

## Impact Story 21:

# Commercialising Biofortified Crops – a sustainable strategy to tackle hidden hunger.

### THE OPPORTUNITY

Hidden hunger, also known as micronutrient deficiency (MN), is a form of malnutrition that occurs when the intake of vitamins and minerals in the diet is lower than the requirement for normal health and development. As such, it negatively affects the quality of life of people, both socially and economically, and is an underlying factor for many illnesses such as stunted growth, blindness, poor brain development, weakened immunity and anaemia. It is estimated to affect over 3 billion people women of reproductive age and children globally, making it of significant public health concern.



Given this high prevalence of hidden hunger, there is growing interest in the role agriculture can play in improving nutrition. One of the most cost-effective and sustainable food-based strategies that emerged in the early 90's and has been embraced as a viable concept to contribute to combatting hidden hunger is biofortified or nutrient-enriched foods. Simply put, biofortification or nutrient enrichment is the process of increasing the content of micronutrients in widely consumed staple crops through conventional crop breeding. To date, hundreds of biofortified staple crop varieties, including rice, wheat, maize, beans, millets and sweet potatoes, among others, have been released.

Biofortification has number of advantages when applied in the context of lower-income countries who have a higher burden of micronutrient deficiencies. First, because this strategy relies on staple foods that are already widely consumed by the population, it does not require any changes to consumption patterns. Second, biofortification has potential to reach rural areas where large-scale (industrial) food fortification may not be able to reach. The majority of the poor live mostly as subsistence or smallholder farmers, and process their crops at home or locally, thereby limiting the reach of industrially processed staples. Third, biofortification is cost-effective since after an initial investment in developing biofortified crops those crops can be adapted to various regions at a low additional cost and are available in the food system. Fourth, Seeds, roots, and tubers can usually be saved by farmers and shared with others in their communities making it sustainable.

### THE SOLUTION

To scale up the production and consumption of biofortified foods through commercialisation, GAIN and HarvestPlus partnered in 2019 to implement the Commercialisation of Biofortified Crops (CBC) Programme. Through the CBC programme, GAIN and HarvestPlus shared an ambition to expand coverage of biofortified nutrient dense foods to at least 167 million consumers by 2022. The focus was on biofortified varieties of six highly promising crops developed by HarvestPlus and its partners, namely beans, pearl millet, rice, wheat, cassava and maize. The project was implemented in the six countries of Bangladesh, Kenya, Nigeria, Pakistan, Tanzania, and India.

During the inception phase of the CBC programme, a series of activities were carried out to inform the design of the commercialisation strategies for each country-crop combination.

First, we developed a commercialisation framework for agricultural and publicly developed technologies and goods, including biofortified foods, that enables the identification of bottlenecks and accelerators while considering context specific factors in food product value chains; Commercialisation of Publicly Developed Goods. In the GAIN Discussion Paper 11, we summarise the process of developing that commercialisation framework and its finding, and discuss its implications for, and application in, efforts to scale up biofortified foods.

1 Bolarin, F. M and S.O. Bosa 2015.2Post Harvest Losses: A Dilemma in Ensuring Food Security in Nigeria. Journal of Natural Sciences Research, Vol 5(7): 151-154

2 [http://news.emory.edu/stories/2014/08/study\\_shows\\_more\\_fruits\\_vegetables\\_needed/index.html](http://news.emory.edu/stories/2014/08/study_shows_more_fruits_vegetables_needed/index.html)

Then, information on the value chains and their challenges and opportunities for commercialisation were collected for each country-crop combination through literature reviews and third party-led commercialisation assessments using a programme impact pathway as the guide; Commercialisation of Biofortified Crops Inception Assessments. In the GAIN Working Paper 28, we summarise the processes undertaken to identify the potential opportunities and barriers for commercialisation and describe how the findings were used to develop commercialisation strategies for nine country-crop combinations. In the GAIN Working Paper 29, we go on to describe how the programme impact pathway was developed and used to inform the design of commercialisation strategies and their monitoring and evaluation components (e.g., the CBC Monitoring Reference Manual, with a set of common indicators that are to be monitored throughout the programme life).

Evidence-based assessments linked to a programme impact pathway can strengthen programme design, monitoring, and evaluation and help ensure programmes have high potential for impact.

## THE IMPACT

Building on this evidence base with focused actions to strengthen demand, scale up access, and strengthen the enabling environment for biofortified crops and foods, following outcomes were achieved in the six countries:

Although the CBC programme came to a close in June 2023, we are continuing to link farmers to seed processors and multipliers to address the challenge of seed availability and distribution, making market linkages between producers, processors and retailers to ensure that more biofortified food is available in the market and that it is accessible and more affordable to consumers that need it the most. We are also creating more awareness and driving demand through promotions and campaigns.

Having anchored a firm foundation in the six countries under this first phase of the CBC programme, we believe that moving forward, the biofortified crops value chains will be more streamlined with increased production and demand. We anticipate more biofortified foods being traded in the market, that regulations, standards and policies around biofortification will be implemented in different countries, and that more biofortified crops varieties of different crops will be released and adopted beyond the countries the CBC programme focused on in its first phase.

Partnerships, alliances and commitments from governments to include the consumption of biofortified foods in the national policies and nutrition plans remain a critical factor and must be explored if we are to fully realise the goal of increasing consumption of biofortified foods, as a cost-effective and sustainable solution to fighting hidden hunger.

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