

BREADFRUIT INSTITUTE

SPRING PROGRESS REPORT | 2017



The National Tropical Botanical Garden (NTBG) is dedicated to tropical plant research, conservation, and education. NTBG's Breadfruit Institute (www.breadfruit.org), established in 2003, is the global leader in efforts to use breadfruit diversity to support food security, regenerative agriculture, and income generation for smallholder farmers in the tropics. The Breadfruit Institute manages the world's largest collection of breadfruit, vital to research, conservation and education. More than 300 trees of 150 varieties make up a living germplasm repository.

Since the launch of the Global Hunger Initiative, 97,242 breadfruit trees have been sent to 43 countries.

Global Hunger Initiative Growing Roots Around the World

The Breadfruit Institute and partners worldwide are engaged in an initiative to respond to critical

global food security and reforestation issues by expanding plantings of good quality breadfruit varieties in tropical regions.



Antigua & Barbados



Zambia



Cuba



Kosrae Agroforest

Breadfruit Institute's Agroforestry Project

The Breadfruit Institute is excited to receive a Patagonia Environmental Grant. This funding will be used to help develop agroforestry models and certification protocols, provide training in agroforestry design and management, install demonstration plantings centered on the Breadfruit Research Orchard in the McBryde Garden on Kauai, and engage small holder farmers and others in learning about regenerative agriculture and breadfruit agroforestry.

McBryde Garden Breadfruit Research Orchard Mulching Project



The Breadfruit Institute's Collection Manager, Dan Rudoy, Navy personnel, trail maintenance specialists, and NTBG's garden crew came together to help apply mulch, organic fertilizer, and water to 29 breadfruit trees in the

research orchard. The application of mulch and fertilizer helps to improve soil conditions and provide essential nutrients for healthy growth and fruit production. With this tremendous help, the project was completed in a day. The trees are showing signs of improved health and vigor and sending out scores of new flowers and fruit.



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Public Outreach with the Breadfruit Institute and the Youth Pa'ia & Cultural Center

Pa'ia Youth & Cultural Center's Malama Pono Project Venture program visited the Breadfruit Institute at Kahanu Garden. Dan Rudoy and BFI's Lead Volunteer, Dave Hubbard, facilitated the project. The youth had amazing experiential learning sessions through breadfruit harvest and orchard maintenance. This 2-day adventure also involved a workshop with Dave, a

bodyboarding professional. Educational outreach events are essential in reaching younger audiences to associate breadfruit with our mission of food security and sustainability.



Following-up with the Plant A Tree Of Life Project



Marin Lysák, a PhD Fellow at the University of Copenhagen, is conducting research to investigate options for adapting to the negative effects of climate change on food and nutrition security by increasing crop diversity through revitalizing breadfruit. She analyzed three years of data collected from our Plant a Tree of Life project, and initiated a program to follow up with more than 1,200 breadfruit tree recipients in Hawai'i. Marin's follow up with the project's impact on sustainability and future food security in Hawai'i continues through frequent announcements on our social media and phone calls to breadfruit recipients on a monthly basis.

Sample survey comments

"Thank you for promoting breadfruit. It can help Hawaii to be less dependent on imported food." (Year 1)

"Good project. Gave trees to a nephew who had the resources (yard, sunlight, and irrigation) to accommodate trees for many many years. Good of you to follow up." (Year 2)

"Thank you!!! We love what you're doing and want to help share and grow with you and our community!!! Blessings and Gratitude." (Year 3)

Breadfruit Institute on Television

The broadcast premiere of the documentary "The Roots of 'Ulu" aired on PBS Hawai'i. The film includes Dr. Diane Ragone, Director of the Breadfruit Institute, footage of the Breadfruit Research Orchard in McBryde Garden, the National Tropical Botanical Garden nursery, and much more.



Please help support the Work of the Breadfruit Institute and the Global Hunger Initiative by making a donation at:

ntbg.org/breadfruit/donate



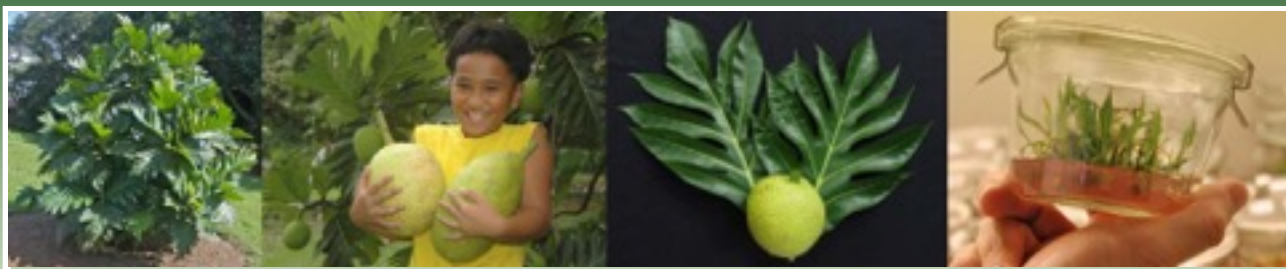
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BREADFRUIT INSTITUTE SUMMER PROGRESS REPORT | 2017



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A Milestone for the Global Hunger Initiative



Since the launch in 2009 of the Global Hunger Initiative, we are excited to announce that over 100,000 breadfruit trees have been sent to 44 countries! The Breadfruit Institute and partners worldwide are engaged in an initiative to respond to critical global food security and reforestation issues by expanding plantings of good quality breadfruit varieties in tropical regions.



Thanks to our incredible partners at Global Breadfruit who recently shipped 10,000 breadfruit trees to Africa! We are so grateful to a private donor who made this distribution of trees possible and all of the collaborators on the ground who are working to make our Global Hunger Initiative have a meaningful impact! If you would like to donate trees to our growing initiative, please go to ntbg.org/breadfruit/donate and make a difference!

Africa Breadfruit Initiative



The Africa Breadfruit Initiative team, Josh Schneider from Global Breadfruit and Tacarra Birmingham from First Avenue International, had a successful trip visiting five West African countries (Benin, Liberia, Ghana, Nigeria, and Kenya). Josh and Tacarra provided seminars, workshops, and helped coordinate breadfruit projects for local farmers and policymakers.

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They assessed the Ghana project with the Hunger Alliance of Ghana which received nearly 1,000 trees in 2011. Many are now mature and providing fruit. They also met with the forestry department and observed breadfruit trees provided by funding from generous donors who support the Breadfruit Institute, Global Breadfruit, and First Avenue International's work. This campaign will help identify strategies that address environmental, socioeconomic, and economic opportunities along with developing partnerships and resources for Africa's food security issues.



Breadfruit Agroforestry Demonstration Update



Dan Rudoy, BFI Collection Manager and Project Implementation Coordinator, and Craig Elevitch, Agroforestry Expert, began planning for the first phase of the breadfruit agroforestry demonstration project. They have been meeting with various NTBG staff on logistics and site preparation. Patagonia Provisions and Hawaii's Department of Agriculture provided funding for the project.

BREADFRUIT RESEARCH ORCHARD



Why breadfruit agroforestry?

Breadfruit has long been an important staple crop and a primary component of traditional agroforestry systems in Oceania. In addition to providing food and goods, these breadfruit agroforestry systems provide broad ecosystem services such as soil and water conservation and maintenance of biodiversity essential to long-term island

habitation. Intercropping of compatible trees and other agricultural crops and plants help to provide food security and a healthy environment. The demonstration at NTBG will incorporate regenerative organic agricultural practices and be a model for breadfruit farmers around the world.

An Evening with Breadfruit Event in San Francisco



The Co-Chairman of the Breadfruit Institute Committee, John Hooper, and Molly Hooper hosted a BFI event at their home in San Francisco for an intimate gathering to learn about the institute's mission and enjoy various breadfruit appetizers. Mr. Hooper, Dr. Ragone, and Roger Still, Director of Global Initiatives, presented an overview on the current projects involving Global Hunger Initiative, the agroforestry demonstration in McBryde Garden, and the potential of product development. Phillip Tran, the event caterer, made wonderful breadfruit appetizers that included breadfruit coconut mini muffins, cheesecake, chips, hummus, wontons, lumpia, and cheese dip.

Working with Patagonia Provisions



Dr. Diane Ragone visited the Patagonia Provisions office in Sausalito to discuss breadfruit usage and product development. Dr. Ragone also gave an informative presentation about breadfruit and the institute. The BFI continues to work with Patagonia through breadfruit agroforestry and other projects.



Taumako Breadfruit Project



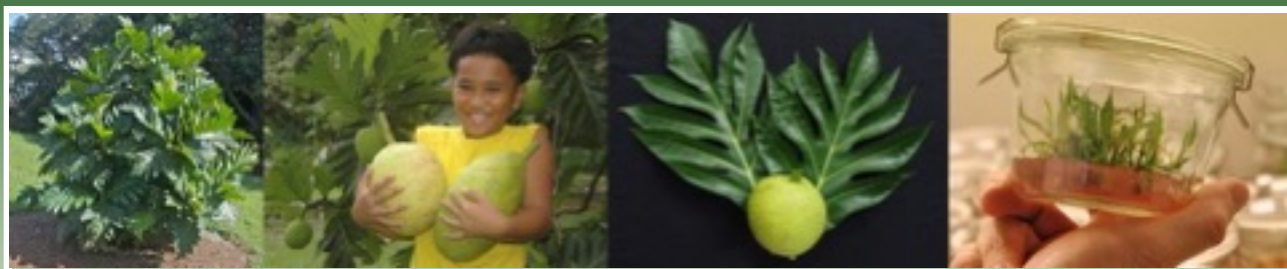
Project collaborators continue to document breadfruit varieties, usage, and traditional names in the Temoto Islands. To date, 72 variety names have been recorded on the tiny island of Taumako. For more information on our partner's incredible journey, go to vaka.org to see the project's Polynesian voyage and cultural importance.



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BREADFRUIT INSTITUTE FALL PROGRESS REPORT | 2017



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Breadfruit Agroforestry Demonstration: Breaking Ground



The institute is implementing a model in sustainable and regenerative organic agroforestry to promote food security and a healthy environment. Breadfruit has long been an important staple crop and a primary component of traditional agroforestry systems in Oceania. In addition to providing food and goods, breadfruit agroforestry systems provide broad ecosystem services such as soil and water conservation and maintenance of biodiversity essential to long-term island habitation.

The ground breaking launch of the Breadfruit Agroforestry Demonstration took place the end of August. Thanks to volunteers and staff, we were able to complete Phase I of this project on time. Soil amendments, mulch, netting, pig fencing and plants were successfully installed and ready to grow into a healthy breadfruit agroforest. We truly appreciate everyone who dedicated their time and help on the ongoing shade-grown agroforest project section of the project.

This project is co-sponsored and funded by Patagonia Provisions and the State of Hawaii Department of Agriculture.



What is agroforestry?
Multistory intercropping of compatible trees and other crops and plants to provide food security and a healthy environment.



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Global Breadfruit Diversity Project

St. Vincent in the Caribbean was the very first island to receive breadfruit trees from Tahiti during the 1793 *HMS Providence* voyage of Captain Bligh. The St. Vincent Botanical Garden still today has trees that are descendants of those original plants. Lauren Audi, a graduate student at Northwestern University (NW) working with Dr. Nyree Zerega (NW & the Chicago Botanic Garden) are studying and documenting local varieties as part of a global breadfruit diversity project with Dr. Ragone. DNA from samples collected on St. Vincent in August will be compared to living accessions in NTBG's breadfruit conservation collection as well as herbarium vouchers.



Breadfruit Institute's Public & Education Outreach

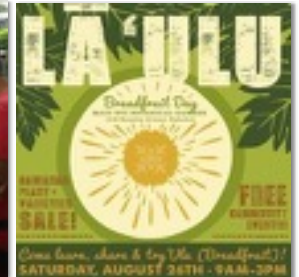
Breadfruit Variety & Identification Workshop



The "Breadfruit Variety & Identification" workshop organized by the Hawai'i 'Ulu Cooperative (eatbreadfruit.com) and hosted by the USDA Germplasm Repository in Hilo, Hawaii, was an outstanding event. Dr. Diane Ragone, Dana Shapiro, Dr. Peter Boches, Amy Strauss, and Dr. Noa Lincoln helped with the workshop. Breadfruit enthusiasts learned how to identify different varieties, and sampled and rated their favorite variety.

Upbeat La 'Ulu Festival on Maui

The Breadfruit Institute participated in the entertaining La 'Ulu event on Maui with 'ulu cooking demonstrations, food and information booths, Hawaiian cultural activities, and live entertainment. Horticultural Technician, Kama Helekahi and BFI Lead Volunteer, Dave Hubbard, represented the institute and engaged with the public about the conservation and use of breadfruit, suggested planting methods and various topics. The event was hosted by Maui Nui Botanical Garden and John Cadman of Pono Pies - Maui Breadfruit Company.



Breadfruit Institute Inspiring Youth

David Hubbard went to KanuiKapono Charter School to discuss the importance of conservation and use of breadfruit along with nutritional, food security and sustainability benefits. The students also visited a breadfruit tree on campus, one of the first planted through the Plant A Tree Of Life project, and learned about basic tree care.



Horticultural Interns Working with Breadfruit & Agroforestry

At Kahanu Garden, the interns helped with the breadfruit collection and maintained the surrounding areas of the native forest species plantings and help in the 'Ulu Cook-off. They also worked in the breadfruit agroforestry demonstration in the McBryde Garden by weeding and harvesting. We are excited to have NTBG's Horticultural Interns work with the Breadfruit Institute.



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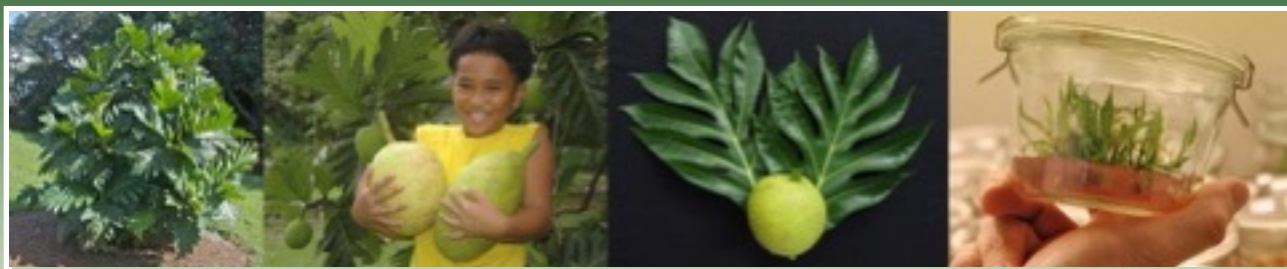


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WINTER PROGRESS REPORT | 2017



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Breadfruit Institute & the Melai Mai Project



Amanda Uowolo of the grassroots Melai Mai project took 430 breadfruit trees (Ulu fiti, Otea, Ma'afala, and Puaa) to the remote islands of Yap Federated States of Micronesia for food production and sustainability. The project included breadfruit production training and agroforest workshops, nursery setup, and project documentation. Fais and Ulithi atoll each received 144 trees and 138 trees went to the Yap Agriculture and Forestry office.

Melai Mai also documented existing breadfruit varieties on Fais. With the help of local expertise, 18 varieties of two distinct types were identified 1) Maimwol, breadfruit that contain seeds; and 2) Maifuuw, breadfruit that do not contain seeds.

The project was supported by the Breadfruit Institute, Global Breadfruit, Yap Forestry, the Council of Tamol, and other local communities. Melai Mai will continue their mission of supporting sustainable living for island communities.



Breadfruit Agroforestry Update

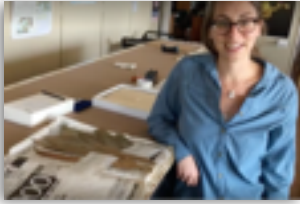
The institute is implementing a global model in sustainable and regenerative organic agroforestry to promote food security and a healthy environment. Since the Phase I Breadfruit Agroforestry planting in August, the new plants are growing healthy and strong along with breadfruit trees in the Breadfruit Research Orchard. Weekly harvests of produce such as chard, kale, mamaki, parsley, spinach, taro, and tulsu are made and distributed to NTBG staff and volunteers. The project is co-sponsored and funded by Patagonia Provisions and the State of Hawaii Department of Agriculture.



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Global Breadfruit Diversity Project on Kauai



Lauren Audi, a graduate student at Northwestern University (NW) and Dr. Nyree Zerega (NW and the Chicago Botanic Garden) conducted research at NTBG. They worked with Dr. Ragone's herbarium vouchers and the breadfruit conservation collection to compare DNA samples collected in St. Vincent from trees derived from ones that were originally delivered on the 1793 *HMS Providence* voyage of Captain Bligh.

Events with the Breadfruit Institute



World Food Prize - Iowa

Josh Schneider, Global Breadfruit, Tacarra Birmingham, First Avenue International, and Roger Still, BFI Director of Global Initiatives, attended the annual Borlaug Dialogue, World Food Prize. They were able to connect with delegates, NGOs, and various advocates in the importance of food security and sustainability.

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Breadfruit Summit - Samoa

The Breadfruit Institute honors the traditional knowledge of indigenous people through conservation of varieties and benefit sharing of royalties with the country of origin of varieties sold by Global Breadfruit. A royalty check was presented to the Honorable Faasootauloa Pati Taulapapa, Associate Minister of the Ministry of Agriculture and Fisheries & the Scientific Research Organizations of Samoa, during the opening ceremony of the 2017 Pacific Global Breadfruit Summit in Apia, Samoa.



'Ulu Cook-off - Hana

The Kahanu Garden Team had a delightful 'Ulu Cook-off in Hana as part of the Festivals of Aloha, Maui Nui. Contestants made scrumptious 'ulu appetizers, soups, salads, entrees, and desserts. This annual event promotes the nutritional benefits and uses of breadfruit along with food security in Hawai'i.

BFI Welcomes Noel Dickinson



After working as a Horticultural Technician in NTBG's McBryde Garden, Noel joined the Breadfruit Institute team as a Research Technician. Noel manages the breadfruit agroforestry demonstration at the Breadfruit Research Orchard and assists with various research projects related to the breadfruit conservation collection and

BFI's information resources. While attending the College of Agriculture, Forestry, and Natural Resource Management at the University of Hawaii Hilo, Noel earned a B.S. in Tropical Plant Science & Agroecology and a Plant Tissue Culture Certification for breadfruit micropropagation.



Breadfruit Tree Pruning at Kahanu Garden

Certified arborists, Tibor Seres, Mack Prashanth, and Stevan Aguirre, pruned 24 breadfruit trees at Kahanu Garden, to improve their overall health and structure. Proper pruning allows more sunlight to reach lower branches and underlying landscape while providing air circulation throughout the tree.



Breadfruit Featured in Hawaii Business

HawaiiBusiness magazine in December 2017 featured the Breadfruit Institute, the benefits of breadfruit, and other key players in the 'ulu industry as part of the 2017 State of Hawaii Environmental Report by the Environmental Funders Group.



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