



Diet diversity for nutrition and health

The challenge

How can we feed 9 billion people nutritionally balanced diets produced in a sustainable manner by 2050? This is the global challenge ahead of us. We are witnessing population growth and increasing urbanization, coinciding with an increase of health problems related to poor nutrition.

An estimated 805 million people suffer from insecure food supplies, poor access to foods, and nutritionally inadequate diets, while the number of people in the world who are obese or overweight has topped 2.1 billion. In addition, 2 billion suffer from micronutrient deficiencies – when the diet lacks the essential

vitamins and minerals required in small amounts by the body for proper growth and development, such as vitamin A, iron, zinc and calcium.

A lack of available foods to constitute diversified diets is a crucial factor. This is particularly the case in the developing world, where diets often consist of starchy staples with not enough nutrient-rich sources of food, such as animal source foods, fruits, vegetables, beans and pulses. Globally, the reduction of agricultural biodiversity in food systems is of increasing concern. Around 7,000 crop species have been used for human food since the origin of agriculture yet today only 3 crop species provide more than 50% of the world's calories from plants.

Bioversity International research approach

Bioversity International studies the diversity present within local food systems. We also work with partners to mainstream locally available food biodiversity for sustainable food systems and healthy diets into national policies and programmes on food and nutrition security. Diversifying the diets of populations can reduce micronutrient deficiencies by providing a rich source of naturally available nutrients all the year round. We take a 'whole of diet' approach which means studying the diversity of all accessible local food sources for vulnerable populations, including 'forgotten' traditional foods, wild foods and foods available at the local market. We investigate how agricultural and tree biodiversity can be better used within food production systems, taking into account the benefits to humans and the environment.

Where we work

A primary focus of our work in nutrition is mothers and young children in West, East and Southern Africa as well as Asia and Latin America, with research initiatives that can be adapted to other regions.

Research highlights

USING AGRICULTURAL BIODIVERSITY TO IMPROVE DIET QUALITY IN WESTERN KENYA

Western Kenya is among the regions of Kenya endowed with rich biodiversity. Many cultivated and wild species have potential to contribute to diets and nutrition, yet this region still remains food insecure.

Bioversity International and partners are researching how agricultural biodiversity can be better used in Western Kenya to improve nutrition, focusing especially on infants and young children from 6-23 months. This involves mapping available agricultural biodiversity, understanding how it is being used and developing strategies with communities and partners to mainstream food biodiversity into the local food system and onto the plates of target consumers. We are also looking at the effectiveness of nutrition education as a behaviour change strategy to improve diet quality.

Impact

Early analyses show that nutrition education motivates the caregivers of infants and young children to improve the quality and diversity of complementary diets by using accessible local food resources.

BIODIVERSITY FOR FOOD AND NUTRITION IN BRAZIL, KENYA, SRI LANKA AND TURKEY

The Global Environment Facility (GEF) 'Mainstreaming Biodiversity Conservation and Sustainable Use for Improved Nutrition and Well-Being' is led by Brazil, Kenya, Sri Lanka & Turkey:

- providing evidence of the nutritional value of agricultural biodiversity and its role in promoting healthy diets and strengthening livelihoods
- influencing policies to support the conservation and sustainable use of agricultural biodiversity with potential for improved human nutrition and well-being
- raising awareness through tools, knowledge and best practices for scaling up the use of biodiversity for food and nutrition in development programmes, value chains and local community initiatives.

Impact

Brazil is implementing a school feeding programme to promote healthy eating habits in schools which also ensures that 30% of procurement is from local family farmers.

BANANA DIVERSITY IN EASTERN AFRICA

Severe vitamin A deficiency is one of the major public health problems in Eastern Africa causing increased susceptibility to infections, and permanent damage to both eyesight and development. The most vulnerable groups are children younger than five and women of reproductive age.

Bioversity International's work with partners in Burundi, Eastern Democratic Republic of the Congo (DRC), Tanzania and Uganda is looking at how better use of banana diversity within food systems can improve nutrition. There are up to 1000 varieties of banana around the world, with different naturally-occurring levels of nutrients including vitamin A and they are a staple food in Eastern Africa, where people eat up to 11 bananas a day.

Impact

Varieties identified that are high in vitamin A pre-cursors, perform well under various local growing conditions and are accepted by local communities for taste and use in traditional recipes. A selection of these varieties is now being officially released in Burundi and Eastern DRC.

MILLETS IN INDIA

Nutritious millets were once a strong part of traditional diets in Southern India before agricultural subsidies shifted attention to rice, wheat and maize and they became a 'forgotten food'. Bioversity International has been working with partners for almost 15 years in various states to promote millet use and conservation.

Impact

India's National Food Security Act (2013) is incorporating millets into the public distribution system, meaning these nutritious grains are now available to more than 800 million people at a subsidized rate. Other highlights include improved markets links for small-scale producers such as restaurants adding millet-based dishes to the menu, and the addition of millets in school lunches in 12 districts in Central and South India.

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