

## ACES launches international food security initiative with lecture by Gerald Nelson



Dr. Gerald Nelson stands with Dr. Winter-Nelson, director of the ACES Office of International Programs, after the lecture.

On September 8, 2014, the International Food Security Initiative (IFSI), a new campus-wide program to address global food insecurity, presented its inaugural lecture by Dr. Gerald Nelson, "Global Food Security in the Face of Changing Climate."

Nelson is a professor emeritus of the Department of Agricultural and Consumer Economics and the principal author of the report *Advancing Global Food Security in*

*the Face of a Changing Climate* released by the Chicago Council on Global Affairs in May 2014.

Climate change, Nelson said, is already affecting agriculture. He gave examples of rice production in China shifting to the north, coffee production shifting up the mountains, and durum wheat (used in pasta) showing sensitivity to higher temperatures.

After painting a bleak picture for the future of our planet, especially in lower-income developing countries where he said "mass starvation" is an extremely plausible outcome, Nelson provided three main messages for today's low income countries: 1) Today, sustainable development is more important than adapting to climate change; 2) Today, they should be investing in capacities to adapt, keeping international trade free from barriers, and improving domestic policies that support agriculture; 3) Collect better data today and in the future on the existing situation and practices, for example, weather, land cover, water, prices.

Nelson closed by encouraging the crowd to think beyond corn and soybeans. "Can we redirect some of our research dollars and activities to some of the crops and particulars that haven't seen as much funding? Economists believe in the S curve, where a dollar spent early on in research activities provides a larger return, and over time, the returns of additional dollars spent decline. So, after we have been spending 30 years on corn, maybe we are on the top end of that curve and we should try to get more biophysical productivity from some other crops and out-of-the-box activities."

Nelson's lecture launched the new IFSI, which will focus the expertise and resources of the University of Illinois to address the global challenge of ensuring that all people at all times have access to sufficient, safe, and nutritious food.

## Korea's Chungnam National University visits UI to sign MOU



On August 21, 2004, a delegation from South Korea's Chungnam National University (CNU) met with University of Illinois Chancellor Phyllis Wise, Interim Associate Provost for International Affairs and Interim Director of

International Programs and Studies Bryan Endres, and other Illinois faculty and administration to sign a Memorandum of Understanding, which created a formal relationship to facilitate future collaborations and partnerships.

"We learned that CNU is rapidly expanding with significant funding and programmatic growth. We will be exploring academic programs, including 3+2 programs in which students could earn undergraduate degrees at CNU and Masters' degrees at UIUC, student exchanges, and joint supervision of graduate students. Also, CNU has invited all ACES department heads to a forum during October 2015. We expect to send a group of faculty at that time to begin implementing specific plans for research collaborations," said Dr. Alex Winter-Nelson, director of the Office of International Programs in the College of Agricultural, Consumer and Environmental Sciences.

The President of CNU Dr. Sang-Chul Jung noted his University has recently been granted several awards from the Korean government which will be utilized to prepare its students for globalization. "It is our pleasure and honor to visit the University of Illinois at Urbana-Champaign to develop mutual interests. With a closer relationship with UIUC starting today I believe our University can be a global leader in academic learning, and both in industrial and international collaborations," said Jung.

The Korean delegation included Dr. Hyoun-Sub Lim, vice president for international affairs, who is an alumnus of Illinois. Lim initiated the formal partnership between the universities.

CNU, established in 1952, is situated in the central region of the Korean peninsula. It is a Korean Flagship National University, created by the South Korean government to lead the development of South Korea into a developed country through providing the highest educational institutions nationwide.

## Mexico's UASLP looks to extend partnership at the U of I

Led by the first lady of the Mexican state of San Luis Potosi and the Rector of Mexico's Autonomous University San Luis Potosi (UASLP), a high-level delegation from UASLP visited the University of Illinois Urbana-Champaign and Chicago campuses during early August to broaden the scope of partnership between the two universities. The College of ACES has a longstanding relationship with UASLP dating back to 2006 when the ACES Academy of Global Engagement visited the UASLP campus and subsequently formed the UP-Amigos\* group that focuses on issues pertaining to obesity and metabolic syndrome in the two countries.

"The purpose of this most recent visit was to elevate the existing partnership and move it to the next phase – at the campus and university level," explained Suzana Palaska-Nicholson, associate director of the ACES Office of International Programs. "Dra. Maria Luisa Ramos Segura, the first lady of the State of San Luis Potosi, is a medical doctor and is particularly interested in exploring collaborations with the U of I College of Medicine, said Palaska-Nicholson. \*UP-

Amigos" is an acronym formed from [U]niversity of Illinois and San Luis [P]otosi - [A] [M]ultidisciplinary [I]nvestigation on [G]enetics, [O]besity, and [S]ocial Environment.

## Olson's longstanding international collaboration yields valuable data on greenhouse gasses in relation to land-use changes

"It's definitely been an adventure," recalled Dr. Kenneth Olson of his 24-year collaboration with Dr. Alexander Gennadiyev, faculty at Moscow State University in Russia, to determine the potential effects of land use changes on soil organic carbon and greenhouse gas emissions. In perhaps the College of ACES' longest continuous international faculty collaboration, Olson, a professor of soil science in the Department of Natural Resources and Environmental Sciences, recently hosted Gennadiyev to exchange laboratory data. This particular visit ran smoothly, but that has not always been the case for Olson; while sampling and traveling with soils from prairie, forested, and agricultural sites in each of seven locations across Illinois, Iowa, South Dakota, and Russia (Tula and Belgorod), he has encountered several challenges. Olson's travel adventures have involved suitcases of soil, political tensions, and military exercises.

Despite the challenges associated with collecting and traveling intercontinentally with soil samples (over 1300 samples through the years), the results from Olson and Gennadiyev's work have provided insight into how to retain as much carbon in soil organic matter for as long as possible. "Our work ties to climate change. If you assume, the mesic-frigid line (upper boundary of corn production) may move north in the U.S. and in Russia, where forest and natural areas would have a climate suitable for agricultural use; these areas combined include a very large amount of prairie and forest soil that is currently holding in carbon and nitrogen. If these areas are repurposed into farmland, the suggestion is that greenhouse gas emissions would be accelerated," Olson explained.

Gennadiyev's visit coincided with the Master's thesis defense for Olson's graduate student, Ron Salemm, whose results showed that changing prairie soil into farmland causes an even greater loss of carbon than previous studies had shown. "Ron's results show a 50-60% loss of carbon by changing from prairie soil to farmland. This particular field [at Dinesen Prairie in Harlan, Iowa] is on a 12% slope so the erosion rate is extremely high," Olson said. Olson's previous results have shown that 18-48% of carbon could be lost from the soil by land use changes in both the U.S. and Russia. "The forest is much better at sequestering carbon than the agricultural land. If you want to tie up carbon for a long time, trees, roots, and making furniture are good ways to do it. When you clear, cultivate, or burn forest, you lose carbon. If you want to sequester soil organic carbon, plant grasses; but if you want to sequester carbon overall, plant trees," Olson said. If the forest or prairie land is converted to agricultural use, methods such as crop rotations and soil conservation can be implemented to retain as much carbon for as long as possible, said Olson. For example, one could restrict land use change or select agricultural systems which retain more soil organic carbon and reduce greenhouse gas emissions," he said.

The 24-year cooperative research program has been funded by the U.S. State Department, U.S. Forest Service, NATO, and the Russian Research Foundation. Gennadiyev's recent visit, as well as Dr. Olson's trip to Moscow in April, were funded as part of a U.S. State Department travel grant. The project has supported five Russian graduate students in addition to Salemm.

Olson's most recent travel hiccup adds is the latest of several adventures he enjoys telling about the collaboration. "One of the sites we sampled in Russia, Tula, has a rain cloud from Chernobyl. Radiation traveled 500 miles and came down at a higher rate with the rainstorm. We used that radiation in a test. At another soil sampling site, we found trenches and artillery shells; it was the site of the largest tank battle between Russia and Germany in WWII. We had to move the soil sampling site. Every time we went in the woods, we didn't know what we would find but it was always an adventure."

Olson and Gennadiyev met in 1979 at Cornell when the former was a research associate and the latter was a visiting professor. "I like to say we are members of the 20/20 club, as collaborators of over 20 years with over 20 refereed journal papers," said Olson.

## Zhejiang students complete fifth annual summer internship program in ACES



Thirty students from China's Zhejiang University (ZJU) completed a six-week summer internship in the College of ACES that included individualized work with ACES faculty members, industry-focused field trips, and social and cultural activities. The program,

coordinated by the Office of International Programs, is in its fifth year. This year's interns were admitted as part of a highly selective process that for the first time included an interview with OIP's Associate Director Suzana Palaska-Nicholson. Palaska-Nicholson visited the ZJU campus during March 2014 along with Dr. K.C. Ting, Department Head for the Department of Agricultural and Biological Engineering, with the overall goal of expanding research partnerships with ZJU."