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Office of International Programs *Monthly Newsletter*

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Thirty-six Zhejiang students arrive on campus for ACES Summer Apprenticeship Program

Students and OIP staff pose for photo during orientation sessions.

A record enrollment of 36 students from China's Zhejiang University arrived on campus June 24, 2012, for the annual six-week research internship program coordinated by the Office of International Programs (OIP). The students are matched with faculty mentors to complete research projects and will also participate in industry-focused field trips, as well as social and cultural activities.

Even after their long trip, the students were wide-eyed and excited on Monday morning as they participated in their orientation program. OIP thanks Department Heads, faculty mentors and/or their postdocs and graduate students who attended the orientation session to help welcome these students.

Students will complete their program and showcase their research projects in a poster session/graduation ceremony that will be held on August 3, 2012.

University of São Paulo's College of Agriculture "Luiz de Queiroz" (ESALQ) visits ACES, signs letter of intent to continue long-standing cooperation

In early June 2012, two representatives from the College of Agriculture "Luiz de Queiroz" of the University of São Paulo, Brazil (ESALQ) visited the College of ACES to strengthen relationships and formally commit to maintain existing collaborations between the two institutions. As part of the two-day program coordinated by the Office of International Programs, the distinguished visitors, Dean of the College of Agriculture José Vicente Caixeta Filho and Professor Marisa A.B. Regitano D'Arce, met with numerous ACES department heads, faculty, and staff as well as visited several ACES landmarks and research facilities. Their visit concluded with an official signing of a Letter of Intent with Associate Dean Laurie Kramer to continue collaborations and strengthen student exchanges with the University of Illinois. Summarizing the visit, Dean Caixeta foresees a new era of mutual achievements for both institutions.

Korban involved in an international consortium that sequenced the genome of the Asiatic pear

The first sequencing of the Asiatic pear genome has recently been completed by an international consortium of seven worldwide universities and institutions including the University of Illinois. Dr. Schuyler Korban, Director of the Office of International Programs and molecular geneticist in the Department of Natural Resources and Environmental Sciences, says his lab's role was to work on the strategy for sequencing, analyze data, understand some of the unique and interesting biological processes, and work on the manuscript that has been submitted for publication.

"The Asiatic pear is the most important commercial pear in China," Korban says. "It's sweeter, has a high level of antioxidants, and is healthy like the apple, but it is higher in lignified cells so when you bite into it, you can feel the grittiness, making it higher in fiber. It is also more resistant to diseases such as the bacterial disease fire blight."

"The knowledge of the pear genome will greatly facilitate comparative genomics studies for identification of genes of consumer and grower interest in the Rosaceae family," says Awais Khan, a postdoctoral research scientist working in Korban's lab. "Ultimately, this will lead to rapid improvement of these fruits for disease resistance and for fruit quality traits."

The University of Illinois has partnered with Nanjing Agricultural University (lead institution on this project), Beijing Genomics Institute, Zhejiang Academy of Agricultural Sciences, University of Georgia, University of Hawaii, and Tohoku University in Japan.

Story courtesy of ACES News and Public Affairs, news writer Deb Levey Larson.

Ward receives NSF grant to continue work on Trans-Gulf of Mexico migration of birds

Ward and a receiver.

Millions of birds migrate across the Gulf of Mexico to "winter" in warmer climates and have been doing so for millions of years. However, Dr. Michael Ward, Assistant Professor in Natural Resources and Environmental Sciences, and his collaborators are the first to track small individual birds across the Gulf to determine if they make it to the Yucatan Peninsula, how long it takes, and how weather conditions may impact their journey. The implications of this research not only add to the existing understanding of birds' migration behavior, but will also help predict how future changes in weather patterns and habitats might impact these bird populations and their behaviors.

Dr. Ward, who has been tracking bird migration across the Gulf for three years, recently won a National Science Foundation (NSF) grant to continue his work for three more years. Previously, his study was funded by the National Geographic Foundation. Annually, his research team catches four varieties of birds (gray catbird, indigo bunting, red-eyed vireo, and Swainson's thrush) off of Alabama's coastal islands in the fall and attaches radio transmitters to them. If birds make it across the Gulf of Mexico to the Yucatan Peninsula, transmitters are detected by automated receiving units. The shortest route across is 1,000 km, and Ward says the birds' trips average 24 hours. "If they get a good tailwind they can make it in 17 hours. Surprisingly, most of them actually keep flying once they reach the Yucatan."

Data from 2010 show 50 percent of tracked birds made it across to land at Yucatan or continued past this area. Ward is currently reviewing the 2011 data and has not yet picked up any of the birds' transmitters in the data. He says reviewing the transmitter data is much more tedious than one would expect it to be; he has to comb through pages of records that include "noise" from cruise ships and other "man-made" elements.

As for 2011 data, he suspects that last year's hurricane season could have been devastating to birds; he notes that a recently released report revealed that gut contents of sharks indicated a high diet of birds. Or possibly, birds could have headed to Cuba instead. He is in the process of applying for permits to set up receiving units in Cuba as he suspects many of the birds might be flying in that direction.

In Mexico, Dr. Ward has a working relationship with several non-governmental organizations and the University of Yucatan-Merida.

MEAS First Global Learning Exchange Workshop Brings 127 Attendees

In early June, the Modernizing Extension and Advisory Services (MEAS) consortium led by the University of Illinois' College of ACES hosted a workshop in Washington, D.C., titled "Global Learning Exchange on Best Fit Approaches in Extension Advisory Services." The workshop was a tremendous success, attracting 127 attendees from more than 25 countries. For more information on the workshop program and to view the presentations, visit: http://www.meas-extension.org/workshops.

Wheeler and colleagues using IVF and embryo transfer to improve international cattle and dairy production

Is it possible to dramatically increase milk production and improve the genetics in just one generation of cattle? Referencing his previous work with large scale in-vitro fertilization (IVF) and embryo transfer in South and Central America, Dr. Matthew Wheeler, Professor of Animal Sciences, is confident that a similar system he is proposing in Rwanda would quickly improve the productivity of the national herd of dairy cows, and therefore help the country generate income, improve nutrition, and even improve crop production through manure.

Dr. Wheeler's vision for Rwanda is to increase pregnancies and restock animals with high-producing breeds by impregnating existing stock with higher-bred embryos. The native Rwandan cattle are Ankole, which are hardy stock but have low potential for milk production and growth. However, if the Ankole can be efficiently cross-bred with higher-producing cattle, Rwandans could quickly realize benefits.

To this end, U.S. Department of State has agreed to fund two Rwandan scientists' visit to the University of Illinois campus as Cochran Fellows this fall to learn about embryo transfer from Dr. Wheeler and his colleague Dr. Luiz Nasser, who has appointments at the University of Panama and the University of São Paulo, Brazil, as well as his own animal biotechnology company, BORN Animal Biotechnology.

The pair optimized their large-scale embryo transfer process in Panama. "With modest government support, we improved cattle production significantly. We created a system not only to make embryos but to turn over genetics in the country." Their question is now: Are there greater uses for what we have learned in Brazil and Panama? Wheeler believes this technology could work very well in Rwanda. "We know exactly what to do, and can train them to know all aspects. Due to the mountains and the climate, they could possibly house a lab for the entire continent. In only one generation of cattle, we can make them more productive."

More than 80% of Rwandans currently depend on subsistence crop and livestock farming, so investment in the agriculture sector is key to the country's vision. Wheeler adds, "The Rwanda project is a great opportunity for a college like ours to take leadership, but it has to be driven by the needs of the people. We are convinced this will work, but we need the government to say yes. Right now, they are spending $1000 each on frozen embryos, and it generally takes three of these plus labor to result in a pregnancy. With our system, we guarantee pregnant heifers with higher quality stock. They can even sell the recipient back when they are done. Our system is obviously much more cost effective, but they need to invest in a system and lab. This would be sustainable and there are also opportunities to add proteins to the milk for other benefits, including less spoilage."