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Agricultural scholarships available!

By Marie Faatuala

Are you struggling to pay off your tuition because of the tuition hike? Need funds for a project? Planning to go to graduate school? Check out the scholarships available and offered from companies everywhere who are happy to support agriculture students.

Many agriculture scholarships aren’t well-known because most of the agriculture scholarships fall into the category of “unknown scholarships”; we students should change this status. Agriculture scholarships don’t appear as celebrated as others but you as an agriculture student can take this opportunity to search for these scholarships, and make use of the opportunity given. Keep this in mind next time you’re struggling with paying off tuition or you need funds for projects, or going to graduate school. Don’t miss out on an educational opportunity just because you didn’t try for one of the available agriculture scholarships! Visit [http://www.agriculturescholarships.us/](http://www.agriculturescholarships.us/) for more information.

Faculty highlight: Dr. Yiqing Li

By Seeseei Toa

Dr. Yiqing Li received his doctorate in Tropical Biology at the University of Puerto Rico, Puerto Rico. He did his postdoctorate at New Jersey State University of Rutgers. Afterwards, he worked as a Research Fellow on Forest Production and Soil Chemistry at Auburn University in Alabama.

Dr. Li was born and raised in Hohhot, a city in north-central China. He received his Master’s degree from Beijing Forestry University and Bachelor’s from Inner Mongolia Forestry College. After getting his Master’s degree, he worked at a Chinese Academy of forestry doing three years of research.

Growing up Dr. Li has always had a passion for forestry and natural resources. He came to Hilo in January 2006 to teach because it was the perfect place to apply his knowledge of tropical forestry. He teaches Forestry and Natural Resources, Forest Ecosystem Restoration, Introduction to Natural Resource Management, Hydrology and Watershed Management, Invasive Species and Ecosystems, and GIS in Natural Resource Management. In addition to being a faculty member of CAFNRM, he is also a TCBES graduate faculty (Continued on page 4)
Agricultural revitalization of the Hilo-Hamakua Coast: How will we sustain production?

Pre-European-contact indigenous Hawaiians did not extensively utilize the relatively infertile, highly leached, acidic, upland soils of the Hilo-Hamakua Coast for agriculture, but focused their efforts on regions of greater inherent soil fertility for crop cultivation coupled with appropriate rainfall or other sources of water. Today, many people on the Island of Hawaii believe that the upland soils between 100 and 2500 foot elevation along the high rainfall Hilo-Hamakua Coast were returned in an extremely nutrient deficient condition when sugarcane cultivation ended during 1994-1996. Regardless if a Hilo-Hamakua Coast soil was cultivated for sugarcane or not, it tends to be well below the recommended pH and concentrations of agronomic soil test phosphorus, potassium, calcium, magnesium, and readily available nitrogen for most field crops.

Sugarcane cultivation along the Hilo-Hamakua Coast was only feasible with relatively inexpensive labor, soil amendments (liming materials like crushed coral), and shipped-in fertilizers. This explains why most soils formerly used for sugarcane are now in unimproved volunteer pasture (comprised mainly of low quality grasses), forestry, and a few higher-value row and tree crops where the fertilizer input costs can be recovered. Hilo-Hamakua Coast farmers need access to affordable fertilizers if the region is to substantially contribute to food crop production, the island’s food security, and revitalization of Hawaii’s agriculture.

During the 1990s some small farmers along the Hilo-Hamakua Coast attempted alley cropping systems using nitrogen-fixing tree hedgerows to supply nutrient rich mulches for their crops grown between the tree rows. While these systems provided significant nitrogen, they were very labor intensive due to frequent tree pruning and mulching. They tended to acidify the soil in the longer term unless liming materials were applied, and sometimes phosphorus additions were necessary to ensure adequate tree growth. If soil pH was too low, the potassium, calcium, and magnesium recycled through the tree mulches tended to readily leach away despite increases in soil organic matter.

For years I have been telling my students that modern agriculture is not sustainable. This is partially because we rely on finite, non-renewable fossil fuels to generate N fertilizers and we mine finite mineral nutrient fertilizers and soil amendments that have allowed us to artificially increase the human carrying capacity of the planet. Yet, we do relatively little to recycle the N and minerals in human and other organic wastes back to agricultural lands. Instead sewage sludge on the Island of Hawaii is landfilled and treated effluents are discharged out of circulation. The situation is particularly serious because easily accessible, high grade rock reserves for some mineral nutrients like phosphorus are expected to be globally depleted in 100 ± 50 years. All this means rising mineral fertilizer costs as it will cost more energy to extract, refine/process, and ship. It also should be noted that the State of Hawaii does not have mineable reserves for phosphorus, potassium, or most other nutrients.

So where do we go from here? We need to end our modern Western European derived fear of affordable human waste recycling and policies need to change. During the Edo era (1603-1868) in Japan the residents of early Tokyo supported a population of over 500,000 by carefully recycling their human, agricultural, and fish wastes back to their agricultural fields. Human urine contains very few, if any, pathogens, and the annual urine output collected from one individual could provide enough soluble nitrogen and phosphorus to fertilize 0.05 to 0.10 acres of cropland per year. Urine diverting toilets have already been introduced in regions of some Scandinavian countries. Sewage biosolids can be appropriately treated, composted, and dried to make a similar but more slow-release nutrient contribution. The fear of heavy metals in sewage biosolids is overstated particularly in areas relatively free from industrial contamination like Hawaii. Improving field crop nutrient use efficiency on farms is not sufficient to manage the finite resources of mineral nutrients when loss rates are orders of magnitude greater than the geological regeneration of new reserves. “If vain is our toil, we ought to blame the culture, not the soil” – Alexander Pope, An Essay on Man.
Ocean Day a success at UHH PACRC

By Chad Converse

The fifth annual Ocean Day was held at UH Hilo’s Pacific Aquaculture and Coastal Center (PACRC) in Keaukaha, Saturday February 18, 2012 from 10 a.m. to 3 p.m.

Ocean Day grows bigger every year and brings community awareness for the waters that surround the Hawaiian Islands. The event brings together science, community groups, UHH clubs, and performing arts and artists from all over the island. There are touch tanks, microscopes to view ocean animals, finger painting, great food, games, music, dance, and information for ocean safety and sustainability.

Event coordinators spent many hours putting Ocean Day together and all the hard work paid off when visitors left with a smile and better understanding of how important the Hawaiian waters are. The ocean is accessible for everyone in Hawaii and it helps to get an understanding of the animals and people who work hard to protect them.

With the help from many volunteers and booth presenters, this year’s Ocean Day set the standard higher for next year’s event. PACRC was the perfect place to host this event and visitors could tour the facility and see how aquaculture is studied and producing sustainable futures for marine animals. Ocean Day promoted community spirit and a fun learning experience for young and old alike.

Study abroad in tropical Cairns, Australia

By Kim Kido

James Cook University in Cairns, Australia is perhaps the only international university that UHH Ag majors can take relevant courses at while paying UHH tuition.

I arrived in Cairns, a major tourist destination of northern Queensland, two weeks ago to heat and humidity that felt even harsher than Hilo due to the lack of tradewinds. Visitors from all over the world are drawn here to experience World Heritage rainforests and the Great Barrier Reef, and backpackers flock here looking for agricultural work so they can extend their visas.

Sugar cane, coffee, cattle, and Cavendish bananas are big business in the region. Cavendish farmers, however, are struggling with high labor and transportation costs, according to the local news.

Kangaroo meat, jersey cow milk, and fruits like lychee can all be found at supermarkets. At Rusty’s, a weekend farmer’s market, one can find custard apple (Annona reticulata), and soon, mangosteen.

In school, we have to collect 20 insects for Entomology class. There are enormous spiders and moths, butterflies I have never seen before, and everything seems to be poisonous. We will spend three days at Daintree National Park using a canopy crane to look at insects, and will spend two days touring nearby farms in the Natural Resources Management class.

Australia is about the same size as the continental U.S., but with a population roughly that of New York.
Crop of the month: Breadfruit

By Marie Faatuala

In every farmers market hosted by the Agriculture Club, there are always breadfruits ready to be sold. People marvel at how mature and ready the breadfruits are and would cite their way of cooking it from the top of their head. There are those who are curious, and would ask, “What are these green looking plants?”

Breadfruit (Artocarpus altilis) is a species of flowering tree in the mulberry family moraceae. These flowering trees grow throughout Southeast Asia and the South Pacific, and there are many varieties of breadfruit. They are very rich in starch, and before being eaten, they are roasted, baked, fried or boiled. When cooked, the taste is described as potato-like, or similar to fresh-baked bread. Breadfruit is one of the highest-yielding food plants, with a single tree producing up to 200 or more fruits per season, and at a certain time of the year, or season. Breadfruit is a staple food in many tropical regions.

Breadfruits are picked at maturity, indicated by the appearance of small drops of latex on the surface. Harvesters climb the trees and break the fruit stalk with a forked stick so that the fruit will fall. Even though this may cause some bruising or splitting, it is considered better than catching the fruits by hand because the broken pedicel leaks much latex. Breadfruits are a very delicious food source with just the right ingredient to use and the right cooking method, and voila you are set for a good meal.

Volunteers needed for lo‘i work

Pohaha I Ka Lani, from its inception, has been dedicated to the perpetuation of Hawaiian culture and the uplifting of the Hawaiian spirit through action. In the upcoming year, we will be focusing on the lo‘i system at the historic village site of Napo‘opo‘o in Waipi‘o Valley. Together, our work to restore and revitalize these 22 lo‘i bridges the wisdom of the past with the rising of the future. We openly invite all groups who would like to join us.

Work will include cultivation (planting, harvesting, maintenance, variety identification, etc.), kuauna (terrace wall) repairs, irrigation work, and lo‘i soil work (improvement of fertility and tilth). Groups gain working cultural knowledge, mo‘olelo of Waipi‘o, and more. Transportation support is available.

For group hosting, please contact us at pohahaikalani@gmail.com or call Executive Director Kulia Tolentino at (808) 937-4243. Or call Ag student Aleysia Kaha to find out more at (808) 938-7359.