

INTERNATIONAL PROGRAMS IN AGRICULTURE ANNUAL REPORT 2012

International Engagement in the College of Food, Agricultural, and Environmental Sciences

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Photo Credit: Our Thanks to Jeff LeJeune (FAHRP) for the cover photo, and to many in the College that contributed photos for this report.

I. International Programs in Agriculture - An Introduction

The Office of the International Programs in Agriculture (IPA) was established in 1955 to foster international outreach and engagement in the College. Today IPA continues to promote global opportunities within the College, emphasizing the developing world. We accomplish this by assisting with the submission and administration of international grants and contracts; by managing short-term scientific exchange programs for international visitors and scientists, and by implementing degree programs for international graduate students. We assist in the development of international agreements (MOUs) that facilitate working across borders. The Office of International Programs also encompasses The Ohio Program, a unique international exchange program specializing in internships for students in Horticulture, Agriculture and Turfgrass. Currently, IPA administers a \$9.7 million portfolio of grants. Our key funding agencies are United States Agency for International Development (USAID), The United States Department of Agriculture Foreign Agriculture Service (USDA/FAS), and Higher Education for Development (HED).

MISSION STATEMENT

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

The 2012 International Programs Annual Report covers international activities undertaken by many members of the College of Food, Agricultural and Environmental Sciences (CFAES) in addition to the International Programs in Agriculture Office (IPA). Since information is voluntarily provided by the larger community of CFAES, it is not a complete record of activities, but nonetheless conveys the variety and depth of international activities in the College.

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INTERNATIONAL PROGRAMS IN AGRICULTURE: WHAT WE DO AT A GLANCE

Develop proposals for CFAES faculty and staff in international research and outreach and administer the awards.

■Current Grant Portfolio \$9.7 M.

Provide leadership in international capacity building programs and manage degree programs for international graduate fellows.

- •USAID Feed the Future funding provided to OSU for 5 years (2011-2016) to lead a consortium of universities to build capacity in Tanzania (iAGRI).
- 55 USAID-funded Tanzanian graduate students placed for graduate study at OSU, USA consortium universities and through Ruforum.

Welcome and assist international exchange fellows and manage short-term training programs.

- Four Prestigious USDA Borlaug Fellows hosted in 2012.
- Scientific exchange groups from China, Georgia, and Armenia (2 week programs) hosted in 2012.

Facilitate Memoranda of Understanding between OSU and international partners.

■ 9 MOUs signed in 2012

Connect U.S. agribusinesses with international interns through The Ohio Program.

■385 international interns from 46 countries recruited in 2011-2012.

Guide students to Peace Corps opportunities.

■40 Peace Corps volunteers recruited in 2011-2012.

Host International Visitors to the OSU campus

• 45 vistors hosted.



TABLE 1. DEVELOPMENT PROJECTS ADMINISTERED BY INTERNATIONAL PROGRAMS IN AGRICULTURE - 2012

Title	Sponsor	Investigator	Budget	Project Begin	Project End
Collaborative research and capacity building of Sokoine Univ. of Agriculture and the National Agriculture Research System (iAGRI)	Agency for International Development (USAID)	Mark Erbaugh, David Kraybill	\$6,500,000	3/1/11	2/28/16
Building human capital for microfinance institutions in order to increase competitiveness and reduce rural poverty in Mexico	Higher Education for Development	Jerry Ladman, Mark Erbaugh, David Hansen	\$181,320	1/1/11	8/31/12
Development of agronomy and crop production academic programs, research, and need based extension pro- grams for sustainable food production in Senegal	Higher Education for Development	Richard Dick Mark Erbaugh Ken Martin Steven Neal Emilie Regnier	\$827,740	12/21/10	9/30/15
Africa Food Security Initiative (Uganda)	Virginia Tech	Mark Erbaugh Sally Miller	\$266,870	9/29/08	8/24/2012
US/Africa/India Trilateral University Partnership	USDA/FAS	Mark Erbaugh, David Hansen	\$144,908	4/1/2012	11/30/2012
Agricultural Innovation Partnership	Cornell University	Mark Erbaugh, David Hansen	\$238,069	7/1/2011	9/30/2015
Regional IPM Program for East Africa: Kenya, Tanzania (IPM CRSP)	Virginia Polytechnic Institute	Mark Erbaugh Luis Canas, Matthew Kleinhenz, Joseph Kovach, Sally Miller	\$817,903	10/1/09	9/30/2014
Enhancing vegetable value chains in Morogoro, Tanzania	Africa Rising	Sally Miller, Mark Erbaugh, Jeffrey LeJeune	\$22,500	4/1/2012	9/30/2012
Market Development in Support of Sorghum and Millet Farmers in Tanzania and Zambia (INTSORMIL-CRSP)	University of Ne- braska, USAID	Mark Erbaugh, Donald Larson	\$436,616	7/1/07	2/28/13
USDA Global Research Alliance Fellow- ship Program	USDA Foreign Ag Service	Mark Erbaugh	\$27,761	6/29/11	12/31/13
USDA Norman E. Borlaug Fellowship Program	USDA Foreign Ag Service	Mark Erbaugh	\$86,425	(several projects)	12/31/13
Cochran Fellowship Program	USDA Foreign Ag Service	Mark Erbaugh	\$54,298	6/16/12	6/15/13
Scientific Cooperative Exchange Program for China	USDA Foreign Ag Service	Mark Erbaugh	\$41,062	7/02/12	7/02/14
Hort CRSP: Kirinyaga District, Kenya	UC Davis	Kleinhenz, M; Erbaugh, M; Miller, S	\$75,000	10/1/10	10/29/12
		Total	\$9,701,252		

II. DEVELOPMENT PROJECTS ADMINISTERED BY INTERNATIONAL PROGRAMS IN AGRICULTURE - 2012 UPDATE

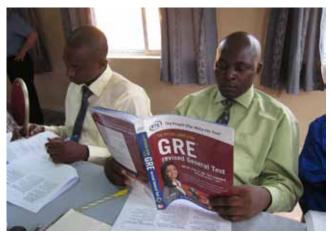
INNOVATIVE AGRICULTURAL RESEARCH INITIATIVE - IAGRI HTTP://www.iagri.org/

iAGRI is a five-year project funded by the United State Agency for International Development (USAID) that began in March, 2011. iAGRI's ambitious goal is to improve food security and agricultural productivity in Tanzania by providing advanced degree training in agriculture for more than 100 Tanzanian graduate students and strengthening the teaching and research capacity of the Sokoine University of Agriculture (SUA) and the Ministry of Agriculture, Food Security and Cooperatives (MAFSC). OSU/CFAES is the prime contractor for this project, working with five land-grant partners: Michigan State University (MSU), University of Florida (UF), Virginia Tech (VT), Tuskegee University (TU), and Iowa State University (ISU).

David Kraybill (AEDE) is the Project Director in Tanzania. International Programs in Agriculture staff involved in the project include Project Ad-

ministrative Director **Mark Erbaugh**; Program Manager **David Hansen**, Training Coordinator **Mary Ann Rose**, Administrative Assistant, **Pat Rigby**, and Fiscal Manager **David Mackie**.

Graduate Training 2011-2012. The first group



Studying for the GRE in Tanzania

IAGRI SHATTERS NORTH-SOUTH COMMUNICATION BARRIERS

A simple, but elegant modern communication technology - video-conferencing - is used in Tanzania to link agricultural and nutritional scientists with peers in the United States for workshops, student advising and planning of research. The iAGRI program first made innovative use of communications technology In February 2012, when the program sponsored a workshop broadcast live from Ohio to 43 Tanzanians planning to take the Graduate Record Examination (GRE) and the Test of English as a Foreign Language (TOEFL). GRE and TOEFL workshop instructors taught from the campus of Ohio State University, interacting in a give-and-take manner with the workshop participants seated before a large screen in Morogoro, Tanzania. Video-conferencing enabled the workshop to be offered in a timely manner and at a low cost, and resulted in higher GRE and TOEFL scores for workshop participants. Achieving higher scores led to more scholarship placements in the U.S. in 2012.

Videoconferencing technology will make the greatest contribution to the graduate training program by bringing together US advisors and students studying in the US with research co-advisors in Tanzania. A video-conference room has been dedicated to this effort at iAGRI project head-quarters at Sokoine University of Agriculture in Tanzania, As iAGRI trains the next generation of agricultural scientists in specific disciplines, the program also will spread the use of technology that slashes the cost of international collaboration.

of 6 Tanzanian M.S. students that came to study in the U.S. in the Autumn of 2011 will have returned to Tanzania to begin the research phase of their program by the end of 2012. Respikius Gabagambi, the first iAGRI student to study at OSU, returns in December, 2012 to begin a project in rural sociology. His OSU advisor is **Jeff Sharp** (SENR).

Graduate Training 2012. iAGRI staff identified forty-three new candidates for US scholarships in early 2012. iAGRI held a two-day workshop in February to assist the semifinalists in preparing for the Graduate Record Exam (GRE) and Test of English as a Foreign Language (TOEFL) prior to taking the tests in March. By June, twentynine of the highest-scoring candidates (16 Ph.D., 12 M.S.) were selected for scholarships at OSU and partner institutions. In addition to the 29 graduate students placed at U.S. Universities, ten graduate (8 M.S., 2 Ph.D.) and ten undergraduate fellowships were awarded for study at Sokoine University of Agriculture. An additional 10 students were awarded iAGRI scholarships at African institutions through a sub-agreement with RUFORUM (Regional Universities Forum for Capacity Building in Agriculture). In July, Rob Cunnane, USAID/Tanzania Mission Director, presided over a send-off at the American Embassy in Dar es Salaam for all of the Tanzanians



Plant Disease Workshop Participants

awarded scholarships in 2012. **David Kraybill** (AEDE), SUA Vice Chancellor **Gerald Monela**, and the Tanzanian Minister of Agriculture **Christopher Chiza** addressed the awardees at this gala event.

iAGRI Placements in First Two Years of Program

Placement	number
Ohio State	9
University of Florida	10
Iowa State	3
Michigan State	5
Tuskegee Univ.	5
Virginia Tech	3
SUA - graduates	10
SUA - undergraduates	10
Ruforum	10
Total Placements 2011-2012	65

In September, 2012 iAGRI announced the scholarship competition for Autumn 2013 A third group of candidates is currently under review.

Collaborative Research Grants Program.

iAGRI partners held a priority-setting workshop in late 2011 to identify key themes for future collaborative research efforts. Subsequently teams of Tanzanian and U.S. researchers were sponsored to write research background papers on each of the themes. Themes included (1) crop improvement; (2) agricultural policy; (3) climate change; (4) agricultural extension; (5) gender and agricultural production; (6) nutrition; (7) value chains; (8) water and natural resources. The background papers were presented at a workshop in Morogoro in August, 2012. SUA and MAFC researchers were invited to express interest in the iAGRI research grant program. From the individual responses, iAGRI built teams of U.S. and Tanzanian researchers to propose research concepts, guided by iAGRI's eight thematic Research Background Papers. Full research proposals for iAGRI funding will be reviewed in 2013.

Plant Disease Diagnostic Workshop at SUA. Sally Miller and Feng Qu (PPATH) led a plant disease diagnostic workshop May 1-4, 2012, on the detection and identification of key pests and pathogens of East African vegetable and fruit crops. The OSU staff was ably assisted by professionals from partcipating African institutions. The workshop, held at Sokoine University of Agriculture (SUA), was sponsored by USAID through the IPM CRSP Regional Program in East Africa, International Plant Diagnostic Network (IPDN), Plant Virus Global Theme Program, and the Innovative Agricultural Research Initiative. Twenty-two participants (9 female, 13 male) from Tanzania, Kenya and Uganda attended. The iAGRI program sponsored the participation of 10 Tanzanian employees of SUA and MAFC.

The Vice Chancellor of SUA, **Professor Gerald Monela**, visited the College of Food, Agricultural, and Environmental Sciences in June, 2012.

Monela met with the Tanzanian Students currently on the OSU campus, and visited both Columbus and Wooster Campuses to hold discussions with President **Gordon Gee**, Vice Provost **William Brustein**, Graduate School **Dean Pat Osmer**, CFAES Dean **Bobby Moser**, Director of OARDC **Steve Slack**, Associate Extension Director **Kenneth Martin**, and IPA Director **Mark Erbaugh**. OSU hosts provided Monela with an overview of the U.S. land-grant system. OSU faculty accompanied Monela to Washington,



L-R: Mark Erbaugh, Gerald Monela, Gordon Gee.

D.C. where he met with leadership of the Association for Public and Land-Grant Universities, the USAID Bureau for Food Security, and the National Institute for Food and Agriculture (NIFA), including NIFA Director **Sonny Ramaswamy** and **Hiram Larew**, Director of the NIFA Center for International Programs.

Stanley Thompson (AEDE) delivered a five-day workshop on *Research Methods for the Social Sciences* in August on the SUA campus. Topics included problem identification, development of research hypotheses, model specification, data



Stanley Thompson teaching in Tanzania

collection and analysis, statistical inference, and communication of results. Forty SUA faculty, staff, and students attended

Other iAGRI Activities in 2012. • Eulalia Temba of Mzumbe University conducted a gender assessment at SUA, funded by iAGRI. ● In August, a brown bag seminar at SUA was held for four policy teams to present concept notes solicited by iAGRI and receive feedback and suggestions. The teams are now preparing full-blown proposals. • iAGRI sponsored a workshop in October on "Randomized Controlled Trials for the Social Sciences" to improve the capacity of social scientists to conduct impact assessments. Fifteen academic staff members and graduate students participated. James Mlangwa and Helena Ngowi, evaluation research specialists, were the instructors. The workshop was recorded digitally and is available for viewing on demand. • The iAGRI program review was conducted in Tanzania in October, with Mark Erbaugh, OSU Project PI, and David Hansen, iAGRI Program Manager, attending. While there they met with Vice Chancellor Gerald Monela and his associates to discuss the program progress and future priorities.

TRILATERAL PARTNERSHIP FOR FOOD SE-CURITY IN KENYA

In 2012, IPA negotiated an agreement with USDA/FAS to partner with Punjab Agricultural University (PAU) in a program to enhance food security in sub-Saharan Africa. Punjab Agricultural University is a long-time OSU partner in India. Together, OSU and PAU will provide technical assistance to Egerton University in Kenya, strengthening that institution's capacity to increase food security in Kenya. IPA director Mark Erbaugh and Program Manager David Hansen accompanied Dr. Alexander Kahi, Dean of Agriculture, Egerton University and Susan Waage, Program Manager, USDA/FAS on a visit to the Punjab Agricultural University in Spring, 2012. This visit was designed to acquaint Dean Kahi with resources and programs available on the PAU campus. The team met to discuss the trilateral program with the Director General of the Indian Council of Agricultural Research, S. Ayyappan and representitives from the USAID/ India Mission and USDA/FAS in New Delhi. In Summer 2012, Mark Erbaugh and David Hansen returned to India for a program implementation meeting with PAU partners Gursharanan Singh, Piara Chahal, Sandeep Kapur, and Alexander Kahi and other faculty from Egerton University.

USAID HIGHER EDUCATION DEVELOPMENT PROJECT AT THE UNIVERSITY OF GASTON BERGER, SENEGAL

www.oardc.ohio-state.edu/ugb-senegal

This five-year project is developing academic, research, and service programs at the Université Gaston Berger, Senegal (UGB) that focus on sus-

tainable food production in the Sahel of Africa. The goals of the project include 1) assisting with curriculum development at UGB for associate and bachelor degree programs in agroecology; 2) building UGB faculty capacity for teaching, research and extension; 3) building a pilot program of integrated research and outreach for small farmers; and 4) facilitating faculty exchanges. **Richard Dick** (SENR) co-directs the project with former OSU post-doctoral scholar, Professor **Mateugue Diack** of UGB. **Amanda Davey** (SENR) coordinates project logistics, purchasing, reporting, and UGB faculty and PhD student training at OSU.

In November 2011, **Steve Neal**, Associate Director for Academic Affairs at the Ohio State University Agricultural Technical Institute (ATI) and OSU Extension Specialist **Brad Bergefurd** accompanied Richard Dick and Amanda Davey to UGB for educational and planning sessions. Steve Neal provided UGB faculty with an intensive overview of ATI's two-year technical program. UGB faculty expressed much interest in developing a similar program at UGB. Brad Bergefurd provided extension expertise and recommendations in the area of vegetable crop production, mechanization, drip irrigation and direct marketing. He also conducted site evaluations of the newly established agricultural



Brad Bergefurd speaking to farmers in Senegal



Emily Regnier teaching in Senegal

research and demonstration farm at the UGB. Bergefurd returned to Senegal in December to assist with set up and training for a new mechanical vegetable transplanter. He also hosted reciprocal visits to Southern Ohio by two groups of agricultural faculty and staff from UGB. He introduced the delegations to small farm production, operations, and marketing, and hosted visits to specialty farms and a produce auction.

OSU Weed Scientist **Emily Regnier** (HCS) gave two presentations at Gaston Berger University in 2012. *Teaching Weed Ecology through a Field Exercise* was presented to 21 UGB faculty and staff. She followed up with a practical weed ecology field exercise for 23 students enrolled in the Agronomy program.

In July, 2012 the Rector of UGB, **Dr. Mary Teuw**, visited OSU with project co-director **Mateugue**-

Diack, and **Abdou Sene**, Dean of the Faculty of Agriculture. The UGB delegation met with **Dean Bobby Moser** and other faculty and had the opportunity to travel to OARDC in Wooster and regional OSU experiment stations.

UGB faculty Mariana Diallo and Mateugue Diack spent several months at OSU working with Richard Dick on soil microbiology and biochemistry research in 2012. The project also sponsored

Farokh Niass and **Amadou Bal** to work on campus with **Konrad Dabrowski** and **Celeste Welty**, respectively.

Two students from UGB have been awarded fellowships to begin doctoral studies in weed science and agricultural engineering at OSU in 2012. A third PhD candidate will be selected for a scholarship in agricultural communications in early 2013.

COCHRAN FELLOW TRAINING IN SUSTAINABLE EXTENSION

International Programs in Agriculture (IPA) hosted a study tour in Sustainable Approaches to Agricultural Extension for eleven USDA Cochran Fellows from Armenia and Georgia, June 18-29, 2012. The participants included officials from government, NGOs, and private agricultural enterprises that provide information and services to their agricultural communities. Alan Lines (AEDE) and Mary Ann Rose (IPA) received funding from the United States Department of Agriculture Cochran Fellowship Program for the intensive two-week program. Alan Lines (AEDE) led the training, assisted by OSU Extension faculty members. The program was designed to explore relationships among university extension, government agencies and industry associations and how they work together to achieve



Cochran Fellows from Armenia and Georgia with hosts

common educational goals. The group met with extension faculty, farmers, government agencies, and key industry associations throughout Ohio. The organizations and their OSUE partners included the Ohio Farm Bureau Federation, the Ohio Sheep Improvement Association (Roger High and Jeff McCutcheon, OSUE), the Ohio AgriBusiness Association (Gregg LaBarge, Harold Watters, OSUE; Mark Loux, HCS), Ohio Cattlemen's' Association (John Grimes, OSUE), Ohio Produce Growers and Marketing Association (Joanne Kick-Raack, Gary Gao, **Brad Bergefurd**, OSUE), Ohio Grape Industry Committee (Gary Gao, Dave Scurlock, OSUE), Ohio Pork Producers Association (Dale Ricker, OSUE), Ohio Dairy Producers Association, Ohio Department of Agriculture (Joanne Kick-Raack and Nancy Taylor, OSUE), Ohio Corn and Wheat Growers Association, and the Ohio Soybean Council. OSU faculty providing training for the group included Ken Martin (Associate Director, OSUE), **Donald Breece** (Assistant Director, A&NR, OSUE), Mark Erbaugh (Director, IPA), Julie Fox (OSUE), Deborah Lewis (OSUE), and Ken Kulka (OSUE), and Joanne Kick-Raack (OSUE).

U.S.-CHINA SCIENTIFIC COOPERATION EXCHANGE PROGRAM (SCEP)

SCEP is a USDA-FAS-supported program for U.S. and Chinese research teams to transfer knowledge and technology in agriculture. Luis Canas (Entomology) and Feng Qu (PPATH) led the training in Sustainable Plant Protection for a 5-member delegation from China with the assistance of Sally Miller (PPATH). The delegates included senior faculty from Nanjing Agricultural University and the Jiangsu Academy of Agricultural Sciences. The group met with faculty and visited the laboratories in Entomology, Plant Pathology, and H&CS departments in both Wooster in Columbus. They also met with Vice Provost for Global Strategies William Brustein, IPA director Mark Erbaugh, Global Gate-



SCEP visit to Green Circle Growers

ways Director Christopher Carey. The group took to the road to visit the OARDC Muck Crops Research Station, the Penra Natural Rubber Processing Facility in Wooster, Green Circle Growers in Oberlin, OH, the Ohio Department of Agriculture and the C. Wayne Ellett Plant and Pest Diagnostic Clinic, both in Reynoldsburg, OH. Michigan State University also hosted the team, where they met with faculty in the MSU College of Agriculture and Natural Resources. Dr. Karim Maredia served as host for the OSU/SCEP group at MSU and coordinator of the day-long seminar on *Plant Protection and Biotechnology*.

COLLABORATIVE RESEARCH SUPPORT PROGRAMS (CRSPs)

Through the CRSP program, The United States Agency for International Development (US-AID) provides a mechanism for U.S. Land Grant Universities to work together to strengthen the agricultural sector of developing countries. IPA currently participates in Africa and Asia in three of USAID's nine CRSP programs: The Integrated Pest Management CRSP, The International Sorghum and Millet CRSP, and the Horticulture CRSP. Konrad Dabrowski (SENR) also participates in the Aquaculture and Fisheries CRSP.

Integrated Pest Management (IPM- CRSP): The Regional IPM Program for East Africa: Uganda, Kenya, & Tanzania

The overall objective of the Regional IPM Program for East Africa is to develop IPM technology and strategies to increase horticultural crop production and incomes for small-scale growers. The consortium of U.S. and East Africa partners include Ohio State, Virginia Tech, Makerere University (Uganda), the National Agricultural Research Organization (Uganda), the Kenyan Agricultural Research Institute (KARI), and Sokoine University of Agriculture (Tanzania). The OSU PI is Mark Erbaugh (IPA). OSU co-PIs involved in the project include Sally Miller, Joe Kovach, Mark Bennett, Matt Kleinhenz, and Feng Qu.

Key objectives include developing critical linkages among the agricultural stakeholders, with particular attention to women; providing both specialized short-term and advanced degree training; developing and disseminating integrated pest management programs to growers for key pests of tomato, onion, coffee, passion fruit, and scotch bonnet peppers.

During the past year, six OSU faculty visited the region to assist 20 East African Scientists in developing productivity-enhancing IPM technologies and training for nearly 2799 farmers. These interventions have had positive impacts



High Tunnel Production in Kenya

on farm incomes and livelihoods as indicated by impact assessments. This year collaborators in the project have produced 2 peer-reviewed publications, 8 abstracts, approximately 30 presentations, 3 standard operating procedures (SOPs), 7 posters, 4 training manuals, and 11 factsheets and brochures. Additionally, a workshop on SOP development was held at the KARI in January 2012 and a Plant Pest Diagnostics Workshop was held at SUA in May 2012. These workshops were joint efforts among several IPM-CRSP global theme projects including the International Plant Disease Network (IPDN) and the International Plant Virus Disease Project (IPVD).

The commitment to capacity building in the region is demonstrated by IPM-CRSP support of 18 M.S. and Ph.D. students. In June, 2012 Graduate student **D. Omayio** completed his degree and thesis, Research methods support for Horticultural Research at Kenya Agricultural Research Institute-Thika. Graduate student Hosea Mtui (SUA) visited OSU in fall, 2012 to consult with Mark Bennett, US advisor and complete his thesis, Impact of Management Practices on postharvest physiology and shelf life of tomato. In December, 2012, Rosemary Emegu Isoto (AEDE) completed her M.S. at OSU; her thesis title was Estimating the Income Multiplier Effect of Integrated Pest Management Technologies on Livelihoods of Arabica Coffee Farmers in Manafwa District. She is advised by David Kraybill (AEDE) is continuing at OSU on her Ph.D.

Integrated Pest Management (IPM- CRSP): The International Plant Diagnostic Network (IPDN) Global Theme Project

http://www.intpdn.org

Sally Miller, Department of Plant Pathology, leads this global theme IPM-CRSP project with efforts in Africa, South Asia and Latin America. The chief goal of the global IPDN program is to improve plant disease and insect pest diagnos-

tics at the clinical level by 1) assessing diagnostic capacity; 2) expanding a cooperative diagnostic network utilizing digital diagnostics; 3) prioritizing key crops and associated pests; 4) identifying new pests and corresponding incidence maps; 5) developing diagnostic assays, standard operating procedures and IPM recommendations for key pests; 6) training clinical diagnosticians and key scientists. Goals have been achieved using multiple training approaches, including trainthe-trainer and web-based distance education.

Key IPDN accomplishments in 2012 included:

- The Pest and Disease Diagnostics for International Trade and Food Security International Short Course was held at OSU in Wooster, September 17-28, 2012. Sally Miller and Luis Canas coordinated the training.
- International
 diagnostic workshops: The IPM
 CRSP Disease and
 Insect Pest Diagnostics Workshop was
 held in Bangladesh
 from February
 7-9. Seven men
 and four women
 scientists from
 Bangladesh and
 Nepal were trained.
 - Training on Application of Standard

Operating Procedures for Diagnosis/Detection of Pests and Diseases was held in Morogoro, Tanzania May 1-4. Twenty-two participants attended. • The Fourth Diagnostic Workshop-Training In Tomato Bacterial Canker was held at Universidad Del Valle De Guatemala, Guatemala City June 28-29. Feng Qu and Sally Miller (PPATH) were the Trainers from OSU.

• An international symposium co-spon-

- sored by the IPM CRSP and APLU on Research and Management of Insect-transmitted Virus Diseases in Vegetables in the Tropics and Sub-Tropics was held at Tamil Nadu Agricultural University, Coimbatore, India, July 10–13, 2012. Fortyseven participants attended.
- The Digital Distance Diagnosis and Clinic Information Management System (DDIS-CIMS) was expanded through additional digital resources; new users in India, Latin America, and East Africa were added to the network.
- Nagendra Subedi, Ph.D. student with Sally Miller, traveled to Nepal and Bangladesh for field surveys and to develop diagnostic assays for the bacterial wilt pathogen, *Ralstonia solanacearum*. This

project is the first effort to characterize strains of the pathogen from Bangladesh and Nepal.

 Training guides were developed for South Asia on tomato and brinjal crop pests and diseases, and for the diagnosis and management of phytonematodes.



Diagnostic Workshop in Tanzania

International Sorghum and Millet CRSP (INTSORMIL-CRSP)

Don Larson (AEDE) and Mark Erbaugh (IPA) have been working since 2005 with agricultural economists at the University of Zambia and Sokoine University of Agriculture in Tanzania to improve food security and farm income of sorghum and millet farmers in Tanzania, Uganda, and Zambia. Sorghum and millet are well-adapted to semi-arid climates in these countries, but crop productivity is low and farmer livelihoods

are tenuous. The project goal is to increase the value and predictability of small farm incomes by making sorghum and millet production more commercially viable. To achieve this goal the project will identify new market opportunities for the crops and determine how to remove constraints to those markets. 2012 highlights of this project included:

- Seed value chain studies were completed in Tanzania and Zambia, and a paper from the work, *Improved Seed Variety* Value Chains in Zambia, a missed opportunity to improve smallholder productivity was published in the African Journal of Agricultural Research.
- Feed concentrate value chains studies were completed in Tanzania and begun in Zambia.
- Seasonal price variability studies identified when farmers can sell at higher prices. Godfrey Saga, Dept. Agricultural Economics and Agribusiness, SUA, has collected biweekly data in the Singida and Dodoma regions. He is currently preparing a draft publication on sorghum prices and a technical report on agronomic and market practices.
- A sorghum-based, opaque beer supply chain study in Zambia was completed; traders, brewers, distributors, and retailers were the value chain participants in the study.
- Farm household technology adoption studies were published. Factors associated with increased smallholder sorghum production in Uganda was presented by Mark Erbaugh (IPA), Gabriel Elepu, and Donald Larson (AEDE) at the Annual conference of the Association of International Agriculture and Extension Education (AIAEE), May 21-24, Nakohn Pathon Province, Thailand. The effort received

- an Outstanding Presentation award at the AIAEE conference.
- Farm Household survey data from Luansha, Zambia was analyzed.
- A project to improve linkages between sorghum farmer associations and processors in Tanzania was begun.
- **Jeremia Makindara** received support from the project to complete his Ph.D. at SUA in late 2012.

Horticulture CRSP

Matt Kleinhenz (HCS) served as coordinator for Increasing Smallholder-Vegetable Farmer Utilization of Grafting and Low and High Tunnel Microclimate Management Tools in the Kirinyaga District, Kenya. Kleinhenz and co-PIs Mark Erbaugh (IPA) and Sally Miller (PPATH) collaborated with Monicah Waiganjo and others from the Kenyan Agricultural Research Institute (KARI). The goal was to help farmers improve production and marketing of tomatoes through the use of tomato plant grafting and high tunnel production. The target audience was the Kenyabased 700+ member Kangai Tisa Horticultural Farmers Association (KTHFA). Objectives for the project included gathering baseline data on stakeholder interest and knowledge of the sub-



HORT CRSP tomato-grafting workshop

ject; providing educational materials and programs to stakeholders; and evaluating program success as a prototype for a scaled-up effort.

Early in the project, the baseline data was captured through a questionnaire. From the latter half of 2011 through April 2012, low and high tunnels were constructed, demonstration plots were established, grafting and tunnel production manuals were developed, and a series of four, two-day workshops and a farmer field day were held. The interactive series of training programs reached 250-300 farmers and research-extension personnel. Workshops featured both lecture-style and hands-on practical training and built on farmer knowledge from one workshop to the next. Some of the educational programs were filmed by KARI and the Kenya Broadcasting Corporaton. Results from pre- and post- program evaluations suggested the prototype program was suitable for a scaledup effort in terms of content, organization and delivery. Farmer experience revealed that the use of grafted vegetable plants and/or low and high tunnels can have positive effects on plant disease management and yields, but successful implementation requires adherence to sanitation and management best practices. Project outcomes suggest that U.S.-international partnerships can significantly enhance the successful adoption of farmer-centered technologies.

BUILDING HUMAN CAPITAL FOR MICROFI-NANCE INSTITUTIONS TO INCREASE COM-PETITIVENESS AND REDUCE RURAL POV-ERTY IN MEXICO

This project's overall goal has been to improve rural livelihoods in Mexico in partnership with the Colegio de Post-Graduado (CP), Montecillos, Mexico. OSU efforts have focused on building CP's capacity to strengthen rural credit institutions, particularly in the area of micro-finance. The program is part of a larger USAID-funded initiative in Mexico called TIES (Training Inter-

national Education Scholarships). Under this program, members of the OSU rural financial markets program have worked closely with counterparts at CP to train future generations of rural finance experts. **Jerry Ladman** has provided important leadership to this activity. A CP graduate, **Isai Guizar Mateos**, is currently completing his PhD studies at OSU and will join the team at CP upon his return to Mexico.

AGRICULTURAL INNOVATION PARTNERSHIP (AIP) IN INDIA

International Programs in Agriculture is a participating member in this Cornell-led consortium. Funded by USAID, AIP will contribute to agricultural and rural development in Northeast India by strengthening the capacity of several universities in less developed regions of India. David Hansen (IPA) is the coordinator for OSU's efforts. In June, 2012, Cathy Rakowski (SENR) spent 3 weeks in India visiting Sardar Vallabhbhai Patel University of Agriculture and Technology (SVPUAT), Banares Hindu University and Tamil Nadu Agricultural University. She reviewed the curriculum and existing programs related to women in development, and assessed gender dimensions of outreach programs. Rakowski hosted Arvind Bakhshi, Vice Chancellor of SVPUAT, during a 3-day visit to OSU, arranging for meetings with faculty and administrators to discuss possible student and faculty exchanges, a study abroad program, and potential e-courses. Rattan Lal (SENR) also met with Dr. Bakshi in November, 2012; Lal is collaborating with counterparts at SVPUAT and Banares Hindu University on research related to soil and water quality management, and recently submitted a proposal with Varanasi colleagues entitled Nutrient Management for Improving Soil Quality and Sustaining High Productivity of Rice-Wheat Cropping Systems. Lal hosted visiting scientist Ashok Kumar from SVPUAT for two weeks in August 2012.

III. THE GLOBAL GATEWAY PROGRAM

The Global Gateway Program is a keystone strategy in OSU's plan for globalization. The strategy is manifest by OSU's physical presence and active collaboration in each Gateway Country. The first Gateway was opened in **Shanghai**, **China** in February 2010 and the second was opened in **Mumbai**, **India** in March 2012. A third Gateway is planned to open in **Sao Paulo**, **Brazil** in 2014. The staff in each physical location are reaching out to OSU Alumni and businesses in each country and linking them back to OSU and the state of Ohio. The intent is to support global industry partnerships, faculty collaboration, study abroad, and international student recruitment.

Brief highlights of CFAES engagement in thegateway countries is presented in this section; individual faculty engagements are presented in the next section *News from the College and Departments*.

CFAES ACTIVITIES IN THE BRAZIL GATEWAY

The College of Food, Agricultural and Environmental Sciences (CFAES) has a long history of collaboration with Brazilian partners. Ties are particularly strong with the **Escola Superior de**



A CFAES study abroad class in Brazil

Agricultural Luiz de Queiroz (ESALQ), the Agricultural College of the University of Sao Paulo (USP) in Piracicaba, Brazil. These ties grew from OSU involvement in USAID-funded projects at USP between 1964 and 1980. Through the years, areas of scientific exchange have included agronomy, agricultural economics, agricultural education, agricultural engineering, and seed biology. ESALQ/USP and OSU have also exchanged undergraduate honors students and ESALQ/USP has hosted numerous OSU study abroad classes.

Recent OSU involvements with USP/ESALQ include • A MOU signed with ESALQ in 2012, and a pending student exchange agreement. • A study-abroad program taught by ESALQ faculty (some were OSU alumni) for approximately 20 OSU students to explore historical, institutional, organizational, and individual leadership perspectives in Brazilian society. • Collaboration among faculty in Horticulture and Crop Science, ESALQ and the Catholic University of Chile in seed biology. • Development of a joint graduate degree program in Plant Translational Sciences and Plant Cell and Molecular Biology between USP, OSU, and Rutgers University (currently pending approval at OSU.)

Activities elsewhere in Brazil. The departments of Animal Science and Food, Agricultural and Biological Engineering have ongoing research collaboration and faculty exchanges in Brazil. In the past year, faculty from FABE have signed an agreement with Universidade Federal de Viçosa, and Animal Science has an agreement pending with Universidade Estadual Paulista (UNESP). The Ohio Program (International Programs in Agriculture), which brings talented international students to the US for internships, placed 56 Brazilians in U.S. businesses this past year.

CFAES ACTIVITIES IN THE CHINA GATEWAY

The College of Food, Agricultural and Environmental Sciences established a relationship with the Chinese Academy of Agricultural Sciences (CAAS) in the late 1980s. In July 2010, President Gee traveled to China with Vice President Moser OSU/CFAES and signed a Memorandum of Understanding (MOU) with the CAAS. In the past two years, the College has entered into agreements with China Agricultural University, Hunan Agricultural University, and Guangxi Eco-Engineering Technical and Vocational Institute.

Currently China sends the College more graduate students than any other country, and this is true for the University as well. For the last year in which data were available (2010-2011), there were 86 Chinese students enrolled in CFAES. China also sends many interns to the U.S. each year through the Ohio Program.

Over the past several decades many faculty members from the college have established individual programs of academic and research collaboration with universities in China. Departments with active collaborations in China include the following:

The School of Natural Resources: long-term collaborations with Nanjing Agricultural University, Tsinghua University, and the Chinese Academy of Sciences in Soils and Water resources and wetlands research. SENR is also collaborating with Guangxi Ecological Engineering Vocational and Technical Institute in the exchange of visiting scholars, study abroad and cultural exchange projects, and the development joint academic programs between the two institutions.

Food, Agricultural and Biological Engineering: long-term collaborations with Wuhan University and Shandong University in sustainable development, water resources, water quality and waste management. Collaboration with scientists from



Chinese visitors at the Muck Crops Research Center with Sally Miller (PPATH)

Jiangsu University, China Agricultural University, Nanjing Polytechnical University in Agricultural Mechanization; with Kunming Agricultural University in environmental engineering

Food Science: Faculty collaboration with CAAS, South China University of Science and Technology, Nan Kai University, Tianjin Normal University. An OSU Food Safety Center has been proposed at Fudan University. Recently students from China have begun studies at OSU as part of a Food Safety Pilot Training Program for Chinese international students;

Plant Pathology: faculty collaboration with Hunan Agricultural University; a MOU with HAU



Study Abroad in Guangxi China

was signed in 2012.

Animal Science and Food Animal Health Research Program: Active engagement with Xinjiang Agricultural University, the Chinese Academy of Agricultural Science, and the Institute of Animal Sciences.

CFAES ACTIVITIES IN THE INDIA GATEWAY

The OSU/PAU Partnership. The College has a long-standing partnership with Punjab Agricultural University that dates back to PAU's origins over 50 years ago. In recent years, collaborative activities with PAU have included water management, soil health and natural resource conservation, teaching excellence, food safety and post-harvest food processing. In 2012, OSU-International Programs in Agriculture began working with PAU on a joint capacity-building project for Kenya. (see Trilateral Partnership for Food Security in Kenya, p. 10). In November, 2012, Mark Erbaugh (IPA) and Dave Hansen (IPA) led an OSU delegation to PAU that included PAU alumni Rattan Lal (SENR) and Parwinder Grewal (PPATH); the occasion was PAU's Golden Jubilee Celebration. The OSU guests were hosted by B.S. Dhillon, Vice Chancellor of PAU, and

were invited to give presentations at the event.

Other engagement in India. ● In 2012, International Programs in Agriculture joined a Cornell-led University Consortium, the Innovative Agricultural Partnership to contribute to agricultural and rural development in the less-developed Northeast region of India. (see pp. 16). ● SENR and FST have collaborative projects with Tamil Nadu Agricultural University, Coimbatore, India.



Cathy Rakowski (SENR) at Tamil Nadu Univ.



Dave Hansen, Mark Erbaugh, and Rattan Lal at PAU

IV. INTERNATIONAL NEWS FROM THE COLLEGE & DEPARTMENTS

Bobby Moser stepped down from the post of Dean and Vice-President for Agricultural Administration on October 31, 2012. Over the years, Dean Moser has been committed to international education, research, and outreach. He visited many International Programs projects overseas, including Mexico, Dominican Republic and Brazil in the Western Hemisphere; Taiwan, China, and India in Asia; and South Africa, Swaziland, and Uganda in Africa. His global agricultural leadership was recocognized in 2005, when President George W. Bush appointed him to the U.S.- India Knowledge Initiative. We look forward to his new capacity at Ohio State University and his continuing contribution to International Programs in Agriculture.



Bobby Moser welcomes the Vice Chancellor of Sokoine Univ. of Agriculture, Gerald Monela

We are very pleased to welcome our new Dean and Vice President for Agricultural Administration, **Bruce A. McPheron**. He was a strong supporter of international programs at Pennsylvania State University, where he served as dean of the College of Agricultural Sciences prior to his arrival at OSU. Dean McPheron has substantial international experience; we look forward to his new era of leadership.

Agricultural Communication, Education, and Leadership (ACEL)

Robert Agunga was named the Director of the OSU Center for African Studies in 2012. He mentored USDA Borlaug Fellow **Ahmad Putra** from Indonesia for a 7-week research Fellowship in Fall, 2012.

Kenneth Martin gave an overview of OSU Extension and the land grant model for USDA Cochran Fellows from Armenia and Georgia in June, 2012, and for the delegation accompanying the Rector of the University of Gaston Berger in July, 2012.

Larry Miller was a visiting professor at the National Yunlin University of Science and Technology, Taiwan and also spoke at several other Taiwanese universities. He presented the keynote address at the Fifth Asia Pacific Association of Educators in Agriculture and Environment International Conference in Nakhorn Pathom Province, Thailand May, 2012.

Agricultural, Environmental and Development Economics (AEDE)

Joyce Chen published three papers on international topics in key economics field journals in 2012. Chen also advised a student in the Summer Research Opportunities Program who produced a paper entitled *Impact of group lending strategies in microfinance: evidence from rural Bangladesh.*

Alessandra Faggian gave invited presentations on *The effect of internal migration on graduate salaries* at Bocconi University, Milan, Italy; University of Sassari and Cagliari, Sardinia, Italy; and the International Business School, Jönköping, Sweden. She gave invited lectures on related

topics at the Tinbergen Institute; Free University Amsterdam, Netherlands; and the University of Palermo, Italy.

David Kraybill directs the Tanzanian office of the **Innovative Agricultural Research Initiative** (iAGRI, see p. 7), a USAID-funded program for capacity building in Tanzania that is managed in the U.S. through International Programs in



Agriculture. Kraybill and his wife live in Morogoro, Tanzania. He is on leave from AEDE for the five-year project.

Dave Kraybill at iAGRI headquarters in Tanzania

Mark Partridge co-organized the International Workshop on Regional, Urban and Spatial Economics at Jinan University in Guangzhou, China. He delivered three keynote presentations to international audiences in China, France, and Canada and also spoke in Slovakia, Italy, Romania, Netherlands, and Sweden. Partridge is part of an international advisory committee assessing innovation and entrepreneurship at Lund University, Sweden, and serves as council member of the Regional Science Association International. He hosted visiting Professor Chunbin Lui of Nankai University, China in late 2012.

Ian Sheldon was a visiting professor at the University of Guadalajara, Mexico, January through March, 2012. He was a contributor to the short course *Topics in Industrial Organization, Trade and the Food and Agricultural Sector* at the Universita Catolica del Sacre Cuore, Cremona, Italy, in June, and a visiting researcher at the University of Exeter, UK, in July 2012. Sheldon also gave an invited lecture at the Universidad Autónoma de Nuevo León, Monterrey, Mexico on *Carbon*

Taxes and Border Tax Adjustments: Might Industrial Organization Matter?

Douglas Southgate spent most of the 2011-2012 academic year as a visiting researcher at the University of Hohenheim, Stuttgart, Germany. While on leave, he completed a proposal for a book on banana market development by local Latin American entrepreneurs. The expected publication date is 2013 (University of Pennsylvania Press). Southgate also gave presentations at the University of Bern, the University of Bonn, and Humboldt University, Berlin.

Brian Roe and Barry Ward, along with emeritus faculty member Marv Batte, are working to evaluate business models for novel agricultural technologies suitable for developing counties in partnership with faculty in FABE (Scott Shearer) and HCS (Peter Thomison).



Mark Partridge in China

Brian Roe and Brent Sohngen are collaborating with Paula Cordero-Salas at the University of Alabama on a World -Bank funded project to analyze alternative contract designs for reducing carbon emission from deforestation and forest degradation. They will be making field visits to Ecuador and Tanzania to assess institutional factors that could influence the implementation of these contracts.

Brent Sohngen continues to develop a global dynamic model of agricultural and forest land uses to assess future land scarcity. The research is supported by the U.S. EPA.

Stan Thomson conducted a workshop *Research* Methods for the Social Sciences at Sokoine University, Tanzania, August 6-10, 2012. He gave a presentation at the 28th International Conference of Agricultural Economists, August 18-24, 2012, Foz do Iguacu. Brazil.

Carl Zulauf co-authored a publication on the 2012 Farm Bill for the International Center for Trade and Sustainable Development, located in Geneva, Switzerland. International trade issues associated with the farm bill were a key focus of the paper.

Animal Sciences (ANSCI)

Kim Cole gave an invited presentation at the 6th International Veterinary Vaccines and Diagnostics Conference in Cairns Queensland, Australia in July 2012.

Graduate Student Mike Cressman completed a 13-month residence at the University of New England (UNE) in Armidale, Australia.

Mike Davis presented at a conference in Australia for the International Society for Animal Genetics in Cairns, Australia in July 2012.

Mike Day taught three graduate courses at Universidade Estadual Paulista, Botucatu (UNESP), in March, 2012. In the past year he has hosted two graduate students and three undergraduates from Brazil for periods of several months to a year. Day currently has research collaborations in heifer development and estrous synchronization with Dr. Jose Vasconselos, Universidade Estadual Paulista (UNESP), Dr. Alexandre Pires, University of Sao Paulo (USP); and with Drs. Rodrigo Martins and Marcelo Carvalho of Esplanada Ranch.

Jeffrey Firkins served on the graduate committee and thesis assessment committee for graduate students from the University of Alberta and Aarhus University, Denmark, respectively.

Kichoon Lee currently has research collaborations with three institutions in South Korea: Seoul National University, Chung-Ang University, and the National Institute of Animal Science.

Steve Moeller traveled to China in August, 2012 to work on genetic improvement programs for swine and pork quality assessment with provincial government officials in Hufei, Anhui Province.

Mark Morrison holds an adjunct professorship at the School of Chemistry and Molecular Biosciences at the University of Queensland, Australia.

Normand St-Pierre taught a short course on statistical methods in nutrition at the University of Sao Paulo (USP) in 2011 and led a study abroad in Australia Jan-Feb 2012. He continues work with researchers at USP on the nutritional requirements of goats.



Normand St-Pierre teaching in Brazil

McDonald Wick hosted Fulbright Scholar **Zoran Popovski** from Macedonia in 2011-2012. Popovski worked on the cloning of growth and development genes in yellow perch. Wick also hosted a visiting scholar from Korea working on muscle biology, and another from Nigeria working on catfish muscle growth and fecundity. He is currently a co-PI on a World Bank-funded project for Nigeria.

Zhongtang Yu is an adjunct professor at the Institute of Animal Sciences, the Chinese Academy of Agricultural Sciences. He was invited to give a plenary lecture at a symposium organized by Zhejiang University in China in May 2012; during that trip he visited the Institute of Feed Sciences in Zhejiang and the Institute of Animal Sciences in Beijing. He has been invited to speak at The Plateau Yak Research Center at Quinghai University, China, in December 2012. Yu hosted Borlaug Scholar Mardhati Mohammad from the Malaysian Agricultural Research and Development Institute (MARDI) in spring of 2012.

Henry Zerby is an adjunct professor at the School of Biomedical and Veterinary Medicine, James Cook University, Australia.

Entomology (ENT)

Luis Canas and Feng Qu (PPATH) hosted a two-week Plant Protection training program in August for 5 USDA Scientific Exchange Fellows from China (see p. 12). In September, Canas coordinated the Pest and Disease Diagnostics for International Trade and Food Security International Short Course with Sally Miller (see page 14). Since 2004 Canas has directed a program to bring Zamorano University graduates from Central America to the Wooster Campus for research internships lasting 9-18 months. (see pp 37).

Dave Denlinger and members of his research team were engaged in field research at Palmer Station, Antarctica from late December 2011 to mid-February 2012. Their work focused on the molecular and physiological mechanisms that enable the Antarctic midge to survive in extreme environments.

Denlinger also presented invited talks at several



USDA Exchange Fellows from China

international settings including the International Atomic Energy Agency (Vienna, Austria, March 2012), *The 14th International Hibernation Symposium* (Semmering, Austria, August, 2012), *The International Congress of Entomology* (Daegu, S. Korea, August 2012), and the University of Toronto (September, 2012). In recognition of his work he was awarded OSU's 2012 Distinguished Senior Faculty Research Award.

Mary Gardiner worked with researchers from the UK Ladybird Survey and the Lost Ladybug Project to examine the effect of volunteer error on the interpretation of citizen science findings. The team found that volunteers were likely to confuse common exotic lady beetles for rare native species, which resulted in reporting significantly higher richness and species diversity than was actually present. The results of this study were published in the November 2012 issue of Frontiers in Ecology and the Environment.

Parwinder Grewal has collaborated with entomopathogenic nematology programs in Brazil, Georgia, Venezuela, and India. In August, 2011, Grewal and Katherine Bennett from OSU Landscape Architecture organized the Second International Urban Landscape Workshop in collaboration with the University of Seoul and Chula Longkorn University in Bangkok, Thailand.

Dan Herms advised two visiting scholars from Zamorano Agricultural University in Honduras.

He leads the *Tree Resistance to Insects Working Group* of the *International Union of Forestry Research Organizations*.

Casey Hoy collaborates with the Kirwan Center on a project examining large-scale land acquisitions in Africa. He also collaborates with Walsh University and the Commercial Attache for Rwanda on developing a local-food based agricultural economy.

Each year **Hans Klompen** and **Glen Needham** organize the internationally renowned 3-week **OSU Acarology Summer Workshop** that draws acarologists from around the world. The focus topics include introductory, agricultural, medical and soil acarology.

Joe Kovach visited Kenya and Uganda in July 2012 as part of the East Africa IPM CRSP (see p. 13). He worked with graduate students and other scientists on tomato and coffee pest management. Kovach also participated in the *XXIV International Congress of Entomology* in Daegu, South Korea in August 2012. In December 2012 he plans to visit the University of Gaston Berger in Saint-Louis, Senegal to train agricultural professionals, faculty and other scientists on polyculture systems and high tunnel food production methods.

Omprakash Mittapalli spoke at the International Conference on Advances in Biological Sciences in Kannur, India in March. He gave an invited lecture in the Physiological Genomics of the Insect Midgut symposium at the XXIV International Congress of Entomology in August in Daegu, Korea. Mittapalli continues to work on red palm weevil with the Central Plantation Crops Research Institute (Kasaragod, Kerala, India). He began new collaborative projects on insect symbiosis with the Max-Planck Institute for Chemical Ecology (Jena, Germany) and on Heliothis/Helicoverpa genomics with the International Crops Research Institute for Semi-Arid Tropics.

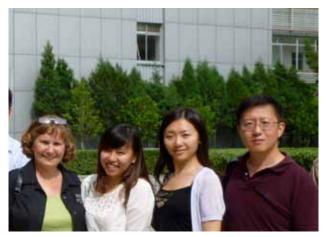
Peter Piermarini and postdoctoral researcher

Matthew Rouhier mentored a DAAD RISE fellow from Germany for 8 weeks in 2012. Peirmarini currently sponsors a Zamorano intern from Honduras for 9 months; the intern is conducting research on the effects of blood feeding on gene expression in mosquitoes.

Celeste Welty hosted Amadou Bal, an entomologist from Senegal in July-August. Bal's objective was to gain an overview of the land-grant model of teaching, research, and extension.

Food, Agricultural and Biological Engineering (FABE)

Larry Brown hosted a delegation from Nanjing Agricultural University (NAU) in China on October 25. The seven-member delegation included Yanfeng Ding (Vice President of NAU), Yan Zhu (Vice Dean), Yongchao Tian, Xiaojun Liu, Liang Tang, Ganhua Li, and Xia Yao. The group's focus was on agricultural applications of geospatial technologies; they also visited with members of the OSU Geography department while on campus.



Karen Mancl (FABE) visits the Chinese Research Academy of Environmental Sciences with representatives from a new collaborator, Biohaven

Karen Mancl spoke about new technologies for rural wastewater treatment to scientists and engineers at the Chinese Academy of Environmental Sciences in Beijing. She traveled to a rural village in Shandong Province, the site of the second collaborative wastewater treatment system project between the Shandong Academy of Agricultural Sciences and OSU. She met with an environmental company, Biohaven Technologies, to discuss patenting the wastewater treatment technology that she developed at OSU and implemented in China.

Sudhir Sastry gave invited presentations at the International Congress on Biochemical Engineering, Ixtapa, Mexico in March 2012 and at the World Congress on Food Science and Technology, Brazil in August 2012. In the same month he was inducted as a Fellow of the International Academy of Food Science and Technology. He delivered a plenary address in September at the Bio-and Food Electrotechnologies Conference in Salerno, Italy. In the past year he has hosted two visiting scholars from the University Federico Santa Maria, Chile, and one scholar each from the University de Rio Grande do Sul, Brazil and the University of Reading, UK. Sastry is collaborating on a textbook with one of the visiting scholars from Federico Santa Maria, Dr. Ricardo Simpson.

Andrew Ward and **Jeff Suchy** led a study abroad to South Africa for 4 weeks in June-July 2012.

Food Animal Health Research Program (FAHRP)

Renukaradhya Gourapura received a travel grant from the USDA and OARDC to participate in the 6th International Veterinary Vaccines and Diagnostics Conference in Cairns, Australia. He presented Development of mucosal vaccines in pigs against porcine reproductive and respiratory syndrome. He has hosted visiting scholars from China and India.

Daral Jackwood spoke on *The molecular basis* for pathogenicity and immunogenicity of *IBDV* and their prevention in Sudak, Ukraine and on

New vaccination strategies for Gumboro disease in Girona, Spain.

Chang-Won Lee was invited to speak on *H5N1* and *H9N2 Influenza: Control Strategies* in Egypt and on *The Hunt for a Universal Flu Vaccine* in Korea. He hosted two Ph.D. students and two visiting scholars from Egypt in 2012.

Jeffrey LeJeune and Doug Doohan (HCS) were co-PIs for a Horticulture Collaborative Research Support Project (HORT-CRSP) that brought together an international research team from the US, Chile, Peru, Bolivia, Uruguay, Ecuador, Guatemala and South Africa to increase adoption of food safety practices related to post-harvest handling of horticultural products. As part of this project, LeJeune conducted field interviews



Hort-CRSP project in Central America

with small-scale farmers to determine food safety practices and extension needs. Phase two of the CRSP project, *Delivering vegetable safety education through established social networks in Latin America*, began in 2012 and will focus on the delivery of educational programs in Honduras, Guatemala, and Nicaragua. In October, 2012 LeJeune spoke about the project in *Improved stakeholder engagement to enhance education and sustainable adoption* at the 13th International Congress for Integrated Pest Management in Tegucigalpa, Honduras.

LeJeune traveled to Tanzania for an AVRDC-

World Vegetable Center-funded *Africa Rising* project to improve farm household income and consumer access to safer vegetables. He gave invited presentations on foodborne pathogens in Switzerland, Netherlands, and Ireland and hosted visiting scientists and graduate students from Columbia, China, Serbia, South Korea, and Turkey. **Anil Persad**, Fulbright Scholar and M.S. student, currently works in LeJeune's lab.

Gireesh Rajashekara participated as a faculty trainer for a Biomedical Informatics course at the OSU-One Health Summer Institute in Ethiopia. He hosted a visiting scholar from India in 2012.

Linda Saif was an invited to speak at three institutions in China; the Harbin Veterinary Research Institute; Huazhong Agricultural University; and the Wuhan Institute of Virology. She received a grant from the Fogarty International Center with co-PI Wondwossen Gebreyes (Veterinary Preventive Medicine) to study Molecular epidemiology and key issues in foodborne pathogens in Eastern Africa. She currently advises 18 international students, post-docs, andvisiting scientists from Argentina, China, Korea, Soviet Union, Japan, India, Lebanon, Italy, Kenya and Ethiopia. Her laboratory has been designated an Expert Lab in transmissible Gastroenteritis by the World Organization for Animal Health.

Food Science and Technology (FST)

Valente Alvarez gave an invited presentation *Trends of U.S. Food Industry in a Global Economy* at the Latin American Track of the *2012 SNAXPO-75th annual Exhibit/ Conference* held in Phoenix, Arizona in March, 2012. In July he was invited to conduct food safety plant audits and a HACCP training workshop in Bogota, Colombia as part of the U.S. Quality Check'd Food Safety Team. He was the honored recipient of the International Award of Merit from the Ohio Chapter of Gamma Sigma Delta in 2012.

Alvariez served as chair of the International Or-

ganizing Scientific Committee of the 7th International Biochemical Engineering Congress, 18th National Biochemical Engineering Congress and 10th Scientific Meeting of Biomedicine and Molecular Biology, held jointly March 28 - 30, 2012 in Ixtapa- Zihuatanejo, Mexico. Four members of OSU's Food Science and Technology Department gave presentations: •Valente B. Alvarez, Importance and implications of the FDA/USDA regulations to ensure food safety of processed foods

- **Jianrong Li,** New interventions against human norovirus: progress, challenges and opportunities
- **Richard Linton**, U.S. and Global Food Safety Initiative **Sudhir Sastry**, Ohmic and moderate electric field processing.

V.M. Balasubramaniam met with the Dean and faculty of the College of Agricultural Engineering, Tamil Nadu Agricultural University, Coimbatore, India to discuss collaborations and was invited to present Frontiers in Food Preservation Research. He spoke on High Pressure Food Pasteurization and Sterilization at the Advanced Non-thermal Processing in Food Technology Conference in Kusadasi, Turkey. He was a member of the scientific program committee for the 2012 Nonthermal Processing Workshop in October in Melbourne, Australia. Balsubramaniam hosted visiting scholar Suresh Devatkal, Senior Scientist with the Indian Council of Agricultural Research. Ludhiana, India.

Sheryl Barringer served as an executive committee member for the *12th International Congress* on Engineering and Food, Quebec, Canada. She advises Ph.D. student and international fellowship recipient **Rita Mirondo**. Mirondo's studies are supported by the Innovative Agricultural Research Program (iAGRI), a USAID-funded capacity building program for Tanzania (see p. 7).

Monica Guisti gave invited presentations at two international symposiums in September, 2012: Symposio Internacional de Ciencias Alimentarias y Farmaceuticas in Colombia and Simposio Internacional de Innovación Alimentaria in Peru.

News from the Departments

She collaborates with several institutions in Peru: Universidad Nacional Agraria La Molina, Lima (where she is adjunct faculty); Universidad San Antonio Abad de Cusco; and the International Potato Center in Lima. In 2012 she hosted two international scholars, **Vivian Bochi** of the Universidade Estadual de Campinas and **Zorita Sconta**, of the University of Agricultural Sciences and Veterinary Medicine, Romania.

Jim Harper has collaborative projects with the Riddet Institute at Massey University, Palmerston North New Zealand.

Lynn Knipe provided training in a processed meats short course sponsored by the American Soybean Association in Costa Rica in May, 2012. He also contributed to a hands-on processed meats short course held in Singapore in November, 2012.

Melvin Pascall has collaborative work with faculty in the Department of Chemistry at the University of West Indies in Jamaica, and in the Department of AgriBusiness at Valley View University in Ghana.

Steven Schwartz taught a short course on *Topics* on *Food Toxicology* at the Universidad Nacional de Colombia in June, 2012. He gave six invited lectures on the bioavailability of carotenoids, functional foods, and related topics in Colombia, Costa Rica, Chile, Germany, and Turkey in 2012, and hosted visiting scholars from Brazil, Italy, Germany, Senegal, and Thailand.

Hua Wang is working to establish a joint food safety center between OSU and Fudan University in China, and has established a food safety training program for Chinese students sponsored by the Chinese Overseas Scholarship Council. The 2011-2012 pilot training program selected four Chinese to begin Ph.D studies in OSU's Food Science and Technology Department. Wang also hosted a Ph.D. student from South China University of Science and Technology and a visiting scholar from the Shanghai Academy of Agri-

cultural Sciences. She gave presentations at the Shanghai Society for Microbiology in 2012.

Ahmed Yousef hosted visiting scholar **Michel Diop**, Associate Professor from the University of Gaston Berger, Senegal in fall 2012.

Horticulture and Crop Science (HCS)

Mark Bennett hosted visiting scholar Hossea Mtui who came to OSU in Fall, 2012 to complete his dissertation. Mtui is a student at Sokoine University of Agriculture, and Bennett is an external advisor for his dissertation research that was supported through the IPM-CRSP project.

Doug Doohan was a visiting Professor at two universities in 2012: the Pontificia Universidad Catolica de Chile in March-April and November-December, 2012; and Pyongyang University of Science and Technology, North Korea in September.

David Francis received the 2012 Director's Innovator of the Year Award from the Ohio Agricultural Research and Development Center. His nominator stated "Dr. Francis is nationally and internationally recognized for his application of bioinformatics, gene expression arrays and next-generation sequencing technology in the development of tomato varieties."

Pablo Jourdan received a Gateway Research Grant Award to visit Brazil to expand ongoing collaboration in seed science distance education



European Plant Breeders' Association, Warsaw Poland (Jourdan)

courses. He currently works with colleagues at Escola Superior de Agricultural Luiz de Queiroz (ESALQ) and at the Federal University of Lavras. In September, 2012, Jourdan presented research on germplasm development and interspecific hybridization in Phlox at the European Plant Breeder's Association Conference on Ornamental Breeding in Warsaw, Poland.

Kristin Mercer has research at three field sites in the state of Chiapas, Mexico. Her work explores the adaptation of maize landraces to an altitudinal gradient. Graduate student **Brian Pace** is studying the physiological basis of these adaptations, and worked in Mexico on the project for the second half of 2012.



Maize landraces growing in Chiapas, Mexico (Mercer)

Emmy Regnier presented two weed science programs at the University of Gaston Berger (UGB) in St. Louis, Senegal in 2012. The first was a presentation for twenty-one UGB faculty and staff, *Teaching Weed Ecology through a Field Exercise*. She also presided over a weed ecology field exercise for twenty-three students enrolled in the UGB Agronomy program.

Clay Sneller was a Fulbright Scholar in 2012 at the University of Natural Resources and Applied Life Sciences (BOKU) in Vienna, where he collaborated with the wheat genetics team of Dr. Hermann Burstmayr, his host. While in Vienna he taught a course in *Genome-wide Analyses in Crop Improvement* from March to June of 2012.

José Luis Zambrano Mendoza, a Ph.D. candidate in the Dept. of Horticulture and Crop Sciences, is on study leave from his position as a Research Scientist from the Instituto Nacional Autónomo de Investigaciones Agropecuarias del Ecuador. Working with co-advisors David Francis and Peg Redinbaugh, Zambrano has identified new maize inbred lines with strong resistance to a major viral pathogen of maize in Ecuador, Maize rayado fino virus.

Ohio State University Extension (OSUE)

Harold Watters made two trips to the Ukraine in 2012, traveling 3000 km across the country to train corn and soybean growers in modern production practices. He visited approximately 80 growing operations and made presentations to farm audiences.

Brad Bergefurd traveled to the University of Gaston Berger in late 2011 as part of a USAID/HED program (see p. 10) to build capacity at that university. He returned in December 2012 to help with installation of a new mechanical vegetable planter.

Ron Overmeyer (OSUE, retired) volunteered with the **USAID Farmer to Farmer** program in Mozambique in 2012. He helped the Agricultural College of the Catholic University of Mozambique perform a feasibility study for developing



Harold Watters discussing soybean inoculants in the Ukraine

750 acres into a commercial farm operation. He worked closely with the farm manager to develop a farm business plan.

Plant Pathology (PPATH)

In July, 2012 **Pierluigi Bonello** presented *Using proteomics to understand tree resistance to pests and pathogens* as part of the *Advanced Course on Protein Profiling of Microorganisms - Innovative Approaches to Problem Solving in Microbiology* at the University of Aveiro, Portugal. He was also invited to present *Understanding Interactions Between Trees and Invasive, Exotic Pests* at the University of Helsinki, Finland. Department of Forest Sciences.

Mike Ellis visited Dr. Arne Stensvand, Research Plant Pathologist at BiOFORSK, the Norwegian Institute for Agricultural and Environmental Research, Oslo, Norway in June 2012. The trip was funded by a grant from the Norwegian Strawberry Industry. He has been working with Stensvand on research and extension projects for control of leather rot of strawberry. Ellis visited several strawberry farms and gave presentations on disease control to grower groups and industry representatives at various locations throughout Norway.

Larry Madden gave a plenary address at the First International Symposium of the China Society of Plant Protection (CSPP) and the International Association for Plant Protection Sciences (IAPPS) in Beijing, China October 24-26, 2012. Guo-Liang Wang convened the program. Madden hosted international scholar, Xiangming Xu, of Malling Research Station, England in Fall 2012. He and Dr. Xu have published collaborative work in the European Journal of Plant Pathology.

Brian McSpadden Gardener travelled to Dakar, Senegal to assist with an NSF-funded workshop *MicroTrop: Advanced Training in Tropical Ecology.* He made presentations on genomics, sequence analyses, and marker-assisted selection of

beneficial microorganisms to students from Africa and the United States. While in Senegal, he and OSU graduate student **Spencer Debenport** planned collaborative research with **Richard Dick** to study the plant-growth promoting effects of a perennial shrub that frequents millet fields in the Sahel region.

Sally Miller gave a series of lectures at Techologico de Monterrey, Campus Hidalgo, Mexico, March 2012: Banana Xanthomonas Wilt: Diagnosing and Managing a Destructive Invasive Pathogen; Disease Management in Greenhouse Tomatoes; and Sustainability in World Food Production. As part of the IPM-CRSP Diagnostic Network Global Theme project, Miller led international diagnostic training workshops in Tanzania, Bangladesh and Guatemala. (See page 13 for IPM-CRSP projects.)

Sally Miller and Luis Canas (Entomology) led the 2-week short course Pest and Disease Diagnostics for International Trade and Food Security at OARDC September 17-28, 2012. Training included plant disease and insect pest diagnostics and sanitary/phytosanitary issues that impact international trade. Thirteen participants came from all over the world. Many OSU faculty and staff assisted in the training, including Pierce Paul, Anne Dorrance, Margaret Redinbaugh, Lucy Stewart, Chris Taylor, Fulya Baysal, Melanie Lewis Ivey, Nagendra Subedi, Xiulan Xu (Plant Pathology); Andy Michel, Nuris Acosta, Claudia Kuniyoshi (Entomology) and Tea



Mike Ellis with Strawberry Grower in Norway

Meulia (OSU Molecular and Cellular Imaging Center).

Chris Taylor and Sally Miller co-advised Gauri Achari, Fulbright Scholar from India, on mechanisms of pathogenesis in Ralstonia solanacearum.

Thomas Mitchell gave presentations at the Chinese Academy of Sciences, Beijing; the Yunnan Agriculture and Forestry University in Kunming; the Fuzhou International Symposium on Plant Pathology in Fujian; and the Chinese Society of Plant Pathology in Qingdao. He is collaborating with Chinese scientists in sequencing rice blast isolates.

Margaret Redinbaugh, USDA ARS, Corn and Soybean Research Unit and Adjunct Professor, Department of Plant Pathology worked with researchers from Kenya Agriculture Research Institute (KARI) and the International Center for Maize and Wheat Research (CIMMYT) to identify maize lethal necrosis as the disease causing destruction of maize crops in the South Rift region of Kenya. The group is working with the Gates Foundation, the One Acre Fund and other NGO's to educate farmers about the disease. Redinbaugh also hosted visiting scientists from Hebei Institute of Agriculture and Forestry Sciences, China, and the National Agriculture Research Organization(NARO), Uganda. The visitors learned improved methods for diagnosing and studying maize rough dwarf disease.

Margaret Redinbaugh and Ron Hammond (Entomology) met with research collaborators from the Centre for Agricultural Bioscience International, Switzerland and the Institute for Plant Protection and Environment, Serbia to discuss Maize Redness, an emerging disease of maize in Serbia.

Guo-Liang Wang and Thomas K. Mitchell received grants from the Biotechnology and Biological Sciences Research Council (United Kingdom) and the Bill and Melinda Gates Foundation to work on rice blast disease in Birkina



Maize with severe leaf necrosis, mottling in Kenya

Faso, Uganda, and Kenya.

School of Environment and Natural Resources (SENR)

In late 2011, **Jeremy Brooks** presented *Can we* signal status through sustainable consumption? Exploring variation in perceptions of status associated with different groupings of consumption practices at a conference on Sustainable Consumption - Towards Action and Impact in Hamburg, Germany. He visited Bhutan to meet with Royal Education Council, the Minister of Education, and prospective graduate students. In April 2012, he hosted the OSU visit of Sonam Wangvel Wang, Director of the Royal Education Council, Bhutan.

Konrad Dabrowski has worked with colleagues in Brazil, Mexico, and Poland on the developmental physiology of temperate fish species that show both great adaptability to variable environmental conditions and strong potential for aquaculture. This work was supported by the Aquaculture and Fisheries Collaborative Research Support Program (AquaFish CRSP).

Richard Dick was the co-leader for the NSFsponsored workshop, MicroTrop: Advanced *Training in Tropical Ecology*, for Ph.D. and early career scientists held June 24-July 21, 2012 in

Senegal. The students were selected through a competitive process and came from institutions across the United States. They joined eight other students from Africa, and one from Mexico.

Brian McSpadden Gardener (PPATH) also was a faculty lecturer for MicroTrop.

Dick co-directs a USAID-funded project to build capacity at the University of Gaston Berger, Senegal (See pp. 10). Dick is also the director of an NSF project to study the hydrology and microbiology of a native shrub and associated crop rhizospheres in the Sahel of Africa. OSU Ph.D. student **Jennifer Tvergyak** is working in Senegal on the project and will be joined by another Ph.D. student **Matthew Bright** in 2013. **David Bethel**, OSU undergrad, joined the research team in Senegal from June through November 2012.



Microtrop Workshop Participants in Senegal

Warren Dick gave the keynote address Fifty Years of No-Tillage and Rotation in Ohio, USA: Soil and Crop Responses at the 3rd International Conference on C Sequestration and Climate Change Mitigation in Agriculture held in Beijing, China July 21-24, 2012. He spoke on How to Manage and Analyze Data from Long-Term Experiments in the workshop that followed the conference, and provided consultation on better utilization of the many long-term (20+ years) experiments that are currently maintained in China.



Graduate students examine the rhizosphere

While in China, Warren Dick accompanied his Ph.D. student, **Joshua Kendall**, Kendall's wife and two young daughters to Nanjing Agricultural University (NAU). Kendall plans to work in China for the next 2 years on research on soil factors influencing the biological control of banana wilt disease. Kendall will work at NAU under the supervision of his US advisor (Dick) and **Dr. Qirong Shen** (Vice President of Nanjing Agricultural University).

In the past year, Warren Dick also hosted three visiting scientists from China and one from Iraq for periods of 6 months to a year.

Joseph Donnermeyer attended the *32nd Annual Conference of the International Association for Impact Assessment* in Portugal in summer, 2012.

Stacey Fineran teaches a course in spring semester on *International Environmental Impact Assessment*.

Rafiq Islam hosted 3 international scholars: Celal Yucel, East Mediterranean Agriculture Research Institute, Adana, Turkey; Derya Yucel, Plant Protection Institute, Adana, Turkey; Rafi Qamar Qureshi, Ph.D. student, Punjab Agricultural University, Faisalabad, Pakistan.

Tom Koontz presented Top-down and Bottomup Collaboration: Implementing Collaborative Watershed Management in Lower Saxony and Ohio in the Symposium, The Limits of Collabora-

tive Approaches to Environmental Governance: A Critical and Comparative Analysis at Queensland University and the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Brisbane, Australia, He presented Direct Democracy via Agency Collaboration with Stakeholders at the International Symposium on Environmental Impacts of Direct Democracy in Berlin, Germany, March, 2012.

Rattan Lal spoke about the critical issue of land degradation on a panel with other international experts at the Drylands, Deserts and Desertification Fourth International Conference at Ben-Gurion University in Israel in November 2012. An article with the panel's comments appeared in the Jerusalem Post. Also in November Lal traveled to India to visit the Indian Society for Soil Science and attend the Punjab Agricultural Univeristy Golden Jubilee.

In February 2012, Kristi Lekies visited the Institute for Applied Research on Childhood, Youth, and the Family at the University of Potsdam, Germany to discuss research collaboration. In April, she met with **Sonam Wang** Director of the Royal Education Council of Bhutan to plan research on early childhood outdoor learning environments. Lekies is a member of the European Early Childhood Education Research Association.

In February 2012, Amanda Rodewald completed her sabbatical as a visiting scientist with the Integrative Ecology Group, Estación Biológica de Doñana, Sevilla, Spain. At that institution she presented a seminar, Demographic and behavioral drivers of avian responses to urbanization. Rodewald gave a plenary address at an ornithological congress in Vitoria, Spain; Rodewald and graduate students gave several presentations at North American Ornithological Conference in Vancouver, BC. Her graduate student Laura Kearns presented a talk at the International Congress of Conservation Biology, New Zealand in November. Rodewald also hosted a visiting scholar from

University of Hildago, Mexico in fall 2012.

Cathy Rakowski spent several weeks in India in June, 2012 with the Agricultural Innovative Partnership (see p. 16), working with colleagues at three universities in India. In October she hosted Arvind Bakhshi, Vice Chancellor of Sardar Vallabhbhai Patel University of Agriculture, during a 3 day visit to OSU. Rakowski also spent three weeks in Venezuela in July 2012 conducting research in a rural region under development for petroleum and forestry products. While there she met with members of the Fundamujer (a foundation for women's programs) advisory board and was invited to serve the organization as an international advisor. In November, 2012, Rakowski hosted a three-day visit by Maria Pilar Garcia-Guadilla, Professor at the Simon Bolivar University in Caracas, Venezuela. Garcia-Guadilla presented a lecture on eco-socialism, co-sponsored by SENR and the Center for Latin American Studies.

Brian Slater continues research collaboration in land restoration and soils with colleagues in Iceland. He advises iAGRI student Boniface Massawe in a Ph.D. research project evaluating the suitability of land in Tanzania for rice production. Slater collaborates with the Africa Soil Information Service, The International Centre for Research in Agroforestry, and the International Center for Tropical Agriculture.



Rodewald observing birds near the Straits of Gibraltar

News from the Departments

Mazeika Sullivan received a grant from the office of International Affairs to study Interactions among Urbanization, Environmental Change, and Language in Lithuania: A Transformative Investigation of Language Sustainability. She also received funding from OSU's Research and Creative Activity in the Arts and Humanities for related work. Sullivan advises Ph.D. student and Fulbright Fellow from Zimbabwe Paradzayi Tagwireyi, who is working on Nutrient dynamics in ant and spider communities in heterogeneous riverine landscapes.

Roger Williams directed the SENR China Re-

search Abroad Program June 15 – July 10, 2012. While in China, Williams and six OSU undergraduate students conducted research in the forests of south China, working with students and faculty from Guangxi Eco-Engineering Vocational and Technical College. On July 5, he was presented the Golden Silk Ball Award from the People's Government of Guangxi Autonomous Region, P. R. China (see p. 39).



Forestry study abroad classs in China

V. INTERNATIONAL LEARNING

CFAES STUDY ABROAD PROGRAMS

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

The College sponsored ten study abroad programs in nine different countries in 2011-2012. Programs ranged from ten days to six weeks in length, and content varied from broad-interest subjects to specialized topics related to individual majors. **Kelly Newlon** serves as the CFAES Study Abroad Specialist and holds a joint appointment with the Office of International Affairs. For more information on study abroad, she may be contacted at 688-4144 or newlon.7@osu.edu. Visit the CFAES Study Abroad website to learn more about College offerings:

Table 2. Study Abroad Programs in the College.

Country	Focus Area	Resident Director	Number of Students total/CFAES	Date
Australia	Human and Environment Interactions	Eric Toman and Jennifer Sherry (SENR)	29 (13 FAES)	June-July (3.5 weeks)
Australia	Animal Production, Welfare, and International Studies	Normand St. Pierre (AN-SCI)	12 (10 FAES)	Jan- Feb (6 weeks)
Brazil	Alpha Zeta Partners Program: Eco- nomics, Rural Sociology, Agricul- tural Development, History	Jill Pfister (Academic Programs)	19 (19 FAES)	Jan- Feb (6 weeks)
China	Forestry Research	Roger Williams (SENR)	6 (6 FAES)	June (3 weeks)
Czech Republic	Economic Transitions (travel with Univ. of Missouri)	Jerry Bigham (SENR)	8 (2 FAES)	June-July (6 weeks)
Ecuador	Comparative Sustainable Agriculture (Freshmen only)	Emily Rhoades (ACEL) Jeff Hattey (Academic Programs)	18 (18 FAES)	December (11 days)
England	British Garden Design	Laura Burchfield (HCS)	9 (8 FAES)	June 2012 (14 days)
Ghana	Culture, Arts, Development	D. Elder (ATI)	6 (2 ATI, 2 FAES)	June- July (1 month)
Ireland	Human and Animal Interactions	Steve Moeller, Kelly George, Jeanne Osborne, Henry Zerby, Francis Fluharty (ANSCI), Kelly Newlon (Academic Pro- grams)	83 (75 FAES)	December (2 weeks)
South Africa	FABE Capstone Program (Engineering projects, water management)	Andy Ward, Jeff Suchy (FABE)	15 (6 FAES)	June-July (4 weeks)

THE PEACE CORPS AT OHIO STATE

Since the Peace Corps was founded in 1961, OSU has ranked 10th among univeristies in numbers of volunteers, with more than 1600 OSU graduates entering the service. Recruitment of volunteers has been coordinated through International Programs in Agriculture since 1974. Currently **Jack Campbell** serves as the OSU Peace Corps coordinator for OSU as well for Central Ohio colleges that include Wittenberg University, Ohio Wesleyan University, Otterbein University, Capital University, Denison University and Kenyon College. Jack can speak first-hand to students about his experience as a volunteer in Fiji and Botswana. Contact him at peacecorps@osu.edu for more information. Service is open to any U.S. citizen 18 years or older and requires a 27-month commitment, including 3 months of intensive language, culture, program and safety training.

In the past year, a total of 71 OSU alumni were in service to the two-year Peace Corps program. Countries that the 71 volunteers worked in included Azerbaijan, Belize, Cambodia, Cameroon, Cape Verde, China, Costa Rica, Dominican Republic, Eastern Caribbean, Ecuador, Georgia, Guatemala, Honduras, Kazakhstan, Kenya, Kyrgyzstan, Lesotho, Macedonia, Madagascar, Mexico, Moldova, Mongolia, Morocco, Mozambique, Namibia, Panama, Paraguay, Peru, Romania, Senegal, South Africa, Swaziland, Tanzania, Uganda, Ukraine, Vanuatu, and Zambia.

The volunteers represented some 38 different undergraduate majors and worked in all six Peace Corps program areas: Agriculture, Environment, Education & English Teaching, Health & HIV/AIDS, Business Development and Youth Development.

OSU Couple Serves the Peace Corps in Jamaica

OSU alumni Kevin and Linnae Fath entered the Peace Corps in March 2012. The Faths met at OSU. Kevin earned a B.S. in Animal Science with minors in Ag Education and International Economics and Social Development. Linnae earned a B.S. in International Studies, minoring in Spanish, followed by a M.S. in Development and Environmental Economics. Kevin served more than one deployment in Iraq before their marriage and starting a master's program at Texas A&M. They applied to the Peace Corps and packed up for Jamaica in early 2012. Since then they





have lived a full life, facing down hurricane Sandy and Dengue fever (Kevin) and making a difference to many people in the small farming communities of Jamaica.

International Learning

THE OHIO PROGRAM

http://www.ohioprogram.org/



Mike O'Keefe (TOP) with former TOP interns managing a major golf event in Dubai

The Ohio Program (TOP) is a part of International Programs in Agriculture (IPA), providing international internships in agriculture, horticulture, turfgrass and agricultural business. The program hosted internships for 385 participants in 2012 as well as 23 on-campus international guest students. Throughout its 33 years in the college, TOP has hosted 8400 participants for training; TOP has signed 45 agreements with colleges and educational organizations from around the world. Countries sending larger numbers of participants in 2012 included The Netherlands (40), Brazil (39), Ireland (37), China (35), Denmark (22), UK (20), Poland (18), and Indonesia (13). Many of the interns have gone on to international careers after their internship experience.



TOP intern Tim Crowley (Ireland) prepares greens for the President



TOPS interns attending the Ohio Florist Short Course in July 2012

Forty-seven international interns attended the Ohio Florist Short Course in Columbus July 2012. Fees for these international interns were subsidized by host employers of the program. The Ohio Program has had widespread support from industry which allows the program to be self-financing.



A front page article (Dec./Jan. 2012/13) in "Pitchcare" speaks to Daniel Quinn's (U.K. intern) outstanding experience on/off the OSU campus

WOLFE STUDY ABROAD SCHOLARSHIPS

In May, 2012 the 2011-2012 recipients of the Wolfe Study Abroad Scholarship were recognized at the 13th Annual Wolfe Study Abroad Recognition Luncheon. President **Gordon Gee** and **John F. Wolfe**, chairman and CEO of The Dispatch Printing Company, congratulated the 33 recipients. Each student received a \$2,500 scholarship to help fund their individual study abroad program. Four students from CFAES received awards:

Margaret Alden, senior majoring in animal science (study abroad in Australia)

Kade Louiso, sophomore majoring in crop science and agriculture systems management (study abroad in Brazil)

Stephanie Verhoff, sophomore majoring in crop science (study abroad in Brazil)

Lauren Wooddell, sophomore majoring in animal science (study abroad in Australia)

The Annual Wolfe Study Abroad Scholarships are administered by the OSU Office of International Affairs. Interested students are encouraged to learn more at http://oia.osu.edu/grants-and-scholarships/undergraduates/352-wolfe-study-abroad-scholarship.html.

International Students in the College

OSU ranks among the top 10 in the nation for numbers of international students. Most of the international students in the college are graduate students. A fall, 2012 survey indicated that there were approximately 200 international graduate students in the College's 9 academic departments, making up 36% of all CFAES graduate students.

OHIO STATE-ZAMORANO INTERNS

Panamerican College of Agriculture, better known as Zamorano, is a renowned agricultural university in Honduras that combines rigorous



Zamoranos at OSU

academics with hands-on learning. Luis Cañas (Entomology), an alumnus of Zamorano, has directed a program since 2004 to bring Zamorano University graduates to the Wooster Campus for research internships lasting 9-18 months. He is ably assisted by Jorge Salgado, OSU graduate student and Zamorano alumnus. In 2012 three students from Bolivia, Guatemala, and Nicaragua began their internships at OSU. Since 2004, the program has attracted 52 Zamorano graduates to OSU. Of those, 73% have ultimately pursued graduate studies. Approximately 40% of the OSU-Zamorano interns have participated in annual J1-Scholar Expo sponsored by President Gee's office. This collaboration has led to ongoing negotiations with Zamorano Univeristy to develop a formal MOU and a study abroad program for OSU students in Honduras.

OHIO YOUTH INSTITUTE / GLOBAL YOUTH INSTITUTE

Each year dozens of Ohio high school students present their research and propose solutions for ending global hunger and poverty at the Ohio Youth Institute. The 9th Annual Ohio Youth Institute was held September 26, 2012 on the OSU campus. Students presented their proposals to and were judged by OSU faculty experts. The Ohio Youth Institute was established by

International Learning



Elizabeth Roche at the ARS Foreign Disease-Weed Research Unit

Micki Zartman, recipient of OSU's distinguished Service Award, Founder of Micki Zartman Scarlet and Gray Ag Day, Ohio Agriculture Hall of Fame inductee, and tireless promoter of all things international, agriculture and OSU.

Six exceptional youth were selected from the 2012 Ohio Youth Institute participants for scholarships to attend the Global Youth Institute which is held annually in conjunction with the World Food Prize (WFP) in Des Moines, Iowa. This year's WFP was held October 17-19. Each year the students attending the Global Youth Institute present their research findings to an international audience, and have the opportunity to meet with leading international scientists and policy makers at the World Food Prize. Students at the Global conference also compete for Borlaug-Ruan International internships - allexpense paid, eight-week internships in leading research centers in Africa, Asia, Latin America, and the Middle East. Winners from the 2012 institute will be announced in early 2013. Rachel Mentzer, a participant from the 2011 Ohio Youth Institute, was awarded a Borlaug-Ruan International Internships to work for 8 weeks in 2012 in Dhaka, Bangladesh with the Bangladesh Rural Advancement Committee.

The Borlaug-Ruan Interns are well positioned for other scholarship opportunities: all three 2011 Borlaug-Ruan interns from Ohio (**Sara Cox**,

Izzy Isler, and Elizabeth Roche) subsequently were awarded USDA Wallace-Carver Internships in 2012. This award, jointly funded by the USDA and the World Food Prize Foundation, offers outstanding college students the opportunity to work with world-renowned scientists and policy makers at leading USDA research centers. Elizabeth Roche currently attends OSU; her internship was at the ARS Foreign Disease-Weed Research Unit in Ft. Detrick, MD. Sarah Cox, now at Purdue, worked at the ARS Southern Horticultural Research Laboratory. Issy Esler, now at Oberlin College, worked on resistance issues relating to elms and ash trees at the US Forest Service Northern Research Station in Delaware, OH.

For more information on the Ohio Youth Institute see

http://www.worldfoodprize.org/en/youth_programs/global_youth_institute/ohio/

For the Global Institute see: http://www.worldfoodprize.org/en/youth programs/global youth institute/

OSU / 4-H STUDENT WINS INTERNATIONAL INTERNSHIP

OSU Student Erin Hope was one of three 4-H members selected by the Ohio 4-H International Program for the Labo Internship Program in Japan. Labo is a Japanese youth organization that helps members improve their English-language skills and learn about other cultures. The selection process for interns involves semifinalist selection by the Ohio 4-H program. Throughout the year-long internship beginning September, 2012, Hope will attend Labo club meetings, traveling to different districts and staying with host families throughout the year. She will also help other interns coordinate activities at Labo camps for newly arriving exchange students. http://www.ohio4h.org/4-h-youth/programs/ ohio-4-h-international-program

VI. RECOGNITION FOR INTERNATIONAL WORK / INTERNATIONAL AWARDS

INTERNATIONAL ALUMNI AWARD

The College of Food Agricultural, and Environmental Sciences Alumni Society recognized two distinguished international alumni on March 3, 2012. **ByungRyul (Barry) Choi (Ph.D 1996**, Animal Sciences), Incheon City, Korea was recognized for his outstanding career in animal nutrition and feeds, and for his continued contributions as an animal researcher and consultant to the animal industry. **Yung-Chul Kim (Ph.D. 2004**, Human and Community Resource Development), Seoul, Korea, was honored for his professional experience as an educator in Korea and for his outstanding work with the United Nations Educational, Scientific and Cultural Organization (UNESCO).

Constance Cullman (BS, Agricultural Economics, 1990; MS, Agricultural Economics, 1992), Indianapolis, IN was also recognized with an Alumni award for her dedication to the advancement of global agriculture and for her work to meet the world's growing demand for food and fiber.

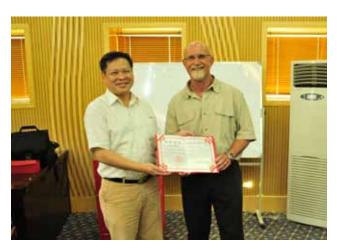
FOUR OHIO STATERS INDUCTED INTO THE OHIO AGRICULTURE HALL OF FAME.

On August 3, 2012 four Ohioans were inducted into the hall of fame at a special ceremony during the Ohio State Fair: **Bobby Moser**, Vice President for Agricultural Administration and Dean of the College of Food, Agricultural and Environmental Sciences; **Micki Zartman**, founder of Scarlet and Gray Ag Day at OSU; **Charles Lifer**, 4-H Leader at Ohio State; and **Donald Myers**, OSU State Alfalfa Extension Specialist. Both Bobby Moser and Micki Zartman were cited for the international reach of their life work. Moser has served in many leadership roles of both national and international significance, most notably in his appointment by former President George W. Bush to the US-India Knowledge

Initiative on Agricultural Education, Teaching, Research, Service and Commercial Linkages. Zartman, in her work with the Ohio Youth Institute and the Global Youth Institute, has created a life-changing platform to engage youth with the challenges of global hunger and poverty.

ROGER A. WILLIAMS AWARDED THE GUANGXI GOLDEN HYDRANGEA AWARD FOR 2011

In December, 2011, the regional government of Guangxi, China awarded Roger Williams (SENR) the 2011 Guangxi Golden Hydrangea Award, as recommended by Guangxi Ecological Engineering Vocational and Technical Institute. Williams was formally presented with the award in June 2012 when he returned to Guangxi to lead the OSU China Research Abroad program. The Golden Hydrangea Award is awarded to outside experts in recognition for their contribution to the economic construction and social development of Guangxi Province. Dr. Williams has been engaged in the province and at Guangxi **Ecological Engineering Vocational and Technical** Institute in research and teaching related to forest management, forest carbon sinks, and forest fire prevention.



Roger Williams receiving award

OTHER AWARDS AND RECOGNITION

Valente Alvarez (FST) was presented with the Gamma Sigma Delta International Award by the Ohio Chapter in 2012.

Bernadette Chimai, recent OSU graduate, received the Outstanding M.S. Thesis Award from AEDE in January 2012. Her M.S. thesis title was *Determinants of Technical Efficiency in Smallholder Sorghum Farming in Zambia*. Chimai's program was funded by INTSORMIL-CRSP (see p. 14). Chimai is currently a lecturer in the Department of Agricultural Economics and Extension at the University of Zambia.

Michael Chrisman (IPA, The Ohio Program) was granted visiting professor status at Ningxia University, China for providing training to Ningxia students during internship training. He presided over the opening of The Ohio Program dairy training center for pre-training of TOP interns in Ningxia, China.

Konrad Dabrowski (SENR) was recognized as a leading international researcher and fifth in the world in output of aquaculture publications in a report commissioned by Fisheries and Oceans Canada, *Bibliometric Analysis of Aquaculture Research at DFO and in Canada*.

A paper written by Mark Erbaugh (IPA), Joseph Donnermeyer (SENR), Magdaline Amujal (graduate student at Makerere University, Uganda) and Michael Kidoido (graduate student in AEDE, OSU)) was recognized as Journal Article of the Year (2011) by the Editorial Board of the Journal of International Agricultural and Extension Education (AIAEE) at the 27th Annual AIAEE Conference held in Windhoek, Namibia. The award-winning paper was Assessing the Impact of Farmer Field School Participation on IPM Adoption in Uganda.

The Indian Society of Soil Science designated

Rattan Lal (SENR) as an honorary member of the society. Lal visited the organization in November, 2012.

Larry Miller was inducted as a Senior Fellow by the Association for International Agricultural and Extension Education at their annual meeting in May 2012.

Sudhir Sastry (FABE) was inducted as a Fellow of the International Academy of Food Science and Technology in August 2012.

VII. INTERNATIONAL VISITORS AND SCHOLARS

DELEGATION FROM CHINESE ACADEMY OF AGRICULTURAL SCIENCES (CAAS)

A delegation from CAAS visited International Programs in Agriculture in February 2012, including **Xu Shiwei**, Director General in the Agricultural Information Institute; **Lui Yunqing**, Project Officer in the Dept. of International Cooperation; and **Yu Wen**, researcher in the Agricultural Information Institute. This group visited with **Mark Erbaugh** (IPA), **Florian Diekmann** (OSU Agricultural library), and with AEDE faculty **Allan Lines** and **Steve Vickner**.

SOKOINE UNIVERSITY OF AGRICULTURE VICE CHANCELLOR VISITS OSU

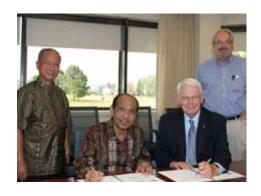
The Vice Chancellor of Sokoine University of Agriculture, Gerald Monela, visited the College of Food, Agricultural, and Environmental Sciences in June, 2012. SUA has been an important partner of CFAES Office of International Programs in Agriculture (IPA) for the last decade and is the key stakeholder for the Innovative Agricultural **Research Initiative** (see p. 7). Monela visited the Columbus and Wooster Campus to hold discussions with President Gordon Gee, Vice Provost William Brustein, Graduate School Dean Pat Osmer, CFAES Dean Bobby Moser, Director of OARDC Steve Slack, Associate Director OSUE Ken Martin, and IPA Director Mark Erbaugh. Monela also met with the Tanzanian students currently on the OSU campus. Graduate degree training and agricultural research are the centerpieces activities of the iAGRI program.

This visit provided the Vice Chancellor with an overview of the U.S. land-grant system. OSU faculty accompanied him to Washington, D.C. where he met with staff of the Association for Public and Land-Grant Universities, the USAID Bureau for Food Security, and the National Institute for Food and Agriculture (NIFA), including

NIFA Director **Sonny Ramaswamy** and **Hiram Larew**, Director of the NIFA Center for International Programs.

DELEGATION FROM THE UNIVERSITY OF SULTAN SYARIF KASIM RIAU (UIN SUSKA RIAU), INDONESIA

This delegation visited OSU June 20 -22, and included the Rector of the University, **H.M. Nazir**, **Tantan Wiradarya**, OSU Alumnus and Dean of the Faculty of Agriculture and Animal Sciences, and **Ekie Gilang Permata**, a student interested in pursuing a Ph.D. degree in FABE. The visitors met with **Steve Slack**, Director of OARDC and faculty on both Wooster and Columbus campuses. The rector of UIN SUSKA RIAU signed a Memorandum of Understanding with the College during the visit.



Steve Slack (OARDC) and N.M. Nazir sign MOU

VISIT FROM THE RECTOR OF UNIVERSITY OF GASTON BERGER, SENEGAL

UGB Rector Mary Teuw Niane visited OSU with two UGB faculty in July, 2012. The UGB delegation met with William Brusein, Vice Provost for Global Startegies, Bobby Moser, Dean, Steve Slack, OARDC Director, Ken Martin, Associate Director, OSUE, Steve Neal, ATI Director, Tom Worley, Director of OSU South Centers, and Mark Erbaugh, Director of International Pro-

grams in Agriculture. The group visited Waterman farm, The Food Industries Center, OARDC, and the OSU South Centers. The purpose of the visit was to strengthen the partnership between OSU and UGB that has developed from the USAID/HED project headed by **Richard Dick** (SENR) (see p. 10). During the visit the delegation learned about the land grant model and reviewed the functions and administration of the OSU College of Food, Agriculture, and Environmental Sciences, OSU Extension Service and the Ohio Agricultural Research and Development Center.

2012 USDA BORLAUG SCHOLARS

The Norman E. Borlaug International Agricultural Science and Technology Fellowship Program was established in 2004 to honor Nobel Laureate Norman E. Borlaug. This prestigious program provides 12-week research and training opportunities to early and mid-career agricultural researchers from developing and middle-income countries. International Programs in Agriculture seeks out CFAES faculty to serve as mentors for Borlaug Fellows and provides for the fellows' needs during their stay. Four Fellows were sponsored in 2012.

Jirapa Inthisang, an economist with the Ministry of Agriculture and Cooperatives in Thailand, began work with **Brent Sohngen** (AEDE) in spring, 2012. During her three-month fellow-



Brent Sohngen (AEDE) and Jirapa Inthisang

ship at OSU she worked on *Alternative Mitigation Options for Greenhouse Gases and Incentive Structures*. Inthisang and Sohngen traveled to Washington, D.C. to meet with individuals from the USDA/FAS Climate Change Program Office; the US-EPA Climate Change Division, Economic Research Service; and the Division of Environmental Systems, NIFA.



Zhontang Yu gives a presentation in Malaysia

Zhontang Yu (ANSCI) hosted Borlaug Scholar Mardhati Mohammad, Livestock Research Officer with the Malaysian Agricultural Research and Development Institute. She worked on Mitigation of methane emissions from cattle during her three-month research fellowship at OSU in spring, 2012. Mohammad had the opportunity to visit the Krauss Dairy Research Center at OARDC and to attend the American Society for Microbiology 112th General Meeting in San Francisco. In the fall of 2012, Yu made a followup trip to Mohammad's research center in Malaysia.

Ahmad "Dhoni" Putra, Lecturer from the Faculty of Animal Science, Gadjah Mada University, Indonesia came to OSU in October, 2012 to work with Mentor Robert Agunga (ACEL). Putra worked on the Adoption of Integrated Farming System, the Transfer of Technology Process. He will continue to work on two surveys developed with Robert Agunga after his return to Indonesia in 2013.

Leesan Lai, Research Officer for the Department

of Agriculture, Sarawak, Malaysia, worked with **Guo-Liang Wang** (PPATH) on *Plant Breeding for Blast Resistance in Rice*. She arrived in October, 2012 to work with Wang for 11 weeks.



Dhoni Putra and Leesan Lai visiting Tom Price at his composting facility in Delaware, OH

Dhoni Putra and **Leesan Lai**, Borlaug Fellows at OSU, attended the World Food Prize Symposium in Des Moines, Iowa October 16-20. The USDA planned special seminars, farm and research tours for the fellows during the week. The fellows also attended the grand award ceremony for the 2012 World Food Prize Laureate, **Dr. Daniel Hillel** at the Iowa State Capital.

Luis Canas (ENT) made a trip to Jamaica to visit Borlaug Scholar **Juliet Goldsmith**. Goldsmith worked with Canas during her fellowship in 2010.

OTHER DISTINGUISHED GUESTS

Maria Celia Portella, Sao Paulo State University, presented *Aquaculture in Brazil: Education and Industry* for the School of Natural Resources March 7, 2012.

The Carbon Management and Sequestration Center in the School of Environment and Natural Resources hosted **David Hopkins** from the Heriot-Watt University, Edinburgh, Scotland UK in April, 2012. He spoke on *Decadal changes in soil carbon storage in long-term experimental grassland plots: weighing the ship's cat.*

John Oliver, president of Maple Leaf Bio-Concepts, Oshawa, Ontario, Canada spoke at the 2012 OARDC Research Conference on April 26 in the Shisler Conference Center in Wooster.

Juca Sa from the Universidade Estadual de Ponta Grossa, Brazil presented *Carbon Footprint in Notill Farming in Southern Brazil* in May, 2012 to the SENR Department.

Jennifer Dungait, a visiting Scholar in the School of Environment and Natural Resources from the Rothamsted Centre in Devon, UK gave a seminar on the topic of *Survival Strategies of Hungry Soil Microorganisms* June 29, 2012.

Dr. Dennis Garrity visited Ohio State July 6, 2012 and spoke on the *Evergreen Revolution in Sub-Saharan Africa*. He discussed the synergistic and sustainable practice of integrating trees into cropping systems to create an agroforestry-based conservation approach to agriculture. Garrity is the former CEO of the World Agroforestry Centre (ICRAF) and OSU Alumnus (B.S., Agriculture). He has developed sustainable agroforestry systems in the developing world.

Jackques Baudry, Director of Research, Landscape Ecology INRA, The French Agricultural Research Service, spoke in October, 2012 on Temporal dimenisions of agricultural landscapes: lessons from the Armorique long-term ecological research station as part of the Environmental Science graduate program seminar series.

Viktor Venhorst, Post-Doctoral Researcher in the Faculty of Spatial Sciences at the University of Groningen spoke on *Human Capital Spillovers in Dutch Cities: Consumption or Productivity?* in the AEDE Seminar Series in October, 2012.

VIII. CFAES MEMORANDA OF UNDERSTANDING 2012

PARTNER INSTITUTION	COUNTRY
NEW AGREEMENTS	
African University for Science and Technology	Nigeria
Brazilian Federal Agency for Support and Evaluation of Graduate Education, Ministry of Education - CAPES/ MEC	Brazil
Escola Superior de Agriculturea "Luiz de Queiroz" - San Paulo University	Brazil
Hunan Agricultural University	China
Soil Conservation Service of Iceland	Iceland
Sokoine Univeristy of Agriculture	Tanzania
State Islamic University Sultan Syarif Kasim Riau	Indonesia
Universidade Federal de Vicosa	Brazil
University of Iceland, Reykjavik, Iceland	Iceland
PENDING AGREEMENTS	
Fudan University	China
Universidade Catolica San Antonio De Murcia	Spain
Universidade Estadual Paulista	Brazil
University SS. Cyril and Methodius	Macedonia
Gaston Berger University (renewal)	Senegal

IX. International Scholarly Presentations

DEPT	PRESENTER, COAUTHORS	TITLE	COUNTRY
ACEL	Budak, Dilek, Robert Agunga & Ozlem O. Kacira	Strengthening university curriculum in extension education in Turkey.	Finland
ACEL	Robert J. Birkenholz	Student Centered Learning: Conceptualizing the Student Learning Continuum	Senegal
ACEL	Robert J. Birkenholz	Effective Teaching: Reflecting on What We Know About Learning	Senegal
ACEL	Robert J. Birkenholz	Engaging Students in Learning	Senegal
AEDE	Clark, Jill K.	A Reconceptualization of Farmer Adaptation: Relating Agents, the Political Economy and the (Re)Creation of Rural Spaces	Canada
AEDE	Clark, Jill K. and Darla K. Munroe	An Alternative Route to a "New Direction" in Relational Economic Geography: What Can Farming Contribute?	UK
AEDE	A. Faggian	Creating an environment for economic growth: human capital, creativity and entrepreneurship in the USA	Netherlands
AEDE	Mark Partridge	Innovation, entrepreneurship and economic growth in lagging regions	Netherlands
AEDE	Mark Partridge	Dwindling U.S. Internal Migration: Evidence of a Spatial Equilibrium?	South Korea
AEDE	A. Faggian	Cultural avoidance and internal migration in the USA: Do the Source Countries Matter?	South Korea
AEDE	Mark Partridge	Creating an environment for economic growth: human capital, creativity and entrepreneurship in the USA	South Korea
AEDE	Mark Partridge	Rising Inequality in an Era of Austerity: The Case of the USA	Spain
AEDE	Mark Partridge	Do we still need Rural Place-Based Policy in an Urbanizing World?	Spain
AEDE	Mark Partridge	Country Road Take me Home: Migration Patterns in Appalachia America and Place-Based Policy	Spain
AEDE	R. Olfert	The Winners' Choice: Sustainable Eco- nomic Strategies for Successful 21st Century Regions	Spain
AEDE	R. Olfert	Places for Place-Based Policy	Spain

DEPT	PRESENTER, COAUTHORS	TITLE	COUNTRY
AEDE	John Caruthers	Central Place Theory: A Historical Overview and Analysis of the Contemporary American System	Spain
AEDE	Mark Partridge	Creating an environment for economic growth: human capital, creativity and entrepreneurship in the USA	UK
AEDE	Greg Howard and Brian E. Roe	Comparing the Risk Attitudes of U.S. and German Farmers	Switzerland
AEDE	I.M. Sheldon	Chinese Economic Growth: Is it Sustainable?	Mexico
AEDE	Rose, S., A. Golub, B. Sohngen, and T. Hertel	Agricultural impacts of reduced tropical deforestation	Italy
AEDE	Rose, S., A. Golub, B. Sohngen, and T. Hertel	Agricultural impacts of reduced tropical deforestation	Italy
AEDE	Sohngen, B	US Climate Change Policy: Implications for Forests and Land Use.	Canada
AEDE	Sohngen, B	US Climate Change Policy: Implications for Forests and Land Use.	Canada
AEDE	Ohrel, S., S. Choi, and B. Sohngen.	Extending the GTAP Family of Models: A Partial Equilibrium Approach to Measuring the Costs of Carbon Sequestration and Avoided Deforestation	Italy
AEDE	Ohrel, S., S. Choi, and B. Sohngen.	Extending the GTAP Family of Models: A Partial Equilibrium Approach to Measuring the Costs of Carbon Sequestration and Avoided Deforestation	Italy
AEDE	Douglas Southgate	Long-Term Trends in Food Prices	England
AEDE	Douglas Southgate	La Economia Mundial de Alimentos: Tendencias a Largo Plazo	Guatemala
AEDE	Douglas Southgate	Homegrown Entrepreneurs' Contributions to National Economic Empowerment: The Making of a Banana-Exporting Powerhouse	Swizterland
AEDE	Douglas Southgate	Homegrown Entrepreneurs' Contributions to National Economic Empowerment: The Making of a Banana-Exporting Powerhouse	Swizterland
ANSCI	Day, Michael	Strategies for Nutritional and Hormonal Induction of Puberty in Heifers and the Impact on Fertility	Argentina

DEPT	PRESENTER, COAUTHORS	TITLE	COUNTRY
ANSCI	Day, Michael	Maximizing Timed AI Pregnancy Rates with the 5 day CO-Synch + CIDR Program	Argentina
ANSCI	Day, Michael	Nutritional and hormonal induction of puberty in heifers and the impact on fertility	Brazil
ANSCI	Day, Michael	Estrous synchronization protocols to optimize follicular dynamics and hormonal concentration in Brazil and the USA	Brazil
ANSCI	Firkins, J.L.	The role of the rumen microbiota to enhance feed efficiency and reduce environmental impact of ruminant production systems.	Argentina
ANSCI	Firkins, J.L.	Low-starch co-products in cattle diets.	Canada
ANSCI	Firkins, J.L.	Rumen protozoal growth and chemotaxis: Just another day equilibrating in the medial mat?	Denmark
ANSCI	St-Pierre, N.R.	Statistical mixed models.	Brazil
ANSCI	St-Pierre, N.R., I. Teixeria, and C. Ribeiro	Statistical mixed models.	Brazil
ANSCI	William Weiss	Factors affecting dry matter intake by dairy cows	China
ANSCI	William Weiss	Nutrition and cow health	Mexico
ANSCI	William Weiss	Oxidative stress in the lifecycle of animals	Canada
ANSCI	Yu, Z.	Metagenomics of rumen microbiome with regard to nutrient metabolism	China
ANSCI	Yu, Z.	Rumen Metagenomics - new capabilities, new knowledge and new opportunities to modulate ruminal microbiome	China
ANSCI	Yu, Z.	Bacterial and archaeal diversity in an- aerobic digesters as affected by feedstocks and digester designs. Leipzig, Germany	Germany
ANSCI	Yu, Z.	Molecular and metagenomic studies on the ruminal microbiome: new capabilities and new knowledge	Thailand
ANSCI	Yu, Z.	Molecular biology techniques used to analyze ruminal microorganisms	Thailand
ATI	Steven M. Neal	An Overview of Ohio State ATI Associate Degree Programs	Senegal

DEPT	PRESENTER, COAUTHORS	TITLE	COUNTRY
ATI	Steven M. Neal	Considerations for Using the Farm Instructioanl Laboratories to Enhance Academic Programs	Senegal
ENT	Grewal, P.S.	Entomopathogenic nematodes and bacteria as models in fundamental research and pest management	Turkey
ENT	Grewal, P.S.	Global issues and local solutions: An ecological approach to urban landscaping	Thailand
ENT	Jones, Susan C.	Managing and preventing bed bugs in health care facilities	Canada
ENT	Shetlar, D.J.	Biodiversity in Turf	Canada
FAHRP	Daral J. Jackwood	Current status of infectious bursal disease	Canada
FAHRP	Gireesh Rajashekara	Diagnostic Pathology of Brucellosis	Ethiopia
FAHRP	L.J. Saif	Enteric food and waterborne pathogens. Noroviruses and food safety: Epidemiology, surrogates and animal model	Ethiopia
FST	Giusti, MM	Incorporando salud y color en la dieta diaria (Incorporatng health and color in the daily diet)	Peru
FST	Keener, H.M.	New Technologies and Approaches for Composting Broiler Manure	Turkey
FST	Martin, Jay	Local and Traditional Ecological Knowledge	Mexico
FST	Steven J. Schwartz	Bioavailability of Carotenoids	Costa Rica
FST	Steven J. Schwartz	Absorption, Bioavailability, and Metabolism of Carotenoids	Germany
FST	Steven J. Schwartz	Health Benefits of Plant Bioactives to Develop Functional Foods	New Zealand
FST	Steven J. Schwartz	Isomers and Apo-Carotenoids in Biological Matrices	Poland
FST	Vodovotz, Y.	Development of Food Based Targeted De- livery Systems for Disease Prevention	Australia
FST	Wang HH.	Enhancing International Collaboration on Food Safety.	China
FST	Wang HH	Food Safety: From Problem Detection to Mitigation.	China
FST	Witter, J.D., A.D. Ward, and J.L. D'Ambrosio	Instream Nitrogen Assimilation Tool	USA

DEPT	PRESENTER, COAUTHORS	TITLE	COUNTRY
HCS	Zhang, Y., and I.E. Dami	Foliar Application of Abscisic Acid (ABA) to Advance Fruit Ripening and Cold Acclimation of Grapes	Italy
HCS	Karl Danneberger	Thatch Characteristics and Management	UAE
HCS	Karl Danneberger	Turfgrass Ecology	UAE
HCS	Francis, David	The SolCAP Project: filling the gap between genomic information and breeding through massive SNP discovery and intensive phenotyping.	Spain
HCS	Kleinhenz, M. D.; McSpadden Gardener, B.; Francis, D.	Rootstock Effects on Grafted Tomato Plant Survivorship, Composition, Yield and Fruit Quality in Organic Field Pro- duction	Italy
HCS	Kleinhenz, M. D.	Vegetable Grafting in Africa: Status and Outlook	Italy
HCS	Kleinhenz, M. D.	Grafting May Improve Water Uptake and/ or Use Efficiency in Organic, Soil-grown Tomato	Italy
HCS	Campbell, L.G., K.L. Mercer, and K.D. Whitney	Do hybridization rates vary with water availability?	Canada
HCS	C. Sneller	Public perspective on intellectual property issues in wheat	Mexico
HCS	C. Sneller	Genome-wide analyses in crop improvement	Mexico
HCS	Stockinger, Eric J.	Cold hardiness, a genomics perspective focusing on the Triticeae cereals	Luxembourg
HCS	Esther van der Knaap	Discovery of tomato fruit shape and size genes and their functional analysis in plant development.	Belgium
HCS	Esther van der Knaap	Effect of SUN on tomato fruit shape, a role for auxin?	France
HCS	Esther van der Knaap	Diversity in tomato fruit shape	France
HCS	Esther van der Knaap	The role of SUN and OVATE in tomato fruit development	Mexico
IPA	Gitonga, K.J, Waiganjo, M.M; Gathambiri C, Erbaugh J. M, Miller S	Market characterization of smallholder onion traders in Kenya: The case of Wakulima and Karatina markets.	Kenya

DEPT	PRESENTER, COAUTHORS	TITLE	COUNTRY
IPA	Waiganjo M, Menza M, Gathambiri C, Kuria S, Mueke P, Njeru C, Ssonko R, Kleinhenz M, Kyamanywa S, Miller S and Erbaugh M.	Use of high tunnel and grafting for increased tomato crop growth, yield and fruit quality among small holder farmers in Kirinyaga District, Kenya.	Kenya
IPA	J. M. Erbaugh	Constraints on the Adoption of Improved Sorghum Seed in Tanzania: A Value Chain Approach	Namibia
IPA	J.M. Erbaugh and David Kraybill	Overview of Innovative Agicultural Research Initiative project	Tanzania
IPA	Kyamanywa, S, Kucel, P. Kagezi, G., Kovach, J, and M. Erbaugh	Developing and disseminating IPM packages for key insect pests of coffee in Uganda	Uganda
IPA	Asiimwe, D., P.R. Rubaihayo, G. Tusiime, S. Kyamanywa, J. Karungi and M. Erbaugh	Multilocation verification of resistance of MT56 to bacterial wilt in Uganda	Uganda
PPATH	P. Bonello	Natural Products Workshop	Ecuador
PPATH	P. Bonello	The chemical ecology of tree / fungal pathogen / insect interactions: Mechanisms and ecological roles	Sweden
PPATH	B. McSpadden Gardener	Discovery of new biologically based pest control products: An academic view of discovery process	Canada
PPATH	Miller, S. A.	Diagnostic Networks – The Role of the Advisor	Argentina
PPATH	Miller, S. A.	IPM CRSP and the International Plant Diagnostic Network	Ghana
PPATH	Miller, S. A.	Diagnosing bacterial diseases of tomato	Ghana
PPATH	Miller, S. A.	Introduction to distance diagnosis (DDIS-CIMS)	Ghana
PPATH	Miller, S. A.	The Importance of Plant Disease Diagnostics in Food Security and Trade	Senegal
PPATH	Miller, S. A.	Biological control and microbe mediated induced resistance to diseases in tomato	Turkey
PPATH	Miller, S. A.	Capacities and networks for plant disease diagnostics	Argentina
PPATH	Thomas Mitchell	Genome approaches to elucidating the basis of fungal - host associations	China

DEPT	PRESENTER, COAUTHORS	TITLE	COUNTRY
PPATH	Thomas Mitchell	Using whole genome approaches to understand fungal biology and virulence	China
PPATH	M.G. Redinbaugh	Virus and insect transmitted diseases in maize	China
PPATH	M.G. Redinbaugh	Hosts of stolbur phytoplasma in maize redness affected fields	Germany
PPATH	GL Wang	A fungal avirulence protein suppresses host innate immunity by targeting a RING-type E3 ligase	China
PPATH	GL Wang	Mapping and Cloning of Broad-Spectrum Resistance Genes to Magnaporthe oryzae.	Russia
PPATH	GL Wang	The Role of Ubiquitination in the Interaction Between Rice and Magnaportheoryzae	Taiwan
SENR	N.T. Basta	In vitro gastrointestinal bioaccessibility methods to assess metal(loid) bioavailability and risk from soil ingetstion (Keynote Lecturer)	Australia
SENR	N.T. Basta	Use of in vitro or soil property models to assess toxic metal bioavailability in soil: Validation to support regulatory acceptance	Australia
SENR	N.T. Basta	Requisites of soil contaminant bioaccessibility methods: Bioavailability and bioaccessibility of inorganic contaminants in soil: Answering key questions	Canada
SENR	N.T. Basta	Predicting arsenic bioavailability in contaminated soils using bioaccessibility or soil properties	Italy
SENR	N.T. Basta	Using agricultural soil tests to estimate total and bioaccessible Pb in urban soils	Italy
SENR	N.T. Basta	Soil controls on arsenic bioaccessibility: Arsenic fractions and soil properties	Italy
SENR	Richard P Dick	Soil Quality and Bioindicators: Enzyme Activities Sistema Sivopatoriles: Una alternativia al Manejo Convencional de la Ganaderia en Coombia y su efecto sobre la aclidad del suelo.	Columbia
SENR	Shiping Deng, Inna Popova, and Richard Dick	The Use of p-Nitrophenol and 4-Methylumbelliferone in Soil Enzyme Assay	Germany

DEPT	PRESENTER, COAUTHORS	TITLE	COUNTRY
SENR	Dick, Linda K., G. Jia, S. Deng, and R.P. Dick	Microplate Assay: A Valid Approach to Measre Soil Enzyme Activities?	Germany
SENR	Sal, S.N., S. Diedhiu, M.N. Diouf, R.P. Dick, and J.L. Chotte	Microbial Response to Salinity Stress in a Tropical Sandy Soil Amended with native Shrub Residues or Inorganic Fertilizer	Germany
SENR	Roy Chowdhury, T. and R.P. Dick	Type II Methanotrophs are the Drives of Potential Methane Oxidation in Pulsed Wetlands as Indicated by 13C-Phospho- lipid Fatty Acid Composition	Germany
SENR	Tvergyak, J.L., N. Basta, and R.P. Dick	Soil Enzyme Activity and Microbial Dynamics in a Degraded Soil Amended with Biosolids	Germany
SENR	Fernandez-Gomez, M.J., E. Romero, R. Nogales, C.A. Edwards, and R.P. Dick	Enzyme Activities in Soil Amended with Thermo- or Vermi-compost from Food Wastes	Germany
SENR	Vallejo, V.E., F.Roldan, Z. Arbeli, W. Teran, and R.P. Dick	Soil Microbial Community Composition and Enzyme Activity Responses to An In- tensive Silvopastoral System of Colombia	Germany
SENR	Lal, R.	Processes of soil carbon sequestration and ecosystem services.	Australia
SENR	Lal, R.	Restoring soil health and organic matter for conserving soil moisture in a watershed	China
SENR	Lal, R.	Soils, food and climate	Germany
SENR	Lal, R.	Global Soil Forum: Potential and Opportunities	Germany
SENR	Lal, R.	Marginal Soils	Germany
SENR	Lal, R.	Climate change and the biosphere	Germany
SENR	Lal, R.	The climate relevance of dryland ecosystems	Germany
SENR	Lal, R.	Initiatives to include soils on global political agenda to address emerging issues.	Germany
SENR	Lal, R.	Climate change adaptation and mitigation through land use.	Germany
SENR	Lal, R.	Residue removal for biofuel and soil quality	Guam
SENR	R. Lal	Intensive agriculture and the soil carbon pool.	India
SENR	Lal, R.	Land degradation and pedolgic processes of world soils.	Japan

DEPT	PRESENTER, COAUTHORS	TITLE	COUNTRY
SENR	Lal, R.	Soil quality in the WANA region for adapting to climate change and advancing food security	Kuwait
SENR	Ibrahim, M. and R. Lal	Climate change and land use in the WANA region	Kuwait
SENR	Ortas, T. and R. Lal	Climate change and food security in the WANA region	Kuwait
SENR	Lal, R.	Science dimension of achieving zero net land degradation	South Africa
SENR	Lal, R.	Harnessing science knowledge for combating desertification, land degradation and drought.	South Korea
SENR	Lal, R.	World soils and their protection	U.K.
SENR	Mitsch, W.J.	Creating WetlandsA 15 year study in self-design	China
SENR	Mitsch, W.J.	Opportunities for research at Ramsar wetland sites and for Ramsar wetlands at research sites	Czech Repub- lic
SENR	Mitsch, W.J.	Coping with catastrophic changes – building long term resilience	Sweden
SENR	Mitsch, W.J.	Keynote lecture, Regulating services of nature: Identification and enhancement of ecosystem services from created and restored wetlands	Sweden
SENR	Mitsch, W.J.	Making healthy rivers with floodplain wetlands: From the Mississippi-Ohio- Missouri River Basin in Ohio to the Ever- glades 'River of Grass' in Florida	China
SENR	Mitsch, W.J.	Wetlands - A significant global sink of carbon?	China
SENR	Mitsch, W.J.	Seventeen years of primary succession of created riverine wetlands	Czech Repub- lic
SENR	Laura Kearns and Amanda Rodewald	Incorporating Predation Risk into Nesting Decisions by an Urban Avoider and an Urban Adapter	New Zealand

DEPT	PRESENTER, COAUTHORS	TITLE	COUNTRY
SENR	Larkin, J.L., P.B. Wood, T.J. Boves, J. Sheehan, D.A. Buehler, A.D. Rodewald, P.D. Keyser, T.A. Beachy, M.H. Bakermans, A. Evans, G.A. George, M.E. McDermott, F. L. Newell, K.A. Perkins, and M. White	Breeding Season Concerns and Response to Forest Management: Can forest management produce more breeding birds?	Peru
SENR	Colorado, C.J.,M. Baker- mans, P. Caycedo, P. Ramoni- Perazzi, A. Rodewald, D. Mehlman, and P. Hamel.	Hallazgos recientes en la ecología invernal de la reinita cerúlea (Setophaga cerulea) en los Andes: perspectivas, retos y oportunidades.	Peru
SENR	Botero, J., G. Medina, B. Smith, D. Buehler, J. Larkin, A. Rodewald, P.Wood	Integrating conservation management, species protection and economic viability into sustainable land use practices in the Andes and Appalachians.	Peru
SENR	Amanda Rodewald	Research overview	Spain
SENR	Toman, E. and R. Moore	Human dimensions of climate change adaptation: Factors that influence behaviours	Kuwait