

CTAHR RESEARCH NEWS

March 2008
Volume 4, Issue 3



Gernot Presting, right, takes a break with his laboratory team on the top of Gilmore Hall ... meet them inside this issue!

**Gene
mappers**

**CTAHR
Centennial on
Oahu**

**Earmarks
and Formula
funds**

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From the Associate Dean and Associate Director for Research

It is my pleasure to introduce Dr. Gernot Presting in this issue's cover story. Dr. Gernot Presting is a relatively new faculty member in Department of Molecular Biosciences and Bioengineering. His area of expertise is in bioinformatics, one of the most exciting areas of modern biology. I remember when I first visited his lab in 2005: he built a protective cover over the computer server in his lab because of a leaking ceiling! He does use a lot of computing power to compare the details and patterns of DNA sequences and in the process, it enables him to identify unique sequence characteristics and thus, use these unique characters to identify the subject. It has huge implication as a screening tool in many fields, including food safety, biosecurity, as well as many other applications. Gernot is a productive research scientist, as evidenced by his extramural competitive grants, and his publications, and he is willing to share his expertise. He has already collaborated with many other faculty members within and outside CTAHR, working on local issues, such as papaya genome project and using DNA "barcodes" to identify pathogens and invasive species. We are very pleased to have Dr. Gernot Presting as one of our colleagues.

While I am writing this piece Doug Vincent is busy sending out memos to individual faculty members on the newly released budget numbers for their TSTAR projects. We have tried very hard to maintain the continuity amid the loss of earmark funds last year by providing bridge funding. We have also made a hard decision last year to fully fund all projects in the future when the earmarks are restored. That future

is now! Although the consequences of that decision is that we will not be able to have a new round of RFPs for TSTAR, approved projects will not be impacted in the event of another budget disruption. Unfortunately, another interruption may be here next year. The latest news from Washington DC is both Senate and House are considering a one-year moratorium on earmarks, and all three presidential candidates are on record to support this proposal. We will need to prepare for the worst. I have written a short piece to inform you on a new RFP we are preparing to help mitigate this lack of funding problem. Since our research and extension programs have received much support from the earmarks in the past, we have prepared a short primer on congressional earmarks. We will provide additional information on formula funds next month.

Once again Doug has assembled a great collection of calabash for your taste. As usual, you can find funding opportunities, new grants and publication we received last month. If you do not see yours on this list, that is the reminder to send your publications to me right away. Let us know if you like to read CRN. We are always looking for new ways to improve CRN, so please send us your comments and suggestions. Thanks for reading!



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The most exciting time to be a biologist

By Gernot G. Presting
Assistant Professor
Department of Molecular Biosciences and Bioengineering



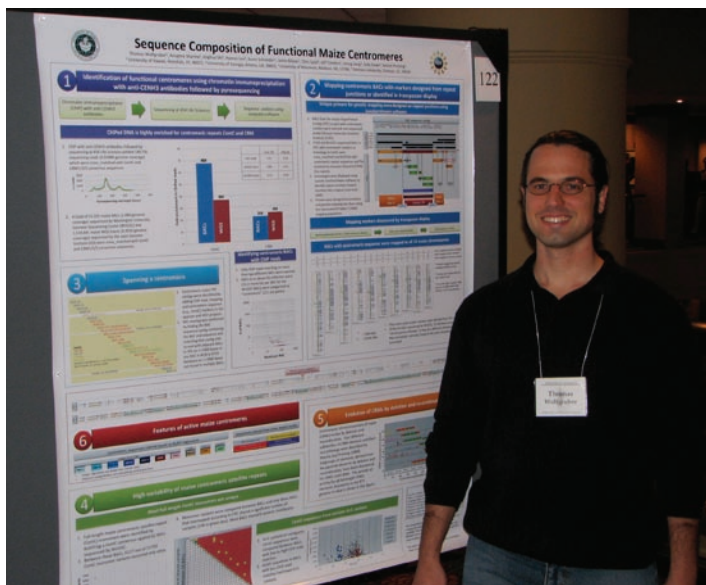
The Presting team caught in the act of working. (Clockwise from front left): Norman Wang (Irvine, CA), Thomas Wolfgruber (Honolulu), Kevin Schneider (Calabasas, CA), Anupma Sharma (New Delhi, India), and Jamie Allison (State College, PA),

This is arguably the most exciting time ever to be a biologist: the vast amount of high quality DNA sequence data that is pouring out of the world's sequencing centers is providing us with complete blueprints for many of the world's crop plants and other organisms. Each blueprint reveals tens of thousands of gene products (proteins) encoded by the respective genome. Understanding how the interactions between these many "parts" of an organism sustain life is truly awe-inspiring.

Just last week, two of us attended the 50th annual Maize Genetics conference in Washington, DC. One of the highlights was the announcement of the first draft sequence of the corn genome. Corn represents the most valuable crop grown in the US (with an estimated value in 2007 exceeding \$52 billion [[http://www.nass.](http://www.nass.usda.gov/QuickStats/index2.jsp)

<http://www.nass.usda.gov/QuickStats/index2.jsp>]), and the elucidation of its genome sequence will certainly lead to a better understanding of its biology and continued yield increases. It joins the completed genomes of other crop plants such as rice, grape, cottonwood and papaya. The importance of understanding plant genomes is captured in an entertaining and informative video titled "Secrets of Plant Genomes Revealed" at the National Science Foundation website: http://www.nsf.gov/news/mmg/mmg_disp.cfm?med_id=61504. This video also illustrates the dramatic differences between present-day corn and its wild grass ancestor, teosinte.

Rice is the first crop plant whose genome was mapped – and we were fortunate to be involved in this early genomics effort that resulted in the 2002 publication of the rice genome sequence in the journal



Thomas Wolfgruber presenting the laboratory's corn centromere project at the 2008 Maize Genetics Society Meeting in Washington, D.C.

Science. Concomitant with our ability to sequence large and complex plant genomes, techniques have been developed that allow for the simultaneous testing of all genes so that today we can, for example, assay all 30,000 rice genes in a single experiment to see which ones are switched on in response to pathogen infection or drought stress.

This wealth of data has resulted in an exponential increase in our understanding of how the many genes and proteins of an organism interact to create plants like rice, corn and papaya. It is fair to say that every aspect of biology, from the cellular to the ecosystem level, is impacted directly and substantially by the relatively new discipline of genomics. Already there has been a shift from producing vast amounts of sequence data to analyzing these and putting them into biological context.

Due to the large number of specialists required to sequence and analyze a genome, the nature of genomics research is highly collaborative. Our laboratory specializes in the computational analysis of large biological data sets, a discipline called bioinformatics. In the following paragraphs we will explore some of the projects that students in the laboratory are currently conducting.

GLOSSARY

Genome is the term used for the entire coding capacity of an organism, which consists of the nuclear genome packaged into chromosomes (23 pairs in the case of human), the mitochondrial genome and the chloroplast genome. The **chloroplast** is the site of photosynthesis and occurs in plants and algae. Genome sizes are measured in nucleotides (e.g. corn has an estimated 2,400 million nt). Determination of an organism's complete genome sequence used to cost tens of millions of dollars, but this cost has decreased significantly over time and efforts are under way to decrease it to perhaps as little as \$1,000 per genome. That translates into lots more data for bioinformatics research, which will lead to an increasingly better understanding of how an organism's genetic make-up determines its biological characteristics.

The genome consists of **genes** that encode proteins, and **intergenic** regions, which are important for gene regulation (i.e. switching gene expression on or off in response to environmental signals). For example, different genes are turned on in response to light, cold, drought, infection by pathogens etc. By studying these genes in detail we can learn a lot about how plants function.

Centromeres are the regions on the chromosomes to which the spindle fibers attach during cell division to pull the replicated chromosomes apart, ensuring that each daughter cell ends up with a complete set of chromosomes.

A **clone library** of an entire genome can be generated by cutting the chromosomes into fairly large chunks and cloning the resulting DNA fragments into a vector.

The most common form of gene transfer is vertical, i.e. from parent to offspring, but in a process called **horizontal gene transfer** genes can also be exchanged between unrelated organisms such as distantly related bacteria and even between bacteria and fungi.

Transposons (of which retrotransposons are a subtype) are incredibly interesting and often overlooked regions of the genome. Also called 'selfish elements' or 'junk DNA', these elements can increase in number, reaching up to several hundred thousand copies per genome. Transposons can affect plant genomes in several ways: insertion of an element into a coding gene can disrupt it so that it no longer produces a functional protein. Because transposons carry their own promoters and enhancers, they can also increase expression of genes near their insertion site.

Crop genome analysis

Our laboratory specializes in producing and analyzing genomic sequence data. One of our first efforts, led by graduate student **Jeffrey Lai** (now at Brigham Young University in Utah), and performed in collaboration with **Ray Ming** and **Paul Moore** (Hawaii Agricultural Research Center), resulted in the generation of over 40,000 sequences from a papaya genome clone library that allowed us to identify about 5,000 genetic markers (called SSRs for “simple sequence repeats”), estimate the papaya gene number, characterize the population of highly repetitive DNA (transposons) in the papaya genome and discover that chromosome co-linearity (i.e. the arrangement of genes along a chromosome) varies between different species. This project also provided an important framework for the subsequent effort to decode the sequence of the entire papaya genome, which is now nearly complete.

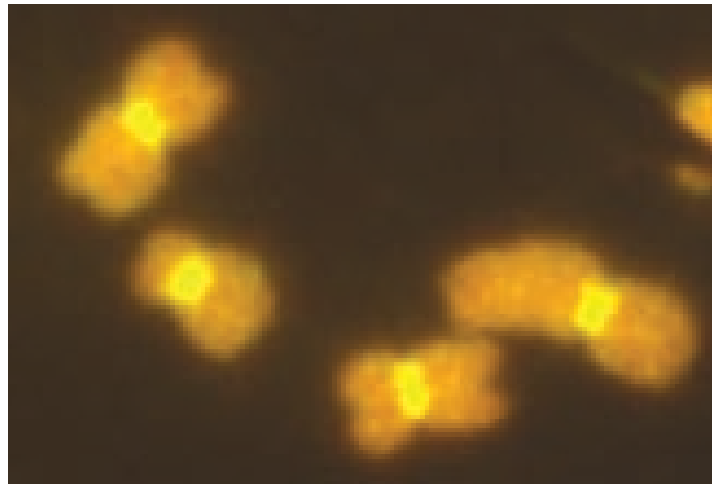


Papaya.

We are also producing and analyzing large amounts of sequence data from the centromeres of corn in a collaborative project with the Clemson University Genomics Institute and scientists at the Universities of Georgia, Wisconsin and Missouri. Centromeres



Corn.



Plant chromosomes - centromeres are marked by fluorescent *in situ* hybridization with centromere retrotransposon.

are critical for proper chromosome segregation during cell division and an essential component of functional artificial minichromosomes, so it is important for us to understand their makeup and evolution. Thus far we know that centromeres are composed of highly repetitive DNA, which is particularly difficult to work with and decipher. To better do this, graduate student **Thomas Wolfgruber** has written the new software *JunctionViewer* to help us identify molecular markers and annotate these special regions of the genome. Graduate student **Anupma Sharma** has designed these markers and used them to genetically map all ten corn centromeres – a very difficult task and a major accomplishment. Another important component of corn centromeres are the fascinating “selfish” DNA elements called retrotransposons, and we are in the process of determining if these play a functional role in centromeres or are specialized to parasitize this region of the genome. In studying these elements, we have recently uncovered a new mechanism that these elements use to stay ahead of the host genome’s effort to eliminate them: we have shown for the first time that retrotransposons can recombine genetically to generate new variations that help them multiply. We are now in the process of reconstructing the entire centromere of at least one corn chromosome (estimated to be at least 2 million nucleotides of very repetitive DNA), a difficult process that involves the talents of graduate student **Kevin Schneider** and our technician **Jamie Allison**. To help us do this, we have isolated 150,000 chromosome fragments from corn centromeres and determined their sequence.



Anupma Sharma watering young corn plants.

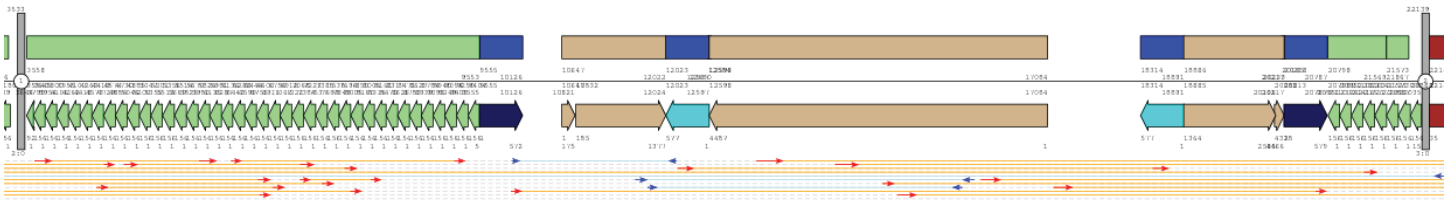


Jamie Allison and Kevin Schneider confer on mapping data.

Species identification using DNA barcodes

Today's availability of relatively cheap sequencing capacity has opened the door to using DNA sequences as a means to identify species and assess biodiversity: something that is of particular importance to Hawaii. The concept of a DNA barcode is based on the UPC symbols that are a fixture on grocery store items: a universal tag that identifies organisms to species level, is easy to read and – with the help of a database – tells the curious amateur botanist or USDA inspection agent everything she wants to know about this plant. Imagine a futuristic, computer-based field guide into which you place a tissue sample from which the guide reads the DNA sequence and tells you the name of the plant (without having to work your way through tedious identification keys), informs you of the botanical properties (e.g. toxicity) and lets you know if it is endemic or invasive to the Hawaiian Islands. This may be possible in the absence of the previously required identification characteristics (e.g. flower shape and color), because it utilizes information contained in the organism's DNA, which is identical in all of its cells. All that is needed for this method to work is a machine to read DNA sequences (which is available) and a reference framework – constructed by expert taxonomists – to which unknowns can be compared.

In a first test of this concept, we have performed large-scale computational analyses to identify regions of the genome that lend themselves as a DNA barcode by meeting two requirements: they have to be present in all representatives of the target group (e.g. plants) and they must also have sufficient variation such that each species has a unique barcode that sets it apart from all other species. Not an easy task, given that our earth holds an estimated 10 million species! Being a bioinformatics laboratory, we have first focused on identifying these genomic barcode regions and are currently following up the computational work in the laboratory by testing the concept in several groups of organisms. In all cases we are very fortunate to benefit from excellent collaborators who are experts in their respective fields and, through many years of hard work, have amassed collections encompassing vast amounts of biodiversity. In each case our laboratory has performed the initial computational analyses to identify potential DNA barcode regions, and then tested these regions experimentally in collaboration with the respective taxonomist.



Annotated corn centromeric sequence. A little over 18,000 nucleotides of the estimated 20 million centromeric nucleotides are shown. Centromere-specific tandem repeats (green arrows) are interrupted by genome jumping retrotransposons (blue arrows flanking tan and clear boxes). In this case one type of centromeric retrotransposon (flanked by light blue arrows) has apparently inserted into another type of centromeric retrotransposon from the same family (flanked by dark blue arrows).



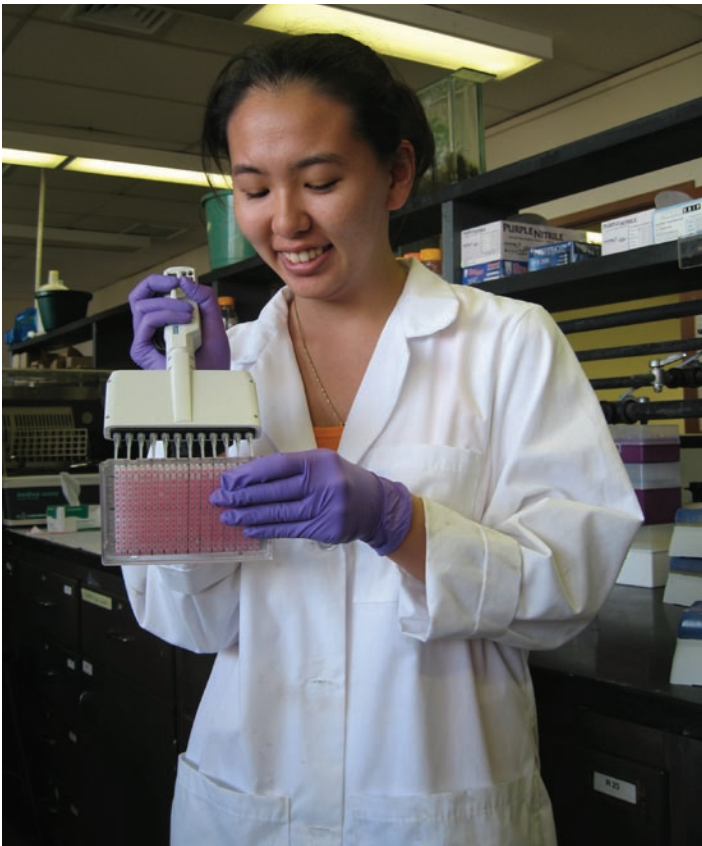
Kevin Schneider keeps our server array in top condition.

The first of these projects is conducted by **Kevin Schneider** in collaboration with Professor **Anne Alvarez** (PEPS). Dr. Alvarez has spent a good portion of the past 40 years collecting in excess of 5,000 isolates of **plant pathogenic bacteria** from crops throughout the State of Hawaii. Using computational approaches we have identified potential barcode regions for four genera of plant pathogenic bacteria (*Clavibacter*, *Erwinia*, *Ralstonia* and *Xanthomonas*), and are currently assessing their utility using 800 accessions of the Alvarez collection. Already we have identified

a marker that distinguishes between the feared “select agent” *Ralstonia solanacearum* race 3 biovar 2 and all other races of this pathogen. The availability of the unique Alvarez collection allows us to determine if specific signature sequences are associated with disease organisms originating from a particular geographic region or associated with certain host plants. Important preliminary work for this project was performed by graduate student **Aren Ewing** who, in an analysis called phylogenomics, compared the entire genome of the model plant *Arabidopsis* to the complete genomes of 172 other organisms, and identified genes that are resistant to horizontal gene transfer and thus particularly suitable for use as a DNA barcode.

A second project deals with developing a DNA barcode for land plants, specifically invasive species and grasses. For this project we are very lucky to have access to UH Botany Professor **Cliff Morden**’s Hawaiian Plant DNA Library. Undergraduate **Megan Nakashima** is testing a variety of computationally derived DNA barcodes on a total of 350 plant species representing 102 different families for her honors thesis.

Finally, we have derived one marker that is present in all photosynthetic organisms, including red, green and brown algae, diatoms, cyanobacteria, mosses and plants. This marker, called “UPA,” for *universal plastid amplicon*, holds great potential as a marker to rapidly inventory all photosynthetic life in a given environment. In collaboration with UH Professor **Alison Sherwood** (Botany) and members of her laboratory, we are obtaining the signature sequences for this marker from several hundred species (thousands of accessions) of Hawaiian algae. Postdoctoral scientist **Yvonne Chan** and undergraduate **Megan Nakashima** have begun first tests to determine the suitability of



Megan Nakashima (Pukalani, Maui) sets up a 384-well PCR.



Norman Wang examines cyanobacterium growth.

this DNA barcode to assess environmental health. All of these data, including beautiful photographs of the algae and maps pinpointing their geographic origin will be displayed on the internet in the *Hawaiian Algal Database* beginning this summer, thanks to the database wizardry of graduate student **Norman Wang**.

If these projects or the fields of genomics/bioinformatics and cell biology interest you, please visit our website www.genomics.hawaii.edu or email us at bioinfo@hawaii.edu.

Gernot G. Presting

Born: Wilmington, DE

Joined CTAHR: 2004

Education: PhD, University of Wisconsin, 1991.

Specialization: Genomics, bioinformatics, and plant genome evolution.

Current Work: Characterization of plant centromeres, rapid identification of plant pathogenic bacteria, plant DNA barcoding, biodiversity assessment.

Languages Spoken: English, German.

Selected grants

Functional Genomics of Maize Centromeres; *National Science Foundation* – \$1,140,162.

Biodiversity of Hawaiian Rhodophyta: morphological vouchers, DNA archival and sequence diversity assessment (PI = Alison Sherwood); *National Science Foundation* - \$600,000.

Student Engagement Grant; *Maui High Performance Computing Center* - \$25,000.

Selected publications

Sharma, A., Presting, G. 2007. Centromeric retrotransposon lineages predate the maize/rice divergence and differ in abundance and activity. *Mol Gen Genomics*, 279:133-47.

Presting, G. 2006. Identification of conserved regions in the plastid genome – implications for DNA barcoding and biological function. *Canadian Journal of Botany*, 84:1434-1443.

Lai, C.W., Yu, Q., Hou, S., Skelton, R.L., Jones, M.R., Kanako, LTJ, Murray, J., Eustice, M., Agbayani, R., Guan, P., Moore, P., Ming, R., Presting, G. 2006. Analysis of papaya BAC end sequences reveals first insights into the organization of a fruit tree genome. *Mol. Gen. Genomics*, 276:1-12.



Oahu style – CTAHR celebrates its centennial at the Pearl City Urban Garden Center

By Doug Vincent
Special Program Director for Grants and Contracts

A steady stream of over 800 visitors stopped by CTAHR's Pearl City Urban Garden Center on March 8, 2008 to honor CTAHR's past, be educated about its present, and envision its future. On a beautiful Saturday morning, CTAHR faculty, staff and students along with PCUGC volunteers shared CTAHR's story with visitors from across Oahu. The breadth and diversity of CTAHR's programs were highlighted. From traditional 4-H programs, to biotechnology demonstrations, to what makes fashion sense, to integrated pest management, to how to best wash your hands, to sustainable agriculture and many, many more were featured at the CTAHR Centennial Celebration. Recipes from the "NEW" team, advice about soil management, "sick plants" and fruit fly control, to Banana Bunchy Top Virus-free banana keiki's, to pre-ordering CTAHR's new Centennial book were just some of the items available at the celebration. Sponsored by CTAHR's Oahu County and the Pearl City Urban Garden Center, the celebration is the first of several events honoring CTAHR coming up in the near future. On Kauai, plan on attending the Kauai CTAHR Centennial at Kauai Community College on April 19, 2008. On April 26, 2008, the Mealani Experiment Station in Waimea will host the Big Island CTAHR Centennial Open House. Another event will be held on Maui but that date is to be scheduled. Finally, don't forget about the CTAHR 20th Annual Awards Banquet at the Hilton Hawaiian Village Coral Ballroom on May 9, 2008. Go here for more information about the Awards banquet <http://www.ctahr.hawaii.edu/banquet/>. Thanks to Oahu County Administrator Ray Uchida and all the Oahu County CTAHR Staff and volunteers for a great day. Photos compliments of Miles Hakoda, CTAHR OCS.



Ted Radovich with his worms.



Oahu County Administrator Ray Uchida and Dr. Janice Uchida admiring CTAHR's anthuriums.



Oahu 4-H'ers sharing about "Health Rocks" curriculum.



CTAHR's Oahu New Team (l-r, Angela Miyamoto, Naomi Kanehiro, Arnold Kanehiro, Kami Nishimura, Carissa Poon).



Faculty (Shu-Hwa Lin, Diane Masuo and Andy Reilly) and students from the APDM program helping visitors improve their fashion sense.



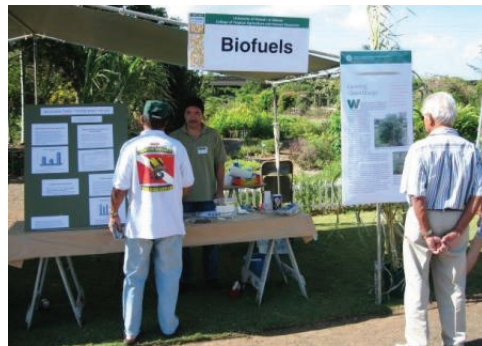
Visitors among the Urban Garden Center's hedges.



Helene Zeug, Nancy Hoffman and Barry Brennan sharing about the new CTAHR Centennial Book



Queuing up for the garden tour.



Richard Ogoshi talking about Biofuels



Visitors learning about the HAWFLY fruit fly control program.



Cerruti Hooks explaining how they make BBTV-free banana plants through tissue culture.

Buy your CTAHR centennial book early and save!

On behalf of the CTAHR Centennial Committee we are pleased to announce that the book, "Hawai'i's College of Tropical Agriculture and Human Resources: Celebrating the First 100 Years" is nearly completed and will arrive in May. In the spirit of celebrating CTAHR's first century of service and the beginning of its second century, we offer this limited edition book at a special advance sale price of \$25.00 plus shipping and handling until April 30, 2008 (regular price is \$30 plus s/h). You can avoid shipping and handling charges by picking up your book from our office, Gilmore Hall 119, when it arrives.

This beautifully designed book, which is by far the most comprehensive collection of the college's history, is about 300 pages long and is fully illustrated with over 670 photos from various archives and private collections. It will be hard bound and printed in full color. Please use the order form at http://www.ctahr.hawaii.edu/adv_order.pdf and take advantage of the special advance sale offer before it expires!



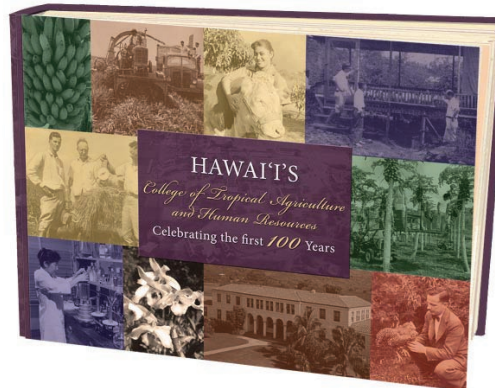
New book commemorates the centennial of the University of Hawai'i's founding college!

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The research calabash

By Doug Vincent
Special Program Director for Grants and Contracts

IMPORTANT:

Help Requested: UH Office of Research Services

The UH Office of Research Services is seeking your help to ensure that all proposals meet Federal, State and Private sponsor's rules and regulations. **ORS pleads that you make every attempt to provide at least five (5) working days prior to any deadline so they can adequately review your proposal. Please add an additional five (5) working days to obtain CTAHR fiscal office review of your budget and to gather appropriate signatures on the ORS Form 5.** We all know that these deadlines are a challenge to meet, but please make every effort to assist our colleagues in the fiscal and ORS offices.

ORS is now asking that you to provide them advance notice of any proposal submission so that they may anticipate and prepare for review of the proposal. To that end, **please submit via e-mail to ORS at helpdesk@ors.hawaii.edu the following information:**

1. Name of the Principal Investigator (PI)
2. The Campus (Manoa) and School (CTAHR) associated with the proposal
3. The name of the funding agency (or sponsor)
4. The sponsor's deadline for receipt of the proposal

Both the CTAHR Fiscal Office and ORS are woefully short staffed. Please give them a break and do your part to help them manage their ever growing workload.

New and News from UH Office of Research Services

The UH Office of Research Services has made changes to its "**Proposal & Contract Coordination Record** aka "**ORS form 5**" to enable proposals or contracts with multiple Principal Investigators on the same project. Go the ORS web site to download the new form, instructions and other information here: http://www.hawaii.edu/ors/filecabinet_forms.html.

To accommodate multiple principal investigators, a new form "ORS form 5c" is to be included whenever multiple principal investigators on a grant proposal or contract on the same project are requested. New forms and instructions have been developed and deployed at the ORS web site. Please begin to use

the new ORS Form 5 immediately. After April 15, 2008, the Feb '08 version of the ORS Form 5 will be required.

Due to federal regulations on "**sub-recipient monitoring**," ORS and RCUH have partnered to streamline UH procedures. Sub-recipient monitoring is the shared responsibility of the Fiscal Officer and the Principal Investigator. If there are subcontracts or other sub-recipient agreements greater than \$25,000 in a received grant, the sub-recipient must complete the required forms before RCUH can execute a sub-contract or other sub-agreement. More details can be found in the March edition of the ORS Newsletter (http://www.ctahr.hawaii.edu/vincent/ORS_Newsletter_March_2008.pdf) or on the RCUH web site: <https://securercuh01.rcuh.com/000168d/rcuh1.nsf/Current+News/765D43076338EF960A2573FB0005C392?opendocument>.

ORS Helpline

As you prepare proposals for electronic submission, the Office of Research Services has a **helpline** for assistance in submitting proposals via Grants.gov. The help line is available M-F from 8 am – 5 pm. Phone number: 808-956-5198. E-mail: erahelpdesk@ors.hawaii.edu.

Hawaii Climate Change Conference – March 26, 2008

The Hawaii Conservation Alliance, along with the U.S. Fish and Wildlife Service and U.S. Geological Survey is sponsoring a one-day conference entitled "**Forum on Climate Change in Hawaii**" **Wednesday, March 26, 2008** from 8:00 am – 4:30 pm at the Keoni Auditorium, Hawaii Imin International Conference Center, East-West Center on UH Manoa. For information about this free conference, go here: http://hawaiiconservation.org/library/documents/climate_change_forum_flier.pdf

2008 Hawaii Conservation Conference – Abstract Due: March 31, 2008

The **2008 Hawaii Conservation Conference** will be held on **July 29-31, 2008** at the Hawaii Convention Center. This year's theme is "Island Ecosystems: The Year of the Reef." Although the 2008 theme commemorates the International Year of the Reef,

all aspects of science and management of island ecosystems – terrestrial and marine – will be covered at the conference. For more information, see their web site: <http://hawaiiconservation.org/2008HCC.asp>. **Abstract submission to be included in the program is due: March 31, 2008.** Go here for more information about abstract submission: http://hawaiiconservation.org/2008hcc_abstracts.asp. The conference is seeking both 18-minute oral presentations and poster sessions.

Seeking your input – Hawaii NSF EPSCoR Proposal – Due April 4, 2008

Hawaii is an EPSCoR state. EPSCoR is an acronym for Experimental Program to Stimulate Competitive Research. The Hawaii NSF EPSCoR Solicitation of Ideas has been recently announced. The Hawaii NSF EPSCoR program is seeking ideas for a new grant proposal to be submitted to NSF for up to \$3.0 M per year for the years 2009-2014. The program is seeking white papers and other ideas on how to shape the new proposal to be submitted to NSF. Your ideas are requested. **Deadline is April 4, 2008.** For more information visit: http://www.ctahr.hawaii.edu/vincent/Hawaii_NSF_EPSCoR_Ideas_2008.pdf

Facilitating Strategic Thinking and Planning – Workshop Offered

Thinking strategically? Preparing to hold a planning workshop? Wait, better get trained first. Dr. Donna Ching, FCS, will be leading her two-day workshop on **Facilitating Strategic Thinking and Planning** on **April 8-9, 2008** at the UH Manoa Campus Center, room 308. To register, visit: <http://www.ctahr.hawaii.edu/ctahr2001/InfoCenter/AgLead/Workshops/Facilitating.asp>. Please note: The pre-requisite for this workshop is completion of Donna's "Learning to Lead Collaboratively" Workshop. The Agricultural Leadership of Hawaii web site also provides information about other training opportunities in mediation and facilitation available in the community, at this site: <http://www.ctahr.hawaii.edu/ctahr2001/InfoCenter/AgLead/Workshops.asp>.

Biosecurity Training Offered – May 12, 14, 2008

Dr. Louise Barden from the DHHS Centers for Disease Control and Prevention will be holding two training sessions for those whose work involves biosecurity. On **Monday, May 12, 2008** from **2:00 pm to 5:00 pm**, Dr. Barden will hold two sessions: one on Laboratory Biosecurity and a second on "Crisis and High Stakes Communication." A second training

workshop on "Biosafety with Risk Assessment" will be held on **Wednesday, May 14, 2008**, also from 2:00 to 5:00 pm for those that work in Biosafety Level Two (BSL-2) and Level Three (BSL-3) laboratory facilities. The workshop will address biosafety issues in BSL-2 and BSL-3 labs, including principles of biosafety, operation of biological safety cabinets, how to conduct a biosafety risk assessment and approaches for risk mitigation. Both workshops will be held at the **John A. Burns School of Medicine, UH Kaka'ako Waterfront Campus**, 651 Ilalo St. in the Medical Education Building. This training fulfills annual or initial training requirements. For more information contact the UH EHSO Biosafety Office at biosafe@hawaii.edu.

Presenting Testimony at the Hawaii State Legislature?

All testimony on behalf of the University of Hawaii at Manoa must be approved by the Chancellor's office. However, everyone is free to write, submit and present testimony as a private citizen using your personal expertise. Included in the testimony must be language indicating that you are presenting personal testimony. Language templates for personal written testimony can be found here: http://www.ctahr.hawaii.edu/vincent/Template_for_personal_testimony.doc. Do not use official letterhead and you must specify in your testimony that the testimony does not represent the position of UH or CTAHR.

Grant Coaching Available Now

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. Because RTRF funds pay for this pilot program, it is important that we invest in opportunities that result in a return to that investment. Indirect cost returns provide 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 956-8140 or by e-mail at spepper@hawaii.edu.

New CTAHR Plot Allocation Forms Available Online

The **new plot allocation forms** are now available here: <http://www.ctahr.hawaii.edu/ctahr2001/Research/Stations.html>. After considerable review and revision, the forms for all projects are now available. Two versions are available – a fillable Adobe Acrobat Form (.pdf) and an MS Word (.doc) file. Please use these forms for new and/or revised plot allocations.

Reminder: Daylight Savings Time

A quick reminder that as of March 9, 2008, our colleagues on the mainland are now one hour earlier, as most of the country moved to daylight savings time. **This may impact on-line submission of grant proposals as there may be a time deadline along with a date deadline.** We're seeing some RFPs that indicate 5:00 pm Eastern Time on the due date for Grants.gov submissions. Between March 9 and November 4, we will be 6 hours behind Eastern Time (Washington, DC), 5 hours behind Central Time, 4 hours behind Mountain Time, and 3 hours behind Pacific Time. There are some exceptions, along with Hawaii, Arizona, Puerto Rico, U.S. Virgin Islands, Guam and American Samoa do not observe Daylight Savings Time.

Grants.gov Transition to Adobe Systems

Now that you finally figured out PureEdge Viewer, Grants.gov is switching over to an Adobe Reader system. PureEdge Viewer – the initial forms reader for Grants.gov – is being phased out and a full-phased transition to Adobe Reader 8.1.1 is underway. Adobe Reader 8.1.1 can be downloaded for free from the Adobe web site: http://www.adobe.com/products/acrobat/readstep2_allversions.html. Adobe Reader 8.1.1 offers greater flexibility because it is compatible to both Apple Macintosh and Windows Vista: additional software had to be downloaded for Macintosh users for the PureEdge Viewer, and it was completely incompatible with Windows Vista. Although Adobe Reader typically does not permit creating and saving .pdfs, we are told that the Grants.gov forms can be saved using this software. After April 1, 2008, the PureEdge Viewer will no longer be available and by June 20, 2008, Grants.gov will no longer accept applications submitted using the PureEdge Viewer. If you've already upgraded your Adobe Reader from 8.1.1 to 8.1.2 – don't worry, Grants.gov is compatible with Adobe Reader 8.1.2!

Dates and Events – Mark Your Calendars Today

Agriculture Sustainability Day – March 27, 2008
“Farm to Table: Sustainable Agriculture, Economy and Communities” is this year's theme for the Agriculture Day at the Hawaii State Capitol from 11:00 am to 1:00 pm on **March 27, 2008**. This year's sponsors are Hawaii Farm Bureau, Hawaii Food Manufacturers Association, Hawaii Food Industry Association and the Hawaii Restaurant Association. For more information, contact the Hawaii Farm Bureau at 808-848-2074. CTAHR will have a strong presence at the Capitol: contact your Department Chair or County Administrator for more information.

CTAHR Student Research Symposium – April 11-12, 2008

Mark your calendars today. The **20th Annual CTAHR Student Research Symposium** will be held on **Friday and Saturday, April 11-12, 2008**. The Symposium provides a forum for graduate and undergraduate students to present their research conducted under the supervision of CTAHR and UH-Hilo CAFNRM faculty. Please inform and encourage your graduate and undergraduate students to participate. Abstracts are due **March 14, 2008**. Go to the Symposium website for more information: <http://www.ctahr.hawaii.edu/symposium/>.

CTAHR Hawaii County Centennial Event – Saturday, April 26, 2008

CTAHR Hawaii County will celebrate the UH centennial with an Open House at the Mealani Agricultural Research Station in Waimea (Kamuela), Hawaii. More details will follow. Contact Susan Miyasaka, Interim County Administrator for more details at miyasaka@hawaii.edu

CTAHR 20th Annual Awards Banquet – May 9, 2008

Twenty years is a long time to have sustaining event. From its humble beginnings (and “interesting” food) at the Campus Center Ballroom, the CTAHR Annual Awards Banquet has grown to become CTAHR's premier event on our calendar. The **20th Annual Awards Banquet** will be held on **Friday, May 9, 2008** at the Hilton Hawaiian Village, Coral Ballroom. Deadline for registration is **April 23, 2008**. Please mark your calendar today and plan to attend the event where we honor

our outstanding alumni, our strongest supporters, and faculty and staff awardees. Go here for more information: <http://www.ctahr.hawaii.edu/banquet/index.asp>.

Statewide Agriculture Conference Scheduled for September 4, 2008.

CTAHR, the Hawaii Farm Bureau, the Agricultural Leadership Foundation of Hawaii and the Hawaii Department of Agriculture will sponsor a state-wide agriculture conference on **Thursday, September 4, 2008**. "All Ag Day for Ag" will be held at the Hawaii Convention Center. Statewide commodity groups will be encouraged to meet on Friday, September 5, 2008. Mark your calendars today and stay tuned for more information. The web site is here: <http://www.agconference.org/> but has not yet been updated for the 2008 Conference.

Western Sustainable Agriculture Research and Education Workshop in Kona – September, 23-24, 2008.

The Outrigger Keahou Beach Resort will be the home of the USDA Western Regional Sustainable Agriculture Research and Education (SARE) workshop scheduled for **September 23-24, 2008** on the Kona side of the Big Island. Mark your calendar today and stay tuned for more information.

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

The Hilton Waikoloa Village Grand Ballroom will once again host CTAHR's **13th 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 your calendar and visit the web site for more information: <http://www.ctahr.hawaii.edu/taste/index.asp>.

Useful Information from USDA and other places

- The USDA National Agricultural Library maintains a **National Invasive Species Information Center** found here: <http://www.invasivespeciesinfo.gov/>. You can sign up to receive information directly from them via e-mail or RSS feed. Recently, they published a guide to funding opportunities to address invasive species. Go here to download: <http://www.invasivespeciesinfo.gov/docs/toolkit/usdagrants2008.pdf>.
- **USDA Economic Research Service** recently updated state-by-state fact sheets that provide baseline data for

each state. For an interactive map visit: <http://www.ers.usda.gov/StateFacts/>. Information about Hawaii can be found at <http://www.ers.usda.gov/StateFacts/HI.htm>.

- The USDA **Office of the Chief Economist** holds an annual **Agricultural Outlook Forum**. The February 21-22, 2008 conference entitled: "**Energizing Rural America in the Global Marketplace**," included speeches from new USDA Secretary Ed Schafer and several Under- and Deputy- Secretaries. Following these speeches, were plenary sessions about a variety of topics, among them: food safety, the changing demography of rural America, biofuels, environmental quality and agriculture. The majority of the presentations are available for download (<http://www.usda.gov/oce/forum/speeches.htm>) formatted either as written remarks (PDF), PowerPoint files or even as streaming videos. We encourage you to browse the available presentations and download the ones that may be useful to you. More information about the conference can be found here: <http://www.usda.gov/oce/forum/>. This is an annual event, so the next one is scheduled for **February 26-27, 2009** in Arlington, Virginia.
- The **Hawaii Conservation Alliance** has posted streaming videos of most of the presentations made at the **2007 Hawaii Conservation Conference**, held on July 25-27, 2007. Many of the presentations pertain directly to what we do in CTAHR and several CTAHR faculty and students made presentations at this meeting. To access and download the presentations, go here: <http://hawaiiconservation.org/2007hccvideos.asp>.
- The University of Missouri's Food and Agricultural Policy Research Institute has issued its March 2008 **US Baseline Briefing Book – Projections for Agricultural and Biofuel Markets**. The briefing book provides commodity outlooks for all the major US commodities with particular interest in biofuels. Unfortunately, it does not include projections for specialty or minor crops. To download it, go here: http://www.fapri.missouri.edu/outreach/publications/2008/FAPRI_MU_Report_03_08.pdf
- For those of you interested in world agriculture, there are new publications from the **International Food Policy Research Institute (IFPRI)**, whose mission is to provide policy solutions that reduce poverty and end hunger and malnutrition. Visit their web site here: <http://www.ifpri.org/>. IFPRI is affiliated with the Consultative Group on International Agricultural Research (CGIAR). Recent publications include: Agriculture for Sustainable Development: A Global R&D Initiative to Avoid a Deep and Complex Crisis, presented February 28, 2008 (<http://www.ifpri.org/pubs/speeches/20080228jvbRiley.pdf>); and The World Food Situation, published in December 2007 (<http://www.ifad.org/events/lectures/ifpri/pr18.pdf>).

Earmarks and Formula Funds

By CY Hu

Associate Dean /Associate Director for Research

A Primer for Earmarks

With a worsening economy, and in the presidential election year, both political parties are trying to show voters they are the ones who are watching out for their interests in Washington DC. Amid all the bickering, one potential victim is the special grants. Special grants sometimes are also referred to as earmarks, pork barrel funding or simply “pork”. However, this is not a correct depiction of special grants. According to the U.S. federal budget process, the President sends a federal budget proposal to Congress each year, and both Senate and House respond with their own budget resolutions. Therefore, we have three different federal budget proposals on the table each year. First, Senate and House must reconcile their differences during conference session to deliver a unified congressional budget resolution. Then, they negotiate with the executive office to come to an agreement on a federal budget that is signed by the President into law. President’s budget proposal typically contains discretionary spending in addition to the mandatory spending items. As Congress has control over appropriations, individual senators and representative would insert spending items which benefit his/her own district. To be re-elected it is critical for senators and representatives to show their ability to bring back home those precious tax dollars to benefit their districts. When a legislator adds a spending project to the federal budget, this is called congressional earmarks, or earmark for short. There are three types of earmarks: first, money to fund specific project such as building a bridge, or funding for an art museum; second, to give tax credits or special concession for a specific person, organization or company; and third, grants for research, extension and education by an organization, including universities. The first two types are the ones giving earmarks a bad reputation – “the bridge to nowhere.” Some academics are also critical about the third type, where universities benefit. The major criticism is that these grants circumvent the peer review process and shift funding away from competitive programs, and they waste tax dollars. Although this argument may have some merit, it is not always true. In our case, we receive these grants because we are at a competitive disadvantage. For agricultural research, most, if not all,

USDA competitive grants support major crops or provide research on issues of importance to the mainland and temperate zone agriculture. Tropical crops and problems rarely get a fair consideration in the competitive grants process. Our stakeholders have recognized that for our agricultural programs to succeed they need research and development. Therefore, they have sought help from our Congressional delegation to secure these special grants to support agricultural programs. TSTAR, tropical floriculture, and agricultural diversification grants are good examples of special grants we have received. We have managed these funds carefully, using competitive process when possible, and we are mindful of the collection of the outputs, outcomes, and impacts generated from projects supported by these funds. It is critical that we demonstrate the productivity and the return on these investments to both our stakeholders and our delegation. So, when you hear someone “badmouth” earmarks, please educate them that NOT all earmarks are equal. We are very proud of what our faculty has accomplished with these precious funds we have received. Although earmark funding was restored in FY 2008, we only received around 60% of our past funding. With the economy continuing to worsen and election year pressures, we must face the reality that earmarks may no longer support our research activities. We must find alternatives, either through competitive extramural grants or by managing our limited resources more efficiently.

New Formula Funds RFP is Coming

With the political uncertainty about earmarks in the upcoming budget, we are planning to launch a new RFP to fund new research projects. The loss of earmarks last year did not have the major impact on existing projects because we were able to provide bridge funding to many of them. Unfortunately, we did not have any funds to support any new projects. Since we have switched our funding model to fully fund any projects approved using appropriations for that fiscal year, we will not have funds left to fund any new projects this year from our TSTAR and other special research grants. In consultation with leadership, I have decided to launch a

new RFP program this year using formula funds (Hatch and McIntire-Stennis funds). The idea is to fund as many projects as possible using available formula funds through a competitive process. Doug and I are working on the details of the RFP, and will release it as soon as possible. We envision supporting a project no more than \$20,000 per year up to three years. Since we have about \$250,000 in Hatch funds, and \$159,000 in McIntire-Stennis funds, we can fund about 16 projects

beginning October 1, 2008. Again, once your project is approved you will be guaranteed funding for the duration of the project. However, we will be only able to fund five or six new projects in subsequent years on Hatch funds, and eight new projects every three years on McIntire-Stennis funds. To be clear, McIntire-Stennis funds go to support forestry related research. With this approach, we hope to reduce the impact of any future loss of earmarks to a minimum. Stay tuned.

ORS Director to visit CTAHR faculty and staff – March 31 and April 21

Our faculty members submit many proposals to various federal, state, county and private agencies each year. Each proposal requires great efforts not only from the faculty member who writes it, but also from staff members who handle the proposal in various offices. We believe enhanced communications between all parties will generate much needed input leading to more efficient processes for all. Therefore, we have invited Ms. Yaa Yin Fong, Director of ORS, to host two listening sessions for our faculty and staff. The two meetings are scheduled to take place on March 31 at 10:00am and April 21 at 10:30am, both in Gilmore 212. Polycom will be available for those who wish to join the discussion from other islands. With the increased use of grant.gov in submitting federal grant proposals, the newly implemented forms, plus other issues relevant to grant writing and submission, please mark your calendar to join the discussions during these sessions.

New UH Policy regarding use of RCUH

By Doug Vincent
Special Program Director for Grants and Contracts

University of Hawaii Vice President for Research Jim Gaines has released a new policy, effective immediately, regarding taking sponsored grants and contracts directly to the Research Corporation of the University of Hawaii (RCUH). In the past and under very special circumstances, principal investigators have requested and been granted permission to take sponsored grants and contracts directly to RCUH for management. Due to an increased number of these requests, the Vice President for Research has instituted a policy that principal investigators who have compelling reasons to take a sponsored contract or grant directly

to RCUH shall submit a request to the Vice President for Research through their respective Dean or Director and via the UH-Manoa Vice Chancellor for Research. The request must include valid justification for this request. Requests should also include whether and what University facilities and staff will be used on the proposed direct project so that appropriate fees charged to RCUH can be calculated. To download Vice President Gaines March 8, 2008 memorandum, go here: http://www.ctahr.hawaii.edu/vincent/08MarRCUH_DirectProjects.pdf.

New faculty publications

Chennat Gopalakrishnan (NREM)

Gopalakrishnan, Chennat and N. Okada, eds. 2007. *Water and Disasters*. (Routledge).

Gopalakrishnan, C and N. Okada. 2007. "Designing New Institutions for Implementing Integrated Disaster Risk Management (IDRM): Key Elements and Future Directions". *Natural Disasters*. 31 (4): 353-372.

Scot Nelson's *Plant Disease of the Week*

Plant *Disease of the Week* is a series of online bulletins about plant diseases that affect farms, ranches, nurseries, gardens, landscapes and forests in Hawaii. New editions of the bulletin appear on Tuesdays as pleasingly formatted HTML e-mails from the author, Scot Nelson (snelson@hawaii.edu), who later archives each issue on a public website. Readers can opt in to the service to receive future issues. Bulletins are photograph-rich, up-to-date, timely compilations for a wide range of plant disease pests. The topics reflect Hawaii's great diversity of plant diseases and treatment of topics is thorough, relevant and comprehensive, providing unique and important combinations of facts, images and experiences from CTAHR researchers. The reader should gain a thorough understanding of a disease and what to do about it.

Most photos reside on the CTAHR server in various image galleries: they are from Nelson's 20-year plant disease collection – including 16 years in Hawaii and the Pacific region – and other faculty members also contribute their photographs, information and reviews. The news bulletins supplement the existing photo galleries and provide facts that people can use in making decisions beyond pest identification.

Nelson uses subscription-based, online e-mail marketing software to create and send the emails. About 270 recipients of the bulletin include mainly agricultural professionals, farmers, nursery and landscape people and gardeners. Diseases treated in the series so far this year:

abutilon mosaic, *Cercospora* leaf spot and berry blotch of coffee, *Cassytha filiformis*, plant-parasitic green algae, dasheen mosaic, fairy rings, lightning injury, mango powdery mildew and mango anthracnose. A concise format organizes the information into subheadings and well-captioned photographs allow the casual reader to skim and yet gather critical information. Useful tables and bulleted lists compile applied data that are useful to growers in particular, such as tables of fungicides, and lists of hosts or integrated pest management practices. The educational bulletins also utilize technical and scholarly language pertaining to the respective sciences of plant pathology, botany, mycology, and plant anatomy. Visit www.ctahr.hawaii.edu/nelsons to access the *Plant Disease of the Week* archive, or send an email to Scot Nelson.



Plant Disease of the Week

A series of online bulletins about plant diseases that affect farms, nurseries, gardens, landscapes and forests in Hawaii.

- No. 1 - Abutilon mosaic (1/15/2008)
- No. 2 - *Cercospora* leaf spot & berry blotch of coffee (1/22/2008)
- No. 3 - *Cassytha filiformis* (1/29/2008)
- No. 4 - Mango powdery mildew (2/5/2008)
- No. 5 - Cephaleuros: the plant-parasitic green algae (2/12/2008)
- No. 6 - Lightning injury (2/20/2008)
- No. 7 - Dasheen mosaic (2/26/2008)
- No. 8 - Late blight of tomato (3/4/2008)
- No. 9 - Fairy rings (3/11/2008)
- No. 10 - Mango anthracnose (3/18/2008)

University of Hawaii at Manoa
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contact: snelson@hawaii.edu

[Join our Mailing List!](#)

CTAHR grants and contracts – supporting the vulnerable

By Doug Vincent
Special Program Director for Grants and Contracts

Just a few grants this month but one big one. So far this fiscal year, CTAHR has received 88 grants and contracts for \$8,947,767 in funding. This month's grants remind us about our commitments to the vulnerable. CTAHR's Center on the Family has a long standing commitment from the Annie E. Casey Foundation to improve the well-being of Hawaii's keiki and their families through the Hawaii Kids Count program. You can find more about the Hawaii Kids Count program here: http://uhfamily.hawaii.edu/hawaii_kids_count/kids_count.asp. A small grant received by Dr. Shu Hwa Lin of FCS comes from the Christopher Reeve Foundation to develop visual aids to train individuals who are suddenly faced with a member of the family who is paralyzed. CTAHR has also received a big grant this month that continues our commitment to support our program to restore agricultural higher education in

Iraq. Through the leadership of Drs. Samir El-Swaify and Ekhlass Jarjees, we have helped rebuild and restore Iraq's agricultural capacity through providing training for Kurds and Iraqi's in support of several of Iraq's and Kurdistan's agricultural universities. Finally, Arnold Hara continues to work to restore Hawaii's vulnerable environment through his work to help mitigate the impact of the coqui on the Big Island. Congratulations to these individuals and others who have taken the time to seek out and receive funding for their important programs. Is there a vulnerable group that needs your support? Does your research or outreach expertise provide potential expertise to support others in need? There are many funding opportunities listed elsewhere in the *CTAHR Research News* to support important works such as the few listed below. Find one that works for you!!

CTAHR grants from 2_14_08 to 3_14_08.

First name	Last name / Dept	Project Name	Funder	Amount
Arnold	Hara / PEPS	Coqui Frog Community Education / Outreach / Applied Research	County of Hawaii	\$125,000
Samir	El-Swaify / NREM	Hawaii-Iraq Partnership for Revitalizing Kurdistan Agricultural Higher Education and Development (KAHEAD)	Kurdistan Regional Government	1,691,516
Shu-Hwa	Lin / FCS	Dressing Paralyzed Patients: Brochures and Video Training for Caregivers (Chinese and Japanese)	Christopher Reeve Paralysis Foundation	12,500
Sylvia	Yuen / COF	Memorandum of Agreement Relating to Quality Care for Home-Based and Center-Based Child Care Providers	Hawaii Dept. of Human Services	26,825
Sylvia	Yuen / COF	2008 Hawaii Kids Count Plan Guidelines	Annie E. Casey Foundation	75,000
Totals			5 grants for a total of:	\$1,930,841

Look here! Lots of new funding!

By Doug Vincent
Special Program Director for Grants and Contracts

There once was a radio business program that would end with the following: “Opportunity knocks many times – but you have to open the door.” Have you opened that door lately? With all the political rhetoric these days about having a moratorium on federal earmarks – we can’t, with confidence, rely on the special grants and cooperative agreements that come to CTAHR. While we may hope and pray they are in the FY 2009 federal budget, we have to prepare for the possibility that funding for our important programs may have to be found elsewhere. So where to begin looking elsewhere? There is long list before you of just some of the opportunities available for funding. Some examples of funding specifically available locally, are the US EPA, Region 9 Wetlands Program Development Grants and USDA NRCS Pacific Islands Area Conservation Innovation Grants – you need to partner with stakeholders on this one. Also are several opportunities due in early April from the Hawaii Community Foundation. Pre-proposals are due soon

for the Center for Tropical and Subtropical Aquaculture program. National programs with relevance to Hawaii are the USDA CSREES Extension IPM grants, due in early April. Or how about the National EPA Pollution Prevention or Watershed Prevention Grants due in April? USDA Economic Research Service funds research on the Economics of Invasive Species, grants due in late April. Applications for the last round of USDA CSREES National Research Initiatives Grants must be turned in early June. These are just a few of the opportunities available coming soon. Don’t know where to begin – why not give Sharee Pepper, CTAHR’s grant coach, a shout? She’s available to assist you with proposals you are writing. E-mail her at spepper@hawaii.edu or call at 956-8140 and make an appointment. Spring break is coming soon, why not sit down, when it is less hectic and develop a plan to seek funding to support your important programs. Hear that knocking? That’s opportunity – will you open the door?

University of Hawaii
University Research Council

Faculty Travel Funds

Proposal Deadline: rolling – applications must be in >4 weeks before travel.

http://www.hawaii.edu/urc/pdf/factravel_g.pdf

http://www.hawaii.edu/urc/pdf/factravel_f.pdf

Human Frontier Science Program

Short term Fellowship Program

Proposal Deadline: rolling – applications accepted year round

http://www.hfsp.org/how/appl_forms_STF.php

Money Management International Financial Education Foundation

Financial Education Grants

Proposal Deadline: rolling – applications accepted year round

<http://www.mmifoundation.org/GrantSeekers.asp>

CHS Foundation

Rural Youth and Leadership Development

Proposal Deadline: rolling – applications accepted year round

<http://www.chsfoundation.org/programs/ryld.htm>

CHS Foundation

Returning Value to Rural Communities

Proposal Deadline: rolling – applications accepted year round

<http://www.chsfoundation.org/programs/rvrc.htm>

National Science Foundation

Informal Science Education

Letter of Intent Due: March 20, 2008, September 18, 2008

Proposal Deadline: June, 19, 2008, December 18, 2008

http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08547

Human Frontier Science Program

Young Investigator and Program Grants

Deadline for password pre-registration: March 21, 2008

Letters of Intent Due: April 2, 2008

http://www.hfsp.org/how/appl_forms_RG.php

University of California at Davis

Research Innovation and Development Grants in Economics (RIDGE)

Examining the Impact of Food Assistance on Nutrition

Letter of Intent Due: March 24, 2008

Proposal Deadline: May 2, 2008

http://www.ctahr.hawaii.edu/vincent/UCD_RIDGE_GRANTS_RFP.pdf

U.S. Environmental Protection Agency
Environmental Economics Workshop
Proposal Deadline: March 24, 2008
<http://yosemite.epa.gov/ee/epa/eed.nsf/Webpages/GrantSolicitations.html>

U.S. Department of Agriculture, CSREES
Special Research Grants Program – Potato Research
Proposal Deadline: March 24, 2008
http://www.csrees.usda.gov/funding/rfas/pdfs/08_potato.pdf
<http://www.csrees.usda.gov/fo/potatoresearchsrgp.cfm>

U.S. Department of Agriculture
Agricultural Marketing Service
Farmer's Market Promotion Program
Proposal Deadline: March 24, 2008
<http://apply07.grants.gov/apply/opportunities/instructions/oppUSDA-AMS-FMPP-2008-cfda10.168-cidNONE-instructions.pdf>

National Association of Counties
Coastal Counties Restoration Initiatives
Proposal Deadline: March 24, 2008
http://www.naco.org/Template.cfm?Section=New_Technical_Assistance&template=/ContentManagement/ContentDisplay.cfm&ContentID=26051

U.S. Department of Agriculture
Risk Management Agency
Commodity Partnerships Small Sessions Program
Proposal Deadline: March 24, 2008
<http://www.rma.usda.gov/aboutrma/agreements/>
<http://apply07.grants.gov/apply/opportunities/instructions/oppUSDA-RMA-RME-2008-03-cfda10.459-instructions.doc>

U.S. Department of Agriculture
Risk Management Agency
Commodity Partnerships Program
Proposal Deadline: March 24, 2008
<http://www.rma.usda.gov/aboutrma/agreements/>
<http://apply07.grants.gov/apply/opportunities/instructions/oppUSDA-RMA-RME-2008-01-cfda10.457-instructions.doc>

U.S. Department of Agriculture
Risk Management Agency
Community Outreach and Assistance Partnership Program
Proposal Deadline: March 24, 2008
<http://www.rma.usda.gov/aboutrma/agreements/>
<http://apply07.grants.gov/apply/opportunities/instructions/oppUSDA-RMA-OUTREACH-2008-01-cfda10.455-instructions.doc>

U.S. Environmental Protection Agency, Region 9
Wetlands Program Development Grants
Proposal Deadline: March 25, 2008
<http://www.epa.gov/region09/funding/wetlands-08.html>

U.S. Department of Health and Human Services
Administration for Children and Families
Office of Community Services
Assets for Independence Grants
Proposal Deadline: March 25, 2008, January 15, 2009
<http://www.acf.hhs.gov/programs/ocs/afi/applying.html#about>

U.S. Department of Agriculture
Rural Development Agency
Assistance to High Energy Cost Rural Communities
Proposal Deadline: March 28, 2008
<http://www.usda.gov/rus/electric/hecgp/overview.htm>

U.S. Agency for International Development
Food and Nutrition Technical Assistance II (FANTA II)
Proposal Deadline: March 28, 2008
<http://apply07.grants.gov/apply/opportunities/instructions/oppUSAID-M-OAA-GH-08-179-cfda98.001-instructions.doc>

Jordan Fundamentals – Nike Foundation
Jordan Fundamentals Inspiration and Innovation Grants
Proposal Deadline: March 30, 2008
<http://www.nike.com/jumpman23/features/fundamentals/overview.html>

U.S. Department of Agriculture
Rural Development Agency
Rural Business Opportunity Grants
Proposal Deadline: March 31, 2008
<http://www.rurdev.usda.gov/rbs/busp/rbog.htm>

U.S. Department of Agriculture
Rural Development Agency
Value Added Producer Grants
Proposal Deadline: March 31, 2008
<http://www.rurdev.usda.gov/rbs/coops/vadg.htm>

Department of Health and Human Services
Centers for Disease Control and Prevention
Program to Assess Health Effects Associated with Exposures to Volcanic Emissions and Environmental Pollutants (R01)
Proposal Deadline: March 31, 2008
<http://www.cdc.gov/od/pgo/funding/EH08-001.htm>

U.S. Department of Agriculture, CSREES
Interregional Research Project, IR-4, Minor Crop Pest Management Program
Proposal Deadline: March 31, 2008
<http://www.csrees.usda.gov/fo/ir4minorcroppestmanagement.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_minor_crops.pdf

U.S. Department of Agriculture
Natural Resource Conservation Service
FY 2008 Pacific Islands Area Conservation Innovation Grants
Proposal Deadline: March 31, 2008
<http://apply07.grants.gov/apply/opportunities/instructions/oppUSDA-NRCS-HI-08-01-cfda10.912-cidUSDA-NRCS-HI-08-01-instructions.pdf>

Hamburger Helper – General Mills
My Hometown Helper Grants
Proposal Deadline: March 31, 2008
<http://www.myhometownhelper.com/>

Ajinomoto Corporation, Japan
Amino Acid Research Program – Exploratory Research Grants; Young Investigator Grants
Pre-proposals due: March 31, 2008
Invited Full Proposal Deadline: August 1, 2008
<http://www.3arp.ajinomoto.com/?CFID=3004911&CFTOKEN=41901981>

Hawaii Audubon Society
Hawaii Audubon Society Research Grants
Proposals due: April 1, 2008, October 1, 2008
<http://www.hawaii-audubon.com/haspdf/grant.pdf>

Institute of International Education
Hewlett Foundation Dissertation Fellowships
Dissertation Fellowships in Population, Reproductive Health and Economic Development
Application Deadline: April 1, 2008 (for U.S. students), April 30, 2008 (for Sub-Saharan Africans)
<http://www.iie.org/programs/hewlett-fellowship/HewlettPopulationFellowshipUS.pdf>

Hawaii Community Foundation
Atherton Family Foundation Grants
Proposal Deadline: April 1, 2008
<http://atherton.hawaiicommunityfoundation.org/>

Hawaii Community Foundation
Kuki'o Community Fund
Proposal Deadline: April 1, 2008
http://www.hawaiicommunityfoundation.org/doc_bin/grant_rfps/2008/KukioRFP2008.pdf

Hawaii Community Foundation
Bernice and Conrad von Hamm Fund
Business and Entrepreneurship Education Grants
Proposal Deadline: April 1, 2008
http://www.hawaiicommunityfoundation.org/doc_bin/grant_rfps/2008/vonHammRFP2008.pdf

Hawaii Community Foundation
Ka Papa O Kakuhihewa Fund Grants for Kapolei and Waianae, Oahu
Proposal Deadline: April 1, 2008
http://www.hawaiicommunityfoundation.org/doc_bin/grant_rfps/2008/KPOKRFP2008.pdf

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
Strengthen and Improve the Nation's Public Health Capacity through National, Non-Profit Professional Health Organizations to Increase Health Protection and Health Equity
Proposal Deadline: April 1, 2008
<http://www.cdc.gov/od/pgo/funding/FOAs.htm>

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
Elimination of Health Disparities through Translation Research (R18)
Letters of Intent Due: April 2, 2008
Proposal Deadline: May 2, 2008
<http://www.cdc.gov/od/pgo/funding/CD08-001.htm>

Department of Health and Human Services
Health Resources and Services Administration
Targeted Rural Health Research Grant Program
Proposal Deadline: April 2, 2008
<https://grants.hrsa.gov/webExternal/FundingOppDetails.asp?FundingCycleId=575E7D5B-F3E6-4529-8811-0A944D0F2C74&ViewMode=EU&GoBack=&PrintMode=&OnlineAvailabilityFlag=&pageNumber=&version=&NC=&PopUp=>

U.S. Department of Agriculture
Food and Nutrition Service
FY 2008 WIC Special Project Grants
Proposal Deadline: April 3, 2008
<http://www.grants.gov/search/search.do;jsessionid=HYTDvKQ9Gwg1p0hllNthp1VnLG5tpFj8mBJGdtXGvLdb0Gl1ZHRWl-1098938542?oppld=40494&flag2006=false&mode=VIEW>

National Science Foundation
Ethics Education in Science and Engineering
Proposal Deadlines: April 3, 2008, March 2, 2009, March 1, 2010
http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08530

Center for Tropical and Subtropical Aquaculture
Aquaculture Applied Research Proposals
Pre-proposals due: April 7, 2008
<http://www.ctsa.org/EventDetail.aspx?eID=1184>

U.S. Department of Agriculture, CSREES
**National Extension Integrated Pest Management
Special Projects Program**
Proposal Deadline: April 8, 2008
http://www.csrees.usda.gov/funding/rfas/pdfs/08_eipm.pdf
[http://www.csrees.usda.gov/fo/
nationalextensionipmspecialprojectsprogram.cfm](http://www.csrees.usda.gov/fo/nationalextensionipmspecialprojectsprogram.cfm)

U.S. Department of Agriculture
Rural Development Agency: Business and Cooperative
Programs
Rural Cooperative Development Grants
Proposal Deadline: April 8, 2008
<http://www.rurdev.usda.gov/rbs/coops/rcdg/rcdg.htm>
[http://www.rurdev.usda.gov/rbs/coops/rcdg/FY%20
2008%20RCDG%20NOSA.pdf](http://www.rurdev.usda.gov/rbs/coops/rcdg/FY%202008%20RCDG%20NOSA.pdf)

U.S. Department of Agriculture
Rural Development Agency: Business and Cooperative
Programs
Small Minority Producer Grants
Proposal Deadline: April 8, 2008
<http://www.rurdev.usda.gov/rbs/coops/smpg/smpg.htm>
[http://www.rurdev.usda.gov/rbs/coops/smpg/FY%20
2008%20smpg%20nosa.pdf](http://www.rurdev.usda.gov/rbs/coops/smpg/FY%202008%20smpg%20nosa.pdf)

U.S. Department of Health and Human Services
National Institute for Occupational Health and Safety
**National Center of Excellence for the Prevention of
Childhood Agricultural Injury (U54)**
Proposal Deadline: April 10, 2008
[http://grants.nih.gov/grants/guide/rfa-files/RFA-OH-08-006.
html](http://grants.nih.gov/grants/guide/rfa-files/RFA-OH-08-006.html)

Hawaii Community Foundation
Group 70 Foundation Fund
**Grants to “create sustainable, compassionate and
resilient communities in Hawaii”**
Proposal Deadline: April 11, 2008
[http://www.hawaiicommunityfoundation.org/doc_bin/grant_
rfps/2008/Group70_RFP_2008.pdf](http://www.hawaiicommunityfoundation.org/doc_bin/grant_rfps/2008/Group70_RFP_2008.pdf)

FINRA Investor Education Foundation
Research and Education Grants
Project Concept Paper Due: April 11, 2008, July 12, 2008
<http://www.finrafoundation.org/guidelines.asp>

U.S. Department of Agriculture
Agricultural Marketing Service
Specialty Crop Block Grant Program
Proposal Deadline: April 11, 2008
<http://www.ams.usda.gov/fv/fv0715.pdf>

U.S. Department of Agriculture, CSREES
Resident Instruction Grants Program for Insular Areas
Proposal Deadline: April 11, 2008
[http://www.csrees.usda.gov/fo/
residentinstructionforinsularareas.cfm](http://www.csrees.usda.gov/fo/residentinstructionforinsularareas.cfm)
[http://www.csrees.usda.gov/funding/rfas/pdfs/08_resident_
insular.pdf](http://www.csrees.usda.gov/funding/rfas/pdfs/08_resident_insular.pdf)

Hawaii Community Foundation
‘Ewa Beach Community Trust Fund
Proposal Deadline: April 14, 2008
[http://www.hawaiicommunityfoundation.org/doc_bin/grant_
rfps/2008/Ewa_Beach_Application_2008.pdf](http://www.hawaiicommunityfoundation.org/doc_bin/grant_rfps/2008/Ewa_Beach_Application_2008.pdf)

University of Hawaii
University Research Council
Undergraduate Summer Research
Proposal Deadline: April 15, 2008
http://www.hawaii.edu/urc/pdf/ugsra_g.pdf
http://www.hawaii.edu/urc/pdf/ugsra_f.pdf

Hawaii Community Foundation
**Promoting Outstanding Nonprofit Organizations
(PONO)**
Proposal Deadline: April 15, 2008
[http://www.hawaiicommunityfoundation.org/doc_bin/grant_
rfps/2008/PONO_6_Application_2008-2009_fillable.pdf](http://www.hawaiicommunityfoundation.org/doc_bin/grant_rfps/2008/PONO_6_Application_2008-2009_fillable.pdf)

U.S. Environmental Protection Agency
FY 2008 Pollution Prevention Grant Program
Proposal Deadline: April 16, 2008
[http://www.epa.gov/p2/pubs/grants/ppis/2008rfpp2grant.
htm](http://www.epa.gov/p2/pubs/grants/ppis/2008rfpp2grant.htm)

U.S. Environmental Protection Agency
**FY 2008 Assessment and Watershed Protection
Program Grants**
Proposal Deadline: April 22, 2008
http://www.epa.gov/owow/funding/pdf/awppg_rfp_2008.pdf

Hawaii Community Foundation
**Hawaii Children’s Trust Fund
Community Awareness Events (to prevent child neglect
and abuse)**
Proposal Deadlines: April 18, 2008, July 11, 2008
[http://www.hawaiicommunityfoundation.org/doc_bin/grant_
rfps/2008/HCTF_CommunityAwareness2008_RFP_.pdf](http://www.hawaiicommunityfoundation.org/doc_bin/grant_rfps/2008/HCTF_CommunityAwareness2008_RFP_.pdf)

U.S. Environmental Protection Agency
**FY2008 Assessment and Watershed Protection
Program Grants**
Proposal Deadline: April 22, 2008
http://www.epa.gov/owow/funding/pdf/awppg_rfp_2008.pdf

U.S. Department of Agriculture, CSREES
Assistive Technology Program for Farmers with Disabilities: National Agrability Project
Proposal Deadline: April 24, 2008
<http://www.csrees.usda.gov/fo/agrabilitynationalagrabilityprojects.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_agrability.pdf

U.S. Department of Agriculture
Economic Research Service
Program of Research on the Economics of Invasive Species Management
Proposal Deadline: April 25, 2008
<http://www.ers.usda.gov/Briefing/InvasiveSpecies/preism.htm>

University of Hawaii
University Research Council
Special Fund for Innovative Scholarship and Creative Work
Application Deadline: April 25, 2008
http://www.hawaii.edu/urc/pdf/special_g.pdf
http://www.hawaii.edu/urc/pdf/special_f.pdf

National Science Foundation
Integrative Graduate Education and Research Traineeship (IGERT) Program
IGERT Traineeship Preliminary pre-proposals due: April 24, 2008
Deadline for IGERT Resource Center Proposals: April 24, 2008
Deadline for Invited IGERT Traineeship full proposals: October 20, 2008
http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08540

U.S. Department of Agriculture, CSREES
National Integrated Water Quality Program
Proposal Deadline: April 29, 2008
<http://www.csrees.usda.gov/fo/waterqualityicgp.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_water_quality.pdf

National Academies of Science, Engineering and Medicine
Research Associates Programs
Application Deadline: May 1, 2008
<http://www7.nationalacademies.org/rap/>

U.S. National Endowment for the Humanities
Fellowship Awards
Application Deadline: May 1, 2008
<http://www.neh.gov/grants/guidelines/Fellowships.html>

U.S. National Endowment for the Humanities
Challenge Grants
Proposal Deadline: May 1, 2008
<http://www.neh.gov/grants/guidelines/challenge.html>

U.S. National Endowment for the Humanities
Faculty Research Awards
Proposal Deadline: May 1, 2008
<http://www.neh.gov/grants/guidelines/facultyresearch.html>

U.S. National Endowment for the Humanities
Fellowships for Advanced Social Science Research on Japan
Application Deadline: May 1, 2008
<http://www.neh.gov/grants/guidelines/fellowships-japan.html>

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

U.S. Environmental Protection Agency
Consequences of Global Change for Water Quality
Proposal Deadline: May 8, 2008
http://es.epa.gov/ncer/rfa/2008/2008_star_gcwq.html

U.S. Environmental Protection Agency
Early Career Projects: Consequences of Global Change for Water Quality
Proposal Deadline: May 8, 2008
http://es.epa.gov/ncer/rfa/2008/2008_star_gcwq.html

U.S. Department of Health and Human Services
National Institutes of Health
Cooperative Research Partnerships for Biodefense and Emerging Infectious Diseases (U01)
Proposal Deadline: May 12, 2008
<http://grants.nih.gov/grants/guide/rfa-files/RFA-AI-08-001.html>

U.S. Department of Agriculture
Food and Nutrition Service
FY 2008 Food Stamp Participation Program
Proposal Deadline: May 15, 2008
<http://www.fns.usda.gov/fns/grants.htm>
<http://www.fns.usda.gov/fsp/>

Horses and Humans Research Foundation
Therapeutic Effects of Horses on Humans
Proposal Deadline: May 15, 2008
<http://www.horsesandhumans.org/Research.html#Application>

National Science Foundation
Course, Curriculum and Laboratory Improvement
Proposal Deadline: May 20, 2008
http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08546

National Endowment for Financial Education
Innovative Financial Literacy Grants
Concept Paper Due: June 3, 2008
<http://nefe.org/Grantmaking/GrantGuidelines/tabid/127/Default.aspx>

U.S. Department of Health and Human Services
Administration for Children and Families
Child Welfare Training: National Child Welfare Workforce Initiatives
Proposal Deadline: June 5, 2008
<http://www.acf.hhs.gov/grants/open/HHS-2008-ACF-ACYF-CT-0047.html>

U.S. Environmental Protection Agency
Broad Agency Announcement for Conferences, Workshops and/or Meetings
Proposal Deadlines: June 5, 2008, December 9, 2008
http://es.epa.gov/ncer/rfa/2008/2008_baa.html

Department of Health and Human Services
National Institutes of Health
Diet Composition and Energy Balance (R01)
Proposal Deadlines: June 5, 2008, October 5, 2008
<http://grants1.nih.gov/grants/guide/pa-files/PA-07-218.html>

Department of Health and Human Services
National Institutes of Health
Nanoscience and Nanotechnology in Biology and Medicine (R01) (R21)
R01 Proposal Deadlines: June 5, 2008, October 5, 2008
R21 Proposal Deadlines: June 16, 2008, October 16, 2008
<http://grants.nih.gov/grants/guide/pa-files/PA-08-052.html?CFID=3004911&CFTOKEN=41901981>
<http://grants.nih.gov/grants/guide/pa-files/PA-08-053.html?CFID=3004911&CFTOKEN=41901981>

U.S. Department of Agriculture
CSREES – NRI
Animal Genome (C): Bioinformatics
Proposal Deadline: June 5, 2008
<http://www.csrees.usda.gov/fo/animalgenomebioinformaticsnri.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_nri.pdf

U.S. Department of Agriculture
CSREES – NRI
Animal Genome (B): Tools and Resources
Proposal Deadline: June 5, 2008
<http://www.csrees.usda.gov/fo/animalgenometoolsresourcesnri.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_nri.pdf

U.S. Department of Agriculture
CSREES – NRI
Animal Growth and Nutrient Utilization
Proposal Deadline: June 5, 2008
<http://www.csrees.usda.gov/fo/animalgrowthandnutrientusenri.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_nri.pdf

U.S. Department of Agriculture
CSREES – NRI
Human Nutrition and Obesity
Proposal Deadline: June 5, 2008
<http://www.csrees.usda.gov/fo/humannutritionobesitynri.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_nri.pdf

U.S. Department of Agriculture
CSREES – NRI
Agricultural Prosperity for Small and Medium-Sized Farms
Proposal Deadline: June 5, 2008
<http://www.csrees.usda.gov/fo/smallfarmsagriculturalprosperitynri.cfm>
http://www.csrees.usda.gov/funding/rfas/pdfs/08_nri.pdf

National Science Foundation
Informal Science Education
Letter of Intent Due: March 20, 2008, September 18, 2008
Proposal Deadline: June 19, 2008, December 18, 2008
http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08547

U.S. Department of Education
Education Research CFDA 84.305A-1
Education Research on Statistical and Research Methodology in Education CFDA 84.305D
Special Education Research CFDA 84.324-A
Proposal Deadline: June 26, 2008
<http://a257.g.akamaitech.net/7/257/2422/01jan20081800/edocket.access.gpo.gov/2008/pdf/08-911.pdf>

U.S. Department of Interior
U.S. Fish and Wildlife Service
National Coastal Wetlands Conservation Grant Program
Proposal Deadline: June 27, 2008
http://ecos.fws.gov/docs/coastal_grants/web/pdf/1141.pdf
http://ecos.fws.gov/coastal_grants/viewContent.do?viewPage=home

Hawaii Community Foundation
Medical Research Proposal
Proposal Deadlines: August 15, 2008
http://www.hawaiicomunityfoundation.org/doc_bin/grant_rfps/2008/MedResRFP2008.pdf

U.S. Department of Agriculture, 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>

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

National Endowment for the Humanities
Collaborative Research Grants
Proposal Deadline: November 4, 2008
<http://www.neh.gov/grants/guidelines/collaborative.html>

National Science Foundation
Informal Science Education
Letter of Intent Due: September 18, 2008
Proposal Deadline: December 18, 2008
http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08547

Hawaii Audubon Society
Hawaii Audubon Society Research Grants
Proposals due: October 1, 2008
<http://www.hawaii-audubon.com/haspdf/grant.pdf>

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>

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

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

U.S. Department of Agriculture
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>