Kenya Policy Brief 2018

BIODIVERSITY FOR FOOD AND NUTRITION

Harvesting the Benefits of Local Foods: from Healthy Diets to Sustainable Growth

The inclusion of **nutrient-rich indigenous foods** as part of a **balanced diet** has the potential to be a cost-effective, long-term and sustainable alternative to quick-fix nutrition interventions, with an estimated 15:1 benefit:cost ratio for nutrition investments. Furthermore, building the capacity of **smallholder farmers** to produce these foods and linking them to institutional markets, particularly schools, could lead to direct improvements in **education** and **productivity**, boosting national **economic growth** and **social development**.

Key Messages

1. **Food biodiversity** contributes to **healthy diets** and provides a wide range of nutritious options to choose from that meet diverse cultural and taste preferences.
2. **Value chain** development and **capacity building** of chain actors is essential for increasing production of nutrient-rich indigenous foods and successfully linking farmers to markets.
3. Cultivation and use of nutrient-rich indigenous foods can easily be incorporated into current farming systems, improving **environmental sustainability** and farmer resilience against **global shocks**.
4. Nutrient-rich indigenous foods can be incorporated into **school meals** to ensure that children are well-nourished, healthy and able to learn.
5. The appreciation and use of indigenous foods helps maintain **cultural heritage** and **national identity**.

Actions for Policymakers

1. Support food biodiversity **conservation** and **promote diversification** of food and agricultural production systems at the local and national level.
2. Invest in value chain development for **new biodiversity products** to enhance small enterprises around local biodiversity, improving **farmers' livelihoods**.
3. Develop sectoral **policies** that integrate biodiversity for food and nutrition objectives and culturally-sensitive nutrition education.
4. Incorporate the use of nutrient-rich indigenous foods into the Kenyan **school meal strategy**.
5. Create national **awareness campaigns** promoting the benefits of nutrient-rich indigenous foods.

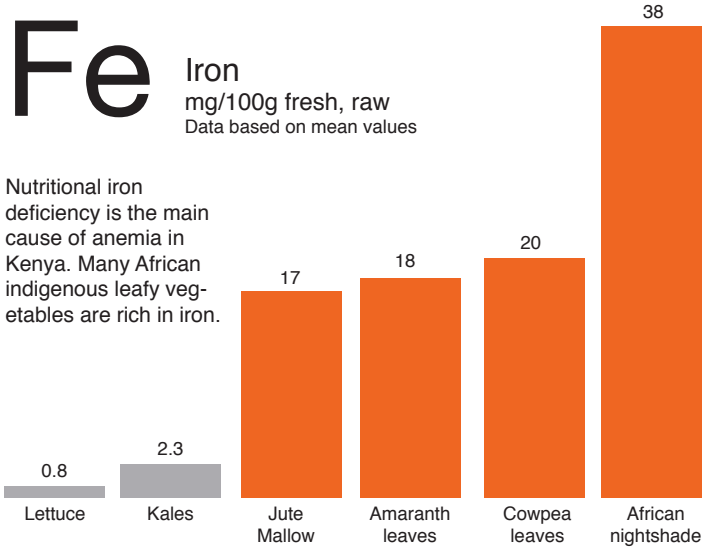
gef UN environment Food and Agriculture Organization of the United Nations Bioversity International CGIAR RESEARCH PROGRAM ON Agriculture for Nutrition and Health KALRO

Fe Iron

mg/100g fresh, raw

Data based on mean values

Nutritional iron deficiency is the main cause of anemia in Kenya. Many African indigenous leafy vegetables are rich in iron.



Sources: BFN composition table (2018), Abukutsa-Onyango (2010), West African Food Comp tab.


Credit: BFN Kenya/A.Grasso

Credit:KALRO/ J. Ndugu

Cowpea leaves (*Vigna unguiculata*) and Jute Mallow (*Chocorus olitorius*)

The Potential for Food Biodiversity in Kenya

Malnutrition is an obstacle to Kenya's aspiration to transform the country "into a globally competitive, prosperous nation with a high quality of life by 2030"[1] and to achieve many of the UN **Sustainable Development Goals** (SDGs) by 2030, the **Aichi Biodiversity Targets** of the Convention on Biological Diversity and of the AfDB **Strategy for Agricultural Transformation in Africa**, 2016-2025 (Feed Africa)[2 3 4]. Realization of these goals requires a healthy and productive population, which in turn demands that the children of today are **adequately nourished** to enable them to grow and develop to their full potential[5].

Food biodiversity - the diversity of plants and animals and other organisms used for food, both cultivated and from the wild - offers a promising solution to **reduce malnutrition and improve livelihoods**[6]. Research shows that including biodiversity in food systems and diets can help solve national diet-related nutrition and health issues by providing ready access to the diversity of nutrients needed for healthy growth and living[7 8]. Yet much of Kenya's unique food biodiversity is disappearing[9].

Improving production of this diversity, raising awareness of its importance and linking farmers to markets for these foods can generate **reasonable incomes**, while supporting **rural development** and **protecting the environment**[8]. Increasing food biodiversity in the Kenyan food system could generate an important number of long-term benefits, helping to achieve numerous national and international targets.

1 in 4 of all children in Kenya are stunted. A malnourished child will never attain his or her optimal height or develop full mental capacity[10].

Children of Today - Adults of Tomorrow

Kenyan children and adolescent boys and girls will be most affected by the disappearance of healthy, local food species. To be properly fed, children must eat a variety of foods that provide appropriate levels of nutrients. Currently, around **26% of Kenyan children suffer from chronic undernutrition**, resulting in impaired development and growth while another sizeable portion (4.1%), especially children living in urban areas, are overweight or obese[10]. Major nutrient deficiencies- including **iodine** deficiency disorder, **iron** deficiency (anaemia), and **vitamin A** and **zinc** deficiency (49% of children under five years are vitamin A deficient[10]) - are expected to cost approximately KES 3,890 billion of the GDP in Kenya between 2010-2030[11] as a result of losses in workforce productivity - and will weigh heavily on the **national health budget**. However, changing these trends is within reach. **Local foods are rich in many of the above nutrients**[6].

Kenya's Hidden Treasures

Kenya is home to a **wide diversity of food species**, including wild edibles, local animal breeds, and food crops and varieties more nutritious than typical food commodities[12]. These include green leafy vegetables and fruits **rich in key nutrients** such as iron and vitamin A[8]. Despite their abundance, they remain largely unused due to limited data about their nutritional properties and lack of awareness of their health benefits[13 14].

In 2017, the Kenya Agricultural and Livestock Research Organization (as part of the BFN project*), in partnership with the Ministry of Health and FAO generated new information on the **nutrient content** of a number of indigenous species and prepared recipes using these key ingredients. For example, African nightshade was found to contain 16 times more iron than kales while, among fruits, the indigenous chocolate berry was found to contain almost 5 times the vitamin A content of pineapple (see graphs above).

*The GEF Mainstreaming Biodiversity for Conservation and Sustainable Use for Improved Human Nutrition and Wellbeing Initiative (BFN) is led by Brazil, Kenya, Sri Lanka and Turkey and coordinated by Bioversity International, with implementation support from UN Environment and the Food and Agriculture Organization of the UN. Additional support for the project is provided by the CGIAR Research Program on Agriculture for Nutrition and Health. The project contributes to the Convention on Biological Diversity's Cross-cutting Initiative on Biodiversity for Food and Nutrition.

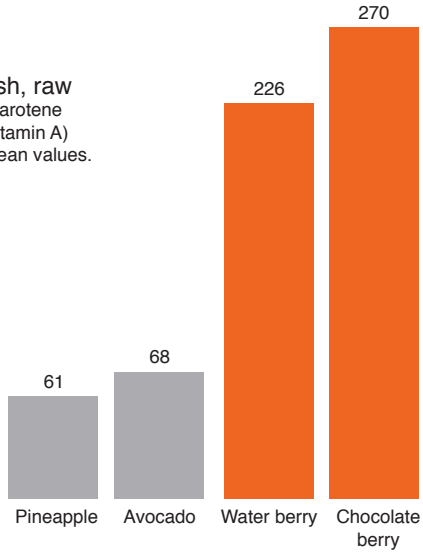
A

Vitamin A

mcg/100g fresh, raw
(expressed in β-carotene
- a precursor to vitamin A)
Data based on mean values.

Vitamin A is important for growth and development. 85% of children under five years suffer from vitamin A deficiency in Kenya.

The World Health Organization recommends at least 400 g of fruits and vegetables per day. All fruits and vegetables contain valuable vitamins and minerals thus eating a diverse selection contribute to a balanced and healthy diet.[15]

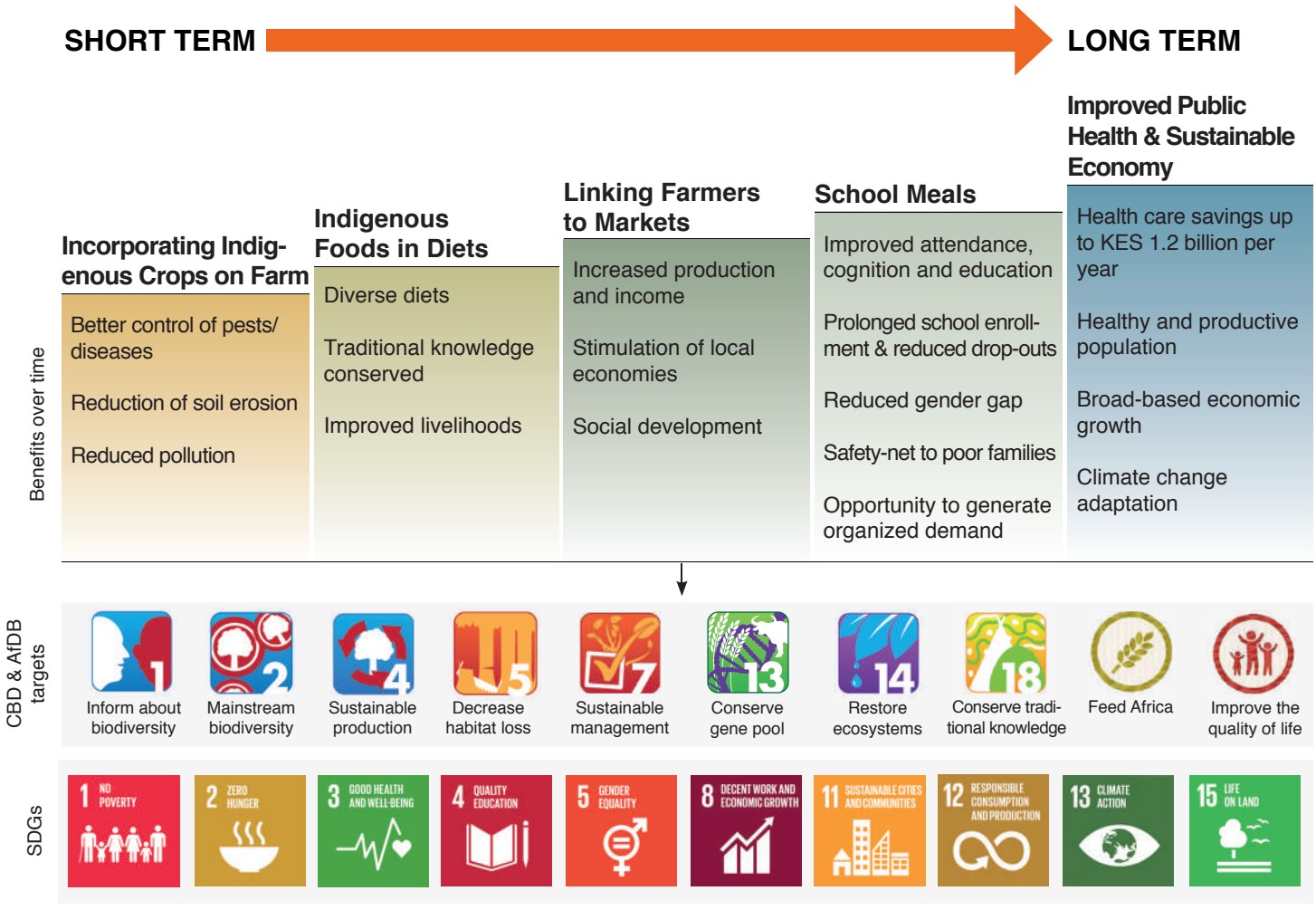


Sources: Vunchi et al. (2011), West African Food comp tab, Sehwag & Das (2014)

Chocolate berry - mfudu (*Vitex* spp.) and water berry - mzambarau (*Syzygium* spp.)

The Multiple Benefits of Food Biodiversity

Incorporating a diverse range of nutrient-rich indigenous species into agricultural systems has the potential to significantly **improve diets**. Research has shown that diet quality is strongly linked to the number of species grown on farm[6, 16 17, 18] and the availability of food species in the wild[19 20]. Furthermore, diversity on farm provides a range of **environmental, economic, and social benefits** to farming communities[12 21 22]. As well as being more **adapted to local environments**, including soils and climate[23], indigenous species depend less on farming inputs, and are available year-round, particularly in the months of greater food shortage[24]. **Greater knowledge** is needed of the long-evolved food systems of indigenous peoples, which amount to a wealth of knowledge that is typically overlooked and undervalued[25]. Supporting the integration of nutrient-rich indigenous species in the Kenyan food system can yield important short, medium, and long-term benefits for Kenya's population and its sustainable economic growth, as shown in the graphic below.



School Feeding in Kenya

Kenya stands out for its development of innovative and complementary **school feeding programmes**, with both successes and challenges. The *Njaa Marufuku Kenya* program, under the Ministry of Agriculture, and the Home Grown School Meals (HGSM) program, under the Ministry of Education, Science and Technology, aim to tackle low school enrollment and attendance, high dropout rates and low academic achievement.[26] While such initiatives have been ongoing for several years, efforts to integrate nutrient-rich indigenous species have remained limited.[27 28]

Credit: BFN Kenya/A. Manjella

Mandala school garden in Busia County.

The School Food Revolution

School meal programs can generate organized demand for food that benefits children, smallholder farmers, local markets, and the enabling systems surrounding them[29]. Currently, the **1.5 million Kenyan children** receiving school meals are fed a monotonous diet, consisting mostly of maize and beans, which is low in vitamins and other essential nutrients. A recent **pilot project** in Western Kenya has successfully introduced nutrient-rich **indigenous food in school meals** to diversify diets and raise demand for local foods by linking entrepreneurial farmers to nearby schools[30]. This approach aligns with the *National School Meals and Nutrition Strategy 2017-2022* developed by the government of Kenya[31]. It has the potential not only to create jobs through agribusiness and stimulate local economies[32], but also to contribute to food and nutrition security in agreement with the Africa Agriculture Transformation agenda 2025, the SDGs, and the national food and nutrition security policy. Kenya has the opportunity to lead other African nations as it transitions from World Food Programme support to being government-led. When children are well-nourished during primary school they will grow up healthier, which together with better education leads to increased productivity and better wages throughout life[29]. It is estimated that children who are stunted will earn up to 20% less in average than those who are not[32]. Promoting agricultural biodiversity as part of Kenya's efforts to reduce malnutrition could therefore have **significant long-term economic benefits** for the Kenyan population.

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