

BREADFRUIT INSTITUTE



Diane Ragone, PhD, Director

PROGRESS REPORT - Fall 2010

Breadfruit Fighting Hunger

This initiative aims to help alleviate hunger, provide long-term food security, and enhance the livelihoods of farmers by increasing the cultivation and use of breadfruit in the tropics. The Institute is working with Global Breadfruit (www.globalbreadfruit.com) to distribute selected breadfruit varieties. The first variety being distributed, Ma'afala, is showing excellent results.

The plants are healthy and vigorous, with a compact growth habit. Several trees on Kauai have begun bearing fruit less than two years after planting! This is very promising, as trees grown using the traditional method of propagation of root suckers/root cuttings typically begin fruiting in 3-5 years. It also takes from 1-2 years before the plant is ready to go into the field, compared to 4-6 months for a plant produced by *in vitro* propagation. Ma'afala is also quite nutritious, abundant in carbohydrates and containing good levels of protein and other important nutrients.



Ma'afala tree in the McBryde Garden bearing fruit in just 22 months

Breadfruit Planting Projects



Jamaica - The Trees That Feed Foundation (www.treesthatfeed.org) under the enthusiastic leadership of NTBG Fellow, Mary McLaughlin, is making great strides in introducing new breadfruit varieties to Jamaica. There is keen interest in Jamaica in breadfruit for food security initiatives and to supply the local and export fresh fruit markets, for manufacture of gluten-free flour, and for breadfruit chips and other products. The first shipment of Ma'afala plants from Global Breadfruit were sent to the Orange River Agricultural Research Station in December 2009. All survived and were planted in the ground in just four months, and Jamaican scientists will study their local adaptability and productivity. More than 200 plants were shipped in August 2010 and are flourishing in pots at the station. The foundation is working with Rotary International to provide trees to elementary schools to provide breadfruit for lunch programs.

Honduras

Our first collaborative breadfruit planting project with Sustainable Harvest International

(www.sustainableharvest.org) resulted in more than



100 trees of two varieties being planted in rural communities in the Yoro and Santa Barbara districts. Trees were also established at demonstration farms at two Regional Centers. SHI held a cooking workshop in Yoro on preparing various recipes with breadfruit, known

as mazapán, as the main ingredient.

Collaborative Research Projects

NTBG's breadfruit collection provides unique opportunities for research to support the Institute's mission to promote the conservation and use of breadfruit for food and reforestation. Dr. Susan Murch, Canada Research Chair in Natural Products Chemistry at the University of British Columbia Okanagan (UBCO), is spearheading a multifaceted research program on breadfruit. The main focus of research involves developing *in vitro* propagation methods for different breadfruit varieties for conservation and distribution.

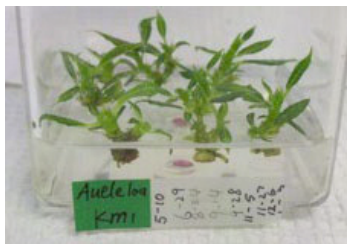
This is a complex, long-term endeavor as the methods we've

developed thus far apply to only a limited number of varieties.

Without this critical research it will not be feasible to propagate complementary

varieties (extended season, nutritional attributes, processability) for global distribution vis à vis the Global Hunger Initiative.

In order for breadfruit to live up to its full potential as one of the tropic's staple food sources, it is essential to determine nutrient composition and starch characteristics of individual varieties.



Nutritional data is key to supporting commercial development of this crop. Analysis of 96 varieties has identified specific varieties which produce superior flour, high protein varieties, and ones that provide a good source of iron, potassium and other minerals. Some varieties outperform whole wheat, corn, and rice flour in certain nutrients! Proposed research will include vitamin assays, elucidating protein and amino acid profiles, and investigating potential breadfruit products.

Collection Manager & Curator Joins Breadfruit Institute Team

In June the Breadfruit Institute welcomed Ian Cole as Collection Manager & Curator, based at Kahanu Garden. Ian is a former NTBG Horticultural and Curatorial intern and received his Master's degree in Environmental Science from UBCO in 2007 working with Dr. Susan Murch.

Ian has extensive and broad-based horticultural and scientific training and experience, and helped develop protocols for *in vitro* propagation of breadfruit. He is responsible for management, development, use, and interpretation of NTBG's internationally pre-eminent breadfruit conservation collection.

Ian is focusing on revitalization of the collection and implementing a sustainable integrated strategy to improve the health and condition of trees. These practices include pruning, mulching, composting, fertilizing, and planting cover crops. Researchers at the University of Hawaii, the USDA National Resources Conservation Service and BiAgro Western are assisting in this endeavor, providing plant materials and technical support.

