

CTAHR RESEARCH NEWS

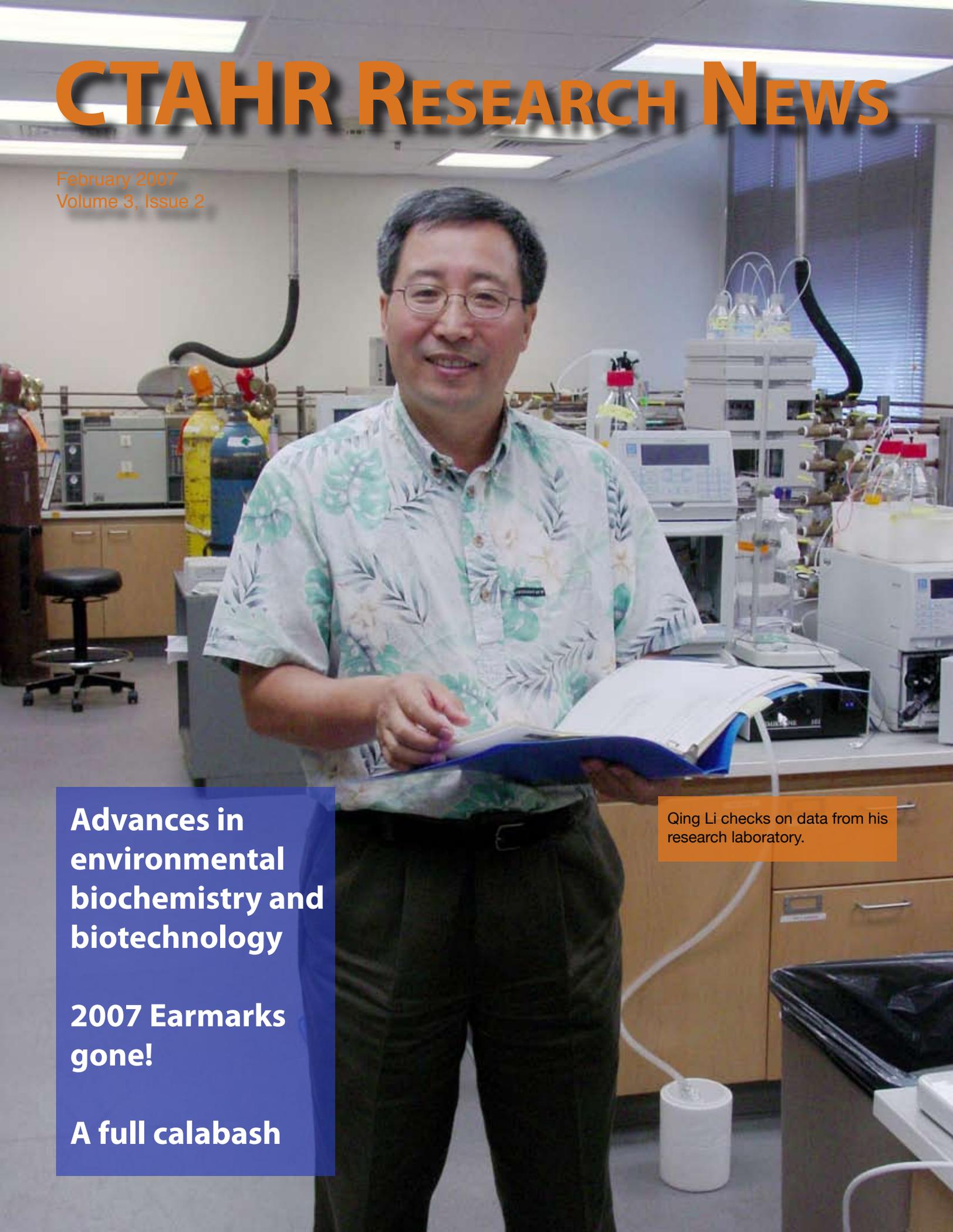
February 2007
Volume 3, Issue 2

**Advances in
environmental
biochemistry and
biotechnology**

**2007 Earmarks
gone!**

A full calabash

Qing Li checks on data from his research laboratory.



In this issue

Protecting life p 3

Research calabash p 9

Grant winners p 11

Congratulations to
Harold Tanouye, Jr. p 11

New publications p 12

Great grant
opportunities p 13



*C.Y. Hu
Associate Dean and
Associate Director for
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From the Associate Dean and Associate Director for Research

I am constantly awed by our faculty members' dedication in performing their duties, and Dr. Li is an excellent example. Trained as an environmental toxicologist, his research focus is to reduce human exposure to hazardous chemicals. Dr. Li is in charge of the pesticideregistrationprogramforthestate of Hawaii, and emergency responders depend on his laboratory for chemical identification. He has designed training materials and has conducted training workshops for emergency responders on proper handling of chemicals in various incidences. His research has been focused on environmental and analytical method development; environmental fate and distribution of pollutants; fruit fly control; and remediation technologies using metals, plants and microorganisms. With a large staff of technicians, research assistants, post-docs, graduate students and undergraduate students, he manages to find the time to write grant proposals and refereed journal papers. For the record, he published 34 refereed journal papers, and brought in 11 grants and contracts for \$831,053 in the last two years. I don't know how he finds time to sleep! Dr. Li exemplifies dedicated service to our state and community and we are truly proud to have Dr. Qing Li as one of our faculty.

Last month, we informed you of the likelihood of our losing all our special research grants for FY 2007. It has been confirmed recently that Congress has decided to remove ALL earmarks from the Agriculture Appropriation Bill

for FY 2007. Mr. David Obey, House Appropriations Committee Chair, released a letter last week detailing the process his committee will use in regard to Congressional earmarks. The new procedures include a March 16 deadline for all earmark requests, certification of each member's request on letterhead, and a plan to reduce the earmark dollar amount by 50% (relative to the FY 2006 amounts). The implication of this announcement is that in addition to losing all 2007 special grant funds, we may lose 50% of our special grants in 2008. Other FY 2008 budget changes include: moving 60% of existing Hatch funds and 62% of McIntire-Stennis forestry research funds to a new competitive multistate research program; elimination of the Animal Health and Disease research program; and a 42% increase in National Research Initiative competitive grant program as it will be the beneficiary to the money diverted from other programs. Therefore, our research budget will be doubly impacted in FY 2008 from the reduction of both formula and special grant funds. We will continue to report on the development in research funding and stress the importance of submitting your proposals (originally prepared for the special grant programs) to NRI or other funding agencies.

With the budget cut news, we look forward to reporting more activity in the "research calabash" in the future! Keep on submitting your proposals and publications to us! Mahalo!

Using environmental biochemistry and biotechnology tools to protect life

By Qing X. Li

Professor, Department of Molecular Biosciences and Bioengineering (MBBE)



The Li lab: front (l-r): Karl Yanagihara (Hawaii), Renee Harada (Hawaii), Qing Li (China), Il Kyu Cho (Korea), Dongli Wang (China); back (l-r): Panlada Tittabutr (Thailand), Sonia Campbell (France), Kathrin Huelck (Germany), Gladys Leong (Hong Kong), Philip Davy (Scotland), Dan Paquin (Michigan), Jonathon Cheng (Hawaii). Not shown: Cecelia Chan (Hong Kong), Jade Fukuda (Michigan), Christiane Hennessee (Texas), Yan Chi E Ho (Hong Kong), Edith Nonner (Germany), Ting Xu (China), Anh Thu Ta (Vietnam), and Joan Yanagihara (Hawaii).

A healthy environment supports a prosperous economy and the well-being of society. The research goal of our lab is to protect the environment and to reduce exposure of hazardous chemicals to humans and wildlife. We address important environmental issues to reach our goal. In addition to pesticide registration and chemical identification for statewide emergency response, our current research topics are environmental and analytical method development, environmental fate and distribution of pollutants, fruit fly control, and remediation technologies using metals, plants and microbes. Our dedicated and talented team members make us competitive and productive.

Environmental and analytical methodology

Our work in this area emphasizes immunoassay and sample extraction methods. We develop antibody-based sensors for environmental applications. Immunosensors have the advantages of being fast, simple, specific, sensitive and portable. We have made many antibodies specific to pesticides, animal growth regulators, and common environmental pollutants such as polycyclic aromatic hydrocarbons, polychlorinated biphenyls and polybrominated diphenyl ethers (PBDEs) and used

these antibodies to develop practical assays. We study antibody recognition mechanism, binding kinetics, and how-to-design haptens to evoke useful antibodies. In collaboration with scientists in UC-Berkeley (Dr. Alexander Karu), Scripps Research Institute (Dr. Victoria Roberts), and International Atomic Research Institute in France (Dr. Jean-Luc Pellequer), the recent discovery of π -cation interaction between antibodies



Qing X. Li

Hometown: Shandong, PR China

Joined CTAHR: 1995

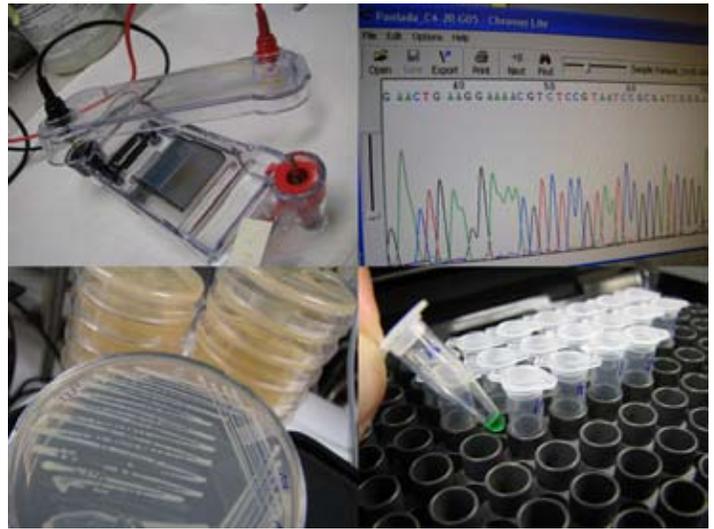
Educational History: BS, Agriculture, Shandong Agricultural University, China; PhD, Agricultural and Environmental Chemistry, University of California at Davis.

Specialization: Environmental Biochemistry and Biotechnology

Current Work: Environmental and analytical methodology, fate of pollutants, proteomics, metabolomics, and remediation technologies.

Languages spoken: English, Chinese

Dr. Panlada Tittabutr prepares samples.



Dr. Panlada Tittabutr uses this equipment to clone and express the genes encoding pollutant-degrading enzymes in bacteria.

and small molecules may have significant impact on protein design and drug discovery. We have collaborated with Dr. Weilin Shelver of USDA-ARS in Fargo, ND and Dr. Fernando Rubio of Abraxis LLC, PA to develop a magnetic particle immunoassay for the flame retardant PBDEs and apply it to environmental and food monitoring. We have also collaborated with scientists in China (Dr. Ji Li and Dr. Baomin Wang, China Agricultural University) and Korea (Dr. Jeonghan Kim, Seoul National University) to develop immunoassays for various pesticides, Bt toxins and active ingredients in Chinese herbs.

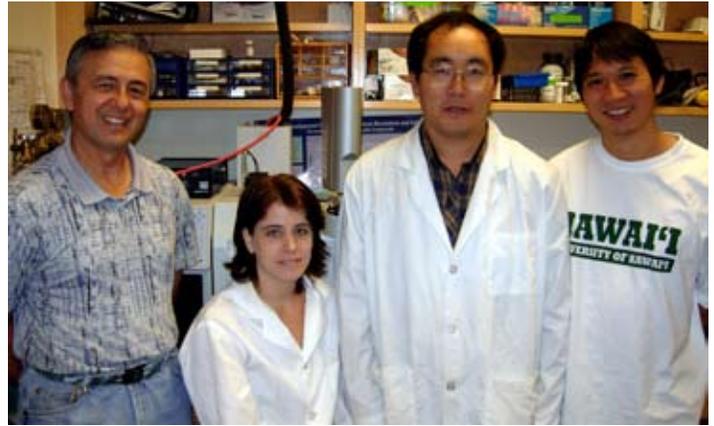
A good example of using immunoassays to solve practical problems in Hawaii is our collaboration with **Dr. Arnold Hara** (PEPS, Hawaii County) to control the infestation of the wasp *Quadrastichus erythrinae* to the Wiliwili tree, *Erythrina sandwicensis* O. Deg. **Dr. Ting Xu** has worked closely with **Christopher Jacobsen** in Dr. Hara's group. Injection of the insecticide imidacloprid into Wiliwili trees effectively controls the wasps. The assay developed in the lab has been used to accurately measure the distribution of the insecticide imidacloprid in the trees and obtain information to understand how to control the wasps. **Anh Thu Ta**, a UH Biology major, has been involved in this project for her Biology 499 research.

Our work has also focused on the development of sample extraction methodologies utilizing supercritical

fluids and pressurized solvents for environmental analysis and emergency responses. Supercritical fluid extraction (SFE) has been increasingly used as an important and efficient alternative to conventional separation methods. Supercritical fluids have solvating powers similar to organic solvents, but with higher diffusivity, lower viscosity, and lower surface tension. The unique properties allow industrial processes to extract, fractionate, or purify complex mixtures of pharmaceuticals and chemicals in a simple, selective, fast, clean, economical, and non-destructive manner. Pressurized fluid extraction (PFE), also known as accelerated solvent extraction (ASE), uses conventional solvents at elevated pressures and temperatures to increase the efficacy of the extraction process. Increased temperature accelerates the extraction kinetics, while elevated pressure keeps the solvent below its boiling point, thus enabling safe and rapid extractions. PFE performs extractions using less solvent in less time than traditional techniques. We have developed new SFE and PFE methods for environmental analyses as well as extraction of natural products. In our collaboration with **Dr. Wayne Iwaoka** (HNFAS), those extraction techniques are used to extract minerals, antioxidants and nutrients from Mamaki tea and guava leaves. **Jade Fukuda**, Dr. Iwaoka's student, investigates nutrient and mineral profiles in different cultivar guava leaves.

Environmental fate and distribution of pollutants

Our work on this topic centers on marine pollution, fate of pesticides in the environment and pesticide leaching into groundwater. Persistent organic pollutants (POPs) can adversely affect reproduction, the immune system, and neuro-behavioral functions of marine organisms. Understanding and monitoring spatial and temporal changes in contaminant burdens of marine organisms are important as many species are a primary source of subsistence food for coastal natives (e.g., Hawaiian and Alaskan), who further biomagnify the contaminants. As important is identifying and monitoring biological effects that POPs can have on pinnipeds, sea birds, coral, etc., particularly stressed species that have experienced population declines for unexplained reasons. For years, we have collaborated with Drs. Shannon Atkinson and Anne Hoover-Miller of Alaska SeaLife Center and Dr. Lee Ann Woodward of the US Fish and Wildlife Service. Our laboratory has monitored POPs in a wide range of marine species including Albatrosses, green turtles, monk seals, sea lion harbor seals, coral, and



Karl Yanagihara, Kathrin Huelck, Dr. Dongli Wang, and Dr. Ting Xu (l-r) express their happiness after they find molecular markers in marine mammal tissues on a gas chromatograph-mass spectrometer.

eiders in the Pacific Ocean from the Marshall Islands to Hawaii's Midway Atolls to the Alaskan Islands.

Dr. Dongli Wang and **Kathrin Hülck** have been studying POPs and their toxic effects on a number of marine mammals collected from the North Pacific Ocean around Alaska. We study adverse effects of POPs and correlate POPs levels with field biological observations. We have recently used proteomics as a tool to study the effects of POPs on marine ecosystems. Proteomics aims at quantifying the expression levels of the complete protein complement (the proteome) in a cell at any given time. Abnormal expressions of these indicators can identify populations at risk.

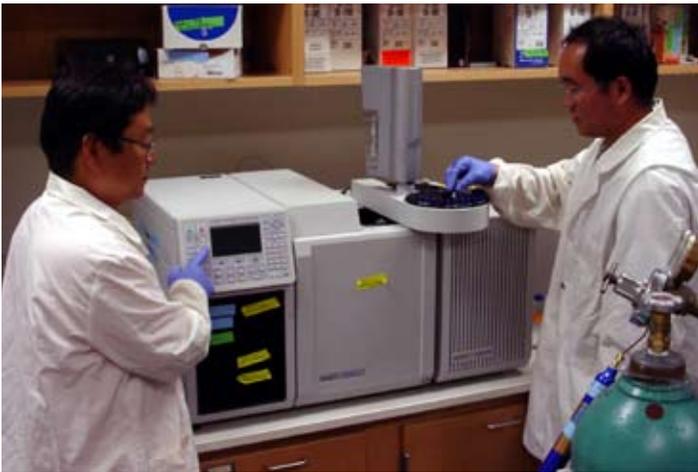
Edith Nonner has worked on Palmyra Atoll to investigate the wet tropical forest and hydrogeology of Palmyra Atoll NWR and other refuges in the Pacific Remote Islands Complex, in collaboration with Dr. Lee Ann Woodward (US Fish and Wildlife Service). Edith determines the fate and efficacy of immicides that have been used for pest control in the Remote Pacific Islands National Wildlife Refuges. Our goal is to control the mite infestation to the endangered *Pisonia* trees and restore the island traditional ecosystem.

Fruit fly control

Four species of tephritid fruit flies are of economic significance in Hawaii, and exported fruits and vegetables that are hosts for these flies are subject to quarantine restrictions to prevent their introduction to other states or nations where these flies are not established. In cases where there is no established post-harvest quarantine treatment, these restrictions prevent the export of Hawaii-grown agricultural produce. Suppression and



Philip Davy works on a novel bacterial species that destroys sulfur- and nitrogen-containing chemicals in petroleum oils to produce clean petroleum products.



Drs. Il Kyu Cho (left) and Dongli Wang (right) operate a gas chromatograph-mass spectrometer.



Dan Paquin screens cellulose-producing grass species for biofuel production and brown field cleanup in a greenhouse.

control of fly populations can increase crop yield and favor produce trade. Control and detection of these fly species have been primarily based on the use of toxin-supplemented food baits or toxin-/lure- baits. In collaboration with scientists in USDA-ARS in Hilo, we have isolated and identified a number of fruit fly

bait-enhancing chemicals (parapheromones) in cade oil (destructive distillation tar of *Juniperus oxycedrus* L. twigs). We have elucidated the environmental fate, dissipation and leaching potential into groundwater of the major fruit fly control agents – spinosad, fipronil, SureDye, and methyl eugenol which are now used for fruit fly control. We have collaborated with a number of scientists of USDA-ARS in Hilo and Manoa, including Drs. Stella Chang, Roy Cunningham, Eric Jang, Nic Liquido, Grant McQuate, Steven Peck, and Roger Vargas.

Dr. Il-Kyu Cho has been working on the discovery of new natural chemicals to attract and kill the pest fruit flies, in collaboration with Dr. Stella Chang of USDA-ARS in Manoa. **Dr. Cho, Cecilia Chan and Yan Chi E Ho** have studied metabolite and protein profiles in response to nutrients in diet. The purpose of this work is to develop a new diet to rear healthy infertile fruit flies for release to control the fruit fly population.

Environmental remediation

The cleanup cost for the U.S. hazardous waste sites for the next 30 years (2004 – 2033) is estimated to be \$170-250 billion. There are 294,000 sites in the U.S. and that number does not include sites where cleanup is completed or ongoing. Our remediation work addresses the integrated pollutant remediation technologies using zero valent metal, plants and bacteria. We also learn how to use sunlight to break down chemicals for environmental cleanup. Our recent accomplishments include the identification of new bacterial species, elucidation of novel biochemical pathways for degrading environmental pollutants in these species, and utilization of metals to destroy organic contaminants. We intend to integrate chemical and biological remediation technologies.

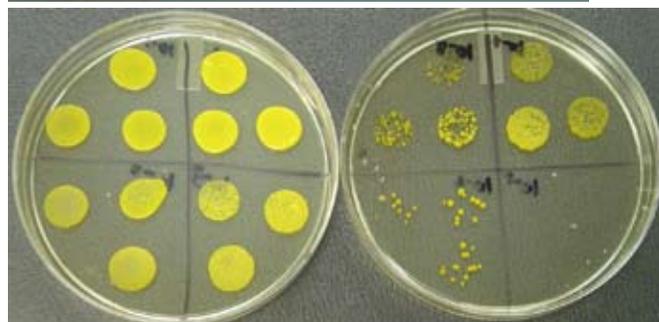
In collaboration with **Alton Arakaki** (TPSS, Molokai) and Robert Boesch (State HDOA, Pesticides Branch), **Sonia Campbell** and **Dan Paquin** are screening plant species for clean-up of heptachlor-contaminated fields in Molokai. Dan Paquin has worked closely with William Grannis of Hickam Air Force, Richard Manz of CH2M Hill and Scott Moncrief of EA Engineering, Science, and Technology, Inc. on phytoremediation studies using plants to clean up petroleum contaminated sites in Hickam Air Force base and sites in Guam. As a model system of plant-microbe interactions, we have worked with HARC's Dr. Judy Zhu to perform proteomics studies to understand

cellular and protein responses to the root rot pathogen *Phytophthora palmivora* in papaya roots. **Maya Paidi** in Dr. Zhu's group has identified proteins associated with defense responses that can then be used in the molecular design of improved papaya pathogen resistance.

Our research efforts in microbial remediation are enhanced with metabolomics and proteomics to understand the metabolism network and mechanisms at the metabolite, protein and gene levels. By understanding degradation mechanisms of pollutants by microbes and their controlling factors, we hope to synthesize microbial consortia for facilitated bioremediation of contaminated sites. **Sonia Campbell** and **Renee Harada** are isolating novel bacterial and *Archaea* species from diverse environments and work closely with Hawaii State Department of Health's Office of Hazard Evaluation and Emergency Response on chemical identification for statewide emergency response. Our interest is to understand microbial diversity, biotoxin production and pollutant degradation. **Jonathan Cheng** focuses on isolation and characterization of bacteria capable of degrading petroleum products. **Philip Davy** elucidates gene and protein regulation mechanisms of bacterial desulfurization of sulfur containing aromatics in petroleum products. **Christiane Hennessee** studies effects of chemicals mixtures on bacterial degradation of petroleum products. **Dr. Panlada Tittabutr** clones



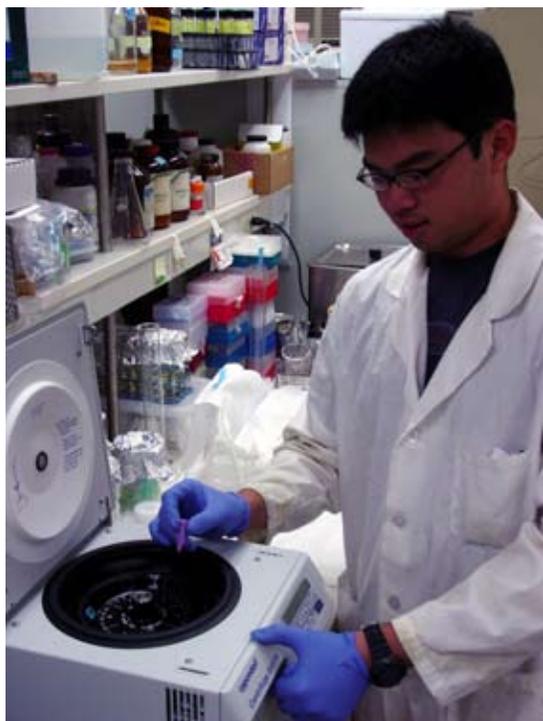
Jade Fukuda (left) and Christiane Hennessee (right) observe separation and identification of antioxidants in guava leaf teas.



Novel petroleum-degrading bacteria
Christiane Hennessee isolated.

and expresses the gene encoding dioxygenase, a critical degradation enzyme for aromatic chemicals. We collaborate with Dr. Michael Montgomery and his group (US Naval Research Lab) on mineralization and incorporation of explosives into biomass by estuarine microorganisms in coastal waters.

Two new technologies exemplify another exciting aspect of our work. In collaboration with Drs. Jamil Rima and Lizette Aouezova of the Lebanese University, Lebanon, we have developed a novel metal-mediated oxidation technology using zero valent iron and/or



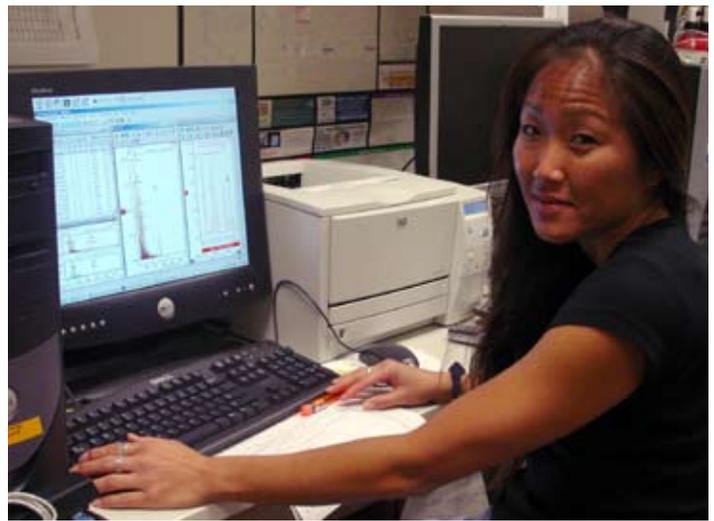
Jonathon Cheng performs centrifugation of his samples.

other metals to generate reactive oxygen species and undergo subsequent oxidation reactions to destroy organic chemicals and disinfect microorganisms such as bacteria and fungi. This new technology is based on the oxidation mechanism mediated by zero valent iron or other metals, rather than commonly used reduction mechanism. The reaction mechanisms can be readily controlled and standardized for various applications. Applications of this technology have been demonstrated in a wide range of industrial effluents and domestic wastewater treatments for efficient pollutant mineralization and bacterial disinfection. In addition, this technology can be used in analytical chemistry to measure carbohydrate and vitamin contents in fruits, juices, soft drinks and formulated drugs.

This collaboration has also produced a novel encapsulation technology for continuous, efficient and in-situ harvest of natural aromas in the field, which can significantly influence cosmetic and food industries. This novel technology employs molecular trappers and well-designed devices to collect aromas directly from flowers and plants *in-situ*. The entire process is stress-free on the plants because it does not involve the use of organic solvents, cutting of flowers and plants, and hydro-distillation and it also has minimal chemical and enzymatic degradation of aromas. This technology offers high yields of aroma production, preserves the natural composition of aromas, and harvests aromas from the exotic and sensitive plants and flowers that were not obtainable before.

Finally, we have another project that is critical to many growers in the state of Hawaii; doing research work for possible pesticide registration. There are three important phases of pesticide registration: field efficacy study, residue magnitude study and preparation of the residue tolerance petition for submission to the US EPA. Our pesticide residue and quality assurance team – **Renee Harada, Gladys Leong, Joan Yanagihara and Karl Yanagihara** – works closely with **Dr. Michael Kawate's** (PEPS) field efficacy program by providing data to support registration of safe and effective pesticides for use on crops in Hawaii.

All in all our team of nearly 20 scientists are on an exciting quest for new knowledge and scientific outcomes that benefit the earth and its inhabitants.



Renee Harada is analyzing her microbial diversity and community data.



“Pesticide gang” (l-r): Joan Yanagihara, Qing Li, Gladys Leong, Renee Harada, and Karl Yanagihara.

The research calabash

By Doug Vincent
Special Program Director for Grants and Contracts

Earmarks gone...for now....

As mentioned by CY in the introduction, the U.S. House of Representatives passed the Joint Budget Resolution (H JRes. 20) on January 31, 2007 by a vote of 286-140, the bill passed **without any earmarks** in the budget language. The House bill passed by a closed rule and debate limited to one hour. The U.S. Senate passed the bill on February 14, 2007 by a vote of 81-15, again without any earmarks. Once the President signs the bill, funding for the federal fiscal year 2007 will be released to various funding agencies, but with no earmarks. CTAHR will lose over \$6.5 million dollars in funding for FY 2007. The only program that survived the cuts was the Alaska Native- Native Hawaiian Agricultural Education Grants. We now hope that we can recover some the funding through the earmark process for the FY 2008 budget. But it will not be business as usual. Chairman David Obey of the House Appropriations Committee has warned that Congress needs to reduce the dollar amount of earmarks by 50%. Projects will need to be vetted, evaluated and importantly, meritorious. We are crafting new arguments in support of our programs.

Abstracts Due – March 9, 2007

Abstracts are due for the 19th Annual CTAHR Student Research Symposium on **March 9, 2007**. Abstract of research done by CTAHR or CAFNRM (Hilo) graduate and undergraduate students or other classified students whose research is done under direct supervision of CTAHR or CAFNRM faculty. For more information about the Symposium or abstract submission, see the web site: <http://www.ctahr.hawaii.edu/symposium/index.asp>

Got a contract? The importance of making deliveries!

Several of our faculty members have “grants” from Hawaii Department of Agriculture or the Hawaii Farm Bureau Federation. But these are not “grants” per se but rather contracts. Most of these contracts stipulate that progress reports are to be delivered on a certain date in the contract. They also require a final technical report at a fixed time after the end of the contract. These interim and final reports are important because the completion of these reports

trigger payments from the funding agency to the University. But “wait”, you say...”I got all my money when the account code was set up.” That’s true because the University of Hawaii “fronts” you the entire amount of money when the contract is signed, and expects that when you complete the work, the University will be reimbursed by the funding agency. So please be aware of the requirements of the contract and submit reports in a timely fashion to ensure that the University gets reimbursed for their funding.

Reminder: Please acknowledge your sources of funding

Most of the research we do is funded through taxpayer support – state or federal funding. We strive to do applicable research that will benefit our stakeholders. When we do it right, the research done on our field stations or in our laboratories is used by our extension specialists or agents and applied to real world scenarios that benefit our stakeholders and have impacts in our communities. That’s also being accountable to the taxpayers who pay for what we do. Many times we fail to acknowledge who paid for the research or extension activities. Sure, we often list the grants that funded the research when we publish the peer reviewed journal paper. But what about that extension publication that provides grower recommendations that was based upon the research? Or the poster, brochure or published proceedings? It is perhaps even more important to cite the grant funding or the source of the support even if it is only “in part” in these types of publications. Why? Simple. These publications are more likely to be read or seen by policy makers. Policy makers and stakeholders are the people that can influence the continuation of the funding. Policy makers don’t usually read peer-reviewed journal articles. Citing who paid for the research in other publications also helps us with the funding agencies. USDA CSREES always likes to see on that poster, brochure or extension publication that the research findings “were funded, in part, by the USDA CSREES Special Research Grant Award # 2004-34135-xxxxx.” It’s about being accountable and it’s much easier to measure impacts of a grant if the grant is acknowledged in the outputs from that project. If you

need help with the appropriate verbiage or you don't know the grant number of your project(s), call our office.

19th Annual CTAHR Student Research Symposium

Mark your calendars today. The 19th Annual CTAHR Student Research Symposium will be held on **April 5-6, 2007** in CTAHR's Agricultural Sciences Building. Undergraduate and graduate students will be making poster and oral presentations at the Symposium. This is THE opportunity to see the outstanding research conducted by our students. The Symposium promotes collegiality and cooperation among CTAHR's faculty. It's also a judged competition – students are competing for travel grants and monetary awards. Geographic isolation of the University of Hawaii and the high cost of travel often prevent CTAHR students from receiving the experience of presenting their research at a professional scientific conference. The purpose of the CTAHR Student Research Symposium is to provide our students with the opportunity to present their scholarly work in a friendly, yet professional setting similar to what they would experience at a national or international conference. Please plan on joining us for the 19th Annual CTAHR Student Research Symposium. See the web site for more information: <http://www.ctahr.hawaii.edu/symposium/index.asp>. And be sure to bring a sweater – Ag Sciences can be cold.

Making the compelling case, part II

In past editions of the *CTAHR Research News*, we've written about finding sources of information or statistics that can help you make a compelling case for your grant proposals. Another clearing house of information is the Tech-Based Economic Development (TBED) Resource Center Newsletter. The TBED Newsletter is a cooperative project of the U.S. Department of Commerce Office of Technology Policy and the State Science and Technology Institute (SSTI), a non-profit organization dedicated to improving government-industry programs that encourage economic growth through the application of science and technology. The TBED Resource Center (found here: <http://www.tbedresourcecenter.org/OTP/OTP.php>) is a clearing house for on-line reports in the areas of technology based economic development. If one uses Hawaii in its search engine – among other reports, you can find the 2005 report by the Hawaii Institute for Public Affairs entitled "A New Economy in Hawaii – 2005 Indicators and Recommendations." The site has a robust search

engine to search over 4500 recent reports on the role of technology and science in creating economic development. The co-sponsor, SSTI (<http://www.ssti.org/>) also puts out an excellent weekly on-line newsletter. The SSTI Weekly Digest recently summarized Governor Lingle's proposals technology based initiatives. Again, these kinds of documents can often help you make that compelling case – that what you are proposing is in-line with state or regional priorities.

CSREES releases Strategic Plan

The USDA Cooperative State Research, Education and Extension Service (CSREES) has released its Strategic Plan for 2007-2012. CSREES is our major partner with USDA. The plan contains six strategic goals: 1) Enhance international competitiveness of American agriculture; 2) Enhance the competitiveness and sustainability of rural and farm economies; 3) Support increased economic opportunities and improved quality of life in rural America; 4) Enhance protection and safety of the nation's agriculture and food supply; 5) Improve the nation's nutrition and health and 6) Protect and enhance the nation's natural resource base and environment. The plan is available here: http://www.csrees.usda.gov/about/offices/pdfs/csrees_stratic_plan.pdf. Why is the CSREES strategic plan important to CTAHR? The CSREES strategic plan sets the programmatic direction for the agency which in turn influences research, extension and education programs at its partner institutions, like CTAHR.

Additional funds for CTAHR!!

By Doug Vincent
Special Program Director for Grants and Contracts

Since the January issue of *CRN*, we have received these new grants. Three (3) grants for an additional \$285,000. Excellent work by the faculty members receiving the funding. Thus far this fiscal year (FY 2007), CTAHR has received 130 awards for \$19,427,983 – just shy of what CTAHR received last fiscal year. That's good news for CTAHR. Although the receipt of grants has slowed over the last several months, we are well ahead of last year's pace. As of

Wayne Nishijima (**Admin**)
Hawaii-Dept of Hawaiian Home Lands
Provide educational and technical assistance to DHHL leases to develop successful commercial agricultural enterprises or subsistence agricultural activities.
Hawaii-Dept of Hawaiian Home Lands. \$239,993

C Alan Titchenal (**HNFAS**)
Supplement to Initial Proposal: Assessment of the Effectiveness of the Online Bodybugg™ Calorie Monitoring System for Long-term Weight Control.
APEX Fitness & Nutrition Analysis Systems. \$19,285.

February 15, 2007, we have received the same number of awards (130) but for an additional \$3.1 M. This increase is due to three large grants received this year so it is important that we continue to seek additional funding to ensure we gain the funding we need to continue our work. This is especially important now that we know the Congressional earmark funding will not be forthcoming in FY 2007. To those that have been successful, congratulations for your fine work.

Russell Yost (**TPSS**)
Phosphorus Decision Support System: Developing a Model for Predicting Amounts of Rock Phosphate Needed to Meet Crop P. Requirements - Fellow A. Diarra
Univ of California-Davis. \$20,000.

CTAHR supported honored

Mr. Harold Tanouye, Jr., founder and CEO of Green Point Nurseries on the Island of Hawaii and member of CTAHR's Board of Advisors, has been named to the class of 2007 of the Junior Achievement Hawaii Business Hall of Fame. Harold will be honored at the 2007 Junior Achievement Hawaii Business Hall of Fame Awards dinner on Thursday, March 8, 2007 at the Royal Hawaiian Hotel. Harold is the past recipient of the 1992 Hawaii State Exporter of the Year and at the 2004 Hawaii Agriculture Conference was the recipient of the Outstanding Agriculture Operation Award. We also thank Harold his many years supporting CTAHR's research programs, especially our faculty working with the floriculture industry and in particular, with anthuriums. Congratulations, Harold!



Harold Tanouye at the 2004 Hawaii Agriculture Conference.

New faculty publications

Barbara DeBaryshe (CoF)

DeBaryshe, B. D., & Gorecki, D. M. (2007). Experimental validation of a preschool emergent literacy curriculum. *Early Education and Development*, 18, 93-110.

DeBaryshe, B. D., Yuen, S., Nakamura, L. N., & Stern, I. R. (2006). The roles of family obligation and parenting practices in explaining the well-being of Native Hawaiian adolescents living in poverty. *Hawaii: Multidisciplinary Research on Hawaiian Well-Being*, 3, 103-125.

JB Friday (NREM)

Scowcroft, P. G., J. B. Friday, T. Idol, N. Dudley, J. Haraguchi, and D. Meason. 2007. Growth response of Acacia koa trees to thinning, grass control, and phosphorus fertilization in a secondary stand in Hawai'i. *Forest Ecology and Management* 239: 69-80.

Friday, J. B., H. J. McArthur, and L. A. Watson. 2006. Using participatory rural appraisal and participatory research and extension in a post-independence environment: A case from East Timor. *International Journal of Agricultural Sustainability* 4(2): 108-118.

Ron Mau (PEPS)

Mau, R.F.L., E.B. Jang and R.I. Vargas. 2007. The Hawaii Area-Wide Fruit Fly Pest Management Programme: Influence of Partnership and a Good Education Programme, In Vreysen, M.J.B., A.S. Robinson, and J. Hendrichs (Eds.), *Area-Wide Control of Insect Pests: From Research to Field Implementation*. Springer, Dordrecht, The Netherlands.

Barry, J.D., N.W. Miller, J.C. Pinero, A. Tuttle, R.F.L. Mau, R. I. Vargas. 2006. Effectiveness of protein baits on melon fly and oriental fruit fly (Diptera: Tephritidae): Attraction, feeding, and foraging. *J. Econ. Entomol.* 99(4): 1161-1167,

Zhao, J.-Z., H. L. Collins, Y.-X. Li, R. F. L. Mau, G. D. Thompson, M. Hertlein, J. T. Andaloro, R. Boykin, and A. M. Shelton. 2006. Monitoring diamondback moth (Lepidoptera: Plutellidae) resistance to spinosad, indoxacarb and emamectin benzoate. *J. Econ. Entomol.* 99(1): 176-181.

Russell Messing (PEPS)

Mondor, E.B., M.N. Tremblay & R.H. Messing. 2006. Morphological and ecological traits promoting aphid colonization of the Hawaiian Islands. *Biological Invasions* 9: 87-100.

Mondor, E.B., M.N. Tremblay & R.H. Messing. Extrafloral nectary production in *Vicia faba* is both damage and resource-dependent. *Biology Letters* 2: 583-585.

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Qing Li (MBBE)

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Open grant opportunities: Go for it!!

By Doug Vincent
Special Program Director for Grants and Contracts

A word of thanks: Sam Kuo has been doing nearly all of the ORS Form 5 CTAHR fiscal office budget reviews since Keith left the CTAHR last month. He's been doing a great job and with the increase in proposal submissions, Sam's been much busier. Thank you, Sam for your efforts on CTAHR's behalf!! We appreciate it!!

In the long list below, you see many opportunities to seek funding for your activities. I hope you will take advantage of these opportunities. If we are to continue our important research programs in the face of the loss of our Congressional earmark funding, we must prepare to "fish in different ponds." Unfortunately, these

ponds can have fewer fish and more fishers. But the competition will make us stronger. The good news is that CTAHR has responded to the challenge!! Our office tracks grant submissions to ORS and for January 2007, CTAHR faculty and staff have submitted 25 proposals to various funding agencies, up from 11 proposals submitted in the previous month and eight more than January 2006. And for February 2007 we're already ahead in our submissions as compared to previous years. Obviously, the loss of the federal earmark funding has motivated many of your colleagues to seek additional grant funding. Keep them coming.

American Feed Industry Association
Liquid Feed Research Grants
Proposal Deadline: March 1, 2007
http://www.ctahr.hawaii.edu/vincent/AFIA-LFC_Grant_Funds_2007.pdf

Hawaii Community Foundation
Medical Research Grants
Proposal Deadline: March 1, 2007
http://www.hawaiicommunityfoundation.org/doc_bin/grant_rfps/RFP-MedResRFP2007.pdf

National Science Foundation
Environmental Engineering
Proposal Deadlines: March 1, 2007, September 15, 2007
http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501029

National Science Foundation
Environmental Sustainability
Proposal Deadlines: March 1, 2007, September 15, 2007
http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501027

National Science Foundation
Environmental Technology
Proposal Deadlines: March 1, 2007, September 15, 2007
http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501030

National Science Foundation
Energy for Sustainability
Proposal Deadlines: March 1, 2007, September 15, 2007
http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501026

National Science Foundation
Biotechnology (BTEC)
Proposal Deadlines: March 1, 2007, September 15, 2007
http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501029

U.S. Agency for International Development
Dry Grain Pulses Collaborative Research Support Program
Proposal Deadline: March 5, 2007
<http://www.grants.gov/search/search.do?oppld=12279&m ode=VIEW>

Department of Health and Human Services
National Institute of Health
Long-Term Weight Maintenance: Basic and Clinical Studies (R01)
Proposal Deadline: March 5, 2007, July 5, 2007, November 5, 2007
<http://grants.nih.gov/grants/guide/pa-files/PA-07-053.html>

Department of Health and Human Services
National Institute of Health
Retirement Economics (R01)
Proposal Deadline: March 5, 2007, July 5, 2007, November 5, 2007
<http://grants.nih.gov/grants/guide/pa-files/PA-07-075.html>

Department of Health and Human Services
National Institute of Health
Parenting Capacities and Health Outcomes in Youth and Adolescents (R01)
Proposal Deadline: March 5, 2007, July 5, 2007, November 5, 2007
<http://grants.nih.gov/grants/guide/pa-files/PA-07-061.html>

U.S. Department of Energy – Chicago Service Center
Office of Biological and Environmental Research
New Analytical and Imaging Technologies for
Lignocellulosic Material Degradation, for Multiplexed
Screening of Plant Phenotypes.
Proposal Deadline: March 6, 2007
<https://e-center.doe.gov/iips/faopor.nsf/UNID/E569DBDE47BE80FF85257229006E3FC9?OpenDocument>

National Science Foundation
Microbial Genome Sequencing Program
Proposal Deadline: March 8, 2007
http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf07531

U.S. Department of Energy – Chicago Service Center
Office of Biological and Environmental Research
Quantitative Microbial Biochemistry and Metabolic
Engineering for Biological Hydrogen Production
Proposal Deadline: March 8, 2007
<https://e-center.doe.gov/iips/faopor.nsf/UNID/D390B42A791A6F4585257229006EE9EF?OpenDocument>

U.S. Department of Health and Human Services
Administration for Children and Families
Native Hawaiian and Non-profit American Indian
Organization Child Care Grants
Letter of Intent due: March 12, 2007
Proposal Deadline: April 9, 2007
<http://www.acf.hhs.gov/grants/open/HHS-2007-ACF-OFA-YN-0090.html>

U.S. Environmental Protection Agency
FY 2007 Schools Chemical Cleanout Campaign (SC3)
Grant
Pre-proposals due: March 14, 2007
Proposal Deadline: April 19, 2007
<http://www.epa.gov/oswer/docs/grants/07-06.pdf>

U.S. Environmental Protection Agency – Region 9
Strategic Agricultural Initiative/Food Quality Protection Act
Proposal Deadline: March 19, 2007
http://www.ctahr.hawaii.edu/vincent/EPA_2007_FQPA_RFP.pdf

Ajinomoto Amino Acid Research Program
Pre-applications due: March 15, 2007
Proposal Deadline: August 1, 2007
<http://www.3arp.ajinomoto.com/>

Sigma Xi, The Scientific Research Society
Grants-in-Aid of Research (Graduate and Undergraduate
Students)
Proposal Deadline: March 15, 2007
<http://www.sigmaxi.org/programs/giar/index.shtml?CFID=324824&CFTOKEN=87609635>

United Soybean Board
Soy Health Research Program
Proposal Deadline: March 15, 2007
<http://www.talksoy.com/shrp/?CFID=324824&CFTOKEN=87609635>

U.S. Department of Energy – Chicago Service Center
Office of Biological and Environmental Research
New Genomic Strategies and Technologies for Studying
Complex Microbial Communities Validating Genomic
Annotations
Proposal Deadline: March 20, 2007
<https://e-center.doe.gov/iips/faopor.nsf/UNID/E5EE262EB18CEE085257230004F4337?OpenDocument>

U.S. Department of Health and Human Services
National Institute of Environmental Health and Safety
Superfund Basic Research and Training Program (P42)
Letter of Intent Due: January 21, 2007
Proposal Deadline: March 22, 2007
<http://grants.nih.gov/grants/guide/rfa-files/RFA-ES-06-003.html>

Hawaii Community Foundation
Ka Papa O Kakuhihewa Fund
Proposal Deadline: March 23, 2007
http://www.hawaiicommunityfoundation.org/doc_bin/grant_rfps/RFP-KPOKRFP2007.pdf

Hawaii Community Foundation
The Rev. Takie Okumura Family Fund
Young Children and Youth Grant Making Program
Proposal Deadline: March 30, 2007
http://www.hawaiicommunityfoundation.org/doc_bin/grant_rfps/RFP-Okumura_2007.pdf

U.S. Department of Agriculture
Regional Integrated Pest Management Centers
Proposal Deadline: March 30, 2007
<http://www.csrees.usda.gov/fo/fundview.cfm?fonum=1640>

U.S. Department of Health and Human Services
National Institutes of Health
Integration of Food and Nutrition into Prevention, Care and
Treatment of HIV Infection and AIDS (RO3)
Proposal Deadline: March 30, 2007
<http://grants.nih.gov/grants/guide/rfa-files/RFA-HD-07-001.html>

U.S. Department of Agriculture
Rural Development – Rural Business Opportunity Grants
Proposal Deadline: March 30, 2007
<http://www.rurdev.usda.gov/rbs/buspr/rbog.htm>

U.S. Environmental Protection Agency
National Community-Based Lead Outreach and Training
Grant Program
Proposal Deadline: April 2, 2007
<http://www.epa.gov/lead/pubs/outreach-traininggrant.pdf>

U.S. Environmental Protection Agency
Pollution Prevention Grants
Proposal Deadline: April 2, 2007
<http://www.epa.gov/p2/pubs/grants/ppis/2007fpp2grant.htm>

U.S. Department of Agriculture
Food and Nutrition Service
FY 2007 Women, Infant and Children Special Project
Grants
Proposal Deadline: April 2, 2007
<http://www.fns.usda.gov/oane/menu/DemoProjects/WICSPG/WICSPG.htm>

U.S. Department of Agriculture
CSREES – Integrated Research, Education and Extension
Competitive Grant Program National Water Quality
Program
Proposal Deadline: April 4, 2007
<http://www.csrees.usda.gov/fo/fundview.cfm?fonum=1134>

National Science Foundation
Integrated Graduate Education and Research Traineeship
Program (IGERT)
Preliminary Proposal Due: April 5, 2007
Proposal Deadline: October 5, 2007
http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf07540

U.S. Department of Agriculture
CSREES – Youth Farm Safety Education and Certification
Program
Proposal Deadline: April 6, 2007
<http://www.csrees.usda.gov/fo/fundview.cfm?fonum=1093>

U.S. Environmental Protection Agency
Community Action for a Renewed Environment (CARE)
Program
Proposal Deadline: April 9, 2007
<http://www.epa.gov/air/grants/07-02.pdf>

National Science Foundation
Ethics Education in Science and Engineering
Proposal Deadline: April 10, 2007
http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf07541

U.S. Department of Energy – Chicago Service Center
Office of Biological and Environmental Research
Program for Ecosystem Research
Proposal Deadline: April 10, 2007
<https://e-center.doe.gov/iips/faopor.nsf/UNID/03958C13FC1D4E8F8525722E005A6739?OpenDocument>

Hawaii Community Foundation
Hawaii Children's Trust Fund Community Awareness
Events
Proposal Deadline: April 13, 2007
http://www.hawaiicommunityfoundation.org/doc_bin/grant_rfps/RFP-HCTF_CommunityAwareness2007_RFP.pdf

U.S. Department of Health and Human Services
Substance Abuse & Mental Health Services Administration
Drug Free Communities Support Program
Proposal Deadline: April 17, 2007
http://www.samhsa.gov/Grants/2007/sp_07_001.aspx

U.S. Environmental Protection Agency
Science to Achieve Results (STAR) Program
An Interdisciplinary Approach to Examining the Links
between Social Stressors, Biodiversity and Human Health
Proposal Deadline: April 19, 2007
http://es.epa.gov/ncer/rfa/2007/2007_biodiversity_health.html

Hawaii Community Foundation
Group 70 Foundation Fund
Proposal Deadline: April 20, 2007
http://www.hawaiicommunityfoundation.org/doc_bin/grant_rfps/RFP-Group70_RFP_2007.pdf

U.S. Department of Energy
Office of Basic Energy Sciences – Chicago Service Center
Experimental Program to Stimulate Competitive Research
(EPSCoR) Building EPSCoR – State/National Laboratory
Partnerships
Pre-Application due: April 30, 2007
Proposal Deadline: July 16, 2007
<https://e-center.doe.gov/iips/faopor.nsf/UNID/A616F4E02E82F5868525724A0071740C?OpenDocument>

U.S. Department of Health and Human Services
National Institutes of Health
Understanding and Promoting Health Literacy (R01)
Letters of Intent Due: April 24, 2007, December 24, 2007
Proposal Due: May 24, 2007, January 24, 2008
<http://grants.nih.gov/grants/guide/pa-files/PAR-07-020.html>

U.S. Department of Health and Human Services
Administration for Children and Families
Head Start Graduate Student Research Grants
Proposal Due: May 1, 2007
<http://www.acf.hhs.gov/grants/open/HHS-2007-ACF-OPRE-YR-0068.html>

U.S. Department of Health and Human Services
Administration for Children and Families
Head Start University Partnership Research Grants:
English Language Learners (ELLs) in Head Start and Early
Head Start Programs
Proposal Deadline: May 3, 2007
<http://www.acf.hhs.gov/grants/open/HHS-2007-ACF-OPRE-YF-0070.html>

U.S. Department of Energy
Office of Science – Chicago Service Center
Environmental Remediation Science Program
Letter of Intent due: February 20, 2007
Proposal Deadline: May 3, 2007
<https://e-center.doe.gov/iips/faopor.nsf/UNID/C2C9FB96CB266CA685257265006DCC61?OpenDocument>

U.S. Department of Agriculture
CSREES – Conservation Effects Assessment Project
(CEAP)
Proposal Deadline: May 22, 2007
http://www.csrees.usda.gov/funding/rfas/pdfs/07conservation_effects.pdf

U.S. Department of Agriculture
CSREES – National Research Initiative-Competitive Grants
Program
Microbial Genomics (B): Functional Genomics of
Microorganisms
Proposal Deadline: June 5, 2007
<http://www.csrees.usda.gov/fo/fundview.cfm?fonum=1091>

U.S. Department of Agriculture
CSREES – National Research Initiative-Competitive Grants
Program
Arthropod and Nematode Biology and Management (B)
and (C): Suborganismic Biology and Tools, Resources and
Genomics
Proposal Deadline: June 5, 2007
<http://www.csrees.usda.gov/fo/fundview.cfm?fonum=1602>

U.S. Department of Agriculture
CSREES – National Research Initiative-Competitive Grants
Program
Agricultural Markets and Trade
Proposal Deadline: June 5, 2007
<http://www.csrees.usda.gov/fo/fundview.cfm?fonum=1106>

U.S. Department of Agriculture
CSREES – National Research Initiative-Competitive Grants
Program
Animal Growth and Nutrient Utilization
Proposal Deadline: June 5, 2007
<http://www.csrees.usda.gov/fo/fundview.cfm?fonum=1067>

U.S. Department of Agriculture
CSREES – National Research Initiative-Competitive Grants
Program
Animal Genome
Proposal Deadline: June 5, 2007
<http://www.csrees.usda.gov/fo/fundview.cfm?fonum=1066>

U.S. Department of Agriculture
CSREES – National Research Initiative-Competitive Grants
Program
Air Quality
Proposal Deadline: June 5, 2007
<http://www.csrees.usda.gov/fo/fundview.cfm?fonum=1062>

U.S. Department of Agriculture
CSREES – National Research Initiative-Competitive Grants
Program
Human Nutrition and Obesity
Proposal Deadline: June 5, 2007
<http://www.csrees.usda.gov/fo/fundview.cfm?fonum=1095>

U.S. Department of Agriculture
CSREES – National Research Initiative-Competitive Grants
Program
Plant Biosecurity
Proposal Deadline: June 5, 2007
<http://www.csrees.usda.gov/fo/fundview.cfm?fonum=1521>

U.S. Department of Agriculture
CSREES – National Research Initiative-Competitive Grants
Program
Agricultural Markets and Trade
Proposal Deadline: June 5, 2007
<http://www.csrees.usda.gov/fo/fundview.cfm?fonum=1106>

U.S. Department of Agriculture
CSREES – National Research Initiative-Competitive Grants
Program
Arthropod and Nematode Biology and Management (B)
and (C): Suborganismal Biology and Tools, Resources and
Genomics.
Proposal Deadline: June 5, 2007
<http://www.csrees.usda.gov/fo/fundview.cfm?fonum=1602>

U.S. Department of Agriculture
CSREES – National Research Initiative-Competitive Grants
Program
Animal Genome
Proposal Deadline: June 5, 2007
<http://www.csrees.usda.gov/fo/fundview.cfm?fonum=1066>

U.S. Department of Agriculture
CSREES – National Research Initiative-Competitive Grants
Program
Animal Growth and Nutrient Utilization
Proposal Deadline: June 5, 2007
<http://www.csrees.usda.gov/fo/fundview.cfm?fonom=1067>

U.S. Department of Agriculture
CSREES – National Research Initiative-Competitive Grants
Program
Air Quality
Proposal Deadline: June 5, 2007
<http://www.csrees.usda.gov/fo/fundview.cfm?fonom=1062>

Hawaii Community Foundation
Fred Baldwin Memorial Foundation (funds Maui projects)
Proposal Deadline: July 2, 2007
http://www.hawaiicommunityfoundation.org/doc_bin/grant_rfps/2007/Baldwin_2007_guidelines.pdf

U.S. Department of the Interior
U.S. Fish and Wildlife Service
National Coastal Wetlands Conservation Grant Program
Proposal Deadline: June 29, 2007
http://www.ctahr.hawaii.edu/vincent/National_Coastal_Wetlands_Conservation_Grant_Program.pdf

Hawaii Community Foundation
Annie Sinclair Knudsen Memorial Fund/Kauai Community
Grants Program
Proposal Deadline: July 16, 2007
http://www.hawaiicommunityfoundation.org/doc_bin/grant_rfps/2007/Knudsen_2007_RFP.pdf

U.S. Department of Agriculture
CSREES – National Research Initiative-Competitive Grants
Program
Animal Protection and Biosecurity (C): Animal Biosecurity
Coordinated Agricultural Products (CAP)
Proposal Deadline: August 14, 2007
<http://www.csrees.usda.gov/fo/fundview.cfm?fonom=1522>

U.S. Department of Defense
United States Army Medical Research & Materiel
Command
Broad Agency Announcement
Proposal Deadline: September 30, 2007
<http://www.usamraa.army.mil/pages/index.cfm>

U.S. Department of Health and Human Services
National Institutes of Health
Improving Diet and Physical Activity Assessment (RO1)
Letters of Intent Due: September 5, 2007; May 5, 2008
Proposal Deadline: October 5, 2007; June 5, 2008
<http://grants.nih.gov/grants/guide/pa-files/PAR-07-259.html>

U.S. Department of Defense
National Biodefense Analysis and Countermeasures Center
Broad Agency Announcement
Proposal Deadline: September 30, 2007
<http://www.usamraa.army.mil/pages/index.cfm>

U.S. Department of Agriculture
Agricultural Marketing Service
Specialty Crop Block Grant Program
Proposal Deadline: October 11, 2007
<http://www.ams.usda.gov/fv/scbqgp.html>