

IOWA SEED & BIOSAFETY

Vol. 26 No. 1 | Fall 2010

THE NEWSLETTER OF THE SEED SCIENCE CENTER AND BIOSAFETY INSTITUTE FOR GENETICALLY MODIFIED AGRICULTURAL PRODUCTS



Above left: Plans are already underway to establish a seed institute at the University of Nairobi Kabete Campus in Kenya with help from a \$4.49 million grant from the Alliance for a Green Revolution in Africa (AGRA). Right (from left): Seed Science Center Director Manjit Misra, AGRA President Namanga Ngongi, and ISU Distinguished Fellow David Lambert collaborated on the creation of a seed institute during a visit to AGRA headquarters in 2009.

SEED SCIENCE CENTER, UNIVERSITY OF NAIROBI PARTNER TO ESTABLISH SEED INSTITUTE

by Dan Kuester, Iowa State University News Service

Iowa State University seed scientists are working with the University of Nairobi and other groups to increase food security and reduce poverty in sub-Saharan Africa with help from a new grant from the Alliance for a Green Revolution in Africa (AGRA).

Funded by the Bill & Melinda Gates Foundation, AGRA works to help millions of small-scale farmers and their families across the African continent lift themselves out of poverty and hunger.

Through AGRA's \$4.49 million grant over three years, ISU's Seed Science Center, the University of Nairobi (UoN), the International Maize and Wheat Improvement Center, and private business experts are establishing a Seed Enterprise Management Institute at the College of Agriculture and Veterinary Sciences in Kabete, Kenya.

The institute's goal is to eradicate food insecurity through capacity building of seed company personnel in sub-Saharan Africa, where seed supply chains are lacking or inadequate. The institute will also provide seed training to graduate students who pursue plant breeding in African universities, support the production of improved seed varieties, and create a web-based network for information exchange on seed technology.

"The idea for the seed institute started when AGRA President Dr. Namanga Ngongi and ISU President Geoffroy committed to collaborate on seed issues in Africa during the dedication ceremony of our center's expansion," said Manjit Misra, Seed Science Center director.

(continued on page 2)



INSIDE THIS ISSUE

Iowa State Hosts First Train-the-Trainer Workshop	2
Training Underway at University of Nairobi	3
Virtual Town Hall Meeting Oct 12	4
Lambert Speaks on Human Face of Science	4
Seventh BIGMAP Symposium	5
Frels Named Misra Scholar	6
ISU/ICRISAT Develop National Variety List	6
Harries Speaks at Seed Congress	7
ISU Global Seed Program	7
Flores, Valencia Visit ISU	7
Workshops Address Change	8
Hail Damage Linked to Mycotoxins	9
STB Program: Going the Distance	10
Commentary: Mike Stahr	11
VEISHEA 2010	12
Nordyke Retires	13
Seed Science Center Profiles	13

"By working together to create this outstanding facility, and by combining our resources to educate and train professionals in the seed industry in Africa, we will build an infrastructure based on excellence. This effort will, no doubt, culminate in tremendous progress towards the advancement of the sustainability of farmers on the continent."—Seed Science Center Director Manjit Misra



**IOWA STATE UNIVERSITY
SEED SCIENCE CENTER
BIOSAFETY INSTITUTE FOR
GENETICALLY MODIFIED
AGRICULTURAL PRODUCTS**

AMES, IOWA, 50011-3228
Phone (515) 294-6821
Fax (515) 294-2014
Email
seedsci@iastate.edu

SSC Web site
www.seeds.iastate.edu

BIGMAP Web site
www.bigmap.iastate.edu

PROGRAM LEADERS

Director
Manjit Misra

Seed Physiology
Susana Goggi

Seed Pathology
Gary Munkvold

Global Seed Programs
Joe Cortes

Seed Testing
Mike Stahr

Seed Conditioning
Alan Gaul

Computer Technology
Yuh-Yuan Shyy

Molecular Quality Assurance
Anania Fessehaie

Risk Assessment (Plants)
Jeff Wolt

Risk Assessment (Food Safety)
Scott Hurd

Risk Communication
Lulu Rodriguez

Process Management/Biosafety
Adelaida Harries

Seed Technology and Business
Curriculum
Paul Christensen
Ted MacDonald

Center Administrative Assistant
Connie Sandve

Editor
Regina Hendrickson



Left: (clockwise from left) Professor Agnes Mwang'ombe, Principal at the University of Nairobi, gives AGRA's Joe DeVries a tour of the site where a future SEMIs seed conditioning plant will be located.

SEED INSTITUTE

(continued from page 1)

"Today that idea has come to fruition. By working together to create this outstanding facility, and by combining our resources to educate and train professionals in the seed industry in Africa, we will build an infrastructure based on excellence. This effort will, no doubt, culminate in tremendous progress towards the advancement of the sustainability of farmers on the continent," he said.

Faculty and staff of ISU's Seed Science Center are providing the guidance and assistance for the physical design and construction of the institute including the seed conditioning, storage and drying facilities; training facilities; and a seed laboratory.

"ISU and the UoN will work together to create and facilitate learning modules and specialized workshops on seed testing, seed conditioning and storage, information management, quality assurance, and seed policies and regulations—particularly geared towards the seed business," said Joe Cortes, leader of the Global Seed Program.

"AGRA and Iowa State University both have the commitment and the understanding to improve the livelihoods of African farmers," said David Lambert, distinguished fellow at Iowa State University. "We must begin with access to high quality seed."

Iowa State University does not discriminate on the basis of race, color, age, religion, national origin, sexual orientation, gender identity, sex, marital status, disability, or status as a U.S. Veteran. Inquiries can be directed to the Director of Equal Opportunity and Diversity, 3680 Beardshear Hall, 515-294-7612.

ISU HOSTS FIRST TRAIN-THE-TRAINER WORKSHOP

The Seed Science Center hosted the first Seed Enterprise Management Institute (SEMIs) Train-the-Trainer workshop April 24-May 8 on the ISU campus.

Prior to the start of training, faculty members from the University of Nairobi (UoN) slated to take part in the workshop attended the Seventh Annual BIGMAP Symposium. They included Department of Plant Science and Crop Protection Senior Lecturer and Chairperson Florence Olubayo and Lecturers James Muthomi and Kiarie Njoroge. UoN Principal Professor Agnes Mwang'ombe also attended the symposium as a guest speaker.

Olubayo, Muthomi, and Njoroge then began two weeks of hands-on training sessions facilitated by ISU's Joe Cortes, Adelaida Harries, James Aketch Okeno, Alan Gaul, Mike Stahr, and Yuh-Yuan Shyy. The sessions were focused on seed legislation and accreditation; seed testing; and seed conditioning, drying, and storage. The group also had an opportunity to travel to Johnston, Iowa, to tour Pioneer Hi-Bred, International.

The Train-the-Trainer workshop was designed to provide UoN educators with the information needed to teach future workshops in Kenya. "This Train-the-Trainer workshop is an important part of the SEMIs program," said Joe Cortes, ISU Global Seed Program leader. "The information that the UoN faculty gleaned from their time with specialists here at the center is the catalyst. They will take this knowledge back to Africa and will pass it on. This is the mechanism that will inevitably make food insecurity in sub-Saharan Africa a thing of the past."



Clockwise from left: Iowa State Seed Conditioning Specialist Alan Gaul (pictured at right) demonstrates a color sorter to (from left) UoN's Florence Olubayo and James Muthomi during the first Train-the-Trainer workshop at ISU in April.

(From left): Kiarie Njoroge, James Muthomi, and Seed Lab Manager Mike Stahr watch as Florence Olubayo operates a seed vacuum planter.

While in Ames, participants of the SEMIs Train-the-Trainer workshop attended the Seventh Annual BIGMAP Symposium.

TRAINING UNDERWAY AT UNIVERSITY OF NAIROBI

Training has begun at the University of Nairobi for the first group of participants taking part in the Seed Enterprise Management Institute (SEMI) program.

Led by educators and seed specialists from both the University of Nairobi and Iowa State University, training activities to date have included:

- A 5-day seed production workshop held in mid-May facilitated by John McRoberts of CIMMYT and UoN Lecturer Kiarie Njoroge
- A 6-day seed conditioning workshop in late May attended by 31 seed managers from 12 sub-Saharan countries. The workshop was led by ISU Seed Conditioning Specialist Alan Gaul and UoN's Duncan Mbuge
- A 10-day workshop in late June facilitated by SEMI consultant Aline O'Connor focusing on seed marketing, financial management, and entrepreneurship

Fall SEMI training workshops scheduled to be held at the University of Nairobi in Kenya include:

- A 6-day seed quality assurance workshop September 20-25, led by Iowa State Seed Laboratory Manager Mike Stahr, UoN Lecturer James Muthomi, SEMI Project Manager David Ndung'u, and
- A 6-day seed legislation and accreditation workshop September

27- October 2 led by Joe Cortes, Adelaida Harries, and Yuh-Yuan Shyy from Iowa State University, and by James Muthomi, Kiarie Njoroge, and Florence Olubayo from the University of Nairobi.

According to BIGMAP Policy Associate and Iowa State SEMI Coordinator James Aketch Okeno, the workshops are well-attended by seed company managers and others across the sub-Saharan region. "African smallholder farmers need improved seed to overcome low yields," said Okeno. "It is the small to medium-

sized seed companies that will take the seed to them."

SEMI workshops are scheduled to continue throughout the spring and summer during the three years of the project. In the meantime, as UoN and Iowa State educators conduct training workshops, design of the SEMI physical facility is underway.

"Soon we will have an institute built on excellence of which both universities can be proud," said Seed Science Center Director Manjit Misra.



Left: Iowa State Seed Conditioning Specialist Alan Gaul discusses methods of seed conditioning with seed company managers during a SEMI workshop at the University of Nairobi in May.

Below: Seed Laboratory Manager Mike Stahr gives an overview of seed quality characteristics at a workshop in Kenya in September.





CropLife International

CENTER TO HOST 'VIRTUAL' TOWN HALL MEETING

To celebrate the United Nation's International Year of Biodiversity, the Seed Science Center at Iowa State University is partnering with CropLife International, CropLife America, and Truth about Trade & Technology to assemble a global panel to discuss sustainable agriculture practices and their role in biodiversity preservation.

The panel is part of a 'virtual' town hall meeting—the first in a series of groundbreaking international discussions focused on exploring how farmers can achieve food security while preserving natural resources, protecting the environment, and maintaining biodiversity.

USDA Secretary of Agriculture Tom Vilsack is scheduled to deliver the opening remarks for the meeting

The town hall meeting will take place October 12 from 10:00-11:30 a.m. in the Alliant Energy–Lee Liu Auditorium in Howe Hall on the Iowa State University campus.

The event is the first stop on the *Biodiversity World Tour*—a three-week discussion series taking part in North America, Europe, and Asia. The series is designed to engage audiences worldwide in a dialogue about the balance between agriculture and the environment.

As part of the Iowa State meeting, three farmers—one from Asia, Latin America, and North America—will answer questions from a live student and faculty audience and will explain what they do daily to preserve the environment for future generations. The exchange will be broadcast live on the Internet and panel members will answer questions in real-

PLEASE JOIN US AT

THE BIODIVERSITY WORLD TOUR VIRTUAL TOWN HALL MEETING ON THE IOWA STATE UNIVERSITY CAMPUS

Tuesday, October 12th, 2010

10:00-11:30 A.M.

at the Alliant Energy–Lee Liu Auditorium, 1140 Howe Hall

The first in a three-part discussion series

Presented by CropLife International,

CropLife America,

Truth about Trade & Technology, and the

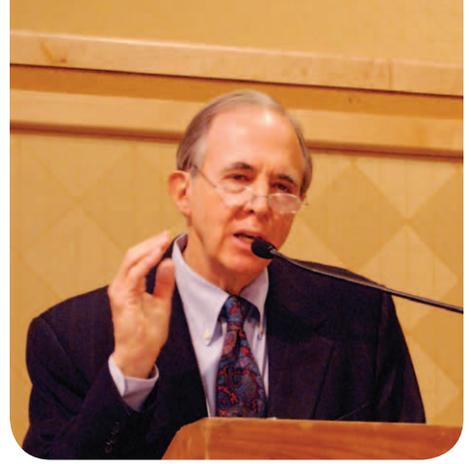
Seed Science Center at Iowa State University

To view or participate online visit: www.biodiversityworldtour.com/ISU

time from viewers around the globe via Twitter, E-mail, Facebook, and two-way video.

“We are excited to play a part in helping to bring this event to the Iowa State University Campus,” said Seed Science Center Director Manjit Misra. “Today, more than ever, sustainable agricultural practices are essential to maintaining the world's natural resources and biodiversity. It is critical that we preserve the coexistence of our natural environment and the need to feed a growing world.”

To learn more about the Biodiversity World Tour, visit: www.biodiversityworldtour.com



LAMBERT SPEAKS ON 'HUMAN FACE OF SCIENCE'

BIGMAP Distinguished Fellow David Lambert delivered the luncheon address at the Seventh Annual BIGMAP Symposium. Lambert's talk “The Human Face of Science: A Challenge for Agricultural Research in Advancing Global Security” focused on domestic and global food security challenges and encouraged the use of agricultural research as a powerful weapon against world hunger and malnutrition. For a full transcript of Lambert's address visit: <http://www.seeds.iastate.edu/images/hunger.pdf>.

Overseas:

- One billion people are hungry (one-sixth of the planet)
- 25,000 die each day (60 jumbo jets full of people each day)
- One child dies every 5 seconds
- One-third of all children in the world are malnourished, and
- 90 percent of the global hunger in children is chronic

I tell my students, if you can't remember these numbers, just remember the word 'unconscionable.'

—Excerpt from BIGMAP Distinguished Fellow David Lambert's 2010 BIGMAP Symposium address titled “The Human Face of Science: A Challenge for Agricultural Research in Advancing Global Security”



Left: Yilma Kebede, senior program officer for Agricultural Development with the Bill & Melinda Gates Foundation, discussed the role of foundations in global agricultural development at the BIGMAP Symposium held April 27-28 in Ames.

Right (from left): Justin Rakotoarisaona, Joe Cortes, Cris Muyunda, and Agnes Mwang'ombe discuss African biotechnology issues during an afternoon question and answer session chaired by Gary Munkvold.

SYMPOSIUM OFFERS INSIGHTS INTO GLOBAL HUNGER CHALLENGES

More than 100 agricultural industry leaders and experts from around the world gathered to share current research and perspectives on seed trade and biotechnology innovation at the Seventh Annual BIGMAP Symposium held April 27-28 in Ames, Iowa.

The symposium, titled “Food, Feed, and Fuel for the World: Seed and Biotechnology,” offered attendees special insight into the barriers and issues concerning quality seed accessibility and production at the global level, and offered a rare opportunity to speak face to face with individuals that are advancing infrastructure and technological change in developing regions of the world.

In his opening remarks, ISU College of Agriculture and Life Sciences Senior Associate Dean **Joe Colletti** said that it was encouraging that all three topics of food, feed, and fuel were discussed at the symposium. “I believe that all of these things are needed by the world’s growing population, and I believe that agriculture is uniquely positioned to provide them,” he said. “This symposium weaves together the theme of feeding the world, but also of modifying our diet for old carbon. It is about sustaining the ecosystems and understanding the tradeoffs...in the context of enhancing the socio-economic viability of all worldwide.”

Colletti added that Iowa State University’s role is to bring together the best science and the best technology in

a framework that enables individuals to make wise choices.

Highlights of the 1 1/2 day symposium included a lunch presentation by **David Lambert**, BIGMAP distinguished fellow, who spoke on “The Human Face of Science: A Challenge for Agricultural Research in Advancing Global Food Security.” Other highlights included presentations by **Jack Bobo**, senior advisor on biotechnology, U.S. State Department, who spoke on “Agriculture Arrives Late to the Climate Debate”; **Delphine Guey**, French Association for Seeds and Seedlings (GNIS), who discussed “A European Perspective on Challenges and Issues for Seed Trade”; **Joe DeVries**, director of the Program for Africa’s Seed Systems, Alliance for a Green Revolution in Africa (AGRA), who talked on “Seed Enterprise Development Challenges in Africa”; and **Yilma Kebede**, senior program officer for agricultural development, Bill & Melinda Gates Foundation, who addressed “The Role of Foundations in Global Agricultural Development.”

The first session of the symposium was devoted to “Food, Feed, and Fuel for the World: Challenges and Issues for Trade.” It was chaired by Iowa State Agronomy Professor and symposium co-organizer **Jeff Wolt**. Speakers for the session included **Sally McCammon**, science advisor, USDA/APHIS/BRS who gave a talk titled “Overview and Activities of the OECD with Respect to Low Level Presence”;

and **Bernice Slutsky**, vice president for science and international affairs, American Seed Trade Association (ASTA), who discussed “The Private Sector’s Efforts and Responsibilities Regarding Low Level Presence.”

More than 16 researchers shared their findings on food and fuel-related topics in a poster session that ended the first day of the symposium.

The symposium’s second session “Food, Feed, and Fuel for the World: Global Issues and Perspectives” was chaired by **Bruce Maunder**, retired former senior vice president for Dekalb. Speakers during the session included **Arjula Reddy**, professor of plant sciences, University of Hyderabad, and vice chairman, Genetic Engineering Approval Committee (GEAC) of India, who spoke on “The Crop Biotechnology Pipeline in India”; and **Christopher Hansen**, deputy director general, Inter-American Institute for Cooperation on Agriculture (IICA), who addressed “Regional Needs for Seed Trade: Latin America.”

BIGMAP Scientist and event co-organizer **Adelaida Harries** chaired the final session of the symposium titled “Infrastructure for Seed and Biotechnology Development: Focus on Africa.” Speakers included **Joe Cortes**, global seed program leader, Iowa State University, who spoke on “Seed System Development”; **Cris Muyunda**, CEO, Alliance for Commodity Trade in Eastern and Southern Africa (ACTESA), Common Market for Eastern



FRELS NAMED MISRA SCHOLAR

Katherine Frels of Guthrie Center, Iowa, was named the 2009-10 Manjit K. Misra Outstanding Senior Seed Scholar at the 107th Iowa Seed Association Annual Convention held in Ames in November.

Frels was also awarded the American Seed Trade Association (ASTA) scholarship at the event.

Frels is a senior at Iowa State University majoring in agronomy. She has held internships with AgReliant Genetics and Leandro Laboratory in Boone.

After completing her bachelor's degree, Frels plans to pursue a Ph.D. in an area of plant breeding and to explore a career in wheat breeding.

Five Iowa State students were awarded Iowa Seed Association Scholarships of \$1,000 at the event. They included Janine Comstock, Matthew Heims, Leah Anne Ruff, Vivian Bernau, and Jenna Steele.

This is the fourth year that the Misra scholarship, named for Seed Science Center Director Manjit K. Misra, has been awarded. Recipients of the award are chosen for their exemplary character, promise for a career in seed science, high academic record, and leadership skills. The scholarships are open to students in any major in the College of Agriculture and Life Sciences.



Above (from left): Arjula Reddy, Yilma Kebede, Christopher Hansen, and Joe DeVries take part in a discussion panel moderated by Bruce Maunder during the Seventh BIGMAP Symposium in April.

SYMPOSIUM

(continued from page 5)

and Southern Africa (COMESA), who discussed “Seed and Biotechnology Challenges to Seed Trade”; and **Justin Rakotoarisoana**, secretary general, African Seed Trade Association (AFSTA), who addressed “Regulatory Frameworks for Seed and Biotechnology in Africa.”

A special guest speaker at the symposium was Professor **Agnes Mwang'ombe**, principal, from the University of Nairobi, who gave an overview of current seed and biotechnology issues in Kenya.

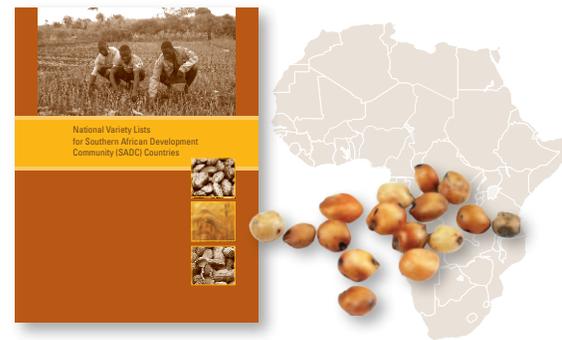
The final session of the symposium ended with a panel discussion moderated by Iowa State University Plant Pathology Professor and Seed Science Endowed Chair **Gary Munkvold**.

Support for the Seventh BIGMAP Symposium was provided by the Food, Feed, and Fuel Initiative: Iowa and the USDA/APHIS.

For more information about BIGMAP visit www.bigmap.iastate.edu.



Above: 2009-10 Iowa Seed Association Scholarship recipients (from left) Janine Comstock, Katherine Frels, Matthew Heims, Leah Anne Ruff, and Vivian Bernau are pictured with Richard Gladon at the 107th Iowa Seed Association Annual Meeting. (Not pictured: Jenna Steele)



ISU, ICRISAT DEVELOP NATIONAL VARIETY LIST

This past year, Iowa State Seed Science Center Global Seed Program Leader Joe Cortes, Scientist Adelaida Harries, Scientist and IT Specialist Yuh-Yuan Shyy, and Communications Specialist Regina Hendrickson worked with Isaac Minde of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and national seed authorities in Africa to develop a web-based database and the *National Variety Lists for Southern African Development Community (SADC) Countries*.

The 114-page publication is a compilation of existing national seed varieties available in Angola, Botswana, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe.

“This project was one that we are all very proud of,” said Cortes. “The catalog is a valuable resource for the smallholders of Africa. In southern Africa for the first time, whether farmers are growing groundnuts, or any one of 20 crops in the area, they can go to a single source and get the information they need on the available seed denominations in the area. That includes details on characteristics such as potential yield, growth habits, or drought and disease tolerance—and all the information is handy and available in one place. It will make a big difference in their decision-making process.”

Funding for the project was provided by the United States Agency for International Development's Regional Center for Southern Africa (USAID/RCSA) as part of the Southern African Seed Development initiative.



HARRIES SPEAKS AT SEED CONGRESS IN PARAGUAY

Scientist Adelaida Harries was an invited speaker at the 22nd Pan American Seed Congress August 4-6 in Asunción, Paraguay.

The purpose of the event, titled “Technology to Increase Development,” was to analyze and discuss policies relative to the seed industry. Speakers focused on biotechnology, plant breeders rights, regional standards for seed, seed technology, and seed trade.

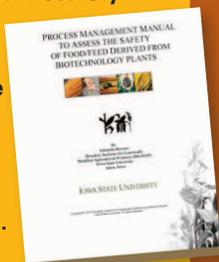
Representing the Iowa State University Seed Science Center, Harries presented lectures on Low Level Presence (LLP) in seed, harmonization of plant variety protection laws in Common Market of South America (MERCOSUR) countries, and phytosanitary issues relating to seed trade.

Harries also chaired a session on biotechnology and served on the Scientific Committee Review Board for presented papers at the event.

Over 450 participants from around the world, including academicians and individuals from the private and public sector, attended the conference, which is held biennially.

DID YOU KNOW?

The ISU Global Seed Program has developed 10 process manuals that serve as training resource materials on seed and biosafety policies and regulations in many countries around the world. To view the manuals visit: www.seeds.iastate.edu/pages/research.html.



YEAR OF PROGRESS FOR GLOBAL SEED PROGRAM

Seed Science Center Global Seed Program Leader Joe Cortes and BIGMAP Scientist Adelaida Harries share the common goal of dedicating themselves to providing access to quality seed, facilitating seed trade, and promoting the growth and development of science-based seed and biosafety policies and regulations around the world. In this past year, in addition to their participation in SEMIs and their work with ICRISAT to develop the *National Variety Lists for Southern African Development Community Countries* and corresponding database, their efforts have resulted in the:

- Approval of technical agreements by the Southern African Development Community (SADC)
- Drafting of seed laws for second-tier SADC countries based on a template developed by Iowa State
- Development of the framework for Iowa State University’s participation in the COMESA (Common Market for Eastern and Southern Africa) launch of the ACTESA (Alliance for Commodity Trade in Eastern and Southern Africa) Initiative
- Training and capacity building of second-tier SADC countries for the development of Plant Variety Protection frameworks based on the UPOV 1991
- Development of technical agreements in West Africa on the requirements for variety registration at the regional level for 13 selected crops
- Draft of a procedural manual for variety registration at the national level for 30 participants from 17 countries in West Africa
- Low Level Presence training sessions for government officials of Asia-Pacific Economic Corporation (APEC) countries, and
- Production of
 - The second draft of quality management manuals of five African seed companies
 - An annex to the regional variety catalogs for the SADC and West Africa regions on Low Level Presence (LLP), and
 - Translation of the “Process Management Manual for Release into the Environment of Genetically Modified Agricultural Organisms” into Spanish



Above: Alicia Rocha Valencia and Cesar Ventura Flores visited the Seed Science Center in August to explore research collaborations.

FLORES, VALENCIA EXPLORE COLLABORATIONS WITH ISU

Cesar Ventura Flores, Dean, and Alicia Rocha Valencia, Professor, of the College of Agriculture at Antenor Orrego Private University (UPAC) visited Seed Science Center Global Program Leader Joe Cortes in August.

The purpose of the visit was to explore future collaborations between the UPAC, located in Trujillo, Peru, and Iowa State University.

“Our goal is to provide expert training in seed business and technology for the farmers of Peru,” said Flores. “We hope to further the growth of the private seed sector and to reach more farmers with high quality seed.”

Cortes worked with the seed industry in Peru from 1989 to 1992 as part of an Iowa State project. During that time, he was involved in the creation of CODESES (Comité Departamentales de Semillas). CODESES was designed to develop and enhance Peru’s seed industry by providing training, assistance, and other services to small seed entrepreneurs.

Cortes also worked to implement seed certification activities in eight areas in Peru.

Flores and Valencia’s company Semillas Ventura was the first seed company to be established under the ISU project. Their enterprise, located in Chiclayo, in the northern region of Peru, specializes in the production of rice seed.

“Combining resources with the UPAC is a win-win situation,” said Cortes. “By building upon earlier successes in the country, we can positively impact the seed sector in Peru.”



gravity separator in operation,” said Gaul. The machine, similar to existing gravity separation equipment, includes PLC controls and a graphical touchscreen display instead of a traditional operator interface. It allows operators to save and restore adjustment combinations, allowing them to rapidly switch between products while minimizing setup time.

Another summer highlight included the ‘Survivor: Seed Treatment Competition’ which helped to demonstrate key concepts for effective seed treatment application.

During 2010, the Iowa State University Seed Science Center facilitated two Association of Official Seed Analysts (AOSA) short courses, one seed quality workshop, and 10 seed conditioning workshops. But education and outreach efforts didn’t end there. Center faculty and staff also conducted custom workshops and presentations in response to increased demand for on-site training.

According to Gaul, the extra effort placed on tailoring workshops to meet the evolving needs of seed industry professionals paid off. “Feedback on the 2010 workshop series was very positive,” he said. “We hope to continue to build on that success.”



WORKSHOPS ADDRESS CHANGING TECHNOLOGIES

Seed Science Center workshops echoed a common theme in 2010—the importance of educating seed professionals on the latest in agricultural technology.

This past year, Seed Science Center faculty and staff trained more than 249 seed industry professionals from 109 company locations. That meant new program content and workshop formats to accommodate increased attendance and advances in technology.

“Workshop topics have historically included seed corn, soybean or small grain seed conditioning, and dedicated sessions for color sorting, gravity separation, and seed treatment,” said Alan Gaul, ISU Seed Conditioning Specialist and workshop coordinator. “However, in addition to the usual seed operations—ranging from harvest and receiving through packaging and storage—the technology required for seed crops and food-grade products has been gradually increasing.”

This past year the Seed Science Center hosted workshops for individuals from 22 states and 8 countries; including the U.S., Argentina, Brazil, Canada, China, India, Puerto Rico, and Thailand.

In addition, attendance was very high for workshops that focus on more advanced technologies, such as color sorting and seed treatment. “Color sorting has become a very popular topic in recent years,” said Gaul. “It has been driven by the rapid adoption of the technology and

the need for additional training to obtain consistent results.”

To respond to increased interest in color sorting technologies, Gaul has recently begun to offer workshops dedicated specifically to Satake and Sortex color sorters. The sessions are taught jointly by ISU personnel and factory technicians. Attendees have the opportunity to learn in-depth details about machine setup, operation, adjustment, troubleshooting, and quality control methods.

Workshop formats were also adapted to meet changes in seed treating technologies this summer. “Attendance at treatment workshops has been growing so rapidly, it forced us to change from our usual small group sessions to a modified ‘mini-conference’ format,” said Gaul. This year, for the first time, a single large-group session was offered for participants on the first day of the seed treating program. Multiple simultaneous sessions were then offered on a second day to provide in-depth coverage of specific topics and opportunities for hands-on interaction.

Recertification credit for the Iowa Commercial Pesticide Applicator program was also made possible as part of the 2010 seed treatment workshop.

Highlights of this summer’s program included the unique opportunity to view and operate a prototype of a new gravity separator. “Our attendees were among the first to see an Oliver Voyager-series

The ISU seed conditioning facility is dedicated to research and training applications. The small, pilot-scale seed cleaning facility also includes laboratory equipment capable of demonstrating a variety of seed cleaning applications. The plant is used for industry workshops, for student laboratory sessions, and for research applications requiring dry granular separation or physical property measurements. It also provides researchers with opportunities for new process development and testing, often in collaboration with industry partners.

HAIL DAMAGE LINKED TO INCREASED CORN EAR ROTS AND MYCOTOXINS

New research on hail-damaged corn led by Iowa State University shows that hail damage during grain fill increases the risk of ear rot diseases and mycotoxin contamination.

The findings are important because hail-damaged corn is often used to feed livestock, which can become ill or refuse feed if mycotoxin concentrations are too high.

“Hail damages crops somewhere in Iowa every year. But until recently, there was little data to quantify effects of hail damage on grain quality,” said ISU plant pathologist Alison Robertson.

Robertson studied the issue with ISU colleagues Charles Hurburgh, director of the Iowa Grain Quality Initiative; Gary Munkvold, Seed Science Endowed Chair and plant pathologist; and Steve Ensley, clinician with the Veterinary Diagnostic Laboratory.

Robertson analyzed injured corn ears collected from several Iowa fields damaged in two major hail storms in July and August 2009. The storms affected 1.3 million acres in northeast and west-central Iowa. Because they occurred in later stages of the crop’s growth, these storms offered a rare chance to study effects of hail on grain quality.

One way grain quality declines is through growth of molds on hail-bruised kernels. Some molds produce toxins leading to ear rots; others discolor kernels, reducing marketability. The researchers wanted to answer a common grower question: What impact does hail damage to developing kernels have on corn grain quality, ear rot severity, and mycotoxin contamination?

They found that as hail damage to kernels increased, so did severity of ear rots – and with the ear rots, the presence of certain mycotoxins.

Fusarium, Gibberella, and Cladosporium were the main molds found in the study. Fusarium ear rot

can contaminate grain with toxins called fumonisins. The toxins deoxynivalenol and zearalenone are produced by the fungus that causes Gibberella ear rot.

Cladosporium does not produce toxin but does create black mottling on kernels, Hurburgh said. “This classifies as ‘total damage’ in the official U.S. grades and therefore creates marketing issues.”

Researchers also found that where deoxynivalenol – more commonly known as vomitoxin – was found, zearalenone was usually present as well.

“Swine are very sensitive to vomitoxin,” Robertson said. “And zearalenone is an estrogen-type mycotoxin that can affect breeding pigs.”

Because zearalenone poisoning affects reproduction, effects are hard to see. But vomitoxin, to which swine are most sensitive, causes more visible signs of sickness such as poor weight gain, Ensley said.

The mycotoxins may enter livestock feed through feeding corn or dried distillers grains (DDGs), which are a by-product of the ethanol-making process. When damaged grain is used to make ethanol, any mycotoxins present concentrate up to three times in the resulting DDGs, Robertson said.

To counteract this, contaminated grain or DDGs may be blended with clean grain to get below FDA advisory levels. For swine, the FDA advisory limit for vomitoxin is 5 parts per million, or not more than 1 part per million of total diet, and 1 part per million for zearalenone. The researchers did not blend grain for this study; but they found about 10 percent of pure grain samples had mycotoxin levels above the FDA advisory limits for vomitoxin, zearalenone, or both.

“This amount may seem small, but you need to factor in that approximately 65 percent of Iowa’s corn is used in the ethanol industry,” Robertson said. Because of this, and mycotoxin

concentration in DDGs, Robertson said that “in actuality, more than 50 percent of the study’s grain samples had mycotoxin levels that would have concentrated in the DDGs to levels greater than FDA advisory levels.”

Even when blending grain, it can be hard to get an even distribution of clean and contaminated grain in the feed mix, Ensley said.

“It’s hard to get a homogenous mixture. There could be areas in the feed where concentrations of contaminated grain are higher,” he said. “Pigs are so sensitive to DON, this may cause them to go off feed and it may take two weeks to get them consuming feed normally again, even on totally clean grain.”

Robertson said the results illustrate the importance of regularly checking fields to monitor development of ear rots, and making plans to harvest as soon as possible if more than 10 percent of ears in a field are considerably moldy.

The good news, she said, is that pre-harvest scouting of fields is an effective way to cut risks of mycotoxin contamination.

“Our research showed there was a positive correlation between visually damaged samples and detectable levels of toxins,” she said. “So, it’s very important to scout your fields to see how much ear rot you have.”

“Our management recommendation is to harvest this damaged grain as early as possible, and dry and cool the grain immediately to reduce growth of molds and minimize further development of these mycotoxins.”

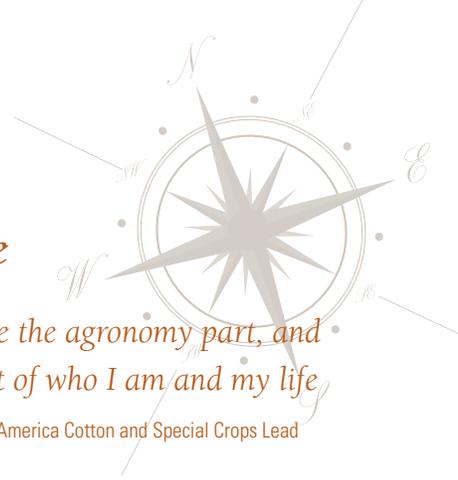
This research was funded by the ISU College of Agriculture and Life Sciences, ISU’s Iowa Grain Quality Initiative, and the ISU Corn and Soybean Initiative. ISU Extension field agronomists and Corn and Soybean Initiative partners collected the samples used in the study.



The first graduate of ISU's Seed Technology and Business Program shares her experiences with earning a master's degree online.

GOING THE DISTANCE: 3 Years—2 Countries—1 Master's degree

"I use what I learned pretty much every day. Sometimes I use the agronomy part, and sometimes the business part, but everyday I use it....It is part of who I am and my life now. It is just how I think and work." —Melissa Eiswirth, Monsanto North America Cotton and Special Crops Lead



When Melissa Eiswirth signed up for the Graduate Program in Seed Technology and Business (STB) in 2007, she undoubtedly knew that there would be challenges ahead. She would need to divide her time between her studies, her family, and the demands of her day job. However, she could not have factored into the equation what probably turned out to be her biggest challenge—two international moves in three years.

Eiswirth, who graduated from the distance education program in August, has the distinction of being STB's first graduate. She signed up for the online degree in 2007 after hearing about it from fellow Monsanto employees enrolled in the program and through interactions with the Iowa State University Seed Science Center. "The first time I heard about [the STB program] was when I was at Iowa State for the seed courses offered during the summer," Eiswirth said. "Paul Christensen came and talked to the class about the program." At that time, Eiswirth had been a Monsanto employee for 14 years and was the North America Production Research Lead.

Eiswirth, who holds a BSE in mechanical engineering from Tulane University, researched the STB program and decided that it made sense to her. "Since I do not have a background in agronomy or an MBA, but I work in the seed industry, I wanted to build my technical skills," she said. According to Eiswirth, the fact that STB business courses are presented from an industry perspective appealed to her. "Learning about widgets is nice," she said. "But

learning about seed in ways that I can easily apply to my job is much better."

Staying on Track

Nine months after Eiswirth began her master's degree, she was offered the position of LAN Manufacturing Lead at Monsanto. Subsequently, she and her family relocated to Mexico. To complicate her life further, her new position required that she travel on a regular basis. "I have had a lot of movement during the program which made it difficult for me to stay on track," Eiswirth said. "To take a distance course like this you really have to stay on time and do the readings on time. Otherwise it is very easy to get behind."

Although Eiswirth says that distance education is not for everyone, it complemented her lifestyle perfectly. "I like the flexibility," she said. "I was never able to meet my instructors because I lived in Mexico much of the time. Oddly, even though I never met any of my classmates, I feel close to them. We used each other and the instructors for guidance and support," she added.

Eiswirth explained that to keep up with the demands of the program, she often studied during her lunch breaks at work. What studying she couldn't accomplish during that time period, she finished on the weekend. "I put in lots of Saturdays and Sundays," she said.

For three years, in spite of overwhelming responsibilities and unexpected developments, Eiswirth persevered. Finally, on July 1, 2010, Eiswirth was offered the position of North America Cotton and Specialty Crops Lead

for Monsanto. She and her family moved again, this time to St. Louis, Missouri, where she currently resides. Shortly thereafter, Eiswirth finished her STB creative component which qualified her as an STB graduate.

What Lies Ahead

Looking back, how does Eiswirth feel about her 3-year ordeal? "To be honest, my family is probably more excited that I am finished than I am," she said. "Finishing is a great feeling."

Not only does Eiswirth believe that the STB program was rewarding, but she says that she puts the skills that she gained from the program to the test often. "I use what I learned pretty much every day," she said. "Sometimes I use the agronomy part, and sometimes the business part, but everyday I use it....It is part of who I am and my life now. It is just how I think and work."

Eiswirth says that she is already looking forward to her next challenge. "I love working in the seed industry and now I am more knowledgeable and prepared than ever," she said. "I hope to continue to have challenges where I can use what I have learned."

What is Eiswirth's advice to those thinking about taking part in the STB program? "I had always put off going back to school because it was not the right time from a family perspective—the kids are too little, there is too much going on, etc. Then I discovered that there is never a good time or a convenient time," she said. "The time is now, just do it."



From left: Iowa State Seed Lab Manager Mike Stahr poses with Brent Reschly, vice president for the Society of Commercial Seed Technologists, and Antonio Perdomo, quality supply manager for Pioneer Hi-Bred, Intl., at the International Seed Testing Association Meeting in Cologne, Germany, in June.

COMMENTARY:

Iowa State University 'International' Seed Science Center?

by Mike Stahr, Iowa State University Seed Laboratory Manager

As the airport in Des Moines is named the Des Moines 'International' Airport, in light of recent developments unfolding at the Seed Science Center, perhaps now it is fitting for the Seed Science Center at Iowa State to be named the 'International' Seed Science Center.

The center's precept 'Quality Seeds to Feed and Fuel the World' accurately reflects the mission of the Seed Science Center. With several new grants and initiatives underway, it is evident that international outreach and collaboration are an important focus of the center.

As is well known in the seed industry, Joe Cortes and Adelaida Harries have devoted a great deal of their efforts for many years to the training of seed professionals and to facilitating the movement of seed across boundaries in many areas around the world. BIGMAP Distinguished Fellow David Lambert and Director Manjit Misra have traveled to Africa to visit with AGRA officials and other stakeholders, and many center faculty members have also been active in collaborating internationally.

Perhaps not quite as well known, however, is the fact that the Iowa State Seed Laboratory also has a good deal of international involvement.

Lisa Shepherd, in her dual roles as ISU Seed Lab Seed Health Testing Coordinator and Acting Director of the National Seed Health System (NSHS) Administrative Unit, has been instrumental in answering questions concerning phytosanitary testing requirements and in providing testing services to facilitate the movement of seed internationally.

In addition, the Iowa State Seed Laboratory Customer Care team and I often work with individuals in other

countries to provide testing services and to field seed testing inquiries.

In this, my second year as Association of Official Seed Analysts (AOSA) President, I have had the opportunity to attend many domestic seed industry meetings for seed control, seed trade, and seed testing. I have also had the opportunity to travel internationally.

Last September I attended the Second World Seed Conference in Rome, sponsored by the International Seed Testing Association (ISTA), the International Seed Federation (ISF), the Organisation for Economic Co-operation and Development (OECD), the International Union for the Protection of New Varieties of Plants (UPOV), and the United Nation's Food and Agriculture Organization (FAO). At the meeting, representatives from the USDA, ASTA, SCST, and AOSA participated in discussions that encouraged seed testing uniformity, the elimination of poverty through increased yields and an increased number of seed species, and ways to assist in the development of seed-testing protocols in developing countries.

This June I also had the opportunity to travel to Cologne, Germany, to attend the 29th ISTA Congress. SCST Vice President Brent Reschly and I attended many of the sessions and met with seed testing personnel from a number of countries. Although I have worked with ISTA from afar (as a member of the ISTA GMO Task Force), it was very interesting to see how

ISTA's meeting compared with the AOSA/SCST annual meeting.

Most recently, I became involved at the international level again with the inception of the new Seed Enterprise Management Institute (SEMI) in Kenya. Several Iowa State Seed Lab staff members and I had the opportunity this last spring to meet and train visiting scientists from the University of Nairobi on several aspects of seed testing (including purity, germination, vigor, seed health, and trait/AP testing) during the first Train-the-Trainer workshop held in Ames.

Following that event, Iowa State Seed Conditioning Specialist Alan Gaul traveled to Kenya to provide training on seed conditioning and to consult on site design.

This fall SEMI training continues as James Aketch Okeno, Adelaida Harries, Yuh-Yuan Shyy, Joe Cortes, and I travel to Nairobi to teach seed quality and certification and seed legislation. As work progresses towards a completed SEMI training facility, additional trips will be made to Nairobi.

At the completion of this exciting project, several Iowa State Seed Science Center and Seed Laboratory faculty members, along with our counterparts in Nairobi, will have played an important role in making this institute a reality—of working together to ensure a legacy of quality seed in sub-Saharan Africa. I am proud to have been a part of that.



NEWSLETTER DISTRIBUTION

If you would like to receive your copy of *Iowa Seed & Biosafety* electronically, remove your name from the distribution list, or change the way that your copy of the newsletter is addressed, please send us an email at seedsci@iastate.edu.

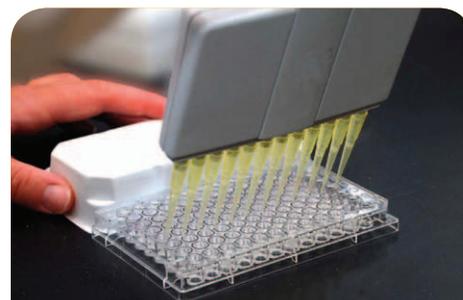
VEISHEA 2010: *ExCYted* ABOUT SEEDS!

The 2010 Seed Science Center/BIGMAP Veishea Display offered almost anything a child or adult might want to do with seeds. That included touching, identifying, sorting, counting, coloring, smelling—and especially eating!



Birdseed

No, birds don't grow from seed! However, like many animals, they love to eat them. This birdseed mix is a combination of sunflowers and millet. It would attract many birds, especially cardinals like Cy!



DID YOU KNOW?

The DNA Seed Testing Laboratory at Iowa State University provides:

- Routine DNA seed testing services (seed health testing, Low-Level Presence of genetic engineered plant materials in seed, and plant genotyping (microsatellite-based)
 - Special services by request (assay development/validation of PCR premixes and DNA sample preps, accurate and expert scientific advice for external customers including: development and validation of real-time PCR assays, Beta-Testing of PCR premix, and validating DNA sample prep), and
 - Group or one-on-one training
- For more information, visit www.seeds.iastate.edu/pages/dna.html

Awards & Recognitions

Seed Science Center DNA Laboratory Program Leader **Anania Fessehaie** received the Agri-Food Canada 2010 Research Branch Science Achievement Award in June for his work titled "Detection of Plant Pathogens by DNA Microarray Hybridization."

Seed Science Center graduate student **James Delgado** took first place in the 5th Annual Iowa State University GMAP Research Symposium. Delgado's research presentation was titled "Fumonisin B1 and Implications in Nursery Swine Productivity: A Quantitative Exposure Assessment." Delgado was also awarded a \$7,000 scholarship from the Pioneer Hi-Bred International, Inc. Latino Fund. Delgado, whose focus is toxicology, conducts research with Agronomy Professor Jeff Wolt.

In April, ISU Graduate student **Marcos da Silva** was named an American Phytopathological Society's Kenneth Barker and Stuart D. Layton Student Travel award recipient. The award included funds to attend the association's Annual Meeting in Charlotte, North Carolina.



NORDYKE RETIRES AFTER 34 YEARS AT SEED LAB

Seed Analyst Bobbie Nordyke retired from the Seed Laboratory in May after working at Iowa State for 34 years.

According to Nordyke, the story of how she came to work in the Seed Lab at Iowa State is an unusual one. “It was 1976 and I happened to stop at the JCPenney store in Ames to make a purchase for one of my daughters,” she said. “Bill Hunt’s wife worked there at the time and she offered me a job.” However, Nordyke said that after talking to Hunt and learning that the job would include evening and weekend hours that would interfere with family responsibilities, Nordyke declined the offer. “Next she suggested that I go interview with her husband Bill who happened to be a supervisor in the Seed Lab at Iowa State,” said Nordyke. After following up on the suggested interview, Nordyke said that she was offered the job the following day.

“I was hired by Dr. Everson to work in Purity in Old Botany Hall,” said Nordyke. “I was hired as a seed analyst, but in those days you did whatever needed to be done.”

Nordyke said that during the years that she worked with Hunt, it was not uncommon for her to come in very early in the morning and to stay until after five in the evening, or to come in on Saturday mornings before football games to help ensure that seed lab work was completed.

Although Nordyke has always enjoyed her work at the Seed Science Center, she admits that her family has always been her first priority. She was hired on a seven-month appointment that allowed her the opportunity to volunteer at her children’s school activities—a status she maintained throughout her employment at Iowa State.

As an analyst for the Seed Lab, Nordyke worked with Directors Leroy Everson, Allen Knapp, and Manjit Misra; as well as Seed Lab Managers Susana Goggi, Tim Gutormson, Dan Curry, interim Lisa Shepherd, and Mike Stahr.

“Bobbie was among the seed analysts who made the move from Old Botany to the new Seed Lab Building in 1977,” said Stahr. “She has played an important role in where the Seed Lab is today.”

Stahr added that during her years at the Seed Lab, Nordyke has been a valued and versatile employee. “She has worked in the Large and Small Seed areas of the Germination Lab and has served as a skilled analyst in Purity and Dividing,” he said. However, Stahr emphasized that Nordyke’s talents didn’t end there. “An added benefit of Bobbie’s working at the lab was her expertise in hosting and organizing details for visitors and workshop participants—we put those abilities to good use for many Seed Science Center activities.”

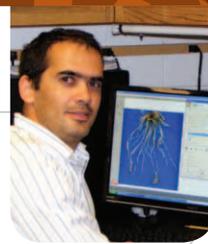
A Certified Seed Analyst in Germination, Nordyke says that stacked genes are one example of the many changes that have occurred in the seed industry since she came to ISU. “Agricultural technology is very different today than when I started here,” she said. “It has changed the way we do things so much.”

According to Nordyke, an added benefit of working at ISU over the years was the opportunity to take courses in her spare time in subjects that interested her. Her favorites have included mushroom classes with Lois Tiffany, short courses with Joe Burris, and classes on dendrology.

Nordyke says that her fondest memories during her career at Iowa State have stemmed from Seed Science Center events. “I’ve enjoyed working with students and meeting people that come from all over the world to attend center short courses,” she said. “Of course I liked my co-workers very much too, or I wouldn’t have stayed this long,” she added.

A resident of Ames, Nordyke plans to spend her retirement gardening and enjoying her family—husband Jack, 3 daughters, and 6 grandchildren.

Marcos da Silva Graduate Student



Brazil native Marcos da Silva, a master’s degree student in plant pathology, has been conducting research on the interactions between lesion nematodes and corn pathogens with Plant Pathology Professor and Seed Science Endowed Chair Gary Munkvold since November 2007.

The recent recipient of an American Phytopathological Society research award (see page 12), da Silva says that his studies can shed light on seed treatment effectiveness. “I believe my research can start to answer some questions regarding the effects of nematicidal seed treatment on nematode-fungus infections,” da Silva said.

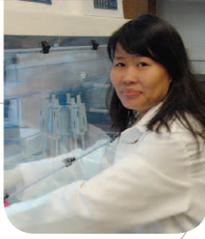
da Silva, who lived on a farm until the age of five, was employed by the Pioneer Hybrid Research Center in Itumbiara, Brazil, prior to coming to Iowa State.

Although he has never worked with nematode research before, da Silva said that both the subject matter and the opportunity to collaborate with Munkvold have made a lasting impression on him. “It has really been an unforgettable experience in my life,” he said. “No matter what issue I am handling, Dr. Munkvold always has the power to inspire me with his patience and wisdom.”

da Silva says that during his stay at ISU he has enjoyed the friendly environment and ethnic diversity of the faculty and students at the Seed Science Center. “I really like to meet people from different countries and backgrounds,” he said. “I have made many friends here and they make me feel like I am part of a warm family.”

da Silva is scheduled to finish his ISU degree in December 2010. However, after graduation, he says he hopes to remain in the state. “I would really like to work here in Iowa,” he said. “In fact, I have been applying for several jobs here. We’ll see.”

Thuy Nguyen
Visiting Scientist



Visiting scientist Thuy Nguyen, from the Agricultural Genetics Institute in Hanoi, Vietnam, had the opportunity to work with several Seed Science Center faculty members as part of her Borlaug Fellowship this past November.

Nguyen collaborated with Agronomy Associate Professor Susana Goggi to learn how to design experimental plots and analyze data for evaluating pollen flow and possible outcrossing between transgenic and non-transgenic crops. She also conducted research with other center faculty to gather information on the topics of genetically engineered (GE) crops/DNA testing, biosafety and risk assessment, process management manuals, and seed import/export procedures manuals for government agencies.

Nguyen says that she believes that the work that the Seed Science Center and BIGMAP are conducting is useful for the long-term sustainable use of modern technologies and their application in the environment. “The Vietnamese government strongly supports the application of modern technologies and biotechnology in agriculture, and has mandated the start of the first field trial of GE crops this year,” she said. “However, we lack human resources and technical experience in this field. I hope that more young Vietnamese scientists can have a chance to work at Iowa State to gain experiences like these from experts.”

Nguyen plans to integrate the knowledge that she acquired from her stay at Iowa State to the research she is conducting in her home country. “This information will be applied as we conduct the first confinement trial for GE crops in Vietnam which starts this 2010 season,” she said.

Zhongwen Fu
Visiting Scientist



Zhongwen Fu is a Senior Agronomist with the Development Center for Science and Technology at the Chinese Ministry of Agriculture.

From July 16-August 5, Fu and fellow visiting scientist Yibing He collaborated with Agronomy Professor Jeff Wolt and other faculty on the Iowa State campus. As Borlaug Scholars, the two researched the public perception of risk, understanding risk communication problems, risk communication strategies, and speaking and media interactions. They also investigated GE crops detection technologies.

In his position at the Ministry of Agriculture, Fu is responsible for reviewing applications for biosafety assessment of GE crops released into the environment and for formulating regulations and guidelines for biosafety assessment of GE crops.

Fu, whose background is in plant protection and pesticide science, says that his experiences at Iowa State helped him to gain a better understanding of the rationale of risk communication management and policy procedures—information that he plans to put to use in his position at the Ministry of Agriculture.

While in Ames, in addition to their research, Fu and He spent time honing their communication skills and becoming acquainted with individuals from the area.

Fu says that he plans to build on the relationships that he established while in Iowa for future collaborations. “This was an excellent scientific exchange program,” he said. “I will keep in touch with friends [that I met at the] USDA and professors at ISU that I met through this program. [I hope to] exchange ideas when we encounter issues on GE crops administration in the future.”

Yibing He
Visiting Scientist



Yibing He, deputy division director with the Chinese Ministry of Agriculture, is responsible for GE crops safety administration, policy making, revision of regulations, and planning of biotech products in China.

Previous to his current appointment, He served as Deputy Director of the Pesticide Residue Division, where he evaluated pesticide residue and environmental data for registration, and developed analytical methods to determine pesticide residues found in food and in the environment.

He applied to the Borlaug Scholars program to learn more about the policies, laws, and practical experience related to GE crops safety in the U.S. “I knew that it would benefit me to participate in the policy making and [it would help] to promote international cooperation in the field of GE crops safety,” he added.

This summer, as part of his collaboration with Iowa State Agronomy Professor Jeff Wolt, He and fellow visiting scientist Zhongwen Fu visited regulatory agencies, seed companies, policy research institutes, associations, and farms. The two studied GE crops laws and regulations and GE crops safety assessment practices. They also researched public views and public understanding of GE crops policy.

He says that in addition to gathering information and resources, he found the training provided by Seed Science Center faculty to be valuable. “BIGMAP’s training is very effective for dealing with the issues of regulatory communications,” he commented. “I learned a lot about the U.S. regulatory system and the rationale for U.S. regulations. The information will be useful in improving the regulation systems in China.”

Over 100 years of excellence in seed testing.

IOWA STATE UNIVERSITY **Seed Laboratory**

Contact us for all your testing needs—
from conventional to PCR.

ISO Certified Since 2003

Fast, Accurate Testing

Confidential & Convenient
On-line Results

Highly Rated
Customer Service

www.seeds.iastate.edu/seedtest





IOWA STATE UNIVERSITY

Seed Science Center
Ames, Iowa 50011-3228



Contact us today.
www.seedgrad.iastate.edu

IOWA STATE UNIVERSITY

**The Iowa State University On-line
Graduate Program in Seed Technology and Business
develops potential into managerial leadership.**

Seed industry professionals face ever-increasing challenges. The Graduate Program in Seed Technology and Business (STB) at Iowa State University provides a unique opportunity for seed professionals to grow by gaining a better understanding of the science, technology, and management that is key to the seed industry.

The STB program offers a Master of Science degree as well as graduate certificates in Seed Science and Technology and in Seed Business Management. Science and technology curriculum includes courses in crop improvement, seed pathology, physiology, production, conditioning, and quality. Business topics include accounting, finance, strategy, planning, management information systems, and marketing and supply chain management—including a unique new course in seed trade, policy, and regulation.