CTAHR Research News

April 2010
Volume 6, Issue 4 (48)

Special focus functional foods

Corilee Watters and Ted Radovich explore the functional/bioactive components in papaya and kale.

Functional foods explored at CTAHR

TSTAR and Floriculture grants

Students win at college symposium

In this issue

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From the Associate Dean and Associate Director for Research

As promised, we are going to be adopting a theme approach for *CRN* when possible! We have received a lot of positive feedback from last month's "aquaponics/hydroponics/aquaculture" issue. This approach is hard on our editorial staff: if you think tracking down one faculty to get their story in on time is difficult, try going after seven! But, we feel it is worth it.

This month, "functional foods" is our theme, a very important topic in today's world. Thanks to **Dr. Corilee Watters** of Human Nutrition, Food and Animal Sciences Department (HNFAS) for providing the lead story. Although Dr. Watters is very new to our college, she has already contributed much to our teaching, extension and research programs. Working with **Dr. Stuart Nakamoto**, they organized a one-day conference on functional foods in January 2010. This conference was an overwhelming success, and provided a forum for people from a very diverse backgrounds to interact. Read her article to learn more about this exciting event. New faculty members, such as Corilee, represent the future of our college. We are very pleased to have her on our team!

In addition, we have **Maria Stewart**, another new assistant professor from HNFAS, providing a piece on pre- and probiotics; **David St. Jules**, a HNFAS graduate student, on plant sterols; **Skip Bittenbender** (TPSS) on chocolate; **Pratibha Nerurkar** (MBBE) on bitter melon and diabetes; and **Jennifer Shido**, a student, and **Wayne Iwaoka** (HNFAS) on Māmaki; **Ted Radovich** on vegetables; and Corilee on omega-3 fatty acids. As you can see this is a very strong "functional foods" team, with faculty from three different departments. As USDA-NIFA moves to fund larger team-oriented grants, it is critical we also have various teams in place.

Congratulations goes out to Julia Zee for her American Diabetes Association recognized program on diabetes detection and prevention. And, a big congratulations also goes to the winners and participants of the 22nd Annual CTAHR Student Research Symposium.

The legislative session is over! Unfortunately, we do not have much good news to report, except that CTAHR will be getting $2 million in CIP funds to complete the renovation of our Hilo Komohana Center. This is the first year since I joined CTAHR (January 2005) that we are projecting a budget deficit for the next fiscal year (almost half a million dollars!) We are hoping to have more last minute retirements to fill that gap, and that has its down sides, too. Otherwise, we will have to cut back our spending even more. This means we will not be filling any employee vacancies any time soon. As I stated previously, our top priority is to keep our faculty and staff, as they are our most valuable asset! Although our faculty count has decreased due mainly due to retirements, we have seen an increase in grant proposal submissions. This is a very positive sign of strength! Please read Sharee Pepper's piece on AFRI "strengthening awards", an opportunity that should not be missed. Until next month, *take care!*

C.Y. Hu
Associate Dean and Associate Director for Research

CTAHR faculty and colleagues explore the world of functional foods

By Corilee Watters
Assistant Professor of Nutrition
Department of Human Nutrition, Food and Animal Sciences

Left, Stuart Nakamoto talks about phytochemicals in blueberries. Above, Lori Nagatoshi, Hawaii Department of Health, and Dean Okimoto, Nalo Farms, discuss information from the workshop.

There has been increased interest in functional foods. Functional foods are defined as foods that contain health-promoting aspects in addition to the traditional nutrients they contain. I worked with **Dr. Stuart Nakamoto**, Extension Economist, to design a conference for colleagues working in industry, government and healthcare sectors as a continuing education opportunity regarding the agriculture and clinical applications of functional foods. The topic of functional foods was chosen for a number of reasons. It is a topic that intersects agriculture, food industry as well as nutrition areas, and can be a strategy to promote increased consumption of fruits and vegetables, omega-3 and fiber containing foods. In this issue of *CRN*, we will share some of the stories coming from that workshop.

There were over a dozen concurrent sessions at the January 23, 2010 conference. The food and agriculture section started off with an overview from Dr. Nakamoto, which provided a balanced perspective of how functional foods can provide opportunities for food and agriculture sectors in Hawaii, but also indicated the need to assess the evidence basis for 'functional' claims made by manufacturers in marketing products. The agriculture sessions included presentations by **Dr. Wayne Iwaoka** on Mamaki tea, **Dr. Skip Bittenbender** on cacoa, **Dr. Ted Radovich** on phyto-nutrients in vegetables. The agriculture session ended with a panel discussion with Ken Kamiya from Kamiya Papayas, and Dean Okimoto from Nalo Greens.

The clinical section started off with a presentation by Dr. Song-Yi Park from the Cancer Research Center

where she stressed the importance of a balanced diet with regular physical activity as the best way to be healthy rather than to rely on supplements. The clinical sessions included presentations by **David St. Jules**, RD, on plant sterols, **Dr. Pratibha Nerurkar** from MBBE on bitter melon, **Dr. Maria Stewart** on pre- and pro-biotics. My talk covered omega-3 fatty acids. The clinical session was ended by a presentation by Dr. Bradley Willcox, Director of Research at Queen's Medical Center, and Associate Director of Interdisciplinary Research on Aging. Dr. Willcox is Co-Principal Investigator of the Okinawa Centenarian Study and Principal Investigator of the "Genetics of Exceptional Longevity in Okinawan Centenarians" Study. Dr. Willcox reviewed the clinical outcomes of the Okinawa and Portfolio diets, which incorporate functional foods in promoting health and longevity. For instance, bitter melon and sweet potato are staples in the Okinawan diet, the Porfolio diet uses plant sterols, with both diets being primarily plant based diets with some fish, resulting in significant reductions in heart disease risk factors and improved health outcomes.

Feedback from participants indicated attending this session will encourage them to buy more local produce, to encourage their clients to use food sources of omega-3s and pre and pro-biotics. The food was consistent with the conference theme and provided an example of healthy eating featuring local ingredients such as Nalo Greens and Kamiya papayas. There were a number of suggestions for future topics and speakers relating to nutrition and foodservice issues in long term care hospital and nursing home settings. Providing professional development conferences is an opportunity to communicate CTAHR's research and extension expertise and link with industry and health care professionals.

Angelica Kaina, Phyllis Hoomanawanui, Ahmad Yu and Lori Nagatoshi, Hawaii Department of Health, listen intently to talks at the conference.

Dieticians, Kristine Wallerius-Cuthrell, Mae Isonaga, and Naomi Kanehiro take a healthy snack break at the conference.

An update on pre- and probiotics

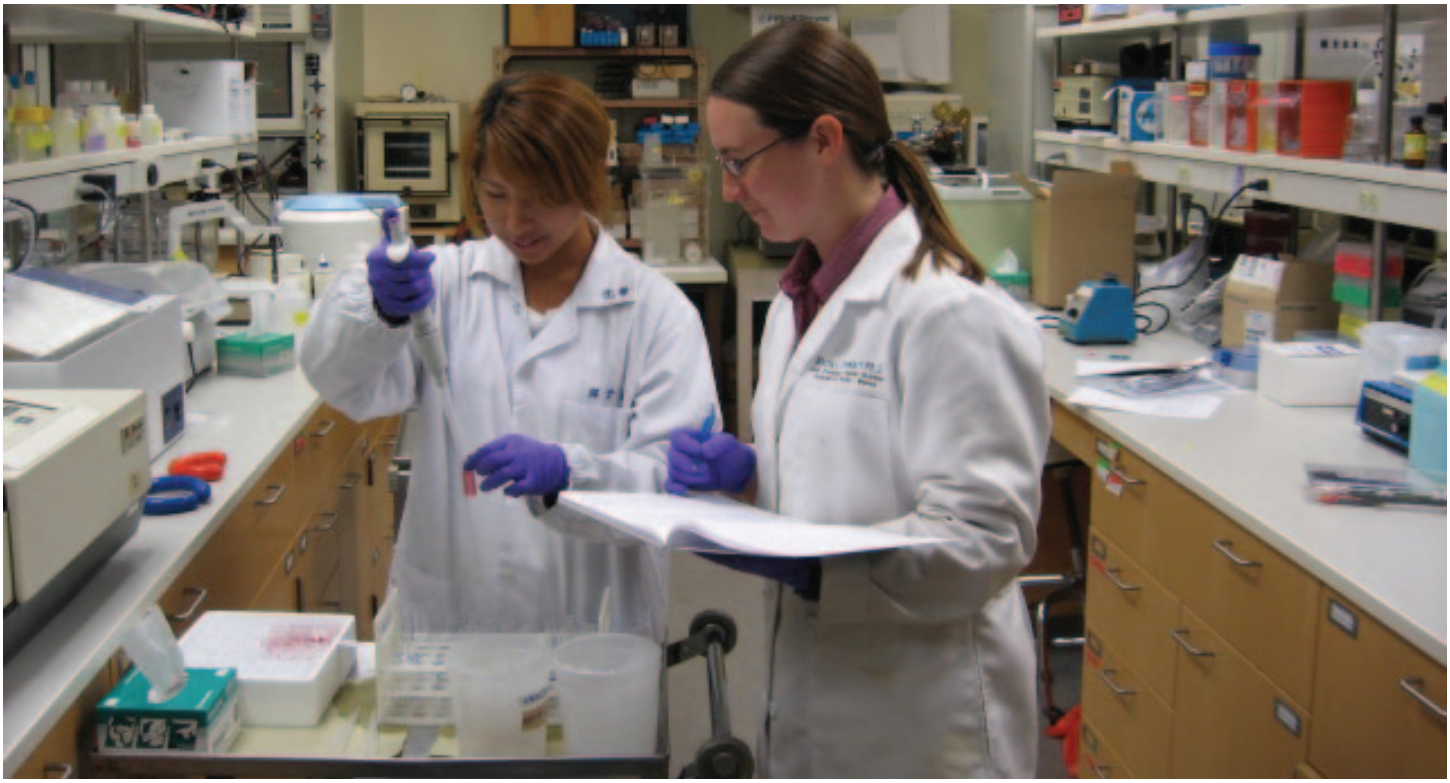
Maria Stewart, Assistant Professor
Department of Human Nutrition, Food and Animal Sciences

The human colon (large intestine) contains over 500 species of bacteria, many of which promote human health. Dietary fiber, which is naturally found in plant foods, is the primary fuel for these bacteria. Some types of dietary fibers are fermented by colonic bacteria to produce short-chain fatty acids. Short-chain fatty acid production is necessary for maintaining the health of the colonic lining. However, SCFAs are not the only benefit of fiber fermentation. Some dietary fibers have a *prebiotic* effect.

Prebiotics are food constituents that enhance the growth of beneficial bacteria. Only a few types of fiber have produced a consistent, prebiotic effect; inulin and fructooligosaccharides (FOS) are the most well-known *prebiotics*. Trans-galactooligosaccharides and lactulose have also been recognized as prebiotic substances. Inulin is primarily found Jerusalem artichoke, which is not commonly consumed in the United States. Onions, bananas, and wheat contain small amounts of inulin. Most Americans consume inulin in processed foods, where it is added as a sugar replacer, a fat replacer, or to enhance dietary fiber content. Fructooligosaccharides, trans-galactooligosaccharides, and lactulose are manufactured ingredients that are not common in the US food supply.

Colonic bacteria may also be manipulated by consuming *probiotics*. A probiotic is a live microorganism, most commonly bacteria, that enhances human health. Probiotic strains of bacteria must survive the acidic environment of the stomach and exposure to digestive enzymes to reach the large intestine viable and intact. In the US, probiotics are often found in fermented dairy products such as yogurt or in supplement form. Many beneficial health effects of probiotics have been investigated: improved immunity, improved laxation, and improved symptoms of inflammatory bowel diseases. The concept of *synbiotics*, the combination of prebiotic fibers with probiotic bacteria, is a topic of scientific interest. However, not all prebiotic and probiotic combinations exhibit synergistic effects.

Projects in my lab focus on dietary interventions to promote gut health. Specific aims are identifying the type of dietary fibers residing in local foods, assessing the fermentability and prebiotic effect of dietary fiber, and evaluating the impact of probiotics on colonic metabolism.



Nutrition graduate student, Eva Chiu (left), assists Dr. Maria Stewart with resistant starch analysis in rice.

The importance of plant sterols in functional foods

David St. Jules, RD, Graduate student
Department of Human Nutrition, Food and Animal Sciences

As a dietitian, I encounter clients who would like to pursue dietary interventions that will help them decrease their chance of developing coronary heart disease. Expanding knowledge of the bioactive components in food provides new opportunities for consumers to incorporate foods and/or nutrients that will reduce their risk of many chronic diseases. Plant sterols effectively lower LDL-cholesterol, the primary risk factor for Coronary Heart Disease (CHD), when taken in doses beyond what is naturally found in the diet. Consequently, in 2002, the US Food and Drug Administration (FDA) permitted the addition of physiologically relevant doses of plant sterols in selected products. Later, plant sterol-containing products were approved by the FDA in 2009 for the following health claim:

"Foods containing at least 0.65g per serving of plant sterol esters, eaten twice a day with meals for a daily total intake of at least 1.3g, as part of a diet low in saturated fat and cholesterol, may reduce the risk of heart disease. A serving of [name of the food] supplies _X__ grams of vegetable oil sterol esters"

David St. Jules takes a closer look at plant sterols in our food supply.

Plant sterols, also known as phytosterols, are a group of compounds that are structurally and functionally similar to cholesterol in animals, and are consumed in relatively similar amounts (~150-400mg/d). They reduce LDL-cholesterol by competing with dietary and biliary cholesterol for incorporation into micelles, which is required for cholesterol absorption. The effective dose range is approximately 1-3g of added plant sterols per day, with the US Department of Health and Human Services recommending a daily intake of 2g per day, which lowers LDL-cholesterol by approximately 9%.

While the LDL-cholesterol lowering effects of plant sterols has been demonstrated in a systematic review and meta-analysis, whether or not this translates into a decreased risk of CHD has not been assessed. Recently concerns have been expressed about the efficacy and safety of plant sterol supplementation. Firstly, plant sterols have been shown to reduce the absorption of other fat-soluble nutrients including carotenoids, phytochemicals associated with reduced cancer, heart disease and macular degeneration. For this reason, the European Food Safety Authority has required that plant sterol-containing products contain a label specifying that individuals not exceed 3g of plant sterols in a day, and that they should consume fruits and vegetables regularly to maintain their carotenoid levels. Secondly, dietary plant sterols consumption increases the concentration of plant sterols in blood, and high levels have been associated with CHD in several epidemiological studies. Finally, experimental studies of animal models have demonstrated harmful effects of circulating levels of plant sterols on red blood cells life span, and atherosclerotic plaques and lesion formation.

Any potential risk or benefit of plant sterols fortified foods will be related to consumer use of these products. A study of Irish consumers of plant sterols products surveyed at the point of sale found that the mean intake of plant sterols was 2.5g/d; however, the distribution of intake varied among different groups. While only 8% of individuals who used only 1 plant sterol fortified food reported an intake greater than 3g per day, this number increased to 89% in users of 3 or more products. Similarly, 12% of new users (less than 6 months) consumed more than 3g per day compared to 29% of long-term users (more than 1 year). This study also found that more than half of consumers started using these products due to advertising, and only about 60% reported having hypercholesterolemia. Moreover, 62% of users were not aware of the importance of consuming fruits and vegetables when taking plant sterol fortified foods.

The addition of bioactive compounds to formulate functional foods provides a new and exciting market for health promotion. While there is a clear dose-effect relationship of plant sterols on LDL-cholesterol, whether or not this translates into disease prevention has yet to be proven. Moreover, how the consumer uses these products in practice will affect their safety and efficacy. Ultimately, more research is needed to determine the overall impact of plant sterol fortified foods, and until then these products will remain controversial.

[Editors note: for the version of this story with the scientific references, please contact the author at: dstjules@hawaii.edu].

Cacao makes chocolate a functional food?

HC 'Skip' Bittenbender, Extension Specialist
Department of Tropical Plant and Soil Sciences

Skip tastes his own chocolate formulations.

Why is chocolate functional food?

Seeds of Theobroma cacao are source of flavanols a subset of polyphenols. Cacao flavanols are catechin, epicatechin, and procyanidins function as antioxidants by reducing oxidative stress, increased nitric oxide formation which decrease tendency to form blood clots, promoting healthy blood flow and circulation and decrease total and LDL cholesterol.

Why chocolate was not considered as functional?

High levels of sugar and milk fat in milk chocolate, even 70% cacao dark chocolate still contains 30% sugar. Non-digestible sweeteners such as sugar alcohol and sweet fibers are being substituted for sugar.

Conventional processing dramatically reduces the flavanol content

Fermenting cacao causes the greatest reduction in the flavanols. Conventional processing of fresh cacao seed relies on whatever micro-organisms grow on the cacao mucilage. Three groups create a succession starting with yeasts forming alcohol, then lactic acid forming bacteria then acetic acid forming bacteria. Mars' 'CocoaPro' and the French chocolate company Barry Callebaut's 'Acticoa' have introduced chocolates higher in polyphenols. They focused on sourcing cacao with high polyphenolic content and using a patented 'cocktail' of micro-organisms during in fermentation.

Conventional methods have been used to increase polyphenolic content in cacao products. These focus on increasing % cacao solids (not cocoa butter) in the chocolate. More recently adding nibs to the chocolate is used. Nibs are pieces of fermented, roasted cacao seed. Nibs impact texture, are only half as efficient as defatted cocoa but can be done on any scale with the same cacao as used to make the cocoa liquor.

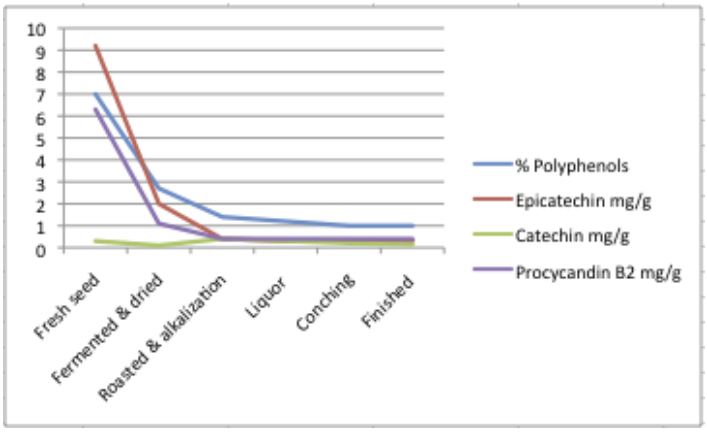
Novel approaches to increase polyphenolic content are eating raw cacao seed – to me it tastes like a bitter, uncooked lima bean surrounded by a white sweet and sour sauce. If the raw seed is dried, roasted and made into nibs or cocoa liquor it can be added to chocolate– again the taste is not very chocolate-like.

Hawaii plants the seeds of a cacao-to-chocolate industry

Currently estimated at 100 acres with farms on all islands. Largest producing farm is on Oahu. Virtually all acreage is planted to seedlings not grafted or even uniform varieties. There is one chocolate factory (Kona), several on-farm chocolate-makers, and more farmers seeking dry bean buyers. Nib production has become popular due to limited equipment requirements and a local demand of nibs.

For the future we need high yielding, high quality varieties. My lab is grafting trees to test 10 'varieties' around the state. These boost can yields 2-3 times when grafted trees replace seedlings in orchards.

Standardized fermentations systems and 'cocktails of micro-organisms will improve fermentation and polyphenolic content. More chocolate factories that buy pods, fresh seed and/or dry, fermented seed are needed on each island. To achieve this future funding is needed to complete variety trials to determine impact of genetics and environments on yield and quality of varieties and polyphenols and specific flavanols impacted by variety, environment, and processing in Hawaii.



Reduction of total and specific polyphenol content during the processing of cacao to chocolate.

Bitter melon and diabetes

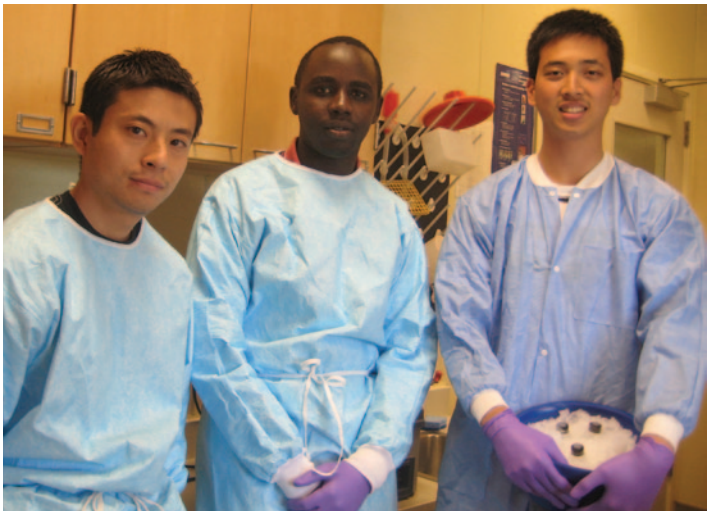
Pratibha Nerurkar, Assistant Professor
Department of Molecular Biosciences and Bioengineering

Obesity and associated disorders such as hypertension, type 2 diabetes and cardiovascular diseases (CVD), are escalating worldwide. These disorders are together referred to as "metabolic syndrome" or "syndrome X." At least 47-million American adults, that is one in every five of us, are afflicted with metabolic syndrome. In Hawaii, between 72,000 to 100,000 people currently have diabetes, of which 25,000 or more remain undiagnosed. Native Hawaiians, Filipinos, and Japanese have higher rates of diabetes than Caucasians. Current treatment consists of lifestyle changes such as diet and exercise along with allopathic medicines. However, these are subject to secondary failure and drug-drug interactions with a negative impact on the quality of life, compelling patients to seek alternative or complementary therapies. Bitter melon is widely cultivated in Asia, East- Africa and South America and extensively used in folk medicines as a remedy for diabetes and its complications. The fruit, seed and leaf extracts of bitter melon have been shown to reduce blood glucose levels in humans and animal models of diabetes. Studies have shown there are additive effects when used with antidiabetic drugs and the dose depends on the form bitter melon consumed. Approximately 50–100 ml of fresh juice, 3-15 g of dry powder, or 100–200 mg of extract three times daily, has been demonstrated to lower blood glucose.

Bitter melon on the vine.

The focus of my research is to investigate the effects on bitter melon at cellular and molecular levels. We have demonstrated that bitter melon juice can lower cellular triglyceride synthesis and secretion *in vitro* as well as plasma lipids and apolipoprotein B (apo-B-100 and apoB-48) in mice fed high-fat-diet (HFD) containing 58% fat . My research team is currently investigating the mechanism associated with anti-diabetic, anti-obesity, and anti-inflammatory effects of bitter melon in HFD-fed mice. Initially studies demonstrated that bitter melon reduces lipid accumulation and improves glucose uptake in mouse adipocytes and primary human adipocytes, *in vitro*. Preliminary research further demonstrated that bitter melon also reduced weight gain, improved glucose and insulin tolerance as well as plasma triglycerides and LDL cholesterol in mice fed HFD. Ongoing studies in my laboratory is investigate the feasibility of long-term consumption of bitter melon in humans and its effects on body weight and plasma glucose and lipids.

Pratibha Nerurkar, Malina Ivey, Gideon Kipyakwai, Phoebe Hwang and Ryuei Sato.



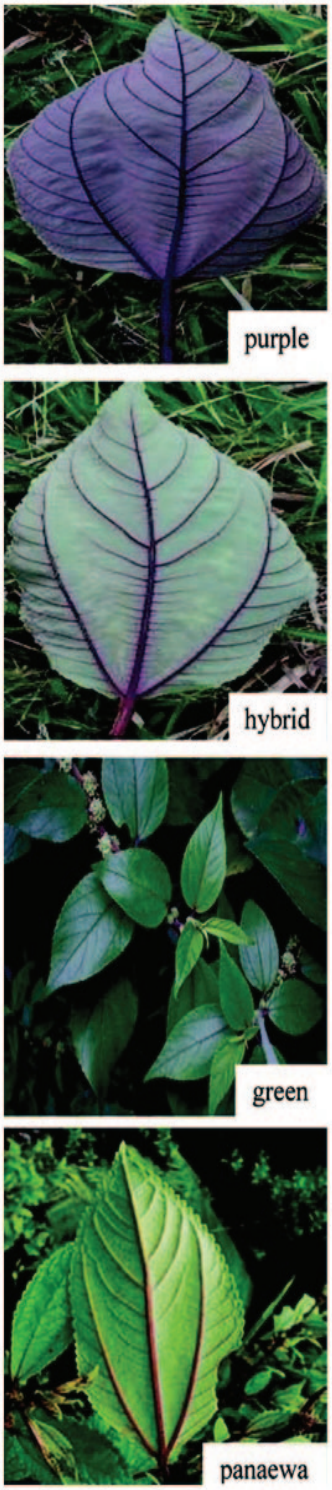
Ryuei Sato, Gideon Kipyakwai and Ivan Chik.

Māmaki *(Pipturus albidus)*

By Jennifer Shido, Graduate Student
Wayne Iwaoka, Associate Professor
Department of Human Nutrition, Food and Animal Sciences

Māmaki *(Pipturus albidus)* is the only member of the nettle family without stingers. This plant is endemic to Hawai'i and grows on all the islands, except Ni'ihau and Kaho'olawe. There are three varieties and two sub-varieties of the māmaki plant, categorized by the characteristic of the leaf color and shape. It is the leaves of the māmaki plant that are currently being used in herbal tea preparations. In the past, māmaki tea was made by placing fresh leaves in a gourd in which fresh hot spring water and red-hot stones were added. Traditionally, it was used by native Hawaiian medical practitioners for general debility, thrush and to ease childbirth in expectant mothers. The berries were used as a digestive tonic for children as well as a healing agent for sores and wounds. The ancient Hawaiians also used the inner layers of the bark for kapa.

Scientific studies have shown that various parts of the māmaki plant have antimicrobial properties, such as inhibiting the growth of *Staphylococcus aureus* and *Streptococcus pyogenes*, and possess antiviral activity against *Herpes Simplex* Virus1 and 2 and *Vesicular Stomatitis* virus. The tea made from māmaki leaves has also been shown to have similar amounts of total antioxidant activity (TAA) as in traditional green teas *(Camella sinensis)* and significantly higher TAA than those found in oolong and black teas. On the other hand, there is limited or hardly any scientific or physiological information on the medicinal effects of the māmaki plant and the tea, other than what is known through local folklore and kūpuna practitioners of native Hawaiian natural herbal healing. Ancient Hawaiian folklore mentions the use of the māmaki plant as a natural medicine for various illnesses, such as constipation and stomach problems. More recent popular beliefs claim that drinking māmaki tea can alleviate problems with the liver, high blood pressure, high blood sugar and high blood cholesterol. General preparation of the māmaki tea suggests using approximately 2 grams (3-4 leaves) per cup of boiling water. Dried māmaki leaves for making tea can be purchased in local drug stores, natural food stores and online. They are sold as whole dried leaves or in blends with spice or fruit flavors (jasmine, ginger, mango, mint, pineapple, passion fruit).



Varieties of māmaki

Omega-3s in clinical practice

By Corilee Watters
Assistant Professor, Nutrition
Department of Human Nutrition, Food and Animal Sciences

Omega – 3s are fatty acids, and include α-linolenic acid, ALA, longer chain eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). EPA and DHA have beneficial effects on inflammatory and coagulation states. Research on the role of EPA and DHA in cardiovascular, gastrointestinal, rheumatic diseases and wound healing were reviewed at the conference, using levels of evidence. Grade A evidence is meta-analyses, and high quality randomized controlled clinical trials that considers important clinical outcomes. Grade B evidence includes lower quality RCTs, clinical cohort studies, case controlled studies. Grade C evidence is based more on expert opinion. In regards to cardiovascular disease, several randomized controlled clinical trials indicate in people with a history of heart attack regular consumption of oily fish or fish oil/omega-3 supplements reduces the risk of having a heart attack, sudden death, and all-cause mortality (Grade A). Omega-3 fatty acids from fish or fish oil supplements (EPA + DHA) significantly reduce blood triglyceride levels, which are important to reducing risk for fatty liver and pancreatitis. Benefits of the fish and fish oil appear to be dose-dependent (Grade A). Omega 3 fatty acids are safe, however existing data is not supportive for use in maintenance of remission in Crohn's disease (Grade B). Research indicates patients with rheumatic diseases take fish oil supplements which appears to be appropriate. Multiple randomized controlled trials report improvements in morning stiffness and joint tenderness with fish oil supplements for up to three months in patients with rheumatic diseases (Grade B). Omega-3 fatty acid supplements may be appropriate during the early phase of wound healing however may not be beneficial during the later phases of wound healing (Grade B).

Corilee Watters investigating contents and costs of various fish and seafood sources of omega-3s.


Drs. Connie Harris, Sheree Kuo and Corilee Watters discussing omega-3 intravenous lipid emulsions.

I enjoy providing nutrition expertise to local hospital dietitians and their physician colleagues based on my clinical and academic experience. I recently presented on the use of Intravenous Omega-3 lipid emulsions for treatment of cholestasis, at a Neonatal – Perinatal Fellows' conference at Kapi'olani Medical Center for Women and Children.

Currently, I'm working with **Dr. Christopher Edmonds**, Assistant Specialist Economist and **Dr. PingSun Leung**, Economist, and **Karl Sloss**, student research assistant, regarding conducting a cost analysis of various omega-3 food and supplement sources in Hawaii. This project is part of a larger project that is looking at the minimum cost of a diet in Hawaii. Promotion of increased consumption of omega-3 fatty acids from fish and seafood available in Hawaii is important from many perspectives including food, agriculture and to optimize nutritional health.

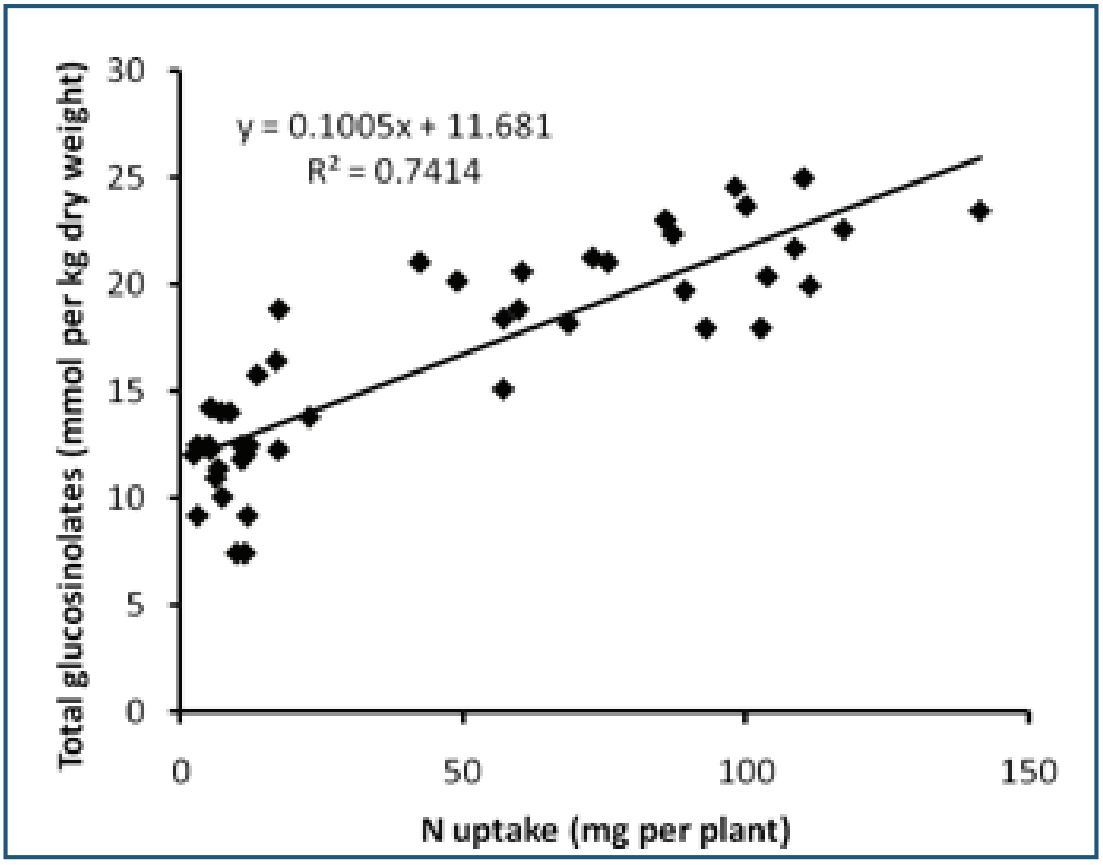
Enhancing phytonutrients in vegetables through crop management

By Theodore Radovich
Assistant Specialist
Department of Tropical Plant and Soil Sciences

It has been long recognized that a diet high in vegetables is protective against diseases. There is increased evidence for the health benefits of plant products such as glucosinolates, flavonoids, polyphenols and carotenoids. For example, studies following population groups over time (epidemiology), have found consumption of vegetables in the cabbage family *(Brassicaceae)* to be associated with a decreased risk for developing cancer, and this effect has been largely attributed to glucosinolate content of these vegetables. Glucosinolates are amino acid derived sulfur containing compounds that also affect vegetable flavor (e.g. pungency in radish) and influence the behavior of pests.

The levels of glucosinolates and other phytonutrients in vegetables are determined by many factors, including genotype, plant part, tissue age, and climate. The word *Terrior*, often used in reference to wine, poetically articulates the reality that the living and non-living components of the crop environment can significantly influence the chemical foundation of taste, aroma and human health potential. Our work, along with the work of many others, has demonstrated that management decisions such as cultivar selection, planting date, irrigation, and plant nutrition can influence the content

Chile peppers with different capsacin content grown at the Waimanalo Research station. Photo by C.N. Lee.



Relationship between Nitrogen uptake and total glucosinolates in Pak Choi. N= 45. (Pant, Radovich and Hue, unpublished data).

of glucosinolates in vegetables, often in a reasonably predictable manner. Glucosinolates and other phytochemicals are thought to play an important role in plant defense, and they frequently increase in concentration under stress conditions such as supra-optimal temperatures or deficit irrigation. However, response to environmental factors is dependent on the plant compounds and environmental factors involved. For example, we and our collaborators recently observed glucosinolate and carotenoid concentrations in pak choi to correspond positively with nitrogen uptake and subsequent growth of Pak Choi, while total phenolics exhibited the opposite relationship to plant nitrogen status.

Chile peppers, pumpkins and other crops have been added to our list as our collaborators and we continue to investigate the independent and interactive effects of genotype and environment on the chemical quality of vegetables. The possibility of managing food systems for optimum chemical quality of crops is exciting and grounded in good science. However, realizing the full potential of "Farming for Functionality" will not be simple nor easy, and will require the continued cooperative efforts of researchers, industry groups and growers.

[Editor's note: for the version of this story with the scientific references, please contact the author at: theodore@hawaii.edu].

Tea master from China demonstrates tea processing at Mealani Experiment Station

By Po-Yung Lai
Special Program Director for Grants and Contracts

Mr. Si-Ming Cai, a tea processing master from China, was invited to the Island of Hawaii to demonstrate green tea processing at the Mealani Experiment Station on April 7, 2010. The station manager, Milton Yamasaki, and the station crew members had a hand-ons experience in picking and processing tea under Mr. Cai's guidance.

Mr. Cai, who is an employee of the Putian City Bureau of Agriculture, was invited to visit Hawaii during March 30-April 11, 2010 under the co-sponsorship of the CTAHR value-added program and Mr. Sen-Woo Fang of the Fang Pacific Nursery. While at the experiment station, Mr. Cai showed employees procedures for tea processing from picking, withering, panning, cooling, rolling, and drying. The process took most of the day to complete, starting at 9:00 a.m. and ending at 6:00 p.m. The station crew enthusiastically participated in the entire process.

Based on Mr. Cai's assessment, the experiment station is situated at an ideal location for growing tea. The tea, particularly green tea, grown and processed at the station is expected to be of excellent quality. This assessment, combined with the enthusiastic station crew members, provides an excellent outlook for CTAHR's tea industry development program.

Mr. Cai (right) discussing with Mr. Milton Yamasaki, Mealani Experiment Station Manager, on the quality of tea processed at the station.

Mr. Cai (left) demonstrating the panning process to the station crew member Roy Ishizu.

Extension reaches out into the community on diabetes screening

By Julia Zee, Extension Educator
Department of Human Nutrition, Food and Animal Sciences

The Hawai'i Diabetes Detection and Prevention Project is part of the USDA NIFA Special Grant entitled, "Diabetes Detection and Prevention." This collaborative multistate outreach program was recognized by the American Diabetes Association at its 3rd Annual Disparities Partnership Forum for its ability to reach and effectively impact low income and underserved populations with an easy to deliver program. The "On The Road to Living Well with Diabetes" is a collaborative effort between the Joslin Diabetes Center at the Harvard Medical School, USDA NIFA, and Cooperative Extension at five land grant universities – Washington State, New Mexico State, West Virginia, Penn State and UH. The project targets underserved populations in each state and aims to increase the education outreach to persons at risk for or diagnosed with diabetes through the Cooperative Extension Service by providing these populations with diabetes awareness, preventative education and screening. The two overarching goals of the "On The Road" Program are (1) awareness of basic diabetes tests to promote self-management, and (2) engagement or re-engagement with the healthcare system. The "On The Road" program has shown a mean improvement in A1C (average blood glucose levels) among participants as well in self-care behaviors and healthcare beliefs.

[Editor's note: This collaborative multistate outreach program was recognized by the American Diabetes Association at its 3rd Annual Disparities Partnership Forum for its ability to reach and effectively impact low income and underserved populations with an easy-to-deliver program – Doug Vincent, Chair, HNFAS.]

At a diabetes health fair in Hilo, pharmacy students Danfeng (Dawn) Cai, UH-Hilo, and Tricia Anderson, Creighton University, screen adults for diabetes by measuring A1C (average blood glucose). Diabetes screenings are conducted regularly to identify persons at risk for diabetes.

2010 Student research symposium awards

By Charly Kinoshita
Associate Dean for Academic and Student Affairs

CTAHR's 22nd Annual Student Research Symposium, held on April 9-10, 2010, in the Agricultural Sciences Building, was a resounding success. Thanks to the record number of enthusiastic students who participated in the Symposium for sharing their research findings and creative designs with their colleagues and friends. Congratulations to the following students who received college and departmental awards.

CTAHR Best PhD Student Oral Presentation	Juanita Mathews
CTAHR Best PhD Student Poster Presentation	Devin Takara
CTAHR Best MS Student Oral Presentation	Tyler Jones
CTAHR Best MS Student Poster Presentation	Wing Yeung Ho
CTAHR Best Undergraduate Oral Presentation	Mary Poelman
CTAHR Best Undergraduate Poster Presentation	Mataia Reeves
Gamma Sigma Delta PhD Student Oral Presentation Award of Merit	Vishal Negi
Gamma Sigma Delta PhD Student Poster Presentation Award of Merit	Roshan Manandhar
Gamma Sigma Delta MS Student Oral Presentation Award of Merit	Scott Lukas
Gamma Sigma Delta MS Student Poster Presentation Award of Merit	Ningjian Liang
Gamma Sigma Delta Undergraduate Oral Presentation Award of Merit	Marissa Lee
Gamma Sigma Delta Undergraduate Poster Presentation Award of Merit	Alfred Castro
CTAHR PhD Student Oral Presentation Award of Merit	Jesse Eiben
CTAHR PhD Student Poster Presentation Award of Merit	Saoharit Nitayavardhana
CTAHR MS Student Oral Presentation Award of Merit	Selita Ammondt
CTAHR MS Student Poster Presentation Award of Merit	Jemily Juan
CTAHR Undergraduate Oral Presentation Award of Merit	Reyn Ojiri
CTAHR Undergraduate Poster Presentation Award of Merit	Kristen Domingcil
FCS Best Undergraduate Presentation	Brandie Ota
HNFAS Best Graduate Student Oral Presentation	Magen Pinault
HNFAS Best Graduate Student Poster Presentation	Yu-Ting Chiu/Jennifer Shido
HNFAS Best Undergraduate Oral Presentation	Leilani Manglicmot
HNFAS Best Undergraduate Poster Presentation	Jordan Oshiro
MBBE Best PhD Student Oral Presentation	Ratnesh Singh
MBBE Best PhD Student Poster Presentation	Bei Zhang
MBBE Best MS Student Oral Presentation	Do Kim
MBBE Best MS Student Poster Presentation	Nelson Lazaga
MBBE Best Undergraduate Presentation	Jennifer Fukagawa/Jon Wells
NREM Best PhD Student Oral Presentation	Rodolfo Morales
NREM Best PhD Student Poster Presentation	Adel Youkhana
NREM Best MS Student Oral Presentation	Ornthipa Mongkolsawat
NREM Best MS Student Poster Presentation	Noe Abejon and Cynthia Lai
NREM Best Undergraduate Presentation	Leena Muller/Alisa Davis
PEPS Best PhD Student Oral Presentation	Sharadchandra Marahatta
PEPS Best PhD Student Poster Presentation	Ayami Shiraishi
PEPS Best MS Student Oral Presentation	Kishore Dey
PEPS Best MS Student Poster Presentation	Takena Redfern
PEPS Best Undergraduate Poster Presentation	Amber Tateno
TPSS Best PhD Student Oral Presentation	Yawadee Srimake
TPSS Best MS Student Oral Presentation	Alberto Ricordi
TPSS Best Undergraduate Presentation	Gabriel Sachter-Smith

Approved FY2010 TSTAR and Floriculture research grants

By Po-Yung Lai
Special Program Director for Grants and Contracts

The projects approved for funding in FY 2010 under the TSTAR and Floriculture Research Grants have been finalized. As done previously, my office will process the grant application package for the Floriculture Research Grant via Grants.gov. However, project directors of approved TSTAR projects will individually submit their proposals via Grants.gov before the deadline on **May 14, 2010**. Failure to do so may jeopardize the transfer of funding for the projects.

The following lists present the projects approved under the TSTAR and Floriculture Research Grants:

I. FY2010 TSTAR Projects

As reported entitled on "An Update on the RFP for the 2010 TSTAR Grant" in the March issue of the CTAHR Research Newsletter, 17 out of 50 submitted proposals were selected for funding in FY2010. The project director, proposal title, and budgeted amounts are presented as follows (Table 1):

Table 1. TSTAR Projects for FY2010

Name	Title	2010	2011	Total
University of Hawaii				
Alberto Bressan	Suppression of Banana Bunchy Top Virus Transmission Through Manipulation of the Virus-vector Interaction	96,540	82,340	$178,880
David Christopher	Genetic Modification of Anthurium to Increase Post-harvest Life, and Flower Yield	45,128	50,989	96,117
Mitiku Habte	Understanding Critical Factors Contributing to the Unpredictability of Field Response of *Acacia koa* to Pre-transplant Colonization of its Roots by *Arbuscular Mycorrhizal* Fungi	83,349	82,621	165,970
John Hu	Pathogen Identification Using Deep Sequencing Technology for Five Virus-like Diseases of Recalcitrant Etiology	40,000	0	40,000
Nguyen Hue	Assessment, Chemistry, and Remediation of Arsenic in Hawaii Soils	64,068	67,568	131,636
Yong-soo Kim	Myostatin Inhibition and Improvement of Skeletal Muscle Growth of Broilers	57,289	65,062	122,351
PingSun Leung	Economic Analysis of Little Fire Ant in Hawaii	59,723	57,880	117,603
Richard Manshardt	Evaluating Non-GMO Resistance to Papaya Ringspot Virus	70,000	70,000	140,000
Susan Miyasaka	Improving Disease Resistance of Taro *(Colocasia esculenta)* Through Marker-Assisted Selection	140,303	140,325	280,628
Mark Thorne	Ecology, Toxicology, and Management of Madagascar Fireweed *(Senecio Madagascariensis Poiret)* in Tropical and Sub-tropical Rangelands	131,222	127,227	258,449

Mark Wright	A Need for Honeybees: Safeguarding Colony Health Through Varroa Management	151,129	130,398	281,527
Koon-Hui Wang	Using Conservation Tillage and Cover Crop Mixtures to Enhance Natural Enemies of Nematode Pests	85,361	75,541	160,902
Russell Yost	Improving MSL Removal of Bacterial Pathogens from Swine Wastewater	64,470	66,030	130,500
University of Guam				
Mohammad Golabi	Evaluating the Environmental Impact of Land Application of Composted Organic Waste for Improving Soil Quality and Agricultural Sustainability in the Tropical Island of Guam	80,275	65,860	146,135
Ross Miller	Variation in Pentalonia aphids and Banana Bunchy Top Virus (BBTV) transmission in Pacific Islands	81,249	57,546	138,795
Jian Yang	Identifying Marker Compounds and Indicators in Noni *(Morinda citrifolia)* Products for Shelf-life Determination and Quality Control	83,522	76,816	160,338
American Samoa Community College				
Dan Aga	Sustainable Giant Taro Production Under High Salinity in the Pacific	157,094	150,294	307,388

II. FY2010 Floriculture Research Projects

Under the FY2010 Floriculture Research Grant, a total of $279,200 was available for funding existing and new projects. Of which, $160,000 was committed to continue funding the 5 projects initiated in 2009 (Table 2). For the remaining funds, an RFP was sent to faculty requesting new proposals. A total of 8 proposals were received with a total budget of $289,888 requested. The Federal Floriculture Research Group Industry Committee selected 5 new proposals at a total budget of $115,000 (Table 2).

Table 2. Floriculture Projects for FY2010

Name	Title	2010
Continuing Projects		
David Christopher	A New Approach to Create Broad Range Resistance to Nematodes in Anthurium	$20,000
John Hu	Identification and Characterization of a New Viral Disease in Hawaii's Anthurium and Production of Virus-free Plants	10,000
Robert Paull	Postharvest Handling for Improved Quality of Hawaii's Cut Flowers and Foliage	10,000
Robert Paull	Breeding of New Cultivars for the Hawaii Anthurium Industry	60,000
Robert Paull	Breeding of Dendrobium Cultivars for the Hawaii Orchid Industry	60,000
New Projects		
Richard Criley	Isolation of Anthurium Spathe-specific Promoters for Novel Color Gene Expression in Pest Tolerant Cultivars	30,000
Steve Ferreira	Evaluating Hawaiian Protea Cultivars for Disease Resistance	30,000

Arnold Hara	Pre- and Post-Harvest Pest Management of Major Quarantine Pests on Cut Flowers and Foliage Plants	30,000
Arnold Hara	Alternatives to Conventional Insecticides for Control of Thrips in Orchids and Anthuriums	15,000
Kelvin Sewake	Evaluation of Nematode Control Products for Anthurium	10,000
	Total	$275,000

FY2010 Agricultural Diversification (Tropical Fruits) Projects

The Agricultural Diversification (Tropical Fruits), another Congressional appropriated grant, is currently undergoing its RFP, for which the deadline has been set on April 16, 2010. Proposals submitted under this grant will be subject to a peer review before being forwarded to the Hawaii Tropical Fruit Growers (HTFG) Board for final selection. Announcement of the projects selected for funding will be made once the HTFG Board's decision is finalized.

Finally, faculty are urged to review the cover page of the March issue of the CTAHR Research newsletter in which Dr. C. Y. Hu, Associate Dean for Research, explicitly conveyed the sentiment occurring in Washington, D.C. on the Congressional appropriations for special programs in FY2011. If this sentiment becomes a political reality in Congress, there will be a devastating effect on the future of the special programs enumerated above.

ORS report for awards for CTAHR 2/1/2010 - 3/31/2010

Last Name	First Name	Proposal Title	Sponsor Name	Department	Description	Award Amount
Christopher,	David A	Molecular Functions of Protein Disulfide Isomerases in Redox-Metabolism and Protein Folding Pathways	National Science Foundation	MBBE	This research will identify how the protein disulfide isomerase enzyme family controls leaf aging and seed development in plants. These processes are critical for agricultural productivity.	$283,146
Gopalakrishnan,	Chennat	Journal of Natural Resources Policy Research	University of Hawaii Foundation	NREM	To launch a new journal in the field of natural resources and environmental policy, "Journal of Natural Resources Policy Research", to be edited by Professor Chennat Gopalakrishnan of the Department of Natural Resources and Environmental Management at UH.	5,000
Grace,	Jack Kenneth	Biology and Control of the Formosan Subterranean Termite	Agriculture, Dept - FED	PEPS	Develop tools and assessment methods to support community-wide termite management; detect and establish research methods for new invasive termites in Hawaii.	5,842

Hollyer,	James R	On Farm Food Safety One-on-One Education Program for Commercial Produce Farmers in Hawaii (Sub-contra	Hawaii Farm Bureau Federation	PEPS	Provide one-on-one training to 50 farmers to prepare them for a Food Safety Certification Audit by the Hawaii Department of Agriculture, and to support HFBF in its efforts to encourage farmers to become certified, and prepare educational materials for certification.	86,282
Leung,	Ping Sun	Comparative Advantage of Hawaii's Agricultural Exports to the Japan Markets	Agriculture, Dept - HI	MBBE	To document and assess the competitive and comparative advantage of selected agricultural exports to Japan and summarize the results in a fact-sheet for public dissemination.	38,295
Paull,	Robert E	Pineapple Research	University of Hawaii Foundation	TPSS	To carry out applied research to address Hawaii's Pineapple Industry needs.	7,500
Rubinoff,	Daniel Z	Evaluation of Oleander Sphinx Moth Daphnis nerii and the Giant Sphinx Moth, Cocytius antaeus.	Defense, Dept - Defense Threat Reduction Agcy	PEPS	Rearing and evaluation of two moth species, one in Hawaii and one in Florida for Hybrid MEMS technology.	108,916
					Award Count: 7	$534,981

AFRI "Strenthening Awards"

By Sharee Pepper
Grant coach

Ten percent of the AFRI budget is now being set aside for Strengthening Awards and postdoctoral fellowships. That is a 10% set aside obligation for each AFRI program, which will equal 10% of $260 million in FY 2010! Strengthening Awards can consist of Sabbatical Grants, Equipment Grants, Seed Grants, and Strengthening Standard Project Awards.

The AFRI Food and Agricultural Science Enhancement (FASE) and the Experimental Program for Stimulating Competitive Research (EPSCoR) programs are designed to help less research intensive and minority serving institutions develop competitive research, education and extension/outreach programs in high-priority areas of national need in agriculture, food, and environmental sciences. Since the University of Hawaii and the Pacific Land Grant institutions are eligible to apply for these grants, we should take advantage of this opportunity.

Sabbatical Grants ($120K/yr), Equipment Grants ($50K), Seed Grants ($150K), Pre and Postdoctoral Fellowships ($150-$500K), and Strengthening Standard Project Awards ($500 to $40 M), including CAP grants, are available during each funding cycle to ensure that researchers at institutions and states that are underrepresented in terms of Federal research, education, and extension/outreach funding receive a portion of AFRI funds. Therefore, eligible institutions and applicants should consider planning a long term strategy to link Strengthening Awards (e.g. equipment – seed – standard – sabbatical).

Strengthening Standard Grant proposals have two chances to be funded. The first chance is if the proposal ranks high enough (top 5-20%), it will be funded out of the regular program funds. The second chance is from strengthening funds where the awards

are made according to ranking of eligible proposals and the eligible proposals may rank substantially below 20%. Strengthening Standard Grants consist of both single-function and multi-functional projects, the work proposed must address a specific program area priority and the application must be submitted directly to that program areas by the designated deadline date.

For additional information go to: http://nifa.usda.gov/funding/afri/afri_fase_epscor_program.html

AFRI 2010 RFA Webinars

http://nifa.usda.gov/funding/afri/afri_webinars.html

A series of webinars focused on each RFA are posted below to provide an introduction and overview of the Program Areas. Please note that these webinars are not meant to replace carefully reading the RFA. A webinar has also been developed to describe opportunities available for 1890 universities, minority serving institutions, and universities in USDA EPSCoR states. Additional resources for frequently asked questions (FAQ) may also be posted as a question and answer (Q & A) webinar session or as a FAQ document. Please visit this page frequently for updates. Additional AFRI Information and applicant resources are available on the AFRI More Information Page

FY 2010 AFRI Foundational Program

Plant Health and Production and Plant Products
Webinar

Animal Health and Production and Animal Products
Webinar

Food Safety, Nutrition, and Health
Webinar

Renewable Energy, Natural Resources, and Environment
Webinar

Agriculture Systems and Technology
Webinar

Agriculture Economics and Rural Communities
Webinar

FY 2010 AFRI Childhood Obesity Prevention
Webinar

FY 2010 AFRI Climate Change
Webinar

FY 2010 AFRI Global Food Security
Webinar

FY 2010 AFRI Food Safety
Webinar

FY 2010 AFRI Sustainable Bioenergy
Webinar

FY 2010 AFRI NIFA Fellowships Grant Program
Coming Soon!

FY 2010 AFRI Opportunities for 1890 Universities, Minority Serving Institutions, and Universities in USDA EPSCoR States
Webinar

NIFA grants are now available!

By Sharee Pepper
Grant coach

The following list includes some current funding opportunities that may be of interest to CTAHR faculty. If the deadline is too short for this year, it is still a good indication of the likely due date for next year. Let us know if we can be of any assistance with developing and editing your grant application.

For information on submitting grants electronically on grants.gov the following publication may be useful. USDA, NIFA Grants.gov Application Guide – A guide for the preparation and submission of NIFA applications via grants.gov. http://www.nifa.usda.gov/funding/grant_forms/electronic_app_guide.pdf

Agriculture, Rural and Community Development Grants

See appendix table at end for new AFRI deadline dates or URL: http://www.nifa.usda.gov/funding/afri/afri_program_deadline_dates.html

$ - Farm Foundation
Deadlines: April 30 and October 31
http://www.farmfoundation.org/webcontent/Farm-Foundation-NFP-Small-Grants-Program-357.aspx?z=85&a=357

$ - USDA, NIFA - Supplemental and Alternative Crops Competitive Grants Program
Deadline: May 6, 2010
http://www.nifa.usda.gov/funding/rfas/alt_crops.html

$ - USDA, NIFA - Food Aid Nutrition Enhancement Program
Deadline: May 13, 2010
http://www.nifa.usda.gov/funding/rfas/food_aid_nut_enh.html

$ - Aetna Foundation Announces 2010 Grant Program Funding Priorities
Deadlines: Quarterly - February 15, May 15, August 15, & November 15, 2010
http://foundationcenter.org/pnd/rfp/rfp_item.jhtml?id=288000014

$ - NSF - Decadal and Regional Climate Prediction using Earth System Models (EaSM)
Deadline: May 24, 2010
http://www.nsf.gov/publications/pub_summ.jsp?WT.z_pims_id=503399&ods_key=nsf10554

$ - USDA, NIFA - Rural Health and Safety Education Competitive Grants Program
Deadline: June 1, 2010
http://www.nifa.usda.gov/funding/rfas/rural_health.html

$ - USDA, NIFA - Women and Minorities in Science, Technology, Engineering, and Mathematics Fields Grant Program
Deadline: June 7, 2010
http://www.csrees.usda.gov/funding/rfas/wams.html

$ - USDA, NIFA - Renewable Resources Extension Act-National Focus Fund Projects
Deadline: June 8, 2010
http://www.nifa.usda.gov/funding/rfas/rrea_nff.html

$ - USDA, NIFA - Western SARE Research and Education Grant–
Pre-Application Deadline: June 11, 2010
https://wsare.usu.edu/grants/RFA/PRE_2011.pdf

$ - USDA, NIFA - Critical Issues: Emerging and New Plant and Animal Pests and Diseases
Deadline: June 21, 2010
http://www.nifa.usda.gov/funding/rfas/critical_issues.html

$ - USDA, NIFA – Western SARE - Producer Grant (formerly farmer/rancher grants)
Deadline: December 3, 2010
https://wsare.usu.edu/grants/RFA/FRG_2011.pdf

$ -USDA, NIFA - Western SARE - Sustainable Agriculture Tour grants
Deadline: applications accepted year round
https://wsare.usu.edu/grants/RFA/TRG_2010.pdf

$ - USDA, Rural Development
Community Facilities Loan and Grant Program
Deadline: Applications accepted on an ongoing basis
http://www.rurdev.usda.gov/rhs/cf/cp.htm
http://www.rurdev.usda.gov/rhs/cf/brief_cp_grant.htm

Education

$ - USDA, NIFA - Food and Agricultural Sciences National Needs Graduate and Postgraduate Fellowship Grants Program
Deadline: May 10, 2010
http://www.nifa.usda.gov/funding/rfas/national_needs.html

$ - Western SARE - Graduate Student Grant (GSG)
Deadline: May 28, 2010
https://wsare.usu.edu/grants/?ok=Vw_RFAs

$ - USDA, NIFA - Higher Education Multicultural Scholars Program
Deadline: June 28, 2010
http://www.nifa.usda.gov/funding/rfas/multicultural_scholars.html

$ - USDA, NIFA – Western SARE -Professional Development Program Grant
Deadline: November 5, 2010
https://wsare.usu.edu/grants/RFA/PDP_2011.pdf

$ - Human Frontier Science Program – Short Term Fellowship Program
Deadline: rolling – applications accepted year round
http://www.hfsp.org/how/appl_forms_STF.php

$ - NSF – Active Funding Opportunities
Deadline: Multiple
http://www.nsf.gov/funding/pgm_list.jsp?org=NSF&ord=date

Environment, Water, Energy, Invasive Species Grants

$ - National Science Foundation (NSF) - Climate Change Education Partnership (CCEP) Program, Phase I (CCEP-I) (program solicitation NSF 10-542)
Deadline: Letter of Intent due April 23, 2010 (required) Full Proposal Deadline(s): May 24, 2010 Phase I Partnership Proposals
http://www.nsf.gov/pubs/2010/nsf10542/nsf10542.pdf

$ - National Forest Foundation: Community Assistance Program
Local Forest Partnerships Fund
Deadline: proposals accepted on a rolling basis throughout year
http://www.natlforests.org/consp_05_cap.html

$ - National Geographic Conservation Trust Offers Funding to Preserve Earth's Resources
Deadline: Open
http://www.nationalgeographic.com/field/grants-programs/conservation-trust-application.html

Families, Youth and Children Grants

$ - CHS Foundation
Rural Youth and Leadership Development
Deadline: rolling – applications accepted year round
http://www.chsfoundation.org/programs/ryld.htm

Financial Grants

$ - Money Management International Financial Education Foundation,
Financial Education Grants
Deadline: rolling – applications accepted year round
http://www.mmifoundation.org/GrantSeekers.asp

$ - Hitachi Foundation: Business and Communities Grants Program
Grants Address Economically Isolated Communities
Interested organizations may submit an online inquiry to provide information about project ideas **at any time** and the Foundation's will determine if it fits their priorities.
http://www.hitachifoundation.org/grants/guidelines/index.html

Health, Nutrition, Food & Biomedical Grants

$ - Robert Wood Johnson (RWJ) Foundation - Healthy Eating Research Announces 2010 Call for Proposals
Deadlines: Healthy Eating and New Connections due May 13, 2010
Rapid-Response Grants due September 1, 2010
http://www.healthyeatingresearch.org/component/content/article/230

$ - Robert Wood Johnson (RWJ) Foundation - Healthy Eating Research Announces 2010 Call for Proposals
Deadline: Healthy Eating and New Connections – May 13, 2010
Rapid-Response Grants due any time until September 1, 2010
http://www.healthyeatingresearch.org/component/content/article/230

$ - Proposals Invited for Round Five of Healthy Eating Research: Building Evidence to Prevent Childhood Obesity
Deadline: September 1, 2010
http://www.rwjf.org/applications/solicited/cfp.jsp?ID=20922

$ - Aetna Foundation Announces 2010 Grant Program Funding Priorities
Deadlines: Quarterly - February 15, **May 15, August 15, & November 15, 2010**
http://foundationcenter.org/pnd/rfp/rfp_item.jhtml?id=288000014

$ - Robert Wood Johnson Foundation and Pew Charitable Trusts Announce Health Impact Project
Deadline: Open
http://www.rwjf.org/applications/solicited/cfp.jsp?ID=20921

Science Grants

NSF – Active Funding Opportunities
Deadline: Multiple
http://www.nsf.gov/funding/pgm_list.jsp?org=NSF&ord=date

$ - National Geographic Society – Waitt Grants Program
Deadline: Rolling
http://www.nationalgeographic.com/field/grants-programs/waitt-grants-application.html

UH, Hawaii and Regional Grants

$ - UH, University Research Council - Faculty Travel Funds
Proposal Deadline: rolling – applications must be in >4 weeks before travel.
http://www.hawaii.edu/urc/pdf/factravel_g.pdf
http://www.hawaii.edu/urc/pdf/factravel_f.pdf

NIFA / AFRI deadlines

The Agriculture and Food Research Initiative (AFRI) encompasses several different Request for Applications (RFA) that contain many Program Areas. These Program Areas cover a broad array of issues and topic important to US agriculture. Important deadlines are summarized in the table below. Refer to the following RFAs for related detailed information on Program Area Priorities for FY2010:

AFRI Foundational Program RFA
AFRI Childhood Obesity Prevention Challenge Area RFA
AFRI Climate Change Challenge Area RFA
AFRI Food Safety Challenge Area RFA
AFRI Global Food Security Challenge Area RF
AFRI Sustainable Bioenergy Challenge Area RFA

URLs: http://www.nifa.usda.gov/funding/rfas/afri_rfa.html or http://www.nifa.usda.gov/funding/afri/afri_program_deadline_dates.html

Foundational Program within AFRI ($64 million)		Funds Available (Millions)	Letter of Intent Deadline	Application Deadline
	Plant Health and Production and Plant Products (A1101)	$7.5	Tuesday, April 20, 2010	Wednesday, July 07, 2010
	Pest and Beneficial Insects in Plant Systems (A111)	$6.0	Thursday, April 22, 2010	Thursday, June 10, 2010
	Animal Health and Reproduction: Animal Bioinformatics and Development of Tools for Livestock, Poultry, and Aquaculture (A1201)	$5.0	Wednesday, April 21, 2010	Wednesday, July 14, 2010
	Animal Health and Reproduction: Animal Reproduction (A1211)	$4.0	Not Required	Tuesday, May 04, 2010
	Animal Health (1221)	$5.0	Not Required	Wednesday, May 05, 2010
	Food-borne Pathogen-Plant Interactions (1301)	$3.5	Wednesday, April 14, 2010	Wednesday, May 26, 2010
	Practical Approaches to Food Safety (1311)	$2.0	Wednesday, May 12, 2010	Wednesday, August 04, 2010
	Reducing Food Allergies by Improving Food Quality (A1321)	$4.5	Wednesday, April 14, 2010	Monday, June 14, 2010

	Microbial Communities in Soil (A1401)	$4.5	Monday, May 03, 2010	Monday, August 23, 2010
	Agriculture Water Science (A1411)	$4.5	Not Required	Wednesday, May 19, 2010
	Engineering Approaches for Improved or Alternative Management Systems to Safeguard Animal Welfare (A1501)	$4.0	Wednesday, April 14, 2010	Thursday, July 08, 2010
	Nanoscale Science and Nanotechnology to Ensure Safe Food (A1511)	$3.5	Not Required	Friday, May 14, 2010
	Prosperity of Small and Medium-Sized Farms and Rural Communities (A1601)	$7.0	Not Required	Wednesday, July 14, 2010
	Economics of Markets and Development (A1611)	$3.0	Not Required	Wednesday, July 07, 2010
Childhood Obesity Prevention ($25 million)		**Funds Available (Millions)**	**Letter of Intent Deadline**	**Application Deadline**
	Integrated Research, Education and Extension to Prevent Childhood Obesity (A2101)	As many as 15 awards up to $1.0 million per award per year	Not Required	Tuesday, June 29, 2010
	Extension Interventions to Prevent Childhood Obesity (A2111)	As many as 5 awards up to $0.2 million per award per year	Not Required	Tuesday, June 29, 2010
	Transdisciplinary Graduate Education and Training in Nutrition and Family Sciences or Child Development or Related Fields to Prevent Childhood Obesity (A2121)	As many as 2 awards up to $1.0 million per award per year	Not Required	Tuesday, August 03, 2010
	Methodological Research to Assess the Effectiveness of Obesity Prevention Strategies (A2131)	As many as 4 awards up to $0.5 million per award per year	Not Required	Tuesday, June 29, 2010
	Community-based Childhood Obesity Prevention (A2141)	As many as 1 award up to $5 million per award per year	Monday, May 03, 2010	Tuesday, August 03, 2010
Climate Change ($55 million)		**Funds Available (Millions)**	**Letter of Intent Deadline**	**Application Deadline**
	Regional Approaches to Climate Change (A3101)	As many as 5-8 awards up to $4.0 million per award per year	Friday, May 07, 2010	Friday, July 16, 2010
	Regional Approaches to Climate Change: Planning (A3111)	As many as 10 awards up to $0.05 million per award per year	Not Required	Friday, May 14, 2010
	National Cereal Germplasm Phenotyping (A3121)	As many as 2 awards up to $5.0 million per award per year	Friday, May 07, 2010	Friday, July 16, 2010

	Impacts of Climate Change on Animal Health and Production (A3131)	As many as 5 awards up to $0.5 million per award per year	Friday, April 30, 2010	Friday, July 02, 2010
	Climate Change Mitigation and Adaptation in Agriculture (A3141)	As many as 13 awards up to $1.0 million per award per year	Friday, April 30, 2010	Friday, July 02, 2010
Global Food Security ($19 million)		**Funds Available (Millions)**	**Letter of Intent Deadline**	**Application Deadline**
	Improving Sustainability by Improving Feed Efficiency of Animals (A5101)	As many as 3 awards up to $3.0 million per award per year	Wednesday, April 14, 2010	Wednesday, July 14, 2010
	Minimizing Losses from Dairy Diseases with Major Impact on Production, Marketing, and/or Trade (A5111)	As many as 1 award up to $2.0 million per award per year	Friday, April 23, 2010	Tuesday, July 13, 2010
	Oomycete Pathosystems in Crop Plants to Minimize Disease (A5121)	As many as 2 awards up to $1.9 million per award per year	Monday, April 26, 2010	Monday, August 02, 2010
	Program Delivery and Implementation of Wide-area Pest Monitoring (A5131)	As many as 1 award up to $1.2 million per award per year	Wednesday, May 19, 2010	Wednesday, August 11, 2010
	Improved Sustainable Food Systems to Reduce Hunger and Food Insecurity Domestically and Globally (A5141)	As many as 5 awards up to $1.0 million per award per year	Friday, April 30, 2010	Tuesday, June 29, 2010
Food Safety ($20 million)		**Funds Available (Millions)**	**Letter of Intent Deadline**	**Application Deadline**
	Prevention, Detection, and Control of Shiga toxin-producing Escherichia coli from Pre-Harvest through Consumption of Beef Products (A4101)	As many as 1-2 awards up to $5.0 million per award per year	Wednesday, May 05, 2010	Wednesday, September 22, 2010
	Microbial Ecology and Shiga toxin-producing Escherichia coli Shedding in Cattle (A4111)	As many as 7 awards up to $0.5 million per award per year	Wednesday, April 21, 2010	Tuesday, June 29, 2010
	Prevention, Detection, and Control of Food-borne Viruses in Food: A Focus on Noroviruses (A4121)	As many as 1-2 awards up to $5.0 million per award per year	Monday, April 26, 2010	Wednesday, September 01, 2010

	Food Processing Technologies to Destroy Food-borne Pathogens with an Emphasis on Viruses and Shiga toxin-producing Escherichia coli (A4231)	As many as 4 awards up to $1.0 million per award per year	Wednesday, April 21, 2010	Tuesday, June 29, 2010
	Addressing Critical and Emerging Food Safety Issues (A4141)	As many as 5 awards up to $0.3 million per award per year	Wednesday, April 28, 2010	Tuesday, June 29, 2010
	National Education Programs for Food Safety (A4151)	As many as 2 awards up to $0.5 million per award per year	Wednesday, April 28, 2010	Tuesday, June 29, 2010
Sustainable Bioenergy ($40 million)		**Funds Available (Millions)**	**Letter of Intent Deadline**	**Application Deadline**
	Regional Approaches to Sustainable Bioenergy (A6101)	As many as 3-5 awards up to $9.0 million per award per year	Friday, July 09, 2010	Wednesday, September 15, 2010
	Regional Approaches to Sustainable Bioenergy: Planning (A6111)	As many as 4 awards up to $0.05 million per award per year	Not Required	Friday, May 14, 2010
	Sustainable Bioenergy Research (A6121)	As many as 40 awards up to $0.2 million per award per year	Friday, April 30, 2010	Monday, June 14, 2010
	Investing in Americans Scientific Corps: Stimulating a New Era of Students and Faculty in Bioenergy (A6131)	As many as 2 awards up to $1.0 million per award per year	Friday, April 30, 2010	Monday, June 14, 2010
	National Loblolly Pine Genome Sequencing (A6141)	As many as 1 award up to $3.0 million per award per year	Friday, May 07, 2010	Friday, July 16, 2010

Faculty publications

Paul Krushelnycky (PEPS)
Krushelnycky, P.D., and R.G. Gillespie. 2010. Correlates of vulnerability among arthropod species threatened by invasive ants. *Biodiversity and Conservation* DOI 10.1007/s10531-010-9819-8.