

By Gene Ethics founder and director Bob Phelps

✘ I grew up in New Zealand with the benefits of a nutritious, diverse diet of vegetables and fruit, fresh every day from our family's kitchen garden. Our garden was built on the peelings and scraps of past meals and soil nutrients from our hen house and the neighborhood.

The United Nations and its Special Rapporteur on Food Olivier de Schutter, assert the universal human right to nourishing foods so everyone can be healthy and achieve our full potential. But micronutrient malnutrition - hidden hunger - and starvation afflict at least a billion members of the human family, through a lack of micronutrients and access to affordable food.

In 1992, 159 countries at a UN Food and Agricultural Organization/World Health Organization International Conference on Nutrition pledged to help combat micronutrient deficiencies, especially of iodine, vitamin A, and iron, which then afflicted up to one in three people worldwide. Though food fortification alone would not end nutrient deficiencies and hunger, it claimed to be a step in the right direction. So a lot of scarce research and development resources have been poured into developing the new technology of biofortification. There are no biofortified foods yet.

Gene manipulation

Biofortification uses genetic manipulation techniques to cut and paste a gene into a staple crop, seeking to make a new or lost micronutrient. It is claimed they will be a solution to nutrient deficiencies, starvation, malnutrition and resultant ill health, especially in less industrialized countries and regions.

For instance, so-called Golden Rice, yellow because it contains the Vitamin A precursor beta-carotene, claims to be biofortified. But this would merely restore the vitamin A lost when brown rice is polished and its husk, bran, and germ are removed. White rice stores better than brown so is more acceptable in global trade and in communities which do not understand brown rice's health benefits. Bananas, cassava and sweet potato are also the targets of much biofortification research.

But leading global food biofortification research and development organization, [HarvestPlus](#), also acknowledges: "Fruits, vegetables, and animal products are rich in micronutrients, but these foods are often not available to the poor. Their daily diet consists mostly of a few inexpensive staple foods, such as rice or cassava, which have few

micronutrients. The consequences, in terms of malnutrition and health, are devastating and can result in blindness, stunting, disease, and even death."

So, most malnutrition and starvation are really the food access disasters of poverty, inequity and social injustice. Thus, the challenge to feed everyone well is much more than adding one or two key nutrients to an impoverished diet dominated by a staple food or two. Yet HarvestPlus and other biofortification enthusiasts such as the Bill and Melinda Gates Foundation do not intend to redress the lack of access to diverse healthy foods for all. They merely propose to add one or two micronutrients to fortify the same few staple foods that most poor people now have to rely on. Biofortification is not a solution to the core problem of access to a nutritious, diverse, balanced diet, a human right which would satisfy the health entitlements of all people, everywhere.

Biofortification distraction

Instead of fixing the hidden hunger problem, biofortification defuses and delays the quest for food justice, to meet everyone's right to food. It would further marginalize the world's poor, malnourished and starving people, mostly landless women and children in rural areas or those displaced into urban slums by destruction of their communities. Biofortification would consign poor people permanently to low value, nutrient deficient, staple food ghettos from which they could not escape, permanently denying them the diverse nutritious meals to which they have a right.

Biofortification is therefore a misallocation of scarce research and development resources that would entrench poor people's lack of access to the balanced nutritious food of which there is an abundance, if only it were fairly distributed to all. But in food systems dominated by global trade in bulk commodities and food waste, food goes where it is most profitable rather than where it is most needed. We must work to dispel the inequities which allow nutrient deficiency to remain a chronic problem even though, as de Schutter and others confirm, there is sufficient good food to adequately feed everyone in the world right now.

Biofortified food staples will not ensure people's health is improved, nor that their human rights to food are met. Public resources should be directed to helping empower malnourished and starving people to gain access to the land, water and seeds they need to locally produce the fresh fruits and vegetables that everyone agrees will resolve hidden hunger, starvation, illness and death.

It's our responsibility is to ensure that every child, woman and man has access to the fresh fruits and vegetables needed for childhood growth and development, and adult health.



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