Africa’s first biofortified pearl millet, chakti, aims to combat anaemia

The consumption of Chakti, Africa’s maiden biofortified variant of pearl millet, may improve the nutritional status of women and children in the region, where anaemia is a significant public health concern. This scientific breakthrough is thanks to plant breeders at the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) under the work of HarvestPlus.

Considering that diets deficient in iron are often to blame, it is believed that chakti, which has an additional 20 per cent of the estimated average requirement of iron, may help them reach their physical and cognitive potential. It is also naturally high in zinc, another micronutrient which is essential in one’s diet for good health and productivity. Millet is a cereal crop consumed by low-income families across Africa and Asia.

Chakti was officially released by the government of Niger earlier this year for commercial cultivation. Using the Economic Community of West African States’ (ECOWAS) seed harmonisation laws, which facilitate farmer access to high-quality seed varieties, this variety will subsequently be recommended for cultivation across the region.

Pearl millet is the oldest millet, used largely south of the Sahara desert in Africa. As a smart food that is good for consumers, the planet and the farmer, its high temperature tolerance and low water requirements make it ideally suited for dryland cultivation and climate-smart. Often the major dietary energy source in the Sahel, it is also the cheapest source of dietary iron and zinc for the region.

With support from HarvestPlus, scientists at ICRISAT used conventional plant breeding techniques to produce pearl millet with high iron and zinc content as well as high yield. “In partnership with (INRAN in Niger, ISRA in Senegal, SARI in Ghana, INERA in Burkina Faso, IER in Mali, and UDUS in Nigeria), we tested the improved pearl millet across six countries,” said M Govindaraj and P Gangashetty, pearl millet breeders, ICRISAT.

“In addition to the nutritional benefits for consumers, farmers also appreciate that chakti matures 40 days earlier and has a 30 per cent greater yield than local varieties, as well as resistance to downy mildew disease,” they added. While chakti already has over 65mg/kg iron content compared popular farmer varieties with about 47mg/kg, breeding efforts continue to make it even more nutritious.

“We are working closely with ICRISAT and national partners to scale up biofortified iron pearl millet in Niger and other ECOWAS countries,” said Wolfgang Pfeiffer, director, research and development (R&D), HarvestPlus.

“This will help improve nutrition in millions of households in sub-Saharan Africa, and most significantly, can enhance the physical and mental performance of children as well as of that of women of a reproductive age,” he added.

“Chakti is a proven, sustainable, food-based solution to reducing the burden of iron deficiency,” said Dr Erick Boy, head of nutrition, HarvestPlus.

“It has been proven that it can provide a significant amount of the iron needed daily by young children in India and non-pregnant women in Benin, resulting in profound positive impacts on livelihoods,” he added.

This activity was carried out as part of the CGIAR research programme Agriculture for Nutrition and Health (A4NH) and the CGIAR research programme on Grain Legumes and Dryland Cereals (GLDC). Read more