PENNSTATE College of Agricultural Sciences
INTERNATIONAL PROGRAMS

Spring 2011 E-Newsletter

Index of Articles

1. Chopra Receives $1 Million Grant to Explore Sorghum Disease
Paige Davis; Courtesy of Penn State Live

The U.S. Department of Agriculture's National Institute of Food and Agriculture awarded Dr. Surinder Chopra a $1 million grant for his investigation of anthracnose disease in sorghum. The collaborative research is being conducted by several researchers at Penn State (including Greg Roth, professor of agronomy and Iffa Gaffoor, postdoctoral scholar), the University of Kentucky, and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in India.

According to Dr. Chopra, the research being conducted is particularly important because of the potential for sorghum to be used as a sustainable bioenergy crop susbstitute for corn. Because it can be grown in the same climatic conditions as corn, it is a practical substitute and it is possible that more sorghum will be grown throughout the United States in the future.

The research “will characterize diversity among sorghum strains occurring in sweet, forage and grain sorghum”, maize grown as rotation crops, and wild sorghum relatives in both Pennsylvania and Kentucky. "The work will evaluate the threat posed by the increased disease pressure caused by the cultivation of sorghum feedstock and maize in rotation or in close proximity to each other," Chopra said.

Additionally, the research will focus on diseases that reduce the productivity of sorghum crop production. Sources of resistance to diseases will be tested on varieties that will be evaluated on their performance during and after the growing season. "Breeding for varieties of sorghum that inhibit or retard development of the anthracnose fungus in the stalk debris would enable more extensive cultivation of sorghum alongside and in rotation with maize."

Dr. Chopra hopes to develop disease resistant strains that could ultimately lead to no-till practices that would be much more environmentally friendly. This prestigious grant will facilitate important research that can affect biofuel production in the United States and potential technology that could be adopted internationally.

Along with two other College professors--Drs. Nicole Brown and Roger Koide--Dr. Chopra was also awarded a Sustainable Bioenergy Grant from the U.S. Department of Agriculture's National Institute of Food and Agriculture. Penn State was one of only four universities to get three of these grants, and no institution received more support from the program.

Dr. Chopra received $999,451 to study anthracnose, a fungal disease affecting sorghum and maize. His research aims to develop sorghum varieties that are less susceptible to the disease. (Return to Index)

2. **Chocolate Genome Mapped**
Paige Davis; Courtesy of Penn State Live

Penn State's Dr. Mark Guiltinan and Siela Maximova have worked with a team of researchers from around the world to successfully map the genome of the cacao tree that produces the finest chocolate. As published in the recent February issue of the journal *Nature Genetics,* the research conducted at Penn State has produced important information about the genes involved in resisting pathogens. The Criollo variety of *Theobroma Cacao*, which is found in the mountains of Belize, is very susceptible to disease and only makes up about five percent of the world's cacao production. The research being conducted on the genetic make-up of the ancient cacao tree has the goal of improving breeding in order to produce healthier chocolate plants.

The genetic analysis has provided insight to the synthesis of oil, flavonoids, antioxidants, hormones, pigments and aromas. In addition, the team has indentified the 84 genes responsible for the creation and quality of cocoa butter, which is used in foods, pharmaceuticals and cosmetics. The research conducted could lead to producing cocoa beans that yield more butter and even more healthful antioxidants and flavonoids.

The research conducted does not aim at genetically modifying the composition of the Cacao tree. The technical knowledge gained should be used to make direct genetic improvements that will be significant to farmers, producers, and companies. This genetic research will catalyze the breeding process by allowing young plants to be analyzed, instead of waiting for them to mature. Overall, the significant research provides producers with a mechanism for breeding trees that will be more disease and pest tolerant. (Return to Index)

3. **AcademIK Connections Video Series Released**
Reprinted courtesy of Penn State Live

A transdisciplinary team of Penn State educators, collaborating with community members and scholars at other universities, has created a series of 12 compelling videos demonstrating the importance of indigenous knowledge in developing and implementing entrepreneurial strategies to foster self-determined development.

The videos are intended for use in educational settings where locally generated knowledge generally takes a back seat to knowledge generated in institutional laboratories.
Indigenous knowledge refers to the ways of knowing, seeing and thinking that are passed down orally from generation to generation, and that reflect thousands of years of experimentation and innovation in all aspects of life. The "AcademIK Connections" video series, which can be found at http://www.youtube.com/hesepsu#p/c/61AFA3EF180F626C, offers stories that are based in reality.

The AcademIK Connection team is seeking feedback from faculty members who are using, or would like to use, these video clips in their classes, research endeavors and outreach initiatives. Collaborators interested in helping develop the video series into learning modules, as well as in producing a companion video series with perspectives from indigenous people around the world, are also welcome.

The AcademIK Connections video series is produced by the Humanitarian Engineering and Social Entrepreneurship program in the College of Engineering in collaboration with the Interinstitutional Consortium for Indigenous Knowledge. Funding support comes from the Marjorie Grant Whiting Endowment for Indigenous Knowledge Advancement, which is administered in the College of Agricultural Sciences.

For more information about AcademIK Connections, contact Khanjan Mehta at 814-863-4426 or by e-mail at khanjan@engr.psu.edu. (Return to Index)

4. Woskob International Research in Agriculture (WIRA) Scholar at Penn State

Dr. Olena Maksymets – an Associate Professor, National Forestry University of Ukraine (NFUU) in Lviv – is the 2011 Woskob International Research in Agriculture (WIRA) Scholar and is at PSU-SFR until late April. Olena is an economist and spent two semesters at UW in Seattle in 2007-2008 as a visiting Fulbright Senior Scholar. Scientific and research direction: Competitiveness of forest-related products, Trade flows in forest and wood-working industry products, Wood products' markets research, International marketing in forest-related industries.

During the visit as WIRA scholar Olena attended and actively participate in discussions in classes: WP 435, Wood Products Production and Sales Management, WP 490, Wood Products Colloquium; AEE 530, Teaching and Learning in Agricultural Science. She had a good opportunity to communicate with business representative (forestry, wood-working industry) as well as professors from the Pennsylvania State University and University of Vermont. (Return to Index)

5. Borlaug Fellows Program
Ty Butler, School of International Affairs

This semester Penn State's University Park Campus has been enjoying the company of three Borlaug fellows who have traveled from their homes in southern Africa and southeast Asia to spend ten weeks

doing research with the university as part of the Borlaug Fellowship's mission to promote food security and economic growth by fostering opportunities for collaborative research.

The Borlaug Fellowship Program was established in 2004 by the United States Department of Agriculture in honor of Dr. Norman E. Borlaug who was the recipient of the 1970 Nobel Peace Prize for his work in developing high-yielding wheat varieties which served to stave off the potential starvation of millions of people by reversing imminent food shortages.

Under the program, scholars from developing states travel to the United States to seek one on one mentoring through institutions which include universities, government research facilities and non-profit organizations. The fellows specialize in their own respective areas which fall under the scope of the Borlaug program.

Fellow Kennedy Muimui, a bean breeder who works in the Misamfu Research Centre in Kasama, Zambia is currently mentoring under Dr. Jonathan Lynch and Dr. Kathleen Brown from Penn State's Department of Horticulture. While also focusing on issues such as drought and heavy metal toxicity effects on soil quality, Kennedy is currently conducting research on bean growth in low phosphorus soils which he says is a “significant issue within Zambia”.

Kennedy states that his research here will help to contribute not only to the effectiveness of commercial farming, but to efficiency gains in more localized subsistence farming scenarios as well where the common bean is of great importance. When asked about how he felt about his research so far Kennedy stated: “the team here is doing exactly what we are trying to do [in Zambia].” Kennedy claims that there is sometimes a lack of adequate resources within Zambia and wants to use his research to gather knowledge, establish links with others interested in agriculture and gain access to improved seeds.

Huu Anh Dang, who has traveled to Penn State from Vietnam, is working on a project to detect pathogenic strains of E. coli in retail beef and poultry with Dr. Chobi DebRoy at the E. coli Reference Center, in the Department of Veterinary and Biomedical Sciences. Kudakwashe Magwedere of Zimbabwe, came to Penn State to work with Dr. Ed Mills (Department of Dairy and Animal Sciences) and Dr. Catharine Cutter (Department of Food Sciences) also wanted to work on detecting pathogenic E. coli in game meat. The two fellows found common ground and worked together at the E. coli Reference Center detecting pathogenic strains of E. coli in animal products that they hope to publish soon.

Ahn, a former animal infectious disease major from Hanoi University of Agriculture arrived in February to research E. coli in beef products stating “my country is a developing country, so there are a lot of techniques that we need to learn to use”. Ahn hopes to use his experience here as a stepping stone to starting his PhD.

Kudakwashe, Ahn's fellow lab partner, focuses his research efforts involving E. coli on its impact on the game meat industry. While originally from Zimbabwe, Kudakwashe is a part time PhD student at Stellenbosch University in South Africa and works in neighboring Namibia where he is employed by the Namibian government Department of Agriculture. Through his employment, Kudakwashe is involved in the development and implementation of safety surveillance programs with the goals of strengthening Namibia's considerable meat export industry. “You want to check how the animals are being raised and how they are being taken from the processing plant to the retail markets.” he said. “We buy meat from the supermarket and then test it for sugar toxins.”

All three Borlaug fellows report highly positive experiences while working with Penn State staff and faculty and engaging in their research. “I have very supportive mentors” says Kudakwashe, “I am really enjoying the program. . . it is a very good experience and it is the right place to be.” Ahn echoed Kudakwashe's sentiments stating “My mentor [Dr. DebRoy] is very helpful to me. She has a lot of knowledge in my area, and it is very good for me to study with her.” In the horticulture department Kennedy agreed saying that he was grateful of the real life experience and expertise of his mentors. When asked, the only thing that all three Borlaug students could find to complain about was the weather. “It is very good here except for the weather” stated Ahn, “I had never seen snow before coming to State College”. (Return to Index)

6. 2011 *Spirit of Internationalization* Award Winners Announced
Courtesy of the University Office of Global Programs

Penn State’s University Office of Global Programs (UOGP) is pleased to announce the winners of the 2011 *Spirit of Internationalization* Awards.

These annual awards honor women from Penn State University and the local community who embody the "Spirit of Internationalization" through academic achievements, artistic excellence, volunteerism in international organizations, or dedication to advancing the status of women.

The awards coincide with International Women’s Day (officially observed on March 8), which is celebrated worldwide to bring attention to global women’s issues.

The 2011 *Spirit of Internationalization* Award winners are:

- Alice Cheng – undergraduate senior majoring in bioengineering
- Rachel Sayre – graduate student in the School of International Affairs
- Sally Mouakkad – graduate student in the School of International Affairs
- Janelle Larson – associate professor of agricultural economics at Penn State Berks
- Consuelo DeMoraes – professor of entomology in the College of Agricultural Sciences
- Norma Keller – vice president and treasurer of the Center County Chapter of the United Nations Association

This year’s *Spirit of Internationalization* selection committee included representatives of the Penn State’s Center for Women Students, American Association of University Women (AAUW), Centre County League of Women Voters, Commission for Women, Global Connections, Graduate Women in Science, and UOGP.

These remarkable women were honored at the International Women’s Day Breakfast. The breakfast is a fundraiser, which will benefit Panzi Hospital in the Democratic Republic of Congo, specializing in treating survivors of sexual violence.

The featured speaker this year is Lee Ann De Reus, associate professor of human development & family studies and women’s studies at Penn State Altoona and Carl Wilkens Fellow with the Genocide Intervention Network. She is the co-founder of Panzi Foundation USA.

For more information about the *Spirit of Internationalization* Awards or the International Women’s Day Breakfast, contact Sandi Richter, special events coordinator, University Office of Global Programs, at (814) 863-5973 or smr274@psu.edu. (Return to Index)

7. College of Agricultural Sciences Students Win Prestigious Scholarships
Courtesy of Penn State Live

Brianna Isenberg, junior in the College of Agricultural Sciences, and Samantha John, junior in Community, Environment and Development, both received the prestigious Gilman Scholarship that was designed to financially support American college students studying abroad. The scholarship, which awards up to $5,000, is awarded by the U.S. Department of State. In order to better prepare students "to assume significant roles in an increasingly global economy and interdependent world", the scholarship was awarded to 850 qualified recipients out of almost 3,000 applicants.

Two of the five recipients at Penn State are from the College of Agricultural Sciences. Brianna is studying animal science at Lincoln University in Christchurch, New Zealand during the spring semester. Isenberg grew up with livestock on her family farm. After visiting University Park as a high school student to attend the Pennsylvania Governor's School for the Agricultural Sciences in the summer of 2007, she selected Animal Sciences as her major at Penn State. Her decision to study in New Zealand was influenced by a combination of the low language barrier and the country's rich sheep-production heritage.

Samantha is pursuing the International option, specializing in Spanish. She has traveled to the School for Field Studies in Costa Rica during the spring semester. After graduation she hopes to work in the Peace Corps.

The Gilman Scholarship is just one of many funding opportunities available to Penn State students for their study abroad experiences. (Return to Index)

8. IAAS Zambia Book Project – Make a Contribution!
Ketja Lingenfelter

The International Association of Students interested in Agriculture and Related Sciences (IAAS), is working with a College of Ag Sciences and IAAS alumni on the IAAS Zambia Book Project. This alumni, Chuck Casio, is currently volunteering with the Peace Corps in Zambia. An NGO built a library in his village, but there are no books to fill the shelves. The club is looking for agricultural related books, and monetary donations for shipping, to help Chuck fill the library. To date the club has received a donation to ship their first bag of books, which will go out before this semester ends. If you have any books to donation, or would like to give funds to help with the shipping costs, please contact Ketja Lingenfelter, IAAS Advisor, at ketja@psu.edu. (Return to Index)

9. Looking Ahead: Diverse Landscapes of Ukraine Symposium to be held at Penn State
Daria Megotz, School of International Affairs

In Fall 2011, the College of Agricultural Sciences and the College of Liberal Arts here at Penn State will be hosting a symposium entitled, *Diverse Landscapes of Ukraine: A Celebration of Twenty Years of Independence*. This symposium is a collaborative effort to bring topics in both science and culture together in a unique forum meant to further the understanding of the Ukraine in a very comprehensive and complete way. The accomplished speakers that come from not only Penn State but also other well-

established universities in both the U.S. and the Ukraine will be touching on a multitude of popular topics such as agriculture, environmental resources, language, and culture. An additional feature of the symposium is a number of special presentations focused on the Chernobyl disaster. The topic of the Chernobyl disaster was specifically chosen because 2011 marks the 25th anniversary of this unfortunate event. Overall, it will be a very exciting and insightful two days that people from various educational backgrounds will enjoy. (Return to Index)

10. New Interns in the Office of International Programs

Beginning this Fall Semester, we are pleased to welcome two new interns to the Office of International Programs.

Ty Butler, Master's student, International Affairs:

For the Spring 2011 semester, we have been fortunate to have had Ty Butler working in our office. Ty is currently a first year graduate student with the School of International Affairs and is hoping to focus his degree on economic development within sub-Saharan Africa. His undergraduate work was in both economics and political science. His academic interests include: regional interests in the Levant and Africa as well as interests in economic development, human rights, theology and journalism. Ty will be working primarily with the Ag2Africa program in order to develop a better understanding of agriculture's role in African economic systems and economic development.

Daria Megotz, Master's Student, International Affairs:

We have also had the good fortune to have Daria Megotz, working in our office. Daria is also currently a first year graduate student with the School of International Affairs and is concentrating her studies in the areas of human rights and peace and conflict studies. Her undergraduate work was in both international relations and German. Her academic interests include: regional interests in Europe specifically focused on the European Union and transatlantic affairs as well as interests in development, gender issues, and nuclear non-proliferation. Daria will be working primarily on projects related to the Woskob New Century Fund, development in association with agriculture, and gender issues, all which correlate with Daria's academic interests.

(Return to Index)