



THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

INTERNATIONAL PROGRAMS IN AGRICULTURE

Annual Report 2013



**OFFICE OF INTERNATIONAL PROGRAMS
IN AGRICULTURE**

**ANNUAL REPORT
2013**



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AND ENVIRONMENTAL SCIENCES

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Introduction

The Office of the International Programs in Agriculture (IPA) was established in 1955 to foster international outreach and engagement in the College of Food, Agriculture, and Environmental Sciences at The Ohio State University. Today IPA continues to promote global opportunities within the College, with an emphasis on the developing world. We accomplish this by assisting with the submission and administration of international grants and contracts, by managing short-term scientific exchange programs for international visitors and scientists, and by implementing degree programs for international graduate students. We also assist in the development of memoranda of understanding (MOUs) and other international agreements between the College and other institutions to facilitate transnational research collaboration. The Office of International Programs also encompasses The Ohio Program, a unique international internship program with specializations in horticulture, agriculture and turfgrass. Currently, IPA administers a \$9.7 million portfolio of grants, with the key funding agencies being the United States Agency for International Development (USAID), The United States Department of Agriculture Foreign Agriculture Service (USDA/FAS), and Higher Education for Development (HED).

Mission Statement

We support the globalization efforts of the college by engaging OSU faculty and students in international research, extension, and learning. Employing the land grant model, we work with international partners to build capacity in sustainable agriculture throughout the world and to increase competitiveness at home

The 2013 International Programs Annual Report covers international activities undertaken by many members of the College of Food, Agricultural and Environmental Sciences (CFAES) in addition to the International Programs in Agriculture Office (IPA). Since information is voluntarily provided by the larger community of CFAES, it is not a complete record of activities, but nonetheless conveys the variety and depth of international activities in the College.

International Projects Administered by IPA Office

Project Title	Sponsor	Investigator(s)	Project Budget	Begin Date	End Date
Collaborative research and capacity building of Sokoine Univ. of Agriculture and the National Agriculture Research System (iAGRI)	Agency for International Development (USAID)	Mark Erbaugh, David Kraybill	\$6,500,000	3/1/11	2/28/16
Development of agronomy and crop production academic programs, research, and need based extension programs for sustainable food production in Senegal	Higher Education for Development	Richard Dick, Mark Erbaugh, Ken Martin, Steven Neal, Emilie Regnier	\$181,320	12/21/10	9/30/15
Agricultural Innovation Partnership	Cornell University	Mark Erbaugh David Hansen	\$238,069	7/1/2011	9/30/2015
Regional IPM Program for East Africa: Kenya, Tanzania (IPM CRSP)	Virginia Polytechnic Institute	Mark Erbaugh, Luis Canas, Matthew Kleinhenz, Joseph Kovach, Sally Miller	\$817,903	10/1/09	9/30/2014
Market Development in Support of Sorghum and Millet Farmers in Tanzania and Zambia (INTSORMIL-CRSP)	University of Nebraska, USAID	Mark Erbaugh, Donald Larson	\$436,616	7/1/07	2/28/13
USDA Global Research Alliance Fellowship Program	USDA - Foreign Ag Service	Mark Erbaugh	\$27,761	6/29/11	12/31/13
USDA Norman E. Borlaug Fellowship Program	USDA - Foreign Ag Service	Mark Erbaugh	\$86,425	(several projects)	12/31/13
Cochran Fellowship Program	USDA - Foreign Ag Service	Mark Erbaugh	\$54,298	6/16/12	6/15/13
Scientific Cooperative Exchange Program for China	USDA - Foreign Ag Service	Mark Erbaugh	\$41,062	7/02/12	7/02/14

Year 2013 Achievements: A Glimpse



\$9 million in funding for international agricultural projects

3 Prestigious USDA Borlaug Scholars placed with CFAES Faculty

14 USDA Cochran Fellows hosted from Georgia and Albania

6 International Memoranda of Understanding signed with international institutions

408 international interns placed in the agricultural, horticultural, and turfgrass industries

80 Ohio State graduates recruited for the Peace Corps, ranking Ohio State 9th in the nation



Innovative Agricultural Research Initiative - iAGRI

iAGRI is a five-year project funded by the United States Agency for International Development (USAID) that began in March, 2011. iAGRI's ambitious goal is to improve food security and agricultural productivity in Tanzania by providing advanced degree training in agriculture for more than 100 Tanzanian graduate students and strengthening the teaching and research capacity of the Sokoine University of Agriculture (SUA) and the Ministry of Agriculture, Food Security and Cooperatives (MAFSC). OSU/CFAES is the chief administrator for this project, working with five land-grant partners: Michigan State University (MSU), University of Florida (UF), Virginia Tech (VT), Tuskegee University (TU), and Iowa State University (ISU). **David Kraybill** (AEDE) is the Project Director in Tanzania. International Programs in Agriculture staff involved in the project include **Mark Erbaugh**, Project Administrative Director; **David Hansen**, Program Manager; **Ryan Hottle**, Training Coordinator; **Pat Rigby**, Administrative Assistant; and **David Mackie**, Fiscal Manager.



In March of 2013, Dr. Peter Gillah, Deputy Vice Chancellor for Academic Programs, and Vedasto Muhikambe, Director of Research and Graduate Studies at SUA visited OSU and met with CFAES and OSU administrators. This visit allowed them to gather information about academic quality of programs, alternative models of university program administration and leadership development, as well as opportunities for additional program support from funding agencies. The visitors were happy to initiate contacts with individuals who could provide them with additional inputs to SUA programs.



Two iAGRI-sponsored students, Boniface Massawe and Nafeti Mheni, were awarded Norman Borlaug LEAP fellowships. These fellowships are funded by USAID and are intended to enhance the quality of thesis research of graduate students from developing countries by covering research and travel expenses of the student and their faculty mentor(s).

On July 10, 2013, 24 of the 29 Tanzanian trainees were sent off from the U.S. Embassy in Dar es Salaam to their placement institutions. Two iAGRI fellows placed at OSU from previous cohorts - Martin Respius Gabagambi from Cohort 1 and Emmanuel Mgonja from Cohort 2 - addressed the trainees and the rest of the guests gathered.



Rita Mirondo (pictured far right), iAGRI Fellow, seated on a Feed the Future panel with (from left) is Dan Glickman, former Secretary of Agriculture; Carolyn Miles of Save the Children; and Brady Deaton of the University of Missouri

Rita Mirondo, a doctoral student in the Department of Food Science and Technology and iAGRI Fellow, was invited to be one of three panelists for a discussion entitled "Feed the Future: Growing Innovation, Harvesting Results" on July 25th. The purpose of the event was to highlight advances in global food security being made by the U.S. Agency for International Development's Feed the Future initiative.

Mirondo discussed the subsistence-level farm production common throughout Tanzania, and said a transition to commercial agricultural and food-processing practices is sorely needed.

"Providing knowledge and training to farmers and the younger generation to better handle agricultural activities would be the best means to deal with this challenge. If this is successful, it will give a good promise of a future world without hunger."

CFAES Organizes Climate Change Conference in Tanzania, Promotes Food Security Through iAGRI

Nearly 100 researchers gathered at Sokoine University of Agriculture (SUA) in Morogoro, Tanzania from November 13th-15th for a conference entitled “Climate Change, Sustainable Intensification and Food Security in Sub-Saharan Africa”. The conference was hosted by SUA, Norwegian University of Agriculture, and iAGRI - a major food security project in Tanzania funded by USAID and administered by the Office of International Programs in Agriculture (IPA) in the College of Food, Agricultural, and Environmental Sciences (CFAES).

Presenters and discussions at the conference, which spanned three days, addressed climate change as an overarching major challenge to agricultural and food systems in sub-Saharan Africa. According to the Feed the Future Initiative - the U.S. government’s primary global hunger and food security program - sub-Saharan Africa is chronically vulnerable to food insecurity due to increasing population and concomitant increased demand for food. Additional challenges to agricultural production attributable to climate change include temperature changes, shifts in rainfall, droughts, floods, degraded soils, plant pests and animal diseases.

Given that two-thirds of the Tanzanian workforce is employed in agriculture, the country’s long-term economic success hinges on discovering novel ways to make agricultural production more adaptive and sustainable. “While agriculture in sub-Saharan Africa is the basis for the economies and livelihoods of its people, it has remained largely deficient in adopting and adapting important innovative approaches for sustained growth,” said Vedasto Muhikambele, Director of Research and Post-Graduate Studies at SUA, at the conference’s opening session. “In order to adapt to climate change, variability and address land degradation, African agriculture must be revitalized through innovative strategies and practices that will enable the sector deliver to its full capacity”.

Nearly 50 papers were presented on eleven related themes including degraded lands rehabilitation through forestry and agro-forestry, nutrient and water management, and human dimensions of terrestrial carbon management. Dr. Rattan Lal, Distinguished Professor of Soil Science and Director of the Carbon Management and Sequestration Lab at Ohio State University, asked the conference participants during a keynote address to visualize a nickel engraved with “In Soil We Trust” as a way to signify the prominent role soil plays in sequestering carbon. Dr. Lal, along with Dr. Dave Hansen, Professor Emeritus at Ohio State and iAGRI Project Coordinator, were mentors of the conference’s steering committee. In all, the conference attracted participants from 14 different countries in Africa, Europe, and North America.

One outcome of the conference was a recommendation to establish a regional climate change and food security research network, where connections made among conference participants can be maintained and fuel future research collaborations. iAGRI Project Director, Dr. David Kraybill, who is a Professor in the Department of Agricultural, Environmental, and Development Economics at The Ohio State University, was elated with the outcomes of the conference, especially in its effort to involve a larger pool of stakeholders from diverse backgrounds in climate change adaptation. “The conference achieved the planning committee’s goal of bringing together biological and social scientists from around the world to seek solutions to the challenges of climate change in Africa,” shared Dr. Kraybill, adding that in the future iAGRI “hopes to broaden the discussion to engage scientists, policy-makers, and farmers about sustainable adaptation to climate change”. A follow up conference on climate change in Africa is already planned for 2014.



iAGRI fellow, Gosbert Shausi, interviews a subject for his research

Private Sector Linkages

One critical component of building capacity is forging private sector linkages. Steve Bosserman, of Bosserman Associates, continued to work with the leadership of SUA in 2013 on how to increase SUA’s partnerships with private sector entities.

Three Memoranda of Understanding (MOU) were signed between iAGRI and non-governmental organizations. It is anticipated that they will lead to comparable MOUs with SUA. The entities with whom they were signed include:

(1) Memes Associates

(2) Tanzanian Horticultural Association

(3) International Institute of Tropical Agriculture (IITA)

The MOU’s provide the groundwork for negotiation of research at SUA to be funded by these new partners.

iAGRI's Collaborative Research Projects: Ohio State Faculty Involvement

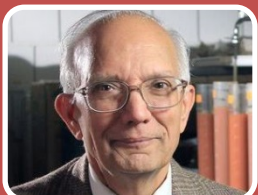
iAGRI has funded nine collaborative research projects as part of its overall program. Each project is funded \$100,000 over two years and involves participation of at least one researcher from SUA, one from an MAFC institution, and one from an OSUC member institution. In 2013, eight faculty members and students were involved in five of these research projects.



Cathy Rakowski

Professor, School of Environment & Natural Resources

Worked with Principal Investigator, Nyambilila Amurim (SUA), on "Improving Agricultural Productivity and Crop Nutritive Quality through a Gender Sensitive Approach to Cereal and Vegetable Production in Tanzania"



Rattan Lal

Professor, School of Environment & Natural Resources

Worked with Principal Investigator, Didas Kilmaro (SUA), on "Agricultural Innovation for Smallholder Farmers through Locally Adapted Conservation Agriculture for Improved Food Security in the Context of Climate Change"



Sally Miller

Professor, Department of Plant Pathology

Lead "Improved Soil Health and Germplasm to Advance Tomato Production in Tanzania" with the following OSU collaborators:

- **Brian McSpadden-Gardener** - Professor, Department of Plant Pathology
- **David Francis** - Professor, Department of Horticulture & Crop Science
- **Anna Testen** - Ph.D. Student, Department of Plant Pathology



Brent Sohngen

Professor, Department of Agricultural, Environmental and Development Economics

Worked with Principal Investigator, Zacharia Malley (MAFC) on "Managing Agricultural Land Productivity in Changing Climate: Analyzing and Improving Climate-Smart Farmers' Resilience Initiatives in Tanzania"



Richard Dick

Professor, School of Environment & Natural Resources

Worked with Principal Investigator, Andrew Tarimo (SUA), on "Promotion of Low-Cost Drip Irrigation Technology for Enhancing Agricultural Productivity and Livelihoods of Small-Scale Farmers in Semi-Arid Areas of Tanzania"

Trilateral Program in Food Security



Dr. Shammi Kapur, Punjab Agricultural University, observing mushrooms grown by small farmer in Nakuru County, Kenya

The Trilateral Program in Food Security involving Egerton University in Kenya and Punjab Agricultural University (PAU) in India, along with CFAES continued through 2013. The overall purpose of this program is to support sustainable interactions under a partnership framework between Egerton and Punjab Agricultural University. The inception workshop for this program held at Egerton University identified a strategic framework for the program.

Among priority activities identified as part of this framework were:

- (1) Development of a strategic plan for Egerton to promote outreach to stakeholders in the agribusiness sector
- (2) Development of curriculum dealing with value chains

(3) Conduct of an agribusiness sector assessment

(4) Development of a handbook for student internships

(5) Development of management plans for agribusinesses in the region around Egerton

(6) Mushroom and honey technology package development

(7) Promotion of a teaching/learning center at Egerton.

During 2013, attention was given to all of these priority areas. **Gary Straquadine** (ACEL) accompanied 6 staff from Egerton to PAU to work on the strategic framework for an outreach center. This visit included a close review of PAU's District outreach centers and strategic planning activity. Subsequent to it a workshop was conducted at Egerton that included OSU representation by **Bobby Moser** and **David Hansen**. The draft strategic plan was sharpened at this workshop.

During another visit to Egerton, PAU and Ohio State personnel, including **Mark**

"Our role is really to bring these people together. PAU has strong programs in crop breeding, soil and water management, and farmer outreach, and offers tremendous potential to improve food security in Africa. The partnership will also benefit PAU by allowing it to test various models for improving food systems and raise its scientific visibility on an international level."

- **Mark Erbaugh**

Erbaugh (IPA) and **David Hahn** (AEDE), worked with Egerton counterparts to develop a syllabus for a capstone course taken by all Egerton students on value chain analysis and management. Together they also developed a M.Sc. modular program in value chain analysis for Kenya. While in Kenya they also worked with Egerton counterparts to develop an agribusiness sector assessment which was



Alexander Kahi (seated), dean of the Faculty of Agriculture at Egerton University, signs a document related to the new tri-lateral agreement. From the left, is B. Bebe, animal science faculty member at Egerton; Mark Erbaugh, director of IPA, and Gusharan Singh, dean of post-graduate studies at PAU

subsequently conducted by Egerton staff and vetted at the strategic planning workshop. **Pat Whittington**, OSU, worked with counterparts from PAU and Egerton to draft a handbook for internships. Mushroom and honey bee specialists from PAU visited Egerton to work with counterparts at Egerton on the production of these products. Based on the visitation, Egerton has prepared demonstration units for these products and additional interactions of counterparts from PAU and Egerton are programmed for 2014.

Egerton, PAU and OSU have also programmed teaching/learning activities which are to be undertaken in 2014. The project is scheduled to end on March 31, 2014, but it is anticipated that it will be granted a no cost extension through September, 2014.

Higher Education Development Project - University of Gaston Berger, Senegal



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This five-year project is developing academic, research, and service programs at the Université Gaston Berger, Senegal (UGB) that focus on sustainable food production in the African Sahel. The goals of the project include 1) assisting with curriculum development at UGB for associate and bachelor degree programs in agroecology; 2) building UGB faculty capacity for teaching, research and extension; 3) building a pilot program of integrated research and outreach for small farmers; and 4) facilitating faculty exchanges. Richard Dick (SENR) co-directs the project with Professor Mateugue Diack of UGB. Amanda Davey (SENR) coordinates project logistics, purchasing, reporting, and UGB faculty and PhD student training at OSU.



The new Associate and BS degree programs began their third year with student recruitment taking place in November. Twenty-seven students were recruited (18 males and 9 females).

As part of the OSU-UGB Faculty Mentoring Program, five UGB faculty study tours took place during 2013. UGB faculty mentor with an OSU faculty member in their discipline, through this they observe student-centered teaching, lab management, and explore research collaboration and proposal opportunities. Additionally all of the study tours incorporate training on teaching and curriculum at the OSU Center for the Advancement of Teaching (UCAT). Formal training in extension is provided by OSU educator Scott Scheer and Florian Diekman, Agricultural Sciences Librarian gives an overview of on-line data bases/search engines and other written resources available at OSU (all of these resources are available for 2 years). The Study Tours also include visits to OSU South Centers and the Ohio Agricultural Research and Development Center (Wooster), providing UGB faculty first-hand experience with extension administration, on-farm research, and extension work with local clientele.

An important outcome of the UGB faculty study tours was the recognition of the potential for a small mechanical transplanter that they observed in Ohio. OSU has worked with small Amish farmers who use animal traction to pull the transplanter. Because Senegalese farmers use animals for their implements and that the transplanter is simple and easy to maintain, makes it attractive for Senegal and throughout West Africa. It allows quicker, more accurate transplantation of seedlings with significantly less labor. As a result a prototype was sent to UGB and a pilot project was initiated

OSU faculty were at UGB from December 2 - 6, 2012 to facilitate synergistic interactions with UGB Ag faculty and students. OSU Professor, Joe Kovach presented polyculture and greenhouse cropping techniques. Mark Erbaugh, OSU Director of International Programs in Agriculture, presented, Controlling Tomato Blight: Lessons from Tanzania. Additionally, a field day led by UGB Ag faculty, was attended by 100+ farmers, students, and local agency representatives. The UGB students gave

presentations on their experiences in the on-farm internship program from summer 2012 (farmer host families were in attendance who were very appreciative of the interns and to hear the reports). Brad Bergesford, OSU Extension Educator provided training and demonstration of the transplanter which was a huge hit with farmers. A national TV news channel covered the event and interviewed OSU Professor Richard Dick and UGB Professor Mateugue Diack, who are the co-directors of the HED-USAID project.

Another Short-term training took place February 27 - March 3, 2013 at UGB. Professor Valente Alvarez, Director of OSU Food Industries Center and Project Coordinator, Amanda Davey visited Senegal to assess the need and feasibility of establishing a Food Industries Center at UGB. During this visit UGB Food Science Professor, Michel Diop took Mr. Alvarez and Ms. Davey to meet with potential partners in the Department of Internal Trade, the Food Technology Institute, Chamber of Commerce, and local growers and food processors. A conference called, "The Role of a Food

Industry Center in the Development of Agrifood Production Systems and its Adaptability in the Senegalese Context” was held and attended by UGB faculty, staff, and students, local producers and processors, local and national chambers of commerce, and national food quality inspectors. Over 150 people attend the Saturday conference. A letter of Intent to Collaborate was signed by Drs. Diop and Alvarez.

In July, Richard Dick and OSU Extension Specialist, Brad Bergefurd, traveled to Senegal to assist in the design and development of modifications on the mechanical transplanter so that it can be pulled by horses as well as a tractor. Malick NDIAYE of AGRICTECH Co., a private agricultural fabrication and implements company in St.-Louis, helped with the supplies and adaptation of the transplanter. Mr. NDIAYE has expressed a desire to import the transplanters for sale in his shop. The transplanter was successfully upgraded and is now able to be pulled by horses.

The second objective of the trip was to provide a short-term training to farmers, buyers, agency representatives, and UGB faculty and students on how to conduct a successful produce auction. Participants were given a French translated Buyer/Seller Guide. Mr. Bergefurd gave a PowerPoint presentation explaining the auction process, then showed a video of a produce auction held by the Amish in Ohio. The participants easily understood, and a lively discussion ensued around the idea of using an auction to buy and sell produce in Senegal

Agricultural engineering student, Lamine Diop, successfully passed the TOEFL and GRE exams. In June he enrolled in the Agricultural Engineering degree program at OSU. He is in his second semester of course work, and is working on his research proposal with his advisor, Dr. Larry Brown.



Integrated Pest Management (IPM-CRSP)

Regional Program for East Africa (RP/EA) – Uganda, Kenya, & Tanzania



The Regional IPM Program for East Africa (RP/EA) is advancing IPM by developing IPM technologies and systems that improve the productivity of marketed horticultural crops and incomes for small-scale growers in Kenya, Tanzania and Uganda. Activities include research, development and dissemination of IPM strategies and institutional capacity building.



A consortium of U.S. and EA institutions implementing the project include: The Ohio State University (OSU), Virginia Tech, the Ugandan National Agricultural Research Organization, the Faculty of Agriculture at Makerere

University, the Kenya Agricultural Research Institute, and Sokoine University of Agriculture.

During the past year, eight USA-based co-PIs visited the region to work with our 17 scientists-collaborators from East Africa to develop productivity and production enhancing IPM technologies and training to nearly 2346 farmers. These interventions are having positive impacts on increasing farm incomes and improving livelihoods as the evidence accumulates from our impact assessments.

Collaborations with all four Global Theme projects remains strong as does working with other development partners in the region including the Tanzanian Coffee Research Institute, KARI's National Agricultural Research Laboratories, Jomo Kenyatta University of Agricultural Technology, Egerton University, and over 32 different grower associations. Finally, the commitment to capacity building in the region is indicated by the 18 students working on their MSc or PhD degrees who are supported by the IPM CRSP.

In 2013, scientists from the

Technical Objectives

- 1) Build a regional model of collaborative IPM research, training and knowledge dissemination
- 2) Implement a participatory and ecologically-based IPM research program focused on developing IPM packages that address priority pest constraints of selected, marketed horticultural crops in the region, and
- 3) Transfer IPM knowledge and packages to stakeholders using innovative approaches and short-term training to facilitate adoption.

partnering institutions published project findings in 5 peer-reviewed articles, presented at 15 regional and international conferences, and conducted more than 20 workshops and training seminars for farmers and other agricultural professionals in East Africa.



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IPM CRSP

Integrated Pest Management
Collaborative Research Support Program

International Plant Diagnostic Network (IPDN)

Sally Miller, Department of Plant Pathology, leads this global theme IPM-CRSP project with efforts in Africa, South Asia and Latin America. The chief goal of the global IPDN program is to improve plant disease and insect pest diagnostics at the clinical level by 1) assessing diagnostic capacity; 2) expanding a cooperative diagnostic network utilizing digital diagnostics; 3) prioritizing key crops and associated pests; 4) identifying new pests and corresponding incidence maps; 5) developing diagnostic assays, standard operating procedures and IPM recommendations for key pests; 6) training clinical diagnosticians and key scientists. Goals have been achieved using multiple training approaches, including train-the-trainer and web-based distance education. Dr. Miller has also coordinated other training activities to build technical capacity for plant diagnostics. Key accomplishments in 2013 included:

- *The Pest and Disease Diagnostics for International Trade and Food Security* International Short Course was held at OSU in Wooster, September 9-20, 2013. **Sally Miller** and **Luis Canas** coordinated the training. Nine scientists from Suriname, Trinidad and Tobago, Saudi Arabia, Canada, Brazil, Bangladesh, Nigeria and Egypt participated.



- A workshop on the use of real time qPCR for detection/diagnosis of bacterial canker of tomato was conducted February 25-28, 2013 in collaboration with OSU, Universidad del Valle de Guatemala and Agroexpertos (IPDN hub lab). Participants (10 males, 5 females) from Honduras, El Salvador and Guatemala Ministries of Agriculture, San Carlos University, Universidad Landivar, and private diagnostic labs attended. The workshop was held in at the Universidad del Valle in Guatemala City. Trainers were **Dr. Melanie Lewis Ivey** (OSU) and Ms. Kristen Willie (OSU/USDA-ARS). The workshop was organized in conjunction with, and funded by, USAID through the USDA Foreign Agriculture Service (FAS) in Guatemala.



Tomato bacterial canker diagnostics training at the Universidad del Valle in Guatemala City.

- Mafruha Afroz, a Ph.D. student in plant pathology at BSMR Agricultural University in Bangladesh, joined Sally Miller's lab as a Visiting Scholar in June 2013. Ms. Afroz' training centers on bacterial disease diagnosis and phytobacteriology, with emphasis on bacterial wilt management in solanaceous vegetables.

Working in collaboration with various institutions in Uganda, IPDN conducted a plant diagnostics training workshop in the Soroti district, August 28-30, 2013. Twenty-nine participants (25 male, 4 female) were drawn from the districts of Bukedea, Entebbe, Kamuli, Kumi, Ngora, Soroti and Serere. Subjects included pest and disease surveillance, diagnostics, and management and common pests and diseases of passion fruit



Dr. Delphina Mamiro, faculty member at Sokoine University of Agriculture, Tanzania, was a Visiting Scientist in Sally Miller's lab from April- June 2013, where she conducted studies on diagnosis of vegetable diseases.

Sally Miller conducted a survey of tomato diseases with other IPDN collaborators in Ghana in November 2013. Bacterial wilt and viroid diseases were identified and first reports of the causal agents were published.

Anna Testen, Ph.D. student with Sally Miller, traveled to Tanzania in August 2013 to begin implementation of an iAGRI research project on tomato disease management in the Morogoro region. Ms. Testen worked closely with project co-PI Dr. Delphina Mamiro, Sokoine University of Agriculture. One of the goals of the project, supported by IPM IL East Africa Regional Program and IPDN, was to conduct a survey of tomato diseases in the region and to work with farmers to develop soil quality indicators.



International Sorghum and Millet (INTSORMIL)



The Sorghum, Millet and Other Grains CRSP (INTSORMIL) is funded by USAID and collaborating organizations in the U.S. and in host countries. INTSORMIL program involves 17 scientists at six universities and the USDA, and 23 host country national research programs.

The focus of the INTSORMIL program, which ended in 2013, is to increase food security and promote market development of sorghum and millet through targeted basic and applied research, education, short-term training and technology transfer among regional, interdisciplinary and multi-organizational teams.

In 2013, IPA's **Mark Erbaugh** and **Dr. Don Larsen** (AEDE), along with other colleagues from Tanzania's Sokoine University of Agriculture, Uganda's Makerere University, and the University of Zambia's School of Agriculture, published 3 articles as a part of the East African project entitled "Marketing Activities to Improve Sorghum Production". The project's final report was issued in October, 2013 and described project outcomes and recommendations for exploring new market opportunities and constraints of value chains in the future.

Numerous lessons were learned from the 2006-2013 program, chief of among them include big business and small scale agriculture can combine successfully in supply chain development, organized farmer groups can be effective in helping smallholders to gain market access, and that ongoing technical training for both farmers and extension professionals in the areas of agronomy and commerce is essential for long term success. In addition the project support 7 graduate students from Zambia and Tanzania in the area of agricultural economics in an effort to build longer term research capacity in those countries.



"The project was successful in strengthening the capacities of individuals and institutions through training and outreach activities imbedded in its core research activities."

- "Marketing Activities to Improve Sorghum Production", Final Report, 2013



USDA Borlaug Scholars

The Norman E. Borlaug International Agricultural Science and Technology Fellowship Program was established in 2004 to honor Nobel Laureate Norman E. Borlaug. This prestigious program provides 12-week research and training opportunities to early and mid-career agricultural researchers from developing and middle-income countries. International Programs in Agriculture seeks out CFAES faculty to serve as mentors for Borlaug Fellows and provides for the fellows' needs during their stay. Three fellows were sponsored in 2013 to research with faculty at Ohio State.

Emmanuel Amoakwah, Ghana

Emmanuel, who took a temporary leave as a research scientist for the Council for Scientific and Industrial Research's (CSIR) Soil Research Institute in Ghana, studied at OARDC's South Station in Piketon under the mentorship of **Rafiq Islam** from October-December. There he researched management tools for assessing greenhouse gas emissions and carbon sequestration in five different agroecosystems. Since his area of study is novel in Ghana, he hopes his experience at Ohio State through the Borlaug Program will help him advance the research area after he returns.

Emmanuel also gave a presentation on climate change and its impacts on agriculture in Africa at the 2013 Borlaug Symposium at the annual World Food Prize. The event was held from October 16-19 in Des Moines, Iowa.



Arlyn Mandas, The Philippines

Arlyn is an Associate Professor at the College of Fisheries at Mindanao State University in The Philippines. During her fellowship at Ohio State, she worked with **Konrad Dabrowski** in the School of Environment and Natural Resources studying amino acid utilization in carp via piperine diet supplementation.

Arlyn also had the opportunity to attend the Lake Erie Annual Research Review and the Ohio State Denman Undergraduate Research Forum, and found them to be enriching experiences outside the lab.

Upon returning to the Philippines, Arlyn plans to work to enhance the Pangasius industry in the Philippines, where she believes the species could be a very promising commodity and would consequently address food security and poverty alleviation in the country.



Md. Mynul Islam, Bangladesh

Md. Mynul, a Senior Scientific Officer in the Plant Pathology Division Bangladesh's Agriculture Research Institute came to Ohio State to work with **Sally Miller** in the Department of Plant Pathology.

Mynul conducted research to characterize isolates of species of *Sclerotinia*, an important soilborne plant pathogen at the molecular level, & to develop techniques to detect and enumerate the pathogen in soil. He also participated in the OSU Vegetable Disease Diagnostic Lab, diagnosing the causal agents of numerous diseases of vegetables. He collaborated with other lab members to identify for the first time in Ohio a virus disease of garlic. The first report of this disease has been accepted for publication in the peer-reviewed journal *Plant Disease*. Mynul has returned to OSU for a Ph.D. program funded by USAID's Borlaug Higher Education Agricultural Research and Development (BHEARD) program.



USDA's Cochran Fellowship Program

The Cochran Fellowship Program provides short-term training opportunities to agricultural professionals from middle income countries, emerging markets and emerging democracies. Cochran fellows come to the United States, generally for 2-3 weeks, to work with U.S. universities, government agencies and private companies. They receive hands-on training to enhance their technical knowledge and skills in areas related to agricultural trade, agribusiness development, management, policy and marketing



Mimi Rose (ENT), **Allan Lines** (AEDE), and **Pam Bennett** (EXT) were instrumental in organizing this year's visit of eight extension staff members from Georgia. At the beginning of their visit, participants met with CFAES leadership including **Dr. Mark Erbaugh**, Director of IPA; **Dr. Ken Martin**, Director of OSU Extension; **Dr. Deborah Lewis**, Extension Leader in Program Development and Evaluation; and **Dr. Bobby Moser**, Dean-Emeritus of CFAES. Throughout their time in Ohio from May 13-25th, the group met with staff in extension offices in five counties: Fayette, Wayne, Clark, Licking, and Morrow counties. Each county office visit was intended to provide insight into different dimensions and challenges of extension service including multiple county extension programming, integration of local and specialist programs, farmer interaction, and volunteer training and management.

CFAES leaders also had the opportunity to hear a presentation from Gocha Shainidze - Agricultural Assistant in USDA-FAS and who is based at the American Embassy in Tbilisi, Georgia – on the Georgian extension system.



Dr. Allan Lines (2nd from left) and the Clarke County Master Gardeners pose for a photo with eight Georgian extension visitors.

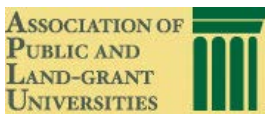
Borlaug Higher Education Agricultural Research and Development (BHEARD) Program

In the fall of 2013, 10 U.S. universities welcomed 30 scholars from Bangladesh, Cambodia, Ghana, Mozambique and Uganda to pursue masters and doctoral degrees in agriculture-related fields. These scholars were the first cohort in Feed the Future's new Borlaug Higher Education Agricultural Research and Development (BHEARD) Program.

Funded by USAID, the program will not only train and educate students from Feed the Future focus countries, but will also develop and strengthen collaboration between U.S. universities and students' home institutions. After completing their initial studies in the United States, all participating students will travel back to their countries to conduct the requisite research to complete their degrees, and will focus on topics that reflect the priorities of both Feed the Future and their home institutions.

The BHEARD program is managed through Michigan State University (MSU) in close collaboration with USAID/BFS, USAID missions, Association of Public and Land-grant Universities (APLU) and the International Maize and Wheat Improvement Center (CIMMYT).

Currently there are four BHEARD students enrolled at Ohio State, 1 M.S. and 3 PhD graduate students.



2013 Ohio State BHEARD Scholars



Ferdous- E Elahi

Advisor: Sally Miller

Native Country: Bangladesh

Experience: Scientific Officer
Bangladesh
Agricultural
Research
Institute (BARI)

Degree Pursuing: Ph.D.



Bashiru Haruna

Advisor: Brent Sohngen

Native Country: Ghana

Experience: Research
Technician
CSIR-SARI

Degree Pursuing: M.S.



Md. Mynul Islam

Advisor: Sally Miller

Native Country: Bangladesh

Experience: Scientific Officer

Bangladesh
Agricultural
Research Institute
(BARI)

Degree Pursuing: Ph.D.



Mohammad A. Alam

Advisor: Konrad Dabrowski

Native Country: Bangladesh

Experience: Scientific Officer

Bangladesh
Fisheries
Research
Institute

Degree Pursuing: Ph.D.

2013 Faculty Exchange Program (FEP)

Through the USDA's Agricultural Economics Faculty Exchange Program (FEP), administered through the organization's Foreign Agricultural Service, four researchers from the Ukraine – Nataliia Gerasymenko, Oksana Makarchuk, Inna Mazii, and Olha Ostroverkh – spent four months (August-November) in the U.S. working with faculty and students from Ohio State's Department of Agricultural, Environmental, and Development Economics (AEDE) to gain an in-depth understanding of U.S. food and agricultural economic systems. AEDE's professor **Stan Thompson** and professor emeritus **Allan Lines** serve as co-directors of the project for Ohio State.



Through a competitive process focused on U.S. land-grant universities, Ohio State's Office of International Programs in Agriculture was awarded funding from the USDA to host the four researchers. The goal of the FEP program is to bring university instructors of agricultural economics and agribusiness management from the former Soviet Union and Eastern Europe to the U.S. to upgrade their technical subject knowledge, improve their teaching skills, and develop course material for use at their home institutions. Participants in the program spent 85 to 90 percent of their time observing classes and engaging with faculty on campus and 10 to 15 percent of their time on field trips, in seminars or workshops, and at Extension offices learn first-hand engagement in the field. Specifically visits were made to the Ohio Farm Science Review, the Chicago Board of Trade, and the Southwestern U.S. to study agriculture infrastructure.

"It was very good to see a different style of agriculture. We spent one weekend with a farmer's family, so it was a very nice experience to live so close with them and to harvest soybeans. This was a nice part of this (FEP) program"

- **Nataliia Gerasymenko**, FEP Scholar

The four Ukrainian researchers hail from the following institutions in the Ukraine: the National University of Life and Environmental Sciences of the Ukraine; Sumy National Agrarian University; and Kharkiv Petro Vasylenko National Technical University of Agriculture.

(Excerpts taken from "USDA Agricultural Economics Faculty Exchange Program Brings Ukrainian Researchers to Ohio State", AEDE website, 10/17/2013)



Ohio State University *Discovery Themes*

Officially launched in October, 2012, the Discovery Themes owe their existence to a 2008 planning retreat where faculty, staff, students, and other university leaders considered the globe's most pressing challenges and Ohio State's role in addressing them. Subsequent institution-wide strategic planning efforts confirmed the university's excellence in a number of the challenge areas, especially three of them: ensuring a sustainable future, nourishing the world's growing population, and promoting the health of people everywhere. With expertise in these areas located throughout Ohio State's six campuses, 14 colleges, 111 departments, and 260 centers and institutes, the Discovery Themes of *Food Production and Security*, *Energy and Environment*, and *Health and Wellness* were identified as long-term targets of university-wide teaching, research, and engagement.

The College of Food, Agricultural, and Environmental Sciences enthusiastically supports the Discovery Themes Initiative. CFAES' own three Signature Areas, identified in its 2011- 2016 Strategic Plan, are Food Security, Production, and Human Health; Environmental Quality and Sustainability; and Advanced Bioenergy and Biobased Products.

Food Production and Security

Wilbur A. Gould Food Industries Center

The Food Industries Center (FIC) offers a wide variety of fee-based services for the food industry, entrepreneurs, and related institutions. FIC's pilot plants are fully equipped for product and process development of dairy, beverage, fruits and vegetables, bakery, pasta, and more. **Valente Alvarez**, Director of FIC, has opened the center's labs up to international visitors in the past year to demonstrate the importance of value-addition to achieving overall food security.

Energy and Environment

OBIC Bioproducts Innovation Center

OBIC's collaboration with European colleagues at WIINTECH, a cluster organization of 7 countries –Austria, Germany, England, France, Italy, Spain, and Portugal – centers on the development of clean technologies. WIINTECH represents over 2,000 Small to Medium Enterprises (SME) and have specific interest in collaborating with OBIC because of its focus on biobased materials.



Health and Wellness

One Health Initiative

The One Health Initiative, an international effort supporting collaborative research that emphasizes the interconnections between animal health, human health, and the environment, and has experienced particular success at Ohio State through the leadership of **Dr. Lonnie King**, Dean of Ohio State's College of Veterinary Medicine. Also heavily involved in One Health is CFAES' Food Animal Health Research Program (FAHRP) in Wooster, OH, where researchers have been engaged globally for years studying infectious diseases.



CFAES International Programs Advisory Committee

In 2012 a new advisory body was created to provide direction and strengthen the international dimensions of the College. The primary objectives of the committee, which is made up of faculty representatives from each of the CFAES unit/departments, are to

- Serve as a conduit of information for University administrators and other stakeholders on the College's current engagement in international agricultural projects
- Generate new ideas and directions for the College's future international involvement
- Identify target areas, worldwide, that further the College's research focuses and that contribute to the University's goal of becoming a pre-eminent, global university.

The committee met a number of times throughout 2013, where department representatives were provided the opportunity to give updates on the international activities of their respective unit.



CFAES International Advisory Committee Members

Macdonald Wick	<i>Animal Sciences</i>
Brent Sohngen	<i>Agricultural Economics</i>
Jamie Cano	<i>Agriculture, Communication, Ed. & Leadership</i>
Ken Martin	<i>Extension</i>
Steve Neal	<i>Agricultural Technical Institute (ATI)</i>
Valente Alvarez	<i>Food Science and Technology</i>
Sally Miller	<i>Plant Pathology</i>
Kristin Mercer	<i>Horticulture and Crop Science</i>
Brian Slater	<i>Environment and Natural Resources</i>
Scott Shearer	<i>Food, Agriculture, & Biological Eng.</i>
Luis Canas	<i>Entomology</i>
Jeff LeJeune	<i>Food, Animal Health Research</i>
Kelly Newlon	<i>Study Abroad</i>
Jeff Hattey	<i>Office of the Dean</i>

Study Abroad Programs

<http://cfaes.osu.edu/students/academics/undergraduate/study-abroad>

The College sponsored fifteen study abroad programs in fourteen different countries in 2013. Programs ranged from ten days to six weeks in length, and content varied from broad-interest subjects to specialized topics related to individual majors.

In all, a total of 296 OSU undergraduate students participated in CFAES-sponsored study abroad programs. An additional 22 students from CFAES participated in other study abroad programs to more than thirteen countries in the areas of business, literature, and art history.

Kelly Newlon serves as the CFAES Study Abroad Director and holds a joint appointment with the Office of International Affairs. For more information on study abroad, contact her at 688-4144 or newlon.7@osu.edu.



Animal sciences major, Sarah Klingshirn, during a study abroad trip in Ecuador December 2012

Country	Focus Area	Resident Director	Participants	Date
Australia	Human and Environment Interactions	Dr. Kristin Jaeger (SENR)	43 (25 FAES)	June-July, 2013 (3.5 weeks)
Brazil	Alpha Zeta Partners Program: Economics, Rural Sociology, Agricultural Development, History	Dr. Jill Pfister (Academic Programs)	18 (18 FAES)	January-February 2013 (6 weeks)
Chile	Agroecosystems	Dr. Doug Doohan (Hort/ Crop Science)	9 (9 FAES)	Dec 2013 (12 days)
China	Food Safety, Security and Production	Dr. Lynn Knipe (Meat Science), Dr. Hua Wang (Food Science), Dr. Thomas Mitchell (Plant Pathology), Dr. Maurice Eastridge (Animal Science), Kelly Newlon (Academic Programs)	20 (18 FAES)	May 2013 (4 weeks)
China	Forestry and Wildlife Research	Dr. Roger Williams (SENR)	4 (3 FAES)	May 2013 (3 weeks)
Costa Rica	Ecosystems, Sustainability	Kelly Newlon (Academic Programs) Mariette Benage (Animal Sciences)	22 (17 FAES)	March 2013 (9 days)

Country	Focus Area	Resident Director	Participants	Date
Czech Republic	Economic Transitions (travel with Univ. of Missouri)	Dr. Jerry Bigham (SENR)	8 (3 FAES)	June-July 2013 (6 weeks)
Ecuador	Comparative Sustainable Agriculture (Freshmen only)	Dr. Emily Rhoades (ACEL), Kelly Newlon (Academic Programs), Grace Johnson (OIA)	31 (31 FAES)	December 2013 (11 days)
England/Scotland	Agriculture and Environmental Communication	Dr. Gary Straquadine (ACEL)	11 (9 FAES)	May/June 2013 (14 days)
England/Scotland	Golf and Turf Management	Chris Walsh (Professional Golf Management)	8 (8 FAES)	August 2013 (14 days)
Germany/France	European Equestrian Studies	Dr. Kimberly Cole Kelly George (Animal Sciences)	36 (34 FAES)	March 2013 (10 days)
Fiji	Human and Environment Interactions	Dr. Kristin Jaeger (SENR)	21 (14 FAES)	June 2013 (10 days)
Ghana	Culture, Arts, Development	Dr. D Elder (ATI)	5 (3 ATI, 1 FAES)	June- July 2013 (5 weeks)
Iceland	Environment and Natural Resource Scholars	Susie Burks Dr. Brian Slater (SENR)	20 (15 FAES)	August 2013 (15 days)
New Zealand	Human and Animal Interactions	Dr. Steve Moeller, Kelly George (Animal Sciences)	40 (39 FAES)	December 2013 (13 days)

College's Study Abroad Participation Tops 50%

More than half the students in the College of Food, Agricultural, and Environmental Sciences now participate in study abroad programs — a rate that is up sharply since last year and is two and a half times higher than Ohio State University's overall rate.

"The experience of studying abroad builds student confidence and opens his or her mind to the vast issues that affect our industry and their daily life"

-Kelly Newlon, CFAES Study Abroad Director



The Peace Corps at Ohio State

<http://cfaes.osu.edu/international/peace-corps>

Recruitment of volunteers has been coordinated through International Programs in Agriculture since 1974. Currently **Jack Campbell** serves as the OSU Peace Corps Campus Recruiter as well for Central Ohio colleges that include Wittenberg University, Ohio Wesleyan University, Otterbein University, Capital University, Denison University and Kenyon College. Jack can speak first-hand to students about his experience as a volunteer in Fiji and Botswana.

Like many of the other service sectors in the Peace Corps, Volunteers in the agriculture sector collaborate with community members, nongovernmental organizations, and community-based organizations to accomplish their mission's objectives. Those Volunteers in the agriculture sector work with farmers' groups, women's associations, or youth clubs to improve basic agricultural practices, intensify the value and volume of agriculture products, increase income and access to goods, and improve household stability. Through this work, volunteers also help communities adapt to deteriorating environmental conditions, such as a changing climate.

Volunteers in the agriculture sector often work to improve the long-term productivity of farmers' fields by teaching and demonstrating environmentally sustainable and organic farming practices, including crop diversification, agroforestry, small animal husbandry, and soil and water conservation and management. Volunteers work side by side with local farmers on their field crops, testing new varieties, and promoting family and school gardens to encourage the production and use of more nutritious foods and to strengthen household food security.

Building business skills of small-scale farmers to increase income and access to food is a crucial component to a volunteer's assignment. Using a value-chain approach – an analysis of the opportunities and the key stakeholders involved in a particular industry from inputs to the point of sale to the customer – Volunteers help communities market and improve storage of their agricultural products, as well as to develop new value-added products.

Contact peacecorps@osu.edu for more information.



Peace Corps Quick Facts, 2013

80 OSU alumni currently in a two-year Peace Corps program

OSU ranked **9th** among universities in number of volunteers produced in 2013

OSU ranked **10th** all-time producer of volunteers - 1,666 graduates having entered the service since 1961

State of Ohio ranked **7th** among all other states for the total number of volunteers produced in 2013

The Ohio Program

The Ohio Program (TOP) is a part of the Office of International Programs in Agriculture (IPA), providing international internships in agriculture, horticulture, turfgrass and agricultural business. The program hosted internships for 408 participants in 2013 as well as 10 on-campus international guest students. Throughout its 34 years in the college, TOP has hosted over 9000 participants for training and currently has 45 signed agreements with colleges and educational organizations from around the world.



TOP Alumnus achieves success in China's Dairy Industry

When discussing the fast growing dairy industry in China, Yang Ku's name has been referenced numerous times at meetings, seminars, conferences – not to mention in magazines - as a successful dairy farm manager in the business where he works - AustAsia Modern Dairy.

Yang Ku graduated from the Agricultural College of Ningxia University in 1990 and majored in Animal Science. His first job was taking care of cattle at the College's farm. Although there were only 20 cows, he gained first hand work experience and gradually realized that dairy was his interest.

In 1998, Yang Ku was referred to The Ohio International Intern Program by Mr. Zhang Yining, Program Coordinator of The Ohio Program. After being admitted, Ku was eventually placed at North Florida Holsteins, located in Bell, Florida, for 18 months of practical training. He found it challenging for the first three months due to the language barrier, but Ku never gave up. He worked extremely hard to learn every detail of the dairy farm's production and management. Dairy farm owner, Mr. Don Bennink, rated Ku in the top 5% of trainees he's ever had.



After returning to China, Yang Ku began his Masters Degree under the advisement of Professor Wang Jiaqi at The Chinese Academy of Agricultural Science in Beijing. In 2004, Ku started his new job with Inner Mongolia Mengniu AustAsia Model Dairy Farm, the largest dairy farm in China at that time. Ku worked closely with Mr. Barney G. Ward, a designer of the farm from the U.S. and CEO, Alastair Kenneth Pearson of Australia. He worked in every department - dairy barn construction, cow selection, transportation, and all of the production units. Overtime, he worked his way from onsite interpreter, to department supervisor, then assistant farm manager, and eventually to farm manager. Under his leadership, Mengniu AustAsia Model Dairy Farm maintained the highest yield and quality of milk production for years in the entire industry.

In 2009, Yang Ku followed his dream and moved to Dongying AustAsia Modern Dairy Inc. to begin a new adventure of starting a new dairy farm. Under his leadership today, Farm #4, at a cost of \$US 63.4 million, is set to open in early 2014, while Farm #5 is in design phase and is expected to be completed at end of 2014. At that point, the total investment for the business will be more than \$US 300million, with approximately 55,000 head of cattle on hand. AustAsia Modern Dairy Inc. is regarded as the best dairy business in China and rated as one of the highest by those in the dairy farm industry. Currently, Yang Ku is the Director for Business Operations.

In the course of 15 years, we see how Yang Ku from a young dairy OSU trainee to a successful dairy business manager. One thing Yang Ku always likes to say "It was The Ohio Program and North Florida Holstein that gave me the opportunity to learn dairy farm production and management. I couldn't be successful in my career without this exchange program from The Ohio State University".

The Ohio Youth Institute



Ohio Youth Institute participants and teachers with OYI founder Micki Zartman and Ambassador Kenneth Quinn, President of The World Food Prize

On September 5, 2013 the College of Food, Agricultural, and Environmental Sciences hosted the Ohio Youth Institute (OYI) at the Nationwide and Ohio Farm Bureau 4-H Center. Nearly forty students from three different schools attended, and ten faculty and staff members—who read and commented on papers beforehand—were involved as experts. The program included presentations from the president of the World Food Prize Foundation, leaders of the Global Youth Institute, the director of CFAES Study Abroad and Recruitment, and a former World Food Prize international and USDA intern. With help from college ambassadors, activities showcased projects at the university, including a tour of the Aquaponics Project and production of Plumpy'Nut, a ready-to-use therapeutic food. Based on their research papers and presentations, six delegates were selected to represent Ohio at the Global Youth Institute.

The Global Youth Institute

Accompanied by **Sally McClaskey** and **Jane Wright**, the six Ohio delegates and their three teachers traveled October 16-19, 2013 to the Global Youth Institute. For three very active days, youth and teachers from 27 states and two countries attended the same lectures and panels that accomplished scientists and business leaders from around the world attended as part of the Borlaug Dialogue in Des Moines, Iowa. They interacted with world leaders and experts during breaks and meals and, in an inspiring and culminating event, presented their own research papers to panels of experts from around the globe. As a result of their participation, each student is eligible to apply for international and USDA summer internships.



In 2013, two Ohio delegates who participated in the 2012 Global Youth Institute were selected as Borlaug-Ruan Interns. Shireen Bhatia from Macedonia, Ohio interned at the World Vegetable Center in Taiwan and Madeline Geitz from Oberlin, spent the summer at Peking University in Beijing.

International Alumni Award

The College of Food, Agricultural, and Environmental Sciences Alumni Society recognized **Rodrigo A. Chaves** – a 1994 PhD graduate in Agricultural Economics from the Department of Agricultural, Environmental, and Developmental Economics.



Chaves, who is a Costa Rican national, is currently the Sector Director for the World Bank's Poverty Reduction and Economic Management Department, Latin America and the Caribbean Region, where he leads a team of about 130 professionals working in the subjects of public sector reform, fiscal policy, sub-national government, poverty reduction, gender, equity, international trade, economic policy, and macroeconomic analysis. He is internationally recognized for his extensive contributions to the public policy debate on public sector lending and technical assistance to developing countries, particularly in Latin America, East and Central Asia, and Central and Eastern Europe. In his 18 years at the World Bank he has worked in about 30 countries, including leading joint World Bank-International Monetary Fund Financial Sector Assessments of emerging market economies. He has published on macro and microeconomic issues, including financial markets, entrepreneurship, public sector, credit and investment, and rural development.

International Symposium on Porcine Reproductive and Respiratory Syndrome (PRRS)

David A. Benfield, Associate Director OARDC and Professor in the Food Animal Health Program in the College of Veterinary Medicine was honored at the International Symposium on Porcine Reproductive and Respiratory Syndrome (PRRS) held at the Chinese National Convention Center in Beijing 20-22 May. This conference was a historical meeting held for the first time in China with 700 individuals from 26 countries in attendance. Dr. Benfield was recognized for his discovery of the North American strain of the PRRS virus in 1990, his many contributions to the understanding of this virus and its pathogenesis in pigs and his willingness to assist other scientists in establishing their research careers studying PRRSV.



Dr. Benfield accepts his recognition award from Dr. Hanchun Yang, China Agricultural University and Dr. Bob Rowland, Kansas State University



Dr. Rattan Lal

Professor, School of Environment and Natural Resources and Director of the Carbon Management Sequestration Center at Ohio State

2013 UN Global Dryland Champion Nominee
United Nations Convention to Combat Desertification

"Those who have made outstanding contributions to our efforts for achieving a land-degradation neutral world"

The Ohio State University International Engagement Emerging Award

Dr. Richard Dick, Professor in the School of Environment and Natural Resources, was awarded The Ohio State University International Engagement Emerging Award on May 2nd in the Ohio Union. Dr. Dick and his research team were recognized for their project to implement state-of-the-art-agricultural education and extension programs at the University of Gaston Berger (UGB), focusing especially on enhancing sustainable agriculture in the fragile Sahelian agroecosystems of Africa. The project has established Associate and BS degree programs, and updated laboratories. Another main objective is to establish the land grant model at UGB, incorporating extension and research into the traditional teaching role of the university. This project has been an innovative way to export the land grant model to Sub-Saharan Africa and to support sustainable agriculture.

2013 Fulbright Scholars

Dr. MacDonald Wick, Professor in the Department of Animal Sciences, was awarded a Fulbright Grant to teach and conduct research in animal sciences at Saints Cyril and Methodius University in Skopje, Macedonia from August-October. He was one of 14 faculty members from Ohio State who received the honor to teach and research at an international institution in 2013. **Dr. Parwinder Grewal**, Professor in Entomology, was also named a Fulbright Scholar and will depart in early January, 2014 for his tenure at the University of Stockholm in Sweden.

USAID's Global Food Security Program

Graduate Research Grant Program

Patrick Bell, a Ph.D student in the School of Environment and Natural Resources, and **Anna Testen**, Ph.D student in the Department of Plant Pathology, were both named U.S. Borlaug Fellows through the Global Food Security Program on December 23, 2013. The USAID-funded grant will support Bell's ongoing research to improve Tanzania's soil quality with faculty at the Sokoine University of Agriculture in Morogoro, while Testen's research with the International

Institute of Tropical Agriculture will focus on tomato diseases and improving soil quality indicators

Summer Institute on Global Food Security

Three doctoral students - **Godwill Chewachong** (PPATH), **Matthew Kost** (H&C Science) and **Brian Pace** (H&C Science) - were among 35 graduate students selected from across the U.S. to participate in the Borlaug Summer Institute on Global Food Security at Purdue University, May 28-June 8, 2013. The Institute is a 2-week long learning program for graduate students attending U.S. institutions who are interested in developing a holistic understanding of the conceptual challenges around global food security.



(From Left) Godwill Chewachong, Brian Pace, Gebisa Ejeta (Distinguished Professor, Purdue University and 2009 World Food Prize Laureate), Matthew Kost.

Wolfe Study Abroad Scholarships

On Thursday, April 11, 2013, The Office of International Affairs recognized the 2012-2013 recipients of the Wolfe Study Abroad Scholarship. President **E. Gordon Gee** and other university leaders, past scholarship recipients, and John F. Wolfe, chairman and CEO of The Dispatch Printing Company, congratulated 29 recipients. Students were awarded a \$2,500 scholarship to help fund their individual long-term study abroad programs. Two of those students were from CFAES:

- **Jacob Farr**, a junior majoring in food, agricultural and environmental sciences – studied abroad in China
- **Amanda Prickett**, a junior majoring in animal sciences – studied abroad in Brazil

2013 Ohio Agriculture Women Award

This December four individuals were selected to receive the Ohio Agriculture Women Award for 2013. Of the four recipients, **Mickie Zartman** has contributed greatly to agriculture education and international programming. Zartman has worked as a volunteer coordinator of Ag Literature and Outreach, primarily with The Ohio State University. In 1999, she founded Scarlet and Gray Ag Day at The Ohio State University as an effort to teach young children about the industry. She has more recently served as the coordinator of the Ohio World Food Prize Program, which IPA assists in administering each year. This award is administered through the Ohio Department of Agriculture and the Office of the First Lady. Nominations were reviewed by a diverse committee of industry leaders. Winners were selected on the basis of their outstanding contributions to Ohio agriculture, leadership and advocacy in the agricultural community and significant impact on the agriculture industry as a whole.

International Society of Arboriculture's (ISA) R.W. Harris Author's Citation

Dr. Dan Herms, professor and chair in Department of Entomology, is the 2013 recipient of the International Society of Arboriculture's (ISA) R.W. Harris Author's Citation. The award is given to authors for sustained excellence in the publication of timely information in the field of arboriculture. ISA President Terrence Flanagan recognized Herms at a ceremony on Aug. 4 in Toronto as part of the ISA Annual Conference and Trade Show. Herms has written more than 200 publications, including more than 70 peer-reviewed publications and book chapters on such topics as emerald ash borer (EAB). His current work on EAB and the development of EAB-resistant trees is believed to have great promise for the future of the urban forest. Based at OARDC's Wooster campus, his lab conducts research dedicated to understanding the interactions between insects and woody plants and their implications for pest management.

International Scholars and Visitors

Sokoine University of Agriculture, Tanzania

From March 31-April 4, 2013, Professor Peter Gillah, Deputy Vice Chancellor-Academics and Professor Vedasto Muhikambele, Director of Research & Post-Graduate Studies of Sokoine University of Agriculture (SUA) in Tanzania visited The College of Food, Agricultural and Environmental Sciences.

Czech University of Life Sciences, Czech Republic

From April 25- 26th, three representatives from the Czech University of Life Sciences (CZU) in Prague, Czech Republic visited The Ohio State University College of Food, Agricultural, and Environmental Sciences (CFAES). Dean of the Faculty of Economics and Management Jan Hron, Vice Dean Karel Tomsik and Vlastimil Cerny, head of the Office of International Relations, visited with various offices in the college to learn about funding and development models as well as to plan future study abroad programs at their university.

The group was welcomed by many of the resident directors and students who have traveled to the university over the past 21 years for their six-week summer school study abroad program at a reception. Kelechi Kalu, associate provost for global strategies and international affairs, greeted the members of delegation and presented them with gifts on behalf of Ohio State.



Ataturk University, Turkey



On Tuesday, June 11th, a six-member delegation from Ataturk University, led by the Rector, Dr. Hikmet Kocak met with Dean **Bruce McPheron** and OSU faculty **Erdal Ozkan, Gonul Kaletunc, Sally Miller, Carl Zulauf, Brian Slater, Rafiq Islam, Konrad Dabrowski, and Herb Ockerman**. IPA Director, **Mark Erbaugh**, arranged the visit to CFAES with the Middle East Studies Center Director, **Alam Payind**. Amongst the delegation was Dr. Fahri Yavuz, Office of International Affairs at Ataturk, who was a PhD graduate of AEDE and also a 2011 recipient of CFAES International Distinguished Alumni Award. His advisor was Carl Zulauf. All participating CFAES faculty had had prior collaborations with Ataturk. Sally Miller participated in the round table discussion with her Research Associate, Dr. Fulya Baysal-Gurel. The interactions between participants focused on possible research and degree training exchanges.

University of Gondar, Ethiopia



Paul Courtright, lab manager at FIC, gives a tour of the pilot lab in Parker Hall

Eleven faculty members and administrators from the University of Gondar (UOG) in Ethiopia visited CFAES on Thursday, November 14, 2013 as a part of Ohio State's participation in the One Health Initiative. **Mark Erbaugh** (IPA) received the delegation and delivered a presentation on agriculture in Ohio and how The Ohio State University, as a land grant institution, plays a pivotal role in supporting the agricultural and natural resources sector through academic instruction, research, and outreach. These comments were reiterated by **Bruce McPheron**, Vice President for Agricultural Administration and Dean of CFAES, who was also interested in the ambitions that the visitors from UOG had for their own departments, and how working collaboratively with OSU may help achieve those goals.

The visitors were given a tour of the lab of **Dr. Richard Dick**, Professor of Soil Microbial Ecology in SENR. Afterwards, **Dr. Joe Kleinhenz**, Program Specialist at the Food Industries Center (FIC), led the group through the pilot food and dairy production labs, emphasizing the importance of private sector linkages and exploring ways to enhance the value-addition marketability of food products.

Federal University of Parana, Brazil

Four faculty members from Brazil's Federal University of Parana visited Ohio State the week of December 9, 2013 to meet with CFAES leadership and to tour CFAES facilities in Columbus and Wooster.

The visit was arranged by **Mike Chrisman** and other Ohio Program staff, who have worked with a number of Brazilian interns in past years through the Ohio Internship Program.

University of Agricultural Sciences & Veterinary Medicine of Cluj-Napoca, Romania

Three faculty members and administrators from the University of Agricultural Sciences & Veterinary Medicine of Cluj-Napoca in Romania visited CFAES from October 21-25. Dr. Roxana Vidican, Dean of the Faculty of Agriculture; Dr. Ioan Rotar, Vice Rector for Academic Programs; and Dr. Leon Muntean, Professor in the Faculty of Agriculture met with CFAES leadership in addition to visiting FIC, OARDC, and various offices in the Office of International Affairs (OIA).

Forum for Agricultural Research in Africa (FARA)

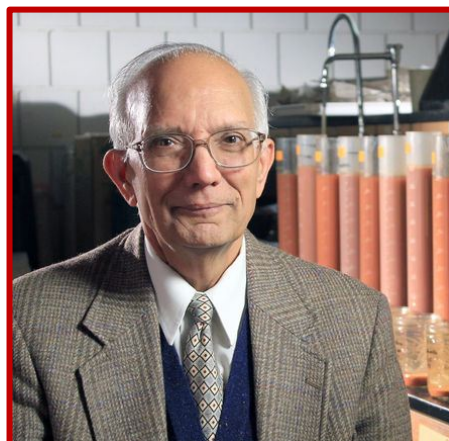
Dr. Yemi Akinbamijo, Executive Director of the Forum for Agricultural Research in Africa (FARA), visited CFAES on Nov. 19th and 20th. FARA is the technical arm of the African Union that convenes stakeholders to improve agricultural research & productivity on the continent. Dr. Akinbamijo was also joined by his senior technical advisor, Dr. Aggrey Agumya. Their visit was organized by the College's International Programs in Agriculture Office, Ohio State Extension, & the Center for African Studies. In addition to a visit with **Dr. Bruce McPheron**, they also traveled to the Ohio Agricultural Research and Development Center in Wooster to meet with 12 faculty members with active agricultural research programs in Africa.



Dr. Akinbamijo also delivered a lecture entitled “Harnessing Science to Drive Transformation of Agriculture in Africa” to faculty and graduate students. The purpose of the visit was to work towards building a collaborative relationship between CFAES and FARA for future agricultural development projects.

IMPACT STORIES

A glimpse of how *INDIVIDUAL* faculty and students within the College of Food, Agricultural, and Environmental Sciences are making a *GLOBAL* impact



CFAES Graduate Students Expand Their Horizons in Tanzania

This past summer four graduate students in the College of Food, Agricultural, and Environmental Sciences traveled to Morogoro, Tanzania to conduct research with faculty and staff at the Sokoine University of Agriculture (SUA). **Patrick Bell**, a Ph.D. student in the Environmental Sciences Graduate Program (ESGP); **Claire Sutton**, a M.S. student in ESPG; **Cade Weston**, a M.S. student in Agricultural Communication, Education, and Leadership (ACEL); and **Richard Gallenstien**, a graduate student in Agricultural, Environmental and Development Economics (AEDE) all interned with funding provided by a special travel grant from the International Programs in Agriculture Office (IPA) through the Innovative Agricultural Research Initiative (iAGRI), a capacity-building program in Tanzania funded through USAID and administered by the CFAES' IPA Office.



Dr. Mark Erbaugh, the Administrative Director of iAGRI and Director of IPA, and **Dr. David Hansen**, Program Manager, indicated that the goal of the award was to provide U.S. graduate students an opportunity to participate, first-hand, in agricultural research in developing countries. The IPA office is also involved with various other development projects in Africa and Asia.

The projects that the students worked on sought largely to maximize crop production in the face of environmental challenges such as water scarcity and micro-nutrient deficiency in the soil, allowing them the opportunity to understand how systems designed to mitigate these problems also promote longer term conservation practices.

Dr. David Kraybill, Director of iAGRI and Professor of Agricultural Economics at Ohio State University, currently lives in Tanzania and was instrumental in connecting the students with SUA faculty members who complimented the students' academic interests, as well as securing them office and lab space to analyze data they had collected in the field.

The practical research experience gained by these students was invaluable, especially given that it occurred in an international context. "Working in these conditions and under specific constraints not realized in domestic situations provided times to practice flexibility and creative-problem solving," says Pat Bell. "If you can be patient you find that other cultures have very creative and interesting ways of handling problems as they come up." Pat shared that he's



Pat Bell assists a Ministry of Agriculture technician, an extension agent, and local farmer in taking an infiltration reading at a field sight in Moshi, Tanzania.

interested in international agricultural development, and that this program appealed to that interest through the one-on-one interactions that he and others had with Tanzanian farmers and scientists. Claire even claimed her Swahili came into good use shortly after arriving and now feels encouraged to improve her pronunciation and usage by taking a Swahili language course this upcoming Spring Semester.

While one outcome of a student's research in an international setting can be generating data for a graduate thesis or dissertation, academic exposure beyond the walls of one's own educational institution is arguably just as crucial in today's world. "Regardless of if [the research] is for your thesis/dissertation work or just for a side project, it will provide you a unique perspective on the role of science in society," mentions Pat, not to mention the importance of sound research in making development decisions.

Graduate student, Laura Binkley, conducts research on rabies transmission in Ethiopia as part of One Health

This summer I was fortunate enough to participate in the One Health Summer Institute, which is a partnership that was recently created between the Ohio State University and a number of Ethiopian government agencies, service organizations, and academic institutions. I was on the rabies elimination team and our goal was to use a mental models approach in order to determine public perception of rabies transmission in the area. In order to do this we conducted in depth interviews in multiple problem areas throughout Ethiopia including places like Gondar, Debarq, Woreda, and Bahir Dar. We interviewed policy makers, human health professionals, animal health professionals, rural citizens, urban citizens, and religious leaders. Through analysis we will be able to identify gaps in knowledge in the community as well as to discover alternative routes of transmission.

The whole experience was fascinating and I am very grateful that I was able to participate. I think one of the most memorable things about my experience was the incredible hospitality and generosity of not just our partners at the University of Gondar but the people as a whole. One of the most important words that we learned was “Amasaganalo” or “thank you”. Gondar was where we spent most of our time. This is a rural town in the highlands where farming practices used hundreds of years ago are still the norm, yet new buildings and businesses are blossoming on the outskirts of the city.

Upon arrival I was amazed by the brilliant colors of the clothing and houses. Traditionally the clothes are made of white cloth that is embroidered with intricate, colorful designs. The number of people walking around effortlessly carrying giant baskets on their heads along with countless donkeys roaming the

streets carrying all kinds of things from wood to straw was astounding to me. We immediately made friends with our new partners at the University of Gondar who made sure we were comfortable and well taken care of. I was able to learn so much from them and I truly miss them now that I am back home. The food took some getting used to for me because I have a sensitive stomach and most of the food is very spicy but very good. Almost everything is served on injera which is a spongy flatbread made out of teff flour. My favorite dish by far was “Shiro”, which is a combination of bean powder, spices, and other wonderful things poured onto injera. Coffee originated in Ethiopia and is a huge part of the culture. Coffee ceremonies are usually held three times a day and we were invited to our fair share. This is an elaborate ceremony where the coffee beans are roasted in a pan over a small charcoal stove and delicately prepared.



Several things stood out to me as major hazards as well. I saw people cleaning their clothes and bathing in the rivers not far from donkeys and other livestock drinking and standing in the water. In the market area, herds of goats scurried in every direction among vendors selling produce and raw meat. Some of the jugs that people used to carry water even looked like they may have been reused chemical containers. Most significant to our research project was the fact that dogs were everywhere! The dog, or “Woosha,” in Ethiopia is a considered to be a member of the community. There are community dogs, family dogs, and wild dogs running around in the streets. The potential for zoonotic disease transmission and environmental health contamination was everywhere.

Though interviewing was a rigorous process it was also very enlightening in many ways. I was amazed by the number of people that knew someone that had died of rabies or was attacked by a dog. Even many of the people we interviewed had suffered dog attacks themselves.

Several of the health professionals that we interviewed mentioned that transmission between wildlife such as hyenas and the domestic community dogs was a significant challenge when it comes to controlling rabies. There seemed to be quite a range of understanding about rabies transmission among groups from a very good understanding among health professionals to traditional healer beliefs and practices in the rural areas. Another major issue is that the old and very dangerous Fermi-type phenolized sheep brain tissue vaccine is still being used to treat rabies in Ethiopia. Though it is less expensive, it has severe potential side effects including allergic reactions, partial paralysis, encephalitis, and death among

other risks. The treatment itself also consists of numerous painful shots in the stomach.

While conducting interviews at one of the health clinics a family approached us and asked whether or not they should get their child, who looked like she was about 3 years old, vaccinated because she had been scratched and exposed to saliva by the family dog that had started acting strange and then died a few days later of unknown cause. We did not know what to tell them other than to listen to what the health professional told them because if we recommended the vaccine then the girl could suffer effects almost as severe as the disease itself. However, if we advised them not to get the vaccine then the girl could develop symptoms and die if she truly was exposed to the virus. Had the post-exposure prophylaxis that is used in the U.S. been available we would have recommended the vaccine without question and would know that we were making the right decision however this

was not an option. Rabies elimination has a long way to go in Ethiopia and is going to require new policy, population control, access to modern vaccines, and education among other things. I am honored to have been able to participate in the first step of the process and I think that we got a good start at a stakeholders workshop that we held in Addis Ababa. Over the next few years the Ohio State University will continue to work with Ethiopia to make these changes.

There are so many memorable experiences that I will forever cherish from learning how to do traditional Ethiopian shoulder dancing to exploring the surreal castles and monasteries scattered across the landscape, to even the children running up to us in packs screaming “you, you, you” to get our attention just to say hi to us. I am truly grateful for this experience and look forward to seeing how things progress.

Dr. Clay Sneller: Perspective on Tanzania, Student Advising



This was my first trip to Africa. It was a fascinating and stimulating experience. As an agriculturalist and a scientist I see a great deal that can be done, but also I see the daunting and complex issues that need to be addressed. It is a bit humbling to realize the limits of my expertise in helping to move agriculture forward. It is also gratifying to see that we all can help. One brief visit to Tanzania does not qualify me to offer any great insights, but here is what I think so far.

I spent a solid nine days with my student in Tanzania. We made great progress on his research and his understanding of concept. But it made me wish that I had spent more time with him doing the same thing when he was in the US. We all have our own styles for advising and mentoring students. I realize that I need a more urgent approach with iAGRI students when they are in the US as we have such a short time-frame to impart so much to them. It is easy for time to slip by: it seems the iAGRI students no sooner arrive in the US and then they are on a plane back to Tanzania

where frequent casual, yet important interactions, become impossible. We need to maximize their brief experience in the US. It is also important to have a good Tanzanian advisor and for us to build a nice relationship with them so they become full co-advisors fully invested in developing these students.

“The international collaborations that will be initiated and/or enhanced by iAGRI will be very beneficial to Tanzania as well as the US partners”

There is much to build upon. The faculty at SUA and the scientists I met at SARI seem very dedicated to their mission and very capable. Their greatest challenge in the plant breeding area appeared to a lack of funding to build an efficient infrastructure that would allow large scale experiments and crop improvement efforts. I suspect this is true in other disciplines as well. More scientists will certainly help but improved infrastructure will be essential to maximize the return on greater human resources.

The international collaborations that will be initiated and/or enhanced by iAGRI will be very beneficial to Tanzania as well as the US partners. These collaborations and joint efforts to seek funds would seem essential to furthering agriculture research and further developing the impact of the young scientists developed through iAGRI funds.



It is possible that developing a long term relationship between students and their mentors may be more crucial for the post-graduate success of the student for iAGRI students than some other students. Students who graduate to jobs in the US (university, private sector) generally have access to adequate resources (funding opportunities, administrative support) to provide a solid foundation for a successful, impactful career. This may be less likely for iAGRI students so partnership with their US mentors and US agencies maybe be very beneficial to acquire funding to truly get their careers off the ground.

Dr. Clay Sneller is a Professor in the Department of Horticulture and Crop Science and specializes in wheat breeding & genetics. He is the faculty advisor for iAGRI students, Nafeti Mheni and Elias Balimponya.

Hydrologic Redistribution and Rhizosphere Biology of Resource Islands in Degraded Agro-ecosystems of the Sahel

During 2013, **Matthew Bright**, a second year doctoral student in the School of Environment and Natural Resources specializing in soil science who is being advised by **Dr. Dick**, **Spencer Debenport**, a second year doctoral student in the Department of Plant Pathology who is being advised by **Dr. Brian McSpadden-Gardner**, and **Chelsea DeLay**, a soil science research associate in the School of Environment and Natural Resources under the direction of **Dr. Dick** conducted their second season of sampling. They are investigating the microbiology of shrub rhizosphere, and associated interactions with crops. This includes studying beneficial bacteria and fungi, particularly mycorrhizal fungi.



The student's research is a part of a larger \$2.6 million, 5 year project funded by National Science Foundation (NSF), to investigate the unique interactions between shrubs and crops as a basis for developing sustainable agricultural practices in the ecologically fragile Sahel region of Africa. The project director is **Richard Dick**, Professor of Soil Microbial Ecology in the School of Environment and Natural Resources. **Amanda Davey** (SENR) coordinates project logistics, purchasing, reporting, student preparation for living and working in Senegal, and budget management.

The Sahel is experiencing serious landscape degradation and desertification that significantly reduces food security in the region. A potential key for restoring these landscapes are two unrecognized shrub species that can coexist with crops and have the ability to lift water from wet sub- to dry-surface soil and improve soils. Fundamental hydrology and rhizosphere microbiology research will contribute towards the development of optimized shrub-crop systems that reduce crop water stress and stimulate microbial enhancement of nutrient availability (e.g. nitrogen fixation) and plant growth (e.g. plant hormones, disease suppression). This knowledge will provide a basis for the logical design of agricultural systems that will restore currently degraded landscapes and help develop effective and sustainable agricultural systems in the Sahel. This will benefit all countries in the Sahel which, together, have >15 million ha of semi-arid land currently farmed by similar destructive agricultural practices.



Ohio State's collaborators in the project include the Institut Sénégalais de Recherches Agricoles (Senegal's Agricultural Research Institute); France's Research Institute for Development (IRD); the IRD's Laboratory of Tropical Microbial Ecology, Senegal; the University of California-Merced; the University of Thies, Senegal; and Central State University, Wilberforce, Ohio.

International Agreements: MOU's and MOA's

To facilitate the academic exchange of knowledge and to foster lasting research collaborations, the Office of International Programs in Agriculture works closely with Office of International Affairs (OIA) at Ohio State to facilitate the formation of formal partnerships between the College of Food, Agricultural, and Environmental Sciences and other international institutions. The two types of agreements that IPA assists in drafting include Memoranda of Understanding (MOU) and Memoranda of Agreement (MOA). While MOU's include the signature of the heads of the partnering academic units in each institution, MOA's are signed by the leaders of the partnering universities.



CFAES currently has 22 active agreements with institutions in 16 different countries.

International Agreements Signed in 2013 Between CFAES and Other International Institutions			
Country	Partner University	Type of Agreement	Date Established
Macedonia	University of SS. Cyril and Methodius	Memorandum of Understanding	12/11/2013
Uganda	Makerere University	Memorandum of Understanding	11/25/2013
Brazil	Universidade Estadual Paulista	Memorandum of Understanding	10/01/2013
Pakistan	The University of Agriculture	Memorandum of Understanding	08/29/2013
Senegal	University of Gaston Berger	Memorandum of Agreement	07/22/2013
Tunisia	National Institute of Agronomy of Tunisia	Memorandum of Understanding	05/10/2013

International Scholarly Presentations Delivered by CFAES Faculty

Faculty Member	Department	Title of Presentation	Institution/Venue	City, Country	Date
Cornish, Katrina	Horticulture & Crop Science	"Cultural practices and alternate rubber biosynthesis, yield and quality"		Cologne	
		"Alternate Natural Rubber and Biosynthesis of Naturally Occurring cis-1,4-polyisoprene."	3rd Thailand-Japan Rubber Symposium	Hachioji, Japan	
Gao, Yu	Horticulture & Crop Science / Extension	"Commercial Raspberry Production"	Hebei Agricultural Enterprises Association	Shijiazhuang, China	
		"Wine Grape Production in Ohio"	China Agricultural University	Beijing, China	
		"Blueberry Production and Marketing in Ohio"	Shanxi Fruit Research Institute	Taigu, China	
Loux, Mark	Horticulture & Crop Science / Extension	"Experiences with herbicide resistance in the United States"	FMC South America	Buenos Aires, Argentina	2013
		"Managing Herbicide-resistant Canada fleabane and giant ragweed: lessons learned in 10+ years"	Ridgetown College/OMAFRA	Ontario, Canada	2013
Watters, Harold	Extension	"Modern corn & soybean production practices"		Kiev, Ukraine	
Lal, Rattan	Environment and Natural Resources	"Sustainable Intensification To Address Climate Change and Advance Food Security In Africa"	Sokoine University of Agriculture	Morogoro, Tanzania	November, 2013
		"Conservation Agriculture in the Tropics"	University of Battambang	Battambang, Cambodia	June, 2013
		"Food Security and Climate Change"	Rothamsted Research Center	Harpenden, United Kingdom	October, 2013
Mancl, Karen	Food, Agricultural and Biological Engineering	"Onsite Wastewater Management"	Ontario Onsite Wastewater Association	Toronto, ON, Canada	March, 2013
		"Treatment of Turkey Processing Wastewater" (in Chinese)	Chinese Research Academy of Environmental Science	Beijing, China	
		"Treatment of Turkey Processing Wastewater" (in Chinese)	Shandong Polytechnical University	Jinan, China	
		"Treatment of Turkey Processing Wastewater" (in Chinese)	Xian Polytechnical University	Xian, China	

Faculty Member	Department	Title of Presentation	Institution/Venue	City, Country	Date
		"Treatment of Turkey Processing Wastewater" (in Chinese)	Xian University of Architecture and Technology	Xian, China	
Pascall, Melvin	Food Science & Technology	"Antimicrobial evaluation of micro-pattern topography for reduction of bacterial survival on polymeric materials"	7th International Packaging Congress	Izmir, Turkey	May, 2013
		"High pressure processing and its impact on the crystallinity, morphology and gas transmission properties of low density polyethylene films"	7th International Packaging Congress	Izmir, Turkey	May, 2013
		"Packaging material types, selection and integrity inspection for product quality and safety for the United States market"	Jamaica Manufacturer's Association	Kingston, Jamaica	
		"United States packaging laws and regulations"	Jamaica Manufacturer's Association	Kingston, Jamaica	
Rodriguez-Saona, Luis	Food Science & Technology	"Application of Infrared Techniques for Food Quality Assurance"	Department of Food Industries - UNALM	Lima, Peru	
		"Infrared Spectroscopic Techniques for Food Analysis"		Sao Carlos, Brazil	
Schwartz, Steven	Food Science & Technology	"Bioavailability and Metabolism of Carotenoids from Functional Foods Targeted Toward Cancer Prevention."	5th International Symposium on Human Health Effects of Fruits and Vegetables.	Dharwad, India	January, 2013
Faggian, Alessandra	Agricultural, Environmental and Development Economics	"College Student Migration in the United States: Implications for Regional Human Capital Distribution"	Tinbergen Institute, Free University	Amsterdam, The Netherlands	May, 2013
		"College Student Migration in the United States: Implications for Regional Human Capital Distribution"	Jinan University	Guangzhou, China	July, 2013
		"Doing good research and publishing in international journals"	Jiangsu Normal University	Xuzhou, China	July, 2013
Sheldon, Ian	Agricultural, Environmental and Development Economics	"The Role of Intellectual Property Rights in Seed Technology Transfer through Trade: Evidence from US Field Crop Exports"	IATRC Public Trade Policy Research and Analysis Symposium	Seville, Spain	June, 2013
Day, Michael	Animal Science	"Global perspectives on beef production: Where do	1st International Meeting on Animal Reproduction	Fazenda Esplanada, Brazil	

		we go from here?"			
Faculty Member	Department	Title of Presentation	Institution/Venue	City, Country	Date
		"Effects of follicle age on fertility in beef cattle."	UNESP Graduate Course Series in Reproduction	Botucatu, Brazil	
		"Fertility of heterospermic semen in vivo and in vitro."	The XVII Course on New Approaches to Production and Reproduction in Cattle	Uberlandia, Brazil	
		"Optimizing puberty in Nelore heifers with nutritional and hormonal intervention."	UNESP Graduate Course Series in Reproduction	Botucatu, Brazil	
		"Should Nelore or Nelore crossbred heifers calve at 2 years of age or later?"	The XVII Course on New Approaches to Production and Reproduction in Cattle	Uberlandia, Brazil	
Redinbaugh, M.G.	Plant Pathology	"Maize lethal necrosis: history and emergence in East Africa"	Regional Workshop on Maize Lethal Necrosis and it's Management	Nairobi, Kenya	February, 2013

Outreach and Engagement

Ohio State University Extension Master Gardeners Volunteer in Ecuador

19 Extension Master Gardeners (EMGs) from Ohio State University Extension spent one week (February 11-15th) in Otavalo, Ecuador assisting 23 communities protect their water supply by collecting seedlings and seeds, planting trees, weeding and other gardening activities. They worked with the Tandana Foundation to help the communities grow trees for planting in order to prevent erosion and therefore protecting their water supply. The foundation staff have worked diligently over the last several years to develop relationships in this area and to work with the communities to develop projects that will help to improve the quality of life for the indigenous Andean people.



A Master Gardener and her Andean partner planting a tree

Marc Partridge addresses urban growth at the University of Barcelona, Spain

Marc Partridge (AEDE) is an expert on rural-urban interdependence and innovations in regional policy and governance. In November, he participated in the Barcelona Workshop on Regional and Urban Economics: Agglomeration Economies, a meeting that the Group on Quantitative Regional Analysis (AQR-IREA) of the University of Barcelona, Spain organizes every year. Throughout his speech at the University's Faculty of Economics and Business, Partridge analyzed aspects such as the advantages of medium cities over big cities and the elements that slow down cities' growth.



Marc Partridge at the University of Barcelona, Spain



THE OHIO STATE UNIVERSITY

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AND ENVIRONMENTAL SCIENCES

The College of Food, Agricultural, and Environmental Sciences and its academic and research departments including, Ohio Agricultural Research and Development Center (OARDC), Agricultural Technical Institute (ATI) and Ohio State University Extension embraces human diversity and is committed to ensuring that all research and related educational programs are available to clientele on a nondiscriminatory basis without regard to age, ancestry, color, disability, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, race, religion, sex, sexual orientation, or veteran status. This statement is in accordance with United States Civil Rights Laws and the USDA.