among expectant mothers during pregnancy causes more than 200,000 severe birth defects annually.

Micronutrient fortification of widely consumed staple foods, such as rice, is considered to be one of the most cost-effective and sustainable solutions for improving the health of entire communities, as it prevents deficiencies from occurring in the first place, while also minimizing the need for behavior change.[1,2]

AN INNOVATIVE SOLUTION: ULTRA RICE® TECHNOLOGY

To address the need, PATH has advanced and commercialized the Ultra Rice technology, filling an important market gap in the range of solutions for addressing micronutrient malnutrition. The technology packs vitamins and minerals into rice-shaped "grains" made from rice flour and manufactured using pasta-extrusion equipment. When these fortified grains are blended with milled rice, the resulting fortified rice is nearly identical to traditional rice in smell, taste, and texture. More than 30 rigorous evaluations of efficacy, stability, safety, bioavailability, and consumer acceptance form the evidence base for Ultra Rice.

PATH/Satvir Malhotra

SCALE-UP THROUGH INTERNATIONAL FOOD AID, PUBLIC-SECTOR, AND AGRIGULTURAL PROGRAMS

With an increasing focus on the critical role of nutrition to improve health and development, the international community holds the unprecedented opportunity to take advantage of the benefits of rice fortification within its traditional nutrition programming, as well as in its work to strengthen the quality of rice value chains.

Implementation partners can:

- Import fortified grains from one of the Ultra Rice producers globally, including a US producer specifically engaged for food aid markets (to be licensed in 2012).
- Pilot fortified rice within programs targeted at nutritionally vulnerable groups, such as pregnant women and young children.
- Test new scenarios for blending fortified grains into traditional rice, including in warehouses, rice-milling environments of all sizes, and industrialized kitchens.
- Generate acceptability, efficacy, and cost-effectiveness data in new populations.

To model the way forward within the food aid context, PATH has recently partnered with World Vision and the World Food Programme (WFP) to test the operational feasibility and biological impact of fortified rice among schoolchildren in Burundi. Also, in October 2012, PATH plans to launch a biological impact assessment of a new and improved Ultra Rice grain within WFP's school lunch program in Cambodia.

Through this work, PATH aims to expand the evidence base and ultimately build the case for inclusion of fortified rice on the approved commodities lists of the two largest food aid suppliers, the US government and the WFP. Expanding the scenarios of use by food aid implementers will strengthen the uptake and sustainability of fortified rice within food and agricultural programs once approved.

SCALE-UP THROUGH MARKET DEVELOPMENT

In the transition from aid to development, significant opportunities exist to support development of the market for fortified rice, including local production of fortified grains, integration of those grains into domestic milling environments, and distribution of fortified rice through both public programs and private-sector retail channels.

The vision is to create a sustainable market for fortified rice, which provides economic benefit to private-sector entities involved in the supply chain, while delivering a public health benefit to populations in need.

Implementation partners can:

- Identify potential production and distribution partners.
- License the technology from PATH or identify a local producer to whom PATH could license the technology.
- Conduct market-based pilots:
  - Cultivate distribution within traditional retail channels in collaboration with millers and retailers.
  - Develop and launch social marketing efforts for fortified rice to enhance demand by consumers.
  - Develop models of technical and business viability for integrating Ultra Rice into small-scale milling environments using PATH's prototype for small-scale blending or other suitable equipment.
- Drive forward supportive rice fortification policies with local governments, including development of rice fortification standards and the formation of national fortification alliances, in order to engage more industry players and create sustainable markets.

PATH/Satvir Malhotra

WHAT PATH CAN OFFER

PATH continues to develop tools to support the scale-up of fortified rice by interested industry players, governments, and nongovernmental organizations (NGOs). Some specific resources include:

- Rice-miller toolkit, including equipment requirements, protocols for blending and validation in small, medium, and large mills, the business case for their involvement, and market development strategies.
- Past protocols for acceptability studies.
- Licenses to PATH's Ultra Rice technology and/or small-scale blending equipment.
- Case studies of PATH's prior introduction pilots.
- Summaries of our rice industry landscaping and consumer insight research in various geographies.
- Connections to Ultra Rice grain manufacturers globally.
- Technical assistance by PATH, if desired.

THE WAY FORWARD

In order to effectively leverage these tools, international groups involved in food assistance, market development, and agricultural value chains need to recognize the huge impact that rice fortification can have in meeting key nutritional goals around the world.

Scale-up can only be achieved through a robust set of global implementation players, including governments, NGOs, and the private-sector, which can fully exploit the diverse scenarios of integration across food aid channels, public-sector programs, and traditional markets.

With the converging focus on micronutrient health, improvements to domestic agricultural value chains, and the use of public-private partnerships to reach global health goals, fortified rice is well-positioned for scale-up by the global development community.

[1] World Health Organization/Food and Agriculture Organization of the United Nations (WHO/FAO). *Guidelines on Food Fortification With Micronutrients.* Allen L, de Benoist B, Dary O, Hurrell R, eds. Geneva: WHO/FAO; 2006.
[2] Horton S. Opportunities for investment in nutrition in low-income Asia. *Asian Development Review.* 1999;17 (1, 2): 246–273.

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A catalyst for global health

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