

THE Leaflet



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New Hires Strengthen Danforth Center Science

DR. PAUL ANDERSON BECOMES EXECUTIVE DIRECTOR OF THE DANFORTH CENTER'S OFFICE OF INTERNATIONAL PROGRAMS

Dr. Paul Anderson has joined the Danforth Center as Executive Director of International Programs. This position is critical to the success of Danforth Center science and international collaboration with upcoming field trials moving into Kenya, Uganda, and Peru; new collaborations beginning with institutions in China, Pakistan, Israel, India, and scientists in Peru; and other international initiatives on the horizon to improve food security for farmers in Africa and Asia.



Dr. Anderson comes to the Danforth Center from Pioneer Hi-Bred International in Des Moines, Iowa, where he served as Research Director for Food and Feed Research and, most recently, Senior International Grain End Use Manager for Pioneer International Operations. In the latter position he was responsible for the business development of food, feed, and biofuels and the positioning of grain products in Asia, Eastern Europe, and South America. He was, and will remain, the Principal Investigator for an \$18.6 million dollar grant funded by the Bill and Melinda Gates Foundation to improve the nutritional content of sorghum for arid areas of Africa. He will continue to lead this research at the Danforth Center.

Dr. Anderson earned his Ph.D. in biochemistry at the University of Minnesota and served in research and management positions at Molecular Genetics, Inc.; Plant Science Research, Inc.; and DEKALB Genetics Corporation before joining Pioneer. In these positions, he oversaw the development of improved varieties of corn and soybean.

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DR. SONA PANDEY JOINS DANFORTH CENTER AS PRINCIPAL INVESTIGATOR

Dr. Sona Pandey, who trained initially in India, has joined the Danforth Center as a Principal Investigator. Dr. Pandey joins the Danforth Center from Penn State University, where she was a member of the Research Faculty in the Department of Biology.

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DONALD DANFORTH
PLANT SCIENCE CENTER

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Ask a Plant Scientist:
Special Edition

The Leaflet is a quarterly publication for partners, friends, and supporters of the Donald Danforth Plant Science Center.

Food? Feed? Fiber? Fuel? Other?

The ongoing discussions about how to meet the world's growing demand for the 'Four Fs' of products from agriculture continues to confuse the lay public, economists, politicians, environmentalists, humanitarians, scientists, and others. Most of us in privileged economies want it all, while those less privileged struggle to have food alone. Regardless of the declarations that originate from the meeting of the G8 countries, or from the debates of presidential candidates of how to address the shortfalls in agriculture, one cannot escape the obvious: we are in times that demand different solutions than in the past.

It is clear that U.S. farmers/producers do an outstanding job of producing for the present, and planning for the immediate future, influenced by availability of better seeds, and strong economic factors. The situations in poor countries are less rosy: poor infrastructure and weak government investment in agriculture has put many at risk, and at disadvantage in the world economy of agriculture. Shipping excess food produced in one part of the world to another may have provided an easy solution to feed a hungry world in times of plenty, but makes less sense when production costs and demands are high, and when costs for shipping are growing unpredictably.

The Danforth Center has, since its beginning, committed a significant amount of effort to research that will increase health and nutrition through better and more abundant food crops, especially in Africa and Asia, and progress is being made. Our work on cassava, peanuts, maize, and rice continues to be encouraging. In this our 10th year we are hopeful that collaborations with partner institutions and scientific colleagues will lead to field trials that test the new crop varieties developed at the Center. With a good outcome, Danforth Center scientists will be part of the solution to the challenges that face the world in dealing with the 'Four F's', perhaps not in 2008 but in the years to come.



Dr. Roger N. Beachy

Roger N. Beachy
President

In the Field...

In April, Danforth Center scientists traveled to Kampala, Uganda to be part of a global dialogue facilitated by the Gates Foundation

THE BILL AND MELINDA GATES FOUNDATION'S GRAND CHALLENGES 9 (GC9) MEETING, "CREATING A NUTRIENT-RICH STAPLE CROP SPECIES."

This meeting brought together researchers from the four GC9 projects involving cassava (BioCassava Plus, see right), rice, banana, and sorghum (led by Dr. Paul Anderson, see cover).

Meeting Highlights:

- Danforth Center Executive Director of International Programs Dr. Paul Anderson presented on his work with sorghum; and Sharon Berberich, Director of International Programs, organized a bio-safety session.
- The United States Agency for International Development (USAID) asked Danforth scientist Dave Corbin to reprise his presentation on the Virus-Resistant Cassava for Africa (VIRCA) pipeline for GC9 banana researchers.
- Meeting participants toured the Kawanda and Namulongue labs and field trials, organized by former Danforth Center scientist Dr. Titus Alicai and his colleagues at the National Crops Resources Research Institute (NaCRRI) in Uganda.

THE BIOCASSAVA PLUS MEETING

This meeting brought Danforth scientists together with other members of this international collaboration. The director of this GC9-funded project is Danforth Center collaborator, and future *Conversations* speaker, Dr. Dick Sayre of Ohio State University (see bottom of page 7).

Meeting Highlights:

- Danforth Center scientists Dr. Claude Fauquet, Dr. Nigel Taylor, and Dr. Eliana Gaitan-Solis presented research reports.
- The Danforth Center's VIRCA program supported the attendance of 4 members of the VIRCA team from Kenya, and one member of the team from Malawi to attend the meeting. Members of VIRCA Uganda also participated.

GLOBAL VIRCA TEAM MEETING

VIRCA Project Director Dr. Bill Doley of the Danforth Center organized this opportunity to coordinate the efforts of international scientists working on developing virus-resistant cassava for Africa. ■

From top of page 1

Danforth Center President Dr. Roger Beachy speaks highly of Dr. Anderson's fit with the Danforth Center. "Paul brings a winning combination of strengths to the Danforth Center's international efforts. He has both the scientific training and the administrative experience needed to coordinate the regulatory and technical details of the Center's expanding international collaborations. And, as one of the developers of herbicide tolerant corn, he understands the value of biotechnology."

Dr. Anderson has already been on the road, visiting Kenya and Uganda to facilitate collaborations with National Research Institutes and ongoing crop improvement projects. ■

What is Sorghum?

Sorghum is an important food in Africa, Central America, and South Asia. One of the key cereal crops grown in the world, it is used to make foods such as couscous, flour, porridge and molasses. It is also used as fodder and in the production of alcoholic beverages. Sorghum is fairly drought and heat tolerant, making it a particularly important food crop in arid, less developed regions of the world, especially for subsistence farmers. ■



"The Danforth Center has a strong commitment to improving agriculture and nutrition in developing countries. I have tremendous enthusiasm for all aspects of the job and my background will allow me to make near term and lasting contributions to the Center's international efforts."

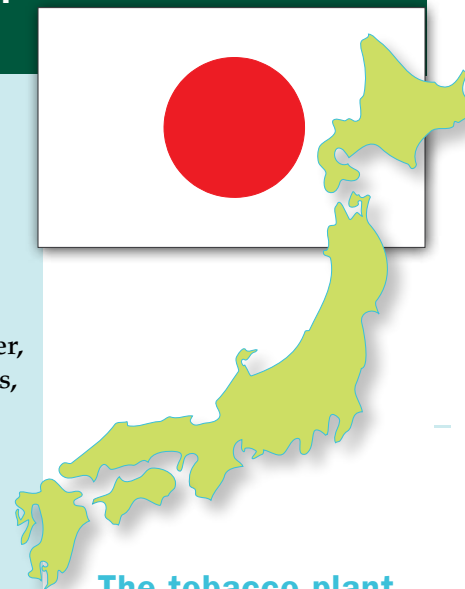
JAPAN TOBACCO INC. DONATES TECHNOLOGY TO IMPROVE CASSAVA FOR AFRICA

Japan Tobacco Inc. has signed a humanitarian license agreement to donate the company's PureMlb® technology to the Donald Danforth Plant Science Center for the development of cassava varieties that are resistant to viral diseases and enhanced with essential nutrients. The agreement is an important step towards successfully delivering improved cassava to malnourished populations in developing countries.

Cassava is a key food crop for millions of people in sub-Saharan Africa. However, the plant's starchy roots are low in protein, vitamins, and several micronutrients, leaving those who depend on the crop susceptible to malnutrition. Danforth Center scientists are working to enhance the resistance of cassava plants to devastating viruses as well as increase their levels of zinc, iron, protein, and vitamins A and E. This work relies on a tissue transformation process that integrates new information into the plants' genetic material. Japan Tobacco's PureMlb® technology increases the precision of the transformation process.

This increase in precision will have real and immediate consequences for Danforth Center research. Danforth Center scientist Dr. Nigel Taylor notes, "We will now be able to more quickly and effectively develop a greater number of high-quality test plants, thereby speeding up our efforts to help provide nutritionally improved cassava for people in Africa."

The tobacco plant is widely considered a "lab rat" of plant science research. Like Arabidopsis, tobacco is a model plant with a well-characterized genome that lends itself to experiments testing the effects of various tissue transformations. Japan Tobacco Inc. is the world's third largest international manufacturer of tobacco products. ■



The tobacco plant is widely considered a "lab rat" of plant science research

Growing Interest!

DANFORTH CENTER CELEBRATES SCIENCE & TECHNOLOGY CONNECTIONS BETWEEN ST. LOUIS AND ISRAEL



“We share so much not only with Israel, but also with each other right here in the same city. The Danforth Center reminds us that the science happening in St. Louis touches the rest of the world.”

Judy Hoffman
JCRC Associate Director

The Danforth Center was a supporting partner for a recent exhibit at the St. Louis Jewish Community Center celebrating sixty years of connections between science and technology in St. Louis and Israel. Sponsored by the Jewish Community Relations Council (JCRC), the exhibit was part of a larger week-long series of events honoring the sixtieth anniversary of the founding of the State of Israel.

“There have always been strong ties between scientists and forward thinkers in the United States and Israel,” notes JCRC Executive Director Batya Abramson-Goldstein. “So much is happening with science and biotech in the St. Louis region, we wanted to highlight some of that history as well as provide the opportunity to learn more about current collaborations.”

Other partners in the event were IBM Israel; the Jewish National Fund (an organization that plants trees in Israel to prevent desertification, among other environmental work); the St. Louis Branch of the American Technion Society (The Technion is one of Israel’s premiere graduate-level educational institutions); the St. Louis Chapter of Hadassah (a volunteer women’s organization, whose members are motivated and inspired to strengthen their partnership with Israel including Israel’s medical and scientific advances); and the cooperation



Photo courtesy of Mike Sherwin of the St. Louis Jewish Light.

Dr. Roger Beachy (far right), speaks with Terry Stern, David Bohm and Michael Litwack at the opening reception for the “Advances in Science and Technology: The Israel/St. Louis Connection” event.

of Partnership 2000 (a program of the Jewish Federation of St. Louis that coordinates efforts between St. Louis and Yokne’am-Megiddo, our partner city in Israel).

Danforth Center President Dr. Roger N. Beachy gave the keynote address at the event’s opening reception on April 30. Noting that in Israel science and technology provide the support for a “three-footed stool” that rests on military, industrial, and agricultural strength, Dr. Beachy then contrasted the outcomes for Israel with several African states that gained independence around the same time. He concluded with observations about the role that science can play in contributing to peace, not only with its discoveries and products, but also through the process of collaboration that puts a human face on global struggles. ■

DANFORTH CENTER ESTABLISHES INTERNATIONAL FLAG GALLERY



The Danforth Center’s new International Flag Gallery creates an evolving tribute to our international community of scientists and staff. The idea for the gallery has its roots in the Center’s annual International Potluck Luncheon, organized by the Office of Human Resources to celebrate the Center’s multicultural community. Employees prepare and share foods representing their countries of origin and, traditionally, flags from these countries were displayed for a few days surrounding the event. The response to this brief flag display was so positive that the decision was made to create a permanent gallery. At present, 21 flags are on display in the gallery – beginning with the U.S. flag and followed by the 20 countries (in alphabetical order) from which the 2007 scientists and staff came. The gallery will be updated annually. ■

SENATOR KIT BOND ENERGY ROUNDTABLE



On May 28, Senator Christopher S. “Kit” Bond hosted an energy roundtable discussion at the Danforth Center. Attended by nearly 200 people, the well-received event was one stop on Senator Bond’s six-city series of meetings to discuss energy policy around the state. In addition to Senator Bond, the roundtable included Danforth Center President Dr. Roger Beachy and Vice President for Research Dr. Jan Jaworski; Dr. James McLaren, President of StrathKirn Inc.; Dr. Himradri Pakrasi, Professor of Biology and Energy at Washington University in St. Louis and Director of I-CARES; Dr. Gary Stacey, Director of the University of Missouri Center for Sustainable Energy; and Mr. Gerald Steiner, Executive Vice President of Monsanto.

A key interest of the Danforth Center roundtable was how plant science is moving us along the path to sustainable energy. An important part of the dialogue was the impact of energy and food demands on agriculture. Mr. Steiner suggested that the key to meeting the demand for food and biofuel is by increasing yield sustainability. “No one wants to choose between food security and energy security. No family wants to choose between affordable fuel and affordable food. We need both and we believe that we can do both.”

Senator Bond commended the panel for their efforts. “Your innovations are supplying homegrown energy solutions to Missouri and the nation,” Bond told the group. “The sustainable plant energy sources you are researching will provide us with clean and sustainable energy supplies.” ■

NATIONAL BIODIESEL BOARD GRANTS \$1.2 MILLION TO DANFORTH CENTER TO INCREASE OIL PRODUCTION IN SOYBEANS

RESEARCH PROJECT FUNDED BY U.S. DEPARTMENT OF TRANSPORTATION SEEKS TO INCREASE OUTPUT OF OILS FOR USE IN BIODIESEL PRODUCTION

As the demand for alternative fuels increases, several Danforth Center scientists have secured more than \$1.2 million in funding from the National Biodiesel Board (NBB), with support from the U.S. Department of Transportation, for a three-year research project to enhance oil production in soybeans with the goal of increasing America’s supply of renewable oil used in the production of biodiesel.

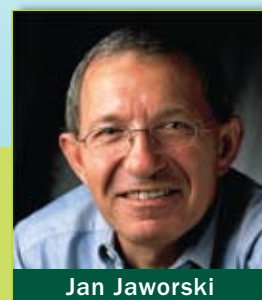
Danforth Center Principal Investigators Dr. Ed Cahoon, Dr. Jan Jaworski, Dr. Joe Jez, and Dr. Sam Wang (also the E. Desmond Lee and Family Endowed Professor at the University of Missouri-St. Louis) will conduct collaborative research focused on increasing the oil produced in soybean seeds by altering specific biochemical pathways that are embedded within the soybean plant. “This grant is yet another of the Danforth Center’s unique partnerships for supporting basic plant science research. In this case, the partnership will address the pressing needs for more efficient methods to produce fuels from renewable plant sources,” said Danforth Center President Dr. Roger N. Beachy.

Biodiesel is an environmentally safe fuel that can reduce life cycle carbon emissions by 78 percent. In 2007, biodiesel’s contribution to reducing greenhouse gas emissions was the equivalent of removing 700,000 passenger vehicles from America’s roadways. Biodiesel is also an efficient fuel, creating 3.5 units of energy for each unit of energy consumed in the production of the fuel. Using less energy to produce more oil from the same acreage is a fundamental step toward sustainability and security.

The National Biodiesel Board estimates that over the next ten years, if plant science research could help the biodiesel industry achieve a ten percent increase in soybean yield and a five percent increase in oil content across America’s entire three billion bushel soybean crop, an additional two billion gallons of oil could be produced using the same or less energy than today. Two billion gallons of biodiesel would replace more diesel fuel than the U.S. refines from all of the crude oil currently imported from Iraq. ■



Ed Cahoon



Jan Jaworski



Joe Jez



Sam Wang



Let's talk about... *Conversations*

NEWELL S. "JIM" KNIGHT, JR., CHAIRMAN EMERITUS OF THE FRIENDS COMMITTEE, HONORED FOR SERVICE



Mr. Newell S. "Jim" Knight, Jr. is known for his enthusiasm, dedication, and passionate commitment to securing support for plant science. So it is fitting that he would be both the inaugural recipient, and the namesake, of the Center's new "Newell S. 'Jim' Knight, Jr. Volunteer Award."

Jim Knight served as the Danforth Center Friends Committee Chair from 2005-2007, and has been a tireless advocate for plant science and the Danforth Center. Currently serving as Chairman Emeritus of the Friends Committee, he continues to secure support for the Center.

A long-time St. Louis resident, Jim Knight retired as Vice President of the International Foods Division of the Seven-Up Company in 1984 after a 35-year career in sales, marketing, and management during which he also served as President of the Warner-Jenkinson Mfg. Co., a Seven-Up subsidiary and international producer and marketer of food colors and flavors. In addition to his involvement with the Danforth Center, Jim has also directed Management Resources, a consulting business serving entrepreneurs and not-for-profit organizations, since his retirement. Jim is actively involved with the Weidenbaum Center, Crossroads School, and the Independent Schools Consortium. ■

The Danforth Center would like to thank the Boeing Company for its continuing support of the 2008 Conversations series.



DR. JAMES W. DAVIS RECOGNIZED FOR FIVE YEARS OF SERVICE AS CONVERSATIONS MODERATOR

Dr. James Davis is Professor Emeritus of Political Science at Washington University in St. Louis. An expert on defense and public policy, health care policy, as well as political party platforms and presidential campaigns, Professor Davis has taught and written broadly on American public policy. In addition to serving as acting dean for the School of Art and as Washington University's Vice Chancellor, he was the Founding Director of the Richard A. Gephardt Institute for Public Service at Washington University, a position from which he retired in 2006.



Professor Davis has served as the moderator for the Danforth Center *Conversations* series since 2003. Known for his careful preparation before each program, he has lead probing discussions with a variety of distinguished guests. All who attend *Conversations* events benefit from the background and structure he provides, and the Danforth Center is lucky to have Jim Davis on board as we move into our second decade of educational discussions. ■

DANFORTH CENTER CHAIRMAN DR. WILLIAM H. DANFORTH REFLECTS ON TEN YEARS OF ST. LOUIS PLANT SCIENCE SERVING THE WORLD

Event Begins with Conversation, Ends with Celebration

Winter storms couldn't stop Danforth Center Chairman Dr. William H. Danforth from sharing his reflections on "Serving the World...Plant Science in St. Louis." They could, however, force the *Conversations* program originally scheduled for February 21 to be postponed by one week. On February 28, Danforth Center Friends Committee Chair Derek Rapp welcomed a large crowd of Center Friends and community members to the AT&T Auditorium for a program that looked back over the Center's last ten years and touched on Dr. Danforth's hopes for its future.

Speaking on the history and significance of the Danforth Center and its mission to improve the human condition through plant science, he highlighted the accomplishments of the last century's "Green Revolution" and the need for a new "Ever-green Revolution." "As a physician, I was able to save lives retail, but the type of work accomplished by Norman Borlaug and what we are hoping to do here is saving lives wholesale."

The evening concluded with a very special, surprise ceremony honoring Emeritus Chair of the Friends Committee Newell S. "Jim" Knight, Jr. as the inaugural recipient and namesake of the Danforth Center's "Newell S. 'Jim' Knight, Jr. Volunteer Award." Dr. Danforth presented the award, which was established to "honor the spirit of leadership and passion for the Danforth Center embodied in Jim Knight," (see story at right). ■



DR. OTTO DOERING TALKS WATER POLICIES AND POLITICS

Experienced Economist Provides Background on Policies and Politics

On May 13, Robyn Frankel, Chair of the Danforth Center *Conversations* Committee, welcomed guests to this timely program with the observation that the evening's topic – water – was something "on everyone's mind – and not just because of the all the recent rain!" She thanked Boeing, sponsor of the 2008 *Conversations* Series, for their ongoing support before turning the podium over to Danforth Center President Dr. Roger Beachy, who introduced the evening's featured speaker, Dr. Otto Doering.

Dr. Doering is a public policy specialist on economic issues affecting agriculture, natural resources, and energy. He is a professor in the Department of Agricultural Economics at Purdue University and has served as an advisor to a variety of governmental agencies and non-profit organizations. In addition to a distinguished record of publication and honors for teaching and service, he was part of the Intergovernmental Panel on Climate Change group that shared the 2007 Nobel Peace Prize for their work.

In a conversation moderated by Professor James Davis, Dr. Doering highlighted the important distinction between water quality and quantity, provided some history on United States policy and commented on topics such as the Clean Water Act, the Farm Bill, and water rights and reservoirs.

The conversation concluded with special remarks from Danforth Center Chairman Dr. William H. Danforth, who thanked Professor Davis for his five years of service and welcomed guests to a reception celebrating Professor Davis's continuing participation with the *Conversations* program (see story at left). ■

SAVE
THE
DATE

Let's talk about...The Future of Plant-Based Biofuels: Food, Feed, Fiber, and Fuel

Thursday, August 28, 2008

Reception at 5 p.m., Program at 5:30 p.m.

Did you know? Plant-based biofuels are a key piece of our renewable fuel future. But as gas prices soar and headlines attempt to connect the dots between food shortages, global climate change, and petroleum dependence, there has never been a better time to sit down for a conversation about the role that biofuels can play in securing our fuel future. Be our guest for an in-depth discussion of the benefits of plant-based biofuels and the role that science can play in reducing petroleum dependence, greenhouse gases, and the competition over crops for food, feed, fiber, and fuel.

Mr. Andrew C. Taylor is the Chief Executive Officer and Chairman of Enterprise Rent-A-Car, a recognized leader in corporate initiatives for responsible environmental stewardship with a company-wide commitment to seeking new energy sources and sustaining the environment for future generations.

Dr. Richard Sayre is a professor at Ohio State University whose promising investigators of the photosynthetic powers of algae could lead to the development of commercially viable biofuel production systems that do not rely on food crops or non-food feedstocks. Dr. Sayre is also a leader in the biofortification of cassava and director of BioCassava Plus (see bottom of page 2). ■

More at the Core of our Facility: The Plant Transformation Facility

What Happens Here?

The Plant Transformation Facility operates both as a full service facility, where Facility Manager Kevin Lutke and his lab technicians create and deliver plant products to researchers, and as a self service facility for Center scientists and their collaborators.

A key component of Lutke's work involves teaching and training Danforth Center researchers as well as visiting scientists to use the facility and its high quality equipment. International scientists comprise one particularly important group of trainees, since many are involved in Danforth Center collaborations and the skills they learn here can be taken back and taught to other scientists in their home countries. Kevin Lutke also conducts hands-on workshops for participants in the Danforth Center Summer Internship Program.

The Danforth Center's Plant Transformation Facility is a critical component of the Center's ability to move scientific breakthroughs from the laboratory into farmers' fields. Tissue or cell culture involves growing and possibly manipulating plant cells or tissues in order to understand and improve features of interest in existing or novel crop species. The stable integration of new traits into key crops builds on thousands of years of agricultural trait selection and is a central technology in today's plant research programs. As rapid developments in plant genomic research continue to identify more genes of agricultural interest, unlocking and harnessing their promise increasingly relies on strategies, techniques, and technologies available in the Plant Transformation Facility.

"Real world applications of the research that begins at the Danforth Center depend on high-quality, consistent tissue transformations," notes Facility Manager Kevin Lutke "Our ability to keep on top of advances in our field means better, faster results for scientists and farmers working in actual fields half a world away."

Lutke notes that the facility's ability to adopt cutting-edge investigative techniques is no small achievement when new technologies are expensive and rapidly changing. He credits his highly trained and enthusiastic staff as well as the benefits of running a tight, focused operation for their success. "We have worked with more than a dozen model and crop species, and because we are an in-house operation, we can add plant systems as needed." Over the last five years, Lutke and his team have produced more than 10,000 transformation events involving species such as: cassava, maize, rice, tobacco, petunia, soybean, sweet potato, lettuce, canola, Indian mustard, and tomato.

The facility's ultimate goal is to provide optimal and evolving services for Center scientists as well as researchers at other institutions in the region. Looking ahead, Lutke anticipates that as the facility grows it will add a niche specialty to its menu of services. "We are always finding ways deliver better, cheaper, and more efficient services. This year we are adding workspaces to accommodate six additional scientists, and it is my hope that in addition to our current areas of excellence, one day we will also be *the* place to go for specialized knowledge of a single plant system." ■

For more information about the Facility, including service requests and fee schedules, visit <http://www.danforthcenter.org/pmsf/>

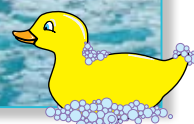


Kevin Lutke

Second Annual Danforth Center Kentucky Derby

ANOTHER AFTERNOON OF SUGAR HIGHS, HEARTBREAK, SOAKED SLEEVES AND COURAGE!

On Friday, May 2, fifty-four winged contenders sailed for glory, for plant science, and for the love of the Danforth Center in the Second Annual Danforth Center Kentucky Derby! The duck race, staged in the Kemper Reflecting Pool at the entrance to the Danforth Center, paid homage to the Kentucky Derby (held the next day, several states away) and raised funds for the Danforth Center. Ducks were named, decorated, and prepared to race by Danforth employees who paid \$3 to jockey their ducks in the short – but thrilling – event. Race Judge Newell S. "Jim" Knight (Emeritus Chair of the Danforth Center's Friends Committee) declared proud "Charlie," owned by Danforth Center Principal Investigator Dr. Oliver Yu, the victor. Dr. Yu also jockeyed last year's winner, Horatio, which has prompted some speculation about "duck doping" and "secret duck hormone research" in the Yu Lab. Even so, such rumors have not dampened enthusiasm for this young event, as participants look forward to tackling the open water again next May! ■



SPECIAL EDITION

Ask a Plant Scientist: 5 Questions with Dr. Sona Pandey, New Danforth Center Principal Investigator



LEAFLET: *Welcome to the Danforth Center! You were a successful member of the Research Faculty at Penn State University. What attracted you to become a Principal Investigator here?*

SONA PANDEY: I was really interested in getting a job at a research institute where I could concentrate on my research without a heavy teaching load. I liked the idea of being in a place dedicated to studying plant science, and also the fact that the Danforth Center is in close proximity to Washington University, the University of Missouri-St. Louis, the University of Missouri-Columbia, and Monsanto and there is a lot of collaboration going on. When I heard about the Danforth Center job, I applied for it, got it, and now I'm very happy!

LEAFLET: *Tell us a little bit about what you study.*

SP: My primary work investigates the drought stress signaling pathways in plants. In particular, I study the plant hormone abscisic acid, or ABA, which is produced in plants under abiotic stress conditions such as drought and serves as a signal to initiate certain kinds of protective plant responses. We know quite a bit about how plants synthesize ABA, as well as how the ABA signal is transmitted between plant cells. However, we don't know how plant cells first recognize ABA or what the initial steps are after the ABA signal has been perceived. Figuring this out could help design plants that are more tolerant to drought and other types of abiotic stress. I am particularly interested in a class of signaling proteins known as "G proteins" that are paired with a receptor to recognize and communicate the ABA signal.

In addition, I have worked extensively on the genomics and signaling pathways involved with plant guard cells. As their name implies, guard cells literally "guard" microscopic pores on plant leaves by regulating their opening and closing, which controls a plant's water loss and gas exchange. ABA is also a major player in regulating the size of guard cell openings, effectively regulating a plant's drought response. Fine-tuning guard cell responses would be a major step towards generating plants better suited to adverse environmental conditions.

LEAFLET: *How did you become interested in plant science?*

SP: I am originally from Varanasi, a city in Northern India that is one of the oldest and holiest cities in India. I studied botany and zoology and majored in chemistry as an undergraduate at Banaras Hindu University, and then pursued a master's degree in biotechnology there as well. I went to graduate school in New Delhi and earned my Ph.D. from the School of Life Sciences at Jawaharlal Nehru University (JNU) in Plant Cell Signaling. Working for my Ph.D. with Dr. Sudhir Sopory changed my perception towards science in general and plant biology in particular and I knew I would work with plants forever! The Danforth Center recently established a collaboration with the National Institute for Plant Genome Research, which is affiliated with JNU, so that's a nice connection. I try to go back to India once a year.

My post-doctoral work in the lab of Professor Sally Assmann at Penn State was a wonderful learning experience, and as I start my own lab, I hope to continue to learn from her example as a successful woman scientist.

LEAFLET: *You started at the Danforth Center in April. Any first impressions of St. Louis?*

SP: St. Louis is a much bigger than State College, PA [where Penn State is located] but still not too big. Living in the U.S. is so different than everything I had imagined or heard of when I was in India, since the image you have of life here is what you see on TV. Maybe life is like that somewhere in the U.S., but not in Pennsylvania or Missouri. But that's okay – I like how convenient everything is here and how friendly people are.

LEAFLET: *Starting a new lab is a lot of work! What are your next steps?*

SP: At present I am busy setting up my lab! I need to buy equipment, supplies, start experiments, and apply for grants. I will also hire a post-doctoral fellow and hopefully a research technician soon. It is a lot of work, but exactly what I had imagined and hoped for. I'm looking forward to it! ■



Meet the newest Danforth Center Principal Investigator: Sona Pandey, Ph.D.!

2008 Donald Danforth Plant Science Center Contributions

Many thanks to the following donors who have provided critical endowment, annual fund and other support for the Donald Danforth Plant Science Center in 2008. Through the ongoing support, loyalty, interest and generosity of many, the Danforth Center can live up to its commitment to excellence now and in the future.

Gifts received between January 1, 2008 and April 30, 2008.

Major Gift Support

The Danforth Foundation
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The Donald Danforth Society Presents ABC News Correspondent Bill Blakemore

REPORTER SHARES THOUGHTS ON HUMAN EXPERIENCE AND RESPONSE TO CLIMATE CHANGE

On April 7, Danforth Center Chairman Dr. William H. Danforth welcomed a capacity crowd to the AT&T Auditorium for a special presentation by ABC News Correspondent Bill Blakemore. Mr. Blakemore's presentation, "The Many Psychologies of Global Warming and the Hard Realities We Face," drew not only on his current role as the leader of ABC's coverage of global warming – which features a multiplatform approach incorporating TV, internet, radio, podcast and print formats – but also his previous work as chief science correspondent for ABC-Discovery Channel weekly programming.

Mr. Blakemore has reported for ABC News for nearly four decades. He has travelled widely as a national and foreign correspondent and covered 12 wars, eight hostage sieges and seven earthquakes, in addition to the global plant and animal extinction/biodiversity crisis. He served both as ABC's first education correspondent and as ABC's Rome Bureau Chief, covering Pope John Paul II throughout his reign. This journalistic versatility has given him a unique position from which to assess and comment on the human dimensions and conditions of global and environmental change.

The event was presented by The Danforth Society, whose members generously support the Danforth Center's annual fund and whose gifts are among the Center's most valuable resources in the tradition and philanthropic tradition of Donald Danforth, Sr. and Donald Danforth, Jr. Past Danforth Society speakers include Academy Award® winning director Davis Guggenheim and photographer and philanthropist Howard G. Buffett.



Plant these on your Calendar

A PRELIMINARY LOOK AT UPCOMING EVENTS FOR CENTER FRIENDS

THURSDAY, AUGUST 28: *Conversations* "LET'S TALK ABOUT THE FUTURE OF PLANT-BASED BIOFUELS: FOOD, FEED, FIBER, AND FUEL"

Join Mr. Andrew C. Taylor, CEO of Enterprise Rent-A-Car, and Dr. Richard Sayre, currently of Ohio State University, for a discussion about the future of biofuels and the roadmap for the Enterprise Rent-A-Car Institute. Reception at 5 p.m. with program to follow at 5:30 p.m.

SATURDAY, SEPTEMBER 9: "HANSEN'S GARDEN HOTLINE"

– LIVE BROADCAST FROM THE DANFORTH CENTER
Tune in to 1120 KMOX-AM radio from 8-11 a.m. as host Mike Miller discusses various horticulture topics and fields telephone questions from listeners like you – or come to the Danforth Center to be part of the live broadcast!

SATURDAY, OCTOBER 4

PLANTASIA

Danforth Society Members, mark your calendar for this yearly gala celebrating the Center's success and those who make it possible! You won't want to miss this very special evening celebrating ten years of Danforth Center science and honoring our Chariman Dr. William H. Danforth with the **Global Stewardship Award**.

To join the Danforth Society, please contact the Office of Development at 314-587-1073

10TH BIRTHDAY PARTY!

SUNDAY, SEPTEMBER 28: DANFORTH CENTER 10TH BIRTHDAY PARTY!

Join the Danforth Center for this community open house celebrating ten years of service to plant science, the St. Louis region, and the world! Learn about our founding and mission, tour the facilities, participate in science activities, tour Monsanto's Mobile Technology Unit - and more! For more information, visit the Birthday Party Web site at <http://www.danforthcenter.org/birthdayparty>



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