Ag Club Revitalizes with New Set of Officers

By Aleyzia Rae Kaha

The Agriculture Club (Ag Club) has played a vital role in encouraging students in the College of Agriculture Forestry and Natural Resources (CAFNRM) to engage in relevant activities that will enhance their academic experience in the university. Members partake in the opportunities such field trips, workshops, fundraising which allow them to form linkage and network with alumni who could be potential employers. Above all, the club renders service to the university and community at large.

A registered student organization (RiSO), Ag Club, has been instrumental in spearheading one of the most memorable gathering of faculty, staff and students of CAFNRM that happens at the end of each semester—the Ag Seniors Awards and Banquet. This spring semester our club had more than 40 members of CAFNRM sign up to participate. For our board members, they joined because they wanted to get to know their peers within CAFNRM as well as have opportunities to explore local agriculture. The following are the new set of officers:

President: Shaun Gutierrez, San Diego
Vice President: ‘Ama Lilly, Hilo
Secretary: Lindsey Stevens, Hilo
Treasurer: Ellie Montgomery

Agritourism: New Course Offering at CAFNRM

Brooke Hansen (Anthropology; Agriculture) is piloting a new course this semester geared towards the rapidly growing field of agritourism: AG 194 Agricultural and Food Tourism. The course explores how Hawai‘i can move forward by tapping into and integrating the rise in tourism, the interest by farmers to diversify and explore new markets and the wildly popular foodie movements (farm-to-table, locavore, Hawai‘i Regional Cuisine, food festivals, etc.). With hands on activities, tours of local farms, and knowledgeable guest speakers, Dr. Hansen hopes to inspire students to explore careers in the field from marketing, consulting and entrepreneurship to value added product development.
On January 9th the Hawai‘i Island Food Alliance Food Access Working Group together with The Food Basket, The Kohala Center, and the state Department of Health hosted a presentation in Hilo by Ken Meter, (President of the Crossroads Resource Center, Minneapolis, Minnesota) that was entitled “Growing Secure Food Systems in Hawai‘i”. The presentation focused on how the pre-European contact native Hawaiians were completely food independent and that the 1900s resulted in a downward spiral in food production in Hawai‘i which was particularly rapid from the 1940s onward. The mid 1960s was the last time that about half the food consumed in Hawai‘i was produced here. The stated goal was to instigate change that results in greatly improved food independence on the Big Island. There was even quite a bit of discussion regarding community-based food systems and avoiding the cash-based economy, and doing food barter.

One of the major challenges was that there was no real discussion of the biophysical and social constraints that would need to be overcome. When I pointed out that Native Hawaiians largely farmed the fertile alluvial valley soils and sweet spot uplands where rainfall was sufficient to grow sweet potato etc. but not so excessive to result in heavy nutrient losses (soil fertility depletion) by leaching I was told that one can use soil restorative rotations of certain (undefined) legumes to make the former sugarcane lands of the high rainfall Hilo-Hamakua Coast productive for food crops. I politely implied that this thinking was delusional and backed up by scientific evidence regarding the very limited potentials of biological uplift of nutrients and nitrogen-fixing green manures in high rainfall zones with heavily leached soils.

On the infertile upland soils in high rainfall zones the Native Hawaiians practiced slash and burn agriculture with short annual (usually one to two crop) cropping periods and very long fallows or plantings of tree crops such as breadfruit. Long fallows are not practical in the modern era. Neither is expansion of wetland and gulch taro production as most of the fallow areas are now zoned for conservation to protect wetland habitat and wildlife. In this regard it is interesting to note that the waterfowl of concern seemed to survive when Native Hawaiians and then immigrants from Asia cropped the valleys and gulches wall to wall with taro, had extensive aquaculture, and later also grew rice. Furthermore, it is problematic that most of the sweet spot uplands with high soil fertility that were formerly used largely for sweet potato cultivation are presently under the tropical grass pastures of the large privately held ranches. These lands are unlikely to be converted to row-cropped field systems and would require major irrigation infrastructure development to avoid the risk of crop failure during droughts that have become more frequent with climate change.

There is a reason that most of the former rain-fed sugarcane lands on the Big Island are now used for perennial pasture and tree crops that are not as nutrient demanding in terms of soil fertility as most annual agronomic and vegetable crops. In a large part it’s that there are few annual crops where the farmer can recover the costs of the high fertilizer and soil amendment inputs required for the desired yields coupled with the multitude of introduced disease and pest problems in this environment. To make matters worse, applied nitrogen and potassium fertility is rapidly leached away necessitating frequent reaplication. Due in part to the soil fertility constraints and cost of the available lands and labor we are not going to be growing staple crops in major quantities anytime soon.

Some keys to improving food independence are as follows: 1) developing viable strategies to recover essential plant nutrients from the human waste stream in order to reduce dependence on imported fertilizers, 2) designing novel controlled-release and extender fertilizers such as those based on colloidal ion exchangers (exchange fertilizer technology) for more efficient nutrient delivery in the humid tropics 3) encouraging and facilitating state and federal professionals in horticulture and agronomy to conduct the scientifically non-glamorous but essential work of germplasm evaluation that includes crop nutrient use efficiency and pest-disease resistance parameters, 4) improving the opportunities for people interested in becoming farmers to have relevant training on commercial scale farming practices, and 5) educating people on the multifaceted components of successful rural entrepreneurship.
AGRITOURISM continued….

Guest speakers for the course include Audrey Wilson (acclaimed food writer), Tom Menezes (senior vice president of Hawaiian Crown), Pomai Weigert (Hawai‘i AgriTourism Association), Luisa Castro (master preserver and food safety expert), Winnie Law (Hawai‘i Ecotourism Association), Nancy Ginter-Miller (Produce to Product, Inc.) and Tim Merriman and Lisa Brochu (tourism consultants, authors and founders of Heartfelt Associates). Topics include examining international and local trends, intersecting with sustainability and food security, cultural tourism and heritage plants, rules and regulations, and single commodity agritourism ventures (coffee, chocolate, tea, and more).

Dr. Hansen has been teaching edutourism courses on Hawai‘i Island since 1999 focused on agriculture, food and kānaka maoli revitalization. Her specialties include food, tourism, sustainability, integrative health, indigenous studies and experiential learning. In the fall, she was a member of the Hawai‘i AgriTourism Association (HATA) planning committee for the Oct. 15th First International AgriTourism Symposium that featured international tourism experts, legislators, farmers and renowned chefs. Dr. Hansen currently serves on the UHH Blue Zones Committee, the UHH Sustainability Committee and is the co-advisor of SOS (Students of Sustainability) along with Dr. Norman Arancon. She has been so inspired by Dr. Arancon’s work on vermiculture she has adopted a 100% food scrap composting policy at home and is making her own compost.

Vermicomposts from shredded paper and food wastes at Brooke’s residence.

Composting bin prototypes used by Brooke Hansen.
AG CLUB continued….

Member at Large: Josh Boranian, Puna
Member at Large: Jacque Raymon, Hilo
Advisor: Norman Arancon
Advisor: Aleysia Kaha

Clubs and Events attached
For more information:

CAFNRM email: cafnrm-students-grp@hawaii.edu
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Embedded Advisor email: aleysia@hawaii.edu
Agriculture Club Facebook: https://www.facebook.com/groups/319840424781628/
Agriculture Newsletter: http://hilo.hawaii.edu/nihopeku/2015/02/03/uh-hilo-ag-clubs-new-leadership/

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Native to the continent of Asia and surrounding islands (Tropical China, India, Sri Lanka, and the Philippine Islands), the Yellow Himalayan Raspberry, first introduced to Hawaii in 1960 for its edible fruit and ornamental purposes rapidly escaped cultivation in 1961 and is thoroughly documented on the island of Hawaii. At present, the greatest infestation on Hawaii is centered in the Volcano community adjacent to Hawaii Volcanoes National Park, and many mid-elevation forests (1060-1200 m).

A perennial that can be propagated through vegetative means and by direct seeding. A stout, evergreen shrub measuring (1-3m) in height. Purplish red branchlets with sparse curved prickles and dense, purplish brown bristle hairs. 3-foliolate leaves imparipinnate with a petiole size of (2–6 cm). Leaflet blade is elliptic or obovate (4–8cm × 3–6cm), terminal leaflet much larger than lateral leaflets, purplish red bristles along prominent veins, margin unevenly minute sharply serrate, apex acute, abruptly pointed, shallowly cordate, or subtruncate. Inflorescences terminal, dense glomerate racemes. Flowers of white or pink measure (1-1.5cm) in diameter grow vigorously in clusters at leaf axils.

*R. ellipticus* reproduces readily by seed, which, when carried by fruit-eating birds, are its primary means of long-distance dissemination. Flowers are hermaphrodite and are pollinated by insects. New stems are produced each year from perennial rootstock. The plant spreads rapidly by root suckers and regenerates from underground shoots after fire or cutting. A rapid growth rate in tropical mid to lower elevations allows for dense thickets of *R. ellipticus* to develop. Pasturelands and recently disturbed forests are particularly susceptible to the large and dense thickets. Domesticated animal injuries and the widespread suffocation of native plants throughout the Hawaiian islands is often the result if left unchecked. In South Africa, *R. ellipticus* was recorded for the first time in August 2013. Australia, first reports of it having naturalized were in 1912 in Queensland, where it has since been declared noxious.

In Hawaii, the species has been controlled mechanically in pastures by chopping out or bulldozing. In Hawaii Volcanoes National Park, cut stem treatments with herbicides were found to be most effective at controlling *R. ellipticus* var. *obcordatus* on a local basis. However, the aggressiveness of this plant in Hawaii and its ability to become widely disseminated suggest that the only practical approach will be biological control. Chemical control methods for *Rubus* spp. include foliar, stem injection, cut stump and basal stem methods using glyphosate or triclopyr products. Biological control has been studied in China around 2010 resulting in two moth species being identified as viable, *Epiblema tetragonana* and *Epinotia ustulana* have been found to have a narrow host range and to be widely distributed in Yunnan, China.

Happy gardening…

Admired for their beautiful coloration, intricate and petite or bold and substantial appearance, as well as their incredible diversity expressed in form, A. andraeanum is often overlooked as a crop or commercially viable alternative to traditional fruit or vegetable production models. The anthurium belongs to the family of Araceae and boasts over 100 genera and about 1500 separate species. Common names include tailflower and flamingo flower. A perennial herbaceous plant that demonstrates a myriad of shapes, sizes, and colorations. A native of Colombia and first brought to Hawai‘i from London in 1889. It is highly sought for its vibrant colors and its ability to maintain those flowers for an extended period throughout the year. It prefers tropic or subtropic temperatures and high humidity levels to flourish. It is often seen growing on other plants as an epiphyte or terrestrial.

The observed flower-like appendage crowning the plants stem is actually a modified leaf, called a spathe. The spathe houses the majority of the many variations in color that are apparent within the species. The inflorescence or spadix, rising from the base of the spathe, is in the form of an elongated spike and houses the male reproductive organs (the first half of the spadix from the stem), as well as the female reproductive organs (occupying the upper half of the spadix). A single flower emerges from each leaf axil. A consistent sequence of leaf and flower continues throughout the lifecycle of the plant. Leaves vary in size but are generally heart shaped and are shorter in stem length to the flower stem, which protrudes above. Like other aroids, its roots can procure moisture from the atmosphere so they are easily cultivated indoors as well as outdoors, and they prefer shaded areas. Extended direct sunlight often promotes poor spathe coloration and early wilting. Anthuriums can be propagated by seed or vegetatively by cuttings, however most commercial entities prefer propagation via tissue culture. Though the timeframe from tissue culture cutting to potted flowering plant is measured in years, the sheer numbers of plants produced, measured in the hundreds or thousands, makes up for the time.

Many landrace species and hybrids are available in Hawai‘i, but there are a few that have commercially withstood the test of time. ‘Ozaki’ – popular for its large, green margined spathe; ‘Nitta’ – a classic medium to large, orange, and tall species; ‘Tulip White’ – offers a stunning tulip-like spathe with a contrasted spadix; ‘Tulip Purple’ – regal in color and shape while maintaining a medium height.

The most serious pest of anthuriums is the Anthurium thrips (Chaetanaphothrips orchidii). Severe infestations damage all flowers when thrips enter the unopened plant buds after emergence. Anthurium thrips can be controlled by contact insecticide, however the spraying will require weekly applications for 7-8 weeks to ensure lifecycle disruption. The newly emerging buds are protected during this period while affected leaves will die away from the previous infestation damage.

Happy growing…

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SNAPSHOTS: This section features faculty and students of CAFNRM and their hands-on activities (photos by Risa Kabua Myazoe)

Dr. Jesse Eiben demonstrates dissection in his Anatomy and Physiology of Farm Animals class

Introduction to circulating and non-circulating hydroponic methods at UHH Farm with Dr. Sakai (Hort 263)
SNAPSHOTS: This section features faculty and students of CAFNRM and their hands-on activities (photos by Risa Kabua Myazoe)

Students in Hort 262 (Intro to Tropical Horticulture) clearing an area for row crops

Weed ID exercise in Hort 481, Weed Science class