

Hawaii reconquering the breadfruit and its nourishing fruit

This forgotten traditional food of Polynesian culture, rich in protein, iron or vitamin D, depending on the variety, is regaining popularity with a generation concerned with cultural affirmation.

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Breadfruit on the Noho'ana farm, in Waikapu, Hawaii (United States), October 10, 2023. MENGSHIN LIN / AP

A mountainous amphitheater takes shape behind an organic farm in the Lualualei Valley, on the island of Oahu, Hawaii (United States). Between the fields of lettuce, carrots and daikon (a white radish) grow thousands of fruit trees: lemon trees, avocado trees, mango trees, lime trees...

A tree with grayish bark and large serrated leaves, however, reigns supreme. *"Our main fruit tree is the ulu,"* proudly attests Kahealani Hrbacek, agroforestry manager at MA'O farm, using the Hawaiian name for breadfruit. *Artocarpus altilis* produces green fruits the size of a grapefruit which contain white flesh, rich in starch. Eaten young, these fruits taste like potatoes. As they ripen, they soften, become sweeter, and develop tropical flavors.

Imported in Polynesian canoes a millennium ago, breadfruit has nourished generations of Hawaiians and fascinated European explorers crisscrossing the Pacific. Having fallen out of favor during the imposition of Anglo-Saxon customs from the 19th century, it has now been rediscovered by a new generation of farmers, who appreciate its nutritional qualities and see in it an instrument of cultural affirmation.

Very popular

"I like to believe that it was the ulu that found me," says Ms. Hrbacek, a young woman with Hawaiian roots, who grew up in California without knowing the fruit of her ancestors. She learned about it by chance, during her degree in soil sciences at the University of Hawaii, before studying it more specifically.

"Breadfruit has grown enormously in popularity since I started taking an interest in it, just seven years ago," explains the farmer.

At the end of the morning, she makes her rounds. A row of breadfruit trees planted in 2019 shows dead leaves. *"A few weeks ago, the fruits of these trees were found to be misshapen and yellow. They did not ripen and had a rubbery texture. They are missing something,"* she explains. *But the fruits in the other row over there were green and huge. The quantity of water delivered by the irrigation system must be to blame."*

The MA'O farm sells its ulus at the market, to its subscribers through direct sales, and to certain restaurateurs, such as the chic Mud Hen Water in the Kaimuki district *[in Honolulu]*, which offers reinvented Hawaiian cuisine.

A step remains to be taken towards mass distribution, but the company aspires to one day conquer supermarkets. Stimulated by the new offering from farms like MA'O, cooks are inventing a host of ways to consume breadfruit, beyond the traditional roasting in embers: in curries, au gratin, in cakes, in crepes... Part of the population is gradually returning this starchy food to their diet, although ulu remains a niche product, available in small quantities and still unknown to a large number of consumers.

Rich in protein

In this revival of ulu cultivation, Hawaiian horticultural researchers played a crucial role. On the neighboring island of Kauai, eighteen varieties of breadfruit thrive in the Breadfruit Institute's experimental garden. The oldest of these trees are not even 20 years old, but they already have large crowns. *"This is the Yap variety, from the island of the same name, in Micronesia. You can see its spiky fruits, shaped like raindrops,"* says Noel Dickinson, the coordinator of the institute attached to the National Tropical Botanical Garden.

From 1985 to 2009, ethnobotanist Diane Ragone, director emeritus of the Breadfruit Institute, traveled to around fifty Pacific islands to assemble the largest living collection of breadfruit in the world. Whether in Tahiti, the Samoa Islands or Micronesia, she went to meet local populations to find as many varieties as possible, and, in several cases, save them from extinction. *"I cut a piece of root, rubbed it with a toothbrush, then rubbed it with disinfectant [to eliminate pathogens],"* says the silver-haired adventurer.

In Hawaii, trees grew from these cuttings. With her partners, Diane Ragone worked to identify the most nutritious varieties. One of them – maafala, originally from French Polynesia – was found to be rich in protein. Others stood out for their iron or vitamin content. In general, breadfruit has nothing to envy of the main starchy foods, such as rice, wheat and corn.

200 kilos of fruit per year

In 2010, the Breadfruit Institute set out to reintroduce breadfruit to Hawaiians, who import 85% of their food. Among the indigenous population (22% of the state's inhabitants), obesity and diabetes are very prevalent. By partnering with other organizations in the archipelago, the institute has organized workshops and festivals to promote ulu. Then, they distributed ten thousand plants to citizens, schools, churches, community gardens, small businesses, etc. The varieties chosen (maafala, puaa and ulu fiti), considered superior to that of Hawaii, came from other Pacific islands.

Diane Ragone also wanted to popularize breadfruit in the rest of the tropical world, beyond the Polynesian, Micronesian and Caribbean peoples who already cultivate it. With a Canadian collaborator, Susan Murch, she developed a protocol to produce young plants by tissue culture, in the laboratory.

“Suddenly there was a way to have thousands of trees very quickly,” says Mike McLaughlin, co-founder of the charity Trees That Feed, which, thanks to Hawaiian protocol, has distributed, since 2009, 175,000 breadfruit trees in Jamaica, Haiti, the Bahamas, Barbados, Costa Rica, Nicaragua, Honduras, Belize, Kenya and Uganda. *“We give the trees to farmers, we teach them how to take care of them, how to harvest the fruits, how to transform them,”* explains the philanthropist. In certain countries of the West Indies, the breadfruit tree is already part of the landscape: it was introduced there in the 19th century to feed the slaves of the colonies.

The breadfruit tree, which can produce up to 200 kilos of fruit per year, will do relatively well in the future climate, according to recent studies. The areas suitable for its cultivation will shrink very little. *“It’s a tree that produces fruit every year without having to put too much effort into it ,”* says Dickinson. Droughts and high winds reduce its production, but without reducing it to nothing.

“Putting large volumes on the market”

In Hawaii, the campaign to popularize the ulu in the early 2010s inspired several entrepreneurs, including Dana Shapiro. This woman, born in 1984 on a kibbutz in Israel, first became passionate about the culinary potential of breadfruit.

In 2015, she launched an agroforestry farm with her husband inspired by traditional Hawaiian practices. It is located in an area of 25 square kilometers, the *kaluulu* (“ulu belt”), where it is estimated that 20,000 tonnes of breadfruit were produced each year until the 19th century, before the indigenous population collapses due to infectious diseases brought by the new arrivals.

Very quickly, new farmers ran out of markets for their breadfruit. In 2016, they founded the Hawaii Ulu Cooperative, which is responsible for purchasing the crops from a few farms (including theirs), processing and distributing them. *“Breadfruit does not have a long shelf life. It is crucial to transform it to bring large volumes to market ,”* explains Ms. Shapiro. The organization freezes the fruit, grinds it into flour and makes cooked products, such as hummus and chocolate mousse.

The cooperative now has 157 member farms, and receives new registration requests every month. It distributes the production of 6,300 of the 8,000 breadfruit trees grown commercially in the archipelago. The company estimates that its harvests (60 tonnes in 2023) will quintuple by 2030, when most of its trees will reach maturity. *“The agricultural systems of the ancient Hawaiians were still intact only 150 years ago ,”* recalls Ms. Shapiro. *Recreating them seems within our reach.”*

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