



**BIODIVERSITY
FOR FOOD AND
NUTRITION**



Biodiversity for Food and Nutrition Initiative



SRI LANKA

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Forty-six identified agro-ecological regions in the dry, intermediate and wet zones of Sri Lanka scattered over the island create a multitude of ecosystems that house a diverse array of plant species. Nature reserves, botanical gardens and 1.3 million home gardens help to conserve this diversity, while 5300 cereal accessions, 2500 vegetable accessions and 400 fruit accessions are kept in seed and field gene banks across the country in order to safeguard plant genetic diversity.

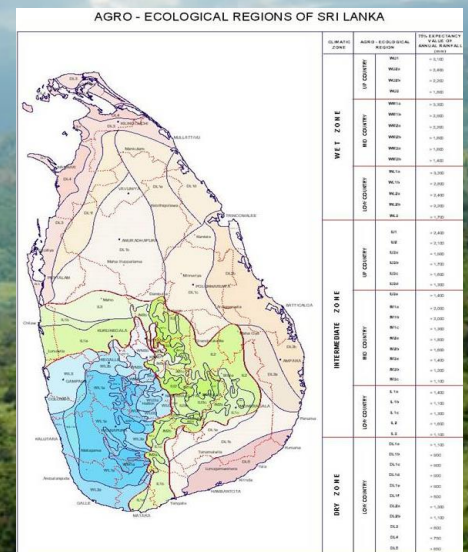
Sri Lanka is also home to an estimated 60 forgotten and underutilized plant species, in particular several vitamin-rich fruit species. Sri Lankan farmers have been able to maintain this

rich diversity in crops and gardens for thousands of years, but urbanization and generational changes in food preferences and occupations have led to changes in food production and consumption habits resulting in a population that carries the double burden of disease with 20% undernourished and 30% overweight or obese.

Land clearing and a lack of attention and care has led to at least 5 wild rice species becoming in danger of extinction, while several fruit species are kept alive only by inclusion in exposed home gardens in rural areas. Moreover, these wild rice species are known to exhibit important traits such as pest and disease resistance and saline and

drought tolerance, which are extremely desirable characteristics for adapting to climate change and extreme weather patterns.

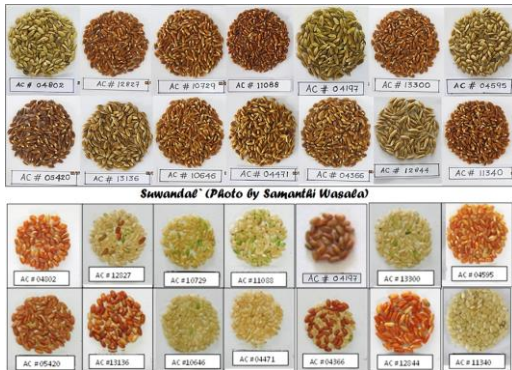
Discovering similar potential in the wild and traditional varieties of other edible plant species could be vital for establishing food security in the future, while gathering greater technical, political and financial support and incentives for farmers to conserve plant genetic diversity is needed to raise awareness of the importance of highly nutritious traditional plant species.



PROJECT HIGHLIGHTS

Providing Evidence

Currently, information on the nutritional composition of traditional Sri Lankan foods is limited, and any data that does exist is fast becoming outdated due to advancements in the accuracy and precision of testing methods. Nineteen traditional edible plant species have been prioritized for food compositional analysis based on their high nutritional value, cultural importance, and associated traditional knowledge e.g. medicinal properties.



Molecular characterization is being used to identify suitable genotypes for food compositional analysis of traditional rice variety accessions existing within the seed gene bank of the Plant Genetic Resources Centre.

Data collected by two Master students from the University of Ghent on household diet diversity scores (HDDS) determined using 24-hour diet recalls in Gampola and Udakumbura pilot sites revealed 50% of the households interviewed had economic access to a variety of food groups, and that traditional vegetables, legumes and fruits were included in diets, but preferences varied by region.



Fruits and fish were the least consumed food groups, and recommendations were made for promoting these foods in future public health interventions.

Further investigation by these students into the agrobiodiversity in Sri Lankan diets and associated health outcomes in all 3 pilot sites showed over 10% of children were found to be underweight, while almost 30% of adults were overweight or obese. The risk of inadequate nutrient intakes was high for Vitamins A, B12, C and E as well as riboflavin and folate, which were taken as the percentage of intakes that fell below the Estimated Average Requirement (EAR).

Research teams from Wayamba, Peradeniya and Ruhuna University gathered complimentary data about Potentially Important Regional (PIR) foods that are both high in these micronutrients and were locally preferred across all 3 pilot sites. These included gotukola (*Centella asiatica*), pumpkin (*Cucurbita maxima & Cucurbita moschata*) and eggplant (*Solanum melongena*). Regional differences in PIR food preference were reported, with ridge gourd, mango and papaya popular in the Gampola site, but not in the Udakumbura and Sinharaja sites.

Data from an additional baseline survey carried out in Gampola by Wayamba University in 2014 reported the highest perceived biodiversity loss over the past 20 years has occurred for banana, coconut, lime and orange species, as judged by home garden owners and farmers. In terms of market opportunities, 92% of households reported selling excess produce to traders, with only 1% selling to other households. Local markets were the most common selling location (48%), followed by sale at the farm gate (29%), and least of all at regional markets (1%).

Creating Markets



BFN Sri Lanka has facilitated the opening of food outlets selling diverse traditional local foods. “HelaBojun; True Sri Lankan Taste” market outlets are also being run by women farmers trained in nutrition, healthy recipe production, food safety and business skills by the Women Farmers Extension Program of the Department of Agriculture, a national BFN partner. These outlets play a vital role in successfully marketing diverse local foods, empowering women, and reviving interest in traditional food culture.

In line with Sri Lanka’s new governmental commitment to support sustainable agriculture and the marketing of traditional agrobiodiversity, these market outlets aim to:

- Generate agriculture-based employment and improve private enterprise
- Provide sustainable and stable family income to increase well being
- Create awareness and interest among new generations about the value of traditional foods and recipes which are gradually disappearing
- Minimize the influence of fast food culture to reduce health problems
- Use locally-grown rice, coconut, finger millet, cassava, sweet potato, green gram, black gram, jackfruit, vegetables, leafy vegetables and a range of local fruits to reduce foreign imports while creating a demand for local produce
- Promote healthy food without flavoring enhancers, artificial coloring, preservatives

Raising Awareness

The 9th “HelaBojun” market outlet was opened by the Department of Agriculture in collaboration with Ministry of Mahaweli Development and Environment and the Ministry of Agriculture during the International Day for Biological Diversity. The market was opened under the patronage of Hon. President Mr. Maithripala Sirisena and other government officials, and BFN Sri Lanka delivered presentations on the importance of biodiversity for improving nutrition and the progress the BFN project has made so far. The 9 market outlets are successfully selling traditional food biodiversity and reviving interest in Sri Lanka’s traditional food culture.

A two-day food festival entitled “Healthy Nation through Traditional Food”, was organized by the Ministry of Mahaweli Development and Environment. Many attended the event, confirming the considerable public interest in traditional foods and food culture.



In December 2014, experts from a variety of disciplines came together at the International Symposium on Biodiversity, Food and Nutrition, organized by Wayamba University in collaboration with BFN Sri Lanka, the Ministry of Mahaweli Development and Environment and the Department of Agriculture. Presentations were delivered by BFN country partners to showcase best practices, and experts were able to widen their knowledge base by discussing the linkages between agriculture, biodiversity, nutrition, food consumption and food security.

FUTURE ACTIONS

The Department of Agriculture (Plant Genetic Resources Center and Horticultural Research and Development Institute) and the nutrition faculties of Peradeniya and Wayamba Universities have developed a sampling plan to analyze the food composition for a total of 30 cultivars/varieties of traditional rice, banana, jack fruit, yams, eggplant, finger millet, cowpea, green gram and four leafy vegetables.

Following a technical training workshop on documenting biodiversity indicators for food composition and consumption by the Food and Agricultural Organization (FAO), national food composition database production has begun. The Plant Genetic Resources Center will support the database construction and host it in terms of infrastructure (and also linking food composition data with crop genetic resource data), and the Information and Communication Centre (ICC) will provide qualified experts for database development.

A review of the National Nutrition Policy to include and highlight the mainstreaming of conservation and sustainable use of agrobiodiversity is scheduled to begin later this year. The Ministry of Mahaweli Development and Environment has also started the revision of the National Biodiversity Strategy and Action Plan (NBSAP).

The GEF 'Mainstreaming biodiversity for nutrition and health' initiative (also known as the Biodiversity for Food and Nutrition (BFN) Project) is led by Brazil, Kenya, Sri Lanka and Turkey and coordinated by Bioversity International, with implementation support from the United Nations Environment Programme (UNEP) and the Food and Agriculture Organization of the United Nations (FAO) and additional support from the CGIAR Research Program on Agriculture for Nutrition and Health.





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Convention on
Biological Diversity

**The BFN Project contributes to the implementation of the
Convention on Biological Diversity's (CBD) Cross-Cutting Initiative
on Biodiversity for Food and Nutrition**