Seed Programs

- Public, Government
- Private
- Artisanal or Informal

Home-gardening
Indigenous
Community

The Global Seed Industry

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Protection of Seed by Seed Companies

- Hybrids
- Plant variety protected
- Patented

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Conventional Varieties

1. Certified (grains)
2. Registered (veggies)
3. Patenting (ornamental, Fruit trees, GM crops)

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Seed Increasing Steps

1. Breeder stock
"Considered the purest form, “gold standard” for that variety,"
2. Foundation Stock
3. Registered seed
"for distribution to licensees, such as seed companies."
4. Certified (or select) seed
Contracted, often with farmers)

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Small Seed Companies

- May not produce their own seed
- Obtained from production seed companies such as Seminis
- eg Seminis controls ca 55% of tomato seed sold in the U.S.

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Patents and Variety Protection

- Plant patents are regulated by the U.S. Patent and Trademark Office (fruits and ornamentals)
- Seed-propagated plant varieties may be protected by plant variety protection (PVP) certificates and utility patents
- PVP certificates are issued by the USDA Plant Variety Protection Office
- Utility patents are issued by the U.S. Patent and Trademark Office

Chronology Seed Companies

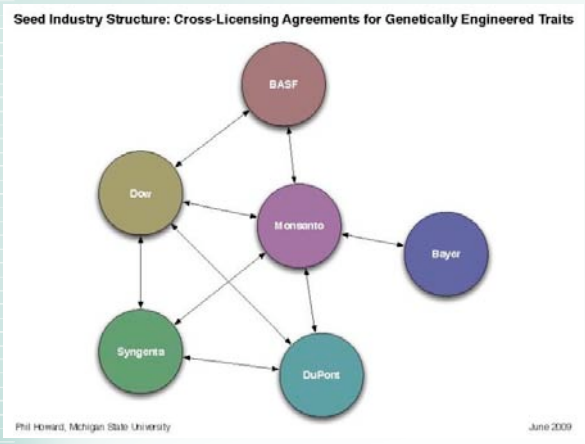
- 1700s first Seed Companies
- 1926 Hi-bred corn company
- 1930, 70, 94 Plant Variety Protection Act
- 1930 Plant Patent Act (asexual plants)
- 1980s Patenting
- 1990s mergers and acquisitions
- Today, unhealthy industry

Decline of Public Breeding Programs

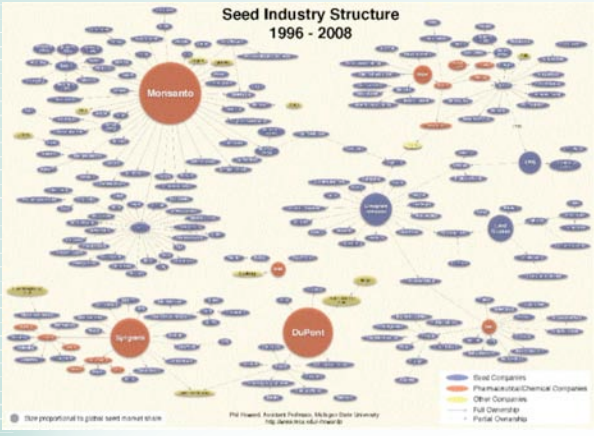
- decline over past 40-50 years
- Nationally and in Hawaii
- Land-grant universities shifted to produce 'products' that were more profitable, royalties, patents
- less classical breeders, more molecular biologists

Utility Patents

- cover living organisms, including plants, plant parts, and plant-breeding processes
- can exclude others from propagating, growing, using, or selling the protected material, without permission, for 17 to 20 years
- There is no researcher's or farmers' exemption



Source: https://www.msu.edu/~howardp/seedindustry.html



Source: https://www.msu.edu/~howardp/seedszoom.html

A vision for a more democratic food system: a more diverse ag system

- Diversity of crop and livestock species
- Diversity of agricultural operations
- Diversity of decision makers
- A dynamic partnership between public, private, non-governmental, farmer, gardner, indigenous and consumer groups

What have we lost from consolidation in Seed industries?

- Varieties, access
- Knowledge (how to do seed work)
- Infrastructure (equipment)
- Regional food identities
- Access to breeding materials
- Innovation (not as competitive as we used to be)
- Security
- Sovereignity

Alternative Breeding Programs

- Public breeding initiatives, participatory models
  eg Organic Seed Alliance & Cornell
- Plant breeding clubs
- Seed Saving Networks

Seed Saving Networks

- Community Seed Saving Programs
- Arose in 1980s as grass-root effort to preserve traditional varieties
- eg Seed Savers Exchange

Artisanal Community Production

- Tanzania, elementary schools
- 25 Km from each other
- started with 50 schools, grew to 250, in drought-prone areas
- 1 Ha per school
- 500 kg seed per year
- increased adoption of improved varieties

Developing Countries

- Improved varieties often available to manage biological or abiotic stress
- However, these varieties are often not accessible to farmers

Farm Size in Survey

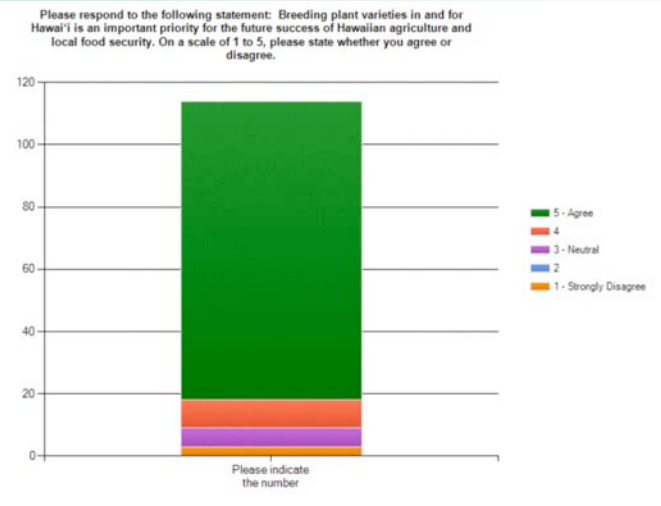
- Range= 0-250 Acres
- Most farms= 1 Acre
- Average size= 10 Acres
- Larger farms= 250, 195, 75, 10-20
- N= 88

Hawaii Statewide Seed Assessment 2010

SurveyMonkey.com
Kohala Center,
Organic Seed Alliance & CTAHR

N= 128 responses

Breeding in Hawaii important for Food Security?

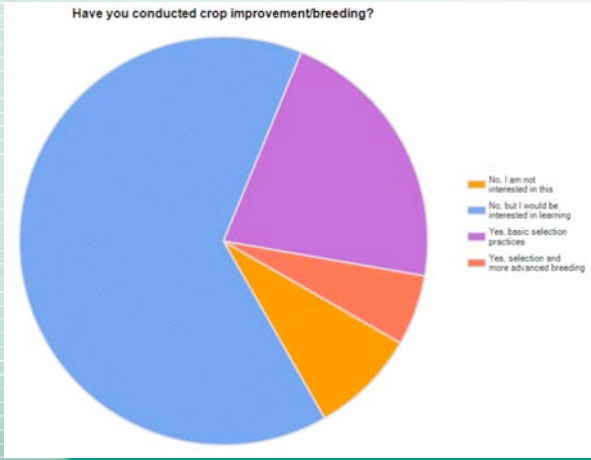


Environmental Conditions in Farm

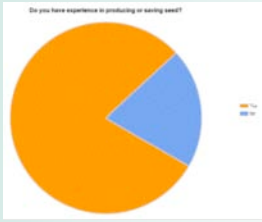
Frequency mentioned

- Rainfall- 9,15, 30.. 100s, 125, up to 180"
- Elevation- sea level, range 200 to 1000s,
  and 1000-3000 ft
- Temperature minimums- 30s to low 80s
- Temp. maximums- low 80s to mid 90s

Have You conducted crop improvement, breeding?



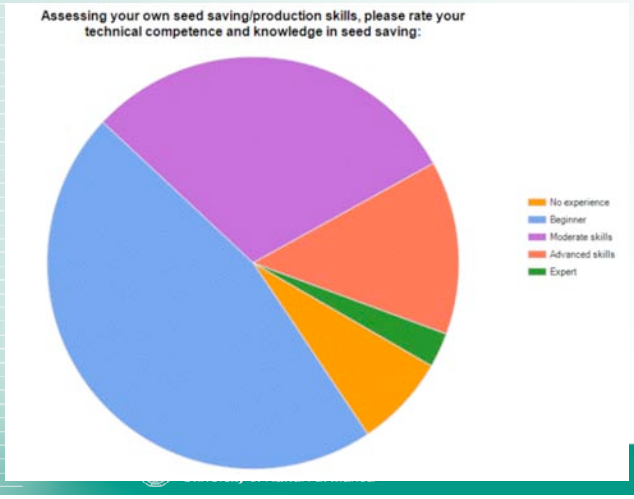
Experience Producing or Saving Seed?



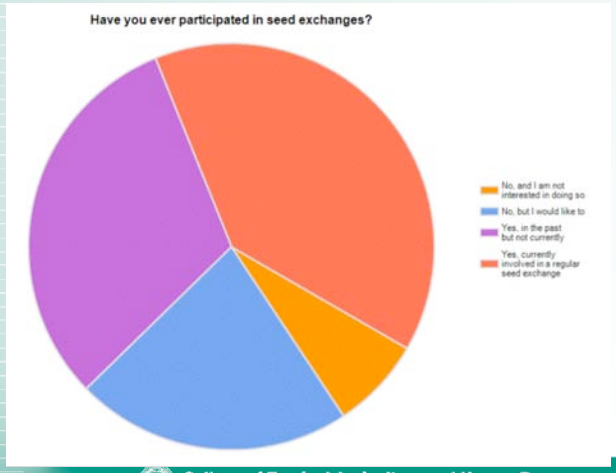
Years of Experience Saving Seed

- Range 1-50 yrs
- Average= 10 years
- median= 5 years
- Less than 3 years= 43%

Seed Saving Skills?



Have you participated in Seed Exchanges?



Interest on Public Seed Initiative?

List of Top Activities

- Saving Seed, personal use
- Restoring seed of Heritage or traditional Hawaiian Crops
- Seed exchange programs
- Attending advanced Seed Saving Class
- Participating in Variety Trials
- Attending class on crop Improvement

Information Needs on Seed Saving?

- Isolation distance (65%)
- Population size (77%)
- Seed maturity, harvest time (76%)
- Harvest guidelines (51%)
- Processing and storing (58%)
- Roguing guidelines (63%)

Crops, most difficult for Seed Production

Frequency mentioned

- No. 1. N= 35, awa, basil beans, pepper, broccoli, onion, carrots, native, corn, cucurbits, lettuce, papaya, lettuce, ornamentals
- Most mentioned overall: arugula, beets, broccoli, cabbage, carrot, chard, corn, kale, lettuce, onions, pepper, cucurbits

Crops, success in Seed Production

Frequency mentioned

- No. 1. N= 46, beans, brassicas (kale), lettuce, Native, papaya, pumpkin, sweet corn, tomato
- No. 2. N= 45, arugula, basil, beans, cilantro, corn, ginger, herbs, cucurbits, papaya, tomato,
- No. 3. N= 54, basil, beans, dill, edible hibiscus, green onions, lilikoi, maile, potato, sesame, tobacco, flowers

6th Annual

East Side Seed Exchange & Harvest Festival!

Saturday November 26th, 9:30am – 3:30pm

At La'akea Permaculture Community

Bring your favorite dishes using only locally grown food

for the *100%* LOCAL FOOD COOK OFF AND POTLUCK!!

ON KAUA'I NOVEMBER 6-7, 2011

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