

The Future of Organic Seed

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“The life starts with seed”

*Reverend Abraham Akaka, at the dedication of
Hawaii Foundation Seed facility, Waimanalo, Oahu - 1980*



*Reser Stadium, home of Beavers
Football on the grounds of OSU*

At the end of January, I had the opportunity to attend the Organic Seed Alliance (OSA) Conference on the grounds of Oregon State University (OSU) in Corvallis, Oregon, and boy, was it an eye opener! OSA's goal of 'Advancing the ethical development and stewardship of the genetic resources of agricultural seed' rang true in numerous workshops and presentations to the organic seed industry. In order to fuel the growing \$35 billion organic food industry, it starts with organic seed.

With any growing industry, there's always something to tweak, but the industry is already global with areas such as China, the Middle East, Europe, and South America already getting into the organic seed mix. Seed farmers and producers from the U.S., Canada, Europe, Central

America, and even Morocco were present share their research and challenges, talk story, and also share their seed.

This 12,000 year relationship between man and plants continues to grow. Growing adapted seed is one thing, but growing quality seed is another thing. Seed quality can get seasonal, similar to fruit and wines. You have good years, bad years, and stellar years, and this affects both the quality and quantity of seed. There were some farmers complaining about poor seed germination, but overall it was a conference of optimism with many present renewing acquaintances, and forging new ones. This venue was opportunity to learn from each other, exchange ideas, and create strategic alliances, as the OSA name implied. The need for good seed was obvious, but there were a lot of neat stuff happening in Oregon.

Many young growers are jumping into seed production and are still learning about the industry, which shows it's a growing segment of agriculture. Some have discovered that certain seed crops grow better than others in their area. Now,

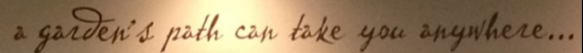


Peoria, Willamette Valley, Western Oregon

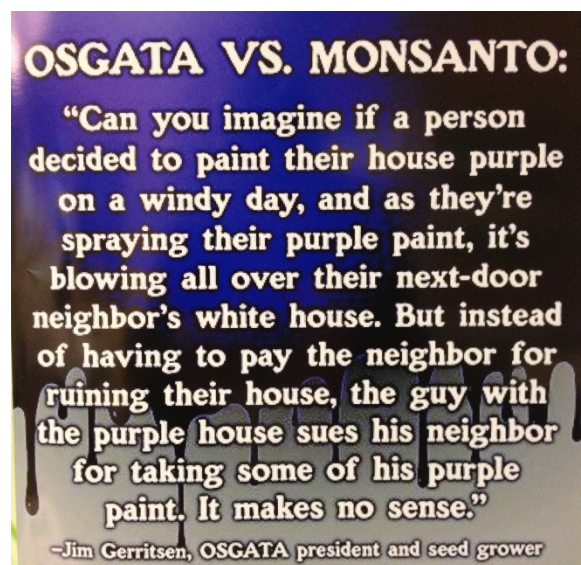
the regionalization of organic seed production is starting to unfold. The dryer parts of Washington State, for example, are turning into a great place to grow garlic and onion seed, while Oregon is great for beans, brassicas, and root crops, among other things. Some areas have competitive advantages over other areas due to their ideal climate for a certain crop. This pattern of seed production is similar to conventional seed, but is threatened by genetically-modified seed production and its potential to contaminate the integrity of organic seeds. Battles are on-going in many states related to GMO sugar beets, wheat, alfalfa, potatoes, grasses and others, and its potential effects on its organic relatives.

From Portland to Corvallis

I landed in Portland at 8 pm, and the pilots mentioned that this was the fastest flight they had ever flown due to a 650 mph tail wind. Combined with the jet speed, we were blowing to Oregon at a speed, of 6 football fields a second! I started to worry that the jet might disintegrate at that speed, and but we landed in a little over 4 hours! I don't enjoy traveling a lot now, because anything bigger than Molokai is a metropolis, and I have a tendency to get lost if I don't know where *mauka* or *makai* is. True to form, it happened as soon as I got into the rental car. I found myself traveling on and off the highway ramps revolving around an IKEA shopping center near the Portland Airport. The GPS was no help, and kept 'redirecting' me to another off- and on-ramp. I was trying to get to another car rental to pick up a few people from Southern Seed Exposure who would accompany me to Corvallis which was a 1½ hour drive from Portland, so I wouldn't get lost any more.



Finally finding them, we headed for Corvallis. The weather was nice on the highway, but there was a lot of maneuvering around big rigs hauling freight between the cities. Most of those attending the conference from afar stayed at the Hilton Garden Inn across the street from the CH2M Hill Conference Hall and also Reser Stadium, home of OSU football. In the lobby was this fitting quote (above). This is the first time I visited this part of Oregon, but I heard about it from a college professor, plant breeder, and mentor, Dr. Jim Gilbert, who talked about bean production in this area.



Lyn Howe is an organic seed grower in Puna, a member of the Seed Saving Initiative at the Kohala Center along with Nancy Redfeather who has been coordinating seed training throughout the state over the last 2-3 years. Lyn is also Secretary of the Organic Seed Growers and Trade Association, who is dealing with so many issues organic farmers face, one of which is pollen drift from nearby farmers planting GMO seed. The sign above says it all.

On the Road Again

I got there a day earlier since Lyn hooked me up on a tour with three very interesting seed people from Virginia, Ken Bezilla and Irena Hollowell of Southern Exposure Seed Exchange, and Edmund Frost, of Twin Oaks Seed Farm and seed grower for Commonwealth Seed. Since the OSA per-conference tour was sold out, Edmund and I creating our own farm tour meeting some very interesting seed people.

I was able meet some movers and shakers of the organic seed industry, some of whom were involved in cutting edge stuff that's just catching on, such as breeding plants for nutrient content, and they weren't even university types; these were farmer-scientists. On the first day there, we headed to farms between Portland and Corvallis. This is part of the great Willamette Valley, a very productive farm area known for seed production.



The first stop was to Alan Adesse's farm. Alan was one of the early seed growers at Seeds of Change over 25 years ago, probably the first organic seed companies before the word 'organic' was invented. In the winter, there's little in the way of seed produced except only the most cold-tolerant crops, such as rutabaga and other root crops, some cabbages and kales, and also chicory. Not an easy place to find, we hooked up with Alan along one of the

main roads and followed him through winding roads with beautiful country scenery, even in winter.

Alan showed us some of the short rows of crops in which he was able to gross a couple thousand dollars from the sale of seeds. He understood microclimates on his farm, which was on the edge of a wooded area, and where different crops had favorable niches. Alan had a Hawaii connection because he lived on the Big Island for a few years. Alan was definitely one of the 'kupuna' in his neck of the woods and was around the same age as me, so we shared a lot of things in common. He also shared his wisdom with young farmers, who he took under his wing and mentored them, something that's sorely needed in Hawaii.

Interdependence

Andrew Still and Sarah Kleeger are owners of Adaptations Seed in Sweet Home, Oregon. Starting as vegetable growers feeding into CSA's, they recently morphed into full-time seed production. Before we made these



Andrew Still and Edmund Frost viewing January King, a super cold-tolerant head cabbage. Note the electric fences to control deer.

visits, I would do some reconnaissance by Googling them so I would know a little about them and their operations, and also get into in-depth conversations about their interests, but I wasn't ready from Andrew. As soon as I shook his hand, he said to me, "You're the guy working with Frank on the lettuce!" which really caught me by surprise. This reinforced my perception that the small organic seed growers in this neck of the woods were all connected, and worked closely with each other. This was later confirmed as I talked more with them and nearby growers in the warmth of their kitchen and living room, and also at the conference. In one year, Andrew and Sarah increased their seed offerings from 200 to 400 varieties! These are family operations, but they also buy seeds from their seed farmer friends and others in Washington and Oregon to increase their product mix. Their goal of "*Bringing Biodiversity Back, For Real!*" was bearing fruit

I was especially excited about visiting Willamette Valley due to my connection to an organic vegetable seed breeder, Frank Morton of Wild Garden Seed in Philomath, just a hop, skip, and a jump from OSU. Frank is a well-respected organic seed breeder, a mover and shaker in the Pacific Northwest. He refined and/or developed over 85 varieties of organic lettuce, and a mix of vegetable cultivars. I started sharing vegetable seed with him after he visited Hawaii about four years ago when he visited Kona to teach at a seed saving conference, and I was amazed at his colorful lettuce.

Over the last couple of years, I've sent him different varieties of Hawaii vegetables, and four varieties of lettuce developed in Hawaii, including Manoa, Kauwela, Laupili and Kulanui, three of which have been out of circulation for over 50 years. Most are based on crosses between Manoa and Great Lakes, a famous heat-tolerant head lettuce. Kauwela is a sibling of Anuenue, a very popular lettuce on the mainland known for its heat-tolerance and adaptability to summer conditions across the U.S. The plan was to cross his lettuce with the Hawaii selections to produce new varieties adapted to both Oregon and Hawaii.



Frank Morton's lettuce selection, Leopard

Hawaii lettuce varieties have good heat-tolerance, while the Oregon varieties Frank developed has strong resistance to wet season fungal diseases, such as Downy Mildew and Sclerotinia. This would be a great marriage of germplasm, with the first crosses coming out this spring. I told him we should give these new varieties Hawaiian names because they were '*hapa*', half-Hawaiian. The first cross to debut this spring is a Manoa X Leopard cross.

Leopard is a midi-sized romaine with extra fancy crisping of the leaf edges, and extra fancy dappling of glossy green leaves by dark red splashes, and highly rated for downy mildew resistance.

I sent him a bunch of Hawaiian names, and he chose 'Kalakoa' Mix (meaning Calico in Hawaiian or colorful). These lettuces are quite variable because they are the F2 and F3 selections, and not the F1 or uniform hybrids. You can expect to find all kinds of color combinations with reds, pinks, splashes, dots and dashes. I will be field testing them in

Molokai this spring and summer for disease and heat tolerance, and already have farmers getting ready to plant them in Waimea and Kona on the Big Island. There's more in the pipeline to create colorful, heat-tolerant, disease-resistant lettuces.

Frank was busy getting ready for his presentations at the conference, so we spied his operation to see what was cooking, including what was in the oven in their farm kitchen and retail outlet, where they fed up to 40+ workers in summer the when the farm was in full swing. The fields were saturated with water, and we even helped push out a visitor who was stuck in the mud, to no avail. Luckily, we called the tractor guys in and they pulled this big Mercedes van out of the mud. Winter is a busy time for many of the seed growers. Its 'inside time' where they clean seed, create seed packets, and also redesign their seed catalogs.



Inca treasures Yacon (center) and Oca

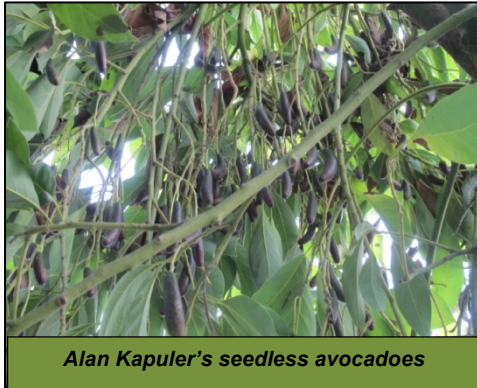
Another farm stop near Corvallis was a visit to Alan Kapuler, an innovator who was one of the inspirations behind Seeds of Change, an early organic seed company. He graduated #1 in his class at Yale while only 19, and received a PhD in Molecular Biology from Rockefeller University. He also has an innate understanding of botany, and studied the evolution of plants. He has continued doing innovative research on plants, including breeding for nutrition, and starting Peace Seeds. His daughter, Dylana and her husband Mario are deeply involved in seeds, and started Peace Seedlings, another seed company off the same family tree. It's obvious from his daughter's name that Bob Dylan was an inspiration to him. Bob Dylan said, *'How many times can a man turn his head and pretend that he just doesn't see?'* and this stuck with Alan.

Alan and his wife Linda were an inspiration, and it came not only from their positive energy, but also the fruits of their labor. They have a greenhouse just a few miles from OSU filled with tropical plants, including fruiting avocado, oranges, lemons, and tangerine. The avocado was filled with fruits, a few with seeds but mostly seedless. The seedless ones look like giant cigars, and his wife Linda use them to make sushi. The citrus coloring was so intense due to the cool night temperatures that they looked a brighter orange than the store types. We shared a lot of knowledge with each other. Alan was involved in early work in genetic engineering, didn't feel 'pono' about that, then dropped out and joined the peace movement. He has a hard time with large corporations who force people to pay for genetically manipulated seeds, and continues to foster the concept of public seed. He considers Oregon a



Alan Kapuler's bright and tasty tangerines

progressive state with intelligent leaders, so there's hope for the future. We many farmers stretching the boundaries of organic seed, there's hope and excitement for a healthy future for community-controlled seed.



Alan Kapuler's seedless avocados

Alan grew some rare Inca food crops like oca, an oxalis with compounds similar to those found in spinach which renders it slightly indigestible, so it's cooked or dried to rid the root of oxalis acid. Yacon, related to Sunflower and Jerusalem artichoke is great for diabetics because it contains a form of insulin called inulin, and is eaten as a potato substitute and even planted after a potato crop. Alan was growing some pretty unique stuff, including a temperate sweetpotato from the Rocky Mountains! His knowledge of botany was amazing, and we had

fun rattling off Latin names of plants in his greenhouse.

Conference Highlights

A keynote speech by Matthew Dillon was definitely one of the high points of the conference, where he detailed the humble beginnings of the Organic Seed Alliance and this conference. He spoke with passion and regret of a fire that destroyed a seed vault at Abundant Life Seeds in Port Townsend, Washington where thousands of heirloom varieties were lost. This was a major setback in the movement, and it taught many 'not to put all your seeds in one basket'. His talk was heart-felt and helped to lay the foundation and future direction of this organization. Presently with Seed Matters, an organic seed advocacy organization in Oakland funded by candy manufacturer, Clif Bar, who also provided financial supporter for this conference, Matthew will continue to be force for organic seed change. Tom Stearns, founder of High Mowing Seeds, also gave a talk on what he envisioned in the future organic seed industry, and also gave out seed produced by some of the seed growers from the area.

Overall, what I got out of the conference was more than I expected, with so much to learn, and so many neat people to meet. It's as if some of them were on a mission, and I cannot believe how many people just came up to me and started talking story. There was just not enough time to meet everyone. I went up there to connect with two vegetable breeders in particular, Dr. Jim Myers, an OSU seed breeder and also Dr. John Navazio, an organic seed breeder with Washington State University and Organic Seed Alliance, and in both instances I wasn't able to connect with these two guys. Too many people to meet, and things to learn.

The workshops were the bomb. One workshop in particular spoke about how plant roots respond to different water and nutrient conditions in soils. If the soil was lacking in nitrogen, roots had a tendency to accumulate near the surface because they know this is where the nitrogen will be, if at all. In arid soils, roots had a tendency to go deep, scavenging for water. What I got out of this is when we create highly fertilized soils and provide lots of water, the roots become lazy and stay near the surface, so when the weather changes to more arid, high-stress conditions, the plants may be ill-equipped to

survive in these changing conditions. Maybe common sense, and easily overlooked, but this is about resilience in changing weather conditions.

Resilience

If there's one word that stuck with me through the entire trip, and even carried me home to Molokai, it was resilience. With this crazy weather we've been having this winter, the crops are going through confusion and stress trying to figure out what time of year it is. We would have alternating winter and summer days between Thanksgiving and the New Year, and even the lettuce were bolting or experiencing tip burn. Many of Hawaii's varieties are bred for this kind of weather, and I was able to hear people share their Hawaii seed experiences with me.

One was a farmer from Long Island, New York, a very wet area where plants would be dew-drenched until 11 in the morning. Tomato varieties had to be tolerant to this weather or they wouldn't survive. I asked her what tomato variety did the best and she mentioned a Hawaii tomato variety, Anahu. She mentioned that Anahu was the strongest against leaf diseases. Just to think, they were bred for adaptability to growing conditions in Waimanalo and Poamoho, near the North Shore. This told me that Hawaii varieties are adapted to a wide range of conditions, and are *resilient*. This is another reason why we really have to do more seed breeding and selection because we have a lot to offer the rest of the world.



Ruby Cascade Gold Corn

The Resilient Gardener

Talking about resilience, I think this is the mantra for Carol Deppe, an accomplished writer and seed breeder, and it's obvious when you walk into her house. Her whole world revolves around seeds, with boxes and buckets of seed filling her living room and kitchen. She believes that you need a handful of crops to survive and be resilient, including beans, squash, and corn. Carol has Celiac disease or gluten intolerance, so she can't eat any wheat products. She prepared dinner for us, including two giant disks of corn bread with colored corn, and large bowls of bean stew prepared with chuck roast, beans, curry, spices, and other goodies. So ono (delicious)!

Her writing speaks to me about the challenges of life and how the garden had to survive through her personal trials. Her book, 'The Resilient Gardener', is a must-read. In her book, she mentioned that she didn't have enough time to care for her garden because she had to care for her ailing mother, and this was critical to her survival because she ate from her garden. Carol was a jewel and had an amazing grasp of plant breeding and selection. Her corn, Ruby Cascade Gold (left) producing solid colored ears of several colors, was known throughout the Northwest. I saw it in her living room in boxes, but also at Andrews and Sarah's farm hanging out to dry in their living room. Her Candystick Dessert Delicata Squash (next page) is stellar.



Candystick Dessert Delicata Squash

This is the second time I heard someone mention about surviving from their garden. Another was a black farmer from Alabama who I met at the Southern Sustainable Agriculture conference in Kentucky about 5 years ago. I saw him heading home a day early, before the conference was finished, and I asked him why he was leaving early. He mentioned that he 'only eats food from his garden', and was running out of food, so he had to head home. He showed the food he had left, and I really couldn't help him, unless I flew to Alabama and harvested more stuff from his garden for him.

At the conference, a seed swap held on the last night was a bomb! I brought 35 varieties of vegetable with me, grown by the University of Hawaii, Ellen Sugawara of Papohaku Farms, a bio-dynamic farm in East Molokai, and myself. Organic seed farmers from all over the nation, and also a few from Switzerland and the Netherlands were there sharing and swapping some pretty neat seeds, including all kinds of beans, chili peppers, lots of native corn and beans, and lettuce, among others. One guy had these giant Marconi and Lamuyo type pepper seeds he was giving out and I got samples. I was amazed at how many people knew what moringa or kalamungai was. A student from Colorado State University mentioned they were using the leaves to purify dirty water. Seed swaps can be a mental overload when a lot of people are coming at you from many directions, and I almost missed dinner trying to pack up everything and get ready to head home the next day.

On the ride back from Corvallis to Portland, I had the pleasure of spending quality time with Aaron Whaley of A.P. Whaley Seed Company in Mount Horeb, Wisconsin, and an emerging force in the seed industry. Aaron has a strong focus on tomato seed, among other crops, and has been developing new tomato varieties by working with seed breeders and paying them royalties for their new varieties, which is a great incentive to encourage more conventional seed breeding.

Aaron partnered with Jim Myers of OSU on the purple Indigo Rose, and a bunch of new releases with purple fruits. He also partnered with Fred Hempel of Artisan Seeds in California to create a new class of tomatoes utilizing striped germplasm. He also partnered with SuperNaturals Grafted Vegetables to create grafted vegetables with disease-resistant rootstocks.



Robb Farm's organic broccoli – Lalamilo, Big Island

Hawaii's Future in Organic Seed

In Hawaii, we face many farming challenges because organic seed varieties we grow weren't selected either for organic systems or our climatic conditions. Many were selected for cold tolerance and earliness, two attributes that I don't consider important in Hawaii. Carol Deppe mentioned that when you select for earliness, one thing you give up is yield because you want the plant to mature before the frost returns. If anything, heat-tolerant, late-maturing types with scavenging root systems that can handle the relatively small difference in temperature between day and night, and also high humidity, resistance to foliar diseases, viruses, and also nematodes and root diseases. So what's Hawaii's future role in organic seed production? There are farmers out there looking for good organic seed adapted to their changing climatic conditions. Overall, our learning curve is steep, but we do have an important role in organic vegetable seed improvement, including screening and selecting for disease-resistance and resilience.

Like any new agricultural initiative, you have to start from square one. The most important issue is always human capacity to make this industry a reality. There must be a financial incentive for those willing to pioneer this effort. Also, farmers have to be taught how to grow seed and be seed farmers. Others have done it with family farms growing corn seed in Hawaii since the 1960's, but it also resulted in the consolidation of these farms in the 1990's by large conglomerates. This is not what I envision, but unfortunately we have no control over the future. If there's money to be made, the big guys will sniff it out and jump in.

We need to look at sustainable, community-based farming to create and strengthen our farming communities, and it starts with farmers honing their skills to take a crop beyond the harvestable stage. The next step is developing organic infrastructure and support facilities, such as seed cooperatives, equipment, and also websites where Hawaii organic seed farmers can feature and sell their seeds. This would help farmers to concentrate on growing seed, and also allow them to ship out seeds directly from their farms. Organic quality protocol would need to be adhered to, including germination testing, standardization, proper labeling, and disease control, just to name a few.

There are many roads to choose in developing a 'Hawaiian' organic seed industry. I've outlined some of them:

1. Select seed varieties from other land grant universities, crossing it with ours, and selecting for characteristics important to us in Hawaii beyond the F1 stage.
2. Screen presently available organic varieties for adaptation to our tropical conditions throughout the state. Move forward on those that rise to the top.
3. Screen varieties specifically for disease- and pest-resistance,



Papaya, Pumpkin, and Shallot Seed

Screening for disease resistance is something we've done well in Hawaii, and we're just recently seeing its broad impact. The challenges are many, and starting with low-hanging fruit, and also focusing on production challenges that can be resolved with specially selected seed, especially on topics others many want to collaborate with you on. Our niche is in creating, screening, and reselecting varieties for our unique conditions. Coupled with breeding for resistance diseases, this kind of breeding can help many farmers in both tropical and temperate areas combat diseases and insects because in the long run, it's too costly financially and environmentally, to use pesticides. The changing weather patterns allow us to screen crops for many stressful conditions in many climatic areas at once.

I remember working with tropical fruit specialist Dr. Dick Hamilton, who wasn't satisfied in field testing a new fruit variety just in one area of the state; it had to grow in several climatic zones in Hawaii before he gave it his seal of approval. And also plant breeder and plant pathologist Dr. Jim Gilbert, who made sure his vegetable varieties could take a lickin' and keep on tickin', and we still see the fruits of his labor in action across the globe.

Recently retired corn breeder Dr. Jim Brewbaker is of the same mold, and was greatly influenced by Jim Gilbert and his work, and gave us a jumping-off point to develop many corn varieties for Hawaii and the tropical world. These University of Hawaii researchers set the direction for our future and made their mark on the plant world. Conventional plant breeders are a rare commodity, which is why many organic farmers across the globe have taken it upon themselves to create the next generation of organic seed to foster seed and food security in the world.

But what if the university partnered with these organic seed farmers to create a whole new generation of seed? For organic farmers, having the ability to save seed without GM contamination, and making selections or mass selecting seed beyond the F1 generation to allow them to express all their possible characters is key. Farmers can then choose what they want, or continue with a diverse mix, and also improve on these varieties, much to the benefit of the seed industry everywhere. This is what is being pushed by the USDA recently through their new grants.

In organic farming, it's not about uniformity; it's about diversity, resilience, and staying on the cusp of the next production challenge. The development of an organic seed industry can also be the stimulus for the expansion of organic crop production in Hawaii. Without adapted crop varieties, organic farmers will continue to struggle by growing varieties that are not well adapted to Hawaii's varied climatic conditions. This is how the larger Hawaii organic farming industry can benefit from this work.

But it really starts with our agricultural priorities in Hawaii. We need to ask those in positions of power if agriculture is really that important for our future well-being? I'm fortunate in having been raised in Hawaii agriculture from a very early age, and also having the privilege of visiting farms on many islands, and seeing the different opportunities out there. It's really about sustainability of farm families; it's a holistic

approach to keep them viable instead of in debt. It's about putting a true value on the food we grow versus the days-old cheap food we import and are forced to eat because we can't find anything better.

How can we develop an agricultural future and provide farmers with options to grow sustainably without creating their own downfall? As one example, the lack of clear crop rotation systems dooms Hawaii agriculture for many, except those with large tracts of land. Creating resistant insects, disease and now weeds is what we do best, and the whole system is like a dog chasing his tail. But who said the future was going to be easy? This is a tall order, and when you add adaptability to over 140 soil types and myriads of climatic zones and elevations, you have a life's work cut out.



A New Day Dawning over Mauna Kea, Island of Hawaii

How do you create an infrastructure to make this happen within a context of community-based seed production. Within the fifty states, we have a unique center for the development of agriculture, and we have to create a totally different strategy centered on resilience, especially with the climatic changes we're experiencing in the last six months.

In closing, I would like to extend a special MAHALO (thanks!) to Kent Whealy for providing financial support to make my trip possible, and also to Ted Radovich for chipping in as well. It's a pleasure to be associated with visionaries who can see the preferred future of organic, community-driven agriculture in Hawaii, starting with seed.

'We reap what we sow'

Organic Seed and Resources

This is far from an exhaustive list:

Adaptive Seeds: www.adaptiveseeds.com

A.P. Whaley Seed Company: www.awhaley.com

Bingenheim (German biodynamic): www.bingenheimersaatgut.de

Commonwealth Seeds: www.commonwealthseeds.com

Cooks Garden Seed: www.cooksgarden.com

Family Farmers Seed Cooperative: www.organicseedcoop.com

Farm Direct Organic Seed: www.farmdirectseed.com

Fedco Seed: www.fedcoseeds.com

Fertile Valley Seeds: www.carol@resilientseed.com

Garlicana: www.garlicana.com

Greenbank Farm: www.greenbank.biz

Hands On Organics Intl: adessewildbman@aim.com
High Mowing Seed: www.highmowingseeds.com
Hobb's Family Farm: www.farmdirect.com
Johnny's Seeds: www.johnnyseeds.com
Lonesome Whistle Farm: www.lonesomewhistlefarm.com
Nash Organic Produce: www.nashorganicproduce.com
Oregon Country Farms: www.oregoncountryfarm.com
Oregon Tilth: www.tilth.org
Organic Seed Alliance: www.seedalliance.org
Organic Seed Finder: www.organicseedfinder.org
Organic Seed Growers and Trade Association: www.osgata.org
Peace Seedlings: www.peaceseedlingsseeds.blogspot.com/
Peace Seeds: www.peaceseeds.com
Pitchfork & Crow: www.pitchforkandcrow.com
Reinsaat (Austria biodynamic): www.reinsaat.co.at/
Sativa Seed (Switzerland biodynamic): www.sativa-rheinau.ch
Seed Ambassadors: www.seedambassadors.org/
Seed Matters (seed saving resource): www.seedmatters.org/
Seeds from Italy (Organic seeds marked Biologica): www.growitalian.com
Siskiyou Seeds: www.siskiyouseeds.com
Seven Seeds Farm: www.sevenseedsfarm.com
Southern Exposure Seed Exchange (Ken & Irena): www.southernexposure.com
Stellar Seeds: www.stellarseeds.com
Turtle Tree Seed: www.turtletreeseed.org
Uprising Organics: www.uprisingorganics.com
Vitalis Organic Seeds: www.vitalisorganic.com
Wannamaker Seeds: www.wannamakerseeds.com
White Oak Farm: www.whiteoakfarmcsa.com
Wild Garden Seed (Frank Morton): www.wildgardenseed.com
Wood Prairie Farm: www.woodprairie.com