

Agrobiodiversity for healthy, diverse diets and food systems¹

Background to the issue/problem

One of the world's greatest challenges is to secure universal access to sufficient, healthy, affordable and sustainably produced food (1). Despite major advances, our global food system still fails to feed a significant part of humanity adequately, in a healthy manner. In the 21st Century, malnutrition like climate change looms large as a grand global challenge. Worldwide approximately 795 million people are considered undernourished, two billion people are considered overweight or obese, while two billion lack essential vitamins and minerals needed for adequate nutrition. Dietary risk factors are now the number one cause of morbidity and mortality worldwide and prominent among this is the low quality of diet associated with poor intake of fruits and vegetables and other nutrient-rich plant and animal foods. There is no one-size-fits-all definition of a healthy diet. General components of a healthy diet as defined by the World Health Organization (WHO) include fruits, vegetables, legumes, nuts and whole grains (2). These essential elements are provided through food biodiversity, or the diversity of plants, animals and other organisms used for food, covering the genetic resources within species and provided by ecosystems, both cultivated and from the wild. Yet our agriculture, food systems and diets are becoming more uniform and simplified, and agriculture remains focused on increasing the production of a narrow number of staple crops and animal species (3). Much of our food biodiversity has been neglected or lost yet it has huge potential to provide the natural richness of nutrients humans require (4). Promoting diversification of food production systems and consumption will be necessary for more optimal nutrition outcomes. It will also be important for resilience and sustainability of our food systems.

Opportunities

There has never been a better time to facilitate a more interdisciplinary, holistic approach to addressing the above issues facing our food system and diets, involving all relevant sectors, in order to reverse the decades of unsustainable nutrition-related interventions (1). Most recently there has been significant global focus on improving agriculture for enhanced nutrition outcomes, often referred to as 'nutrition-sensitive' agriculture. 'Nutrition-sensitive' agricultural interventions use food-based strategies to modify diets such as home gardening, aquaculture and small-scale fisheries, small livestock rearing, and dairy development programmes, as well as strategies to improve food processing, storage and preparation, and markets and value-chains. Empowering women and nutrition education and knowledge are also key strategies in 'nutrition-sensitive' agriculture. Although rarely targeted explicitly at food biodiversity and dietary diversification, many of these strategies have the potential to diversify diets by promoting production of, and access to, a wider variety of foods (5).

Attention to these issues has also prompted calls for new thinking and approaches to better integrate food biodiversity for improved nutrition (6), including a resurgence of interest among some donors, policy makers, researchers, practitioners and consumers - accompanied by numerous high-level intergovernmental meetings - in finding ways to reshape food systems that improve nutrition outcomes. Agencies including the Food and Agriculture Organization of the United Nations (FAO), the Convention on Biological Diversity (CBD), the WHO and Bioversity International recognize the important role of food biodiversity in this momentum to reshape food systems (7). However, at present the importance of food biodiversity for healthy agriculture, food systems and diets is still not adequately reflected in the Sustainable Development Goals (SDGs). While all of these elements are addressed in SDG 2 there currently are no indicators in that goal which might capture these linkages. To do so, indicators must go beyond conventional measures of agricultural production and yield to better measure nutritional quality, nutritional diversity of food systems and dietary diversity. More effort is needed to better mainstream biodiversity into relevant SDG indicators so that the multiple ecosystem goods and services it can deliver for human nutrition and wellbeing are better tracked (7).

Barriers and challenges

Taking advantage of the opportunities to better promote food biodiversity as a key strategy for healthy diets and sustainable food systems which the current climate presents will necessitate overcoming many barriers and challenges which have contributed to the underutilization of food biodiversity in the first place. Numerous assessments have already highlighted the barriers to the promotion of food biodiversity in agriculture, food systems and diets. These barriers are often of a governance, technical, economic or social nature. They relate to such factors as poor economic competitiveness with commodity cereal crops, a lack of crop improvement, poor cultivation

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practices, inefficiencies in processing and value addition, disorganized or non-existent market chains as well as a perception of these foods as being ‘food of the poor’ and have been summarised as including the following (8):

- Disconnect between the biodiversity, agriculture and health sectors and other sectors (including education) which limit the integration and promotion of food biodiversity
- Continued neglect by international and national research and extension systems of most food biodiversity
- Biodiverse food-based approaches all too often fall outside the traditional scope of clinical nutrition and public health and their promotion is therefore limited
- Lack of skills and institutional capacity necessary to promote multisector approaches to fully exploit biodiversity, agriculture and health linkages
- Lack of data linking food biodiversity to dietary diversity and improved nutrition outcomes
- Lack of evidence demonstrating or comparing the most (cost-) effective methods and approaches for delivering or mobilizing food biodiversity for dietary and nutrition outcomes
- Poorly developed infrastructure and markets for the majority of food biodiversity
- Reach and influence of the modern globalized food system and trade policies which impede or undermine promotion and consumption of food biodiversity while favouring the consumption of unhealthy processed foods
- Inadequate agricultural and food security policies and strategies that promote major cereal staples have often diminished the dietary role of more nutritious species such as millets, indigenous fruits and vegetables and roots and tubers
- Negative perceptions and attitudes to local, nutritionally-rich food biodiversity
- The ‘artificial’ cheap cost of exotic or imported foods which externalize their health and environmental costs

Key Messages/Recommendations

- Food biodiversity is the diversity of plants, animals and other organisms used for food, both cultivated and from the wild.
- The nutrient content between different species or varieties/breeds of the same species can vary thousand-fold. This information can be used to maximize nutritional adequacy of diets.
- Using food biodiversity and food-based approaches to diversify diets is a critical element in response to global malnutrition and toward sustainable food systems. A healthy, balanced diet requires a variety of foods to supply the full range of nutrients needed (vitamins, minerals, individual amino acids and fatty acids, and other beneficial bioactive food components). A diversity of species, varieties and breeds, as well as wild sources underpins dietary diversity and good nutrition.
- Food biodiversity reaches consumers through two principal pathways: 1) consumption via own production or gathering from the wild, and 2) purchase of wild or cultivated biodiversity.
- Improved access, availability, affordability and acceptability of food biodiversity are key factors for achieving healthier diets.

Key References

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