

## Farmers swap seeds, knowledge

By Alan D. Mcnarie

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Hawai'i  
gets most  
of its food  
from



Nancy Redfeather holds a basket full of produce and seeds in her kitchen garden at Kawanui Farm in Honalo. -- Photo by Alvis Upitis, commercial photographer,



Japanese hulless popcorn lies in a basket at Nancy Redfeather's kitchen garden at Kawanui Farm in Honalo. - Photo By Alvis Uptis



Clockwise from top, lettuce seed, pigeon peas and lemons are all grown in Nancy Redfeather's kitchen garden. - Photos By Alvis Upitis

somewhere else. And even when farmers or gardeners grow fruit or veggies here, their plants probably still started their lives elsewhere.

"Here in Hawai'i, as home producers and market farmers, we really have to buy our seed from somewhere else," says sustainable gardening activist Nancy Redfeather. "Most organic market farmers in Hawai'i buy their seed from Johnny's, which is in Maine."

In recent years, interest has grown in changing that fact.

"Seed exchanges" - swap meets where farmers and gardeners bring in their heirloom seeds and share them -- have grown increasingly popular. And last month saw the first tentative steps in a new "seed initiative": Scores of gardeners and farmers around the island got an e-mail with an invitation to take an online survey entitled "Hawai'i Seed Initiative Questionnaire."

The invitation came from the nonprofit Kohala Center, which is putting together a symposium called "Hua Ka Hua: Restore Our Seed," scheduled to take place at the Outrigger Keahou Beach Resort April 17 and 18.

The survey serves a dual purpose: First, it will help planners to figure out what they need to cover at the symposium. And second, both the survey and the symposium will help to create an inventory of knowledge and human resources for a far more ambitious plan to create a new industry for the Island of Hawaii: an organic seed industry.

According Redfeather, who's coordinating the symposium, it won't really end on April 18.

On the Monday after the weekend symposium is over, a working group will meet to "take everything they've heard and create a road map for a public seed initiative in the state of Hawai'i."

"Organic seed in the future is going to be a real niche market for Hawai'i farmers," Redfeather believes, because there's a real demand for such seed.

Right now, she notes, organic farmers are supposed to be using organic seed but most of them have to get exemptions because the seed simply isn't available in large enough quantities.

Of course, there already is a seed industry in the state: for commercial hybrid and genetically modified seed. The big seed companies have already taken over thousands of acres of Hawaii farmland.

Monsanto alone owns 2,300 acres of former pineapple land on O'ahu and has leaseholds on Molokai, among other holdings; its Web site claims that the company employs 650 people in the state, and that the state's commercial seed industry as a whole is worth \$98 million and has created more than 2,000 jobs.

A recent article in Scientific American stated that Hawaii has 4,800 acres of genetically modified crops, including 3,500 acres of genetically modified seed corn and soybeans. The article claimed that the state has hosted "more than 2,230 field trials of genetically modified (GM) crops, including corn, soybeans, cotton, potatoes, wheat, alfalfa, beets, rice, safflower and sorghum -- more than any other state."

But aside from some sweet corn, none of those crops are grown on a large scale in Hawaii for anything except seed.

The commercial seed industry here, ironically, produces seed mostly for export from the state that imports most of its food, and the profits go to a handful of large corporations such as Monsanto, Syngenta and Dupont, headquartered outside of Hawai'i.

The industry's presence does benefit some local politicians.

Companies that peddle genetically modified crops donated a combined total of at least \$17,770 to Hawai'i legislators during the 2008 elections.

One the biggest beneficiaries of this largesse was Big Island Rep. Clift Tsuji, the Agriculture Committee chairman, whose campaign spending reports listed contributions of \$2,000 from Dupont, \$1,000 from Monsanto, \$300 from Dow and \$250 from Syngenta.

Tsuji has been a staunch supporter of those companies' interests; his committee last year passed House Bill 1226, which would have forbade any further restrictions by any government agency on the growing of GM plants or seed. HB 1226 couldn't make it past the Senate last year, however, and has been held over for the 2010 Legislature.

Redfeather notes that other than UH-Manoa, which still sells seed packets for varieties that it developed years ago, there are no home-based seed companies in Hawai'i.

And UH, in recent years, has been less interested in traditional seed varieties than in leading the charge for GMOs, creating important patents in the field and developing the GM Rainbow papaya variety, the only large-scale GM food crop (as opposed to export seed crop) grown in Hawaii. It's also gotten into some major controversies for its efforts to develop GM taro and coffee, which the County of Hawaii has banned on this island.

"At one time, UH-Manoa was quite a leader in plant breeding and seed production -- especially corn and tomatoes," Redfeather said, but added, "It has been 15 years since the University of Hawaii has created a faculty position or a research position for seed breeding, plant breeding or fruit or vegetable production .... a bunch of people have retired, and no one has been hired to take their place. And now, of course, there's a hiring freeze."

Kohala Center and the Organic Seed Alliance are hoping to change that trend.

Last month, representatives of the two organizations held meeting with faculty from UH's College of Tropical Agriculture and Human Resources.

"Their first question was, why would anyone want to work with open-pollinated seed?" Redfeather recalled.

Open-pollinated seed is the opposite of controlled hybrid seed, the sort that most big agribusiness companies sell. Controlled hybrids are crosses between two or more varieties, created by mechanically or hand-pollinating flowers.

Open-pollinated varieties evolve by natural selection, or when humans save seed from the hardiest and/or most productive plants without interfering with natural pollination.

"Seed can be regionally adapted to fit climates by just growing it there," noted Redfeather. "By growing and producing seed in a certain area, you can confer resistance to disease, better adaptation to hot/dry and cool/wet climates ...."

For most of human history since the invention of agriculture, human society has relied on such open-pollinated seed. But in recent decades, corporations have been pushing first controlled hybrids, then GM seed -- both of which can be patented. Farmers who saved seed from patented varieties can be, and have been, sued by the companies that own the patents.

Redfeather said she first got interested in seed-saving when she learned that 95 percent of the traditional seed varieties that were grown in 1900 were no longer available.

"I thought, omygosh, that's what has fed all these generations of people for all of these years, and now we're just losing it?"

Redfeather was pleased with the results of the meeting with CTAHR faculty. After an hour-long discussion between faculty and Organic Seed Alliance Director Matthew Dillon, she said, "It went from total skepticism to a new understanding in a single meeting."

At least four faculty members from UH-Manoa and UH-Hilo are now scheduled to give presentations at the symposium.

Because of the holidays, the Weekly was unable to contact a CTAHR representative for comment.

Seed initiatives like the one contemplated here have worked elsewhere -- most notably in New York, where Cornell University, which collaborated with UH on the Rainbow papaya, has also been involved in a public seed initiative, working with local gardeners, farmers and small seed companies to develop region-specific organic plant varieties. The initiative has already sponsored field trials for organic cultivars of onions, melons and potatoes.

The PSI doesn't turn its back on the recent breakthroughs on genetic research -- one of its projects, for instance, is studying the genetic links to disease resistance in peppers -- but instead of using those techniques to create GM "Frankenfood," it's using them to select more promising natural varieties.

"Changes in the seed industry have led to a decline in varieties that perform well in the Northeast ....," noted the PSI's Web site, . "Public plant breeders may have developed varieties suitable for the Northeast, but large seed companies have not commercialized these varieties for economic and/or other reasons. We want to access these 'off-the-shelf varieties' and look at how they perform in

organic systems, which will hopefully lead to some varieties being commercialized by small seed companies."

Like the New York PSI, the Hua Ka Hua planners hope to not only initiate field trials and data gathering operations for local seed -- but also to gather and share the knowledge that gardeners and farmers already have.

The switch to GM and controlled hybrids has meant not just the loss of traditional genetic strains of food plants, but also the loss of human knowledge about traditional seed saving and cultivation techniques, and the knowledge that remains often dies with farmers and gardeners, unless there's a mechanism to share it.

Hence the survey that the Kohala Center is conducting. The e-mailings have already elicited 106 responses from every island except Lanai and Ni'ihau -- a participation rate far in excess of what the researchers had expected. Predictably, 86 percent of those who responded felt that it was "important to increase seed production in the Hawaiian Islands. Less than half said they had at least beginner-level seed-saving skills. Three quarters of the respondents said they were already getting information from other farmers and/or gardeners.

Redfeather says a link to the survey will be up at Kohala Center's Web site ( ) by the second week of January, so anyone who wants to can participate.

The survey will continue until March 1.