

# CTAHR RESEARCH NEWS

September 2008  
Volume 4, Issue 7



Joanne Lichty (front), Noel Nakamura (left), Randy Yamada (right from Big Island Plant & Foliage), and Paul Singleton (back) take a time out from greenhouse research.

**Precision agriculture on Hawaii Island**

**Taro field day on Molokai**

**The CTAHR family grows with new hires**



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# From the Associate Dean and Associate Director for Research

As bad economic news continues to hit us, university and colleges are also facing more budgetary challenges. For the current fiscal year, Chancellor Hinshaw has decreed a 2% cut in our G and S funds. Dean Hashimoto informed members of the CTAHR Faculty Senate on September 9 of the University's 2% general funds and special funds mandated budget reductions this fiscal year, which totaled \$476,260 for CTAHR this fiscal year. In order to meet this reduction, CTAHR reduced each unit's upkeep accounts only by 4%, or about \$60,000. The remaining \$416,290 was covered by reserves. Therefore, the university budget reduction had a minimal impact on our units this year. Unfortunately, this has depleted our reserves, and we will no longer be able to absorb further budget reduction in future years. All unit heads were requested to embark on an exercise anticipating a 2% and 5% reduction budget scenarios for the next fiscal year at our September 17 Leadership Meeting. A 2% budget reduction translates into \$440K, while a 5% cut means \$1.1 million is lost, which means a loss of more than 8 faculty positions. Both Governor Lingle and Chancellor Hinshaw have indicated that further cuts will be prescribed if state revenue forecasts continue to slide. The message is clear: we will have less state dollars to support our programs. We will have to either shrink our programs or increase our grant intake to maintain our existing programs. We are entering a new economic reality; we will need to tighten our belts to weather this budget shortfall. We have scheduled three listening sessions to provide additional information and to listen to your ideas on how to deal with these budget reductions. We will keep you informed on further developments.

Although we do not have good news to report on the budget front, we do

have many good stories to tell on our faculty productivity. In addition to the regular columns on grants/contracts, publications, and grant opportunities, Doug is sharing with us the good news of recent successes of several of our faculty members in the competitive grant arena. It seems the hard work is finally paying dividends! In addition to the success in the grant front, we are pleased to introduce to you, Dr. Paul Singleton, a soil scientist, located on Maui, in the Tropical Plant and Soil Sciences Department. Dr. Singleton was the long time project manager for the NiFTAL Project, a grant-funded international project of CTAHR improving Nitrogen Fixing Tropical Legumes. Paul's work on nutrient management has helped several large floral and vegetable producers modified their management practice, and in the process saving a lot of money for their operations. Although Paul has a 100% research appointment, his applied research is indeed integrated in nature, and has directly supported local producers, a hallmark of extension work. Paul conducts most of his work with our industry partners in their greenhouses, and covers all islands. We are very proud and honored to have Paul Singleton on our faculty, and as our colleague. Excellent job done, Paul.

Finally, please check CTAHR eXchange and sign up to receive RSS feeds to get future updates on issues that interest you. Please let us know if there

is any issue you would like us to cover in future *CRN*. *Thanks for reading!*



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# Maximizing productivity through precision applications of nutrients

By Paul Singleton  
Agronomist  
Department of Tropical Plant and Soil Science



Our automated nutrition and water research installation at Green Point Nursery, Kurtistown Hawaii.

**F**lower and ornamental crops generate revenues in excess of \$100 million per year and account for 20% of the value of Hawaii's total agricultural production. Most production is exported to mainland and foreign ports. Our high production costs challenge our long-term competitiveness in these markets. To remain competitive Hawaii's growers need to increase their use of technology in ways that improve production input efficiency and increase crop productivity. We work to improve the productivity and quality of Hawaii's high value nursery crops through the application of modern nutrient and water management technology. We build strong and enduring partnerships with leading producers of Anthurium, palms and orchids as the cornerstone of our research and technology development program. Our research is conducted at commercial nurseries because

the scope of our trials generally cannot be accommodated within CTAHR's experiment stations. We focus on areas of interest to our partners and industry and on specific technology that they can use in the immediate future. Partners provide us significant support in terms of facilities, plant materials, experimental design, technical advice and labor to manage trials. Our partners include CTAHR's employees **Paul Singleton, Joanne Lichty, Noel Nakamura, Andrew Kawabata, Kelvin Sewake, Lisa Ebesugawa**. In our current research efforts, our commercial cooperators include, Randy Yamada, Big Island Plant & Foliage, Harold Tanouye, Green Point Nursery, Mary Lorenz, Pahoia Palms, Bill Durston, Lelani Nursery, Howard Takashita, Howard's Nursery, Grayson Inouye, Pacific Floral Exchange, David Schenk, Melia Orchids, Jeff Newman, Newman's



Nursery, Patrick McGrath, Hawaiian Nurseries.

We provide frequent communication and interpretation of research results to our partners and their supervisory staff. Our application of economic projections to selected research outcomes and sustained technical assistance has speeded adoption of some of the simpler aspects of our research. We have found that the farm treatments frequently become obsolete before the trial has ended as our partners see results and change management practices.

### **Intensively managed soil-less grown crops**

Soil-less plant production in containers is the most common production method of Hawaii's nurseries. While soil-less medium has many advantages, small volumes of medium available to supply relatively large plants with water and nutrients creates management challenges (see Figure and Table below). Container grown plants have less than 10% of the rooting volume as field grown plants. This imbalance between plant shoot and its supporting rooting volume means small changes in management have large effects on the rooting environment and plant productivity.

### **The modern management paradigm to increase productivity**

Traditional management protocols are based upon what we do to the crop. For example, growers may broadcast a particular fertilizer three times per year. Modern methods manage inputs to reach specific targets in the rooting solution and medium. Growers may use a specific target for the strength of the nutrient solution (measured by electrical conductivity - EC) in the potting medium. In a similar way, to manage water efficiently water is applied according to crop need using weather based conditions (evapo-transpiration - ET) and crop growth stage to determine how much water the crop will use. Modern nutrient and water management requires growers monitor their targets and make adjustments accordingly. The cycle of monitoring and adjusting inputs to reach targets allows growers to develop management protocols that produce optimum growth.

### **Simple management changes can sometimes have big effects on productivity**

By applying the scientific principles controlling water and nutrient behavior in soil to soilless medium, we can



Big up top, not much soil down below (Big Island Plant & Foliage).

Rooting volumes of potted palm compared to a field grown crop.

<b>Experiment</b>	<b>Volume of soil (gallons/acre)</b>
Raphis palm in 5-gallon pots	24,850
Field crop (to 1 ft depth)	325,851

identify management options that improve productivity. Randy Yamada of Big Island Plant and Foliage (BIPF) provided us with more than one thousand 5-gallon potted Raphis Palms, benches, irrigation, shade house space and labor to test nutrient and water management options to increase productivity. BIPF's potting medium is high in cinder which means water holding capacity is low and irrigation water rapidly leaches from the pots. Also, the slow release fertilizers used by palm growers acidifies the medium.

By delivering the same amount of water to plants in smaller doses with pulse irrigation we increased

water availability to the plant which greatly reduced the time to maturity (Top Table). Pulse irrigation has low cost but it created a large increase in net farm revenue (Bottom Table). By monitoring pH and proper liming an additional 37% increase in net revenues was obtained.

This simple trial demonstrates an important point. Inputs are more productive and efficiently used when applied in concert with each other. For example, if the pH remains low it is likely we are wasting some of the water we now apply in a more efficient way. The converse is also true.

Low cost changes in nutrient and water management increase Raphis palm productivity.

Management	Total water applied (gal/day/pot)	Months to market
Farm + pulse irrigation + pH Control	0.42	10
Farm + pulse irrigation	0.42	11
Farm	0.42	13

Net farm revenue increases from pulse irrigation and pH control.

Management options	Cost	Net revenue increase
	\$/acre/year	\$/acre/year
Farm + pulse irrigation + pH control	\$3,682	\$59,234
Farm + pulse irrigation	\$650	\$43,135
Farm	\$0	\$0

### Improving product quality with nutrient solutions tailored for local needs

Maintaining proper nutrient solution formulation and strength in soil-less media is the key to higher yield and product quality in container culture systems regardless of how nutrients are delivered to the plant. The revolution in micro-electronics and control equipment has made controlling nutrient solution delivery and monitoring its behavior in the potting medium feasible for most growers.

Howard Takeshita (Howard's Nursery) provided us space in his highly automated greenhouse (rolling benches, an ebb and flow irrigation system, computer controlled environment, etc.). Howard is a forward looking grower. The future face of the industry is likely to be configured with many of the technologies he employs today.

In this project, our goal was to identify the optimum strength of nutrient solution (EC) for mums grown under



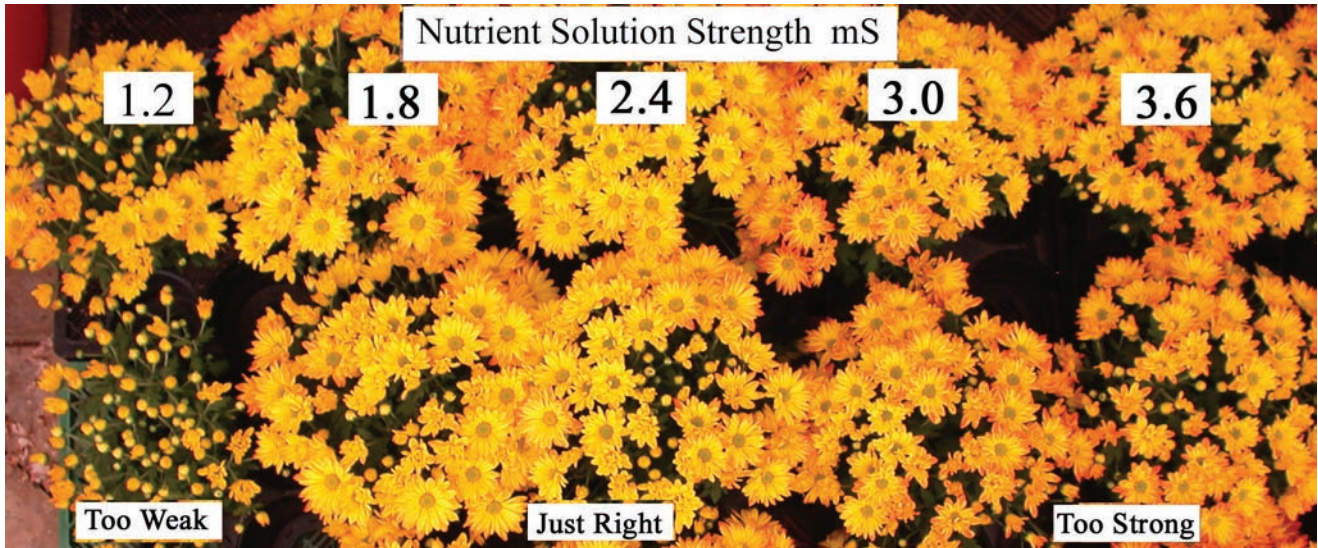
Howard Takeshita (Howard's Nursery)



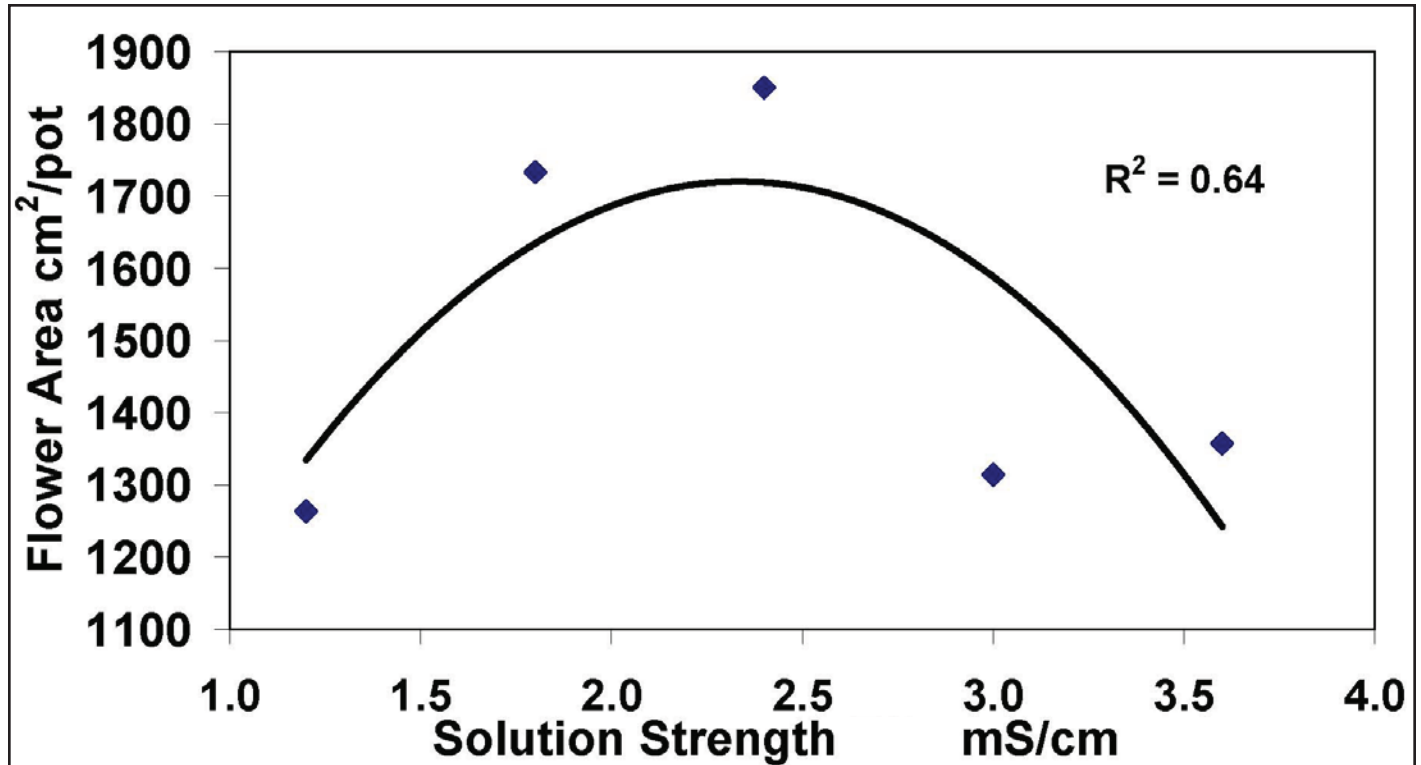
his conditions. The European EC targets he was given caused leaf firing under Hawaii's intense sunlight.

The two figures below show the effects of nutrient strength on product growth and quality. Most plants are marketable but product quality is greatly affected. When EC is too low (1.2 mS) growth is slowed from inadequate

nutrition. When the salts in the solution are too high (EC 3.0 – 3.6 mS – the European recommendations) growth is reduced and flower quality is affected by salt stress. Measured total flower area shows an EC of 2.4 mS is optimum for maximum growth and product quality (Top Figure).



Potted Chrysanthemum grown in a gradient of nutrient solution strength.



Effect of nutrient solution strength on total flower area of Chrysanthemum.

**Delivering nutrients to plants by fertigation increases yields**

Providing plant roots with constant access to a complete nutrient solution at the optimum concentration maximizes yield in that particular environment. This concept is the basis for the high yields of hydroponic agriculture.

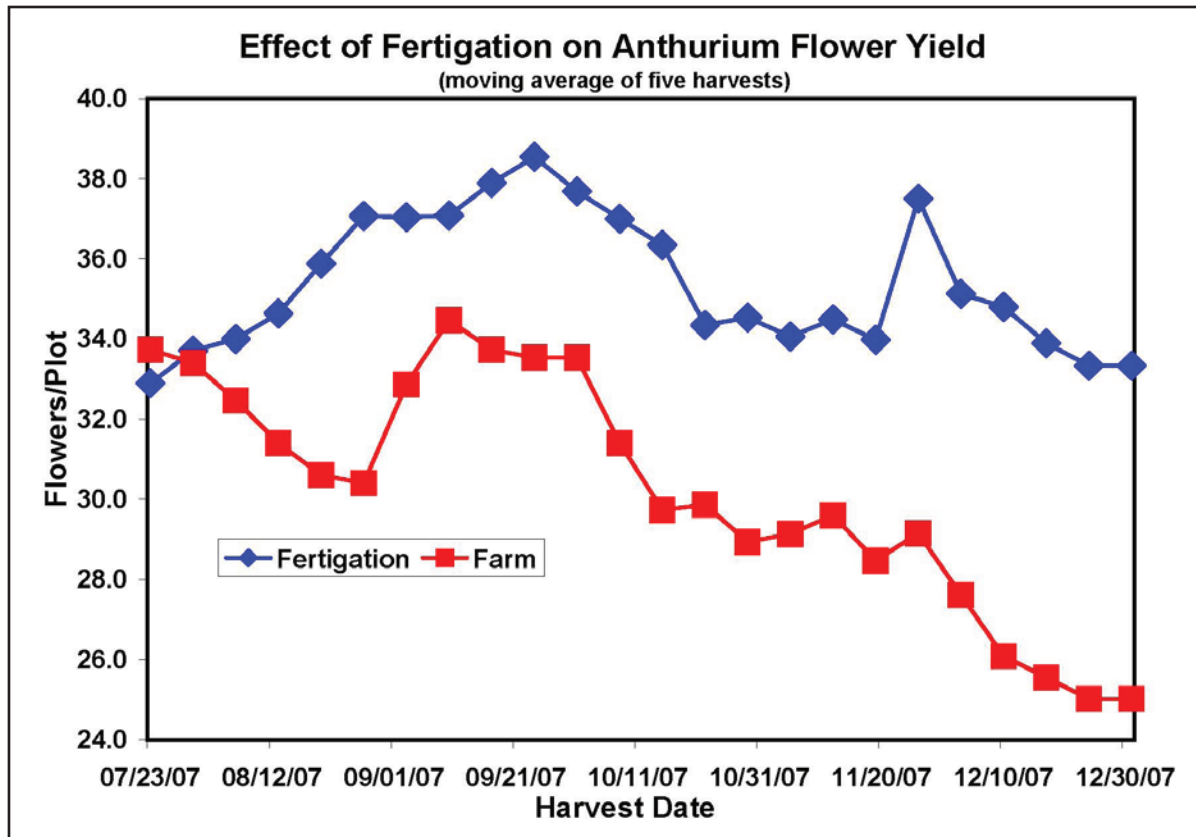
Fertigation is the process of injecting a complete compliment of soluble plant nutrients into the irrigation system. With control of solution strength (EC) and proper irrigation, plants roots will have optimum amounts of nutrients and water available. Modern injection and monitoring equipment make the technology feasible for most operators. Properly managed fertigation technology can reduce total fertilizer consumption and leaching of nutrients into the environment compared to broadcasting fertilizers. We evaluated fertigation technology on Anthurium with Harold Tanoyue at Green Point Nursery under covered greenhouses in Kurtistown and on other species with some of the cooperators listed above.

The figure below shows typical results from one of three long term trials at Green Point Nursery. Although Green Point’s farm management yields are high, we captured yield increases between 25 – 45% with fertigation compared to farm practices. Yield increases

occurred regardless of cultivar or whether plants were protected from rain or not. In all our trials, fertigation increased 1) the size of flowers (this generally increases price), 2) stem diameter and, 3) the size of leaves. Fertigation also increased the content of phosphorus (P) and potassium (K) in leaves to levels higher than Hawaii’s target values. From the many results of our research program we have concluded that Hawaiian leaf P & K targets for Anthurium need to be raised if yields are to increase.



Harold Tanoyue, Joanne Lichty and Noel Nakamura in one of two greenhouses Green Point Nursery contributed to our research.



Fertigation is shown to increase yields at Green Point Nursery.

The table below shows that investing in fertigation technology or applying fertilizer at higher rates than growers use will increase net farm revenue above current practices. The location of this trial (Panaewa) has rainfall in excess of 120” per year. *NOTE: Even though*

*our fertigated yields were higher (data not shown), fertigation is not a good option in this environment in terms of financial return and environmental risk from fertilizer leaching.*

Summary partial budget analysis of management options for NPR Anthurium - Panaewa March 2006 – March 2007

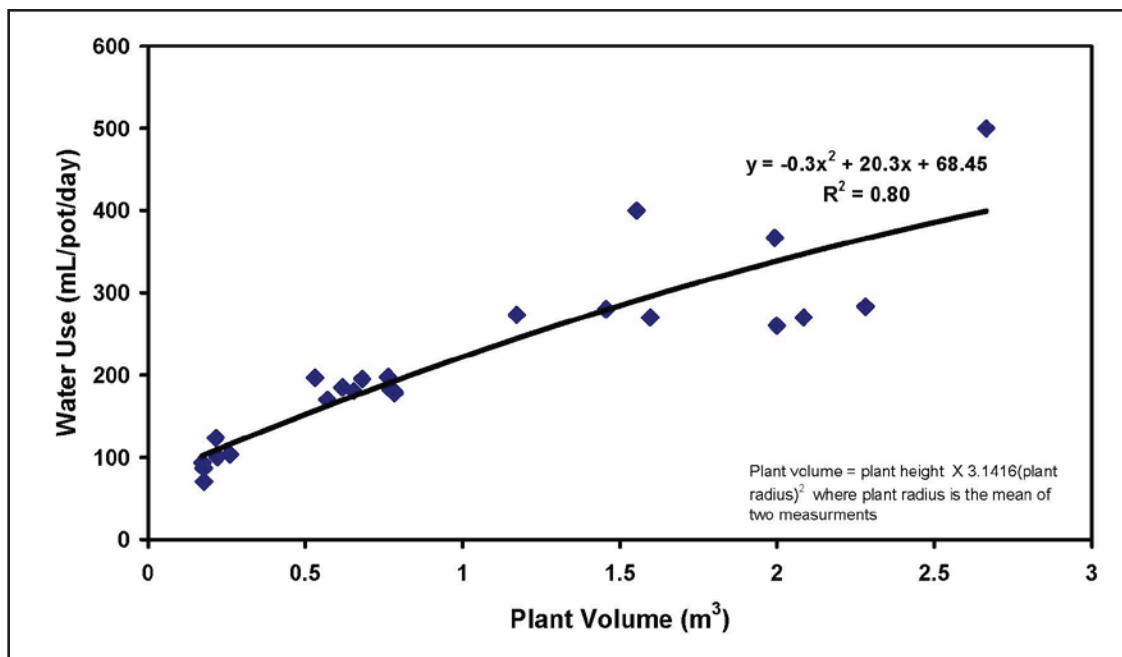
Trials	Net increase in income from management options
	\$/Acre/Year
1. Fertigated	\$45,406
2. Farm with additional P & K	\$45,158
3. Farm Practice	\$0

### Defining water requirements of palms, Anthurium and orchids

For some farms water is an expensive input costing larger operations more than \$50,000/ year. We initiated a program to determine the water needs of Raphis and Kentia palms, Anthurium and selected orchid species. We intend to relate our measures of water needs by these species to an index of plant size and season. In this way, growers will have a target for water application according to plant needs, season and the water holding capacity of their media. With this information investment in automated water control may then be justified.

We have acquired a significant amount of data for Anthurium and for Raphis palm. For Anthurium we

can relate water use to weather conditions (evapotranspiration – ETo) and a simple determination of leaf area. This year we began research into water use by Kentia palms with Mary Lorenz at Paho Palms. Figure (below) and Table (next page) have a glimpse of the power of this research on how plant water use is related to plant size and weather conditions. With additional measurements under varying weather conditions we will be able to provide growers with estimated water use by season and time since transplanting.



Effect of plant size (volume) on water use by Kentia palm (Paho Palms - Feb 5-8, 2008).



Effect of age and plant size on water use by Kentia palm.

Transplant Months	Plant size Volume ft <sup>3</sup>	Water use		
		gal/pot/day	inches/day	gal/acre/day
6	7	0.026	.004	100
12	21	0.049	.007	193
18	66	0.085	.012	334

Average ETo = 0.038" during test period

### Future assistance to growers in nutrient and water management technology

We believe adoption of new production technology and methods require: a) a clear demonstration of the technology's economic benefit, b) accurate specification and monitoring protocols of important plant and media targets (nutrient solution characteristics, water requirements, elemental composition of leaf tissue etc.) c) technical assistance for equipment specification, system design and operation and, d) dynamic entrepreneurs willing to invest resources and effort to make the technological changes necessary to remain competitive in world markets.

We have demonstrated with several crops that relatively simple technologies and methods have good potential for local growers to increase productivity and profitability of high value crops. We have made progress defining various input targets for local crops and conditions. We have also engaged commercial cooperators who have been willing to share their facilities for research that can benefit all growers. It is an "all-gain" for everyone involved!

*Editor's note: This research work is not yet complete and thus there are no papers available at this time. Commercial growers interested in more information can contact Paul Singleton at [niftal@hawaii.edu](mailto:niftal@hawaii.edu) or Joanne Lichty at [lichty@hawaii.edu](mailto:lichty@hawaii.edu).*

### Paul Singleton

**Hometown:** Kula, Maui

**Joined CTAHR:** 1982

**Educational History:** B.A. summa cum laude Economics, (development economics & international trade), U of Colorado Boulder. Masters Agricultural Management and Resource Development (agricultural development), U of Florida Gainesville. MS Agronomy & Soil Science, U of Hawaii Manoa. PhD Agronomy & Soil Science, U of Hawaii Manoa.



**Specialization:** Agricultural development economics, whole plant physiology of legume nitrogen fixation, legume management and Rhizobium ecology, controlled environment growth systems, nutrient management and automated controls for hydroponic systems.

**Current Work:** Applied nutrient and water management of high value crops.

# CTAHR welcomes new faculty!

Welcome to our new faculty members. Our CTAHR 'Ohana has grown since last year. Our new colleagues come to us from different parts of the world, with different educational experiences and differing backgrounds. But regardless of their differences, they've become part of our family and that makes them "one of us!" We offer our welcome, support and look forward to the future contributions these eager faculty members will bring to CTAHR. On behalf of the entire CTAHR family, "E komo mai."

## Yangrae Cho

**Title:** Assistant Professor  
**Unit:** PEPS  
**Hometown:** Seoul, Korea  
**Joined CTAHR:** January, 2008  
**Educational History:** B.S., Biology Education, Seoul National University, Seoul, Korea; M.S., Science Education, Seoul National University, Seoul, Korea; Ph.D., Molecular, Cellular, and Developmental Biology, Indiana University, Bloomington; Post doctoral Fellow, Maize Genomics, Stanford University; Post doctoral Fellow, Plant Pathology, Virginia Bioinformatics Institute, Virginia Tech  
**Specialization:** Molecular biology and plant pathology  
**Current Work:** plant-pathogen interactions, biotechnology development  
**Languages Spoken:** Korean, English



## Heather Greenwood

**Title:** Assistant Extension Agent  
**Unit:** FSC, Maui  
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**Joined CTAHR:** June, 2008  
**Educational History:** B.S., Family and Consumer Science, Utah State University, M.S., Gerontology, Virginia Commonwealth University  
**Specialization:** Intergenerational Programs  
**Current Work:** Caregiver education; Grandparents raising grandchildren; intergenerational communication.  
**Languages Spoken:** English



## Jayne Grzebik

**Title:** Assistant Extension Agent  
**Unit:** Urban Garden Center, Oahu, TPSS  
**Hometown:** Tennessee and Colorado  
**Joined CTAHR:** January, 2008  
**Educational History:** B.S., Ornamental Horticulture & Landscape Design, University of Tennessee, Knoxville; M.S., Ornamental Horticulture & Landscape Design, University of Tennessee, Knoxville  
**Specialization:** Urban Horticulture and Landscape Management  
**Current Work:** Multigenerational Urban Horticulture and Landscape Management programming; Master Gardener Coordinator; O'ahu Urban Gardener Center programming.  
**Languages Spoken:** English





## Samir Khanal

**Title:** Assistant Professor  
**Unit:** MBBE  
**Hometown:** Gulmi, Nepal  
**Joined CTAHR:** January, 2008  
**Educational History:** B.S. (Hons), Civil Engineering, Malaviya National Institute of Technology, Jaipur, India; M.S., Environmental Engineering, Asian Institute of Technology, Bangkok, Thailand; Ph.D., Environmental Engineering (Bioprocess), Hong Kong University of Science and Technology, Hong Kong; Postdoctoral Fellow, Biorenewable Resources Program, Iowa State University, Ames.  
**Specialization:** Biofuel/Bioenergy and recovery of value-added products  
**Current Work:** Cellulosic-ethanol production, Syngas fermentation to ethanol, ultrasound pretreatment of biomass, fishmeal production using local feedstocks, and microbial detoxification of *Jatropha* see.  
**Languages Spoken:** Nepali, Hindi, English, some Assamese and Thai



## Gonul Schara

**Title:** Assistant Professor  
**Unit:** MBBE/Manoa  
**Hometown:** Istanbul, Turkey  
**Joined CTAHR:** January, 2008  
**Educational History:** B.S., Chemical Engineering, Istanbul Technical University, Istanbul, Turkey; Ph.D., Chemical Engineering, University of Connecticut, Storrs  
**Specialization:** Protein Engineering, Metagenomics  
**Current Work:** Novel enzyme discovery using metagenomics; protein engineering techniques for bioremediation, bioenergy and bioconversion purposes  
**Languages Spoken:** Turkish, English



# Dr. Gopal honored



UHM-CTAHR Professor Gopalakrishnan (center) receives the award from Dr. Cecilia Tortajada (right), President of the International Water Resources Association in Montpellier, France.

Professor Chennat Gopalakrishnan of the University of Hawai'i at Manoa was elected a Fellow of the International Water Resources Association (IWRA) recently. The announcement of his election as a Fellow was made by Dr. Cecilia Tortajada, President of IWRA, on August 31, 2008 in Montpellier, France. Dr. Tortajada stated that the election as a Fellow recognizes, "exceptional professional skills and service to society and to the mission of the IWRA." Gopalakrishnan is one of two Fellows elected this year by IWRA, the most prominent body of water professionals globally. Gopalakrishnan was honored at a special awards ceremony at the World Water Congress held in Montpellier on September 4, 2008.

In a press release IWRA stated that this honor was conferred on Professor Gopalakrishnan "for his distinguished scholarly contributions, his wide-ranging professional activities and his deep-seated commitment to issues of sustainable water resource management in a global context, all of which make him a truly deserving candidate to be a Fellow Member of IWRA. Professor Gopalakrishnan has an exemplary record of contributions in the field of water economics and policy. Prof. Gopalakrishnan, through 6 books, 60+ refereed publications, 65+ conference papers, miscellaneous research reports, and various advisory roles, has contributed significantly to advancing the discourse on multiple aspects of water resources development and management nationally and internationally on a sustained basis."

# CTAHR holds taro workshop on Molokai

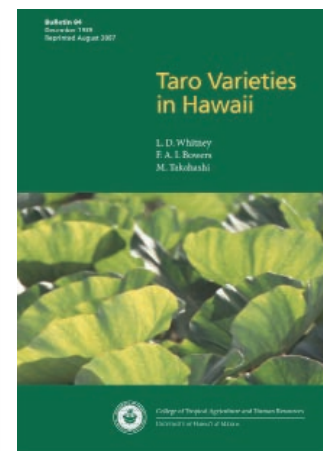
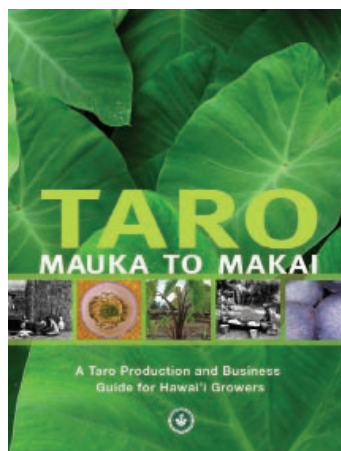
By Doug Vincent  
Special Program Director for Grants and Contracts  
and  
Alton Arakaki, Extension Specialist, Molokai  
Cooperative Extension



Alton Arakaki (in the white shirt by the pick up) addressing the workshop attendees.

Molokai Extension Agents Alton Arakaki and Glenn Teves held their annual Molokai Hawaii Taro Variety Field Day on September 6, 2008. Turn out was excellent with over 75 people attending. Attendees able to see different varieties in the field and taste the taro and kulolo that came from these varieties. Most importantly, taro growers and enthusiasts could obtain taro huli's to replant on their farms or at their homes.

This effort by the CTAHR's Cooperative Extension Service is one of many efforts to support taro in Hawaii. Among them is the improved second edition of "Taro, Mauka and Makai" available from CTAHR's Office of Communication Services. For information go here: <http://www.ctahr.hawaii.edu/oc/forsale/taro08.pdf>. CTAHR has also reprinted the classic taro work by Whitney, Bowers and Takahashi entitled "Taro Varieties in Hawaii." information available here: <http://www.ctahr.hawaii.edu/oc/forsale/tarovarnew.pdf>. For a listing of other taro articles, available for free download see



CTAHR released the updated version of *Taro: Mauka to Makai*, and re-released the 1939 classic, *Taro Varieties in Hawaii*.

the Sustainable Agriculture blog post here: [http://www.ctahr.hawaii.edu/CS/blogs/sustainable\\_agriculture/archive/2008/08/08/quot-taro-mauka-to-makai-quot-new-2008-edition-now-available.aspx](http://www.ctahr.hawaii.edu/CS/blogs/sustainable_agriculture/archive/2008/08/08/quot-taro-mauka-to-makai-quot-new-2008-edition-now-available.aspx)





The workshop provided opportunities for field day participants to acquire some of the rarest Hawaiian taro varieties to plant at their homes or on their farms.

Tasting the taro provides important feedback to Alton and Glenn on which varieties do the best in Molokai soils.



Workshop attendees take advantage of the opportunity to see these taros up close and to learn about cultivation techniques.



# The research calabash

By Doug Vincent  
Special Program Director for Grants and Contracts

## Budget Cuts Listening Sessions

Given the difficult economic times, CTAHR is facing significant budget cuts in the upcoming fiscal year. CTAHR has already absorbed a 2% budget cut this fiscal year and next year could be worse. Dean Andrew Hashimoto has scheduled three informational briefing and listening sessions about the budget cuts on the following dates: **Monday, September 29, 2008 at 1:30 pm; Tuesday, September 30, 2008 at 10:30 am and Thursday, October 2, 2008 at 10:00 am.** All meetings will be held in **Gilmore 212.** For neighbor islands, Polycom arrangements can be made by contacting Doug Vincent's office at 808-956-8157 or by e-mail [vincent@hawaii.edu](mailto:vincent@hawaii.edu) so arrangements can be made. Dean Hashimoto has asked unit leaders (Department Chairs and County Administrators) to develop plans for a 2% and a 5% permanent budget cut. Specific information about the ramifications of these cuts have been provided to CTAHR leadership. We seek your input on how CTAHR can face these future challenges.

## UH President Restricts Use of General Funds

Effective immediately, UH President David McClain has restricted the use of general funds. Among others, the policy restricts the filling of current and future position vacancies not in recruitment as of September 9, 2008 and state-funded out-of-state travel. See the memo here for more information: <http://www.ctahr.hawaii.edu/vincent/BudgetExecutionFY09.pdf>.

## Changes at UH Office of Research Services

See the September 2008 issue of the UH Office of Research Services Newsletter for information about a variety of changes implemented recently. Find the newsletter here: [http://www.hawaii.edu/ors/documents/newsletter/ORS\\_Newsletter\\_September\\_2008.pdf](http://www.hawaii.edu/ors/documents/newsletter/ORS_Newsletter_September_2008.pdf)

Among the changes are revisions of the ORS Reports, where you can search for extramural grants and contracts that have been award. The Reports system, now powered by InfoEd, permits you to do searches for Individual Awards for Investigators; Awards by College / Unit; Awards by Principal Investigator within a Unit and Awards by Sponsor Type. The output is similar to the outdated system except the output creates an alphabetical list. Try

it out here: [http://www.hawaii.edu/ors/filecabinet\\_reports.html](http://www.hawaii.edu/ors/filecabinet_reports.html)

ORS has also made changes to its "Contract Status" Log. If you wish to find about the status of a contract or proposal received but not yet awarded, click on the "Contract Status" button on the ORS Web page here: <http://www.hawaii.edu/ors/>. You will be taken to a UH Log In web site, and after you've logged in you may look up information about your project, included current status and who among the ORS staff is working on it.

The UH Office of Research Services has also made changes to its **UH ORS Form 5** Proposal and Contract Coordination Record Form that went into effect **September 1, 2008.** Changes to new fields will be made to enable incorporation in to the new InfoEd Proposal Tracking System that will go live on September 1, 2008. Please refresh you forms so that you are using the correct forms. For more information, see the August ORS Newsletter here: [http://www.ctahr.hawaii.edu/vincent/ORS\\_Newsletter\\_August\\_2008.pdf](http://www.ctahr.hawaii.edu/vincent/ORS_Newsletter_August_2008.pdf).

## UH ORS Offers On-Line Training for Principal Investigators

UH Office of Research Service has developed a new **on-line training program for new principal investigators.** (Note: "Old" investigators, current staff and even graduate students might learn a bit, too!) Provided in about 60 minutes, is an overview of the entire process for submitting, receiving and managing grants, contracts and cooperative agreements. Start here to view the on-line training: [http://www.hawaii.edu/ors/training/PI\\_Orientation/RM1T1P1\\_about\\_this\\_training.shtml](http://www.hawaii.edu/ors/training/PI_Orientation/RM1T1P1_about_this_training.shtml)

## TSTAR Proposals due October 31, 2008

The TSTAR RFA for FY 2009 funding has been released. Find it here: [http://www.ctahr.hawaii.edu/vincent/RFP\\_TSTAR\\_2009\\_final.pdf](http://www.ctahr.hawaii.edu/vincent/RFP_TSTAR_2009_final.pdf). Letters of Intent are due **Wednesday, October 1, 2008** and proposals are due **Friday, October 31, 2008.** Review the information as there have been changes made for this funding cycle. See the TSTAR web site for additional information – go here: <http://www.ctahr.hawaii.edu/t-star/index.htm>. Two year grant proposals will be accepted from faculty in the College of Tropical Agriculture and Human Resources; UH-Manoa;



College of Natural and Applied Sciences, University of Guam and from the land grant programs at the College of Micronesia; American Samoa Community College; and the Northern Marianas College. A template with instruction on how to complete the proposal is here: [http://www.ctahr.hawaii.edu/vincent/TSTAR\\_Pacific\\_Proposal\\_Application\\_Template.dot](http://www.ctahr.hawaii.edu/vincent/TSTAR_Pacific_Proposal_Application_Template.dot). If you have any questions about the TSTAR program, contact the Program Manager, Doug Vincent at [vincent@hawaii.edu](mailto:vincent@hawaii.edu).

### **USDA CRIS AD 421 Annual Reports Due Friday, November 14, 2008**

A reminder that USDA CRIS AD 421 Annual Reports (progress) or Final (termination) reports **must be entered on-line by November 14, 2008**. If you have a **USDA grant**, including TSTAR or USDA Special grants, your annual accomplishment report will be due within 90 days of the anniversary date. If your grant is ending the final (termination) report is due 90 days of the termination date. You should receive notification from CSREES about these reports. Or you can view them at the USDA CRIS entry point here: <http://cwf.uvm.edu/cris/>. If you have a Hatch or McIntire-Stennis project, your annual accomplishment or final report will be due on Friday, November 14, 2008. We anticipate you being able to access the CRIS entry point for new reports by October 15, 2008. It is prudent to begin gathering information about your projects now to avoid the rush. Information on how to complete the USDA CRIS AD 421 report can be found here: [http://www.ctahr.hawaii.edu/vincent/AD\\_421\\_Instructions\\_FY\\_2008\\_final.pdf](http://www.ctahr.hawaii.edu/vincent/AD_421_Instructions_FY_2008_final.pdf).

### **UH offers free eWaste Disposal – October 20-25, 2008**

The University of Hawai'i (UH) announced a free electronic waste recycling drive, "**Education & Government eWaste Disposal Days 2008**." The recycling program is open to Hawai'i residents, all public and private schools and universities, all City, County, State or Federal/Military branches in Hawai'i, small to medium sized businesses and non-profits. Events will be held between **October 20 and October 25**. Hawai'i residents are invited to drop off their eWaste on Saturday, October 25 at one of six drop off locations on UH campuses on the Big Island, Kaua'i, Maui or O'ahu, plus Kealakehe High School in Kailua-Kona. Please visit <http://www.hawaii.edu/ewaste> for more information including drop off sites, hours of operation and a list of acceptable electronics items. Public and private schools and universities, all City, County, State or Federal/Military branches in

Hawai'i, small to medium sized businesses with fewer than 100 employees and non-profit organizations are asked to pre-register prior to participating in the free recycling event. The institutional events will be held from October 20 to October 24.

### **CTAHR Academic Program Review Final Report Available On-line**

UH Policy establishes that academic units must undergo periodic examination by both faculty and administration. Since the reorganization of the College in 2000, new Departments and units within CTAHR had not been reviewed. During the previous academic year, CTAHR and its individual departments completed an Academic Program Review. Because CTAHR extends far beyond the classroom and the boundaries of the Manoa Campus, the report encompasses our tripartite mission of research, extension and instruction. The final report, dated July 19, 2008, is now available for download and you can do it here: [http://manoa.hawaii.edu/ovcaa/academics/program\\_review/pdf/CTAHR\\_Final\\_Report.pdf](http://manoa.hawaii.edu/ovcaa/academics/program_review/pdf/CTAHR_Final_Report.pdf)

### **CTAHR Center on the Family has the data for you**

In these hard economic times, the **CTAHR Center on the Family** can serve as important resource of information documenting the economic strain on Hawai'i's families. The Center's **Data Center**, here [http://uhfamily.hawaii.edu/Cof\\_Data/datacenter.asp](http://uhfamily.hawaii.edu/Cof_Data/datacenter.asp), can provide you with information about a variety of factors affecting the well-being of families and Children in Hawai'i. The **Hawaii Kids Count** program, funded by the Annie E. Casey Foundation, has new 2008 data available here: <http://www.kidscount.org/datacenter/databook.jsp>. Also new from the Center is a report on **School Readiness in Hawaii** by **Barbara DeBarysche**. Download it here: <http://uhfamily.hawaii.edu/publications/brochures/SchoolReadinessHawaii.pdf>.

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### **CTAHR eXchange – Blogs and Forums**

**CTAHR eXchange is back online.** Go here: [www.ctahr.hawaii.edu/cs](http://www.ctahr.hawaii.edu/cs) to read blogs. There are two blogs currently available: "Sustainable Agriculture" go here: [http://www.ctahr.hawaii.edu/CS/blogs/sustainable\\_agriculture/default.aspx](http://www.ctahr.hawaii.edu/CS/blogs/sustainable_agriculture/default.aspx) and to download the CTAHR Research News blog, go here: [http://www.ctahr.hawaii.edu/CS/blogs/ctahr\\_research\\_news/default.aspx](http://www.ctahr.hawaii.edu/CS/blogs/ctahr_research_news/default.aspx). We also have several active forums – you're welcome to join in the discussions

on Invasive Species (<http://www.ctahr.hawaii.edu/CS/forums/7.aspx>); Grants and Grant Writing (<http://www.ctahr.hawaii.edu/CS/forums/25.aspx>); Ecosystem Services (<http://www.ctahr.hawaii.edu/CS/forums/31.aspx>); Specialty Crops Research Initiative (<http://www.ctahr.hawaii.edu/CS/forums/41.aspx>). If you have interest, in hosting a blog or ideas for a forum, contact **Doug Vincent** at [vincent@hawaii.edu](mailto:vincent@hawaii.edu) for more information.

#### **Writing a Grant? Need help? We have it.**

The CTAHR Office of Research is offering **grant coaching support** for individuals or small groups who are currently writing grants that have indirect cost returns. We are using RTRF funds to pay for this pilot program; therefore, it is important that we invest in opportunities that result in a return to that investment. Indirect cost returns provides CTAHR, college units and PIs (that generate the RTRF) with additional, highly flexible funding that can be used to support and expand research programs. We hope that by increasing our success rates in obtaining competitive grants, we will have greater direct and indirect costs to support our research activities. So if you are currently writing grants (or you plan to write a proposal) and want help developing, polishing and refining your proposal to meet an upcoming deadline, contact CTAHR grants specialist, **Sharee Pepper** at 956-4556 or by e-mail at [spepper@hawaii.edu](mailto:spepper@hawaii.edu).

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#### **Dates and Events – Mark Your Calendars Today**

##### **86<sup>th</sup> Maui County Fair – October 2-5, 2008**

The fair is coming! The 86<sup>th</sup> Maui County Fair will be held Thursday through Sunday, **October 2-5, 2008** at the War Memorial Gym and Grounds in Wailuku. CTAHR will have booths and do demonstrations, including: Vermi-composting by **Tom Mason (FCS)**; Herbicide ballistic technology by **James Leary (PEPS)**; Protea – tips on growing and use of floral arrangement by **Pam Shingaki (Maui)** and Easy Eats, Local Style by **Lynn Nakamura-Tengan (HNFAS)**. Booths will include Native Hawaiian taro plants for sale; Ornamental taros developed by **John Cho (PEPS)**, for sale for the first time; **Ania Wieczorek's** (TPSS) Agricultural Biotechnology Education team; **Robin Shimabuku** (PEPS) provides information on fruit fly control. The Maui Master Gardener program will also be having a plant sale. **John Powley (HNFAS)** and **Tom Mason (FCS)** will also be assisting the 4-H Livestock/Poultry and

Homemaker programs, respectively. For more information about the Maui County Fair, go here: <http://www.mauicountyfair.com/mcf08/>

##### **Mealani's "A Taste of the Hawaiian Range" – Friday, October 3, 2008**

The Hilton Waikoloa Village Grand Ballroom will once again host CTAHR's 13<sup>th</sup> **Annual Mealani's A Taste of the Hawaiian Range Food Festival on Friday, October 3, 2008 at 6:00 pm.** CTAHR, in partnership with the Hawaii Cattlemen's Association, and the Big Island Farm Bureau, will host the "premier foodie event" in Hawaii, featuring island-grown meats, vegetables and other locally-grown foods. Mark you calendar and go to the web site for more information: <http://www.ctahr.hawaii.edu/taste/index.asp>. Time for grind!!

##### **Second Saturdays at the Oahu Urban Garden Center**

The Oahu Master Gardeners and UGC Ohana open the Oahu Urban Garden Center every Second Saturday of the month. From 9:00 am – 12:00 noon, the Urban Garden Center is open to learn about gardening, and plantings. On **Saturday, October 11, 2008** – the theme is "Scarecrows and Sunflowers". Visit the Sunflower collection and have your group name added to the center's scarecrows. On **Saturday, November 8, 2008** – come celebrate Arbor Day at the Urban Garden Center. See the web site for more information and directions to the UGC. <http://www.ctahr.hawaii.edu/ougc/>



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# Continued reliance on Earmarks cannot be sustained

By Doug Vincent  
Special Program Director for Grants and Contracts

In the July-August issue of the *CTAHR Research News*, we painted a dismal picture of the extramural grant funding CTAHR received in FY 2008. In FY 2008, CTAHR earned \$11.2 M in extramural grants and contracts. In that same edition, we painted a cautiously optimistic picture about FY 2009. Thus far, in FY 2009, we are doing much better; we have received 78 awards for \$9.75 M. Since we last reported we have received 43 awards for over \$6 M. A significant come back over the previous year – except for one thing – the return of our reliance on earmark-funded grants and cooperative agreements. At this point in the fiscal year, over 50% of our funding is coming from earmark-funded awards.

Please do not misunderstand me – I love the funding that our Congressional delegation and the strong support of our stakeholders provides to us. I am grateful that our supporters have such faith in us. I appreciate that we have to rely on this funding because Hawaii's agricultural problems are dissimilar to those traditionally funded by USDA competitive programs. I recognize the special responsibility we have to help sustain our local agriculture because of this support. But given the political rhetoric coming out of the two Presidential candidates – especially John McCain – future reliance on Congressional earmarks may not be such a good idea. Couple that with a poor economy nationally and statewide, it may be difficult to envision continued support at the levels that we've grown accustomed to in CTAHR. So what to do?

We've separated the listings of extramural grants and contracts received since our last publication into two tables – one for earmark-funded grants and contracts and the other for “competitive” grants and contracts. Last month we did the same and had greater earmark-funded grants and contracts. This month, I hope the tide is turning. Most of the earmark-funded awards coming in are from the federal FY 2008 fiscal year, which closes on September 30, 2008. This month there are more competitive awards (29) listed than earmark-funded awards (15) and considering the end of the federal fiscal year is near, we should see a

greater percentage of competitive projects as the year progresses.

I want to recognize two competitive awards that we received recently. One reported last month is a National Science Foundation grant earned by Dulal Borthakur in the Department of Molecular Biosciences and Bioengineering. Dulal and his lab were funded for a proposal “Producing Mimosine-free *Leucaena leucocephala* through Metabolic Pathway Engineer.” We all know what *Leucaena* is – that pesky weed, Koa haole, which crops up in our yard and is so hard to get rid of. Yet you may not know that *Leucaena* is a nitrogen fixing tree that is used in Hawaii and throughout the tropics to not only restore soil nitrogen but serve as a fodder for livestock. But the broad usage as a livestock feed is limited by a toxin, mimosine, which the plant produces. Dr. Borthakur is one of the planet's experts on *Leucaena* and its toxin. The point of my story is that in spite of Dr. Borthakur's world-wide reputation as an expert in *Leucaena*, his grant was not funded the first time; not even the second time. NSF rejected his proposal twice. We all know how much time and effort it takes to write a grant and how deflating rejection by a funding agency can mean to us. Dr. Borthakur's disappointment was enormous, especially after the second rejection. But to his credit – he examined the reviewer comments and re-wrote his proposal (twice) and eventually won the award. The message is to never give up.

Another CTAHR faculty member, Dr. Jonathan Deenik of the Department of Tropical Plant and Soil Sciences has a similar story of rejection and subsequent success. Dr. Deenik of TPSS, won a USDA National Research Initiative Competitive Grant entitled “Anammox Activity and Nitrogen Dynamics in Flooded Taro Soils in Hawaii.” His initial proposal went unfunded last year but again, to Dr. Deenik's credit, he went after it again after evaluating his reviews and working with his colleagues to re-write the proposal. One of the keys to Dr. Deenik's success was the partnership he forged with colleagues at Michigan

State University. Yet if you look at the crop being studied, taro, it's not exactly something that grows in Michigan. If my understanding is correct, Dr. Deenik took a challenging problem in Hawaii and partnered with another institution and ended up with a significant grant funded. Three lessons to be learned here – first, as with Dr. Borthakur – don't give up if you are rejected the first time. Success in funding increases if you take the reviewers comments into consideration and build a better proposal the next time. Second, take advantage of partnerships – you may lack the skills or technologies – find a partner. Third, local crops and local problems

**can be funded** by competitive sources, if you write an outstanding proposal. It may take an initial rejection but if you do like your colleagues have done – pick yourself up and dust yourself off and give it another go – you might be surprised at the results. Thanks to Dr. Deenik and Dr. Borthakur for serving as good examples for us all. Thank you for your persistence and congratulations on your success. Congratulations to everyone who brought in funding to support your programs. With the imminent budget difficulties, we need to do more of this to support our programs.

### Competitive grants and contracts

First name	Last name / Dept	Project Name	Funder	Amount
Catherine	Chan-Halbrendt / NREM	AHEED: Albania/Hawaii Higher Education and Economic Development Project: Increasing Institutional Capacity in Agricultural Economics	USAID	\$299,954
Catherine	Chan-Halbrendt / NREM	Reclaiming Hawaii's Avocado Market through Branding of Hawaii County Grown Avocados	County of Hawaii	5,000
Jonathan	Deenik / TPSS	Anammox Activity and Nitrogen Dynamics in Flooded Taro Soils of Hawaii	DA-Cooperative State Research Service	397,000
Ali	Fares / NREM	Evaluation of Flash Flood Prediction Models for Small Watersheds in Tropical Islands	DOC-Nat'l Weather Service	124,999
Arnold	Hara / PEPS	Implementing Quarantine Heat Treatments for the Coqui Frog and Other Invasive Species Impacting the....	Hawaii - Dept. of Agriculture	200,000
Shi-Jen	He / COF	Data Collection and Analysis of Substance Abuse Prevention Services	DOH-Alcohol & Drug Abuse Division	172,419
Carol	Ikeda / FCS	4-H Navy Youth Development Partnership Project	DA-Department of Agriculture	714,835
Carol	Ikeda / FCS	Keaukaha Community Resource Center	Kamehameha Schools	55,000
Naomi	Kanehiro / HNFAS	UH-CES Food Stamp Nutrition Education Program	Hawaii Department of Human Services	133,920
Andrew	Kaufman / TPSS	Effectiveness of Vegetation for Mitigation the Coastal Impact due to Storm Surge and Tsunamis and ....	Hawaii - Dept. of Land & Natural Resources	103,196
Mike	Kawate / PEPS	Funding for 2008 Hawaii IR-4 Food Use Field Projects	University of California-Davis	42,750
Harold	Keyser / Maui	Development of Waste Stream Handling Systems	Hawaii - Dept. of Agriculture	144,403
James	Leary / PEPS	Development of Efficient Vegetation Management Techniques within Kaloko-Honokohau National Historical Park for Cultural Resource Utilization	DOI-Nat'l Park Service	104,400
James	Leary / PEPS	Promoting Adaptive Management with 'Tropic Sun' Sunn Hemp (Crotolaria Juncea) in Hawaii for Ecologic...	DA-Sustainable Agriculture Research & Education	53,768
Yong	Li / HNFAS	Molecular Fingerprinting of Lactic Acid Bacteria in Soil for Taro Cultivation	HPC Foods, Inc.	25,897



Creighton	Litton / NREM	The Potential for Restoration to Break the Grass/Fire Cycle in Dryland Ecosystems in Hawaii: Using Remotely Sensed Data to Guide and Understand....	USDA Forest Service	60,254
Ron	Mau / PEPS	Area-Wide Pest Management Tephritid Flies that Infest Hawaii-Grown Fruits and Vegetables	DA-Department of Agriculture	550,000
Tomoaki	Miura / NREM	Vegetation Phenology and Vegetation Index Products from Multiple Missions and Satellite Sensors	University of Arizona	82,025
Susan	Miyasaka / TPSS	Agricultural Educational Outreach	County of Hawaii	42,000
Mike	Nagao / TPSS	Investigations into Macadamia Tree Dieback and Decline and Field Management Strategies to Alleviate the Problem	Hawaii Farm Bureau Federation	27,500
Wayne	Nishijima / ADMIN	Hawaii Volcanic Eruption - Impacts on Hawaii Agriculture	DA-Cooperative State Research Service	44,470
Mel	Nishina / TPSS	Production of a Video: Guava Production, Cycling for Constant Fruit Production	County of Hawaii	10,000
Sabina	Swift / PEPS	A Risk Management Training Program for Underserved Southeast Asian Growers of Hawaii	DA-Department of Agriculture	147,666
Mark	Thorne / HNFAS	2008 Stockman's Fall Field Day	DA-Natural Resources Conservation Service (NRCS)	15,930
Janice	Uchida / PEPS	Incidence and Evaluation of a New Rust Disease on Myrtaceae in Hawaii	DLNR-Division of Forestry & Wildlife	15,000
Koon-Hui	Wang / PEPS	Sunn hemp and its Allelopathic Compounds for Vegetable Production in Hawaii and Beyond	DA-Sustainable Agriculture Research & Education	46,125
Sylvia	Yuen / COF	Services to Evaluate and Monitor Substance Abuse Service Outcomes and Process Evaluation Activities of the Alcohol and Drug Abuse Division Funded	DOH-Alcohol & Drug Abuse Division	234,283
Sylvia	Yuen / COF	Eat Healthy Community Presentation	Hawaii Medical Service Association	2,400
<b>Total Competitive Grants and Contracts</b>			<b>Projects = 28</b>	<b>\$3,855,194</b>

## Earmark funded grants and contracts

First name	Last name / Dept	Project Name	Funder	Amount
Jim	Brewbaker / TPSS	Identifying Resistance and Quality Loci in Maize Using CTAHR's Near Isogenic Lines	DA-Cooperative State Research Service	\$34,425
Ken	Grace / PEPS	Funding for Mutual Interest	DA-Department of Agriculture	24,000
Ken	Grace / PEPS	Research, Assessment, and Educational Tools for Sustainable Termite Management	DA-Department of Agriculture	186,450
Andrew	Hashimoto / ADMIN	Agricultural Development in the American Pacific (ADAP), Year 21, FY2008	DA-Cooperative State Research Service	348,543
Andrew	Hashimoto / ADMIN	Development of High Yield, Tropical Feedstocks for Bioenergy	Department of Energy	492,000
John	Hu / PEPS	Effects of Viral Suppressors of RNA Silencing in Sugarcane	DA-Cooperative State Research Service	73,274
James	Leary / PEPS	Building Capacity Within the College of Tropical Agriculture and Human Resources to Provide Applied Research Services in Weed Management	DA-Cooperative State Research Service	209,556
Douglas	Vincent / ADMIN	Hawaii Floriculture Research Grant - 2008	DA-Cooperative State Research Service	241,683
Douglas	Vincent / ADMIN	Hawaii Pineapple Improvement	DA-Department of Agriculture	63,323
Douglas	Vincent / ADMIN	Minor Crops Pest and Disease Control	DA-Department of Agriculture	60,142
Douglas	Vincent / ADMIN	Agriculture Diversification: Hawaii Tropical Specialty Fruit Research and Development - 2008	DA-Cooperative State Research Service	151,863
Douglas	Vincent / ADMIN	Environmental Effects of Tephritid Fruit Fly Control and Eradication	DA-Department of Agriculture	179,632
Douglas	Vincent / ADMIN	Protecting Papaya from Pests and Disease	DA-Department of Agriculture	63,323
Ania	Wieczorek / TPSS	Biotechnology Outreach Program	DA-Department of Agriculture	70,079
Julia	Zee / HNFAS	Hawaii Diabetes Detection and Prevention Project	DA-Cooperative State Research Service	77,406
<b>Earmark-Funded Grants and Contracts</b>			Projects = 15	\$2,275,699
<b>Total this period</b>			Projects = 43	\$6,130,893
<b>FY 2009 YTD</b>			Projects = 78	\$9,755,745



# New faculty publications

## Greg Bruland (NREM)

Cohen, M.J., E.J. Dunne, and G.L. Bruland. 2008. Spatial variability of soil properties in cypress domes surrounded by different land uses. *Wetlands* 28:411-422.

Bruland, G.L. 2008. Coastal Wetlands: Function and Role in Reducing Impacts of Land-Based Management. Chapter 5, In A. Fares and A.I. El-Kadi (Eds.), *Coastal Watershed Management*, WIT Press, Southampton, UK.

## Yangrae Cho (PEPS)

Craven KD, Velez H, Cho Y, Hicks R, Lawrence CB, and Mitchell TK. 2008. Anastomosis is required for virulence of the fungal necrotroph, *Alternaria brassicicola*. *Eukaryotic Cell* 7:675-683.

Lawrence CB, Mitchell TK, Craven KD, Cho Y, Cramer RA, Kim, KH. 2008. Mini review: At Death's Door: *Alternaria* Pathogenicity Mechanisms. *Plant Pathology J.* 24(2): 101-111 (2008).

Sanchez-Puerta, M.V., Y. Cho, J.P. Mower, A.J. Alverson, J. Gummow, and J.D. Palmer. 2008. Horizontal transfer of the cox1 group I intron among flowering plants: assessing variation in the coconversion tract. *Mol. Biol. and Evol.* 25(8): 1762-1777.

## David Christopher (MBBE)

Ondzighi, C.A., Christopher, D.A., Cho, E.J., Chang, S.C., Staehelin, L.A. 2008. Arabidopsis Protein Disulfide Isomerase-5 Inhibits Cysteine Proteases during Trafficking to Vacuoles before Programmed Cell Death of the Endothelium in Developing Seeds. *The Plant Cell*, Vol. 20, 10.1105/tpc.108.058339.

Lu, D.-P., Christopher, D.A. 2008. Endoplasmic reticulum stress activates the expression of a sub-group of protein disulfide isomerase genes and AtbZIP60 modulates the response in *Arabidopsis thaliana*. *Molecular Genetics & Genomics*. 280:199-210.

Lu, D.-P., Christopher, D.A. 2008. Light enhances the unfolded protein response as measured by BiP2 gene expression and the secretory GFP-2SC marker in *Arabidopsis*. *Physiologia Plantarum*, 134:360-368.

Guo, K.M., Babourina, O., Christopher, D.A., Borsics, T., Rengel, Z. (2008) The cyclic nucleotide-gated channel, AtCNGC10, influences salt tolerance in *Arabidopsis*. *Physiologia Plantarum* Vol. 134, 10.1111/j.1399-3054.2008.01157.x .

Ming, R et al. Genome of the transgenic tropical fruit tree papaya (*Carica papaya* L.). *Nature* 452:991-995 (2008).

Lu, D.-P., Christopher, D.A. 2008. The effect of irradiance and redox-modifying reagents on the 52 kDa protein disulfide isomerase of *Arabidopsis* chloroplasts. *Biologia Plantarum* 52: 42-48.

## Ali Fares (NREM)

Fares A., F. Abbas, A. Ahmed, J.L. Deenik and M. Safeeq. 2008. Response of Selected Soil Physical and Hydrological Properties to Manure Amendment Rates, Levels, and Types. *Soil Science*. 173 (8): 522-533.

Ryder, M.H., and A. Fares. 2008. Best management practices to control Agricultural Non-point Source Pollution in Hawaii. *JAWRA* 44(3): 640-653.

Fares, A. 2008. Overview of the hydrological modeling of small coastal watersheds on tropical islands. In A. Fares and A.I. Elkadi (eds.) *Coastal Watershed Management*. WIT Press, Southampton, UK. pp 37-58.

Dogan, A., and A. Fares. 2008. Effects of land-use changes and groundwater pumping on saltwater intrusion in coastal watershed. In A. Fares and A.I. Elkadi (eds.) *Coastal Watershed Management*. WIT Press, Southampton, UK. pp 219-242.

Kimoto A., Fares, A. and V. Polyakov. 2008. Sediment tracing techniques and their application to coastal watersheds. In A. Fares and A.I. Elkadi (eds.) *Coastal Watershed Management*. WIT Press, Southampton, UK. pp 65-75.

## Soojin Jun (HNFAS)

Kathiravan Krishnamurthy, Soojin Jun, Joseph Irudayaraj, and Ali Demirci, 2008, Efficacy of Infrared Heat Treatment for Inactivation of *Staphylococcus Aureus* in Milk, *Journal of Food Process Engineering*, Accessed on-line, Date: July 2008.

## Andy Kaufman (TPSS)

Kaufman, A. J. and Lohr, V. I. 2008. Does it Matter What Color Tree You Plant? In: E. Matsuo., (Editor), *Acta Horticulturae* 790 "Exploring Therapeutic Powers of Flowers, Greenery and Nature" International Society for Horticultural Science. Pp.179-184.

## Dan Rubinoff (PEPS)

Snyder, J. F., Warren, A. D., Rubinoff, D. and G. T. Austin. 2008. *Zizina otis* (F. 1787) Becomes Established on Oahu, Hawaii (Lepidoptera: Lycaenidae: Polyommatainae). *News of the Lepidopterist's Society* 50. pp.3-6.

Schmitz, P. and D. Rubinoff. 2008. Three new species of *Hyposmocoma* (Lepidoptera, Cosmopterigidae) from the Hawaiian Islands, USA based on morphological and molecular evidence. *Zootaxa*.1821: 49-58.

## Ania Wiczorek (TPSS)

Dunbar-Co, S., Wiczorek, A.M., Morden, C.M. 2008. Molecular phylogeny and adaptive radiation of the endemic Hawaiian *Plantago* species (Plantaginaceae). *American Journal of Botany* 95:1177-1188.

# Budget cuts got you down? Try grant writing!

By Doug Vincent  
Special Program Director for Grants and Contracts

**B**udget cuts got you down? Try grant writing! With the state's economic down turn a harsh reality and budget cuts imminent, one wonders "where am I to get funds to support my outreach and research activities?" In spite of the projections of a poor state economy, there may be funding opportunities that will support what you do or propose to do. Dr. Sharee Pepper, CTAHR's grant coach has prepared a list (below) of opportunities, currently open. For those of you who have been funded in the past by the Hawaii Farm Bureau grants or Hawaii Department of Agriculture grants – please don't expect continuation

Aloha,

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.**

## Possible Funding Opportunities September, 2008

\$ - For information on submitting grants electronically on grants.gov the following publication may be useful.

**USDA, CSREES Grants.gov Application Guide – A guide for the preparation and submission of CSREES applications via grants.gov.**

[http://www.csrees.usda.gov/funding/grant\\_forms/electronic\\_app\\_guide.pdf](http://www.csrees.usda.gov/funding/grant_forms/electronic_app_guide.pdf)

### Agricultural Grants

\$ - USDA, CSREES

Critical Issues: Emerging and New Plant and Animal Pests and Diseases

**Proposal Deadline: September 30, 2008**

<http://www07.grants.gov/search/search.do;jsessionid=H0HBC21DQnVBn5CCPqypTBQLf52F396VdNT05VynCrhbCh46ZKZcl834976773?oppld=15582&flag2006=true&mode=VIEW>

\$ - USDA, ARS

Evaluation of Woody Landscape Plant Germplasm

**Deadline: October 15, 2008**

URL: <http://www.ctahr.hawaii.edu/vincent/WLPCGCRFP08.pdf>

of these opportunities. The Farm Bureau will not be continuing their grants-in-aid program and with the budget cuts the HDOA grants program are in jeopardy. So you may have to look for federal sources of funding. There are a number of opportunities listed below that might be the right fit for your lab, your program, or your plan of work. Please take a look at these opportunities and if they fit– try submitting a grant proposal for funding. You might be surprised at the result. If you need help, ask for it, the CTAHR Office of Research can help you with your grant proposal. You can't score goals if you never take the shot!

\$ - USDA, CSREES

Western Sustainable Agricultural Research and Education Program

Professional Development Program Grants

**Proposal Deadline: November 3, 2008**

[http://wsare.usu.edu/grants/docs/RFA\\_PDP.pdf](http://wsare.usu.edu/grants/docs/RFA_PDP.pdf)

\$ - USDA, CSREES – Western IPM (Integrated Pest Management)

**Deadline: November 17, 2008**

[http://www.csrees.usda.gov/funding/rfas/ipm\\_western.html](http://www.csrees.usda.gov/funding/rfas/ipm_western.html)

\$ - USDA, CSREES

Western Sustainable Agricultural Research and Education Program

Farmer/Rancher Research & Education Grants

**Proposal Deadline: December 5, 2008**

[http://wsare.usu.edu/grants/docs/RFA\\_FRG.pdf](http://wsare.usu.edu/grants/docs/RFA_FRG.pdf)

\$ - USDA, CSREES

Western Sustainable Agricultural Research and Education Program

Professional & Producer Grants

**Proposal Deadline: December 5, 2008**

[http://wsare.usu.edu/grants/docs/RFA\\_PP.pdf](http://wsare.usu.edu/grants/docs/RFA_PP.pdf)

\$ - USDA, Agricultural Marketing Service

Specialty Crop Block Grant Program

**Proposal Deadline: March 5, 2009**

<http://apply.grants.gov/opportunities/instructions/oppUSDA-AMS-SCBGP-030509-cfda10.169-instructions.doc>

\$ - USDA, CSREES

Western Sustainable Agriculture Research and Education Program

Sustainable Agriculture Tours

**Proposals: Open until funding is exhausted**

[http://wsare.usu.edu/grants/docs/RFA\\_SAT.pdf](http://wsare.usu.edu/grants/docs/RFA_SAT.pdf)



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## **Education Grants**

\$ - National Education Association (NEA) Foundation -  
[Foundation Supports Professional Development for Educators](#)  
**Deadline for 2008 Applications is October 15, 2008**  
**2009 application due February 1 or June 6**  
[http://www.neafoundation.org/programs/Learning&Leadership\\_Guidelines.htm](http://www.neafoundation.org/programs/Learning&Leadership_Guidelines.htm)  
[Link to Funder Profile](#)

\$ - NSF – Tribal Colleges and Universities Program (TCUP)  
**Full Proposal Deadline Date: October 20, 2008** [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf08533](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08533)

\$ - U.S. Department of Education  
Special Education Research CFDA 84.324A-2  
Evaluation of State and District Evaluation Programs and Policies CFDA 84.305E  
Education Research and Development Centers CFEA 84.305C  
Education Research Training CFDA 84.305B  
Special Education Research Training CFDA 84.324B  
**Proposal Deadlines: October 26, 2008**  
<http://a257.g.akamaitech.net/7/257/2422/01jan20081800/edocket.access.gpo.gov/2008/pdf/08-911.pdf>

\$ - NSF  
Graduate Research Fellowship Program (GRFP)  
**Deadlines: November 3-12 (depending on field of study)**  
[http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf08593](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08593)

\$ - Human Frontier Science Program  
Short Term Fellowship Program  
**Proposal Deadline: rolling – applications accepted year round**  
[http://www.hfsp.org/how/appl\\_forms\\_STF.php](http://www.hfsp.org/how/appl_forms_STF.php)

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## **Environment, Water, Energy, Invasive Species Grants**

\$ - U.S. Department of Interior, U.S. Fish and Wildlife Service (FWS)  
Coastal Programs **Proposal Deadline: September 30, 2008**  
<http://ecos.fws.gov/coastal/viewContent.do?viewPage=home>

\$ - U.S. Department of Interior, FWS  
Partners for Fish and Wildlife Program  
**Proposal Deadline: September 30, 2008**  
<http://ecos.fws.gov/partners/viewContent.do?viewPage=home>

\$ - US Department of Transportation  
Sun Grant Western Center for 2009  
**Deadline: Letters of Intent due October 15, 2008**  
<http://sungrant.oregonstate.edu/grants/index.html>

\$ - U.S. Department of Interior, FWS  
Small Grant Program  
**Deadline: October 30, 2008**  
<http://www.fws.gov/birdhabitat/grants/nawca/Small/index.shtm>

\$ - U.S. Department of Energy, Chicago Science Center  
Energy Frontier Research Center  
**Letter of Intent Due: July 1, 2008 (optional)**  
**Proposal Deadline: October 1, 2008**  
<https://e-center.doe.gov/iips/faopor.nsf/UNID/933104E42D0185E58525742100694C78?OpenDocument>

\$ - U.S. Environmental Protection Agency  
Broad Agency Announcement for Conferences, Workshops and/or Meetings  
**Proposal Deadlines: December 9, 2008**  
[http://es.epa.gov/ncer/rfa/2008/2008\\_baa.html](http://es.epa.gov/ncer/rfa/2008/2008_baa.html)

\$ - 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](http://www.natlforests.org/consp_05_cap.html)

\$ - NSF – Long Term Research in Environmental Biology (LTREB)  
**Deadlines: January 09 and July 9 Annually**  
<http://nsf.gov/pubs/2007/nsf07588/nsf07588.htm>

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## **Families, Youth and Children Grants**

\$ - National Gardening Association  
Youth Garden Grants  
**Proposal Deadline: November 15, 2008**  
<http://www.kidsgardening.com/YGG.asp>

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

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## **Financial Grants**

\$ - U.S. Department of Health and Human Services, Administration for Children and Families  
Assets for Independence Demonstration Grants  
**Proposal Deadlines: January 15, 2009, March 25, 2009**  
<http://www.acf.hhs.gov/grants/open/HHS-2008-ACF-OCS-EI-0053.html>

Money Management International Financial Education Foundation  
Financial Education Grants  
**Proposal Deadline: rolling – applications accepted year round**  
<http://www.mmifoundation.org/GrantSeekers.asp>

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## **Health, Nutrition, Food, Biomedical Grants**

\$ - Grant Program to Fund Fresh Produce Programs at Elementary Schools  
**Deadline: November 7, 2008**  
<http://www.loveyourveggiesgrants.org/apply.php>

\$ - HHS, National Institutes of Health (NIH)  
Improving Diet and Physical Activity Assessment (RO1)  
**Letters of Intent Due: January 16, 2009 (optional)**  
**Proposal Deadline: February 16, 2009**  
<http://grants.nih.gov/grants/guide/pa-files/PAR-07-259.html>

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\$ - HHS, NIH

Improving Diet and Physical Activity Assessment (R21)

**Letters of Intent Due: January 16, 2009 (optional)**

**Proposal Deadline: February 16 & May 7, 2009**

<http://grants.nih.gov/grants/guide/pa-files/PAR-07-259.html>

<http://www07.grants.gov/search/search.do;jsessionid=LHSfIHFS L4pBXG0Dtb7PpzkdDBMHJSl6vhyGyQ1tpTnGcSJ2WfZD!488375993?oppld=8282&flag2006=true&mode=VIEW>

\$ - NIH

Pilot and Feasibility Clinical Research Studies In Digestive Diseases And Nutrition

**Deadline : May 7, 2009**

<http://www07.grants.gov/search/search.do;jsessionid=LHSfIHFS L4pBXG0Dtb7PpzkdDBMHJSl6vhyGyQ1tpTnGcSJ2WfZD!488375993?oppld=8805&flag2006=true&mode=VIEW>

\$ - NIH

Exploratory/Developmental Clinical Research Grants in Obesity (R21)

**Deadline : May 7, 2009**

<http://www07.grants.gov/search/search.do;jsessionid=LHSfIHFS L4pBXG0Dtb7PpzkdDBMHJSl6vhyGyQ1tpTnGcSJ2WfZD!488375993?oppld=8575&flag2006=true&mode=VIEW>

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### Humanities Grants

\$ - National Endowment for the Humanities Collaborative Research Grants

**Proposal Deadline: November 4, 2008**

<http://www.neh.gov/grants/guidelines/collaborative.html>

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### Rural and Community Development Grants

\$ - 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](http://www.rurdev.usda.gov/rhs/cf/brief_cp_grant.htm)

\$-Farm Foundation Grants

**Deadline: Applications accepted on an ongoing basis**

[http://www.farmfoundation.org/news/templates/comm\\_template.aspx?articleid=357&zoneid=67](http://www.farmfoundation.org/news/templates/comm_template.aspx?articleid=357&zoneid=67)

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### Science Grants

\$ - National Science Foundation (NSF) and USDA Interagency Opportunities in Metabolic Engineering

**Deadline: October 22, 2008**

[http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf08588](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08588)

\$ - NSF

Industry/University Cooperative Research Centers Program

**Deadline: January 2 2009 (Letter of Intent)**

[http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf08591](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08591)

\$ - NIH, CDC, & FDA

PHS 2008-02 Omnibus Solicitation of the NIH for Small Business Technology Transfer Grant Applications (Parent STTR [R41/R42]) & Small Business Innovation Research Grant Applications (Parent SBIR [R43/R44])

**Deadline: January 7, 2009**

<http://www07.grants.gov/search/search.do;jsessionid=LHSfIHFS L4pBXG0Dtb7PpzkdDBMHJSl6vhyGyQ1tpTnGcSJ2WfZD!488375993?oppld=16619&flag2006=true&mode=VIEW>

\$ - NSF

Science, Technology, and Society

**Proposal Deadlines: February 1, 2009**

[http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf08553](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08553)

\$ - National Geographic Society – Waitt Grants Program

**Deadline: Rolling**

<http://www.nationalgeographic.com/field/grants-programs/waitt-grants-application.html>

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### UH, Hawaii and Regional Grants

\$ - University of Hawaii (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_g.pdf)

[http://www.hawaii.edu/urc/pdf/factravel\\_f.pdf](http://www.hawaii.edu/urc/pdf/factravel_f.pdf)

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### Other

\$ - Department of Homeland Security (DHS) Science and Technology (S&T) Directorate

International Research in Homeland Security Science & Technology Mission Areas

**Deadline: September 30, 2008**

<http://www.grants.gov/search/search.do;jsessionid=LHGGL1rISfvNvKFjpbPQvVJISdlRWkyrhFlpQtNyypXb3v6WZR!-672131886?oppld=40993&flag2006=false&mode=VIEW>