



## 31 BREADFRUIT: HOW A HUMBLE FOOD EMPOWERS COMMUNITIES

JUL

### Breadfruit Makes Bold Claims

Though it is a tall and handsome tree, the fruit of *artocarpus altilis* can often resemble a brutish football. The round, oval or oblong fruit is roughly the size and color of a young coconut, green to greenish-yellow or brown skin that is alternately pimply, pock-marked, pebbly and smooth. Yet the fruit of this unassuming species of flowering tree of the mulberry (*moraceae*) family produces what is being touted as the next superfood—with the potential to massively reduce world hunger.<sup>1</sup> This bold claim is proving true, thanks to an expanding global network of advocates that recognize breadfruit’s tremendous value. Global Mana investigates breadfruit’s far-reaching potential to the fullest.

### A True Superfood



This robust tree thrives where others would perish, in conditions ranging from constantly wet soils to high altitudes, thrashing winds and salt-spray. Breadfruit grows in nearly 90 countries in tropical regions around the world. The low-maintenance-high-yield tree matures in 3-5 years and produces up to 200 fruit a year for several decades. The fruit can be eaten at

all stages of maturity. When roasted at mid-ripeness its starchy texture, flavor and aroma recalls fresh baked bread. At other stages the fruit makes delicious crisps, cakes, ice-cream, beer, batter or a canvas for all types of cuisines including salads, chowders and curries. Versatility aside, breadfruit is a nutritional powerhouse. It packs a hefty punch of antioxidants, calcium, carotenoids, dietary fiber, energy, iron, magnesium, niacin, omega 3, omega 6, phosphorus, potassium, protein, thiamine, vitamin A and vitamin C. According to the author of *The Taste of Tomorrow: Dispatches from the Future of Food*, unlike foods that are merely very nutritious, breadfruit is a true superfood: high in protein, low in fat, gluten-free, loaded with omegas, bursting with antioxidants and overflowing with folate, fiber and phytonutrients.<sup>2</sup> Astoundingly, it contains more potassium than bananas by weight; more amino acids—the building blocks of cells, muscle and tissue—than soy; more niacin than most other nuts.<sup>3</sup>

### A Solution to End World Hunger

The humble, often-overlooked staple that has sustained Pacific Islanders for millennia is now enjoying a global renaissance. Organizations like Global Breadfruit and the Breadfruit Institute of the National Tropical Botanical Gardens, directed by Dr. Diane Ragone, dedicate huge efforts to promoting breadfruit as a solution to food shortages. They provide agricultural research and education to help communities in the tropics understand the incredible uses of this ubiquitous tree. Together with the Alliance to End Hunger, they shipped 40,000 saplings to 30 countries in 2009.<sup>4</sup> In October 2011, the Ghana Alliance Against Hunger and Malnutrition hailed the arrival of 870 Samoan breadfruit trees from a mass propagation facility outside of Frankfurt, Germany “A Breadfruit Revolution.”<sup>5</sup> Other programs like Hawaii’s Harvest for Hunger helps distribute Kona growers’ breadfruit surplus to local agencies that feed needy families. Together, these organizations focus on using breadfruit to reduce mass famine and food insecurities.<sup>6</sup>

### Boosting Economies, Empowering Communities

Global Mana seeks to reconcile indigenous wisdom and western knowledge to create culturally-conscious and economically-viable solutions, inspired by what Dr. Tusi Avegalio, Director of the Pacific Business Center Program (PBCP) at the University of Hawai’i and an international team of experts have been doing for the past several years. Global Mana is spearheading a market strategy that ensures we are not merely providing for communities, but empowering them in the strong current of opportunity. Working with cultural agents, local growers, business leaders and agricultural scientists, Global Mana is fostering socially-conscious entrepreneurship. Breadfruit farming and processing presents a steady source of income and economic opportunity for women while promoting local wealth generation and economic stability for the greater community. Breadfruit allows even small nations in the Pacific Islands Region to participate in an economic opportunity made possible by stable prices and increasing demands. Mintel, a market research company, estimated the US gluten-free products market to be \$10.5 billion in 2013 and projects the market to grow by 48% to \$15.6 billion in annual sales in 2016.<sup>7</sup> Global Mana sees breadfruit as a power player in the growing gluten-free products market with huge potential to jumpstart regenerative economies in the South Pacific and contribute to sustainable development.

### An Inclusive Business Initiative

A regional breadfruit initiative is underway. Efforts to raise awareness about breadfruit’s vast potential has been in progress for 3 years with funding support from the US Department of Commerce, Economic Development Administration and Western Regional Office. The Office of Insular Affairs in the US Department of the Interior is also invested in this project with a primary focus on sustainable village- and community-based economic development in the US Territories. The Pacific Islands, including the Northern Mariana Islands, Guam, Saipan, the Federated States of Micronesia, the Republic of Palau and American Samoa, have all endorsed the development. As of February 2015, informational workshops and presentations given on all of the US Affiliated Pacific Territories in the North and Central Pacific and in American Samoa in the South Pacific generated unprecedented interest with over 400 participants. At all levels of planning and execution, Global Mana is committed to an inclusive, community-centered approach.

### Spurring Healthy Collaboration

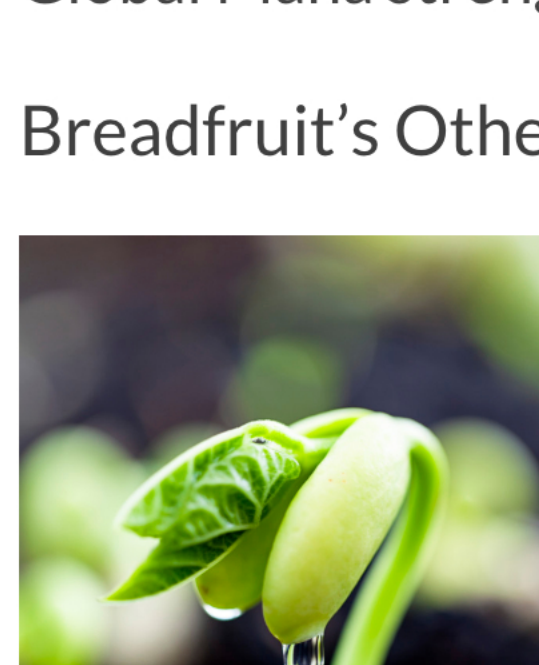
Commercialization of breadfruit at an industrial scale has never been attempted, but the time is ripe. Global Mana is conducting research to develop new tools and processes that vitally includes local communities in the cultivation and distribution of breadfruit worldwide. Our goal is to work directly with local farmers, processors and traders to promote improved propagation techniques and sustainable technologies that enhance production. Harnessing the abundant knowledge already available, and with the wisdom of botanical scientists and generations of traditional farmers, Global Mana is identifying which species have the best yields and protein content, and which varieties of fruit produce the best flavors for particular uses. This ground work determines the propagation methods that would produce the most vigorous plants with enhanced survival rates and superior fruit in 2 years—nearly a third of the time that conventionally propagated plants require.



### Hacking the Food Industry

Global Mana is working to hack the food industry with a healthy approach and product that reinvests existing facilities, traditional wisdom and local actors in Hawai’i and American Samoa. Our program makes new and existing technologies available to growers and producers who have traditionally relied solely on physical cues. For example, the near-infrared scanner can be used in conjunction with traditional agricultural methods to accurately determine compositional quality and optimal levels of ripeness for harvesting. At each level we include the local private market as much as possible. This means providing training in pre-harvest propagation as well as post-harvest handling to ensure a consistent product and optimal quality that meets export standards. Global Mana is also developing and providing centralized facilities for standardized processing and to integrate satellite farms and processors in the fold. By identifying low-cost improvements in packaging and shipping for rural markets and exporting facilities, Global Mana strengthens information systems and channels for all involved.

### Breadfruit’s Other Eco Potential



Beyond developing the commercial potential of breadfruit as a gluten-free food, Global Mana is working with scientists to explore its potential for other eco-friendly products. Breadfruit trees also produce a male flower that for years Islanders have dried and burned in clusters, as a folk remedy to ward off mosquitos. The USDA’s agricultural research scientists recently found that chemicals in the male flower proved “significantly more effective at repelling mosquitos than DEET,” the primary insecticide used to prevent nasty insect bites and diseases such as malaria, yellow fever and dengue fever.<sup>8</sup> The breadfruit tree and its fruits also produce a natural latex that could be used to make a non-toxic biodegradable plastic, which would

revolutionize food storage and packaging.

### Rooted in the Future

Global Mana’s breadfruit initiative encourages collaboration among regional players by involving them in an enterprise that meaningfully roots indigenous culture in a global market. Our breadfruit initiative would supply consumers in the US and elsewhere with healthy, organic, fair-trade and gluten-free breadfruit products while reviving local South Pacific economies. Global Mana is dedicated to an inclusive, non-ethnocentric approach that works in harmony with those cultures in which breadfruit is grown. We integrate and honor traditional agricultural methods in new market strategies to advance meaningful, sustainable economic solutions. From this ancient tree with humble fruit we are growing incredible promise for our collective futures.

### Notes

<sup>1</sup> Carla Herrera, “Breadfruit: The Next Superfood To End World Hunger?” *Huffington Post*, November 14, 2013, [http://www.huffingtonpost.com/2013/11/14/breadfruit-world-hunger\\_n\\_4271436.html](http://www.huffingtonpost.com/2013/11/14/breadfruit-world-hunger_n_4271436.html); Sarah Griffiths, “Is This the New Wonder Food?” *Daily Mail UK*, June 30, 2014, <http://www.dailymail.co.uk/health/article-2675002/Is-new-wonder-food-Breadfruit-high-protein-experts-say-different-feed-world.html>.

<sup>2</sup> Josh Schonwald, “Forget Kale. Try These Three REAL Superfoods,” *Time*, October 28, 2014, <http://time.com/3544425/superfoods-moringa-tree-breadfruit-prickly-pear-cactus/>

<sup>3</sup> For more nutritional information, see the National Tropical Botanical Garden’s website: [ntbg.org/breadfruit](http://ntbg.org/breadfruit)

<sup>4</sup> Diane Ragone, “Breadfruit, the Tree of Life for a Hungry Planet,” *National Geographic*, September 12, 2014, <http://voices.nationalgeographic.com/2014/09/12/breadfruit-could-be-vital-food-source-in-extreme-climate/>.

<sup>5</sup> HAG (Ghana Alliance against Hunger and Malnutrition), “The African Breadfruit Revolution has begun! And it began in Ghana!” *Modern Ghana News*, August 2, 2012, <http://www.modernghana.com/news/409525/1/the-african-breadfruit-revolution-has-begun-and-it.html>

<sup>6</sup> Zoe Sims, “Breadfruit project helps feed hungry,” *Hawaii Tribune Herald*, August 18, 2013, <http://hawaiitribune-herald.com/sections/news/local-news/breadfruit-project-helps-feed-hungry.html>

<sup>7</sup> <http://www.marketsandmarkets.com/Market-Reports/gluten-free-products-market-738.html>; <http://www.foodnavigator-usa.com/Markets/What-s-the-size-of-the-US-gluten-free-prize-490m-5bn-or-10bn>; <http://www.transparencymarketresearch.com/flour-market.html> <http://thegluten-freeagency.com/gluten-free-market-trends/>

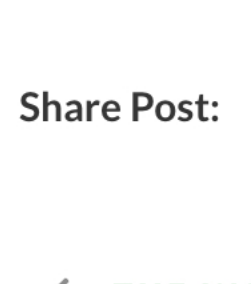
<sup>8</sup> Sandra Avant, “Studies Confirm Breadfruit’s Ability to Repel Insects,” *United States Department of Agriculture: Agricultural Research Service*, November 15, 2013, <http://www.ars.usda.gov/is/pr/2013/131115.htm>.

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