

Zinc Rice: Potential catalyst for nutrition security in Bangladesh

Dr Bouis presented a seminar paper titled 'Biofortification and Agriculture's Primary Role to Provide Nutrition Diets for National Health' at the Bangladesh Rice Research Institute (BRRI) on 11 September 2017 at Gazipur. At that time, after meeting with BRRI Director General DR Md Shahjahan Kabir along with senior scientists and officials, Dr Bouis talked with M AKashem, Technical Editor and Head, PPRD, BRRI about nutrition, biofortification and Zinc Rice. During the conversation, Dr Md Khairul Bashar, Country Manager of the HarvestPlus Bangladesh, also contributed in answering some of the questions. Excerpt from the conversation is given below.



World Food Prize Laureate Dr Howarth E Bouis talks to M A Kashem at BRRI

Dr Howarth E Bouis is the Founding Director and Ambassador-at-large of Harvest Plus, a global programme working on nutrition security. It is part of the CGIAR Research Programmes on Agriculture for Nutrition and Health (AANH) and is coordinated by International Center for Tropical Agriculture (CIAT) and International Food Policy Research Institute (IFPRI). Dr Bouis is the Institute Fellow, IFPRI. He is also the Guest Scientist, International Rice Research Institute (IRRI). Dr Bouis has spent more than 12 years working for the promotion of biofortified food crops that are rich in vitamins and minerals and providing global leadership on biofortification evidence and technology.

As Director of HarvestPlus during 2003-2016, Howarth Bouis coordinated an interdisciplinary, multi-institutional effort to breed and disseminate micronutrient-rich staple food crops to reduce mineral and vitamin deficiencies among malnourished populations in developing countries. Since 1993, he has been promoting biofortification globally. In 2016, Bouis was awarded the World Food Prize, in recognition of his 25 years of pioneering work in

expanding the impact of biofortification.

Dr Bouis received his BA in economics from Stanford University and his MA and PhD from Stanford University's Food Research Institute, a programme in agricultural economics. His past research at the International Food Policy Research Institute (which he joined in 1982 as post-doctoral fellow and where he is still employed) focused on understanding how economic factors affect food demand and nutrition outcomes, particularly in Asia. During 1972-75, Bouis worked as a volunteer in the Philippines with Volunteers in Asia.

Conversation

MA Kashem: Would you please explain the differences or relationship between bio-fortification and transgenic rice?

Dr H E Bouis: Sure, either transgenic techniques or conventional breeding can be used to produce high mineral and/or high vitamin rice. Both fall under the broad term of biofortification.

MA Kashem: Would you please

shed some light on other sources of zinc for human dietary purposes?

Dr H E Bouis: Other sources of zinc for human dietary purposes include vegetables, fruits, pulses, animal products. But prices for these food groups -- which provide dietary quality -- rose rapidly. The prices that consumers pay for iron, zinc, and pro-vitamin A have increased significantly. Looking to the future, many in agricultural community now recognize that agriculture has a fundamental responsibility to produce these minerals and vitamins to secure national health. Rice already provides two-thirds of dietary zinc in Bangladeshi diets.

MA Kashem: Why Zinc Rice matters especially in Bangladesh?

Dr H E Bouis: Any nutrition intervention can be more effective if passed through a staple crop and in Bangladesh, rice is the staple crop. Human immune systems are weakened when there is not enough zinc in the diet. Consequently pneumonia and diarrhea episodes are more frequent and more severe. In Bangladesh 36% chil-

dren under the age of five and 57% women are suffering from zinc deficiency. Also 44% girls, aged between 15-19, are stunted for their age. Regular consumption of Zinc Rice can provide up to 60% of daily zinc needs in a human body.

MA Kashem: How the farmers of distant areas can get the pure seed of Zinc Rice varieties and how they can verify its purity?

Dr H E Bouis: Till FY 2016, HarvestPlus has reached to approximately 4,98,400 farm households with approximately 908 tons seed consisting of four Zinc Rice varieties in more than 350 upazilas spreading across 62 districts. Moreover, Bangladesh Agricultural Development Corporation (BADC) and the private seed companies together are supposed to take these facilities soon to the farmers' doorsteps.

MA Kashem: Do you think it can change Bangladesh in terms of nutrition security?

Dr H E Bouis: If widely adopted, high Zinc Rice can reduce zinc deficiency in diets from two-thirds of the population currently to one-fourth of the population in the future.

MA Kashem: How do you assess the prevailing nutrition scenario of Bangladesh?

Dr H E Bouis: Dietary quality (high consumption of non-staple foods) is difficult because the prices of non-staple foods (vegetables, fruits, pulses, fish) are continually rising. Both government and private sector need to work hand in hand to address the nutrition deficiency to secure a healthy and productive future generation.

MA Kashem: How the most vulnerable zinc deficient groups of women and children could be identified and what can be done to mitigate or eliminate the problem?

Dr H E Bouis: The poor who eat mostly rice and cannot afford other foods are those vulnerable to zinc deficiency. They can be helped by having them switch to consumption of high Zinc Rice.

MA Kashem: How Zinc Rice can be easily available in the market places?

Dr H E Bouis: Get BADC to multiply/sell the seeds of high Zinc Rice varieties so that adoption spreads quickly. Private

companies can explore the opportunities to commercialize this as a value added product and get to the consumers at both rural and urban market.

MA Kashem: Do you think Bangladesh can be a middle income country without addressing the problems of ensuring nutrition security of the people?

Dr H E Bouis: It is difficult to be more productive if one's nutrition and health are poor.

MA Kashem: What are the differences between Bangladesh and the developed countries in terms of nutrition?

Dr H E Bouis: Dietary quality is very poor in Bangladesh. However, it is improving day by day defying adversities.

MA Kashem: How the farmers of Bangladesh could be motivated quickly to adopt the Zinc Rice technology?

Dr H E Bouis: Demonstration plots show that some high Zinc Rice are high yielding; also BRRI dhan62 is short duration. There are many other agronomic advantages for each of the varieties of Zinc Rice. Most impor-

tantly biofortified crops are cost effective and sustainable as farmers can cultivate with same input compared to any other modern variety and also can preserve their own seed. HarvestPlus is also extensively working to sensitize the farmers nationwide about the nutritional health benefits of Zinc Rice.

MA Kashem: What are the most disturbing adoption barriers in case of disseminating Zinc Rice technology?

Dr H E Bouis: Initially, there are not enough seeds to go around. You need many varieties available to satisfy the various preferences of rice farmers for particular agronomic characteristics and consumer characteristics.

MA Kashem: How do you think the Zinc Rice varieties could be available to the farmers' doorstep at the earliest convenient time?

Dr H E Bouis: Let BADC multiply/sell large volumes of seed. The private companies also need to be involved in the same activities.

MA Kashem: Thank you.

Dr H E Bouis: Thank you too.