

Office of International Programs in Agriculture

Annual Report 2014



THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

Mission Statement

The mission of the Office of International Programs in Agriculture is to support the globalization efforts of the college by engaging Ohio State faculty and students in international research, outreach, 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.

Table of Contents

An International Glance.....	1
<u>Global Research: Innovation and Human and Institutional Capacity Development</u>	
iAGRI – Innovative Agricultural Research Initiative.....	2
Integrated Pest Management Innovation Labs (IPM-IL).....	4
Higher Education Development Project.....	5
Trilateral Partnership for Food Security.....	6
Norman E. Borlaug International Agricultural Science and Technology Fellowship Program	7
U.S. Borlaug Fellows in Global Food Security Program.....	7
Norman E. Borlaug Leadership Enhancement in Agriculture Program (Borlaug LEAP).....	8
Borlaug Higher Education for Agricultural Research and Development (BHEARD) Program.....	8
Faculty Exchange Program.....	9
Cochran Fellowship Program.....	10
<u>Global Teaching and Learning</u>	
International Internship Program.....	11
Study Abroad.....	12
Peace Corps.....	13
Ohio Youth Institute & Global Youth Institute.....	14
<u>Global Outreach: Extension and Service</u>	
Outreach and Service.....	15
International Visitors & Delegations.....	17
International Agreements.....	18
Faculty Initiatives.....	19
Ohio State Discovery Themes.....	26
2014 Stories of Success.....	27

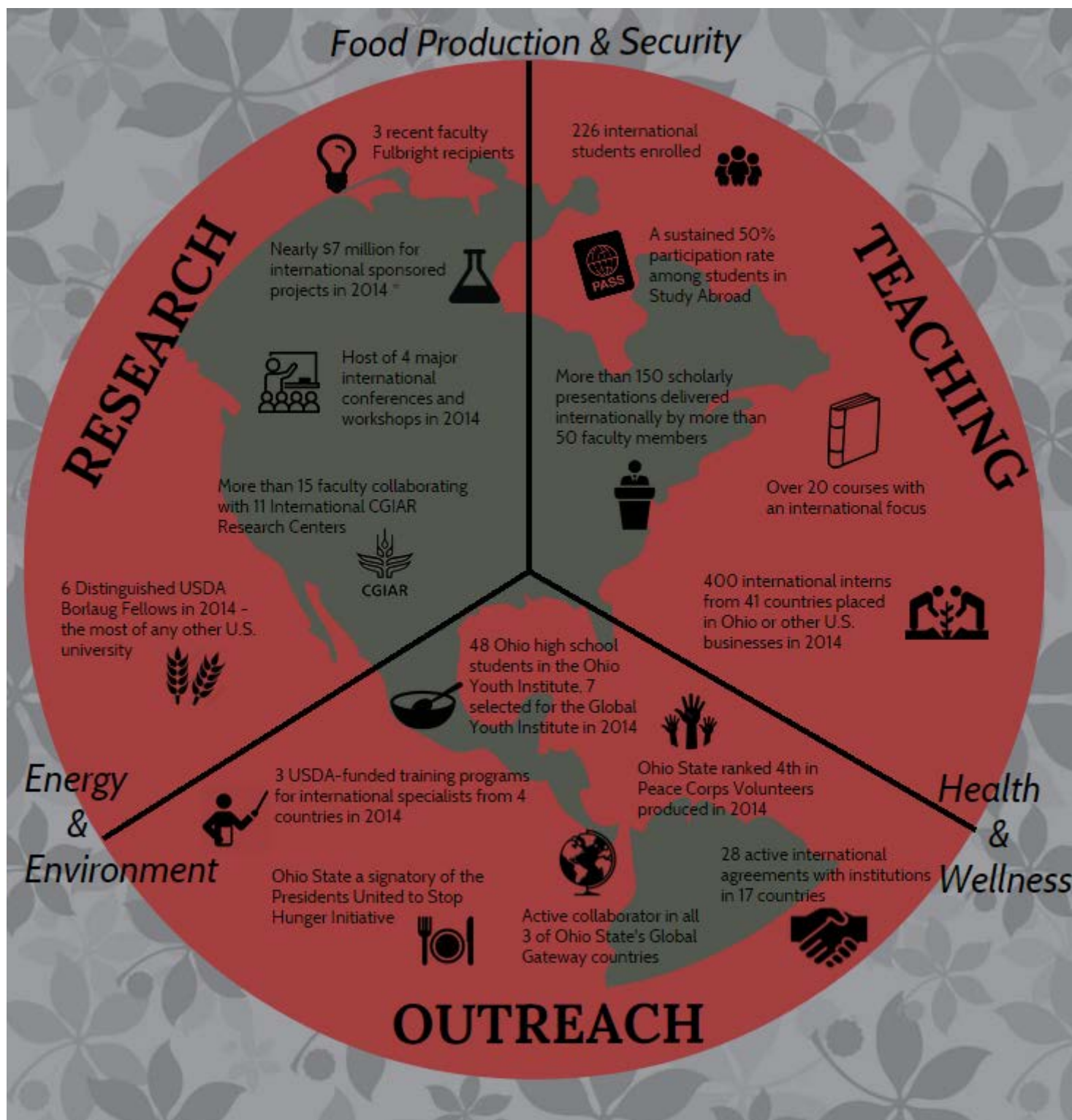


Introduction

The Office of the International Programs in Agriculture 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 it 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 international agreements between the College and other institutions to facilitate transnational collaboration. In 2014, the office administered nearly \$7 million in sponsored grants, with the key funding agencies being the United States Agency for International Development (USAID) and The United States Department of Agriculture Foreign Agriculture Service (USDA/FAS).

College of Food, Agricultural, and Environmental Sciences

2014 International Perspective



* Figure only reflects sponsored programs through the Office of International Programs in Agriculture

Global Research: Innovation and Human and Institutional Capacity Development

iAGRI – Innovative Agricultural Research Initiative



USAID
FROM THE AMERICAN PEOPLE



THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

Project Overview

iAGRI is a six-year, *Feed the Future* 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 through advanced degree training, collaborative research, and human and institutional capacity development initiatives in partnership with Sokoine University of Agriculture (SUA) and the Ministry of Agriculture, Food Security and Cooperatives (MAFSC) in Tanzania. The Ohio State University – through the Office of International Programs in Agriculture – is the chief administrator for this project and leads a consortium of five other land-grant partners in the United States: Michigan State University (MSU), University of Florida (UF), Virginia Tech (VT), Tuskegee University (TU), and Iowa State University (ISU). International Programs in Agriculture staff involved in the project include **Mark Erbaugh**, Project Administrative Director; **David Hansen**, Project Coordinator; **Wendi Howell**, Training Coordinator; **Pat Rigby**, Administrative Assistant; and **David Mackie**, Fiscal Manager. **David Kraybill**, professor in the Department of Agricultural, Environmental, and Development Economics serves as the Project Director in Morogoro, Tanzania.

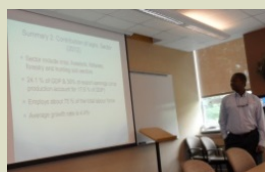
Developments in 2014

In 2014, Ohio State successfully placed 53 Tanzanian students in institutions in the U.S., India, and Africa to receive graduate degree training through iAGRI, bringing the total number of students placed through iAGRI to date to 135. Of this total number, 20 students (4 Ph.D. and 16 M.S.) have been placed within seven (7) departments at Ohio State's College of Food, Agricultural, and Environmental Sciences (CFAES).

iAGRI Student Placements as of 2014					
	Cohort I (FY 12)	Cohort II (FY 13)	Cohort III (FY 14)	Cohort IV (FY 15)	Total
United States	6	28	10	23	67
RUFORUM	-	8	10	10	28
Sokoine Univ. of Agriculture	-	13	4	11	28
Punjab Agr. Univ., India	-	-	2	4	6
Total	6	49	26	48	129

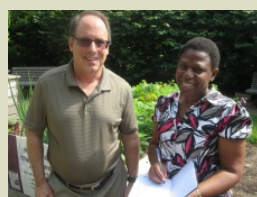
Visits to Ohio State from Tanzania

Dr. Catherine Msuya, Head of the Dept. of Agriculture, Education, & Extension at SUA; Joyce Kuliwaki Mvuna, Director of Training, MAFSC; and Dr. Anne Niede Assenga, Asst. Director of Extension Services, MAFSC (March 2014)



Flavianus Magayane (left), Senior Lecturer, Dept. of Agricultural Education & Extension at SUA and Dr. Bernard Chove, Chair, Dept. of Food Science & Technology at SUA (May 2014)

Dr. Susan Msolla, Dean of Faculty of Agriculture at SUA, visited Ohio State in (June 2014)



Visits to Tanzania from Ohio State



Dr. Gary Straquadine, Professor & Chair of the Department of Agricultural Communication, Education, and Leadership (ACEL)

Dr. Graham Cochran, Associate Professor, ACEL (June 2014)



Dr. Emily Buck, Department of Agricultural Communication, Education, and Leadership (June 2014)

iAGRI's Key Focus Areas

Graduate Degree Training

9 new master (MS) students from Tanzania placed at The Ohio State University in the following departments:

- 2 in *Agricultural, Environmental, and Development Economics*
- 2 in *Agricultural Communication, Education, and Leadership*
- 2 in *Food, Agricultural, and Biological Engineering*
- 2 in *Horticulture and Crop Science*
- 1 in *Human Nutrition (College of Education and Human Ecology)*



2 "sandwich" Ph.D. students completed short-term research in the College of Veterinary Medicine and the Food Animal Health Research Program (FAHRP)



In May 2014, 7 graduate students supported by or affiliated with iAGRI presented the status of their

research at an iAGRI Graduate Student Research Forum where they receive technical feedback and improve their presentation skills.

iAGRI training coordinator, Wendi Howell, visited iAGRI students and other iAGRI OSUC coordinators at the University of Florida and Tuskegee University in December 2014.



Collaborative Research

Dr. Sally A. Miller, Dr. Brian McSpadden Gardener, Dr. David Francis, and Anna Testen (Ph.D. student) all have made progress on a collaborative research project with SUA faculty entitled "Improved Soil Health and Germplasm to Advance Tomato Production in Tanzania".



Two (2) presentations were delivered in 2014 and 2 publications are forthcoming in 2015



Climate Change and Agricultural Risk Management

Dr. Mario Miranda, AEDE Professor, and Dr. Abdul Sam, AEDE Associate Professor, have worked with USAID funding in Ghana over the past year on implementation of appropriate methods of providing crop insurance to small farmers. This program responds to increased risks in agriculture generated by climate change and associated extreme weather events.

They are currently negotiating a similar activity in Tanzania, with potential participation by Syngenta and the World Bank. Tanzania activity would involve collaboration with faculty from Sokoine University of Agriculture through the iAGRI project.

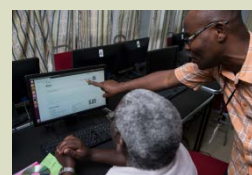
Human-Institutional Capacity Development



Andy Gurd, Chief Operating Officer at The Ohio State University Alumni Association, visited Sokoine University of Agriculture (SUA)

in May 2014 to help administrators enhance alumni involvement at SUA.

Dr. Emily Buck, Department of Agricultural Communication, Education, and Leadership conducted a website needs assessment and usability testing of the SUA website in June 2014.



With iAGRI support, SUA became one of the first universities in Tanzania to introduce an

online information resource discovery tool, "LibHub", aimed at increasing accessibility to online information resources.

Dr. Gary Straquadine, Professor & Chair of Department of Agricultural Communication, Education, and Leadership and Dr. Graham Cochran, Associate Professor conducted a qualitative research methods and evaluation short course for SUA faculty in June 2014.



Several leadership Webinar series for iAGRI graduate students were

developed and led by faculty from Ohio State's Department of Agricultural Communication, Education and Leadership in early 2014.

Integrated Pest Management Innovation Labs (IPM-IL)

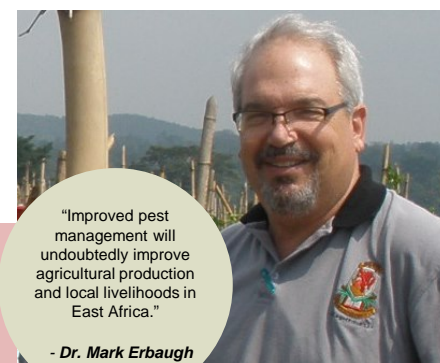
Regional Program for East Africa – Uganda, Kenya, & Tanzania



"A project developing IPM technologies to improve the productivity of horticultural crops and farmer income"

The Integrated Pest Management Innovation Lab (IPM-IL) for East Africa, one of six regional IPM-IL's funded by USAID, is led by Dr. Mark Erbaugh, Director of International Programs in Agriculture at Ohio State. Since 2009, IPM-IL East Africa has engaged numerous Ohio State-CFAES faculty including Sally Miller (Plant Pathology), Luis Canas (Entomology), and Matt Kleinhenz (Horticulture and Crop Science) in an effort to improve small holder production of high-value horticultural crops through collaborative research with African partners, including Sokoine University of Agriculture (Tanzania), Makerere University (Uganda), and the Kenyan Agricultural and Livestock Research Organization (Kenya).

Key IPM Research Results: IPM adoption by farmers resulted in yield increases ranging from 54% to 268% depending on the adopted technology, and reduced costs ranging from 70% as a result of grafting, use of high tunnels, and mulching.



Kenya

In-Country Collaborator: Kenya Agricultural and Livestock Research Organization (KALRO)

Diseases & Pests Targeted: *Fusarium* wilt, collar rot, stem canker, brown spot, woodiness

Training Outcomes: IPM brochures and training manuals were distributed to 3,000 farmers and 200 extension agents, respectively. Reoccurring field demonstrations and workshops provided training and sensitization in disease diagnosis for farmers and agricultural extension staff.



Tanzania

In-Country Collaborator: Sokoine University of Agriculture (SUA) and the Tanzania Coffee Research Institute (TaCRI).

Diseases & Pests Targeted: Insects (whiteflies, mites, thrips, bollworms, borers), nematodes, blights and viruses, and weeds (nut sedges, wandering Jew, grasses).

Training Outcomes: 1,166 farmers and 20 extension workers trained in seed treatment, pesticide application, post-harvest treatment and other IPM practices for produce. 515 trained in coffee IPM strategies. 24 Tanzanian undergraduates conducted research on project activities, while 1176 were trained in IPM high-tunnel technologies. 6 MSc and 3 Ph.D students at Sokoine University of Agriculture conducted research on IPM for tomato and onion.

Uganda

In-Country Collaborator: Makerere University, National Agricultural Crops Resources Research Institute, and the National Coffee Resources Research Institute.

Diseases & Pests Targeted: late blights, bacterial wilt, viruses, bollworm, leaf miners, aphids, white flies, black twig borer, collar rot.

Training Outcomes: 451 extension agents trained at national and institutional levels in the areas of pathogen detection, and clean seed certification. 13 MSc and 10 BSc students trained. Package of best management techniques (BMT) was disseminated to 126 Arabica coffee farmers and 72 Robusta coffee-producing households.



International Plant Diagnostics Network (IPND)

The International Plant Diagnostic Network (IPDN) is a Global Theme project within the IPM Innovation Laboratory (IPM IL) and funded by USAID. The goal of the project is to increase the capacity for disease and pest diagnostics among scientists, extension personnel, and others in IPM IL countries through training, technology development, and increased awareness of endemic and invasive pathogens and pests. The project is led by Dr. Sally Miller, Professor in the Department of Plant Pathology and leader of the Vegetable Pathology Laboratory at The Ohio State University.

During 2014, IPDN efforts focused on building plant disease and pest diagnostic capacity in East Africa, West Africa, Latin America and South Asia, in coordination with the corresponding IPM IL regional programs. Collaborators in these regions continued to strengthen their informal networks and provide plant diagnostic services. Multiple training/networking events were held to increase awareness of critical diseases and pests, including invasive species such as the tomato leaf miner *Tuta absoluta* and papaya mealybug. There were new discoveries of several insect pests and diseases in IPM IL countries, including *Tuta absoluta* in Kenya and Tanzania, *Choanephora cucurbitarum* on cabbage in Ghana, and tomato big bud and pith necrosis in Tanzania. Viroids are becoming a major problem in tomatoes in West Africa, and methods to extract nucleic acids in the field and store samples for future characterization were developed. Disease identification and management materials, including laminated card sets, were developed [in cooperation with other programs (USDA-FAS and iAGRI)] in appropriate languages and distributed. Detailed Standard Operating Procedures (SOPs) for identification of 10 pests and pathogens were finalized and are being prepared for posting on various websites to allow wide access within the regions.

A workshop entitled “Invasive Species Identification and Management in the Tropics” was held in Dakar, Senegal, May 10-16, 2014. The event drew 33 participants from 11 countries: Bangladesh, Burundi, the Congo, Ghana, Guatemala, Kenya, Mali, Nepal, Senegal, Tanzania, and Uganda, combining lectures with a field trip, as well as workshops on grafting and plant disease identification. Lectures were presented on major invasive weeds, diseases and pests, particularly those of concern in the tropics. Field trips and laboratory exercises focused on identification and management of *Ralstonia solanacearum*, *Tuta absoluta* and the papaya mealybug, as well as general diagnostic approaches and tomato grafting to manage bacterial wilt.



Trainees with Sally Miller (left) and Ohio State Ph.D. student Nagendra Subedi (right, standing center)

Higher Education Development Project



This five-year project focused on developing academic, research, and extension service programs at the Université Gaston Berger, Senegal (UGB) in order to further sustainable food production in the African Sahel. The goals of the project include assisting with curriculum development at UGB for associate and bachelor degree programs in agroecology; building UGB faculty capacity for teaching, research and extension; building a pilot program of integrated research and outreach for smallholder farmers; and improving facilities with equipment and supplies. Richard Dick (SENR) co-directs the project with Professor Mateugue Diack of UGB. Amanda Davey (SENR) manages project programming, logistics, purchasing, and reporting.

The new Associate and BS degree programs began their fourth year with the recruitment of 39 students November. The inaugural graduation of 66 associate degree students took place in March.

Mechanization of the transplanting component of crop production through a pilot extension program introducing a mechanical transplanter for the first time in Sub-Saharan Africa was underway in 2014. Three on-farm trials with smallholder farmers took place for trouble shooting before the larger scale, on-farm trials scheduled to take place in 2015. Farmers in the Senegal River Valley are very excited at the prospects of the transplanter reducing their labor costs and significantly increasing yields as they work towards self-sufficiency and food security.

Trilateral Partnership for Food Security

In 2012 CFAES faculty and administrators from Ohio State, along with colleagues at Punjab Agricultural University (PAU) in India, initiated a project funded by the United States Department of Agriculture's Foreign Agricultural Service focusing on providing technical assistance to Egerton University (EGU) in Njoro, Kenya, with the intent to strengthen the institution's capacity to improve food security in the East African nation of 44 million people. The project, known as the Trilateral Partnership for Food Security, advanced towards meeting a number of objectives in 2014.

One of these objectives was to create a strategic plan for Egerton to promote outreach to agribusinesses and train its graduate students on the importance of developing private sector linkages. In March 2014, the first training workshop held at Egerton was designed to teach students and community agribusiness leaders ways to develop effective business plans for small and medium enterprise (SME's) in Nakuru County. Led by Mark Erbaugh, Director of International Programs in Agriculture, and David Hahn, Professor Emeritus in the Department of Agricultural and Development Economics, the program facilitated the 48 participants – 33 Egerton graduate students and 15 business leaders in Nakuru County – to work in small groups developing their own business plans using a provided template.

In 2014, Dr. Pat Whittington, Assistant Dean of Student Development, visited Kenya along with PAU collaborators to assist EGU with improving the school's internship program. All students at EGU are required to undertake internships as part of their undergraduate degree program. These internships can vary considerably in terms of who hosts the students and how student internship experiences are evaluated.



They were charged with preparing a manual that would significantly increase the quality of internship learning. This included attention to the organization of the practical learning experience and effective oversight of it by EGU staff and internship hosts. It focuses on the responsibilities of the EGU internship supervisor and the responsibilities of the student. This manual was edited and several thousand copies have been made for use by students and their supervisors during the coming academic year. Plans were also made for preparation of a similar document for the internship hosts who share in the oversight responsibility for the internship experience.

Dr. M. Susie Whittington, Professor in the Department of Agricultural Communication, Education, and Leadership, also traveled to Kenya in 2014 to further assist Egerton in an ongoing effort to enhance academic course development. This objective involved the development of a Teaching and Learning Center (TLC) to champion curriculum on the EGU campus. Ohio State and PAU staff had partnered in the past to develop a similar teaching academy of excellence at PAU. PAU and OSU staff members, who had participated in this earlier experience, were tapped to work with staff at EGU to develop its Center concept. The result has been the development of a plan for a Teaching/Learning Center. The overall purpose of the TLC will be to enhance the quality of academic programs offered by the Faculty of Agriculture at Egerton University.

Other major projects within the greater Trilateral Partnership for Food Security included enhancing small-holder mushroom production and strengthening the apiculture industry in Kenya.

A final evaluation workshop was held in December 2014 at Egerton University. In attendance were representatives from Ohio State, EGU, Langston, and USDA/FAS. The workshop focused on recapping activities undertaken as part of this program, assessing program milestones and outputs as well as lessons learned.



Dr. Dave Hahn works with agribusiness workshop participants at Egerton University in 2014

Norman E. Borlaug International Agricultural Science and Technology Fellowship Program



In 2014, the College of Food, Agricultural, and Environmental Sciences hosted five (5) distinguished international researchers sponsored through the U.S. Department of Agriculture - Foreign Agricultural Service's Norman E. Borlaug International Agricultural Science and Technology Fellowship Program, more than any other U.S. university.

These short-term research programs for the Borlaug Fellows were administered through the Office of International Programs in Agriculture, who worked collaboratively with faculty mentors to deliver a program that not only focused on researching important topics related to food security, but training the fellows in practical research methodology and techniques that will benefit them and their home institution upon their return.

2014 Borlaug Fellows

Mohamed Dridi, Tunisia- Ornamental Plant Germplasm Center, Dr. Pablo Jourdan

Md. Mostofa Kamal, Bangladesh – Department of Plant Pathology, Dr. Brian McSpadden Gardener

Kwame Frimpong, Ghana – School of Environment and Natural Resources, Dr. Warren Dick

Francis Mwatuni, Kenya – Department of Plant Pathology, Dr. Sally Miller

James Karanja, Kenya – Department of Plant Pathology, Dr. Peg Redinbaugh

U.S. Borlaug Fellows in Global Food Security Program



Three Ohio State graduate students in the College of Food, Agricultural, and Environmental Sciences (CFAES) participated as Fellows in this year's USAID's Global Food Security Program. Patrick Bell, a Ph.D student in the School of Environment and Natural Resources; Anna Testen, Ph.D. student in the Department of Plant Pathology; and Brian Pace, Ph.D. student in the Department of Horticulture and Crop Science, were each awarded a graduate research grant to support research the students have been involved in through ongoing projects with other International Agricultural Research Centers (IARC) and National Agricultural Research Systems (NARS).



Anna Testen and a Tanzanian farmer test soil samples

The Global Food Security Program is an initiative that seeks to foster leadership and scientific expertise among U.S. graduate students to effectively study and promote sustainable food systems in developing countries.

Anna traveled to Tanzania this past summer to conduct a survey of tomato diseases in the region and to work with local farmers in developing soil quality indicators. Patrick Bell moved to Tanzania in the summer of 2014 and will remain there until July 2015 working at Sokoine University of Agriculture in the area of soil science.

Brian plans to travel to southern Mexico to conduct a year-long investigation of how highland landraces, potentially most at risk from the effects of climate change, may respond to environmental variation at a scale relevant to near-term climate change.



Norman E. Borlaug Leadership Enhancement in Agriculture Program (Borlaug LEAP)

The Norman E. Borlaug Leadership Enhancement in Agriculture Program (Borlaug LEAP) awards fellowships to outstanding international graduate students currently studying in the U.S. who show strong promise as leaders in the field of agriculture and related disciplines. The program is funded by USAID and the International Maize and Wheat Improvement Center (CIMMYT).

Taking advantage of Dr. Norman Borlaug's guidance, values and principles, the Borlaug LEAP was established with the aim to "develop a new cadre of scientific leaders to mentor a new generation of agriculture scientists and educators who can sustain scientific innovation for development."

Since its inception in 2006, three (3) Ohio State students have been awarded LEAP fellowships, which have provided funding to work collaboratively with their U.S. university advisors and a CGIAR institution.



Elias Balimponya inspects rice plants in the lab.



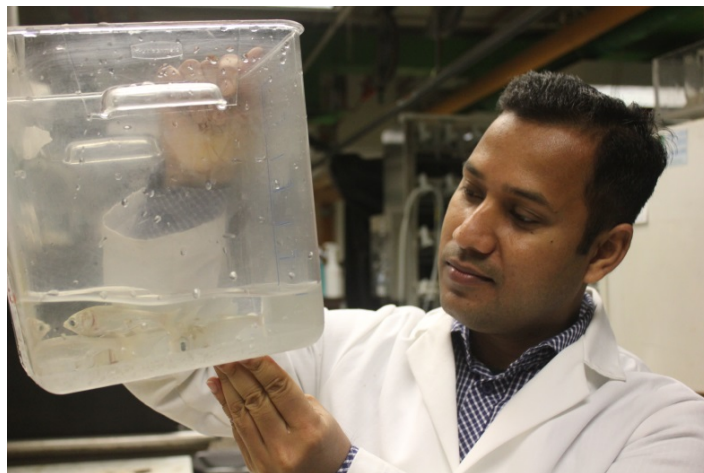
Boniface Massawe at the 2014 Borlaug Symposium

This year, Elias Balimponya, an M.S. student in the Department of Horticulture and Crop Science studying under Dr. Clay Sneller, was awarded a 2014 fellowship. The award will support his research on the genetic resistance to rice blast (*Magnaporthe oryzae*), in collaboration with the International Rice Research Institute (IRRI) in the Philippines.

Also in October 2014, Boniface Massawe, current iAGRI-funded Ph.D. student in the School of Environment and Natural Resources and 2013 LEAP fellow, was selected to attend the 2014 Borlaug Symposium and World Food Prize as a representative of the program. There he interacted with other LEAP fellows and USDA Borlaug Fellows in attendance and participated in a number of discussions on global food security.

Borlaug Higher Education for Agricultural Research and Development (BHEARD) Program

Four (4) students supported through the Borlaug Higher Education for Agricultural Research and Development (BHEARD) Program, which is collaboratively funded between through USAID, the Association of Public and Land-grant Universities (APLU), and the International Maize and Wheat Improvement Center (CIMMYT) in Mexico, continued their coursework at Ohio State and to prepare their graduate research throughout much of 2014.



Mohammad A. Alam works with specimens in lab of Dr. Konrad Dabrowski, School of Environment and Natural Resources

Mynul Islam and Ferdous Elahi (Bangladesh), both Ph.D. students in Plant Pathology working with Dr. Sally Miller, progressed through coursework and research preparation at the Ohio Agricultural Research and Development Center.

Mohammad A. Alam (Bangladesh), a Ph.D. student in the School of Environment and Natural Resource's working with Dr. Konrad Dabrowski, completed a number of experiments related to his dissertation research this year and has made plans to present at the 2015 World Aquaculture Conference in New Orleans, Louisiana.

All three students plan to present their research at the 2015 Ohio State International Research Symposium in February.



Faculty Exchange Program

The Faculty Exchange Program (FEP) is sponsored by the U.S. Department of Agriculture's Foreign Agricultural Service (FAS). Through the Office of International Programs in Agriculture and the Department of Agricultural Education and Development Economics (AEDE), Ohio State has participated in the program for two years, training Ukrainian agribusiness instructors in curriculum development, teaching methodologies, and agricultural technical knowledge during their 4 month fellowships at Ohio State. Three (3) fellows were hosted in 2014.

Participants in the 2014 FEP Program included Olena Velychko, post graduate student in economics and agrarian economy at Dnipropetrovsk State Agrarian University; Viktor Orekhivskiy, Associate Professor of agricultural management at the National University of Life and Environmental Sciences of Ukraine; and Olena Cheberiak, instructor at Kyiv National Economic University.

Through the program the participants had the opportunity to visit a number of undergraduate classes at Ohio State that pertained to their own interests and observed first-hand how classroom instruction in America differs from higher education instruction in Ukraine.

The fellows also enjoyed site visits outside of Ohio, including a trip to the Southwest United States where they met with other FEP participants placed with California State University, Fresno, in addition to meeting with agricultural producers and agribusiness representatives in the region.

Dr. Allan Lines, Professor Emeritus in AEDE, and Dr. Stan Thompson, Professor in AEDE, coordinated the program and closely mentored the fellows while they were on Ohio State's campus.



Olena Velychko, Viktor Orekhivskiy, and Olena Cheberiak at the Grand Canyon

"This was a unique opportunity for me to study the advantages of the U.S. educational system and to use them in Ukrainian universities,"

- Olena Cheberiak
2015 FEP Fellow

Scientific Cooperative Exchange Program



SCEP visitors from China visit Ohio State's Western Agricultural Research Station with Joe Davlin, Manager of the station.

The Scientific Cooperative Exchange Program (SCEP), funded by the U.S. Department of Agriculture, supports collaborative relationships between teams of scientific and technical experts from the United States and the People's Republic of China. Since 1979, the program has facilitated exchanges for more than 2,100 participants on topics including food safety and security, animal and plant health, and agricultural biotechnology and emerging technologies.

From September 9-18, 2014 Ohio State, through the Office of International Programs in Agriculture, hosted six visitors from China's Ministry of Agriculture for a 2 week program centered on emerging agricultural technologies and agricultural extension programming.

During the SCEP group's 10-day stay in Ohio, they visited with faculty and researchers within the College of Food, Agricultural, and Environmental Sciences (CFAES) on Ohio State's main campus in Columbus, at the Ohio Agricultural Research and Development Center (OARDC) in Wooster, the Ohio State South Centers in Piketon, and the Western Agricultural Research Station in South Charleston. Each of these sites allowed the visitors to observe up close how faculty conduct innovative research and simultaneously work alongside Ohio State Extension Educators to provide integrated knowledge to over 75,000 agricultural producers and other agricultural-natural

resources stakeholders in Ohio. SCEP participants were especially grateful to meet with Dr. Keith Smith, Associate Vice President of Agricultural Administration and Director of Ohio State University Extension, to better understand how they might improve their own extension programming in China.

Attendance at the 2014 Farm Science Review in London, Ohio brought the program to a strong conclusion for the visitors, who were eager to attend the annual three-day agricultural exhibition that draws more than 130,000 agricultural producers, industry professionals, and members of the public each year.

Cochran Fellowship Program

The Cochran Fellowship Program is funded by the U.S. Department of Agriculture's Foreign Agricultural Service and 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 to receive hands-on training to enhance their technical knowledge and skills in areas related to agricultural trade, agribusiness development, management, policy and marketing.



From June 9-21, 2014, the Office of International Programs in Agriculture, in collaboration with the Ohio State South Centers Research Station, hosted seven (7) agricultural extension professionals from Albania and Bosnia through the Cochran Fellowship Program. The visit focused on Ohio's cooperative extension system and the formation and growth of agricultural cooperatives. In addition to delivering targeted training and instruction at Ohio State's main campus in Columbus and the Ohio State South Centers Research Station in Piketon, OH, site visits were made to the following agricultural stakeholders in Ohio to apply key concepts:

Agricultural Producers and Cooperatives

Hirsch Fruit Farm
Lynd's Fruit Farm Inc.
Fuhrmann Orchards
Green Edge Gardens
Ann's Raspberry Farm
Hillcrest Orchard
Fresh Harvest Farm
Our Harvest Cooperative

Retailers

Celebrate Local
Bainbridge Produce Auction
Jungle Jim's International Market

Other Agricultural Support Organizations

ACEnet
Farm Factor Tour
Ohio Department of Agriculture

Major collaborative leaders for this project included Dr. Tom Worley, Director of Ohio State South Centers, and Christie Welch, Program Manager at the Ohio Cooperative Development Center. Faculty and researchers from the Department of Food Science and Technology, Department of Agricultural, Environmental, and Development Economics, and the Department of Horticulture and Crop Science also made valuable contributions to this training program.



Global Teaching and Learning

Ohio International Internship Program

The Ohio International Internship Program is a functional unit within the Office of International Programs in Agriculture, and specializes in providing international internships in agriculture, horticulture, turfgrass, and agricultural business. In 2014 the program hosted internships for approximately 408 participants from 41 different countries. Throughout its 35 years in the college, the Ohio International Internship Program has hosted over 9400 participants for training and currently has verbal agreements with 40 universities and organizations worldwide, along with several official agreements.

The internship program specializes in placing international agricultural students with businesses in Ohio and other areas of the United States. Business owners and managers work with program staff in the Office of International Programs in Agriculture to accommodate international students studying agriculture so that they can obtain invaluable professional experience from leaders in the industry. Businesses also appreciate the opportunity to work with international students, allowing them to better understand how their industry performs in other countries and expanding their professional networks around the world.

More: www.ohioprogram.org

Ohio State turfgrass graduate, interns in Ireland and New Zealand

Peter Braun, a 2014 graduate of Ohio State's Turfgrass Management Program, is completing an internship with Jacobsen, an international turf equipment provider. Peter's internship involves time in both Ireland and New Zealand, maintaining turf at Mt. Juliet Golf Club and The Hills, respectively. Some of his responsibilities include mowing turf grass in addition to working with turf managers to seed, sand, spray (with fungicide and fertilizer), and water the turf.



Peter Braun

"In my short time here I have seen how turf maintenance is different than back in the States"

- Peter Braun

Marcela Munoz appointed new Technical Manager for Syngenta Turf & Vegetation Management

Syngenta has appointed leading turfgrass specialist, Marcela Munoz, as the company's new Technical Services Manager for Turf & Vegetation Management across Europe. Moving to the UK from Chile, Marcela has extensive knowledge of and experience in turf management and scientific research in the US and South America.

Most recently she has been working for the STRI as a turf agronomy consultant to FIFA for the successful delivery of the 2014 World Cup pitches.

Marcela is an International Committee Member of the Sports Turf Managers Association of America (STMA) and Leader of the Global Turf Network. She holds an MSc in Turf and Turfgrass Management from The Ohio State University, where she also undertook research and on-course turf agronomy projects.

Based near Cambridge in the UK, Marcela will work closely with the Syngenta Turf Research facility at Stein in Switzerland, as well as independent researchers, agronomists, greenskeepers and sports turf managers across Europe, Africa and the Middle East.

Her role includes commissioning pioneering research to maintain Syngenta at the leading edge of turf science, as well as delivering the results back to the industry in the form of practical solutions to help create consistently better playing surfaces.

Excerpt taken from GolfBusinessNews.com (2014)

Marcela completed an internship through the Ohio International Internship Program in 2006 with Dr. John Street, Associate Professor, and Pam Sherratt, Extension Specialist and lecturer - both within the Department of Horticulture and Crop Science at Ohio State University.



Marcela Munoz

Study Abroad

The College of Food, Agricultural, and Environmental Sciences sponsored fifteen study abroad programs in seventeen (17) different countries in 2014. Programs ranged from ten days to six weeks in length, and engaged faculty and staff from seven (7) units and departments within the College.

In all, a total of 312 Ohio State undergraduate students participated in CFAES-sponsored study abroad programs, with 220 of those students being from CFAES. CFAES maintained an undergraduate participation rate of more than 50% in study abroad programs again in 2014.

For more information on study abroad, contact Kelly Newlon at newlon.7@osu.edu.

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



2014 Wolfe Study Abroad Scholarship Winners

The following CFAES undergraduate students were among 31 Wolfe Scholarship recipients throughout Ohio State selected to participate in study abroad programs in the following countries:

Collin Foltz - Environment, Economy, Development & Sustainability (Brazil)

Joshua Gibson - Entomology (Panama)

Joshua Henry - Sustainable Plant Systems (England)

Michelle Kaiser - Forestry Fisheries and Wildlife (China)

Amy Miller - Sustainable Plant Systems (England)



2014 Study Abroad Programs

Country	Focus Area	Resident Department	Students		Date
			Total	CFAES	
Australia	Sustaining Human Societies and the Environment	School of Environment and Natural Resources	58	16	May 5-30, 2014
Brazil	Alpha Zeta Partners Program: Economics, Rural Sociology, Agricultural Development, History	Academic Programs	20	20	January 6-February 15, 2014
China	Forestry and Wildlife Research	School of Environment and Natural Resources	4	4	May 2014
Costa Rica	Service Learning: Ecosystems, Sustainability	Academic Programs Entomology	18	14	March 8-18, 2014
England	European Gardens: History and Artistry	Horticulture and Crop Science	13	10	May 17-31, 2014
Ethiopia	International Field Study	Agricultural Communication, Education, and Leadership	12	2	May 2-30, 2014
Fiji	Sustaining Human Societies and the Environment	School of Environment and Natural Resources	18*	7*	May 30-June 8, 2014
Ghana	The Arts with Community Development Service Learning	Ohio State ATI	6	4	April 29-May 29, 2014
Greece	Human and Animal Interactions	Animal Sciences	45	42	December 27, 2014-January 10, 2015
Honduras	Community Development	Agricultural Communication, Education and Leadership	18	18	May 5-19, 2014
Ireland	European Equestrian Studies	Animal Sciences	38	31	March 6-16, 2014
Netherlands, Germany, Belgium	European Dairy Science	Animal Sciences	11	10	May 1-17, 2014
Nicaragua	CFAES First Year Experience	Agricultural Communication, Education and Leadership Academic Programs	20	20	January 1-11, 2015 (11 days)
New Zealand	Sustaining Human Societies and the Environment	Environment and Natural Resources	32	13	May 5-30, 2014
South Africa (1)	Exotic Animal Behavior and Welfare	Animal Sciences	9	8	May 5-23, 2014
South Africa (2)	Exotic Animal Behavior and Welfare	Animal Sciences	8	8	June 12-29, 2014
17 Countries	15 Programs	28 Resident Directors	312	220	

Peace Corps

The Peace Corps, established in 1961 by the U.S. government, sends Americans abroad to tackle the most pressing needs of people around the world. Peace Corps Volunteers (PCV) work at the grassroots level toward sustainable change in the areas of agriculture, education, public health, community development, and a multitude of other areas.

The Ohio State University, through the Office of International Programs in Agriculture, has administered recruitment at Ohio State and other colleges and universities throughout central Ohio since 1974. Jack Campbell, former Peace Corps Volunteer in Botswana and Fiji, has recruited students from Ohio State and central Ohio for the past 6 years and serves as an invaluable resource for prospective candidates navigating the Peace Corps application process. While he has served in this capacity, Jack has facilitated Ohio State's rise in the national rankings of top Peace Corps-producing schools in the United States.

Jack's recruitment efforts were also bolstered by the continued support from the Peace Corps Club at The Ohio State University. The group, which was created in 2010, is dedicated making students aware of the Peace Corps mission and the role of a volunteer. They also provide prospective applicants the opportunity to become more competitive by regularly organizing community service activities. More details about the Peace Corps Club's past and present activities can be found at www.peacecorpsclub.osu.edu.

More: www.cfaes.osu.edu/international/peace-corps



Highlights from 2014

64 Ohio State alumni currently serve in a two-year Peace Corps program

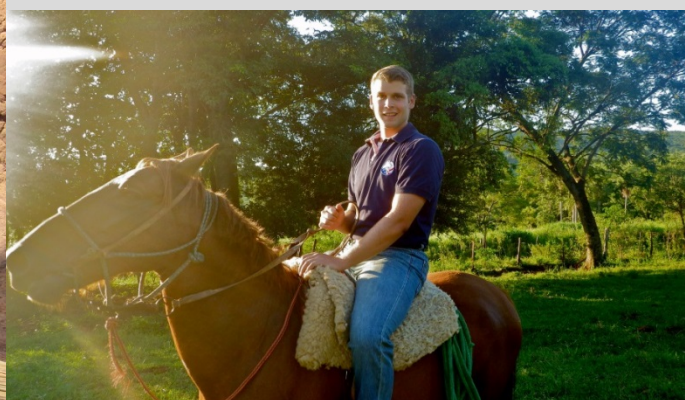
Ohio State ranks **4th** among universities in number of volunteers produced in 2014

Ohio State ranks **10th** as all-time producer of volunteers - 1,735 graduates having entered the service since 1961

State of Ohio ranks **9th** among all states in the total number of volunteers produced in 2014



Krystal Seger, a graduate of Ohio State's College of Food, Agricultural, and Environmental Sciences, serves as a health volunteer in Uganda.



Benjamin Hemmelgarn, a 2013 graduate of Ohio State, is currently a PCV in Paraguay

Ohio Youth Institute

The Ohio Youth Institute (OYI) of the World Food Prize was held on April 30, 2014 at the Nationwide & Ohio Farm Bureau Center on the Ohio State University campus. The program is funded by the College of Food, Agricultural, and Environmental Sciences (CFAES), and is collaboratively administered by Ohio State University Extension and the Office of International Programs in Agriculture. 48 students from nine (9) high schools in Ohio participated in the one day event by presenting a research paper they wrote focused on a challenge to food security facing a particular country. The 2014 theme for the World Food Prize's institute was "Confronting the Single Greatest Challenge in Human History."

Ohio high school students listen to speakers during the OYI (April 2014)



Professor Emeritus and former Director of International Programs in Agriculture, Dr. Fred Hitzhusen, addresses OYI delegates (April, 2014).

21 food security experts, 17 of which were faculty and researchers from 8 CFAES departments/units, not only served as expert readers but also evaluated oral presentations during the OYI and provided valuable feedback to the students on their projects.

Participating students also had the opportunity to take part in learning sessions focused on food production and sustainability including "Chocolate Science and Developing Countries" with Dr. Mary Kay Pohlschneider (Food Science and Technology) and "Innovations in Agriculture" with Dr. Bob Horton (Ohio State Extension, 4-H).

Global Youth Institute

The Global Youth Institute (GYI) is held each year in Des Moines, Iowa during the annual International Borlaug Symposium, more popularly known as the World Food Prize. During the GYI, selected high school students from around the United States and other countries are invited by the World Food Prize Foundation to participate in the three-day event on global food security.

In 2014, seven (7) Ohio high school students who had participated in the Ohio Youth Institute and their mentor teachers, traveled to Iowa from October 16-18 to present their papers to peers, scientists, and other food security experts. In addition, they were able to interact with the former director of CIMMYT and 2014 World Food Prize Laureate, Dr. Sanjaya Rajaram, and recent Borlaug-Ruan interns who completed short term fellowships at agricultural research centers in the U.S. and around the world.

This year Elizabeth Roche, former Ohio Youth Institute and Global Youth Institute participant and current Ohio State graduate student in Plant Health Management, served as a 2014 Wallace-Carver Fellow. She completed her internship at the USDA-ARS U.S. National Arboretum Floral and Nursery Plants Research Unit in Beltsville, Maryland. The Wallace-Carver Fellowship Program is jointly funded by USDA and the World Food Prize Foundation.



Elizabeth Roche during her internship at the USDA-ARS lab in Beltsville, MD.



THE WORLD FOOD PRIZE

Global Outreach: Extension and Service

Ohio State Master Gardeners in Ecuador



"The opportunity to learn about another culture from a perspective that most tourists never have is awesome, along with the experience of traveling with other like-minded people"

Pam Bennett, State Master Gardener Coordinator

A group of sixteen (16) master gardeners from Ohio State's Extension Master Gardeners (EMG) Program visited Ecuador from February 21 - March 1, 2014 to work with indigenous communities in planting native trees and crops to effectively manage soil erosion in Ecuador's mountainous terrain. The group was led by Pam Bennett, State Master Gardener Coordinator and Chair of Clark County Extension.



A Master Gardener Volunteer works with Ecuadorian children

The group also visited Falcon Farms – a 100 acre rose plantation that exports roses to the United States, Canada, and Russia. It was fascinating for the group to see the operation's drip irrigation system and observe firsthand the post harvesting techniques practiced by more than 350 year-round workers at the operation.

The Ohio State Master Gardener Program visits Ecuador each year and works through the Tandana Foundation, a non-profit organization that offers cross-cultural volunteer opportunities, scholarships, and support for small community projects in highland Ecuador and Mali's Dogon Country.

For more information about the program in Ecuador, contact Pam Bennett at bennett.27@osu.edu.

Harold Watters in Ukraine



Harold Watters (right) with farmers in Ukraine

"I am often asked why should I help Ukrainian corn and soybean producers - because we operate in a global market in agriculture. Questions they ask there challenge my understanding, and help me better understand and deliver information for Ohio producers"

Harold Watters, Ohio State Extension Agronomist



Harold Watters, a field specialist in agronomic systems with Ohio State Extension and an assistant professor, visited Ukraine in August 2014 to assess how local farmers are addressing excessive tillage, nutrient management issues, and soybean seeding rates.

Mr. Watters' involvement in Ukraine began in 2012 when he traveled to Ukraine through a program funded by the United States Agency for International Development (USAID) to provide technical knowledge transfer to agricultural stakeholders in USAID priority countries. Harold visited Ukraine twice in 2014, and between these two visits, Harold met and discussed production practices with a total of 80 Ukrainian agronomists and farm managers. Harold's August visit was valuable in observing to what extent his recommendations had been adopted and implemented by farmers since his visit earlier in the year, and the implications stemming from these practices.

Harold was also awarded the "Volunteer of the Year" Award by Ukrainian site hosts and program participants he worked with on the ground in Ukraine.

Ohio State Extension in China

Six faculty and program educators from Ohio State Extension traveled to China in early August 2014 for two weeks to exchange knowledge and best practices on urban agriculture. Dr. Mark Erbaugh, Director, International Programs in Agriculture; Dr. Tom Worley, Director, Ohio State South Centers; Dr. Gary Gao, Associate Professor in Horticulture and Crop Science and Small Fruit Specialist; Pam Bennett, Coordinator, State Master Gardener Program; Mike Hogan, Ohio State Extension Educator; and Dave Scurlock, Viticulture Outreach Specialist, traveled to Beijing, Zhengzhou, Nanjing, and Shanghai to meet with faculty and students from the Chinese Academy of Agricultural Sciences, Henan Agricultural University and China Agricultural University to explore how China is transforming its urban food systems.



Mike Hogan and Dr. Tom Worley tour a greenhouse facility during their August 2014 visit to China

Rafiq Islam, Soil & Bioenergy Program Leader at OSU South Centers Research Station; Alan Sundermeier, Extension Educator in Wood County; and Jim Hoorman, Extension Educator in Mercer County, traveled to the Peoples Republic of China at the invitation of the Jiamusi Branch of the Chinese National Academy of Sciences from July 24, 2014 to August 5, 2014. Dr. Larry Brown, Professor in the Department of Food, Agricultural, and Biological engineering, facilitated the collaborative research and educational visit to China.

Rafiq, Alan, and Jim also delivered presentations in their respective areas of expertise, in addition to leading hands-on demonstrations for planting soybeans and cover crops.



Dr. Rafiq Islam, Alan Sundermeier, and Jim Hoorman visit a field site during their August visit to China.

Professor Jintao Zhang, Research Fellow and Director of the Sustainable Agricultural Technology Institute, accompanied the group to several experimental locations where there is ongoing research on various planting, tillage and management systems for growing soybeans, corn and rice. As a result of discussions that took place between the Ohio State Extension staff and their colleagues in China throughout the visit, a long-term research project entitled "Tillage and Cropping Systems Impact on Ecosystem Services" has now been developed for academic and applied research activities for the Jiamusi Branch of the Chinese National Academy of Sciences. Dr. Islam and others are expecting to visit China each year to further strengthen their collaborative research and educational programs.



International Visitors & Delegations

The Office of International Programs in Agriculture believes that welcoming visitors from international institutions of higher education, research, and government is crucial to establishing and enhancing the College of Food, Agricultural, and Environmental Sciences' collaborative engagement around the globe.

In 2014, the Office of International Programs in Agriculture welcomed more than 50 international faculty, administrators, and government officials to The Ohio State University to discuss potential areas of collaboration including the exchange of students and scholars, the development of memoranda of understanding, engaging in collaborative research, and other cooperative activities.



Dean Bruce McPheron greets visitors from Ningxia University in October 2014.

Highlight Visits from 2014

Indian Council on Agriculture Research, India

University of Nottingham, United Kingdom

Ningxia University, China

Instituto Federal Catarinense, Brazil

Sokoine University of Agriculture, Tanzania

Moscow State University, Russia

Universidad Autonoma de Queretaro, Mexico

University of Ghana –Legon, Ghana

Zagazig University, Egypt

Agricultural University of Tirana, Albania



Dr. Dave Benfield, Associate Director of the Ohio Agricultural Research and Development Center, meets with research scientists from the Indian Council on Agricultural Research during a March 2014 visit to Ohio State.



Dr. Gary Straquadine, Chair and Professor of Agricultural Communication, Education, and Leadership speaks with Dr. Catherine P Msuya, Head of the Dept. of Agriculture, Education, & Extension at Sokoine University of Agriculture during her January 2014 visit to Ohio State

International Agreements

International Agreements, such as Memoranda of Understanding and Memoranda of Agreement, are important facilitators of international collaborations in agricultural teaching, research, and outreach. The College of Food, Agricultural, and Environmental Sciences (CFAES) experienced another productive year in developing and signing seven (7) new agreements with higher education and research institutions in six (6) countries in 2014.

Many of these agreements are a means and/or a product of CFAES faculty engagement with international colleagues in their field of interest, and therefore an important component of developing lasting international programs in the areas of agriculture and natural resources.



The signing of these 2014 agreements brings the total number of active agreements with international partners to 28. These active agreements represent the ongoing collaborative activities between CFAES faculty and agricultural institutions of higher learning and research in 17 different countries.

As of the end of the 2014 calendar year, there are 7 agreements in the development and/or approval stages.

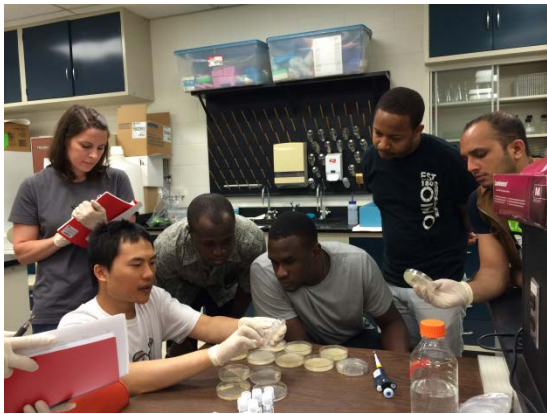
More: <http://cfaes.osu.edu/international/opportunities/international-agreements>

Memoranda of Understanding and Memoranda of Agreement newly signed in 2014

Country	Partner Institution	Type of Agreement	Date Established	Faculty Initiator
China	Hubei Academy of Agricultural Sciences	Memorandum of Understanding	2014	Mo Saif, <i>Food Animal Health Research Program</i>
Ghana	Evangelical Presbyterian University College	Memorandum of Understanding	2014	D.R. Elder, <i>Ohio State-ATI</i>
India	Indian Council on Agriculture	Memorandum of Understanding	2014	Mark Erbaugh, <i>International Programs in Agriculture</i>
Honduras	Escuela Agrícola Panamericana – “El Zamorano”	Memorandum of Understanding	2014	Luis Canas, <i>Entomology</i>
China	Jilin Agricultural University	Memorandum of Understanding	2014	Mike Klein, <i>Entomology</i>
Romania	University of Agricultural Sciences & Veterinary Medicine, Cluj-Napoca	Memorandum of Understanding	2014	Clay Sneller, <i>Horticulture and Crop Science</i>
Brazil	Universidade Federal do Paraná	Memorandum of Agreement	2014	Michael Chrisman, <i>International Programs in Agriculture</i>

Faculty Initiatives

International Conferences, Short Courses, and Workshops



Pest and Disease Diagnostics for International Trade and Food Security

Dr. Sally Miller and Dr. Luis Canas

The Ohio State University international short course “Pest and Disease Diagnostics for International Trade and Food Security” was held September 1-12, 2014 on the Ohio State OARDC campus in Wooster. The goal of the course is to provide up-to-date training on methods, tools and strategies to diagnose diseases and identify pests of important crop plants. Nine (9) trainees from different countries including Tanzania, Kenya, Ghana, and Nepal participated in the course. Visits were also made to the Ohio Department of Agriculture and local plant producers to discuss regulatory diagnostic issues. A daily blog of the course activities can be found at <http://u.osu.edu/diagnosticsshortcourse>.

International Nonthermal Processing Workshop

Dr. VM Balasubramaniam

From October 21-24, the Department of Food Science and Technology, led by Dr. VM Balasubramaniam, hosted the 2014 International Nonthermal Processing Workshop. The international event drew 170 participants to Ohio State's campus from 24 countries, and provided instruction on various nonthermal processing technologies, as well as opportunities for public-private partnerships. The conference was sponsored by the Institute of Food Technologists - Nonthermal Processing Division and the European Federation of Food Science and Technology

“CFAES nonthermal research team has been active in technology development & demonstration of various nonthermal processing methods ... Our research excellence coupled with facilities made Ohio State an excellent site for hosting this 2014 nonthermal processing workshop.”

-Dr. VM Balasubramaniam



Agricultural Extension and Food Security in Africa

Dr. Robert Agunga

Over 75 participants from 10 countries in North America, Africa, and beyond gathered at Ohio State October 20-21 to discuss the role of agricultural extension in achieving food security throughout Africa. The conference hosted 20 panel presentations, engaging participants on topics including climate change, gender, innovative extension approaches, information technology, and communication. The conference was sponsored by the Office of International Programs in Agriculture, Ohio State University Extension, Department of Agricultural Communication, Education and Leadership (ACELE), Office of Diversity and Inclusion, International Studies (UISP), and the Mereshon Center for International Security.



Faculty Scholarly Presentations Abroad

Name	Department	Presentation Title	Venue and Country
Alvarez, Valente	Food Science and Technology	Dairy Food Safety Training and Inspection	Quality Chekd Dairies Latin America Program - Colombia
		U.S. Food Safety and regulations	VII International Congress of Biochemical Engineering - Mazatlán, Mexico
		U.S. Food Safety and regulations	Mexican National Council of Science and Technology - Mexico
Balasubramaniam, V.M.	Food Science and Technology	High pressure processing	VIII International Congress of Biochemical Engineering - Mazatlán, Mexico
Barringer, Sheryl	Food Science and Technology	Use of SIFT-MS to measure breath volatile levels after food consumption	European symposium on advances in SIFT-MS - Breda, The Netherlands
Bennett, Pamela	Ohio State Extension	China-US Scientific Exchange on Urban Agriculture	Zhengzhou University, Zhengzhou, China
		Involving Volunteers in Conducting University Field Trials	2014 Korea Master Gardener International Conference - Seoul, South Korea
		The Fine Whines of Delegation	2014 Korea Master Gardener International Conference - Seoul, South Korea
Bonello, Pierluigi	Plant Pathology	Mechanisms of induced susceptibility to Diplodia tip blight in drought-stressed Austrian pine	University of Sao Paulo - Piracicaba, Brazil
		Physiological, ecological and evolutionary drivers of tree-microbe and tree-insect interactions	University of Florence, Florence, Italy
Brady, Stephen	Ohio State Extension	Authentic Leadership and Confronting Personal Bias	International Conference on Diversity in Organizations, Communities, and Nations - Vienna, Austria
Danneberger, Tom	Horticulture & Crop Science	History of Growing Degree Days	British Turf Managers Exhibition - Harrogate, United Kingdom
		Using Predictive Models in Golf Course Management	The Golf Course Superintendent Association of Malaysia - Kuala Lumpur, Malaysia
		Pigments	British Turf Managers Exhibition - Harrogate, United Kingdom
		Poa annua: Ally or Enemy	New Zealand Fine Turf Seminar - Waltangi, New Zealand
		Turfgrass Stress Seminar	British Turf Managers Exhibition - Harrogate, United Kingdom
		The use of Predictive Models in Turfgrass Management	New Zealand Fine Turf Seminar - Waltangi, New Zealand
		Ecological principles behind cultural and chemical practises for disease control	The 7th Superintendents' Conference - Malalane, South Africa
		Innovative Strategies for Controlling Dollar Spot	New Zealand Fine Turf Seminar - Waltangi, New Zealand
		Using PGRs and how GDD are being used in Timing	The 7th Superintendents' Conference - Malalane, South Africa
		Using Growing Degree-Days in Turf	Australian Golf Course Superintendents Association Conference and Show - Queensland, Australia
		Growing Turf Under Low Light Conditions	The Golf Course Superintendent Association of Malaysia - Kuala Lumpur, Malaysia
		Turfgrass Stress	Australian Golf Course Superintendents Association Conference and Show - Queensland, Australia
		Growing Turf Under Low Light Conditions	The Thailand Golf Course Superintendent Association - Bangkok, Thailand
		Using Growing Degree-Days in Turf Management	South China Turf Management Association Seminar - Hong Kong, China
		Light: Too Much and Too Little	South China Turf Management Association Seminar - Hong Kong, China
Donnermeyer, Joseph	Environment and Natural Resources	When Farmers Offend: Expanding the Concept of Green Collar Crime	Green Criminology Conference - London, United Kingdom
		The Social Organization of Rural America and Crime	Rural Crime and Community Safety Conference at the Royal Institute of Technology
Doohan, Douglas	Horticulture & Crop Science	Expert and farmer Mental Models for weed management in organic farming systems.	10th EWRS Workshop on Physical and Cultural Weed Control - Alnarp, Sweden
Erbaugh, John		Overview of the IPM IL Activities in East Africa	IPM Innovation Lab Program Meeting - Entebbe, Uganda
Gao, Yu (Gary)	Horticulture & Crop Science	Commercial Raspberry Production in the US	International Summit on Raspberry and Blueberry Production – Fengqiu, China
		High Tunnel Strawberry Production in the U.S.	Horticultural Institute Lecture Series – Taigu, China
		Commercial Raspberry Production in the US	International Summit on Raspberry and Blueberry Production - Fengqiu, China
		High Tunnel Strawberry Production in the U.S.	Horticultural Institute Lecture Series - Taigu, China
Giusti, Monica	Food Science and Technology	Anthocyanin Pigment Activity and Metabolism in the Oral Cavity	The 2nd International Congress on Food Technology - Kuşadası, Turkey
Gopalakrishnan, Sathya	Agricultural, Environmental, and Development Economics	Coastal Morpho-dynamics and Real Estate Markets: Is there evidence of residential sorting along the coastline?	World Congress of Environmental and Resource Economists - Istanbul, Turkey
	Food Animal Health Research Program	"Exploring avian host and viral determinants of susceptibility to influenza virus infection"	The Pirbright Institute, Compton Laboratory, United Kingdom

Name	Department	Presentation Title	Venue and Country
Heimlich, Joseph	Ohio State Extension	EE and behavior change: What's the connection?	An International Conference on EE Capacity: Cross Boundary and Capacity Building - Taipei, Taiwan
		Research and evaluation: What's happening in the US and around the world?	An International Conference on EE Capacity: Cross Boundary and Capacity Building - Taipei, Taiwan
		Supporting technologies for EE in this changing world	An International Conference on EE Capacity: Cross Boundary and Capacity Building - Taipei, Taiwan
Hoorman, Jim	Ohio State Extension	"Biological compaction of soil"	Jiamusi Branch of the Chinese National Academy of Sciences – Peoples Republic of China
Islam, Rafiq	OARDC – South Centers	"Sustainable Agriculture and Ecosystem Services"	Jiamusi Branch of the Chinese National Academy of Sciences – Peoples Republic of China
		"Developing educational and research collaboration between the Ohio State University & the Chinese National Academy of Sciences"	Jiamusi Branch of the Chinese National Academy of Sciences – Peoples Republic of China
Jackwood, Daral	Food Animal Health Research Program	Effects of infectious bursal disease virus on poultry production	63rd poultry Disease Conference & XXXIX Convencion Annual ANECA - Puerto Vallarta, Mexico
		"Molecular epidemiology of infectious bursal disease viruses: The evolution of antigenicity and pathogenicity"	Boehringer Ingelheim Conference on Poultry Disease - Puerto Vallarta, Mexico
		"Effects of infectious bursal disease virus on poultry production in Latin America"	XXXVI Avimex Meeting on Avian Health - Mexico City, Mexico
Jones, Eugene	Agricultural, Environmental, and Development Economics	Consumer Preferences for National Brands and Private Labels: Do Business Cycles Matter?	National Brands and Private Labels in Retailing - Barcelona, Spain
Jones, Michelle	Horticulture & Crop Science	Ornamental horticulture in the global greenhouse: postharvest symposium	29th International Horticultural Congress - Brisbane, Australia
Jourdan, Pablo	Horticulture & Crop Science	Defining gene pools to enhance cultivated Phlox: Development and characterization of wild germplasm for use in interspecific hybridization between an ornamental crop and its wild relatives.	Enhanced Genepool Utilization, PGR Secure - Cambridge, United Kingdom
		Germplasm characterization and enhancement for Phlox, Rudbeckia and Coreopsis	International Horticultural Congress - Brisbane, Australia
Klaiber, Henry Allen	Agricultural, Environmental, and Development Economics	Evading Invasives: How Eurasian Water-Milfoil Affects the Development of Lakefront Properties	World Congress of Environmental and Resource Economists
Kumarappan, Subramanian	Ohio State ATI	Recent Topics in Social Media Marketing	Department of Agriculture and Rural Management, Tamil Nadu Agricultural University - Coimbatore, India
		Export opportunities for Indian spices	Faculty of Agriculture, Annamalai University
Lal, Rattan	Environment and Natural Resources	"Climate Strategic Agriculture"	Indian Institute of Soil Science - Bhopal, India
		"Soil Carbon Sequestration and Climate Change Mitigation"	Istanbul Carbon Summit - Istanbul, Turkey
		"The Soil--Peace Nexus: Our Common Future"	20th World Congress Soil Science - Jeju, Korea
		The Role of Soil Scientists in Addressing Global Issues of Anthropocene and Climate Strategic Agroecosystems	20th World Congress Soil Science - Jeju, Korea
		Carbon Capture and Sequestration – Role of Agriculture and Soils	18th CIGR World Congress - Beijing, China
		Innovative technologies for soil carbon sequestration to advance food security and mitigate climate change	12th Meeting of the FACCE--JPI, SAB - London, United Kingdom
		Achieving Global Peace and Environment Quality Through Sustainable Intensification.	Rotary International - Ski, Norway,
		Tenets of Soil Quality Management in South Asia.	International Conference on Forests, Soil and Rural, Livelihoods in a Changing Climate - Kathmandu, Nepal
		Managing Soil Carbon	Latin American Congress on Soil Science - Cusco, Peru
		Soils and Ecosystem Services	Role of Agriculture in Providing Ecosystem and Societal Services - Moldova
Lee, Jiyoung	Food Science and Technology	Arcobacter: An emerging gastrointestinal pathogen, transmission dynamics in water and human health risks.	Yanbian University of Science and Technology - Yanji, China
Lee, Ken	Food Science and Technology	Industry academic and government partnership through food innovation	United Arab Emirates University - Al Ain, United Arab Emirates
		Food innovation abroad	United Arab Emirates University - Al Ain, United Arab Emirates
LeJeune, Jeff	Food Animal Health Research Program	Delivering Vegetable Safety Education in Latin America	Nicaragua
		Delivering Vegetable Safety Education in Latin America	Zamorano University - Honduras
Lekies, Kristi	Environment and Natural Resources	Connecting young children with nature: An assessment of opportunities at early childhood centers	European Early Childhood Education Research Association – Crete, Greece
Li, Yebo	Food, Agricultural, and Biological Engineering	Research and Development of Bioenergy and Bioproducts	Chinese Academy of Agricultural Mechanization Sciences - China
		Production of Bioenergy and Bioproducts from renewable sources	Chemical and Energy Institute, Zhengzhou University - China
		Fungal pretreatment of lignocellulosic biomass for biofuels production	Chemical and Energy Institute, Huazhong University of Science and Technology – China
		Research and development in bioenergy	Chemical and Energy Institute, Huazhong Agricultural University – China
Mackey, David	Horticulture & Crop Science	Targeting of specific isoforms of PP2A by a conserved family of type III effector proteins	XVI International Congress on Molecular Plant-Microbe Interactions - Rhodes, Greece
Madden, Laurence	Plant Pathology	Meta-analysis for the synthesis of evidence	University of Salzburg - Salzburg, Austria

Name	Department	Presentation Title	Venue and Country
Mercer, Kristin	Horticulture & Crop Science	Challenges for crop landraces in an era of climate change: the case of maize in Mexico	National Autonomous University of Mexico - Mexico City, Mexico
Miller, Sally	Plant Pathology	Biology and Management of Bacterial Canker in Tomato	IV International Symposium of Plant Pathogenic Bacteria
		The International Plant Diagnostics Network: A 10-Year Review	IPM Innovation Lab Technical Committee Meeting
		The Problem of Invasive Plant Pathogens in the Tropics	Invasive Species Identification and Management in the Tropics - Dakar, Senegal
		Ralstonia solanacearum in Solanaceous Vegetables: History and Current Understanding of the Pathogen	Workshop on Invasive Species Identification and Management in the Tropics - Dakar, Senegal
		IPDN in South Asia	IPM IL Regional Planning Meeting, TERI - Delhi, India
		IPDN in West Africa	IPM IL Regional Planning Meeting, CSIR - Kumasi, Ghana
Miranda, Mario	Agricultural, Environmental, and Development Economics	Drivers of World Grain markets in the Short and Long run	2nd International ZEF-IFPRI Workshop on Food Price Volatility and Food Security, Bonn, Germany
		Coupled Credit and Index Insurance Contracts and Farm Technology Adoption.	AFRACA International Fin4Ag Conference on Revolutionizing Finance for Agrivalue Chains, Nairobi, Kenya
		Using Weather Index Insurance to Promote the Efficiency of Agricultural Credit Markets in Developing Countries	Sokoine University of Agriculture, Morogoro, Tanzania
		Effects of Southern Hemisphere Production on Stocks, Trade and Prices	2nd International ZEF-IFPRI Workshop on Food Price Volatility and Food Security, Bonn, Germany
Mitchell, Thomas	Plant Pathology	Genome based approaches for studying fungal-plant associations	50 OSU-Brazil Collaboration Scientific Symposium
		Characterization of a fungal pectin lyase that may be functioning as an effector of plant defense	8th Tripartite Workshop of Sustainable Technology Innovations
Moore, Richard		The Mental Mapping of Amish Farming Production, Social Organization, and Nature in Ohio	Department of Resource and Environmental Economics, Tohoku University - Sendai, Japan
Ozkan, Erdal	Food, Agricultural, and Biological Engineering	Plant canopy characteristics effect on spray deposition.	Oxford University - Cambridge, United Kingdom
		Effect of application equipment on biological efficacy of biopesticides	National Biocidal Congress with International Participation - Antalya, Turkey
Partridge, Mark	Agricultural, Environmental, and Development Economics	International Trade and Local Labor Markets: Are Foreign and Domestic Shocks Created Differently?	2nd International Spatial Dimensions of the Labour Market: The Relocation of Jobs. IAB/RCEA/ZEW, Nuremberg, Germany,
		Place Based or Geographically Targeted Policies and Their Effectiveness	3rd International Regional, Urban, and Spatial Economics Conference, Fudan University, Shanghai, China
		International Trade and Local Labor Markets: Are Foreign and Domestic Shocks Created Differently?	International Economics Workshop, Tinbergen Institute, Amsterdam, Netherlands
		Smart Cities and Attracting Knowledge Workers: What Cities Attract Highly Educated Workers in the 21st Century?	Sun Yat Sen University, Guangzhou, China
		Local Labor Market Flexibility in a Perceived Low Migration Country: The Case of French Labor Markets	Sun Yat Sen University, Guangzhou, China
		Using Agglomeration Economies in a Policy Context	Organization of Economic Cooperation and Development (OECD) Regional Policy Group - Paris, France,
Piermarini, Peter	Entomology	The molecular mechanisms of 'kidney' function in mosquitoes: towards novel vector control strategies	Instituto de Biotecnología y Ecología Aplicada, Universidad Veracruzana - Xalapa, Mexico
Qu, Feng	Plant Pathology	Why do virus-infected cells prohibit the invasion of the same virus?	China Agriculture University - Beijing, China
		Mechanistic insights of viral super-infection exclusion	Peking University - Beijing, China
		How different isolates of plant viruses discriminate each other in infected cells?	Beijing Vegetable Research Institute - Beijing, China
		A prion-like structural switch underlines superinfection repression of a plant virus	Tsinghua University Virus-Plant Interaction Research Program Seminar
Rodriguez-Saona, Luis	Food Science and Technology	Global and regional consumer trends and behaviours	The 2nd International Congress on Food Technology - Kuşadası, Turkey
		Portable FT-IR spectrometers – Becoming a reality for the food industry	The 2nd International Congress on Food Technology - Kuşadası, Turkey
Roe, Brian	Agricultural, Environmental, and Development Economics	"Measuring the Risk Attitudes of Farmers: Is it Time to Just Ask?"	Annual Meeting, French Society of Rural Economics - Grenoble, France
Sam, Abdoul	Agricultural, Environmental, and Development Economics	Heterogeneous Effects of Maternal Labor Market Participation on Nutritional Status of Children: Empirical Evidence from Rural India	International Association for Applied Econometrics
		The implications of environmental policy on nutrient outputs in agricultural watersheds	Fifth World Congress of Environmental and Resource Economists – Istanbul, Turkey
		The Role of Gender on Fertilizer Adoption in Uganda	Department of Agricultural Economics and Agribusiness, Sokoine University of Agriculture – Morogoro, Tanzania
Sastry, Sudhir	Food, Agricultural, and Biological Engineering	Research Methods in Food Engineering	Federal University of Rio Grande do Sul - Porto Alegre, Brazil
		In-situ Measurements During High Pressure Processing	Chilean Student Congress of Chemical Engineering - Valparaiso, Chile
		The Physics and Engineering of Fresh Produce Safety.	UNISINOS - Porto Alegre, Brazil
		Ohmic and Moderate Electric Field Processing	State University of Campinas (UNICAMP) Campinas, SP, Brazil
		Advanced Thermal and Nonthermal Food Safety Technologies: Academic Perspective and Further Research.	Federal University of Rio Grande do Sul, Department of Food Science and Technology (ICTA), Porto Alegre, Brazil

Name	Department	Presentation Title	Venue and Country
		Ohmic and Moderate Electric Field Processing	Federal University of Rio Grande do Sul, Department of Chemical Engineering, Porto Alegre, Brazil
		The Role of Engineers in Assuring Food Safety.	Federal University of Rio Grande do Sul - Porto Alegre, Brazil
		Quality and Health Aspects of Foods Processed using Ohmic (and Other Alternative) Methods.	Medical University of Rio Grande do Sul, Porto Alegre, Brazil
		The Physics and Engineering of Fresh Produce Safety.	VIII International Congress of Biochemical Engineering - Mazatlan, Mexico,
		So You Want to be an Academic?	Federal University of Rio Grande do Sul - Porto Alegre, Brazil
		The Physics and Engineering of Fresh Produce Safety.	University of Sao Paulo - São Paulo, Brazil
		Ohmic and Moderate Electric Field Processing	University of Bio-Bio - Chillan, Chile
Schwartz, Steven	Food Science and Technology	Metabolomics of tomato bioactive compounds	29th International Horticultural Congress - Brisbane, Australia
		Carotenoid Research at The Ohio State University.	University of Costa Rica - San Jose, Costa Rica
		Absorption and Metabolism of Carotenoids from Food	7th International Conference and Exhibition on Nutraceuticals and Functional Foods - Istanbul, Turkey
		Metabolomics of Tomato Bioactive Compounds	29th International Horticultural Congress - Brisbane, Australia
		Innovation through Collaboration between Academia and Industry	School of Food Technology, University of Costa Rica - San Pedro, Costa Rica
		Mushroom germplasm diversity in two forests in Ghana	8th Annual Conference on Mushroom Biology and Mushroom Products - New Delhi, India
		In vitro bioaccessibility of phenolic compounds of cooked Thai red non-glutinous rice and antioxidant activity	18th World Congress on Clinical Nutrition: Agriculture, Food and Nutrition for Health and Wellness - Ubon Ratchathani, Thailand
		Food-based strategies for chemoprevention: tailoring food vehicles for localized and systemic delivery of berry compounds in clinical trials,	Food Structure and Functionality Forum Symposium - Amsterdam, The Netherlands
Sheldon, Ian	Agricultural, Environmental, and Development Economics	How will China maintain its international competitiveness?"	El Instituto Tecnológico y de Estudios Superiores de Monterrey, Guadalajara, Mexico,
		"Climate Policy and Border Tax Adjustments: The Case of the North American Aluminum Industry,"	World Congress of Environmental and Resource Economists, Istanbul, Turkey,
		"Selection, agglomeration and firm productivity in Taiwan: What impact on the high-tech sector?"	IAMO Forum 2014, Halle, Germany
Sohnen, Brent	Agricultural, Environmental, and Development Economics	The Implications of Environmental Policy on Nutrient Outputs in Agricultural Watersheds.	Annual Meetings of the Australian Agricultural and Resource Economics Society - Port Macquarie, Australia
		The Impact of Cropland Productivity on Crop Prices, Deforestation, and Carbon Sequestration Costs	17th Annual Conference on Global Economic Analysis - Dakar, Senegal
		Lectures on Adaptation of the Forest Sector to Climate Change	EARE-FEEM European Summer School on The Economics of Adaptation to Climate Change - Venice, Italy
Sundermeier, Alan	Ohio State Extension	"Over-seeding cereal rye in soybean production"	Jiamusi Branch of the Chinese National Academy of Sciences – Peoples Republic of China
Thompson, Stanley	Agricultural, Environmental, and Development Economics	"This Land is Your Land, This Land is my Land: Who Benefits from Agricultural Subsidies"	The University of Natural Resources and Life Sciences (BOKU) - Vienna, Austria,
		"The Agricultural Adjustment Act of 2014"	Technical University of Munich – Munich, Germany
Wang, Guo-Liang	Plant Pathology	Current advances in dissecting rice resistance to M. oryzae	Nanjing Agricultural University – Nanjing, China
		New insights into the innate immunity against M. oryzae in rice	The annual meeting of China Society of Plant Biologists
		Current advances in dissecting rice resistance to M. oryzae	State Key Lab Workshop
		Molecular dissection of the rice-M. oryzae interaction	MSU-CAAS Workshop
		Genetic dissection of the rice immunity to pathogens	Sichuan Agricultural University - Ya'an, China
		Molecular dissection of the rice-M. oryzae interaction	Hunan Agricultural University - Changsha, China
		Molecular dissection of the rice-M. oryzae interaction	South China Agricultural – Guangzhou, China
		Mechanisms of Ubiquitination-mediated Programmed Cell Death and Innate Immunity in Rice	China Agricultural University – Beijing, China
Wang, Qihong	Food Animal Health Research Program	Molecular characterization, isolation and pathogenesis of US PEDV strains	Harbin Veterinary Research Institute, Chinese Academy of Agricultural Sciences
		Molecular characterization, isolation and pathogenesis of US PEDV strains	College of Animal Science and Veterinary Medicine, Henan Agricultural University

Awards and Recognition

The International Engagement Awards were established by the Office of International Affairs and the Office of Outreach and Engagement to recognize faculty and staff at The Ohio State University who have rendered exceptional international outreach and/or engagement. International engagement is defined as international research, teaching or service functions that impact communities in the United States or around the world. In 2014, the recipients of the two International Engagement Awards were both from the College of Food, Agricultural, and Environmental Sciences.

Ohio State University's Distinguished International Engagement Award

Dr. Herb Ockerman - International book shipments and training international students

"Outstanding Achievement in and Commitment to International Outreach and Engagement"



Dr. Herb Ockerman

A project founded and led by Dr. Herb Ockerman, Professor in the Department of Animal Sciences, for almost 50 years involves shipping approximately 36,000 books in a container twice a year to schools around the world. Dr. Ockerman collects books from numerous book stores, shipping establishments, and from members of the public before then cleaning, inventorying, boxing and stacking the books in boxes for shipment. Ohio State personnel, neighbors, and others assist Dr. Ockerman in loading the containers. The books are shipped to Ohio State alumni to place in their university libraries. For this project, Dr. Ockerman has a library named in his honor and has received two honorary degrees and numerous plaques from universities and governments around the world.

Ohio State University's Emerging International Engagement Award

Innovative Agricultural Research and Development Initiative, iAGRI

The Office of Outreach and Engagement at The Ohio State University awarded the University's 2014 Emerging International Engagement Award to iAGRI - the Innovative Agricultural Research Initiative - on May 1, 2014 at the Outreach and Engagement Recognition Ceremony at the Ohio Union.

The award is given each year to a project or organization that has "demonstrated outstanding promise in international outreach and engagement...and has the potential for long-term impact, achievement and scholarship."

The award was accepted by Dr. Mark Erbaugh, Director of International Programs in Agriculture and the iAGRI Project's Administrative Director, and Dr. David Hansen, iAGRI Project Coordinator.



From Left: Dr. Kelechi Kalu, Dr. Mark Erbaugh, Director of the Office of International Programs; Dr. David Hansen; Dr. Esther Gottlieb; & Dr. Valerie Lee.

Gamma Sigma Delta's International Award of Merit



Dr. Lynn Knipe

Dr. Lynn Knipe, Associate Professor in the Department of Food Science and Technology and the Department of Animal Sciences, was the 2014 recipient of the International Award of Merit, awarded by the Gamma Sigma Delta chapter at Ohio State. Dr. Knipe has traveled extensively to countries in Asia and Central America to promote meat safety, improve quality in meat handling and processing, and to support Ohio State students in study abroad opportunities. Dr. Knipe has conducted meat processing short courses for the Asian Meat Industry in Singapore and has also taught programs in Costa Rica, South Korea, and the Philippines.

Gamma Sigma Delta is an international honor society for agricultural professionals, which was founded at The Ohio State University in 1905. The organization currently has 52 chapters throughout the U.S. and in Honduras, Puerto Rico, and the Philippines.

2014 Fulbright Programs

Dr. Khandakar Rafiq Islam, a research scientist and Ohio State Extension program leader in soil and water resources at OSU South Centers, was a 2014 recipient of a Fulbright Teaching Fellowship. His proposal, "Bridging Opportunities for Educational Collaboration with Turkey" allowed him to teach two courses - "Soil Research Methodology and Interpretation" at the graduate level and "Soils in Our Environment" at the undergraduate level (38 students) - for one semester, September 15, 2014 to January 31, 2015 at the Department of Soil Science and Plant Nutrition at Cukurova University in Adana, Turkey. In addition to teaching, he guided/mentored graduate student research on sustainable management of crop, soil and water resources.

The Fulbright Scholar Program, is funded through the U.S. Department of State's Bureau of Educational and Cultural Affairs, and has offered faculty and students at U.S. higher education institutions with opportunities for international teaching, learning, and research since 1946.



Dr. Rafiq Islam (far left) with faculty and students at Cukurova University

International Union of Soil Scientists



Dr. Rattan Lal, Distinguished Professor of Soil Science in the School of Environment and Natural Resources was selected as President-elect of the International Union of Soil Scientists, with his term as President beginning in 2016.

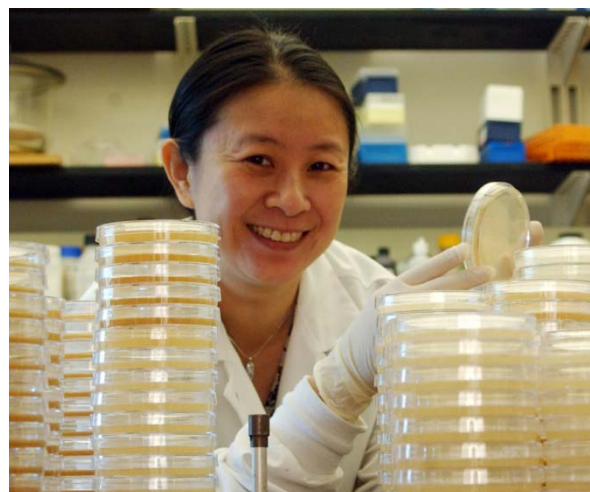
The International Union of Soil Sciences (IUSS) is the global union of soil scientists. The objectives of the IUSS are to promote all branches of soil science, and to support all soil scientists across the world in the pursuit of their activities.

Dr. Rattan Lal, Environment and Natural Resources

Global Innovation Initiative

Dr. Hua Wang, Associate Professor in the Department of Food Science and Technology, received a \$250,000 grant through the Global Innovation Initiatives. She is the principal investigator on the project, "Innovative Strategies to Control the Dissemination of Antibiotic Resistance in the Global Ecosystem." Professor Michael Lilburn and Associate Professor Zhongtang Yu, both of the Department of Animal Sciences, also will work on Dr. Wang's team.

The Global Innovation Initiative, funded by the U.S. Department of State, the United Kingdom's Department of Business, Innovation and Skills, and the British Council, was initiated in October 2013 in order to "foster cutting-edge multinational research and strengthen institutional international partnerships". Dr. Wang will partner with universities in the UK, Brazil and China to meet the mission of addressing this topic of "global significance"



Dr. Hua Wang, Food Science and Technology

Ohio State *Discovery Themes*

Discovery Themes owe their existence to a 2008 planning retreat at which faculty, staff, students, and other university leaders considered the world's most pressing challenges and Ohio State's role in addressing them. The College of Food, Agricultural, and Environmental Sciences' (CFAES) research priorities align closely with the three *Discovery Themes* - Food Production and Security, Energy and Environment, and Health and Wellness. The college has been involved substantially in the formulation of multiple research proposals throughout the first and second rounds of the *Discovery Themes*' focus areas. Additionally, 14 of the 93 newly approved faculty positions through the *Discovery Themes* Initiative will reside within CFAES and contribute to the college's continued excellence in conducting multi-disciplinary research. Below is a glimpse of a few CFAES research units who were pivotal in advancing the global reach of the *Discovery Themes* in 2014.

Food Production and Security



Energy and Environment



Health and Wellness



Carbon Sequestration and Management Center (CMASC)

The CMASC is housed within the School of Environment and Natural Resources and directed by Dr. Rattan Lal, Distinguished Professor of Soil Science. CMASC's mission is to provide comprehensive, interdisciplinary research on terrestrial carbon management and sequestration techniques and technologies in the fields of agriculture, forestry, agroecology, water management, bioenergy crops, nutrient cycling and waste management.

In 2014, Dr. Lal hosted 23 visiting scientists at CMASC from 5 different countries including India, China, and Brazil. In all, he and his CMASC colleagues published nearly 50 journal articles and two (2) edited books, and contributed to 22 book chapters in 2014.



Dr. A. Velmurugan, Central Island Agricultural Research Institute, India – Visiting Scholar at CMASC

Bioproducts and Bioenergy Research Laboratory

Dr. Yebo Li, Associate Professor in Food, Agricultural, and Biological Engineering, leads the lab in its effort to develop advanced technologies for the production of bioenergy and bioproducts from renewable sources that can be commercialized by industry partners.

Dr. Li's lab is staffed by numerous international researchers. In all, 11 students and visiting scholars from China and Colombia are engaged in developing products manufactured from renewable materials.

Most recently, Dr. Li has been working collaboratively with colleagues in the Philippines. Together they have submitted a proposal to examine the production of biofuels, power and chemical by-products from sweet sorghum in the Philippines.



Dr. Yebo Li, Associate Professor

Food Animal Health Research Program

The Food Animal Health Research Program (FAHRP) is a jointly administered research unit between the College of Food, Agricultural, and Environmental Sciences and the College of Veterinary Medicine at Ohio State. Located on the OARDC campus, FAHRP is led by Dr. Jeff LeJeune and conducts cutting-edge research focused on animal diseases and their implications for food safety and overall human health.

Eight (8) full time faculty and researchers within FAHRP are internationally engaged and hosted nine (9) international visiting scholars from 5 different countries including China, India, Egypt, Nigeria, and Tanzania in 2014.



Dr. Chang-Won Lee, Assistant Professor

2014: Stories of Success



Teaching



Research



Outreach

iAGRI PhD Student, Rita Mirondo, works to advance food processing in Tanzania

Rita was sitting at a corner workspace for graduate students on the 3rd floor of Parker Hall, intently studying for her upcoming final exams. Though she had been situated in the same spot for some time, it was obvious that a great amount of studying still lay ahead of her.

She was tired, but focused, and determined as ever to attain the best final grades she could. Such can be said for Rita's overall attitude towards her academics and research.

Rita Mirondo, originally from Dar es Salaam, Tanzania - is currently a PhD student in the Department of Food Science and Technology at Ohio State University's College of Food, Agricultural, and Environmental Sciences. She also is a sponsored student through iAGRI - the Innovative Agricultural Research Initiative - a major food security project funded by the United States Agency on International Development (USAID) and led by The Ohio State University' Office for International Programs in Agriculture. The overall objective of iAGRI is to strengthen the teaching and research capacity of Sokoine University of Agriculture (SUA) and Tanzania's Ministry of Agriculture, Food Security, and Cooperatives (MAFC) through long term degree training and collaborative research. Five other U.S. land grant universities are involved in the iAGRI project as well, accepting Tanzanian students into their graduate programs and involving faculty in collaborative research projects with SUA.

In 2012, Rita was one of seven Tanzanian students placed at Ohio State to complete a graduate degree. She had previously worked in the MAFC after completing both her undergraduate and masters education in food science in Tanzania. Since arriving at Ohio State, she has been working with her advisor, Dr. Sheryl Barringer, Professor and Interim Chair of the Department of Food Science and Technology, who specializes in food processing, specifically for fruits and vegetables.

Rita's interest in fruit and vegetable processing is of great importance to her home country of Tanzania. Tanzania produces vast quantities of fruits and vegetables, but lacks the capacity to preserve and process them for later consumption and value addition.

"This constraint raises issues of not only food safety, but the inability to export these products to foreign markets on a larger scale," explains Dr. Barringer.



Rita Mirondo, iAGRI-sponsored Ph.D. student at The Ohio State University in Food Science and Technology

"Given the extent of post-harvest loss that Tanzanian farmers experience, a superior understanding of processing is needed to ensure safe consumption, maintain food quality, and add value to food products that might otherwise go to waste."

Currently Rita is examining how different methods of processing tomatoes affect the quality of tomato juice. A part of this analysis is how removing or not removing the peel of a tomato affects quality, or how hot and cold breaking – two types of thermal treatments – affect the activation of enzymes in tomatoes that contribute to juice quality, and therefore consumer desirability.

"Essentially there are tradeoffs with all of these different processing methods, and Rita's objective is to find a balance between producing a product that is safe for consumption and a quality level desired by the consumer," explains Dr. Barringer.

Exploring product quality, Rita shared, is one of the most exciting aspects of her research, because it relates to an observable difference in the nature of food industry in the United States compared to Tanzania.

"In the U.S. there is the obvious element of competition through the sheer number of varieties available to choose from. And in spite of the vast variety of products already in the market, there is



still a drive to be innovative and produce a better product.”

She added that this notion isn't as evident in Tanzania, where there are often only one or two kinds of a particular product, but that her research could certainly change that trend while simultaneously lowering the costs of production.

“I want to put my knowledge into action,” exclaims Rita. “I don’t plan to keep knowledge I’ve acquired to myself.”

Dr. Barringer said that Rita will be more than equipped to make an impact in her field because of her time at Ohio State. The Department of Food Science and Technology has enjoyed a strong relationship with the food industry in Ohio for decades, priding itself on providing instruction and research that has a practical significance to those in the field of food science.

“We’re very applied here,” says Dr. Barringer, “I may not have a long list of academics that our program has turned out, but I can give you an extensive list of alumni that have ascended the ranks to become company vice-presidents and industry leaders”.

She explains that this bodes well for Rita, who will be able to take the skills she’s acquired at Ohio State and use them to nurture private sector growth in Tanzania.

Rita is planning to extend her research beyond tomatoes next month when she will begin similar analyses on mangos, a fruit that is very popular in Tanzania and is experiencing a greater demand partly because of the high concentration of cancer-fighting antioxidants.

“Everyone wants to be healthy,” says Rita, adding that Tanzanians are no exception and that they’re beginning to gravitate towards juices and foods higher in lycopene, mangiferin, and other nutrients that neutralize free radicals.

With all of the different varieties of mangos and other fruits, coupled with advanced processing methods, Rita’s confident that an interest in a healthier lifestyle will be an impetus to produce different types of fruit and vegetable juices for everyday Tanzanians to purchase.

The determination and hard work that Rita has invested up to this point speaks for itself. This past July, she sat on a Feed the Future panel moderated by former U.S. Secretary of Agriculture, Dan Glickman and keynoted by current USAID Administrator, Dr. Rajiv Shah. She impressed the audience with her knowledge of the important impacts Feed the Future is having and will continue to have on Tanzanian agriculture through the iAGRI project. More recently in March, she placed second in the PhD student division of the Ohio Valley Section’s Institute of Food Technologists research poster contest.

With more than 80% of women in Tanzania working in agriculture, an increase in the number of women entering Rita’s field of food processing in Tanzania isn’t surprising and is something that she’s observed herself. Continuing to foster an interest in food processing among women is something that she specifically wants to devote herself to after completing her PhD and returning to Tanzania so that young women can realize their professional aspirations as she is doing now.



Drawing to a close at the end of our meeting, Rita mentioned that the person she is today is not the person she was when she began at Ohio State almost two years ago. She’s matured academically, professionally, and personally. She makes a point of expressing her appreciation for the opportunities iAGRI has afforded her, and also what impacts projects like it can have for other Tanzanians eager to further their education in the area of agriculture.

“There are so many people in Tanzania who are passionate about agriculture,” says Rita, “If more people have the chance to become involved in opportunities like iAGRI, then we have the potential to significantly improve agricultural systems in Tanzania.”

International Researchers & Ohio State Faculty Collaborate to Improve Food Security, Carry on the Legacy of Norman Borlaug

Ohio State University's College of Food, Agricultural, and Environmental Sciences was honored to host four distinguished international researchers recently through the U.S. Department of Agriculture's Norman E. Borlaug International Agricultural Science and Technology Fellowship Program. The fellowships, which were awarded to and administered through the College's Office of International Programs in Agriculture, were instrumental in not only providing these international researchers with knowledge and practical skillsets needed to advance their respective disciplines in their home countries, but also exposed the fellows' faculty mentors at Ohio State to issues affecting agricultural researchers and professionals outside of the United States.

"This particular program provides another excellent opportunity for Ohio State and our faculty to build collaborative research linkages with strong agricultural scientists from around the world," shared Dr. Mark Erbaugh, Director of the International Programs in Agriculture.

Of the latest cohort of Borlaug fellows who completed their 3 month fellowships at Ohio State between August 2013 and July 2014, 1 fellow was from Bangladesh, 1 from Tunisia, and 2 from Ghana.



Kwame Frimpong, Ghana, in the field at the Triplett-Van Doren Plots.



Emmanuel Amoakwah completing fieldwork near Piketon, OH.

Land Systems and Soil Quality in Ghana

During their Borlaug Fellowships, Kwame Frimpong of the University of Cape Coast and Emmanuel Amoakwah of the Soil Research Institute (CSIR) in Ghana worked in the areas of soil science and land systems, respectively. Dr. Warren Dick, Professor in the School of Environment and Natural Resources, served as Kwame's advisor and is accustomed to mentoring many international fellows and students in his lab at the Ohio Agricultural Research and Development Center (OARDC) in Wooster, OH. In Dr. Dick's lab, Kwame examined how the use of biochar can improve soil quality, in addition to contributing to Dr. Dick's continued research in the area of no-tillage systems. Conducting such research was especially valuable for Kwame given that Ohio State's Triplett-Van Doren plots at OARDC are credited with being the longest continuously maintained no-till plots in the world.

Dr. Rafiq Islam, Research Scientist at Ohio State - South Centers Research Station in Piketon, OH, served as Emmanuel's mentor and eagerly engaged him in a multitude of agricultural projects and events. The pair even traveled out to the World Food Prize last October, where Emmanuel delivered a presentation on agriculture in Ghana and the impacts of climate change on agricultural production.

"It was an astonishing experience, one that will remain an indelible memory of my time in the U.S.," admits Emmanuel, who considered it a privilege to speak to an audience of renowned scientists and faculty members, not to mention other Borlaug fellows completing their fellowships at other U.S. universities.

Both Dr. Dick and Dr. Islam are currently planning a workshop in Ghana next May with Emmanuel and Kwame to provide training in the area of sustainable agriculture to Ghanaian students, researchers, and farmers.

Preserving Crop Biodiversity in Tunisia

Coming from an institution that was only founded in 2007, Mohamed Dridi was eager to come to Ohio State to work with faculty and researchers who have been involved in seed research for decades. His home institution, the National Gene Bank of Tunisia (NGBT), seeks to improve agriculture in Arab and African



Mohamed Dridi, Tunisia

countries through the collection, identification, and conservation of more than 200,000 genetic samples (i.e. tissue, pollen, semen, etc.) of plant, animal, and microbial specimens. By studying and protecting these genetic resources, agricultural biotechnologists like Mohamed can promote genetic diversity that will ultimately have positive effects for plant breeding and overall crop improvement.

For his fellowship, Mohamed worked with Dr. Pablo Jourdan, Professor in the Department of Horticulture and Crop Science and Director of the Ornamental Plant Germplasm Center (OPGC) at Ohio State. During Mohamed's time here, he became more proficient in methods of germplasm acquisition, documentation, characterization, and evaluation – skills that will not only strengthen his own potential, but will also allow him to effectively train his colleagues at the NGBT in these methods as well.

Mohamed was also fortunate enough to visit the National Center for Genetic Resources Preservation in Fort Collins, Colorado – one of the world's largest gene banks that sits on the campus of Colorado State University and is managed by the U.S. Department of Agriculture's Agricultural Research Service.

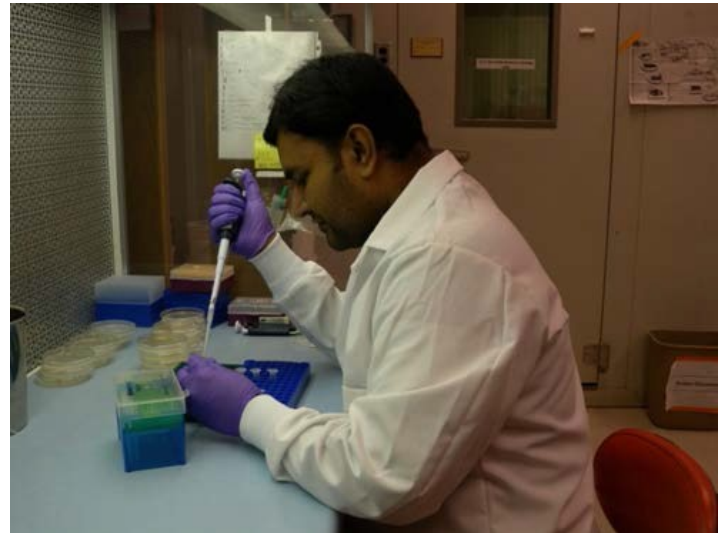
Promoting Plant Health in Bangladesh

Despite the negative connotations that arise from hearing the word "bacteria," there are many positive ways in which bacteria benefit agricultural production, and that is just what Mostofa Kamal of Bangladesh researched from April-June 2014 in the lab of Dr. Brian McSpadden Gardener, Professor in the Department of Plant Pathology. At OARDC, Mostofa examined the genetic makeup of a variety of bacteria in an effort to identify types that could potentially suppress plant pathogens through biological processes, thereby lessening the dependence on conventional, chemical pesticides.

"Demand for biopesticides has continued to expand dramatically in the last five years," says Mostofa. "Therefore, basic research into the diversity and activity of biocontrol microbes will continue to be needed."

This need cannot be underscored enough as, according to Mostofa, farmers in Bangladesh and other developing countries have experienced yield losses up to 50% as a result of some crop diseases, compromising the countries' food security and stifling economic growth.

Near the end of his fellowship, Mostofa was notified by his home institution – the Bangladesh Agricultural Research Institute (BARI) – that he was being promoted to Senior Scientific Officer in Plant Pathology. Through this promotion he hopes to formulate effective responses to complex plant health issues, in addition to developing agri-food systems that are economically viable and that simultaneously promote environmental health.



Mostofa Kama, Bangladesh

Norman E. Borlaug, the 20th century agronomist credited with saving millions in developing countries from starvation, fervently believed in the important role that applied research played in improving agricultural production in the developing world. Once famously stating that "There are no miracles in agricultural production", Dr. Borlaug proposed that it was the work of dedicated scientists who collaborated to find practical agronomical solutions that ultimately put food into mouths of the world's most hunger stricken populations.

There's no doubt that the knowledge and skills that these four fellow's acquired over their 3 month fellowship will immensely help them and their home institutions' efforts to tackle the most pressing agricultural issues in developing regions. The College of Food, Agricultural, and Environmental Sciences looks forward to continuing its participation in the USDA Borlaug Program and building upon the foundation of collaborative research that Norman Borlaug laid for all of us years ago.

Ohio State Alumni Association Supports Sokoine University of Agriculture's Drive to Build Stronger Alumni Relations

When one hears the word convocation, a number of meanings or associations may come to mind. While many may associate the term with a ceremony that celebrates the academic journey on which a new freshman class is about to embark, convocation implies a totally different meaning in Tanzania, referring to its programmatic outreach to the alumni of a university. Put simply, Tanzanians understand convocation the way in which we understand alumni relations in the United States.

Though we may find this interpretation of convocation perplexing, Tanzanians, especially those at the Sokoine University of Agriculture (SUA) in Morogoro, Tanzania, are in the process of trying to revitalize their convocation. SUA currently is at a crossroads with respect to its methodology of engaging alumni – extensive improvements are obvious and desired, but no clear strategy is being employed to facilitate that positive change. It's for this reason that Mr. Andy Gurd, Chief Operating Officer at The Ohio State University Alumni Association, recently traveled to Morogoro to meet with administrators in an effort to assess SUA's current alumni outreach programs and to offer practical recommendations to enhance alumni involvement in the future.

The Ohio State University, through the Office of International Programs in Agriculture in the College of Food, Agricultural, and Environmental Sciences, has been working closely with SUA since 2011 through the Innovative Agricultural Research Initiative, or iAGRI. The iAGRI project is a major food security project funded by USAID and seeks to improve SUA's teaching and research capacity, as well as Tanzania's Ministry of Agriculture, Food Security, and Cooperatives' (MAFC) linkages to international institutions. The project, currently in its third year, places Tanzanian graduate students at Ohio State and other U.S. land grant universities, in addition to facilitating collaborative agricultural research between SUA faculty and faculty from participating U.S. universities.

Mr. Gurd was introduced to SUA during a 2013 visit made to Ohio State by Dr. Peter Gillah, Deputy Vice Chancellor of Academic Programs, and Dr. Vedasto Muhikambebe, Director of Research and Graduate Studies at SUA, as a part of their involvement with iAGRI. Both were interested in learning more about alumni relations and what valuable contributions an engaged alumni community could make to SUA. Since then SUA administrators, through the Executive Committee of Convocation (ECC), have begun to lay the groundwork for a more developed alumni relations strategy, with organizational support being provided by iAGRI personnel, especially Dr. David Kraybill, iAGRI Project Director, and Samantha Alvis, a Leland International Hunger Fellow.



From left: Peter Gillah (SUA), Andy Gurd (OSU), AGRI Staff pose for an "O-H-I-O" photograph.

"SUA wouldn't be where it is right now in advancing its alumni relations strategy without the inputs from iAGRI," shared Mr. Gurd. He explained how the iAGRI team has been proactive in gathering data and taking steps to foster a "mindset transformation" when it comes to reaching out to alumni. These efforts, Gurd hopes, will serve as an impetus for SUA officials to more fully develop an alumni framework.

Gurd added he had the fortune of meeting many SUA alumni during his visit to Tanzania who were eager to contribute, eager to get involved, but simply hadn't been asked or offered the opportunity. This is something that is now changing thanks to the dedication of the ECC and other SUA officials.

While it may be difficult to conceptualize how Sokoine University of Agriculture, a 45 year old institution with 14,000 alumni can effectively engage in the breadth and depth of alumni engagement like that of Ohio State's – a 145 year old institution boasting more than 500,000 alumni worldwide, Mr. Gurd says that the recipe for bolstering alumni support is the same everywhere.

"The general framework for engaging alumni is the same anywhere you go," says Gurd. "It's the tactics that vary depending on the location or institution, and simply involves building relationships."

He expands on this idea by explaining how at Ohio State athletic programs are used as a mechanism to initially involve and build support among alumni, and are intended to cultivate their support



Andy Gurd, Ohio State Alumni Association, meets with officials at the Sokoine University of Agriculture in Morogoro, Tanzania.

for research, teaching, and other academic initiatives at Ohio State over time. A similar approach could be employed at SUA, he says, leveraging SUA's reputation as an academically rigorous institution to draw in SUA graduates from across different sectors and demographics.

Gurd also feels that his visit to SUA to provide insight into their alumni relations capacity holds a much deeper meaning than simply lending assistance. He specifically references Ohio State University's official motto, *Disciplina in civitatem*, or "Education for Citizenship," and explains how Ohio State's work with SUA not only illustrates its pledge to global engagement, but also a commitment to inspire students and alumni alike to be good global citizens.

"It's incredibly humbling," admits Gurd. "Ohio State and SUA are alike in that they both emphasize that the institution is bigger than one person or department."

He goes on to say it's this underlying belief that an effective alumni relations program - one that encourages alumni to give back to an entity that was so influential in their own lives and which will endure beyond their time - is built on.

The guidance that SUA received from Andy Gurd and the support for his involvement from the Ohio State Alumni Association will undoubtedly strengthen the effectiveness of

iAGRI's own mission to improve SUA's capacity to train future generations of agricultural professionals. By creating and building a solid base of alumni support, SUA is also creating a professional network through which SUA students can connect with experts in their field, explore job opportunities, and forge lasting collaborative relationships.

"The role and importance of alumni relations at OSU is well recognized and through his experience and enthusiasm, Andy was able to energize SUA's convocation team – a contribution that will help it achieve its goal of becoming a 21st century university," explains Dr. Mark Erbaugh, Director of the Office of International Programs in Agriculture at Ohio State.

So as convocation at Ohio State creates a sense of anticipation for what lies ahead for the students beginning their higher education voyage, so too may the alumni association at Sokoine University of Agriculture in Tanzania experience a renewed sense of enthusiastic commitment from administrators, students, and alumni alike and an anticipation for the legacies that will endure.



Photo Credits: Samantha Alvis, iAGRI

Office of International Programs in Agriculture

Staff

Director:

Dr. J. Mark Erbaugh

Assistant Director:

Dr. Michael Chrisman

Program Managers:

Dr. David Hansen
Mr. Michael O'Keeffe
Ms. Wendi Howell
Mr. Beau Ingle

Peace Corps Coordinator:

Mr. Jack Campbell

Program Assistants:

Mr. John Beardmore
Mr. Grzegorz Lecki
Ms. Anna Matwijow
Mr. Yining Zhang

Office Associates:

Ms. Pat Rigby
Ms. Lisa Li

Administrative Associate:

Mr. Fabrice Ligny

Grants & Contracts Specialist

Mr. David Mackie



Advisory Committee

Macdonald Wick

Associate Professor
Animal Sciences

Valente Alvarez

Professor
Food Science and Technology

Steve Neal

Associate Director for Academic Affairs
Agricultural Technical Institute

Luis Canas

Associate Professor
Entomology

Sally Miller

Professor,
Plant Pathology

Scott Shearer

Professor and Chair
Food, Agricultural, and Biological Engineering

Brian Slater

Assistant Director and Associate Professor
Environment and Natural Resources

Jeff LeJeune

Professor and Director
Food Animal Health Research Program

Kelly Newlon

Director
CFAES Study Abroad

Kristin Mercer

Assistant Professor
Horticulture and Crop Science

Brent Sohngen

Professor
Agricultural Environmental and Development
Economics

Jeff Hattey

Academic Affairs

Ken Martin

Chair and Associate Director
Extension

Jamie Cano

Associate Professor
Agricultural Communication, Education, and
Leadership



THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES



Office of International Programs in Agriculture

Rm 238 Agricultural Adm. Building
2120 Fyffe Road
Columbus, OH 43210

Phone: (614) 292-7252

Fax : (614) 292-1757

www.cfaes.osu.edu/international

