

IOWA SEED & BIOSAFETY

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



ISU Foundation

Above: Iowa State President Gregory Geoffroy (left) and AGRA President Namanga Ngongi (right) participate in a seed exchange as part of the Seed Science Center expansion dedication ceremony.

SEED SCIENCE CENTER AND BIGMAP DEDICATE EXPANSION, CARVER SCULPTURE

October 2008 marked the completion of construction on the \$2 million, 5,000-square-foot addition to the Seed Science Building. Shortly thereafter in early November, a life-sized sculpture of George Washington Carver was installed at the south entrance to the building signifying the completion of the final phase of the expansion project. To commemorate the events, Center faculty and staff hosted a Seed Science Center, BIGMAP expansion dedication and open house on October 14 followed by a Carver sculpture dedication and unveiling ceremony on November 18. (See article on page 3.) The sculpture dedication was held in conjunction with the Iowa Seed Association's Annual Convention.

EXPANSION DEDICATION FEATURES SEED EXCHANGE

Namanga Ngongi, President of the Alliance for Green Revolution in Africa (AGRA), was the keynote speaker for the Seed Science Center, BIGMAP expansion dedication and open house held in October.

Ngongi spoke about the work that AGRA is currently doing in Africa and cited the Seed Science Center's work in over 30 African countries. "The Iowa State University Seed Science Center is known as one of the best seed laboratories in the world," said Ngongi. "The Center can assume a leading role in setting seed

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"This building is important, but it's the people who do the work here who will make a difference in the world." — Wendy Wintersteen, Endowed Dean of the College of Agriculture and Life Sciences



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EXPANSION DEDICATION

(continued from page 1)

systems, policies, and biosafety. [They] are already doing that, and with this expanded facility, will do even more, and will be a center of excellence around the world,” he said.

AGRA is a Gates Foundation partnership working across the African continent to help millions of small-scale farmers and their families lift themselves out of poverty and hunger.

Following the keynote address, Ngongi and Iowa State President Gregory Geoffroy took part in a ceremonial seed exchange. “Seeds are truly the foundation of all life, and here at the Seed Science Center seeds are the focus,” said Geoffroy. “We are extremely proud of the work that the Seed Science Center faculty and staff have accomplished over the years—not only in developing high-quality seeds needed to sustain the world’s population, but also in educating the scientists who then carry that knowledge and expertise to other nations across the world.”

Other speakers at the dedication included Endowed Dean of the College of Agriculture and Life Sciences Wendy Wintersteen, Seed Science Center Director Manjit Misra, and BIGMAP policy associate James Aketch Okeno.

As part of the celebration, over 150 attendees had the opportunity to tour the new addition, enjoy refreshments, and learn about Center programs and research.

The addition was designed to accommodate visiting scientists from other countries and universities with a desire to conduct research on seeds and biosafety and to provide additional lab space for Center faculty.

“We are creating a facility where we will attract and invest in high-quality people to focus their energies on solving global problems,” said Director Manjit Misra.

Private support for the expansion project was made during *Campaign Iowa State: With Pride and Purpose*, Iowa State University’s \$800 million comprehensive funding campaign.

(continued on page 3)

STANCLIFFE SCULPTURE DEBUTS AT OPEN HOUSE

A highlight of the Seed Science Center expansion dedication and open house was the viewing of the new sculptures titled *Twice Sown*. Located in the Seed Science Building lobby, the patinated steel and copper sculptures were created by Iowa artist Thomas Stancliffe.

“The *Twice Sown* sculptures are exceptional works of art—even more importantly, they are very fitting to our mission here at the Center,” said Seed Science Center Director Manjit Misra. “We feel extremely fortunate to have something like this as a part of our newly expanded facility.”

In an earlier statement describing *Twice Sown*, Stancliffe said that the sculptures were his wife’s favorites. “They were created at a time when we used ‘big science’ in our struggle to have a child, so the sculptures really carry that content for us. One seed is sort of empty and the other full.”

Stancliffe said that inspiration for the sculptures also stemmed from an event when native prairie grasses were planted on his property. “Two staff from the Iowa Department of Natural Resources came with a tractor and specialized equipment to drill in nearly microscopic seeds,” he said. “They hope to return to harvest some of the seeds that came from a particular species of flower, and I just could not get past their unbridled enthusiasm for their work with these seeds that they understood intimately, but could barely see with the naked eye. I thought of my own work, also full of machinery and passion, making these things [sculptures] that were big, silent, and even clumsy in comparison. I then proceeded to make *Twice Sown*.”

Twice Sown was donated to the Iowa State University Museum’s Art on Campus Collection by Iowa artist Thomas Stancliffe. Stancliffe is a professor in the art department at the University of Northern Iowa in Cedar Falls, Iowa.





Bob Elbert

Above: Iowa State administrators, faculty, staff, State Representative Helen Miller (second from right), and Senator Herman Quirnbach (far right) celebrate the unveiling of a life-sized sculpture of George Washington Carver at the Seed Science Center in November.

(continued from page 2)

CARVER SCULPTURE UNVEILED AT SEED SCIENCE CENTER

Over 120 seed industry representatives, Iowa State faculty and staff, and others were on hand November 18 to witness the unveiling of the George Washington Carver sculpture located at the south entrance to the Seed Science Building. The work of art is the only life-sized sculpture of Carver in the world from the maquette sculpted by Christian Petersen in 1949.

Seed Science Center Director Manjit Misra said that a sculpture of Carver was the right choice to stand at the entrance to the Center. “Carver learned about plants and seeds here on campus,” said Misra. “His findings are magnificent. But is it not just research that made this man so special. He truly believed that service was the measure of our success—not money or number of patents, but how much you have helped people. In his research and in his life, he has shown us the way.”

ISU Executive Vice President and Provost Elizabeth Hoffman, a featured speaker at the dedication, said that Carver’s achievements in science and service to humanity have made him an inspiration to the Iowa State community. “We are honored to be connected to him in so many ways,” she said. “No where is that more important than here at the Seed Science Center. . . .Hunger is the root of so many problems in the world and the Center is a key resource to solving the problem.”

Other speakers at the unveiling ceremony included Endowed Dean of the College of Agriculture and Life Sciences Wendy Wintersteen; Executive Director of the Committee for Agricultural Development Del Koch; Seed Science Center Director Manjit Misra; and Iowa State Seed Testing Coordinator and Acting Director of the National Seed Health System, Lisa Shepherd.

During the ceremony, which was held in conjunction with the Iowa Seed Association’s Annual Convention, Allen Knapp, associate professor of agronomy, announced

“Carver lived the words ‘service measures success.’ Let us commit to continuing this legacy of service by following in his footsteps. Perhaps one hundred years from now when people look back, they will say that we invested in the future and prepared the next generation of George Washington Carvers—and they changed the world.”—Manjit Misra, Seed Science Center Director

the recipients of the 2008-09 Iowa Seed Association scholarships. (See article on page 5.)

As the final remarks of the day were delivered, Iowa State alumnus Paxton Williams entered the room. Impersonating Carver, he addressed the audience on the importance of service. Williams ended his comments by inviting the group to join him in unveiling the sculpture. “I hear you have me in bronze,” he said. “I would like to see me.”

Carver, the son of slaves, spent his life working with plants and seeds. He was the first African-American student and faculty member in Iowa State’s history.

Funding for the Carver sculpture, which is part of the Art on Campus Collection, was provided by the Committee for Agricultural Development.

ISU News Service

“And so, like George Washington Carver, I had also ended up at Iowa State with an interest in plants. As an agronomy and seed science major, I felt I had found my niche here.”—Lisa Shepherd, acting director of the National Seed Health System.



Bob Elbert



Bob Elbert

The Seed Science Center George Washington Carver sculpture was pointed-up and cast in bronze by the Polich Tallix fine art foundry in Rock Tavern, New York. Iowa State Central Stores transported the 480 lb. artwork to Ames and installed it in early November.





U.S. Department of Agriculture

VILSACK TO LEAD U.S. DEPARTMENT OF AGRICULTURE

Former Iowa Governor Tom Vilsack was sworn in as the 30th Secretary of the U.S. Department of Agriculture on January 21, 2009. Vilsack, appointed by President Barack Obama, received unanimous support for his confirmation by the U.S. Senate.

Vilsack, 58, became the first Iowa Democrat to serve as a Cabinet secretary since Henry A. Wallace.

Serving as Governor from 1999 to 2007, Vilsack represented Iowa on the Governors Biotechnology Partnership and the Ethanol Coalition.

Vilsack was named a BIGMAP Distinguished Fellow in October 2007 while serving as an attorney with Dorsey & Whitney in Des Moines and as a Distinguished Visiting Professor of Law at Drake University.

As a BIGMAP fellow, Vilsack taught the Iowa State University course "Science, Policy, and Food," represented BIGMAP at national and international conferences, and served on the Seed Science Center, BIGMAP advisory council.

U.S. Department of Agriculture



Iowa State alumnus Paxton Williams poses with the new George Washington Carver sculpture located at the south entrance to the Seed Science Building.

ISU ALUMNUS KEEPS CARVER SPIRIT ALIVE

Iowa State alumnus Paxton Williams first portrayed George Washington Carver in April 2000. Since then he has impersonated Carver over 200 times in the United States and in England. In the following interview, he explains how he became interested in writing the Carver play *Listening to the Still Small Voice: The Life and Works of George Washington Carver* and why he enjoys sharing Carver's story with others.

How did you become inspired to tell George Washington Carver's story?

"In 1999 I was in an Iowa State honors seminar taught by Dr. Sande McNabb on the life of Dr. Carver. During that seminar I was inspired by the reach of Dr. Carver, as well as by his myriad interests and talents. He seemed to have his priorities in the right place and always seemed to put 'service above self.' The more I learned about him, the more I thought others should get to know his whole story. I am amazed when I portray Carver now that people often thank me for doing so, when I almost feel as if I should be thanking them for allowing me, in some small way, to continue this great man's work."

What do you hope that people take away from your performances?

"I hope two things occur once people see my show, one of which has to do with Carver, and the other of which has to do with the individuals themselves. First, I hope people are inspired to learn more about Dr. Carver. Here was a man who always used his imagination (he began discussing with Henry Ford in 1937 the creation and use of biofuels and synthetic plastics to create a more sustainable automobile industry) and was very prescient with his work to create a sustainable environment. Second, I hope that people consider how many Carvers there could have been in his own time, had they been given the same encouragement, support, and activity. In this way I want people to realize that it is incumbent upon them to both find and be the next George Carvers themselves. While we might not have his multitudes, there are pieces of Carver that we can embody ourselves."

What is your favorite Carver quote?

"'How far you go in this life depends on your being tender with the young, compassionate with the aged, sympathetic with the striving, and tolerant of the weak and the strong. Because someday in life,' (and here I like to add *if you are lucky*) 'you will be all these things.'"

Williams, a Carver scholar, received a bachelor's degree from Iowa State University and master's degrees from the University of Michigan and the University of Birmingham in the United Kingdom. He is an actor and playwright and is the Executive Director of the George Washington Carver Birthplace Association.

KRUEGER NAMED ASTA, MISRA SCHOLAR



Keaton Krueger, of Crawfordsville, Iowa, was twice honored during the Seed Science Center Carver sculpture dedication ceremony on November 18. Krueger was awarded both the American Seed Trade Association (ASTA) scholarship, and was named the Manjit K. Misra Outstanding Senior Seed Scholar.

Krueger is a senior at Iowa State University majoring in agronomy. He has held summer internships with Syngenta and Pioneer and was an undergraduate participant in the Future Seed Executives Campus Connections Program at the 2008 ASTA meeting.

Krueger is currently conducting research with Seed Science Center Assistant Professor Susana Goggi and will begin coursework towards a master's degree at Iowa State in the fall.

This is the third 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.

Six Iowa State students were also awarded Iowa Seed Association Scholarships of \$1,000 at the event. Recipients included Lauren Brown, Janine Comstock, James Cornelius, Will Cornelius, John Gill, and Eric Parrott.

The Seed Science Center Carver sculpture dedication was held in conjunction with the Iowa Seed Association Annual Meeting.



BIGMAP SYMPOSIUM TO FOCUS ON FOOD AND FUEL CROPS

Scientists and members of academia and industry will have an opportunity to learn about current research on food and fuel crops, explore the implications of food and fuel crop priorities for developing countries, and discuss how climate change plays a role in meeting food and fuel production goals, at the sixth annual BIGMAP Symposium to be held April 21-22, in Ames, Iowa.

"The 2009 symposium has been expanded to a 1 1/2-day event," said Jeff Wolt, professor of agronomy and organizer of the event. "Three half-day sessions will address various aspects of the theme 'Food and Fuel Crops: Issues, Policies, and Regulation.'" Conducted in conjunction with the Seed Science Center Food, Feed, and Fuel Initiative: Iowa, emphasis on both the needs of Iowa and the developing world will be discussed at the symposium. "As always, we have put together a slate of speakers that are on the cutting edge of research and policy in biotechnology," said Wolt. "As a result, this symposium will offer valuable and timely information to anyone who is involved in food and fuel crop issues, especially as they relate to biotechnology innovation."

Of special interest this year will be the opening session "Food, Fuel, and Climate Change." It will be chaired and moderated by John Lawrence, professor of economics at Iowa State University and event co-organizer.

Speakers scheduled for the symposium include Prabhu Pingali, Deputy Director of Agricultural Development for the Bill and Melinda Gates Foundation; Neil Hoffman, director of the Environmental Risk Analysis Division of the Biotechnology Regulatory Services for the USDA/APHIS; Josette Lewis, director of the Office of Agriculture, USAID-Economic Growth, Agriculture, and Trade (EGAT); Monica Pequeño Araujo, coordinator of the Biotechnology Office, INASE, SAGPyA, Argentina; and Jeff Rowe, vice president of Biotech Affairs for Pioneer Hi-Bred International.

Over 100 people attended the 2008 BIGMAP symposium where speakers discussed the legal and scientific perspectives of intellectual property concerns for agricultural biotechnology and their policy implications.

For more information or to register for the 2009 BIGMAP symposium, visit: www.ucs.iastate.edu/mnet/bigmap/home.html.



Above: 2008-09 Iowa Seed Association scholarship recipients recognized during the Carver sculpture dedication in November were (from left) Janine Comstock, Lauren Brown, John Gill, Eric Parrott, Keaton Krueger and Will Cornelius. Not pictured: James Cornelius.



MISRA NAMED TO DEAN'S CHAIR FOR DISTINCTION

Seed Science Center and BIGMAP Director Manjit Misra was honored October 3, 2008 at the Order of the Knoll Campaign Event, held in the Scheman Building on the Iowa State University campus. Misra was one of five Iowa State faculty members recognized at the event for receiving named or endowed faculty positions. Misra was named as Dean's Chair for Distinction in the College of Agriculture and Life Sciences effective July 1, 2008.



ISU Foundation

At the ceremony, Iowa State President Gregory Geoffroy praised the accomplishments of Misra and the other faculty members being honored. "We truly do have outstanding faculty," he said. "They have a passion for teaching, a

passion for research, and a passion for problem solving and innovation. They are charting new frontiers in academic advancement and preparing future generations of great minds and leaders. They are the cornerstones of Iowa State's present success and they are the key to the university's future."

Misra is a professor of agricultural and biosystems engineering. His research involves the study of plant protection, bioterrorism, and biosystems engineering.

In addition to leading the Seed Science Center and BIGMAP, as holder of the Dean's Chair for Distinction, Misra plans to expand international activities related to seed biosafety work by enhancing the curriculum for the Graduate Program in Seed Technology and Business.

"This was truly an honor," said Misra. "Seed science and biotechnology are important tools to meet the food and fuel needs of the world. I am proud of the work that the Seed Science Center and BIGMAP are doing across the globe to further this mission. We are taking Iowa State to the world, and bringing the world to our students."

Dean Wendy Wintersteen established the Dean's Chair for Distinction as part of the Endowed Deanship in Agriculture and Life Sciences. Part of the Dean's intent is to use the resources of the Endowed Deanship to support faculty excellence.

BIGMAP POLICY ASSOCIATE SPEAKS AT BIOTECH CONGRESS IN KENYA

James Aketch Okeno, BIGMAP policy associate, traveled to Nairobi, Kenya, in September 2008 to speak at the First All Africa Congress on Biotechnology. Okeno discussed policy initiatives emerging in Africa to embrace biotechnology and presented information about biotech crops.



James Aketch Okeno

Okeno told attendees that although their country has been hesitant to adopt genetically modified crops, he believes they have nothing to fear. "Genetically modified crops in the U.S. go through rigorous tests to ensure their safety," he said. "Kenya should not be afraid to adopt them. There are scientists at local universities and research institutions in the country that are qualified to work with these types of agricultural products."

Okeno is on sabbatical from Moi University in Eldoret, Kenya, where he is a senior lecturer in the Department of Biotechnology teaching plant genetics. He was instrumental in raising funds to construct a biotech lab at the university. Okeno has also served as Director of Regulatory Affairs for the Africa Harvest Biotech Foundation International.

HARRIES HONORED BY LATIN-AMERICAN FEDERATION OF SEED ASSOCIATIONS



Adelaida Harries

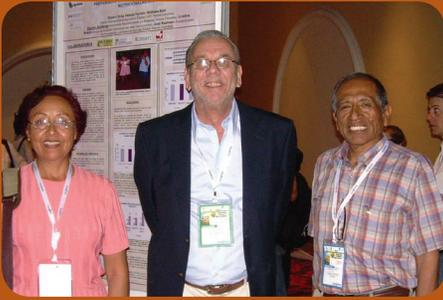
Iowa State University Seed Scientist Adelaida Harries was recognized in October 2008 during the XXI Pan-

American Seed Congress held in Cartagena, Colombia. Harries was awarded the Medal of Merit from the Latin-American Federation of Seed Associations (FELAS) at the event in recognition of her continuous support of the development and enhancement of the public and private seed sector in Latin America.

Harries has worked in Latin America for the past 25 years. She has extensive experience in seed policies and regulations related to seed certification, plant breeders rights, and quality assurance. She has also served as President of the National Seed Institute (INASE).

"This recognition is well-deserved," said Manjit Misra, Seed Science Center director. "During her time at Iowa State, Adelaida has worked tirelessly to promote the harmonization of seed policies in many countries around the world. Her efforts have made an impact on the lives of many individuals, helping them to have access to quality seeds to help pull them out of a life of poverty."

Over 200 persons attended the Pan-American Seed Congress organized by FELAS. Founded in 1986, FELAS represents its members at the Latin American and global level, promoting the interests of the seed industry and the progress of agriculture on the continent.



FLORES, VALENCIA CITE CORTES' CONTRIBUTION TO PERUVIAN SEED INDUSTRY

Cesar Ventura Flores, Dean, and Alicia Rocha Valencia, professor, of the College of Agriculture at Antenor Orrego Private University (UPAO) located in Trujillo, Peru, recently cited Seed Science Center Global Program Leader Joe Cortes for his role in helping to develop the country's seed industry.

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 (Comites 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.

In addition to CODESES, Cortes worked to implement seed certification activities in eight preselected areas in the country.

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

Because of programs like CODESES and others, the number of established seed companies operating across Peru has increased substantially. Currently, there are over 80 established seed companies in Peru—34 are located in the Department of Lambayeque, 32 are located in La Libertad, and the remaining companies are located in six main areas across the country.



Left: Pictured at the Pan-American Seed Congress in Cartagena, Colombia, in October are (from left) UPAO Professor Alicia Rocha Valencia, Seed Science Center Global Program Leader Joe Cortes, and UPAO Dean Cesar Ventura Flores.

Right: Mauricio Ina'cio Dengo (right) is working with Global Program Leader Joe Cortes (left) to develop a quality manual for his seed company in Mozambique.

SEEDS PROGRAM BENEFITS AFRICAN AGRO-DEALERS, FARMERS

Dengo Commercial, owned by Mauricio Ina'cio Dengo, is just one example of the many South African private seed companies that have benefitted from the SEEDS (Seed Enterprise Enhancement and Development Services) program.

Dengo started his company, located in Chimoio, Mozambique, 14 years ago. Originally focused on the sales of other agricultural inputs, two years ago Dengo decided to expand his operation to include seed. Up to this point, Dengo has contracted farmers to produce open-pollinated varieties. This year he expects his growers will produce 400 tons of maize and 200 tons of beans. Soon, because Dengo believes there is great market potential for quality hybrid seed, he is planning to work towards including hybrid seed production as part of his operation.

Seed agro-dealerships like Dengo's would not have been possible in southern Africa in the past. Poor infrastructure and the lack of available quality seed and processing facilities prevented agro-dealers in the area from becoming well established. What few seed companies existed in Mozambique were poorly developed. As a result, agricultural productivity remained low, and hunger and poverty prevailed.

Seed Science Center Global Program Leader Joe Cortes and Scientist Adelaida Harries have been involved with the SEEDS program in Africa since 2005.

The program is designed to enhance seed policies and regulations, seed business development, and to build the capacity of existing seed companies in countries where quality seed is currently hard to obtain.

"By establishing regional policy and regulation systems, seed can more easily move across borders," said Cortes. "That increases the market demand for high-quality seed."

Cortes said that because good-quality seed has not been available in the past, farmers have had to plant seed from previous crops or barter for seed. "This poor-quality seed resulted in poor yields," he said. "The outcome has always been that these farmers are never able to pull themselves out of poverty. We wanted to find a way to stop that cycle."

Cortes and Harries have worked with regional seed and plant health departments to establish seed certification standards, to reduce the number of pathogens on quarantine pest lists, and to help seed companies become accredited so that they can conduct their own seed certification.

In addition to being the owner of a seed company, Dengo is President of the recently created Seed Trade Association of Mozambique (APROSEM). With the help of Cortes and Harries, Dengo is working to develop a quality manual to improve the quality systems of the Dengo Commercial Seed Company.

The **3rd International Seed Seminar**, organized by the Antenor Orrego Private University, will be held June 4-5, 2009. Topics discussed at the seminar will include seed regulations, biotechnology, quality management, and plant breeders rights. For more information visit: <http://www.upao.edu.pe>.



COMMENTARY: INCREASED NUMBER OF BIOTECH TRAITS — A MIXED BLESSING?

by Mike Stahr, Iowa State University seed laboratory manager

Not since the advent of hybrid corn have changes in seed technology and seed testing been progressing at such a rapid pace.

Biotech and plant novel traits have had a significant impact on the way that producers manage their operations and that seed companies manage their inventories. I have witnessed the evolution of soybean weed removal from the manual pulling or hoeing of weeds, to the use of spray bottles to apply herbicides such as Roundup,[®] to the implementation of spray buggies, and finally to the adoption of tank sprayers. Similarly, farmers' options for killing insects have dramatically increased with seed-applied insecticides and biotech corn. Seed companies are benefitting from the myriad of control options that are now being offered to producers.

However, along with these new advances come a few complications, especially when dealing with the variety of combinations resulting from multiple traits (single and multiple-stacked, hybrids, seed size, and bag size). Some seed companies are reported to be reducing available corn seed sizes from as many as 16 to as few as four. Along with the advantages that these many traits provide to the producer, comes an increase in seed cost for the improved traits and superior breeding.

Multiple traits have resulted in some confusion for farmers, seed company personnel, and seed labs alike. Part of this stems from the fact that biotech brand names have recently tended to go the way of Kleenex.[®] In the same way that all facial tissues are now routinely called *Kleenex*,[®] several insect-(resistant) traits are generically being referred to as *Bt*. It has been interesting to keep sample bags current with the wide variety of traits currently being offered on the market. It will be even more interesting to fit all traits on a sample bag when SmartStax[™] and similar products become available. Further complicating the issues are the terms used to identify traits in seed: trade names, events, and the like.

The Iowa State University Seed Laboratory offers testing on all biotech traits by herbicide bioassay or ELISA. We test for unintended presence by lateral flow strips and quantitative PCR. Please contact me with questions about trait or AP testing at mgstahr@iastate.edu or 515-294-0117.

IOWA STATE UNIVERSITY 2009 Seed Science Workshops



www.ucs.iastate.edu/mnet/seedscience/home.html

DID YOU KNOW?

The Iowa State University Seed Laboratory has been offering training to seed industry professionals for over 35 years. In 2008, 212 individuals from 20 states and three countries (Argentina, Brazil, and Canada) attended Seed Science Center workshops. Held from April through August, workshop topics include seed testing and cleaning, gravity separation, and color sorting. See page 9 for a 2009 schedule of Seed Science Center workshops.

ISU SEED WORKSHOP/SHORT COURSE SCHEDULE FOR 2009

Workshop/Short course Title	2009 Training Dates
Color Sorting - Satake	June 3-4
Color Sorting - Sortex	June 10-11
Commercial Seed Corn Conditioning	June 15-18
Seed Treatment	June 24-25
Soybean & Small Grain Seed Conditioning	July 7-9
Soybean & Small Grain Seed Conditioning	July 28-30
Gravity Separation	August 4
Gravity Separation	August 6
Research Seed Corn Conditioning	August 11-13
Seed Corn/Soybean Quality	August 19-20

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www.ucs.iastate.edu/mnet/seedscience/home.html

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BORLAUG FELLOW FACILITATES SEMINAR ON GM CROPS

Former Borlaug Fellow and Seed Science Center visiting scientist V. L. Maheshwari recently organized a national seminar for the discussion of the issues and approaches needed for the adoption of GM crops in India. The seminar titled “Genetically Modified Crops: Status, Issues, and Awareness,” was held at the North Maharashtra University (NMU) campus in Jalgaon, India, in January.

According to Jeff Wolt, Iowa State professor of agronomy and BIGMAP faculty member, the campus of NMU was a significant venue for a seminar of this type. “The adoption of GMO products is of particular importance in India right now,” said Wolt. “The rapid adoption and success of GM cotton in the area is moving the country towards the approval of GMO food crops.”

Currently India ranks fifth in the world in biotech crop cultivation. However, cotton is the only biotech crop that has been approved for use. Biotech food crops have yet to be adopted.

Maheshwari is Director of the School of Life Sciences at NMU. As part of the Norman E. Borlaug International Science and Technology Program, Maheshwari worked with Wolt as a visiting scientist in the Seed Science Center at Iowa State in the spring of 2008. The two scientists researched biosafety regulations for GM crops in India and under Codex.

Maheshwari invited Wolt and Sule Karaman, research scientist for DuPont

Left: Former Borlaug Fellow and Seed Science Center visiting scientist V.L. Maheshwari addresses attendees at a seminar that he organized in January 2009 to discuss the adoption of GM crops in India.

Agriculture and Nutrition in Johnston, Iowa, and former BIGMAP policy associate to speak at the symposium. Wolt discussed risk and safety analysis approaches to GM crops with emphasis on quantitative risk assessment applications. Karaman focused on the topic of toxicological principles as they apply to the safety assessment of GM crops.

Keynote speaker at the event was C.D. Mayee. He discussed the status and importance of genetically modified crops as a development need for India. Mayee is Chairman of the Agricultural Scientist’s Recruitment Board of the Indian Council of Agricultural Research (ICAR) and Vice Chairman of the Genetic Engineering Approval Committee (GEAC) which serves as the lead Indian regulatory body on GM crops.

Other issues addressed at the seminar included the status of agricultural biotechnology in India and the regulatory standards, experimental characterization, and safety evaluation of GM crops.

Approximately 300 individuals, including scientists and NMU graduate students, attended the event.



Above: BIGMAP faculty member Jeff Wolt (left) answers questions about risk and safety analysis approaches to GM crops from scientists at North Maharashtra University in Jalgaon, India.

MUNKVOLD NAMED SEED TECHNOLOGY AND BUSINESS PROGRAM CHAIR



Gary Munkvold

Gary Munkvold, Iowa State University

associate professor of plant pathology and Seed Science Center endowed chair, was

recently appointed chair of the Graduate Program in Seed Technology and Business (STB).

The program combines seed science and technology with essential courses in business management into a single graduate program that is not offered anywhere else in the world. It was approved by the State of Iowa, Board of Regents in March 2006.

“The objective of the program is to educate seed professionals to better address the challenges and opportunities in delivering value to seed users,” said Manjit Misra, director of the Seed Science Center. “It is designed to prepare them for management roles and emphasizes the development of problem-solving and analytic skills.”

Misra said Munkvold was the perfect choice for heading up the program committee. “He has considerable expertise in both the public and private sector. Because of that, we feel he will offer great insights into curriculum development, planning, and evaluation.”

“The Seed Technology and Business Program offers a unique opportunity for seed business professionals,” Munkvold said. “Chairing the program will be a great chance for me to work with students and maintain close ties to what I think is one of the most dynamic industries around.”

“The program is designed to serve a diverse audience working in different aspects of the seed industry,” said

(continued on page 14)



Food, Feed, and Fuel Initiative: Iowa

Manjit Misra

Aubrey Mendonca

Gary Munkvold

John Lawrence

Jeff Wolt

NEW INITIATIVE ADDRESSES FOOD AND BIOFUELS

A new initiative has been established at Iowa State University to ensure that food and fuel needs are being met in Iowa and around the world. “Food, Feed, and Fuel Initiative: Iowa” was funded by a grant from the USDA in August of 2008. Initial research will analyze processes used in biofuels production to benefit consumers and to promote economic development in Iowa.

Led by Seed Science Center and BIGMAP Director Manjit Misra, researchers participating in the initiative include: Aubrey Mendonca, associate professor of food science and human nutrition; Gary Munkvold, professor of plant pathology and Seed Science Center endowed chair; John Lawrence, professor of economics and director of the Iowa Beef Center; and Jeff Wolt, professor of Agronomy.

“This new initiative is focusing its research on areas where knowledge gaps exist—areas that are currently not being addressed by other biofuels experts,” said Misra. “It comes at an important time because biofuels and their co-products are now widely produced and used. This initiative will allow Iowa State to be on the cutting edge of research so that we can inform the public about the safety issues involved in the production of biofuels and offer science-based answers.”

The team plans to concentrate their research in four areas. They will work to 1) discover value-added compounds that result from biofuels production; 2) detect and mitigate mycotoxins in biofuels co-products to ensure the safety of food and feed; 3) perform economic analysis on the performance of co-products in animal feed; and 4) inform the public about safety issues resulting from biofuels production through the use of risk assessment, analysis, outreach, and communication methods.

Mendonca is studying novel bioactive compounds produced by the dry grind ethanol process. He hopes to reduce foodborne pathogens such as *Campylobacter*, *Salmonella*, and *Escherichia coli* 0157:H7 in animals by evaluating extracts from grain and lignocellulosic biofuels co-products for their antimicrobial, antioxidant, biosurfactant, prebiotic, and immune-enhancing properties.

Munkvold is developing protocols to detect, monitor, and remediate biological and chemical toxins found in solid and liquid biofuels co-products. The toxins include mycotoxins (such as fumonisins and aflatoxins that can be found in dried distillers grains and solubles—DDGS). Munkvold’s research will help to abate concern about the suitability of DDGS for livestock feed or human use.

Lawrence is constructing an economic model to identify the costs to livestock producers for biofuels co-products and how they can be used in cost-effective ways. Lawrence, in collaboration with the Iowa Beef Center and the Iowa Pork Industry Center, is exploring ways that DDGS can be used in diets and is creating an educational program on biofuels production for animal producers and processors. The program will introduce producers to a systematic method for evaluating the use of a variety of biofuels co-products.

Wolt is working to determine the safety measures that need to be in place to address the risks and benefits of biotechnology innovation for biofuels production. He is evaluating the food and environmental safety implications of genetically engineered crops used for feedstocks and is suggesting ways that policies and regulations can be changed to accommodate the urgent need for crops systems used for the dual purposes of food and fuel production.

The Food, Feed, and Fuel Initiative: Iowa is co-sponsoring the 6th annual BIGMAP Symposium “Food and Fuel Crops: Issues, Policies, and Regulation.” (See story on page 5.) The event is scheduled to take place in Ames, Iowa, on April 21-22, 2009.



HEGNA CELEBRATES 35 YEARS AT SEED LAB

When Seed Analyst Sandra Hegna started her career at the Iowa State Seed Laboratory on September 14, 1972, a bushel of corn cost \$1.12. Last June that same bushel of corn was worth as much as \$7.11. Although Hegna has seen many changes over the years, there is one thing that she says has always remained the same—that she never tires of what she enjoys doing most—working with seeds.

Hegna was recognized for 35 years of service to Iowa State University at the 25 Year Club Banquet held in the Scheman Building on February 19. The purpose of the club is to recognize long-term employees for their service to Iowa State.

Hegna's job as a seed analyst includes purity testing, identifying seeds for individuals and companies; and dividing, sorting, and filing seed samples for the Iowa State University Seed Laboratory.

Over the years, Hegna has taught and trained new seed analysts and others attending Seed Science Center short courses and has earned many honors. She has received an Outstanding Service Award from the Iowa State Seed Testing Lab, is AOSA-certified in purity and germination, and is a registered seed technologist with the Society of Commercial Seed Technologists.

“Sandy is one of the top seed analysts in the country,” said Mike Stahr, Seed Lab manager. “You can place a collection of any type of seeds in front of her and she has no difficulty identifying them. Her accuracy is simply amazing.”

Looking back, Hegna says that she has many fond memories of the Seed Lab. “When I first started, the Seed Lab was located in what was called Old Botany. Today that building is renovated and everyone knows it as Catt Hall, but back then it was a really interesting place to work,” she said. “Our office was on the top floor so we had to climb up many stairs. But the most interesting thing was the bats—we always had to watch out for bats up there.”

Not only did Hegna take part in moving the Seed Lab from Old Botany to the newly built Seed Science Building in December of 1977, but she was also on staff during the 1987 reorganization which resulted in the formation of the Iowa State Seed Science Center. She also witnessed two subsequent Seed Science Building additions in 1997 and 2008.

Hegna has worked for three directors during her employment at Iowa State. They include Leroy Everson, A.L. Knapp, and Manjit Misra. “Dr. Everson was probably the hardest task master,” she said. “When students applied for jobs at the Lab when he was director, one of the first things he always asked was whether they could work during Christmas vacation.”

Over the years Hegna has worked for Seed Lab Supervisors Bonnie Jenkins (purity), Bill Hunt (germination), Dick Lawson, and Tim Gutormson. Seed Lab Managers during her career have included Susana Goggi, Dan Curry, interim Lisa Shepherd, and Mike Stahr.

Hegna says that she had none of the modern computers and electronic scales in 1972 that she uses today. In addition, changes in the seed industry have come about as well. “Botanical names have changed on some species, and the way we do multiple florets has changed,” she said.

As she prepares a sample of crown vetch for an upcoming short course, Hegna admits that although retirement may be a consideration at some point in the future, it isn't in this year's plans. “As long as I am healthy and my eyesight is good, I hope to be at the Seed Lab a while longer,” she said.



Above: Sandy Hegna (far left) analyses seeds under a magnifying glass in the Iowa State Seed Lab located in Old Botany in the early 70s. Right: Hegna evaluates a seed sample by using a blower to separate seed from inert materials.



Hegna resides in Madrid, Iowa, with her husband Bill. The couple enjoys spending time with their three children, six grandchildren, and 12 great grandchildren.

John Ferrari
Seed Analyst



Seed Analyst John Ferrari is one of the latest additions to the Iowa State Seed Laboratory. Ferrari joined the lab in the fall of 2007.

Although his background is in business information, Ferrari says that working with seeds was a natural calling for him. “As a person growing up in rural America, I have always had a passion for seeds,” he said. Ferrari was raised on a farm in Pilot Mound, Iowa. He still resides on the acreage with his sister Lisa.

Prior to coming to the Seed Science Center, Ferrari worked with Agronomy Professor Randy Killorn as a research technician for Iowa State University Agronomy Extension. He has also served as a research technologist and assistant breeder for seed companies in the area.

At the Iowa State Seed Lab, Ferrari’s job is to evaluate corn and soybeans for germination and vigor. He and his co-workers have the ability to test over 300 different species of seeds at the Lab.

Ferrari says that he respects and enjoys the many individuals that he works with including Seed Lab Manager Mike Stahr. “Mike has many years of experience with seeds and I have learned a great deal from him,” Ferrari said. “If we have a busy day, Mike will stop his duties and help us finish our evaluations. I have a lot of respect for a manager who will take the time to help you when it is needed.”

What does Ferrari say he enjoys most about working at the Seed Science Center? “I would have to say that I really enjoy the people,” Ferrari said. “They have made me feel welcome. It is a joy to get up in the morning to come to work.”

Most importantly, Ferrari says it is great to be back at Iowa State again. “It is an honor and a privilege to be working at this university,” he said.

Mercedes Diaz-Arias
Graduate Student



Graduate student Mercedes Diaz-Arias first came to Iowa State in 2005 as a visiting scientist in the Department of Plant Pathology. After spending 16 months at Iowa State, she later returned in 2007 to begin work on a PhD with Plant Pathology Professor Gary Munkvold.

Fusarium root rot, a plant disease caused by several fungi in the genus *Fusarium* that attacks the roots of soybeans, is the focus of Diaz-Arias’ research with Munkvold. Because there is little information on the significance and management of the disease, she hopes to increase public understanding of *Fusarium* species by determining their frequency in Iowa and by studying their impact on soybean yield.

Diaz-Arias says that she feels lucky to have Munkvold as a major professor. “He is a nationally recognized expert in seed pathology,” she said. “I appreciate that he taught me how to identify fungi using morphology characteristics. It has strengthened my skills as a plant pathologist and mycologist.”

Originally from Costa Rica, Diaz-Arias earned a B.S. in biotechnology from the Technological Institute of Costa Rica; and both a B.S. in agronomy and an M.S. in agricultural sciences and natural resources from the University of Costa Rica.

Diaz-Arias says that she appreciates the environment and the people at the Seed Science Center. “It is nice to work in a place where people are friendly, hardworking, disciplined, organized, and cooperative,” she said.

What does Diaz-Arias hope to do after leaving Iowa State? “My goal is to become an outstanding plant pathologist—to help farmers overcome their daily concerns about plant diseases,” she said.

James Delgado
Graduate Student



Toxicology is the focus of Seed Science Center PhD student James Delgado.

Delgado began his research with Seed Science Center Agronomy Professor Jeff Wolt in the fall of 2005. Their research focuses on the use of quantitative exposure assessment to better understand the potential effects of chronic exposures of the mycotoxin fumonisin B1 (FB1) to swine productivity. “Research proves that genetically modified Bt-corn shows the potential for reducing fumonisin concentrations, therefore we are working on a comparative analysis to evaluate the toxicological adverse effects of GM corn versus conventional corn,” said Delgado. In addition, Delgado is analyzing the fate and behavior of FB1 in Iowa soils and the possibility of environment recycling.

“As long as I can remember, I’ve had an interest and respect for the fields of science and technology,” Delgado said. “During my senior year of college I took environmental toxicology. That paved the way for my interest in toxicology work today.”

Delgado says that he has enjoyed researching quantitative risk assessment with Wolt. “I’ve also had a great opportunity to learn about the research being conducted at the Seed Science Center,” he said. Delgado says that through his work at the Center, he has been introduced to different ideologies of problem formulation for addressing research questions from an environmentally relevant approach.

Originally from Crystal City, Texas, Delgado earned a bachelor’s degree at Texas A&M International University in Laredo. After earning his PhD, he plans to study for the toxicology board exam and to investigate government jobs related to toxicology regulation.

MUNKVOLD NAMED STB CHAIR

(continued from page 10)

Munkvold. “We’ll pay close attention to how well we’re meeting their needs so that we can continue to make the curriculum better, improve accessibility, and maintain the relevance of the curriculum to current issues in the seed business.”

The interdisciplinary degree is a cooperative effort between the colleges of Business and Agriculture and Life Sciences at Iowa State.

Mike Crum, associate dean of the College of Business, pointed out that the STB curriculum allows professionals to get an advanced degree while remaining fully engaged in their career. “Students enroll in one or two courses per semester that are highly relevant for their current and future professional responsibilities. They can earn the degree in a little more than two and a half years,” he said. “This is a great value for the students.”

“Offering this curriculum reinforces our commitment, bringing Iowa State University to the world for public good,” said David Acker, associate dean of the College of Agriculture and Life Sciences. “This exemplifies our land grant mission.”

For more information about the Graduate Program in Seed Technology and Business visit www.seedgrad.iastate.edu or contact Paul Christensen at (515) 294-8745 or seedgrad@iastate.edu.

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Kamal Adam

IN MEMORY: KAMAL M. ADAM 1960-2008

Kamal Adam, assistant professor of agricultural engineering technology at the University of Wisconsin-River Falls (UWRF), and former seed conditioning specialist at the Iowa State Seed Science Center, died September 23, 2008, following a year-long battle with leukemia.

Adam was born in 1960 in El-Nahoud, Sudan, and earned a B.A.S. in agricultural engineering from the University of Gezira in Wad Madani, Sudan, in 1979. Adam came to the U.S. in 1988 to attend graduate school. He earned an M.S. in 1990 and a PhD in 1993 while at Iowa State.

Following graduation, Adam worked as a postdoctoral research associate for the Department of Agricultural and Biosystems Engineering at Iowa State until 1995 when he joined the Seed Science Center. Adam’s first involvement with the Center was as a postdoctoral student conducting research on seed conditioning with Center Director Manjit Misra. Because of his interest in seed-sorting technology and machinery, Adam was later asked to serve as the Coordinator of the Seed Conditioning Research and Training Program for the Center. From 1996 through 2005, Adam facilitated Seed Science Center workshops and trained seed industry members from across the country on seed conditioning. His workshops included hands-on instruction in the operation of many types of seed-processing equipment including gravity tables and color sorters.

“Kamal was an excellent researcher and a wonderful friend,” said Seed Science Director Manjit Misra. “His contributions, not only to those that he taught over the years, but to those that knew him here at the Seed Science Center, were great. He loved working with seeds and he liked to share that with everyone that he came in contact with. He will be greatly missed.”

Seed Science Center Molecular Seed Pathologist Anania Fessehaie said that Adam was instrumental in helping him to acclimate to Iowa State University upon Fessehaie’s arrival in Ames in 2005. “Kamal assured me that Ames is a safe place to live,” said Fessehaie. “He shared with me that he never had to lock his house door. He was a generous person who willingly shared his experiences. I know he will be sadly missed by his family, his friends, and by all his colleagues.”

Adam left the Seed Science Center in 2005 to take a position as an Assistant Professor in the College of Agriculture, Food, and Environmental Sciences (CAFES), at the UWRF. One of his many contributions to the university during his employment there was to facilitate the donation of a gravity table to the agricultural engineering department. Adam said that he felt that it was important for students to learn not only how to operate the machine, but to also learn how the machine benefits the seed industry.

According to the UWRF campus newspaper *Student Voice*, Adam was a devoted teacher and mentor. In an article about Adam, CAFES Dean’s Assistant Lisa Owens was quoted as saying, “He really loved teaching and loved his students.”

Adam’s funeral was held in Ames, Iowa. He is survived by his wife Salma Altroon and three sons Talal, Shihab, and Mustafa.



Food and Fuel Crops: Issues, Policies, and Regulation

2009 BIGMAP Symposium | April 21-22, 2009 | Gateway Hotel & Conference Center | Ames, IA

Tuesday April 21

Registration 12:30 p.m. – 1:30 p.m.

Food, Fuel and Climate Change in the Upper Midwest 1:30 p.m.– 4:45 p.m.

- Introduction to Session, John Lawrence, director, Iowa Beef Center (*session chair*)
- Gene Takle, professor of agronomy, Iowa State University, *Designing Crops for Food and Fuel in a Changing Climate: What is the Target?*
- Mariam Sticklen, professor of crop and soil sciences, Michigan State University, *Genetically Engineered Feedstock Crops for Cellulosic Biofuels*

Break 3:00 p.m. – 3:15 p.m.

- Emily Heaton, assistant professor of agronomy, Iowa State University, *Biomass Crops for Iowa*
- Elizabeth Lee, associate professor of plant agriculture, University of Guelph, *Genetic Enhancement of Corn Productivity*

Panel Discussion (*John Lawrence, moderator*)

Adjourn 4:45 p.m.

Wine and Cheese Reception & Poster Session sponsored by BIO 5:00 p.m. – 6:30 p.m.

Wednesday April 22

Registration and Continental Breakfast 8:00 a.m. – 8:30 a.m.

Food and Fuel Crops for the Developing World 8:30 a.m. – 11:45 a.m.

- Welcome and Introduction, Manjit Misra, director Seed Science Center & BIGMAP
- Introduction to Session, Gary Munkvold, associate professor of plant pathology and Seed Science Center endowed chair (*session chair*)
- Josette Lewis, Economic Growth Agriculture and Trade, USAID, *Taking Stock of Progress and Challenges Ahead*

Break 9:45 a.m. – 10:00 a.m.

- James Aketch Okeno, BIGMAP policy associate, *Crop Productivity and Food Security for Sub-Saharan Africa in the 21st Century*
- Monica Pequeno Araujo, coordinator, Biotechnology Office, INASE, SAGPyA, Argentina, *Is Latin America Ready for Biofuels?*

Panel Discussion (*Gary Munkvold, moderator*)

Adjourn 11:45 a.m.

Buffet Lunch 11:45 a.m. – 1:15 p.m.

Luncheon Speaker: Prabhu Pingali, deputy director, Agricultural Development, Bill and Melinda Gates Foundation
The Agricultural Development Initiative of the Bill and Melinda Gates Foundation

Session 3: 1:30 p.m. – 5:00 p.m.

Biotechnology-Derived Crops for Food and Fuel 1:30 p.m. – 5:00 p.m.

- Introduction to Session, Jeff Wolt, professor of agronomy (*session chair*)
- Judy Chambers, president, Emerging Market Solutions, *Tensions in Global Agriculture*
- Neil Hoffman, director of Environmental Risk Assessment, Biotechnology Regulatory Services, USDA-APHIS, *Current Status of the APHIS Proposed Rule*

Break 3:00 p.m. – 3:15 p.m.

- Michael Wach, managing director, Science and Regulatory Affairs, BIO, *Responsible Management and Use of Biotechnology-Derived Plant Products*

- Jeff Rowe, vice president, Biotech Affairs, DuPont, *Biotechnology: Helping Farmers and Changing the Future of Agriculture*

Panel Discussion (*Jeff Wolt, moderator*)

Adjourn 5:00 p.m.

Support for this Symposium comes from USDA APHIS and the Food, Feed and Fuel Initiative: Iowa
For more information or to register, visit: www.ucs.iastate.edu/mnet/bigmap/home.html

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Carlos Gazmuri

*Master of Science in Seed Technology and Business
Management Distance Education Student*