

Underutilized species and new challenges in global health

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Underutilized crops make important contributions to the nutrition and health of people in developing countries. Whereas these potential benefits provide a good reason for conserving agrobiodiversity, this link receives little attention nationally and internationally. However, as the growing dependence of populations worldwide on a few staple crops leads to increasing health problems, more attention is being given to biodiversity and the interdependence between human and environmental health.

The *International Plant Genetic Resources Institute* (IPGRI) is concerned with the maintenance and use of plant genetic resources for food and agriculture. A recent initiative *Dietary diversity: a challenge linking human health with plant genetic resources* emphasizes nutrition and health. As threats to biological diversity accelerate, the plant genetic resources that guarantee the current and future production of healthy foods, beverages and medicines must be better used to improve the well-being of those whose food security and health is at risk.

Biodiversity ignored

Biodiversity often has a low priority on the development agenda. While different sectors and institutions concerned with health, agriculture, environment or economic development may be committed to sustainable food production and consumption, they approach development problems in different ways.

Nutritionists emphasize the importance of deficiencies in micronutrients such as iron, Vitamin A, iodine and zinc - so-called hidden hunger - to diet quality and disease resistance. In Latin America, South Asia and Sub-Saharan Africa supplements and food fortification dominate nutrition programmes. Common treatments include extra doses of vitamin A and fortifying staple foods such as wheat, maize flour or sugar with iron to prevent anaemia. While very effective in many cases, these measures are difficult to sustain.

Even food-based approaches tend to focus on a few, often-exotic species such as carrots and sweet potatoes with recognized nutrient values. Nutritionists' preoccupation with single nutrients has led to new efforts to biofortify staple crops such as rice or wheat with nutrients like beta-carotene and zinc through genetic modification. While offering potential new tools for solving specific malnutrition problems, these approaches treat nutrition simplistically. They ignore both the physiological and socio-cultural reasons that favour diets balanced by a variety of quality foods.

Underutilized crop species are often viewed as irrelevant and uneconomic solutions to global nutrition problems. Wild and cultivated biodiversity is ignored in dietary surveys, laboratory analyses of food composition, FAO Food Balance Sheets on national food consumption and in policy and decision-making. However, underutilized crops do make essential contributions to adequate diets. Studies on home gardens, for instance, clearly link diversity and nutritional status. Fruits, minor vegetables, sauce ingredients, condiments, spices and medicines grown in small quantities are inexpensive and healthy complements to diets that would otherwise be predominantly carbohydrate.

Changing needs and attitudes

Increasing attention to the importance of agrobiodiversity might be seen as an unexpected consequence of modern agricultural success. The widespread availability of high-energy staple foods such as rice, wheat, edible oil and sugar at relatively low cost has contributed to a double health burden in developing countries. Nutrient deficiencies increasingly co-exist with obesity and diseases such as diabetes and heart disease in many parts of the world.

A diet that includes fruits, vegetables, legumes, coarse cereals and animal protein contributes to health. Most essential nutrient deficiencies can be eliminated by small increases in the variety of food consumed. Many underutilized species, like the beta-carotene rich palm fruits from Brazil, are rich in nutrients. Millet is a good source of iron, and the recent decline in the consumption of millet couscous in Senegal, for example, in favour of less expensive imported rice can be associated with an increase in iron-deficiency anaemia.

Moreover, a growing number of medical studies demonstrate that optimal health requires more than just essential nutrients. Such findings emphasize the potential value of underutilized species. Foods derived from buckwheat and finger millet, for example, reduce the risk of heart disease while bitter melon and fenugreek contain compounds that directly improve the body's ability to respond to insulin. The benefits of leafy vegetables and other plants containing carotenoids such as lycopene and lutein are also well recognized. These carotenoids have no nutrient value but they do act as antioxidants and help prevent damage to cells and tissues.

At the *World Summit of Sustainable Development* there was a call to adopt a holistic approach to securing the sustainability of biodiversity, water, energy, health and agriculture. Dietary diversity is not a medical, conservation or economic issue alone and this is reflected, for example, in IPGRI's current approach to promoting the benefits of underutilized species for rural and urban consumers through multi-disciplinary partnerships. ■

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