

## The Hawai'i Public Seed Initiative

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### Introduction: The importance and value of local seed systems

Having access to seed to sow in the garden or farm, especially in case of emergencies, is a central aspect of self-sufficiency at a personal and community level. This is especially important in isolated areas like Hawai'i, where it is plausible that the supply of food shipments from out of state may be disrupted for any given reason, and period of time.

Thus, having a local knowledge base within our urban, rural, and farming communities about the art and science of seed growing and saving, and having ready access to a supply of locally available adapted seed varieties may be considered a central feature of food sustainability and self-sufficiency in the state.

However seed saving and the growing of locally adapted heritage or heirloom varieties has other advantages as well:

- ▶ Seed-saving and the preservation of heritage seed varieties is a tradition long-held by all cultures and civilizations, and is considered an integral part of preserving our cultural heritage and traditions -- information that has been passed from generation to generation, for thousands of years (1).
- ▶ The growing of locally adapted heritage and heirloom varieties is increasingly supplying produce and value-added products, including agri-tourism and agri-education based activities, to what are considered two of the fastest growing segments of the food industry in the United States today: the organic and local food movements. Some have termed these grass-root or consumer-led movements, along with the growth of the popular high-end local ethnic cuisines, as a 'renaissance' of our food systems (2).
- ▶ Because of the specter of climate change, it is increasingly being recognized that having access to locally adapted varieties is an integral part that will allow communities to help mitigate the effects of extended droughts or more frequent extreme weather events. Agricultural researchers and rural development specialists are increasingly recognizing the need to develop 'resilient' agricultural systems. Having access to a diverse repertoire of local varieties, that can mold and adapt to changing climatic patterns, is considered a central feature for the establishment of 'resilient' agricultural systems.



Figure 1. Seed saving is a long-held tradition as shown by this corn farmer from Mozambique.

- ▶ The growing of seed and of locally adapted varieties may gain greater prominence as part of the growing trend to include school gardens and the hands-on study of agriculture, science, ecology, and biology in the curriculum of K1-12 schools (3). It is increasingly being recognized that students learn better from experiential learning, and also that habits that are adopted in the earlier stages of life, such as experience with the growing and consumption of healthy fruits and vegetables, are more likely to be carried on later in life. The early adoption of healthy diets and of outdoor activities is important because poor diets and sedentary lifestyles are partly responsible for 4 of the 6 major causes of death in the U.S., and because three quarters of health care spending in the U.S. is devoted to treat preventable chronic diseases, many of which are related to diet.

## Public Seed Initiatives

The goal of public seed initiatives is to increase the collective capacity of the community on the art and science of growing crops for seed, seed saving and storage, and on the selection and development of varieties adapted to local growing conditions (4). A goal of a public seed initiative, other than increasing and diversifying the local food supply, is to develop seed banks in the community, which serve as an important resource for sustainability and self-sufficiency. Down the road, increased sophistication in the knowledge about seed saving and production may lead to small entrepreneurial activities, for the production and sale of seed within the community and state, and out-of-state.

## Public Seed Initiative in Hawai'i

Progenitors that led to the creation of a public seed initiative in Hawai'i were the seed exchanges that took place on Hawai'i Island, and later on other islands, over a period of several years. These seed exchanges showed that not only was there considerable interest among gardeners and farmers, but also that many needed to learn more about the intricacies of seed saving. As a result of this interest the Kohala Center of Hawai'i Island obtained federal funding from the USDA organic program to hold a statewide symposium to initiate a discussion about a public seed initiative. On the third day of this meeting, as a follow-up to the symposium, a group of ag leaders from the different islands gathered to synthesize information, and to begin to strategize the development of a statewide public seed initiative. Seed contacts or leaders were identified from the islands, to continue communication and to coordinate educational activities.

To date, activities of the Public Seed Initiative in Hawai'i can be summarized as follows:

- ▶ Promotion and coordination of community seed-exchange programs



Figure 2. Seed exchange festivals, as this one held in Kauai, help to promote agro-biodiversity.

- ▶ Base-line survey of community capacity and interests on seed saving
- ▶ Statewide Public Seed Initiative Symposium held in 2010
- ▶ Creation of a team of Island Leaders to spearhead and coordinate the Hawai'i Public Seed Initiative
- ▶ Two-day workshops held on all the islands, each year for two years, on introductory and intermediate seed production.

## Beginner and Intermediate Workshops on Seed Production

To further disseminate information about seed saving, the Kohala Center received additional funding from the Ceres Trust to conduct workshops on seed production and saving. Two-day beginner and intermediate workshops will be held across the islands over a period of two years. The first year workshops are covering the more basic aspects of seed and flowering biology and reproduction, and basic hands-on demonstrations on seed harvesting, saving, and storage. The second year workshops will cover more advanced training on seed quality and selection, community breeding programs, and variety trials.



*Figure 3. Seed exchange festivals held in Kauai have increased in popularity.*

As part of the workshops, organizers are tapping local island expertise to share information that is more relevant to the local growing conditions. For instance in Kauai an integral part of the lectures and hands-on demonstrations were given by Paul Massey, Jill Richardson and colleagues from Kauai Regenerations Botanical Gardens ([www.ribg.org](http://www.ribg.org)). Paul and Jill have been involved with seed production and preservation in Kauai for several years, holding regular workshops on gardening and seed-saving, and over the past few years have helped to organize popular seed exchange programs, with attendance of several hundred people at some events. As part of the seed-saving section of the workshop, Paul and Jill shared seed harvesting tips, and also displayed the seed-saving kit that they have put together. They have made this kit available to those avid gardeners interested in seed collection and in becoming more involved at the seed exchange festivals.

As part of the seed workshops, organizers have also tapped on expertise at the University of Hawai'i. UH staff that have assisted include Moloka'i Extension Agent Glenn Teves, who has many years of experience with variety testing and selection, and who worked as a student assistant with legendary UH tomato breeder Jim Gilbert; Dr. Russell Nagata, County Extension Director of Hawai'i Island, with many years of experience as a vegetable and turf-grass breeder; Ray Uchida, who has over many years overseen the UH Seed Lab for the distribution of UH varieties to farmers and gardeners across the state; and Alvin Yoshinaga, who for many

years oversaw the native plant species Seed Conservation Lab at the UH Lyon's Arboretum and who has assisted with the seed-exchange activities on Hawai'i Island since their original inception in 2003. At the most recently held workshop, in O'ahu, during the third-day 'optional' tour held at the UH Waimānalo Experiment Station, participants were also able to hear from Dr. Jim Brewbaker, a statesman of the Crop Seed Breeding program at UH, as well as from the organic seed production program for papaya and veggies run by Sustainable ag professor Ted Radovich and by Ray Uchida.

## Baseline information on Community Seed Production in Hawai'i

To gather baseline information about the status of community seed knowledge in Hawai'i the Organic Seed Alliance assisted the Kohala Center in putting together an online seed assessment survey, prior to holding the Statewide Public Seed Initiative Symposium. Key information revealed by this survey, which was completed by over 120 farmers and gardeners from all islands include:

- 1 A considerable interest exists in learning more about seed saving and community breeding programs.
- 2 A wide-range of environmental growing conditions were represented in the survey in terms of elevation, rainfall, rainfall patterns, topography, and temperature. This indicates that environmental conditions exist in the state to grow a wide variety of crops for seed. Diversified agricultural systems contribute to improve system resiliency, agrobiodiversity, biodiversity, and also to more diversified diets and agricultural markets.
- 3 While the majority of respondents listed themselves as 'beginners' but eager and willing to learn, a small but important sector in all major categories indicated experience or more advanced knowledge about seed saving, selection, and breeding. This highlights that we have valuable human resources within our communities that could assist with targeting educational programs that meet specific local needs.
- 4 The survey revealed important information about specifics in terms of:
  - ▶ Crops that respondents found the easiest for seed saving
  - ▶ Crops that showed the most challenges for seed saving
  - ▶ Specific techniques that respondents were more familiar with
  - ▶ Specific techniques that respondents wanted to learn more about



*Figure 4. Asexual propagation materials such as taro hulis are also popular at seed exchange festivals.*

Overall the seed assessment survey provided invaluable information to assist in the development of targeted educational programs, and will serve as an early parameter, to assess the progress of the Hawai'i Public Seed Initiative in the years to come.

## Future activities

In terms of future directions for the Hawai'i Public Seed Initiative, the planned work to go hand in hand with the educational activities will include:

- ▶ The establishment of seed networks within each of the islands. Seed networks may be organized based on ahupua'a or watersheds, or on geographical location. The idea is to establish local seed networks to begin to focus on crop species to work on, and in developing local seed exchange networks.
- ▶ The establishment of statewide and regional variety testing trials. The initial pilot project will evaluate two UH varieties, Mānoa lettuce, and the Komohana grape tomato. Log sheets are being provided to workshop participants to record basic trial information. The goal is to begin to develop more systematic information about how varieties perform across locations. While some varieties may be adapted to specific sites, or planting seasons, others may have wider adaptability.
- ▶ Begin to make crosses, and evaluate the new crosses in different parts of the state. Initial work will be with crosses of old UH lettuce varieties that have been recovered from U.S. seed repositories by Glenn Teves.

To learn more about the Hawai'i Public Seed Initiative please go to:

<http://kohalacenter.org/publicseedinitiative/about.html>

For information about upcoming Basic Seed Production Workshops to be held on Maui, Molo-ka'i, and Hawai'i Island please contact Lyn Howe at, [seedproject@kohalacenter.org](mailto:seedproject@kohalacenter.org). For comments or suggestions on the public seed initiative please contact Lyn, Nancy Redfeather at [nredfeather@kohalacenter.org](mailto:nredfeather@kohalacenter.org), or Hector Valenzuela at [hector@hawaii.edu](mailto:hector@hawaii.edu).

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Lyn Howe, an organic farmer, is working with the Kohala Center to help coordinate the Seed Production Workshops and Island Seed Networks. Nancy Redfeather is an organic farmer and works in the food program for the Kohala Center of Hawai'i Island. Hector Valenzuela is a Crop Extension Specialist for the UH-Mānoa College of Tropical Agriculture and Human Resources.

## Notes

1. For a discussion and description of seed saving see: Theodore Radovich. [Saving Seeds](#). Hanai'ai newsletter. UH-CTAHR. Sept-Nov. 2011.
2. For a discussion on heirloom varieties see: Ted Radovich. [Heirloom Vegetable Varieties: a promising future for past treasures?](#) Hanai'ai newsletter. UH-CTAHR. Dec. 2010.
3. For a description of School Garden Networks in Hawai'i see: Nancy Redfeather. [Hawai'i School Garden Hui](#). Hanai'ai newsletter. UH-CTAHR. Dec. 2010.

4. For a view and description of the Univ. Cornell Public Seed initiative, go to:

<http://www.plbr.cornell.edu/psi/>

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