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Food and nutrition research of biofortified staple crops - Potential for a food revolution

Erick Boy
International Food Policy Research, USA

Abstract

During the past decade the HarvestPlus consortium of plant, nutrition and health research scientists has undertaken the proof of the construct that consumption of biofortified staple crops will improve iron (common beans & pearl millet), zinc (rice and wheat) and vitamin A (sweet potato, cassava, maize) status. To this end, multiple studies have demonstrated the range of effects on nutrient retention associated with traditional methods of processing and cooking these crops in target populations that consume these crops as staples. *In vitro*, animal and human studies have been conducted to ascertain the bioavailability of iron, zinc and provitamin A carotenoids, and community-based intervention trials continue to assess the biological and functional impact of biofortified crops. To date, most of the original assumptions about staple consumption, and nutrient retention and bioavailability have been tested. Results show that provitamin A crops can improve vitamin A intake significantly among women and children. Iron biofortified crops like pearl millet may contribute to daily Estimated Average Requirements beyond our initial expectations. Human research with zinc biofortified crops (wheat and rice) has demonstrated important quantities of absorbable zinc. Efficacy trials planned for 2013-15 will fully fathom the potential of these mega crops as vehicles of zinc for the rural poor. In summary, nutrition research of biofortified staple food crops has amassed an important body of scientific evidence to justify seed deployment at scale as a mainstream strategy to alleviate hidden hunger and should be soon adopted as another mainstream intervention to prevent vitamin and mineral deficiencies.

Biography

Erick Boy completed his medical degree in Guatemala in 1987, worked in applied perinatal health and nutrition research at the Institute of Nutrition of Central America and Panama for 10 years and simultaneously obtained a master's degree in nutrition from UC-Davis, where he later achieved a Ph.D. in nutrition while working as chief scientific adviser of the Micronutrient Initiative in Canada between 1999 & 2008. In 2008, he joined IFPRI as the nutrition coordinator of the HarvestPlus Biofortification Program. He has published in peer reviewed journals and served in several international technical committees dealing with micronutrient malnutrition and its alleviation.