

Annual Report

2016



THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

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Columbus, OH 43210

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AND ENVIRONMENTAL SCIENCES

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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.

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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.

What We Do

We promote global opportunities within the College, with an emphasis on the developing world, by...

... assisting faculty and researchers with the submission and administration of international grants and contracts,

... managing short-term scientific exchange programs for international visitors and scientists,

... implementing degree programs for international graduate students,

... supporting recruitment efforts for the Peace Corps on Ohio State's campus,

... coordinating the writing and approval of memoranda of understanding between college units and international institutions,

... and guiding the placement of international students in internships within the private sector.



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242 Likes



605 Followers



95 Followers

Who We Work With

- Administrators, faculty, staff, and students in the College of Food, Agricultural, and Environmental Sciences, the Ohio Agricultural Research and Development Center, and Ohio State University Extension
- Office of International Affairs, Global Gateway Office, and the area study centers
- Office of Research – Office of Sponsored Programs
- College of Veterinary Medicine, College of Education and Human Ecology, Fisher College of Business, and other Ohio State academic departments and units
- United States Department of Agriculture (USDA)
- U.S. Agency for International Development (USAID)
- USAID Missions and U.S. Embassies
- Strategic international partners and higher education institutions
- Other U.S. Land Grant Universities
- Association of Public and Land-grant Universities, Association for International Agriculture and Rural Development, and Association for International Agricultural and Extension Education.

2016 International Program Highlights

Around the World With CFAES

→ In 2016, CFAES continued its commitment to global engagement through teaching, research, and outreach. As you can see below, CFAES is also impacting food security, environmental sustainability, and human health and wellness on a global scale.

LOCATION KEY

EDUCATION ABROAD

- | | |
|--------------------|------------------------|
| 01. Antarctica | 08. Dominican Republic |
| 02. Argentina | 09. Honduras |
| 03. Australia | 10. Iceland |
| 04. Brazil | 11. New Zealand |
| 05. Chile | 12. Nicaragua |
| 06. Costa Rica | 13. South Africa |
| 07. Czech Republic | 14. Spain |

STRATEGIC COUNTRIES

- | | |
|------------|----------------------------|
| A. Brazil | <i>East Africa Region:</i> |
| B. China | E. Ethiopia |
| C. India | F. Kenya |
| D. Ukraine | G. Tanzania |
| | H. Uganda |

This year, **265** undergraduate students participated in **14** CFAES Education Abroad Programs.



PROGRAMMATIC FOOTPRINT

Innovative Agricultural Research Initiative (IAGRI) in Tanzania

Integrated Pest Management Innovation Lab

Fulbright U.S. Scholar Program

Norman E. Borlaug International Agricultural Science and Technology Fellowship Program

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

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

U.S. Borlaug Fellows Program

Faculty Exchange Program

Farmer-to-Farmer Program

Higher Education Funding Commission

Cochran Fellowship Program

Scientific Cooperative Exchange Program

More 2016 Highlights ↓



25 international agreements with institutions in **14** different countries



434 international interns and trainees placed from **92** countries



9th ranked U.S. institution in number of alums serving as active Peace Corps volunteers



232 international students enrolled in CFAES



14 Distinguished International Scholars hosted through the U.S. Department of Agriculture Scientific Exchange Programs



15 international delegations welcomed from **11** different countries



(From Left to Right) Sheryl Barringer and Rita Mirondo, Food Science and Technology; Victoria Bulegaya, Horticulture and Crop Science; Ajay Shah, Food, Agricultural, and Biological Engineering; and Emmanuel Mjonga, Plant Pathology

The **Innovative Agricultural Research Initiative (iAGRI)** is a \$25.5 million *Feed the Future* project funded by the United States Agency for International Development (USAID) and is managed by the Office of International Programs and Agriculture at The Ohio State University (OSU), which coordinates its activities with the Project Management Unit located at the Sokoine University of Agriculture (SUA) in Morogoro, Tanzania. iAGRI was launched in March 2011 as a five-year project. In May 2015, it was extended to a total of six years and in January 2017 for another six months for a total of six and a half years. This enabled OSU and five other participating U.S. land-grant universities to continue the critical capacity-building efforts with their institutional partners in Tanzania -the Sokoine University of Agriculture (SUA) and the Ministry of Agriculture, Livestock, and Fisheries (MALF).

Staff from OSU's College of Food, Agricultural, and Environmental Sciences (CFAES) involved in the project include **Mark Erbaugh**, Project Administrative Director; **David Kraybill**, Project Director in Morogoro, Tanzania, and Professor in the Department of Agricultural, Environmental, and Development Economics; **David Hansen**, Project Coordinator; **Wendi Howell**, Training Coordinator; **Poppy Thornton**, Administrative Assistant; and **David Mackie**, Fiscal Manager.

2016 was the last full year of the iAGRI project, which plans to formally conclude in August 2017. Collaborative engagement with SUA will continue into the future through other funded projects activities.

iAGRI Highlights from 2016

- **April:** SUA launched the Tractor Training and Research Program (TTARP), a public-private partnership between John Deere and LonAgro, to provide training for SUA students, graduates, farmers, and agribusiness. 300 participants attended the launch event and the official handing over of a fully-equipped tractor to SUA.

iAGRI is featured among more than 30 projects at Ohio State's annual Outreach and Engagement Forum, highlighting the project's positive impacts in enhancing food security in Tanzania.

- **July:** SUA and iAGRI hosted the Tech Talent Innovation Fair and Competition, where 17 iAGRI students introduced their innovative technologies that will contribute to creative problem-solving for agriculture-centered challenges.
- **September :** iAGRI is recognized as a "collaborative model that is working to build local and institutional capacity" in a Lugar Center's blog entitled "We Need A 21st Century Green Revolution to Feed the World".
- **October:** OSU faculty and other iAGRI staff participate in RUFORUM's 5th Biennial Conference in Cape Town, South Africa, where iAGRI contributions to higher agricultural education and research in sub-Saharan Africa were highlighted.

Tim Haab, Chair of AEDE, visited the new School of Agricultural Economics and Agribusiness. While at SUA he presented a seminar on the willingness of clientele to pay for services provided by universities to the agricultural sector.

iAGRI

Degree Training

By the end of 2016, 98 of the 135 iAGRI-funded students placed in M.S. and Ph.D. degree programs had completed their program. Remaining iAGRI students will complete their degree programs by August 2017.

In March 2016, four Ohio State iAGRI graduate students presented results from their graduate research at the annual iAGRI Graduate Student Research Forum, where they had the opportunity to hone their presentation skills and receive feedback from other iAGRI students, advisors, and other participants.



Winfred Tamba presents at the 2016 OSU iAGRI Student forum

iAGRI Student Placements and Completions as of December 2016

	M.Sc.		Ph.D.		Total	
	Placed	Completed	Placed	Completed	Placed	Completed
OSUC	55	52	15	12	70	64
SUA	27	12	5	2	32	14
RUFORUM	30	14	1	-	31	14
PAU	6	6	-	-	6	6
Total	118	84	21	14	139	98

OSU Faculty Visits to Sokoine University of Agriculture in 2016

Eugene Jones, AEDE, traveled to Tanzania in February to work with his two student advisees, Privata Simon and Victoria Nkuba, and to present a seminar on income levels and the purchase of private label products.

Scott Scheer, ACEL, visited his student advisee, Christopher Lameck, and presented a seminar on program planning models.

Peg Redinbaugh, USDA and Plant Pathology, visited Victoria Bulegaya, in February. They conducted field research on Maize Lethal Necrosis and presented a seminar on the status of MLN in East Africa.

Lucy Stewart, USDA and Plant Pathology, met with Deo Massawe, whom she accompanied to various regions of Tanzania to collect field samples for his PhD research focused on maize lethal necrosis.

Ajay Shah, FABI, visited Paschal Milindi and presented on cellulosic biofuels production at SUA.

Bob Birkenholz, ACEL, visited Joyce Mwakatoga, and made several presentations about leadership change principles and met with Tanzanians who participated in leadership webinars that he helped organize.

David Barker, HCS, visited Boniphace Nkombe and traveled with him to rangeland research plots in Dodoma. He also held a seminar on statistical analysis using the software "R".

David Francis, HCS, visited Victoria Bulegeya and delivered a seminar on plant breeding using DNA sequence data to improve vegetables for Tanzania.

Emmanuel Mgonja, Plant Pathology, Completes Ph.D. Degree

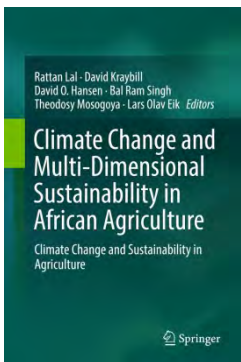
Emmanuel Mgonja completed his PhD in the Department of Plant Pathology at The Ohio State University in August 2016. Emmanuel, who took a leave from his job at the Katrin Agricultural Research Institute in Dar es Salaam to research "Molecular Analysis of Host Resistance and Pathogenicity of Rice Blast in East Africa", was advised by Dr. Guo Liang Wang and Dr. Tom Mitchell in the Department of Plant Pathology.

Emmanuel also worked with Dr. Drissa Silue, plant pathologist at AfricaRice, in the summer of 2016 to identify DNA markers linked to two major resistance genes and highly resistant rice cultivars. This work was funded by the Borlaug LEAP program and generated knowledge that is now being used by rice breeders in Africa.



Collaborative Research

In November 2016, a 35- chapter book entitled *Climate Change and Multi-Dimensional Sustainability in African Agriculture*, was published as an outcome of iAGRI's Climate Change and Multi-Dimensional Sustainability in African Agriculture Conference held at SUA in June 2015. The book, which is edited by Dr. Rattan Lal (SENR), Dr. David Kraybill (AEDE), Dr. David Hansen (IPA), and other collaborators, also includes a foreword by Dr. Mark Erbaugh (IPA) and Dr. Steve Slack (OARDC)



Front cover of *Climate Change and Multi-Dimensional Sustainability in African Agriculture*

Through a project entitled, "Mitigating the Impacts of Drought and other Circumstances Resulting from Climate Change on Smallholder Farmers in Tanzania", Mario Miranda, AEDE, headed a field research and capacity building effort focused on the use of group index insurance to mitigate negatives impacts on climate change on smallholder farmers in Tanzania. He was assisted by Abdoul Sam and Jon Einar Flatnes, AEDE, as well as graduate students – Tony Gallenstein and John Dougherty. The research included interactions with hundreds of farmers in Dodoma and other regions of Tanzania. While in the field, OSU representatives offered workshops and seminars to staff and students from SUA as well as other stakeholders.

Improving Rural Outreach Capacity in Tanzania: A Pilot Curriculum Reform Initiative to Increase Relevance of Trainer Training

A new project entitled "Improving Rural Outreach Capacity in Tanzania: A Pilot Curriculum Reform Initiative to Increase Relevance of Trainer Training" was initiated in 2016 under that leadership of the Office of International Programs in Agriculture (IPA) working in conjunction with faculty in the Department of Agricultural Communication, Education, and Leadership as well as the Sokoine University of Agriculture's (SUA) Department of Agricultural Extension and Community Development. It is funded by a 2016 Impact Grant from the Office of Outreach and Engagement at Ohio State, as well as by iAGRI.

Its aim is to improve the training curriculum provided to extension agents at Tanzania's Ministry of Agriculture Technical Institutes (MATIs) and serves as a pilot study centered on one MATI in particular – Ilonga. Ilonga is a MATI located in the

Kilosa district, approximately 100 km west of Morogoro where the SUA campus resides.

The project's immediate objective is to revise the programs of study at the MATI - Ilonga so that it can better reflect the changing needs of Tanzania's agriculture and improve the performance and employability of its graduates.

Members of the Ohio State team include Dr. Mark Erbaugh, Director of IPA and Principal Investigator on the project; Dr. Graham Cochran, Professor and Senior Administrative Officer in CFAES; Dr. Tracy Kitchel, Professor and Chair of the Department of Agricultural Communication, Education, and Leadership (ACEL); Dr. Mary Rodriguez, Assistant Professor in ACEL; and Dr. Barry Ward, Assistant Professor and Leader of Production Business Management in the Department of Extension.

(Below) Ohio State and SUA project team in Tanzania

(Right) Team members in discussion about extension worker competencies



"The Ohio State team is seeking to broaden the network of stakeholders who can engage in the training process with our other Tanzanian partners to bring about sustainable change to the way in which MATI's train their extension workers."

- Dr. Mark Erbaugh

Integrated Pest Management Innovation Lab

East African Vegetable Crops – Tanzania, Kenya, and Ethiopia

The East African Vegetable Crops Project is one of several Integrated Pest Management Innovation Lab (IPM-IL) projects funded by USAID. This project was initiated in 2016 by The Ohio State University and partners with Virginia Tech University, UC – Davis, and other higher education and research institutions in Tanzania, Kenya, and Ethiopia to develop and implement IPM technologies for tomato, onion, African eggplant, cabbage, chilies, and beans.

This project builds the capacity of host country institutions to implement effective IPM research and locally-adapted, gender-appropriate, technology transfer programs that lead to reduced losses attributed to pests. The result is reduced use of synthetic pesticides, improved productivity, and enhanced outcomes for growers in the region. The project also evaluates program impacts on pesticide use, environmental benefits, farm productivity, and incomes, and uses this information to inform regional and national policy.



Activities that occurred in 2016 include...

- 1.) March visit to Nairobi, Kenya; Dar es Salaam, Tanzania; and Addis Ababa, Ethiopia to plan project activities for the upcoming year. Visit was made by John Cardina, principal investigator (PI), and Mark Erbaugh, co-PI.
- 2.) July/August visit to KALRO in Kenya and MARI and SUA in Tanzania by Dr. Cardina and Dr. Erbaugh to discuss project implementation with partners. They also met with staff at the USAID mission in Dar es Salaam, and discussed the project's activities, including collaborations with other in-country organizations such as the Tanzania Horticultural Association (TAHA).
- 3.) August visit to MARI in Dar es Salaam, Tanzania by Dr. Sally Miller and Dr. Luis Canas, project co-PI's, to deliver a workshop entitled, "Workshop on Diagnosis of Diseases and Identification of Insect Pests and Vectors in Vegetable Crops."



(Left) Participants in August Pest and Disease Diagnostics Workshop. (Above) Discussion of plant and pest problems with Women's network farm)

Ohio State University Team

John Cardina

Principal Investigator (PI)
Department of Horticulture and Crop Science

Mark Erbaugh

Co-PI
International Programs in Agriculture

Sally Miller

Co-PI
Department of Plant Pathology

Matt Kleinhenz

Co-PI
Department of Horticulture and Crop Science

Luis Canas

Co-PI
Department of Entomology

Cathy Rakowski

Co-PI
School of Environment and Natural Resources

In-country Collaborating Institutions

Kenya Agricultural and Livestock Research Institute (KALRO), Kenya

Sokoine University of Agriculture (SUA), Tanzania

Mikocheni Agricultural Research Institute (MARI), Tanzania

Hawassa University, Ethiopia

USDA Borlaug International Agricultural Science and Technology Fellowship Program

The Borlaug Fellowship Program honors Norman E. Borlaug, the American agronomist known as the “father of the Green Revolution”, and promotes food security and economic growth by providing training and research opportunities to fellows from developing and middle-income countries.

Nataliia Didenko

Scientific Researcher, Institute of Water Problems and Land Reclamation, Ukraine. Her research, advised by Dr. Rafiq Islam, Research Scientist at Ohio State South Centers, focused on soil compaction, soil quality, and water management and how to adopt sustainable agricultural management practices in Ukraine. In addition to attending the 2016 World Food Prize in Des Moines, IA., Dr. Didenko also participated in the Farm Science Review and several field days and meetings in Ohio organized/sponsored by OSU Extension, USDA-NRCS, Ohio No-Till Association, and Conservation Tillage and Technology Center. She was one of the outstanding researchers selected to present her research work at the J-1 International Exchange Research Exposition organized by the Office of Research and Office of International Affairs



“Building Capacity Through Short and Long-term Training”

Sega Ndao

Researcher, Senegalese Institute of Agricultural Research, Senegal. His research, advised by Dr. Thaddeus Ezeji in the Department of Animal Sciences, focused on devising strategies for mitigating greenhouse gas (GHG) emissions in livestock systems in West Africa. During his three month fellowship at the Ohio Agricultural Research and Development Center (OARDC) from September – December 2016, Sega worked to develop a model that could accurately quantify GHG emissions in grazing ruminants in Africa, thereby improving the national GHG inventories available in Senegal. Dr. Ezeji plans to conduct a follow-up visit to Sega’s research institute in Senegal in the near future to facilitate greater collaboration in Senegal on behalf of Ohio State.



(Left) Dr. Nataliia Didenko, Ukraine, and (Right) Sega Ndao, Senegal.

Borlaug Fellows at the 2016 Borlaug Dialogue

Both Nataliia and Sega attended the 2016 Borlaug Symposium in Des Moines, Iowa from October 12-14, 2016, as a component of their USDA Borlaug Fellowships. Joined by other Borlaug Fellows, they gained a more comprehensive understanding of the challenges and solutions surrounding global food security.

The title of the 2016 Borlaug Dialogue “*Let Food Be Thy Medicine*,” captured the achievements of the 2016 World Food Prize laureates, which involved the breeding and development of biofortified staple crops that contain critical vitamins and micronutrients.



THE WORLD FOOD PRIZE

Faculty International Research Highlights

Peter Piermarini

Department of Entomology

As a recipient of a 2016 International Academic Enrichment Grant from the Office of International Affairs, Peter Piermarini worked with collaborators in Veracruz, Mexico on a project entitled “An Integrative Approach to Understanding the Emergence of Mosquito-borne Dengue and Chikungunya Viruses”. His research team consisted of public health technicians and researchers from the Secretary of Health, State of Veracruz; a faculty member from the Institute of Ecology, Mexico; and a faculty member and postdoc from the University of Puebla, Mexico.



(Right) Research team Martinez del Torre where mosquitoes were collected for detection of Zika, Dengue, and Chikungunya viruses.

Sakthi Subburayalu

School of Environment and Natural Resources

Sakthi Subburayalu, Research Scientist in the School of Environment and Natural Resources (SENR), visited Punjab Agricultural University in July 2016, and delivered a lecture entitled “Digital Soil Mapping Techniques to Improve the Accuracy of Spatial Soil Information: Lessons Learned From Research in the United States”. Support for this visit was provided by Dr. Brian Slater, Professor in SENR.



(Center) Sakthi Subburayalu with hosts and collaborators at PAU

Suzanne Gray

School of Environment and Natural Resources

In June 2016, Dr. Suzanne Gray (SENR) and her team travelled to western Uganda to continue their research on the effects of human-induced stressors on freshwater fish biodiversity. This work has been ongoing for four years. Two SENR graduate students, Tiffany Atkinson and Richard Oldham, and one undergraduate student, Makayla McKinney, travelled with Dr. Gray and each performed a set of independent research projects, funded by Office of International Affairs Enrichment Grants.

In addition, the group worked on their “Water Across the World” outreach and education project that engages two elementary schools in rural Uganda. The goal of the project is to provide wetland conservation and water quality monitoring training to students and their communities. This year Dr. Gray and her team provided a full day training workshop for teachers, took multiple groups of students to community water sources to test water quality, and brought a group of students to the field station to learn more about the science conducted by the group. Dr. Gray and her team also presented and recorded messages between students in rural Ohio through the Muskingum Soil and Water Conservation District and those involved in the project in Uganda. These research and outreach efforts are reaching a variety of domestic and international audiences, and Dr. Gray’s lab continues to work with collaborators in Uganda to make the project a success.



(Left) Tiffany and Richard teaching students how to measure turbidity

(Right) Tiffany, Makayla and Richard crossing the equator



Richard Dick

School of Environment and Natural Resources

Richard Dick, Professor and Ohio Eminent Scholar of Soil Microbial Ecology in the School of Environment and Natural Resources was an invited participant to the first Next Einstein Forum (NEF) Global Gathering, held March 8-10, 2016 in Dakar, Senegal.

The NEF initiative, a partnership of the African Institute for Mathematical Sciences (AIMS) and the Robert Bosch Stiftung Foundation, is a new global forum for science in Africa to propel Africa onto the global scientific stage and mobilizes the brightest minds to address the most pressing problems through Science, Technology, Engineering and Mathematics (STEM), as well as the social sciences.

He was asked to attend the invitation-only forum in recognition of his long-term research of semi-arid agroecosystems and engagement with West African scientists and universities. Dr. Dick, with his collaborators, discovered through their research that two indigenous shrubs lift water from wet soils to dry surface soils, changing the paradigm of how semi-arid ecosystems function; promoting beneficial microorganism/plant water relations and dramatically increasing crop productivity while stabilizing fragile landscapes in the Sahel.



Dr. Richard Dick with farmers in Niger beside Guiera senegalensis, an indigenous shrub his research has shown enhances soils, reduces drought stress, and increases crop productivity in the Sahel.

Hanping Wang

Ohio State South Centers

Hanping Wang, Principal Scientist and Director of Aquaculture Research and Development at Ohio State University South Centers, co-organized and co-chaired the 2nd International Symposium on Perch and Bass, with Huazhong Agricultural University (HZAU) in Wuhan, China, from October 27-30, 2016. The conference was a continuation of the first conference of its kind held in 2013, and was designed to provide a forum on recent developments and future directions in perch and bass research, development, and production. Dr. Wang spoke as a keynote speaker at the conference.

The conference served as an excellent opportunity to exchange ideas and applications in producing internationally important aquaculture species. Invited scholars from the U.S., China, Australia, Spain, Belgium, and Singapore all delivered presentations and contributed to an upcoming bilingual (English and Chinese) book entitled, "Culture and Breeding of Perch and Bass". Dr. Wang will serve as co-editor for the book.



(Fourth from left) Dr. Hanping Wang, Ohio State South Centers, with co-organizers and presenters at the International Symposium on Perch and Bass in Wuhan, China.

Graduate Student Highlights in International Research

Yvan Delgado de la Flor

MS Student
Department of Entomology

Yvan Delgado de la Flor conducted his MS research in Cusco, Peru, in December 2016 with collaborators from the Universidad Nacional de San Antonio Abad del Cusco. His research focuses on studying spider diversity in Cusco and how changes in the landscape have influenced the geographic distribution of various species since 1911 when Yale University conducted a similar study.



His research was funded by the Office of International Programs in Agriculture and the Organization of Tropical Studies

Yvan at his research field site in Cusco, Peru.

Akbar Ghaffar

Ph.D. Student
Department of Horticulture and Crop Science

Muhammad Akbar Abdul Ghaffar, with the support of HCS, OARDC, and the Office of International Programs in Agriculture, traveled to Lecce, Italy from October 4-7, 2016 to participate in the inaugural Unconventional Proteins and Membranes Traffic Meeting. At the conference, he presented his dissertation research entitled, "Rubber Particle Ontogeny and Protein Trafficking in Laticifer Cells of *Taraxacum kok-saghyz*".

The conference was organized and sponsored by the Biochemical Society, the International Journal of Molecular Sciences, the University of Salento, among many others.

Akbar at the UPMT conference in Lecce, Italy



Graduate Students Attend Rice Research Short Course in Philippines

Nall Moonilall, PhD student in the School of Environment and Natural Resources (SENR) and Steven Doyle, MS student in SENR, traveled to the International Rice Research Institute (IRRI) in Los Baños, Philippines to participate in the "Rice: Research to Production" short course from August 8-27, 2016. This program was offered through Cornell University and was funded through a National Science Foundation (NSF) grant. Nall and Steven were two of twelve graduate students selected from across the United States.

During the short course, they learned about the various systems of rice production, as well as the current innovative research that is occurring at the IRRI labs, particularly with rice breeding and development at the IRRI genebank. Participants also visited rice fields in rural villages and received hands-on training on rice cultivation while interacting with local rice farmers.



Nall Moonilall in a rice field in the Philippines

Graduate Student Highlights in International Research

Richard Gallenstein

PhD Student
Department of Agricultural, Environmental, and Development Economics

From February – June 2016, Richard was based at Sokoine University of Agriculture in Tanzania overseeing the implementation of a framed field experiment examining the impact of index insurance on risk-taking in individual and joint liability smallholder agricultural lending.



Richard's research was a component of an iAGRI-funded project entitled "Promoting Financial Inclusion and Technical Transformation among Smallholders in Tanzania: A Capacity-Building Exercise", led by AEDE's Mario Miranda and Abdoul Sam.

Richard Gallenstein in Tanzania.

Mohammad Alam

PhD Student
School of Environment and Natural Resources

After completing his third year of doctoral studies, Mohammad returned to his home country of Bangladesh in July 2016 to finish his aquaculture research at Bangladesh Agricultural University on the environmental effects on bighead carp growth and development.

Mohammad is expected to graduate in Autumn 2017 with support from the Borlaug Higher Education for Agricultural Research and Development (BHEARD) program.

Mohammad Alam in his experimental pond



Mynul Islam and Ferdous E-Elahi

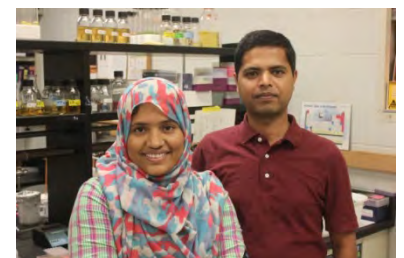
PhD Students
Department of Plant Pathology

Two Plant Pathology Ph.D. students from Bangladesh, who are funded by the BHEARD program, returned to their home country in August 2016 to complete their dissertation research. Mynul Islam and Ferdous E-Elahi, who work as research associates at Bangladesh Agricultural Research Institute (BARI), completed their coursework at Ohio State after Spring 2016 and will defend their dissertations in Autumn 2017. Both are advised by Dr. Sally Miller, Professor in the Department of Plant Pathology.



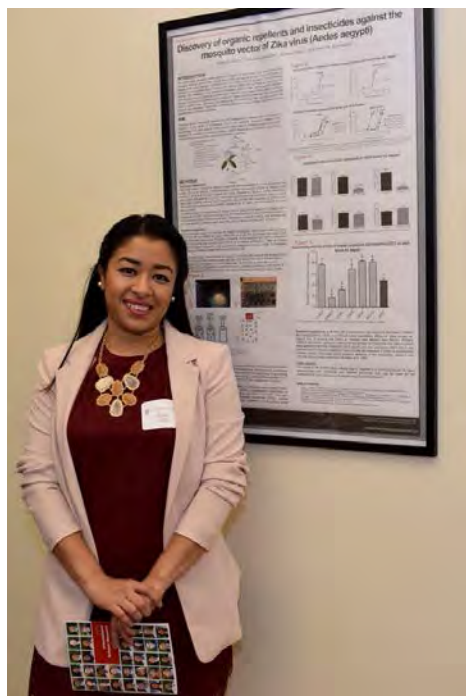
Mynul's research, entitled "Morphological and Genetic Variability of *Sclerotinia sclerotiorum* and Integrated Management of White Mold of Mustard" seeks to identify more effective management strategies for *S. sclerotiorum* – a fungal pathogen that can induce white, moldy masses on the leaves and stems of crops.

Ferdous' research focuses on the identification, molecular characterization, and management of soft rot, a serious bacterial disease in potatoes in Bangladesh that heavily reduces yields to around 37% in commercial and private storages.



Ferdous E-Elahi (Left) and Mynul Islam (Right)

International Scholar Research Exposition



The 11th Annual International Scholar Research Exposition Opening Reception was held on November 18, 2016 outside the President Michael V. Drake's office and near the Office of the Vice President of Research. Current international J-1 visiting scholars at The Ohio State University were invited to submit research summaries and 34 finalists from 17 different countries were asked to create research posters for display through December 2016.

Seven visiting scholars within CFAES were selected as finalists and invited to present their research findings to the Ohio State community.



(Left) Edna Alfaro stands with her research poster; (Center) Hardy Zingalaoa Castada with Sheryl Barringer, Vice President Whitacre, and Assistant Vice Provost Ako-Adounvo; (Right) Nataliia Didenko with Rafiq Islam, Tom Worley, and Botir Khaitov

CFAES Participants

Edna Alfaro, El Salvador

Department Entomology, Advised by Peter Piermarini

"Discovery of organic repellents and insecticides against the mosquito vector of Zika virus (*Aedes aegypti*)"

Lourdes Delta Arrueta, Bolivia

Department of Horticulture and Crop Science, Advised by Doug Doohan

"The effect of Bordeaux mixture on soybean (*Glycine max*) injury due to simulated glyphosate drift"

Hardy Zingalaoa Castada, Philippines

Department of Food Science and Technology and Department of Animal Sciences, Advised by Macdonald Wick and Sheryl Barringer

"Characterization of Lamb Flavor using Selected Ion Flow Tube-Mass Spectrometry (SIFT-MS)"

Surinder Singh Chauhan, India

Department of Animal Sciences, Advised by Eric England

"Elucidating the biochemical regulation during the transformation of muscle to meat"

Nataliia Didenko, Ukraine

Ohio State South Centers, Advised by Rafiq Islam

"Transferring Science-based Knowledge to Adopt Sustainable Agricultural Management Practices in Ukraine"

Jayanta Layek, India

School of Environment and Natural Resources, Advised by Rattan Lal

"Land use model for sustainable production and climate resilience in Eastern Himalayas"

Yue Li, China

School of Environment and Natural Resources, Advised by Richard Dick

"Nitrogen deposition shapes the composition and carbon utilization of a grassland soil microbial community in northern China"

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 agriculture, education, public health, community development, and a multitude of other areas.

The Office of International Programs in Agriculture has administered Peace Corps recruitment on the Ohio State University campus since 1974. Gail Messick, who currently serves at the Peace Corps recruiter for the Ohio State campus, is a returned Peace Corp Volunteer (PVC) who served in St. Lucia from 1976-1978 and in Swaziland from 2010-2014, where she worked as a public health dental hygienist and promoted dental health in schools and in the surrounding community.

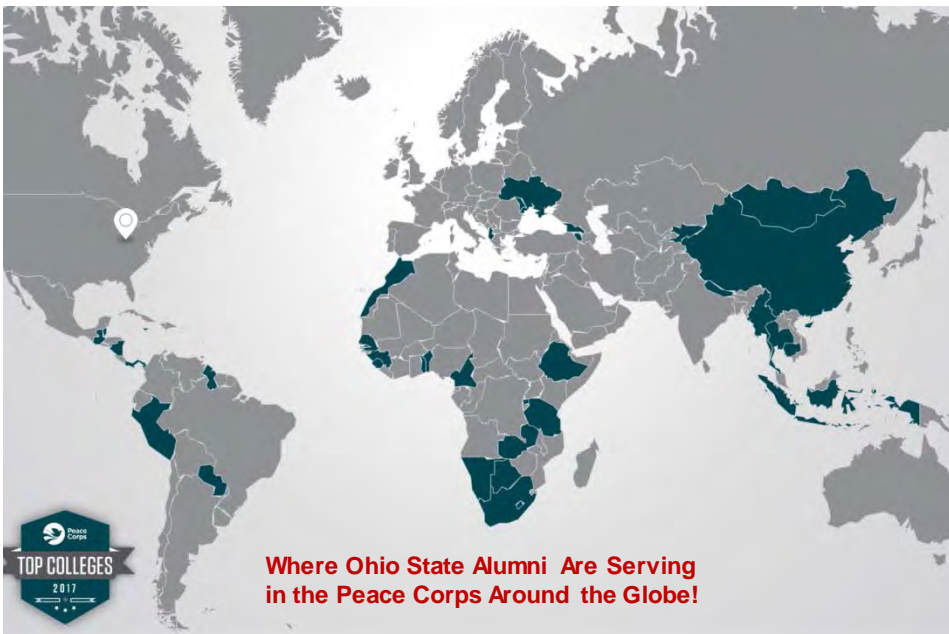


"Ohio State expanded my mind and set me on a journey that brought me to the Peace Corps. My classes, clubs, and jobs on campus taught me the value of understanding other people's world views, of collaboration, and of the power of an act of service."

- Bethany Lewis, 2014 Ohio State graduate

Bethany Lewis, '14, in Botswana

Jodi Mescher, '16, in Zambia



* As reported through September 30, 2016

Snapshot of 2016

9th ranked university in Peace Corps' list of top volunteer-producing large universities

49 alumni currently serving as Peace Corps volunteers

1,790 Buckeyes have served overseas since 1961

No. 10 all-time producer of Peace Corps volunteers

Global Teaching and Learning

Ohio International Internship Program



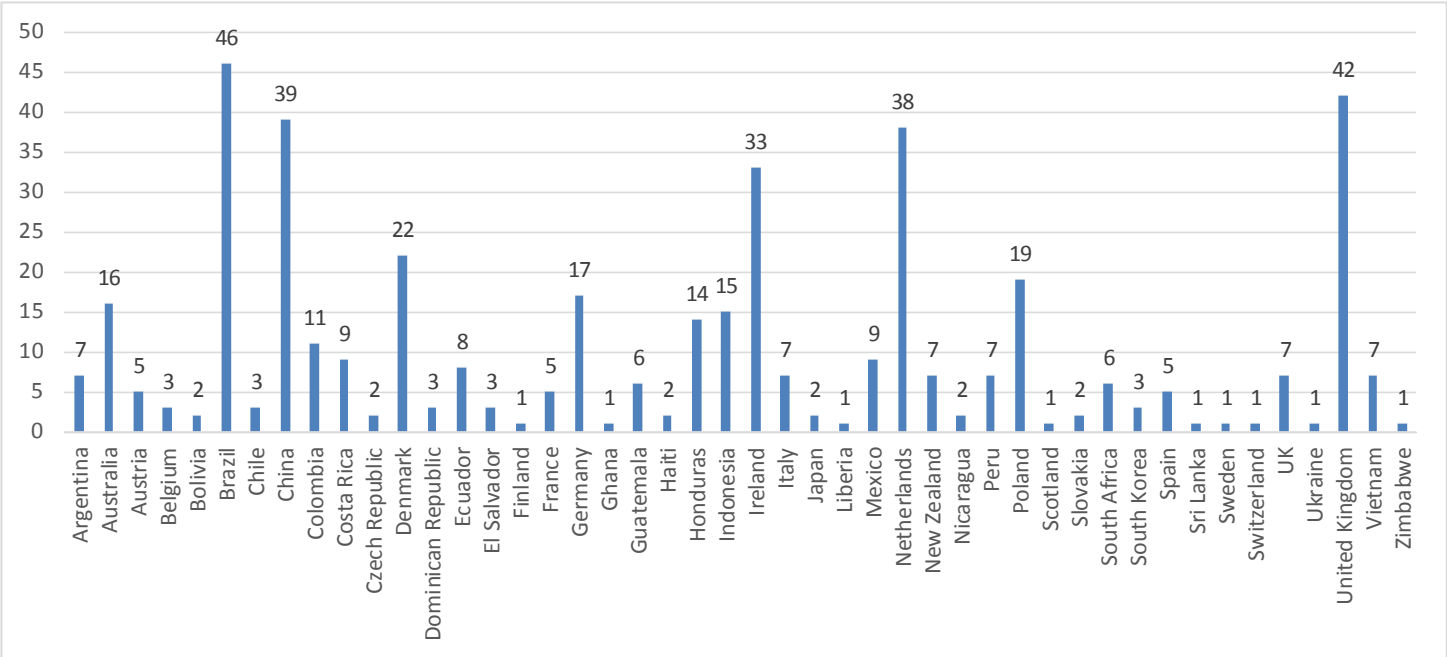
International interns with the Ohio International Internship Program attended the 2016 World Dairy Expo in Madison, Wisconsin from October 4-8, 2016. Twenty dairy interns from five countries attended seminars and meetings with international companies, including the Ohio-based business Select Sires, as well as World Wide Sires. All students learned about the latest technologies, product lines, and best livestock during their time in Madison. Over 70,000 dairy industry enthusiasts attended the World Dairy Expo.

The Ohio International Internship Program which is a functional unit within the Office of International Programs in Agriculture, specializes in providing international internships in agriculture, horticulture, turfgrass, and agricultural business. In 2016, the program hosted 434 interns and trainees from 92 countries. Throughout its 37 years in the college, the Ohio International Internship Program has hosted over 10,000 participants for training and currently has verbal agreements with 40 universities and organizations worldwide.

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

2016 Internship and Trainee Placements by Country of Origin



USDA Faculty Exchange Program

Through a collaboration between the Office of International Programs in Agriculture and the Department of Agricultural, Environmental, and Development Economics (AEDE), Ohio State University hosted from August – December 2016 six professors from Ukraine through the Faculty Exchange Program (FEP), a program sponsored by the U.S. Department of Agriculture's Foreign Agricultural Service (FAS). Ohio State has participated in the program intermittently since the early 2000's by training agricultural economics instructors from Eastern Europe to improve their practical understanding of curriculum development, teaching methodologies, and agricultural technical knowledge.

Dr. Allan Lines, Professor Emeritus in AEDE, and Dr. Stan Thompson, Professor in AEDE, served as the faculty coordinators for the FEP

program by organizing visits around Ohio to industry sites, extension offices, and commodity organizations; arranging in-class observation sessions; and instructing on other topics such as ag credit systems, small farm management, and ag knowledge transfer. The fellows were also hosted by farm families in Ohio and stayed with them one weekend during the program.

Dr. Lines and Dr. Thompson will conduct follow-up visits to Ukraine in 2017, where they will visit the home institutions of the fellows, deliver specialized seminars to their colleagues, and provide consultation to administrators on possible approaches to improving their academic programming.

"This program will help us improve our institutions' curricula so that they better reflect the practical needs of Ukrainians seeking problem-based, agricultural economic and business training."

- Mariia Mykhailova

2016 FEP Participants

Mariia Mykhailova

Kharkiv State University of Food Technology and Trade

Natalia Pryshliak

Vinnytsia National Agrarian University

Oksana Vysotska

Kyiv National Economic University

Petro Pyvovar

Zhytomyr National Agroecological University

Svitlana Lukash

Sumy State Agrarian University

Valerii Danylenko

Kharkiv National Technical University of Agriculture

(Left) FEP scholars in a soybean field with Ohio farmer, (top right) Natalia Pryshliak, (bottom right) Mariia Mykhailova.



USDA Scientific Cooperative Exchange Program

From October 17-29, 2016, The College of Food, Agricultural, and Environmental Sciences, through a collaboration between the Office of International Programs in Agriculture (IPA) and Ohio State South Centers, hosted six visiting officials from China's Ministry of Agriculture (MOA) through the U.S. – China Scientific Cooperative Exchange Program (SCEP).

The SCEP program is supported by the U.S. Department of Agriculture's (USDA) Foreign Agricultural Service and seeks to promote U.S. agricultural priorities, encourage long-term cooperation in agricultural science and technology, create a positive atmosphere for agricultural trade, and enhance overall relations between the United States and China.

The 2016 SCEP Program focused on examining public policies and programs



SCEP participants visit field sites in Southern Ohio with Ohio State South Centers staff.

in the U.S. designed to preserve farmland and natural resources. MOA participants began their program in Washington, D.C. before traveling to Ohio to receive further instruction at Ohio State

Dr. Gary Gao, Small Fruits Specialist in Ohio State Extension and Beau Ingle, Program Manager in International Programs in Agriculture, provided subject matter instruction as well as coordinated meetings and visits with stakeholders across Ohio and Northern Kentucky.



Beau Ingle (left) and Dean Barr (right) review satellite images of land in Pickaway County, OH, around where the Barr family land trust resides.

Program site visits included:

- USDA National Headquarters
- U.S. National Arboretum
- Ohio Department of Agriculture, Reynoldsburg, OH
- Farm Credit Mid-America branch, London, OH
- Madison County Extension Office
- Molly Caren Agricultural Center, London, OH
- Ohio State South Centers, Piketon, OH
- Clermont County Extension Office
- Barr Family Farm, Asheville, OH
- Boone County Extension, Burlington, KY.

SCEP participants speak with USDA personnel at the U.S. Arboretum in Washington, D.C.



Topics of most interest to the SCEP participants included chain of decision-making and administrative processes, federal/state budget authority and criteria, ongoing soybean, corn, wheat, and soil science research being conducted at Ohio State University and USDA-ARS, and tools and systems available to decision-makers to ensure that specific programs are effective and/or have intended impacts.

As a result of this SCEP program, 15 faculty and staff from Ohio State were engaged in the program's instruction, contributing to IPA's overarching mission to engage CFAES faculty in international activities. Two of these individuals were CFAES faculty that IPA has not worked with previously, so it is hopeful that they can contribute to further USDA international research and training programs in the future.

Borlaug Summer Institute

The U.S. Borlaug Summer Institute on Global Food Security is an annual 2-week long learning program at Purdue University for graduate students attending U.S. institutions interested in developing a holistic understanding of the conceptual challenges around global food security. This introduction to global food security provides students with a working knowledge of these issues, with a focus on cross-disciplinary problem solving of real-world development challenges.

Three Ohio State graduate students were selected to attend the 2016 Summer Institute, held on June 5-17th.

Dustin Homan, MS student
Department of Agricultural
Communication, Education, and
Leadership

Susan Ndiaye, MS student
Department of Entomology

Vivian Bernau, PhD student
Department of Horticulture and Crop
Science



Dustin Homan (right) with other participants at the 2016 Borlaug Summer Institute.

U.S. Borlaug Fellowship Grants

The U.S. Borlaug Fellows in Global Food Security, through Purdue University's Center for Global Food Security, awards research grants to support U.S. graduate students interested in developing a component of their graduate research in a developing country. Awarded students work in-residence at an International Agricultural Research Center (IARC), or a qualifying National Agricultural Research System (NARS) unit of their choice.

In 2016, four Ohio State graduate students were awarded grants to conduct their graduate research abroad. This reflects a substantial increase in the number of Ohio State recipients - from no awards in 2015, one in 2014, and two in 2013.



Elizabeth Gardiner, PhD student
Department of Anthropology, College of
Arts and Sciences
Burkina Faso

Henry Peller, MS student
School of Environment and Natural
Resources,
Belize/Guatemala

Vivian Bernau, PhD student
Department of Horticulture and Crop
Science,
Guatemala/Mexico

Cora Carter, MS student
Department of Agricultural
Communication, Education, and
Leadership,
Nicaragua

From below, clock-wise: Henry Peller, Cora Carter, and Vivian Bernau with Dr. Gebisa Ejeta.



YALI – Mandela Washington Fellowship Program

The Mandela Washington Fellowship, the flagship program of President Obama's Young African Leaders Initiative (YALI), empowers young African leaders through academic coursework, leadership training, mentoring, networking, professional opportunities, and support for activities in their communities. The program is funded by the U.S. Department of State and is supported in its implementation by IREX, an international nonprofit organization focused on improving the quality of education, strengthening independent media, and fostering pluralistic civil society development.

The Ohio State University was selected as a sub-awardee in 2016, and through the collaborative leadership of the Center for African Studies and the John Glenn College of Public Affairs, hosted

25 fellows from Sub-Sahara Africa at a Public Management Institute.

Several of the fellows had academic and professional interests in agriculture and natural resources management, and were fortunate enough to be mentored by CFAES faculty/staff with compatible expertise:

Rafiq Islam, Research Scientist, Ohio State South Centers mentored Emmanuel Odama, Uganda, in soil fertility and cover crop practices.

David Hahn, Professor Emeritus, Agricultural, Environmental, and Development Economics, mentored Cosmos Anweh, Nigeria, and Jack Abuli, Kenya.

Beau Ingle, Program Manager, International Programs in Agriculture mentored Mensah Yaovi, Niger.



(Above) Ohio State Mandela Fellow, Emmanuel Odama, introduces President Barack Obama during the Presidential Summit of the Mandela Washington Fellowship for Young African Leaders in August 2016.

(Lower left) Dr. Mark Erbaugh, Director of the Office of International Programs in Agriculture, presents an overview of agricultural development in Sub-Saharan Africa on July 13, 2016. Dr. Roger Rennekamp, Associate Dean and Director of Extension, also presented to the group.

(Lower right) Ohio State YALI Fellows placed at a networking gathering following their Ignite Talks on July 28, 2016, where they presented lessons learned and future project planning



Fulbright Fellowships

The Fulbright Program is the flagship international educational exchange program sponsored by the U.S. government and is designed to increase mutual understanding between the people of the United States and the people of other countries.

Dr. Joe Campbell, Lecturer and Research Associate in the School of Environment and Natural Resources, was the recipient of a 2016-2017 Fulbright U.S. Scholar Award to work with the University of Dodoma (UDOM) in Dar es Salaam, Tanzania. His project was entitled "Building the 'Land Grant University of the Future': A Partnership Between the University of Dodoma and the Ohio State University".

Dr. Campbell completed this fellowship UDOM's School of Social Sciences where he taught community development and rural sociology, and assisted UDOM in the creation of a cross-university, interdisciplinary undergraduate program focused around food, health, energy and water. He also conducted research on the social factors associated with the sustainability of water access projects, and collaborated with UDOM faculty, staff, students and other governmental and non-governmental partners in this effort.



Joe Campbell

Visiting Fulbright Scholars to Ohio State



Botir Khaitov

Botir Khaitov, a Senior Research Scientist at Tashkent State Agrarian University in Uzbekistan, completed a Visiting Fulbright Scholar Fellowship with Dr. Khandakar "Rafiq" Islam, Research Scientist at Ohio State South Centers. His project, entitled "Learning Experience on Long-Term Conservation Tillage and Multi-Functional Cover Crop Systems Approach to Maximize Agroecosystem Services in Uzbekistan", sought to develop strategies for mitigating climate change impacts in Ukraine.

His Fulbright appointment at Ohio State, which began on August 1, 2016 and will continue through May 2017, seeks to determine the effects of no till and cover crops on (1) soil biological quality and processes associated with cover crops residue decomposition and nutrient recycling, (2) distribution and partitioning of carbon and nitrogen in chemical and physical pools, (3) soil aggregate dynamics, and (4) soil quality and its relationship with soil carbon sequestration.



Ohio Youth Institute

The Ohio Youth Institute (OYI) of the World Food Prize was held on April 11, 2016 at the Nationwide & Ohio Farm Bureau Center on The Ohio State University campus. The annual program is funded by the College of Food, Agricultural, and Environmental Sciences (CFAES), the World Food Prize Foundation, and Farm Credit MidAmerica, and is collaboratively administered by Ohio State University Extension and the Office of International Programs in Agriculture.

86 students from 10 high schools in Ohio participated in the one day event by presenting a research paper focused on a specific food security challenge facing a particular developing country. This number of student participants was an increase from 70 participants in 2015, and nearly double the number from 2014 (48).



High school participants at the 2016 Ohio Youth Institute

In 2016, the OYI engaged 28 food security experts, 24 of which were faculty and researchers from 10 CFAES departments/units, as expert readers who evaluated oral presentations during the provided valuable feedback to the students on their projects. Eleven of the 86 student participants were selected to present their projects at the Global Youth Institute in October.

Students also participated in learning sessions focused on food production and sustainability with Dr. Mary Kay Pohlschneider (Food Science and Technology) and Dr. Bob Horton (Ohio State Extension, 4-H), and heard from Kelly Newlon (CFAES Academic Affairs) about various study abroad opportunities available to undergraduates at Ohio State.



THE WORLD FOOD PRIZE

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. 11 Ohio high school students who had participated in the Ohio Youth Institute, along with five mentoring teachers, attended the GYI from October 12-15, 2016 to present their papers to peers, scientists, and other food security experts.

In addition, they were able to interact with the 2016 World Food Prize Laureates, Dr. Maria Andrade, Dr. Robert Mwanga and Dr. Jan Low of the International Potato Center (CIP), as well as Dr. Howarth Bouis, founder of HarvestPlus at the International Food Policy Research Institute (IFPRI).

Borlaug-Ruan International Internship Program



Joey Edington

The Borlaug-Ruan International Internship Program provides exceptional students the opportunity to work with world renowned scientists and policymakers at leading research centers in Africa, Asia, Latin America and the Middle East. The program is supported by the World Food Prize Foundation and allows interns to gain a firsthand view of pressing food security issues and nutritional problems in poverty-stricken areas of the developing world.

OYI and GYI alum, Joey Edington of Delaware, OH was one of twenty-four U.S. high school students selected as a 2016 Borlaug-Ruan Intern, and served last summer as a researcher at the International Centre for Integrated Mountain Development (ICIMOD) in Kathmandu, Nepal.

Education Abroad

The College of Food, Agricultural, and Environmental Sciences sponsored and delivered fourteen (14) study abroad programs in thirteen (13) different countries in 2016. Programs ranged from ten days to six weeks in length, and engaged faculty and staff from five (5) units and departments within the College.

In all, a total of 265 Ohio State students participated in CFAES-sponsored study abroad programs in 2016, with 186 of those students being from CFAES.

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

More: <https://oia.osu.edu/education-abroad.html>

2016 Wolfe Education Abroad Scholarship Winners

Samuel Reed, and undergraduate student majoring in environmental science was one among 24 Wolfe Scholarship recipients throughout Ohio State University. He will use this scholarship to study in Panama.



(Left) Ohio State students on an Education Abroad program in Antarctica and (Above) Leah Schwinn, ACEL senior in Brazil

2016 Education Abroad Programs

Country	Focus Area	Resident Director	Students	
			Total	FAES
Antarctica, Argentina	Impact on a Fragile Environment	Larry Krissek, School of Earth Science	6	2
Australia	Sustaining Human Societies and the Environment	Alexis Londo (School of Environment and Natural Resources (SENR))	40	11
Brazil	Alpha Zeta Partners Program: Economics, Rural Sociology, Agricultural Development, History	Kelly Newlon (Academic Programs)	15	15
Chile	Agroecosystems	Doug Doohan	9	9
Costa Rica	Service Learning: Ecosystems, Sustainability	Paul Heimberger (Academic Programs)	15	10
Czech Republic	Sustainability and Agricultural Policy in the EU	Robert Birkenholz (Agricultural Communication, Education, and Leadership (ACEL))	10	6
Dominican Republic	Sustainable Development in the DR	Joe Bonnell (SENR)	15	12
Honduras	Community Development	Jamie Cano (ACEL) Warren Agner (ACEL)	17	17
Iceland	Environment and Natural Resources	Brian Slater (SENR) Susan Burks (SENR)	8	5
New Zealand	Human and Animal Interactions	Steven Moeller (Animal Sciences) Kelly George (Animal Sciences) Julie Morris (Animal Sciences)	28	21
New Zealand	Sustaining Human Societies and the Environment	Terri Groth (SENR) Amanda McCann (SENR)	23	10
Nicaragua	FAES First Year Experience (freshman only)	Jeffory Hattey (Academic Programs) Mary Rodriguez (ACEL)	27	27
Spain	European Equestrian Studies	Kim Cole (Animal Sciences) Kelly George (Animal Sciences)	34	29
South Africa (1)	Exotic Animal Behavior and Welfare	Kelly George (Animal Sciences)	9	6
South Africa (2)	Exotic Animal Behavior and Welfare	Steven Moeller (Animal Sciences)	9	6
13 Countries	14 Programs	25 Resident Directors	265	186

International Outreach and Engagement

Master Gardener Volunteer Service Visit to Ecuador

Ten Ohio State University Extension Master Gardener Volunteers traveled to Otavalo, Ecuador in February 2016 for a working vacation experience. Partnering for the fourth year with the Tandana Foundation, this gardening-focused community service adventure provided opportunities to work side-by-side with the residents of Pastavi in Quichinche to plant 139 trees in their neighborhood during a "minga" or community work day. These experiences are possible as a result of the foundation's diligent work over the last several years to develop relationships in this area and to work with the communities in creating projects that will help to improve the quality of life for the indigenous Andean people.

Another project involved working side-by-side with schoolchildren to plant over 100 ornamental plants, 100 medicinal plants, and 100 trees. It was a labor of love as students and volunteers teamed up to work together to get the job completed. These gardens were planted surrounding the location of a future gazebo to be constructed to encourage reading for pleasure.

The gardeners spent a day teaching environmental lessons to groups of 10 and 11 year olds. Classes included the importance of insects in our food system; an art project creating potato creatures with instruction to plant them at home; and the importance of caring for the garden with watering, weeding, and general upkeep. The school children thanked the volunteers with a performance of local dances and songs.

The volunteers also spent part of each day touring local areas of natural beauty such as the Peguche waterfalls; visiting the agricultural community of Morochos where they raise alpacas and cultivate native plants for reforestation; attending a cooking school in Panachillo; attending a local pan-flute making workshop and visiting a reed-weaving community in San Rafael to learn about this growing industry.

One of the volunteers shared these thoughts: "You come in the context of our value system and you learn to see their value system is just as precious as ours. It helps to see that our needs in the big picture are really luxuries. The people live so simple and community-focused, and the things we take for granted don't seem to be an issue."

A group of 13 Master Gardener Volunteers are scheduled to travel to Ecuador on February 3, 2017 to continue their community service working vacations.



Master Gardener Volunteers gathered in Ecuador

Master Gardener Volunteers with community collaborators



Harold Watters, Ohio State Extension, in Ukraine



Harold Watters, Ohio State Extension Field Specialist in Agronomic Systems, completed his seventh and eighth trips to Ukraine in June and November (respectively) 2016. He first traveled to Ukraine in 2012 after an invitation was extended by Cultivating New Frontiers in Agriculture (CNFA), an international non-profit organization working closely with farmers associations in Ukraine.

In June 2016, Harold visited seven farming operations, returning to two of them a second time in November. He spent several long days with the lead agronomists and farm managers at these operations to learn about their needs and challenges. He then developed and presented a set of recommendations for each farm that largely focused on reducing tillage, selecting adapted soybean varieties, managing nutrients, and scouting efforts to determine in-season crop needs.

“My Ukrainian experiences challenge my understanding of what we think we know; digging for responses to their concerns helps me better understand and deliver information for ag producers back here in Ohio.”

- Harold Watters



(Top left), Harold Watters, Ohio State Extension, with Ukrainian collaborator while surveying field sights in November 2016.

(Left) An over-tilled hillside in Ozeirna, Ukraine.

Gary Gao, Ohio State Extension, in China

Dr. Gary Gao, Ohio State Extension Small Fruits Specialist shared his research and extension expertise on fruit production with researchers, extension professionals, farmers and college students during a 2016 visit to Gansu, Hebei, and Shanxi provinces in China. He delivered four lectures to graduate students and faculty members while visiting Shanxi Agricultural University and Hexi University. In addition, he visited more than ten farms and gave three presentations to farmers in the region.

“My invitation to Gansu Province has helped with my Super Fruits Project, funded by the Ohio Department of Agriculture and USDA. I was able to obtain first-hand production knowledge on Chinese goji berries.”

- Gary Gao



Gary Gao delivers a presentation on sustainable fruit production in the U.S. to students and faculty members at Shanxi Agricultural University.

Dustin Homan and 4-H Youth Development in Nicaragua

From May 11-25, 2016, Dustin Homan, a M.S. student in the Department of Agricultural Communication, Education, and Leadership worked in Nicaragua through the support of Partners of the Americas and USAID's Farmer-to-Farmer (F2F) program. During his visit, Dustin worked with a non-profit organization, Fabretto, to assess the needs of 12 4-H clubs in northern Nicaragua and develop recommendations on how the clubs can best develop in the future.



Dustin Homan in Nicaragua



D. Elder and ATI students Working in Rural Development in Ghana

Dr. D. Elder, Associate Professor ATI and Dr. Nathan Crook, Assistant Professor ATI, along with four ATI students, traveled to Ghana as a part of the 13th annual four-week Ghana Education Abroad program. Some of their activities included immunizing nearly 1000 sheep and goats, providing other herd health interventions, teaching enrichment classes in a local middle school, learning about local farming methods, and meeting with micro-lending groups. Emily Hardesty taught 30 farmers practices to improve their chicken flocks, while Cody McClain (Junior) taught the fundamentals of manure composting. Gage Smith (Sophomore) taught leadership classes and plans to return to Ghana for three months in 2017 to set up several 4-H clubs.



Rural school children whom ATI worked with

IPA welcomes Scholars Through Wright-Patterson Airforce Base's Defense Institute of Security Cooperation Studies

On August 25, 2016, the Office of International Programs in Agriculture (IPA) welcomed to the Ohio State campus 43 international visitors hosted by the Defense Institute of Security Cooperation Studies (DISCS) at Wright-Patterson Airforce Base. During their brief visit to Ohio State, the visitors heard from Dr. Mark Erbaugh, Director of IPA, who presented on the history and essence of the U.S. land-grant system as well as CFAES' comprehensive international engagement. The group also visited the Waterman Agricultural and Natural Resources Laboratory to learn about a number of Ohio State's agricultural research, teaching, and outreach programs from Glenn Mills, Waterman Operations Manager, and John Lemmermen, Dairy Facility Manager.

DISCS is funded by the U.S. Department of Defense and provides professional education, research, and support to advance U.S. foreign policy through security assistance and cooperation.



Dr. Mark Erbaugh presents CFAES' international reach to DISCS participants



Glenn Mills gives a tour of Waterman Farm's crop research plots



John Lemmermen provides a walkthrough of Ohio State's dairy production facility

International Awards and Recognitions

CFAES International Alumni Award



Godfrey Asea with Mark Erbaugh, Mark Jones, and Richard Pratt, Professor Emeritus in HCS.

Dr. Godfrey Asea, Director of Research at the National Agricultural Research Organization (NARO) in Uganda, was a 2016 recipient of the College of Food, Agricultural, and Environmental Sciences' International Alumni Award. Dr. Asea is a 2005 graduate of the Department of Horticulture and Crop Science (HCS), where he received his Ph.D. in Plant Breeding and Genetics. He was nominated by Dr. Mark Erbaugh, Director of International Programs in Agriculture. The award was formally presented on March 5th at the annual CFAES Recognition Luncheon.



Milton Gorocica with family at March 5th award ceremony

Dr. Milton Gorocica Buenfil, Global Cattle Marketing Director at Philbro Animal Health, is a co-recipient of the International Alumni Award. He earned his MS degree in 2003 and his PhD in 2006 from the Department of Animal Sciences. In his current position, he is responsible for planning, generating and implementing marketing plans to support technical sales staff in the Northern Hemisphere. Following graduation, he joined Cargill Meat Solutions as a national technical services leader for dairy

Citizen of the Year Award, Honduras

Dr. Jamie Cano, Professor in the Department of Agricultural Communication, Education, and Leadership (ACEL), and PhD student Tyler Agner, were awarded Citizens of the Year from Choluteca, Honduras for their work in the region for the past several years. In addition to leading a CFAES education abroad program, Dr. Cano and Tyler have worked with ACEL PhD student Larry Overholt and his wife Angie for the past several years in the areas of food security and health improvement. Dr. Cano and Tyler recently assisted Larry and Angie with the development of a nursing high school. Ohio State's College of Nursing will also be a partner in assisting with the validation of the content for the program.

Jamie and Tyler were also honored by the Manuel Bonilla Agricultural School in Apasilagua, Honduras. Jamie and Tyler have worked with the school on several projects, in addition through a CFAES education abroad program, where students assisted in developing both facilities that would host a swine chain and hoop houses.



Tyler Agner (Left) and Jamie Cano (Right) with the mayor of Choluteca

Global Food Security Symposium – Media Ambassador

Nall Moonilall, a Ph.D. student in the School of Environment and Natural Resources, was selected to serve as a Social Media Ambassador for the 2016 Global Food Security Symposium in Washington, D.C. The annual, one-day symposium is convened by the distinguished Chicago Council on Global Affairs, and provides a platform for discussion about the U.S. government and international community's progress on addressing challenges to global food security.

On April 26, 2016, Nall joined fifteen other accomplished undergraduate and graduate students from universities across the U.S. and the world to broaden the symposium's food security conversations online and throughout social media.



Nall Moonilall at the 2016 Global Food Security Symposium in Washington, D.C.



Academics, policy makers, and business leaders discussing emerging technologies and advances in the global food system.

“This opportunity broadened my horizon and resonated with my own research I am doing right here at Ohio State.”

- Nall Moonilall

Graduate Student Selected as a Fellow for Future Leaders Forum

Diego Orellana Vintimilla, a M.S. student in the Department of Entomology, was named a Fellow to the Future Leaders Forum – a competitive program managed by the Association for International Agriculture and Rural Development (AIARD) aimed at fostering student interest in international agriculture and rural development issues and their solutions. The Future Leaders Forums plays a pivotal role in fellows' professional development by building a broad array of social/cultural, economic, and scientific skills required to become an effective 21st century professional in international agriculture and rural development.

Diego, with support from the Office of International Programs in Agriculture, participated in AIARD's annual conference in Washington, D.C. from June 5-7, 2016, where he interacted with other researchers, students, professionals, and administrators working in the area of international agricultural development. His designation as a fellow also allowed him and eleven other graduate students from land-grant universities to visit international agencies, companies, and non-government organizations in Washington.



Diego Orellana Vintimilla

“This was a valuable opportunity to increase networking and become more familiar with international agricultural activities occurring in the development realm.”

Visiting International Delegations

Hubei Academy of Agricultural Sciences, China

On October 24, 2016 a delegation comprised of five officials from Hubei Academy of Agricultural Sciences (HAAS) visited the Food Animal Health Research Program (FAHRP) at the Ohio Agricultural Research and Development Center (OARDC). The visit was hosted by Dr. Mo Saif, Director Emeritus of FAHRP, who has had collaborations with HAAS for the past several years.



Mo Saif (forefront) listens on with the rest of the visiting HAAS delegation during a presentation at OARDC.

Members of the visiting delegation included Huabin Shao, Vice President of HAAS; Zuwu Jiao, Deputy Director, Institute of Animal Husbandry and Veterinary Science; Yongxiang Tian, Director, Veterinary Laboratory; Qingping Luo, and Tengfei Zhang, Institute of Animal Husbandry and Veterinary Science.

The focus of the visit was to explore potential opportunities for collaboration in the areas of agricultural teaching and research.

Federal University of Mato Grosso, Brazil

Four leaders from the Federal University of Mato Grosso (UFMT), visited The Ohio State University from September 4-9, 2016, at the welcome of Dr. Rattan Lal and his Carbon Management Sequestration Center, and Mr. Mike Chrisman of the Ohio International Internship Program.

The delegation consisted of Dr. Maria Lucia Neder, UFMT Rector; Dr. Paulo Teixeira de Sousa, Jr., Head of International Relations Office; Dr. Rogerio de Andrade Coimbra, Professor in the Faculty of Agronomic Sciences; and Dr. Daniel Abreu.

During the visit to Ohio State, the delegation met with President Michael Drake, Assistant Vice Provost Gifty Ako-Adounvo, Dr. Mark Erbaugh, and a number of other faculty within the College of Food, Agricultural, and Environmental Sciences.

The goal of the delegation was to establish cooperation between UFMT and OSU especially in student and faculty exchange, distant learning, and research on themes of mutual interest, including soil carbon sequestration, sustainable intensification, climate-smart agriculture, and biofuels.



Pontifical Catholic University, Chile

Two administrators from the Pontifical Catholic University (PUC) in Chile visited the College of Food, Agricultural, and Environmental Sciences in August 2016 to exploring informal and formal opportunities to increase collaboration and scholarly exchanges between Ohio State and PUC. The visit was hosted and organized by Dr. Doug Doohan, Professor in the Department of Horticulture and Crop Science.

The delegation consisted of Francisco Meza, Associate Dean for Graduate & Research and Center for Global Change at PUC, and Rodrigo Figueroa, Dean of Agriculture & Forestry at PUC. Dr. Figueroa is a 2003 alumnus of Ohio State University, receiving his PhD in the Department of Horticulture and Crop Science.



Dr. Francisco Meza delivers a seminar to CFAES faculty, staff, and students on August 11th

A mini-symposium focusing on managing and adapting agricultural systems through climate change took place on the OARDC campus during the afternoon of August 9 as a part of the visit.

Jain Irrigation Ltd., India

Dr. Dilip Kulkarni, President of the Agri Food Division and Sustainable Agriculture at Jain Irrigation Systems Ltd., visited Ohio State University on July 27-30, 2016. The visit was a follow-up to an earlier visit to Jain Irrigation Ltd, Punjab Agricultural University, and other institutions in India in March 2016 by Dr. Mark Erbaugh, Director of International Programs in Agriculture; Dr. Scott Shearer, Professor and Chair of the Department of Food, Agricultural, and Biological Engineering (FABE); and Ratnesh Bhattacharya, Director of the India Global Gateway Office.

The visit was hosted by International Programs in Agriculture, FABE, and the India Global Gateway Office. While on campus, Dr. Kulkarni also met with Provost Bruce McPheron; Dr. Lonnie King, Dean of CFAES; Dr. David Williams, Dean of the College of Engineering; and nine other CFAES faculty members and researchers to explore potential opportunities of collaboration between Ohio State CFAES and Jain Irrigation, chiefly the creation of an Education Abroad program in India.



(From left to right) Dr. Mark Erbaugh , Dr. Dilip Kulkarni, Provost Bruce McPheron, and Ratnesh Bhattacharya.

Egerton University, Kenya

Two administrators Egerton University in Njoro, Kenya visited the College of Food, Agricultural, and Environmental Sciences in November 2016 in order to renew ties with collaborators in the Office of International Programs in Agriculture and to explore new opportunities for collaboration.

Dr. Alexander Kahi, Vice Chancellor of Egerton University, and Wilson Karimi, Project Administrator of the Value Chains Program, both visited campus from November 8-10, 2016, and had meetings with CFAES administration and department faculty.



International Food Policy Research Institute (IFPRI)

John Ulimwengu, a native of the Democratic Republic of the Congo and Ohio State alum, serves as a research fellow at the International Food Policy Research Institute (IFPRI). There he is involved in research and policy work on strategies related to the implementation of the AU/NEPAD's Comprehensive Africa Agricultural Development Program (CAADP).

On July 13, 2016, he visited CFAES and addressed the Mandela Washington Fellows at Ohio State, and delivered a presentation on the need for a comprehensive agricultural transformation strategy in Africa.



John Ulimwengu

International Agreements

International agreements are important facilitators of international collaborations in agricultural teaching, research, and outreach. CFAES experienced another productive year in developing and signing three new agreements with higher education and research institutions in two countries in 2016.

Country	Institution	Year of Expiration	Faculty Initiator
China	Huazhong Agricultural University	2021	Hanping Wang
France	CIRAD/INRA/CGIAR/IRD	2021	Rattan Lal
Tanzania	University of Dodoma	2019	Marty Kress

The signing of these three agreements brings the total number of active agreements with international partners to 25. These active agreements represent formal relations existing between CFAES faculty and agricultural institutions of higher learning and research in 14 different countries.

As of the end of the 2016 calendar year, there are four international agreements in the development or approval stages.

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



Dr. Hanping Wang (Left) , Ohio State South Centers, accompanies Dr. William Brustein, Vice Provost for Global Strategies and International Affairs, as he signs a MOU with leaders from Huazhong Agricultural University in May 2016.

Record of Active CFAES International Agreements

Country	Institution	Type of Agreement	Year Initiated	Year of Expiration
Brazil	Universidade Federal de Viçosa	Memorandum of Understanding	2012	2017
Brazil	CAPES/MEC	Memorandum of Understanding	2012	2017
Brazil	Escola Superior de Agricultura "Luis Queiroz"/Universidade de Sao Paulo	Memorandum of Understanding	2012	2017
Brazil	Universidade Estadual Paulista	Memorandum of Understanding	2013	2018
Brazil	Universidade Federal do Paraná	Memorandum of Agreement	2014	2019
China	Hubei Academy of Agricultural Sciences	Memorandum of Understanding	2014	2019
China	Jilin Agricultural University	Memorandum of Understanding	2014	2019
China	Shandong Academy of Agricultural Sciences	Memorandum of Understanding	2015	2020
China	Chinese Academy of Agricultural Sciences	Memorandum of Agreement	2015	2020
China	China Agricultural University	Memorandum of Agreement	2015	2020
China	Fudan University	Letter of Intent	2015	2020
China	Huazhong Agricultural University	Memorandum of Understanding	2016	2021
France	CIRAD/INRA/CGIAR/IRD	Memorandum of Understanding	2016	2021
Ghana	Evangelical Presbyterian University College	Memorandum of Understanding	2014	2019
	Greenleaf International Agriculture Research Consortium	Memorandum of Understanding	2012	2017
Honduras	Escuela Agricola Panamericana – "El Zamorano"	Memorandum of Understanding	2014	2019
India	Indian Council of Agricultural Research	Memorandum of Agreement	2014	2019
Macedonia	University of SS. Cyril and Methodius	Memorandum of Understanding	2013	2017
Pakistan	The University of Agriculture	Memorandum of Understanding	2013	2018
Romania	University of Agricultural Sciences & Veterinary Medicine, Cluj-Napoca	Memorandum of Understanding	2014	2019
Senegal	University of Gaston Berger	Memorandum of Agreement	2013	2018
Tanzania	University of Dodoma	Letter of Intent	2016	2019
Tunisia	National Institute of Agronomy of Tunisia	Memorandum of Understanding	2013	2018
Uganda	Makerere University	Memorandum of Agreement	2013	2018
Ukraine	Dnipropetrovsk State Agrarian and Economic University	Memorandum of Understanding	2015	2020

Faculty Scholarly Presentations Abroad

Name	Presentation Title	Forum	Country
Agricultural Communication, Education, and Leadership			
Jamie Cano	Estilos de Aprendizaje y Enseñanza	Conferencia de Metodologías en Escuelas Vocacionales	Honduras
	Principios de Aprendizaje	Día Profesionales en la Escuelas Choluteca	Honduras
Robert Birkenholz	Leading Change	iAGRI Seminar Series	Tanzania
Scott Scheer	Using program planning models to implement outreach education programs that work	Innovative Agricultural Research Initiative	Tanzania
Shelly Dee Jepsen	Animal-drawn vehicles: Establishing a national 'Recommended Practice' to improve their visibility on roads	12th World Conference on Injury Prevention and Safety Promotion	Finland
Theresa Ferrari	Viewing camp counseling through the lens of self-determination theory	Self-Determination Theory Conference	Canada
Agricultural, Environmental, and Development Economics			
Joyce Chen	Climate Challenges and Out-Migration in Coastal Bangladesh	Bangladesh University of Engineering and Technology, Institute of Water and Flood Management	Bangladesh
	Climate Challenges and Out-Migration in Coastal Bangladesh	Delta 2100	Bangladesh
	Climate Challenges and Out-Migration in Coastal Bangladesh	Dhaka University, Institute of Disaster Management and Vulnerability Studies	Bangladesh
Elena Irwin	Land Use Change and Integrated Modeling for Sustainability Analysis	South American Institute for Sustainability and Resilience Studies (SARAS)	Uruguay
Mark Partridge	Agglomeration and Wage Dispersion: Evidence from Firm-Level Data in China.	Xiamen University	China
	Are the Most Productive Regions Necessarily the Most Successful?	Congress of the European Regional Science Association	Austria
	Are the Most Productive Regions Necessarily the Most Successful?	CIRCLE Lund University	Sweden
	Are the Most Productive Regions Necessarily the Most Successful?	IAB (Institute for Employment Research) Seminar	Germany
	Are the Most Productive Regions Necessarily the Most Successful?	Pacific Regional Science Conference	Thailand
	Are the Most Productive Regions Necessarily the Most Successful?	RIMSIP International Conference on Territorial Inequality and Development	Mexico
	Are the Most Productive Regions Necessarily the Most Successful?	The International IAB-Tinbergen Institute Regional Labor Markets Workshop	Netherlands
	Are the Most Productive Regions Necessarily the Most Successful?	Jiaotong University	China
	Place vs. People Based Policies: A View From Across the Pond	European Commission and London School of Economics	United Kingdom
	Publishing in International Journals	School of Economics, Jinan University	China
	Publishing in International Journals	South China Normal University	China
David Kraybill	Implementing Human and Institutional Capacity Development with Agricultural Higher Education Institutions: The Genesis of iAGRI	Fifth RUFORUM Biennial Regional Conference held October 17-21, 2016, Cape Town, South Africa	South Africa
Mario Miranda	Differential Effects of Food Security Policies on Subsistence Farmers and the Urban Poor	African Economic Conference	Nigeria
	Drought Index Insurance versus Supplemental Irrigation: A Randomized Controlled Trial Experimental Evidence in Northern Ghana	African Economic Conference	Nigeria
Stanley Thompson	Applied Econometrics	Free University of Bolzano, Bolzano Italy	Italy
	The Faculty Evaluation Process	Kiev National Economics University (KNEU)	Ukraine
Brent Sohngen	The Implications of Environmental Policy on Nutrient Outputs in Agricultural Watersheds	Umea University, Center for Environmental and Resource Economics	Sweden
Animal Sciences			
Ramesh Selvaraj	Avian CD4+CD25+ regulatory t cells: properties and therapeutic Applications	National Symposium on the Role of Veterinarian in Safe, Sufficient and Sustainable Animal Health and Production	India
	Effect of Salmonella infection on splenic macrophage suppressive properties in layer chickens vaccinated with Salmonella vaccine	Avian immunology Research Group	Germany
	Effect of Synbiotic Supplementation on Production Performances and Cecal Salmonella Load during a Salmonella Challenge	World Nutrition Forum	Canada

Name	Presentation Title	Forum	Country
Agricultural Technical Institute			
Nathan Crook	Effective Leadership: A Key to Career Success	2016 EPUC School of Business Job and Entrepreneurial Fair	Ghana
Victor Ujor	Metabolic engineering to enhance furfural tolerance during cellulosic butanol fermentation by glycerol-supplemented <i>Clostridium beijerinckii</i>	American Society for Microbiology Annual Conference	United Kingdom
	Implementing human and institutional capacity development with agricultural higher education institutions: The genesis of iAGRI.	5th RUFORUM Biennial Meeting	South Africa
Food Science and Technology			
Gireesh Rajashekara	Quorum Sensing Inhibitors to Enhance the Control of Avian Pathogenic <i>E. coli</i>	The 65th Western Poultry disease conference	Canada
	Small molecules, a potential novel control strategies to reduce <i>Salmonella</i> burden	I3S conference 2016	France
	Small molecules; a potential novel strategies to control <i>Clavibacter michiganensis michiganensis</i> in fresh produce	V International Symposium on Tomato Diseases	Spain
Hua Wang	Fermented Dairy Products, Food Safety & Antibiotic Resistance	Bright Dairy Science Forum	China
	Innovative Research and Mitigation of Antibiotic Resistance	Chinese Academy of Sciences	China
Ken Lee	Industrial implementation of gaseous ozone to produce and market safe shell eggs	IAFP 5th Annual Latin American Symposium on Food Safety	Mexico
M Giusti	Anthocyanin chemical structure affects their stability, bioavailability, and functionality in the human body	International Congress on Pigments in Foods	Romania
	Anthocyanin Pigments Absorption, Degradation and Bioactivity in the Gastrointestinal Tract and the Skin	Workshop on Bioactive Compounds & Food Quality	Brazil
	Establishing Standards on Colors from Natural Sources: Recommendations from an Expert Panel	Anthocyanin research meeting	Italy
	Roles of Metallic Cations, Hydroxycinnamic Acids, and Glycosylation on the Blue Color Expression of Cyanidin Derivatives	MARS Anthocyanin Research Meeting at the Scuola Internazionale Superiore di Studi Avanzati (SISSA)	Italy
Sheryl Barringer	Trends in the food industry in 2016 and their possible implications for Latin America	IX International Congress of Biochemical Engineering	Mexico
	Use of SIFT-MS to measure breath volatile levels during and after food consumption	IX International Congress of Biochemical Engineering	Mexico
	Use of SIFT-MS to measure breath volatile levels during and after food consumption	Syft European Users Meeting	United Kingdom
V.M. Balasubramaniam	High pressure homogenization	The first international forum of ultra high pressure technology and application. South China University of Technology	China
	High Pressure Homogenization of Beverages – Opportunities and Challenges	18th World Congress of Food Science and Technology. International Union of Food Science and Technology (IUFST)	Ireland
	High Pressure Processing For Extending Shelf Life Foods with Fresh-like Quality Attributes	The first international forum of ultra high pressure technology and application	China
	Nonthermal technologies for food manufacturing: Opportunities to improve health and wellness through minimally processed foods	International Conference on Emerging Technologies in Agricultural and Food Engineering	India
Valente Alvarez	Dairy Food Safety Training and Inspection."	Quality Check Dairies Latin America Program	Colombia
	FDA Food Safety Regulations	National Polytechnic Institute Anniversary Celebration	Mexico
	FDA FSMA Regulations	National Polytechnic Institute Anniversary Celebration	Mexico
	Regulatory Requirements for FSMA	International Conference of Biochemical Engineering	Mexico
Food, Agricultural, and Biological Engineering			
Ajay Shah	Cellulosic biofuels production in the United States Context	iAGRI/Sokoine University of Agriculture	Tanzania
	Techno-economic overview of cellulosic biofuels production in the United States	Tripartite Meeting	Brazil
Shelly Dee Jepsen	Animal-drawn vehicles: Establishing a national 'Recommended Practice' to improve their visibility on roads	12th World Conference on Injury Prevention and Safety Promotion	Finland
Horticulture and Crop Science			
Imed Dami	New Industrial Crop Initiative: Evaluation of Drought-Tolerant Guayule in Water-limited Resources in Tunisia	National Institute of Agriculture of Tunisia. Tunis, Tunisia	Tunisia
John Finer	Isolation and characterization of soybean promoters and their contributing cis-elements	Invited seminar	China

Name	Presentation Title	Forum	Country
David Francis	Genomic Selection for Resistance to Bacterial Spot of Tomato	46th Tomato Breeders Round Table	Dominican Republic
	The Effects of CYC B Allele Introgression on Cherry Tomato Fruit Quality.	46th Tomato Breeders Round Table	Dominican Republic
	Plant Breeding to Improve Vegetables for Tanzania	Sokoine University of Agriculture	Tanzania
	Scientific Advisory Committee and Invited Speaker.	14th ISHS Symposium on the Processing Tomato and 12th World Processing Tomato Congress 2016	Chile
	So Many Genomes, So Little Time: the Future of Plant Breeding.	46th Tomato Breeders Round Table	Dominican Republic
	Symposium celebrating 70th anniversary of the Pusan National University (PNU)	70th anniversary of the Pusan National University (PNU)	Korea
	Tomato Genetics and Breeding Working Group	National Institute of Horticultural and Herbal Science (NIHH)	Korea
Katrina Cornish	Cornish Interdisciplinary research overview	Center for Sustainable Chemical Technologies, Summer Showcase	United Kingdom
	Enzymes, wastes and biopolymers in new materials and products	GII International Workshop	Brazil
	Production of natural rubber from rubber dandelion (Taraxacum kok-saghyz) - a substitute for Hevea brasiliensis	First Dandelion Rubber Industrial Technology Innovation Strategic Alliance Conference	China
	Production, Utilization, and Properties of Guayule (Parthenium argentatum) Latex and Rubber - a Distinctive, Alternative Natural Rubber	First Dandelion Rubber Industrial Technology Innovation Strategic Alliance Conference	China
Kristin Mercer	Evolutionary ecology of hybrid zones between crops and their wild relatives: agroecological implications	National Autonomous University of Mexico, Center for Interdisciplinary Investigations in Sciences and the Humanities (CEIICH)	Mexico
	Reflections on science, capitalist political economy & Zapatismo	Science for Humanity	Mexico
Clay Sneller	Use of Genomic Selection to improve FHB resistance	International Fusarium Workshop	Brazil
Food Animal Health Research Program			
Daral Jackwood	The evolution of infectious bursal disease viruses	Department of Veterinary Pathology	Canada
Gireesh Rajashekara	Quorum Sensing Inhibitors to Enhance the Control of Avian Pathogenic E. coli	The 65th Western Poultry disease conference	Canada
	Small molecules, a potential novel control strategies to reduce Salmonella burden	I3S conference 2016	France
	Small molecules; a potential novel strategies to control Clavibacter michiganensis in fresh produce	V International Symposium on Tomato Diseases	Spain
Qihong Wang	Combating enteric viruses to improve swine and human health	Department of Animal Science, School of Agriculture and Biology, Shanghai Jiao Tong University, Shanghai, China	China
Renukaradhya Gourapura	US-UK Collaborative Swine Immune Toolkit Initiative: Development of new immune reagents for swine health, vaccine and disease studies.	British Society for Immunology and Dutch Society for Immunology Annual Congress meeting	United Kingdom
	US-UK Collaborative Swine Immune Toolkit Initiative: Development of new immune reagents for swine health, vaccine and disease studies.	International Veterinary Immunology Symposium	Australia
Ohio State Extension			
James Jasinski	Investigating the Use of Aerial Imagery to Detect Pests in Cucurbits: Integrating IPM With Modern Technology	Great Lakes Vegetable Working Group	Canada
Mark Erbaugh	Comments on Emerging Collaboration Initiative with African Agricultural Institutions of Higher Education, U.S. Land Grant Consortium and the World Bank	5th RUFORUM Biennial Meeting	South Africa
Cynthia Bond	Perceptions of Rural Philanthropic Development	Rural Sociological Society	Canada
Eric Barrett	Creating, Communicating and Implementing Your Farm's Emergency Plan	North American Farmers' Direct Marketers Association Annual Convention	Canada
	Updating Your Brand Through Each of the Five Senses	North American Farmers' Direct Marketers Association Annual Convention	Canada
Erik Draper	When is Blossom End Rot Not Really Blossom End Rot	Great Lakes Vegetable Working Group	Canada
Jacqueline Kowalski	Market Opportunities for Ethnic Vegetables in Northeast Ohio	Great Lakes Vegetable Growers Working Group	Canada
	Urban Agriculture Update for Northeast Ohio	Great Lakes Vegetable Integrated Pest Management Working Group	Canada
Jeff Stachler	Glyphosate and Multiple Resistance and the Non-Negotiables	Richardson Pioneer	Canada
Pamela Bennett	Answering consumer gardening questions online using the Ask a Master Gardener program	6th International Conference on Landscape and Urban Horticulture	Greece
	Brief history, current involvement, and overall impact of the extension master gardener program in the United States	6th International Conference on Landscape and Urban Horticulture	Greece
	Increasing master gardener volunteer confidence in diagnosing plant problems through diagnostic workshops	6th International Conference on Landscape and Urban Horticulture	Greece
	Utilizing master gardener volunteers in University Plant Evaluation Programs	6th International Conference on Landscape and Urban Horticulture	Greece

Name	Presentation Title	Forum	Country
	Utilizing volunteers to conduct tree surveys in local communities	6th International Conference on Landscape and Urban Horticulture	Greece
Robert Leeds	Creating, Communicating and Implementing Your Farm's Emergency Plan	2016 North American Farmer's Direct Marketing Association Convention	Canada
	Updating Your Brand Through Each of the Five Senses	2016 North American Farmer's Direct Marketing Association Convention	Canada
Susan Zies	Participatory Research in Health Communication: Challenges for Measuring Outcomes	International Association for Media and Communication Research, 2016	United Kingdom
	Self-efficacy for Food Choice and Healthy Eating in Preventing Adolescent Obesity among Adolescents	International Association for Media and Communication Research, 2016	United Kingdom
Brad Bergfeld	Hops Industry Development and Production in Ohio	Great Lakes Vegetable Working Group Annual Meeting	Canada
	Hops Production in Ohio	Great Lakes Vegetable Working Group Annual Meeting	Canada
	Mechanical Vegetable Plant Transplanter, Set Up and Operations	Université Gaston Berger	Senegal
Theresa Ferrari	Viewing camp counseling through the lens of self-determination theory	Self-Determination Theory Conference	Canada
Plant Pathology			
Guo-Liang Wang	Molecular Mechanisms of Rice Resistance and Breeding Strategies against Magnaporthe oryzae	6. Workshop of Genetic Basis and Breeding Application on High-yield Superior Quality Rice	China
	Molecular Mechanisms of Rice Resistance and Breeding Strategies against Magnaporthe oryzae.	Symposium on rice disease and insect control	China
	Positive and negative regulation of the NLR immune receptor Piz-t in rice	7th International Rice Blast Conference	Philippines
	Unraveling the molecular mechanism of rice immunity against Magnaporthe oryzae	Department seminar	Canada
Lucy Stewart	Corn-eating viruses and their vectors	Borlaug mentor reciprocal visit	Vietnam
	Leafhopper transmission of maize viruses and insights of transcriptomics	Rural Development Administration--Jeollabuk-do Seminar Series	Korea,
Margaret Redinbaugh	The Emergence and Control of Virus Diseases in Maize: MLN in East Africa	CIBB 2016: Congreso Internacional de Biotecnología y Biodiversidad	Ecuador
	The Spread of Maize Lethal Necrosis in East Africa: Is Seed Transmission of Maize Chlorotic Mottle Virus Important?	N/A	Tanzania
Pierce Paul	More than a decade of coordinated research to develop integrated management programs for Fusarium head blight of wheat	5th International Symposium on Fusarium Head Blight and 2nd International Workshop on Wheat Blast	Brazil
Pierluigi Bonello	FT-IR spectroscopy for the rapid identification of disease resistant trees	9th Tripartite Meeting	Brazil
Sally Miller	Approaches to management of bacterial wilt of tomato in South Asia	V International Symposium on Tomato Diseases	Spain
	Small molecules, a potential novel control strategy to reduce Salmonella burden. International Symposium Salmonella and Salmonellosis	International Symposium on Salmonella and Salmonellosis	France
Thomas Mitchell	Identification and functional analysis of a putative Avr-Pi2 gene	2016 International Rice Blast Congress	Philippines
Feng Qu	A novel mechanism of superinfection exclusion among identical viruses	9th OSU-USP-Rutgers Tripartite Meeting	Brazil
	Viruses do not share their residence with close relatives: "How and why?"	2016 Fuzhou International Symposium of Plant Pathology	China
Environment and Natural Resources			
Alfredo Berardo	Environmental Crises and the Governance of Natural Resources. School of Public Administration. Zhongnan University of Finance and Economics.	Invited talk at Zhongnan University of Finance and Economics	China
	Juxtaposing Advocacy Coalition: A Comparison of Hydraulic Fracturing Politics in Argentina, China, and the United States	HKU-USC-IPPA Conference on Public Policy	China
	Management of Water and Land Resources in Weakly Institutionalized Governance Systems.	Invited talk at Huazhong University of Science and Technology.	China
	The Evolution of the Complex Governance of Common-Pool Resources in the Presence of Environmental Focusing Events.	HKU-USC-IPPA Conference on Public Policy	China
Suzanne Gray	The influence of turbidity on the physiology of imperiled North American Blackline Shiners	International Association of Great Lakes Research	Canada
	Using behavior and physiology to inform conservation of imperiled species	Canadian Society of Zoology	Canada
Rattan Lal	Soil research in the Joint Programming Initiative on Agriculture, Food Security and Climate Change	Joint Programming Initiative on Agriculture, Food Security and Climate Change (FACCE-JPI)	Belgium
	Soil C for Climate Change, Food Security and SDGs of the U.N.	Joint Programming Initiative on Agriculture, Food Security and Climate Change (FACCE-JPI)	Belgium
	Tenets of Soil Quality Management		Pakistan
	Evolution of Conservation Agriculture	Federal University of Mato Grosso (UFMT)	Brazil
	Environment and Agriculture	Federal University of Mato Grosso (UFMT)	Brazil

Name	Presentation Title	Forum	Country
Rattan Lal	Soil Health and Environmental Management for Sustainable Agricultural Production Systems	International Conference on Pulses for Health, Nutrition and Sustainable Agriculture in Drylands	Morocco
	Conservation Agriculture in Sub-Saharan Africa	The Annual CA Conference	South Africa
	Conserving Soil and Water Resources for Climate-Resilient Agriculture	3rd Waswac Conference	Serbia
	Adaptation of African Agriculture to Climate Change	AAA High Level Meeting	Morocco
	Sustainable and Resilient Soil Management in Climate Context	AAA High Level Meeting	Morocco
	Soil Science: Beyond Food and Fuel	IUSS InterCongress Meeting	Brazil
	Sustainable Landscape Management in Changing Climate		India
	Soil Carbon Sequestration: Technical Potential and Options	Clarence House	United Kingdom

Ohio State iAGRI Graduate Curbing the Devastating Effects of Rice Blast Disease

Emmanuel Mgonja successfully completed his PhD requirements in the Department of Plant Pathology at The Ohio State University this past summer. Emmanuel, who took a leave from his job at the Katrin Agricultural Research Institute in Dar es Salaam, Tanzania researched the molecular mechanisms of resistance to rice blast in Africa.

Rice blast, a disease caused by a fungus *Magnaporthe oryzae*, produces lesions on the leaves, stems, seeds, and roots of rice plants and can be responsible for yield losses in rice as substantial as 70% in East Africa.

His graduate research, entitled "Molecular Analysis of Host Resistance and Pathogenicity of Rice Blast in East Africa", was overseen by his advisors Dr. Guo Liang Wang and Dr. Tom Mitchell in the College of Food, Agricultural, and Environmental Sciences' Department of Plant Pathology. Dr. Robert Mabagala, from the Sokoine University of Agriculture's (SUA) Department of Crop Science and Horticulture, was Emmanuel's Tanzanian supervisor.



In 2012, Emmanuel received a fellowship to complete his Ph.D. studies at Ohio State through the support of the Innovative Agricultural Research Initiative (iAGRI) - a major Feed the Future project funded by the U.S Agency for International Development (USAID) and administered by the Office of International Programs in Agriculture in Ohio State's College of Food, Agricultural, and Environmental Sciences. He previously had completed his MS at Tokyo University of Agriculture in Japan studying Rice Yellow Mottle Virus (Sobemovirus) in Tanzania.

In addition to strengthening collaborative research linkages and facilitating institutional capacity development at SUA, human resource capacity building is one of the other major objectives of the iAGRI project. As one of many well-rounded graduates supported by the iAGRI project, Emmanuel can now utilize the newest technologies for applied research in plant pathology, genetics, and breeding back in Tanzania. Another Ohio State iAGRI student, Elias Balimponya, worked on his M.S. research in the Department of Horticulture and Crop Science in conjunction with Emmanuel. With rice samples from Africa, Emmanuel learned gene mapping and sequencing from molecular analysis experts at Ohio State, and found 56 loci associated with rice blast resistance. Of these, 43 were newly identified.

Additionally, he found that 30 rice cultivars are highly resistant to rice blast populations in Africa. These cultivars were further screened in Cotonou, Benin with additional funding from a prestigious award from the Norman E. Borlaug Leadership Enhancement in Agriculture Program (Borlaug LEAP), in which Emmanuel worked with at Dr. Drissa Silue, a plant pathologist at AfricaRice, during the summer of 2016. Emmanuel's identification of DNA markers linked to two major resistance genes and highly resistant cultivars is knowledge that can now be immediately used by rice breeders in Africa. Emmanuel looks

forward to utilizing these findings which has the potential to reduce yield loss by 20% in rice, one of the most consumed staple crops and essential for family consumption and income generation in Sub-Saharan Africa.



Going forward, Emmanuel will be an invaluable asset in identifying challenges, exploring solutions, and ultimately increasing food security in Tanzania and throughout East Africa. He has already published one paper in the journal *Phytopathology*, and submitted a second. In 2015, he presented a poster at the American Phytopathological Society Annual Meeting (APS) on his research.

As Emmanuel explains, "Thanks to my scholarship to study in the United States, I was able to add to my previous MS research in Japan, and gained valuable insight that has enabled me to complete my research. Throughout this experience at Ohio State, funded by the iAGRI project, I have learned important leadership skills and appreciate the opportunity to have collaborated with an international community of plant pathologists."

With visit to India, CFAES looks to expand research and industry linkages with Indian partners

As a country that is incredibly diverse geographically, socially, and economically - not to mention one that is undergoing transformative change at the moment - India is in a unique position to offer compelling international opportunities to faculty and students in Ohio State's College of Food, Agricultural, and Environmental Sciences (CFAES).

So says Dr. Mark Erbaugh, Director of the Office of International Programs in Agriculture. He, along with Dr. Scott Shearer, Chair and Professor of the Department of Food, Agricultural, and Biological Engineering (FABE), recently traveled to India on behalf of the college to explore collaborative opportunities with Indian businesses and higher education institutions, most notably in the area of agricultural

engineering. The visit, which was facilitated by Ohio State's India Gateway Office in Mumbai – specifically Ratnesh Bhattacharya, Director, India Gateway Office, and Priya Vasant Kurle - and included visits to six cities and meetings with representatives from seven different organizations.

India, currently the world's fastest-growing large economy, finds itself heavily and strategically investing in education, technical training, and research and development across all sectors in order to meet the labor demands of the nation's rising population and to position itself as a major global exporter of major commodities. Opportunities for growth are especially pronounced in India's agricultural sector, which has been lagging recently, but is now receiving more deserved attention due to the percentage of the population engaged in agriculture (approximately 50%) and the inevitable reality of feeding the nation's projected 1.6 billion people by 2030.

The visit from CFAES aligns nicely with this narrative, as many public organizations and private firms in India are looking internationally for partnerships to leverage that will build the country's capacity to face these challenges head-on. While traveling throughout India, Dr. Erbaugh and Dr. Shearer met with leaders from businesses like TATA, Mahindra, Jain Irrigation, and Infrastructure Leasing & Financial Services (IL&FS), all of which have worked intensely to expand and diversify their agricultural product and service lines.

Such expansion in the agricultural sector has incredible potential. Dr. Shearer believes that the next "Green Revolution" – a term used commonly to refer to the substantial growth in food production in the developing world during the mid-20th century as a result of new agricultural technologies – will come about through digital agriculture, a major component of precision agricultural technology.

FABE has been heavily focused in precision agriculture, which involves using sophisticated monitoring tools and practices to dramatically improve crop

performance, resource management, and farm operations. This focus is part of the larger Translational Data Analytics project, one of eight focus areas of the university's Discovery Themes initiative.

Though many new connections were made during the course of the visit, other meetings focused on renewing and strengthening existing partnerships. Dr. Erbaugh and Dr. Shearer visited one of CFAES' longtime international partners – Punjab Agricultural University (PAU) in Ludhiana, India – of which Ohio State was instrumental in the creation in 1962 through an effort funded by the U.S. Agency for International Development (USAID). Ohio State and PAU have collaborated for decades and most recently have worked together on several major projects, including the Innovative Agricultural Research Initiative (iAGRI) in Tanzania and the Tri-lateral Project for Food Security in Kenya.

The Vice Chancellor of PAU, Dr. Baldev Singh Dillon, as well as Dr. J.S. Mahal, Dean of the College of Agricultural Engineering and Technology, both welcomed the opportunity to continue working with Ohio State and to expand their cooperation in new areas of student exchanges and joint research. One of the potential opportunities discussed was an Education Abroad program at PAU for Ohio State undergraduate students studying agricultural engineering. Professors who have worked closely with CFAES faculty in the past were also present, including Dr. Sandeep Kapur, Director at School of Business Studies, and Dr. Vishal Bector, Associate Professor in the Department of Farm Machinery and Power Engineering.

The visit also included a brief meeting at the U.S. embassy to meet with U.S. Department of Agriculture – Foreign Agricultural Service and USAID representatives. Ohio State-CFAES, through the Office of International Programs in Agriculture, continues to work closely with USDA-FAS through the agency's scientific exchange programs, such as the Borlaug International Agricultural Science and Technology Fellowship Program and the Cochran Fellowship Program.

"PAU has been a key partner in CFAES' internationalization efforts. They are an institution that is well respected internationally, and have many distinguished faculty making important scholarly contributions to the agricultural and environmental sciences." - Dr. Mark Erbaugh



THE OHIO STATE UNIVERSITY

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