

# Breadfruit Institute Progress Report

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This is an exciting time for the Breadfruit Institute. I am pleased to report on the key achievements and projects of this year. The Breadfruit Institute has these major goals: propagating and distributing superior varieties of breadfruit in order to alleviate hunger and combat deforestation in the tropics, raising awareness of breadfruit's potential, and preserving breadfruit diversity. We are making considerable progress in all these areas.

## Major Breakthroughs In Propagating Breadfruit Plants

The tissue culture project directly addresses the challenge of feeding the hungry of the tropics. The latest statistics reveal that one out of three people (180 million) of Sub-Saharan Africa are hungry. In Latin American and the Caribbean, 53 million people are hungry. Breadfruit is proven to be a reliable staple crop and forest cover throughout the tropical Pacific. Our goal is to propagate superior varieties of breadfruit and to develop collaborative partnerships in order to effectively distribute these plants to tropical countries in need of food and forest.

Significant advances have been achieved in developing *in vitro* protocols to propagate breadfruit. Dr. Susan Murch's research team at the University of Guelph, Canada, has successfully taken the popular variety 'Ma'afala' through all stages of tissue culture. We are now ready to refine and test the methodology on other superior varieties in our collection. Dr. Murch has joined the faculty of the University of British Columbia and the tissue culture project will move to her new research facilities there. This will allow us to greatly expand the scope of operation to begin applying the propagation protocols uncovered during the research on 'Ma'afala' to the other superior varieties as well as testing varieties for salinity tolerance.



**Our firstborn ready to enter the world**

## Virus-Free Breadfruit A Reality

Valerie Tuia, Curator at the Regional Germplasm Centre, Fiji, recently completed pioneering work which determined the virus status of breadfruit. International plant quarantine regulations require that plants be disease free. Tuia tested 200 fresh



breadfruit leaves— 10 each of the 20 elite varieties growing at the Kahanu and McBryde Gardens— under the direction of Professor Rob Harding at the Queensland University of Technology, Australia, the best facility in the region for molecular biotechnology. All of the samples were virus free. This research opens a critical door for the success of the tissue culture project.

Valerie will visit Kahanu Garden in August to collect buds from the 20 superior varieties to establish in tissue culture at the Regional Germplasm Centre in Fiji.

This work would not have been possible without support from private donors and a matching grant from the USDA Foreign Agriculture Service Scientific Cooperation and Research program.

## Breadfruit Diversity Seriously At Risk In Chuuk

The islands of Chuuk, Federated States of Micronesia, were devastated by strong winds, heavy rain, and landslides during Typhoon Chata'an in 2002. Breadfruit is traditionally their most important staple food. The islands have been a center for breadfruit diversity. The storm destroyed numerous breadfruit trees and the survivors are just beginning to bear fruit again. Without breadfruit, the islanders must rely on rice and other imported foods.



In February— following a Fellow's expedition to Kosrae— I visited Chuuk for the first time since 1987. I was shocked to see the changes in the islands and the demise of so many breadfruit trees. Accompanied by Sleeper Sared, an enthusiastic and knowledgeable agricultural extension agent, I traveled to the islands of Weno, Fefan, and Dublon. Many islanders are concerned about the catastrophic loss of breadfruit varieties. The agriculture department is eagerly anticipating receiving breadfruit from the NTBG collection. They are especially interested in salt-tolerant varieties that will thrive on Chuuk's many coral atolls threatened by global warming.

The breadfruit collection provides NTBG with the means of ensuring a sustainable food source for the Pacific islands as well as other tropical countries where its complete potential is yet to be discovered.