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



VILSACK ASSUMES ROLE OF BIGMAP DISTINGUISHED FELLOW

The Biosafety Institute for Genetically Modified Agricultural Products (BIGMAP) named former Iowa Governor Tom Vilsack a Distinguished Fellow in September 2007.

In his new role at Iowa State, Vilsack will use his expertise for a variety of upcoming projects. “Governor Vilsack is working with Iowa State faculty in developing content and teaching the new graduate course ‘Science, Policy, and Food,’” said BIGMAP Director Manjit Misra. “In addition, he will represent BIGMAP at national and international conferences and present information on science-based policymaking in biotechnology and food security.”

The new graduate course is an offering developed as part of a new Risk Analysis and Decision Making graduate minor.

According to BIGMAP officials, Vilsack has also agreed to serve on BIGMAP’s advisory council, which includes representatives from state and federal agencies and private groups, and he is involved in the planning and implementation of this year’s BIGMAP symposium.

Vilsack, whose position with BIGMAP became effective October 1, met with Iowa State Executive Vice President and Provost Elizabeth Hoffman, College of Agriculture and Life Sciences Dean Wendy Wintersteen, BIGMAP faculty and staff members, and other Iowa State administrators for an update on research being conducted by BIGMAP and Iowa State.

“This particular project [BIGMAP] is a good example of what the university is capable of,” Vilsack said. “There are difficult challenges that the world faces. But thoughtful people, particularly on this campus, can provide great direction and leadership. To the extent that I can be a part of that, I am happy to do that.”

During the meeting Vilsack told BIGMAP faculty the story of a visit he once had as governor with an African farmer who had recently tried a new biotech crop. “This was a very brave man who was willing to try new technology,” he said. “Farmers here in the United States embrace new technology, they understand it, appreciate it, and use it every day. That is not necessarily the case in Africa. Many of his neighbors in the village were very skeptical to try this new seed. But when his crop was produced in inclement weather and theirs was not, they wanted to know what magic he had. It was the magic of science.”

Vilsack served as Iowa’s governor from 1999 to 2007 and has represented Iowa on the Governors Biotechnology Partnership and the Ethanol Coalition. He is an attorney with Dorsey & Whitney in Des Moines and a Distinguished Visiting Professor of Law at Drake University.



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Above: Artist's rendering of the new addition to the Iowa State University Seed Science Building scheduled to be completed this April.

SEED SCIENCE/BIGMAP ADDITION TO OFFER NEW LOOK, INCREASED SPACE

Change is in the air at the Iowa State University Seed Science Center. Construction has been underway since August when work began on a new addition due to be completed in April of 2008.

The \$2 million, 5,000-square-foot addition to the Seed Science Building, located on the northeast side of campus, will not only enhance the west entrance to the building, but will also provide space for a second high-tech conference room; offices for staff, graduate students, and visiting scientists; and two additional laboratories.

Planning for the project began in 2006 when it was determined that the current facility was in need of expansion and other improvements to help faculty and staff meet the growing demand for research, training, and education.

"We are very excited to be nearing completion of this project," said Manjit Misra, Seed Science Center director. "This addition to our facility will allow us to better serve our students and customers. It will provide much needed additional laboratory space for our faculty. It will also allow us to accommodate some of the best minds from other countries or

universities as visiting scientists who wish to conduct research on seed and biosafety."

The Seed Science Building was constructed on campus in 1977. Initially a 33,000-square-foot facility, it was funded by an appropriation from the Iowa legislature. (See inset on page 11.) In 1996, a 1,600-square-foot addition was added to the building that included a high-tech seed training, demonstration, and conference facility.

Baldwin White is the architectural firm working on the 2006 addition and Welker Construction Company, Inc. is serving as contractor for the project.



Above: Construction nears completion on the west side of the Seed Science Building where workers have been on site since August.



STAHR NAMED SEED LAB MANAGER

by Regina Hendrickson

In June, Mike Stahr was named manager of the Iowa State University Seed Laboratory. Stahr succeeds Interim Manager Lisa Shepherd who oversaw lab operations following the departure of Dan Curry. Curry served as seed lab manager for six years prior to taking a position as Director of Seed Services at Oregon State University in 2006.

Mike Stahr is no newcomer to Iowa State University or to the Seed Science Center. He first came to the building as an undergraduate student in 1979. In 1981 he took his first position with the Center as a seed analyst in the germination lab working with corn and soybeans. Stahr continued to work his way up from seed analyst, to assistant scientist, and finally to trait testing coordinator before being promoted to his current position which took effect on July 1.

Earning a bachelor's degree from Iowa State in business administration in 1981 and a master's degree in agronomy with an emphasis in crop production and physiology in 1997, Stahr is a certified seed analyst in germination and a certified genetic technologist in herbicide bioassay and immunoassay. His expertise lies in studying germination, the vigor of large seeds, and in trait testing.

Stahr says that he is excited about his new position and looks forward to the challenges and opportunities that lie ahead. "Some of my most interesting duties in the past have included working

with customers, working to improve our system through the International Organization for Standardization or ISO (the Seed Laboratory has been ISO-certified since 2003), working with analysts on customer samples, and organizing and facilitating training sessions," he said.

As seed lab manager, Stahr's duties include coordinating the testing of customer samples and contacting customers about testing results and testing needs and playing an active role in seed industry organizations such as the Association of Official Seed Analysts (AOSA), the Society of Commercial Seed Technologists (SCST), the International Seed Testing Association (ISTA), and the American Seed Trade Association (ASTA).

In addition, Stahr conducts research projects as the need arises. "It seems we always have research underway ranging from small projects that may improve a testing method, to a small project for a customer, to a major study on things like seed-applied insecticides, intelligent polymers, or frost damage," he said.

The Iowa State University Seed Lab is one of the largest testing laboratories in the world and one of the first public labs to be ISO-certified. Even so, Stahr says that he is studying ways to streamline processes and provide increased efficiency while keeping prices as low as possible. "We are buying new equipment and replacing older equipment as we can," Stahr said. "Our PCR Lab is truly state-of-the-art with a robot liquid handler and two real-time PCR units."

According to Stahr, there are several things about the Seed Laboratory at Iowa State that make it stand apart from other facilities. "We are one of the relatively few labs in the country doing phytosanitary testing of seed lots," he said. "Our tray (Iowa) cold test has been used for over 30 years to help seed companies make decisions about the vigor of their seed lots."

Stahr pointed out that the Seed Lab also benefits greatly from the expertise of Lisa Shepherd, who is the seed health

testing coordinator and serves as the acting director of the National Seed Health System. Shepherd specializes in seed pathology and phytosanitary exports.

The Iowa State University Seed Lab tests around 50,000 samples per year. Staff members test over 300 species of seeds ranging from Iowa species like corn, soybeans, oats, and alfalfa; to vegetables and flowers; palm trees; and even cactus.

There doesn't seem to be much about the Seed Laboratory and its staff that Stahr isn't proud of or positive about. "I enjoy working with people, whether it is our staff, temps or students, other university personnel, customers, or industry folks," he said. "Most rewarding to me is meeting the expectations of customers and working to improve things for our staff."

For more information about the Iowa State Seed Lab visit www.seeds.iastate.edu/seedtest.

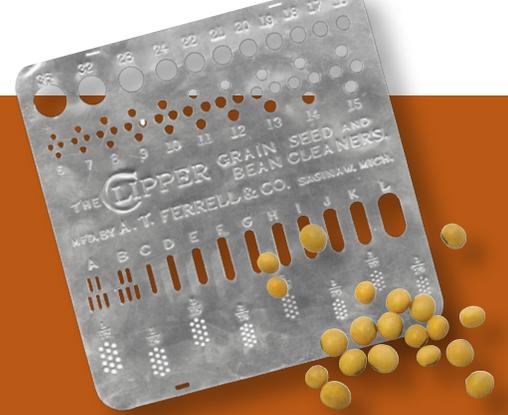


DID YOU KNOW?

Seed testing began on the Iowa State College campus as early as the 1890s. In 1905 L.H. Pammel formally organized the first Seed Laboratory.



IOWA STATE UNIVERSITY



Left: Adelaida Harries (third from left) poses with attendees of a workshop held in Ethiopia last June to discuss a web-based catalog for seed variety release systems.

HARRIES, CORTES DEVELOP MANUAL, WEB-BASED CATALOG FOR SEED VARIETY RELEASE IN AFRICA

by Regina Hendrickson

Iowa State University Seed Science Center Scientists Adelaida Harries and Joe Cortes continued their work to promote quality seed in Africa this past year by facilitating the establishment of a procedure manual and web-based variety catalog for regional seed variety release in East Central, Southern, and Western Africa.

In the United States seed companies make their own decisions about what varieties to release based on their own testing. However, in Africa there is a government variety release system. The government of each individual country must test and approve or reject new seed varieties in a process that can take up to three years.

"The process of testing of a seed variety for marketing in a country is called a variety release system," said Harries. "But in Africa it differs from country to country. That is why we have been working with three African regions—East Central, Southern, and West Africa to harmonize their variety release system at the regional level." Harries explained that in West Africa the governments have agreed that a seed variety released in one country can be included in a regional catalog and marketed throughout the entire

region. In Southern Africa countries, however, officials have proposed that if a seed variety is tested and approved in two countries that it can be registered and marketed in the region through the Southern Africa Development Community (SADC) variety release system. Although Harries says East Central Africa is still working on the harmonization of their seed variety release system, a regional catalog exists with national seed varieties registered for each country.

Harries and Cortes have recently developed a Procedure Manual for Seed Variety Registration for each of the regions. The manual includes testing protocols for conducting distinctness, uniformity, and stability characteristics and value for cultivation and use tests for selected crops.

In addition, the team has also worked with the International Livestock Research Institute (ILRI) and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) to create a web-based database for each regional seed variety release catalog.

"The database was designed to serve as a means to harmonize the regional catalogs and to promote seed trade among the regions," said Harries. "It will also help to improve the seed variety catalogs of individual countries within each of the three regions."

In June of 2007, Harries and Cortes participated in a three-day workshop held in Addis Ababa, Ethiopia, organized by ILRI and supported by ICRISAT and Iowa State University. The purpose of the workshop was to review and make recommendations on the database. Nine experts from East Central, Southern, and Western Africa attended the event. They included representatives from the East African Seed Committee, the Southern Africa Development Community, the Permanent Interstate Committee for Drought Control in the Sahel (CILSS), the African Seed Trade Association, the Sustainable Commercialization of Seeds in Africa (SCOSA) Project, Iowa State University, and the Food and Agriculture Organization.

The group discussed management of the database and catalog in each region. It is expected that the database will be available for use in early 2008.

In the past two years Harries and Cortes have facilitated over 10 workshops in Southern Africa and have facilitated technical agreements between the 14 member countries of the SADC to improve seed policies and regulations and to reduce seed trade barriers in the regions. They have plans to return to Africa several times in 2008 to continue work on this project and additional ones in West and East Central Africa.



HOGAN EARNS ASTA, MISRA SCHOLARSHIPS

Sarah Hogan of Monticello, Iowa, (pictured above with American Seed Trade Association [ASTA] President and CEO Andy LaVigne) was twice honored at the 2007 Iowa Seed Association (ISA) Annual Meeting held in Ames, Iowa, November 13-14.

Hogan was awarded the American Seed Trade Association Scholarship and was named a Manjit K. Misra Outstanding Senior Seed Scholar at the event.

Hogan, a senior in horticulture, has worked as a laboratory assistant in the seed pathology area of the Iowa State University Seed Laboratory since fall 2006. Having grown up on a family farm that sold Mycogen seeds, Hogan says that she enjoys running bacterial, blotter, and ELISA tests on agronomic and vegetable crop seeds.

Hogan also served as a project coordinator for the Horticulture Club while at Iowa State.

This was the first year of the ASTA scholarship which is funded by the American Seed Trade Association.

This is the second year that the Misra scholarship, named for Seed Science Center Director Manjit 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.

IOWA SEED ASSOCIATION AWARDS MISRA HONORARY MEMBERSHIP

Seed Science Center Director Manjit Misra received the 2007 Honorary Member Award from the Iowa Seed Association (ISA) during its 105th Annual Convention “Driving Economic Development in Iowa,” in Ames, Iowa, November 13-14. The recognition, the highest honor awarded by the association, was presented by ISA President Jim Groepper.

Groepper said that one of the highlights of his tenure as president of the association was presenting the award to Misra. “Dr. Misra’s work at the Seed Science Center and throughout his career has been both comprehensive and influential. His passion for the industry is willingly shared, effectively inspiring leadership and proficiency in our industry. He is in good company among the distinguished men and women previously so honored by ISA.”

The ISA Honorary Member Award was first presented in 1949 and was created to recognize individuals who have had a significant impact on the seed industry and have served as part of the ISA with distinction.

Also during the convention, Seed Science Center Endowed Chair Gary Munkvold took part in a panel discussion with Denise Theide of BioDiagnostics, Inc. and Tim Gutormson of Midwest Seed Service, Inc. The title of the session was “Seed Testing Management.”

During the President’s Breakfast on the second day of the convention, Iowa State University Associate Professor Richard Gladon announced the winners of the \$1,000 ISA Endowed Scholarships, and the recipient of the American Seed Trade Association Scholarship and the Manjit K. Misra Outstanding Senior Seed Scholarship. The ISA scholarships are awarded to undergraduate and graduate students attending Iowa State University.

For more information about the Iowa Seed Association, visit www.iowaseed.org.



Above: Seed Science Center Director Manjit Misra shakes hands with Iowa Seed Association President Jim Groepper as Groepper presents him with the Association’s Honorary Member Award last November.



Above left: Iowa State Associate Professor Richard Gladon (far left), along with American Seed Trade Association President Andy LaVigne (second from right) and Seed Science Center Director Manjit Misra (far right) pose with scholarship recipients following the President’s Breakfast at the Iowa Seed Association Annual Convention. Right: Seed Science Center Endowed Chair Gary Munkvold (center) takes part in a panel discussion on seed testing management.



SUMMER MEANS WORKSHOPS AT SEED SCIENCE CENTER

Summer inevitably brings with it a busy schedule of workshops for the faculty and staff of the Seed Science Center at Iowa State, and this past summer was no exception. The Center conducted 10 seed conditioning workshops for 116 individuals from the seed industry during 2007. Attendees traveled to Iowa State to attend the events from 12 states and five countries including Iowa, Illinois, Indiana, Ohio, Michigan, Wisconsin, Missouri, Minnesota, Nebraska, South Dakota, Idaho, North Carolina, Argentina, Kenya, Morocco, Uganda, and Korea.

“The 2007 workshops were very popular and feedback was positive,” said Seed Conditioning Specialist Alan Gaul who coordinated the events. “Several food grade and organic grain producers attended in addition to traditional seed conditioning personnel.”

Gaul explained that all of the sessions hosted by the Center included a mix of classroom and “hands on” equipment demonstrations given by Iowa State personnel and industry guest speakers. In addition, tours of the Iowa State Seed Testing Lab were included at the end of each session. “Topics covered in the workshops included seed corn and soybean/small grain seed conditioning, gravity separation, color sorting, and seed treatment,” he added.

Equipment demonstrated at the workshops included a new Oliver Manufacturing gravity separator and updated color sorting machinery from Satake USA and Buhler/Sortex.

Dates have already been set and registration is available online for

workshops and shortcourses for spring and summer 2008 (see page 12 for details). According to Gaul, “The 2008 programs will be similar to our 2007 workshop series; however, there will be additional updated content, and the 2008 workshop series will include the commercial popcorn workshop previously offered in 2006.”

2007 WORKSHOP HIGHLIGHTS

CORN CONDITIONING

Two four-day corn conditioning workshops were offered in June and August. Sessions focused on appropriate machinery and methods and included presentations on seed conditioning requirements for small lots and research operations, harvesting, ear corn operations, drying, shelling, material handling, seed storage, cleaning, sizing, density separation, color sorting, treating, packaging, yield trials, and seed counting equipment. Participants also had an opportunity to tour the ALMACO manufacturing facility to review plot planting and harvesting technologies.

SOYBEAN CONDITIONING

Conditioning workshops for small grains were held in July and August. Topics of the two three-day workshops included combine harvesting, material handling, bulk storage and aeration, cleaning, spiral and belt separation, length grading, density separation, color sorting, treating, bagging, and palletizing.

GRAVITY SEPARATION

Seed industry members attended two gravity table workshops in August. As part of the events, presenters provided information on the adjustment, operation,

and effectiveness of fluidized bed density separation equipment for removing foreign material and upgrading seed quality. Simple destoning equipment was used to introduce the basic principles of operation, followed by an in-depth coverage of several types of gravity separators. The workshops focused on equipment used by program attendees.

COLOR SORTING

Separate two-day workshops were conducted for Sortex and Satake color sorting machines in early June. During the workshops, participants worked with equipment as it sorted seed corn and food grade soybeans. They observed the effect of color sorting directly following an air screen cleaner vs after sizing and density separation. Technicians from both companies provided training on the adjustment, operation, and maintenance of the machines.

SEED TREATMENT

Seed treatment was the focus of a two-day workshop held in June to provide in-depth training on seed treatment chemicals and application techniques. Speakers presented information on the historical aspects of seed treatment, seed pathogen and health testing issues, common seed treatment chemicals, and adjustment, operation, and maintenance of typical seed treating equipment.



Above: Summer workshop attendees pose in front of the Seed Science Building.



Workshops (continued from page 6)

The treatment workshop included recertification credit for the Iowa Commercial Pesticide Applicator program (categories 4 and 10).

2008 workshops and shortcourses will be held in the Iowa State University Seed Science Center starting in March. Enrollment is limited. Registration is accepted on a first-come, fees-paid basis.

For more information about upcoming Seed Science Center workshops and shortcourses visit www.ucs.iastate.edu/mnet/seedscience/home.html or email Alan Gaul at agaul@iastate.edu



GRAVITY SEPARATION WORKSHOP



COLOR SORTING WORKSHOP



SEED TREATMENT WORKSHOP

Christa Hoffman
Trait Testing
Coordinator



Christa Hoffman's is one of the newest faces among the Seed Science Center staff. Hoffman joined the Seed Laboratory in November as the new trait testing coordinator, replacing Mike Stahr, who was promoted to seed lab manager in July.

Hoffman is a graduate of Iowa State University where she received her bachelor's degree in May of 2001 in animal science with a minor in agronomy. As an undergraduate, Hoffman worked for the USDA/ARS Corn Insect and Crop Genetics Research Unit in Ames until October of 2001 when she accepted a position as a serial assembly biological production technician at Fort Dodge Animal Health (FDAH) located in Fort Dodge, Iowa. Shortly after, she transferred to FDAH's Biological Research and Development In Vitro Potency Test Development Department.

"There I assisted with ELISA (Enzyme-Linked ImmunoSorbent Assays) development and method transfer to quality control facilities located in the United States, Spain, and Ireland," she said. "Their ELISA procedures were very similar to the ones we use in the Seed Lab here to detect trait proteins."

Raised on a family farm located near Carroll, Iowa, Hoffman's family raised pigs, cattle, corn, and hay. She says that most of her youth was spent assisting with daily chores.

Hoffman, who recently relocated to Ames from Fort Dodge, says that she is enjoying her new home as well as her new position. "The Seed Science Center staff have been very welcoming and willing to help me learn my new job," said Hoffman. "I enjoy being back in Ames and meeting new friends."

Sule Karaman
BIGMAP Policy
Associate



Sule Karaman, BIGMAP policy associate, divides her time between the Seed Science Center, where she works with Agronomy Professor Jeff Wolt, and Pioneer Hi-Bred International, in Johnston, Iowa, where she also works as a research scientist.

At Pioneer, Karaman, who is originally from Ankara, Turkey, designs and oversees conduct of animal trials carried out as a part of food and feed safety assessment of new genetically engineered (GE) crop lines being developed by the company.

She is also involved in an innovative collaborative agreement between Pioneer and BIGMAP where she spends a portion of time evaluating policies for regulatory best practice for GE food safety assessment. Karaman originally joined BIGMAP in July 2006, following completion of her PhD studies in Plant Physiology at Iowa State. Since that time, Karaman has researched topics such as the environmental risk assessment of transgenic crop-derived enzymes produced for use in ethanol production, risk assessment of plant-derived vaccines, and routes for regulation of nutritionally enhanced GE crops. She is also developing information modules on the regulation of GE crops in the United States that will be available on the BIGMAP Website.

"Working with Dr. Wolt has been very valuable," said Karaman. "It has helped me to develop a better understanding of risk assessment and its application to the environmental and food safety assessment of GE crops."

Karaman added that she has also found working with faculty and staff at the Seed Science Center to be a positive experience. "It has allowed me to work and interact with experts in the field who make a global impact for the betterment of agriculture," she said.



BIGMAP TO HOST FIFTH SYMPOSIUM IN APRIL

Scientists and members of academia and industry will have an opportunity to learn about current research on genetically modified agricultural products and other related topics at the Fifth Annual BIGMAP Symposium to be held April 23, 2008, at the Gateway Hotel and Conference Center in Ames, Iowa. The theme for this year's symposium is "Biotechnology Policy and Law."

"The 2008 symposium will offer participants a chance to hear experts voice their perspectives on how regulation for biotechnology must be responsive to the rapid pace of technology innovation," said Jeff Wolt, professor of agronomy and organizer of the event. "As always we have put together a slate of speakers that are on the cutting-edge of research and policy in biotechnology. As a result, this symposium will offer valuable and timely information to anyone who is involved in the study or trade of genetically engineered crops," he said.

Of special interest this year will be the morning session on "Biotechnology Intellectual Property," which will be chaired and moderated by Former Governor Tom Vilsack, BIGMAP distinguished fellow. This session will feature legal and scientific perspectives on IP concerns for agricultural biotechnology and their policy implications.

Over 100 people attended the BIGMAP symposium last year in which speakers from over 10 countries addressed topics ranging from mycotoxin regulation and global information needs to weediness of GMO crops. [Registration for the symposium is available online at www.ucs.iastate.edu/mnet/bigmap/quickregister.html](http://www.ucs.iastate.edu/mnet/bigmap/quickregister.html). For more information contact jdwolt@iastate.edu.

SEED TECHNOLOGY AND BUSINESS MASTERS PROGRAM IN FULL SWING

Twenty-two students enrolled in "Introduction to the Seed Industry," the first course offered in the Iowa State University Masters of Science in Seed Technology and Business (STB) program that began in July of 2007.

The interdisciplinary degree is a cooperative effort between the colleges of Business and Agriculture and Life Sciences at Iowa State. Approved by the State of Iowa Board of Regents in March 2006, the degree 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.

The objective of the program is to educate managers who can better address the challenges of uncertainty in delivering value to seed users. It is specifically designed to prepare students for management roles and emphasizes the development of problem-solving and analytic skills. Two graduate certificates, one in seed science and technology and one in seed business management, are offered as part of the program.

To date, students from five continents and nine countries have participated in the program. "The majority of the students taking advantage of the program so far have been from the United States," said Paul Christensen, manager of the program. "Although some countries only have a single representative, we are definitely using the Internet to break down the distance barrier," he said. Most of the content of the courses is delivered on CDs and online. Lessons are designed to include interactivity between students and instructors.

Christensen says that the level of interest and participation in the new program has been positive. He encourages students with an interest in the program to contact him regarding enrollment. "We are looking for students for a new group that will start next summer," said Christensen. "Specifically those interested in broadening their understanding of the science and technologies involved in the seed industry as well as increasing their management skills."

Applicants for the program should have experience in agriculture, business, or in seed-related areas of biology. The degree is designed for professionals working in industry and government and for those who have a desire to manage and lead organizations.

During fall 2007 courses in "Quantitative Methods" and "Crop Improvement" were offered by the program. This spring, Seed Science Endowed Chair Gary Munkvold is teaching a class in "Seed Health Management." A seed physiology course is slated to follow in fall 2008. The program is designed so that students enroll in only one or two courses per semester and work together for a little more than two and a half years. This allows them to balance professional commitments. Students are encouraged to share their work experience with other members of the group.

"Our STB management training emphasizes the traditional topics of management training: accounting, finance, management information science, organizational behavior, marketing, and supply chain management," said Christensen. "Our goal is to educate students to become better managers. We want to prepare them to effectively address future challenges within the seed industry. We are doing that."

For more information visit www.seeds.iastate.edu/class or contact Christensen at 515-294-8745 or intlcorn@iastate.edu.



Above: Business College Associate Dean Mike Crum and Seed Technology and Business Program Manager Paul Christensen collaborate on curriculum for the interdisciplinary degree.



WHAT IS RISK COMMUNICATION?

Part 2 of a Two-Part Series

By Lulu Rodriguez

As I said in the first article of this two-part series on risk communication, people have always been concerned about the activities, conditions, and materials that place their lives or well-being in peril. In our fast-paced and informed age, we are increasingly aware of risks and their implications for our lives.

Last time, we addressed some of the challenges for the risk communicator: defining the objective, making science accessible, and considering the perspective of the audience.

This time, I will consider some other aspects of implementing risk communication. Research and practical experience with risk communication have illuminated many problems and paradoxes associated with the practice. Much of this information can be distilled into a body of "conventional wisdom." These gems from the National Research Council offer insight into how an effective risk message should be formulated:

Conventional Wisdom of Risk Communication

- Craft messages to show the personal relevance
- Make the message clearly accessible to the audience through examples and imagery
- Show sensitivity to the concerns of the audience
- Avoid appearing to influence rather than inform
- Do not exaggerate or minimize uncertainty. Be complete regarding:
 - 1) the nature of the risk;
 - 2) the nature of the benefits of risk reduction;
 - 3) the available alternatives;
 - 4) the uncertainty in knowledge about risks and benefits;
 - 5) the costs and management issues, including the possibility of unintended consequences of management

These general message guidelines are based on findings in risk perception research. Taken together, and applied to the task of message design, these findings can be simplified into a set of six general psychological principles that should inform the design of risk messages.

1. People simplify to cope with information overload. They may overestimate risks with memorable characteristics.
2. People seek cognitive consistency; it is difficult to change their minds. They may selectively attend to information that agrees with previously formed attitudes, ignoring any ambivalence in that information, and become overly attuned to polarized arguments.
3. People remember what they see and evaluate many risks based on their personal and media experiences. They may underestimate risks they have not experienced.
4. People cannot readily detect omissions in evidence. It is possible to fool people through the use of omissions and to lose credibility in doing so.
5. People may disagree more about what risk is than about how large it is. The difficulty of defining risk itself is it is culturally bound.
6. People have difficulty detecting inconsistencies in risk disputes. It requires close attention and substantial knowledge to understand some technical arguments. Thinking critically about them is daunting. Unfortunately, this leaves many members of the public vulnerable to manipulation.

Fundamentally, these guidelines can be distilled into a basic principle: The informed consent for the risks to which we are exposed is a laudable goal. However, achieving this goal requires that people have tolerable choices, adequate information, and the ability to identify



which course of action is in their own best interests.

Risk communication is clearly not a task for the faint of heart, but as I said last time, effective risk communication can be achieved. By understanding the audience, the nature of the risk at hand, and the goals of the communication campaign, it is possible to craft messages and launch dialogues that responsibly serve all parties involved.

Lulu Rodriguez is an associate professor in the Greenlee School of Journalism and Communication at Iowa State University. Part 1 of Lulu Rodriguez's article on risk communication, "Risk Communication Models," appeared in the Spring 2007 issue of Iowa Seed & Biosafety.

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To view the original unedited version of this article visit:

www.ifss.iastate.edu





NATIONAL SEED HEALTH SYSTEM EXPEDITES MOVEMENT OF SEED

By Lisa Shepherd, Acting Director of the National Seed Health System & Seed Health Testing Coordinator, ISU Seed Laboratory

The concept for the National Seed Health System (NSHS) was born 10 years ago—an idea formed by a group of scientists interested in seed pathology and the international movement of seed. They wanted a system that would help facilitate the movement of seed internationally, and that would help standardize the growing world of seed health testing. From this idea came a team of organizers, a panel of representatives from the seed industry, government, seed regulators, and testing laboratories that worked under the American Seed Trade Association (ASTA) to develop an official system for the phytosanitary testing of seed. The goals of the system were to

- Create a flexible and efficient phytosanitary certification system that addresses the needs of the U.S. seed industry and to increase the involvement of the seed industry in phytosanitary certification
- Respond to the global trend for the adoption of accreditation in seed regulatory systems
- Help eliminate non-scientifically justified phytosanitary regulations
- Provide a scientific, peer-reviewed basis for adopting seed health testing methods
- Increase industry-government interaction and cooperation in the improvement of seed trade systems

To meet these goals, three objectives of the system were established: (1) to accredit organizations in the private sector to perform their own phytosanitary activities; (2) to standardize seed health laboratory tests and phytosanitary inspection procedures; and (3) to help promote international phytosanitary reform. In 2001, the Plant Protection and Quarantine (PPQ) published a rule in the Federal Register (7 CFR 353.8) that provides the authority to accredit laboratory testing or phytosanitary inspection services (for field inspection, seed sampling, and visual inspection of seed) for use in supporting

export certification activities. 7 CFR 353.9 established the National Seed Health System. Previous to this system, all work for phytosanitary certificate issuance needed to be done by state or federal officials and laboratories. Under these regulations, USDA-APHIS-PPQ still holds the authority for the operation of the system. To assist them in this process, the Iowa State University Seed Science Center has been named the Accreditation Unit of the NSHS, and works on the application process for organizations, paperwork, and provides scientific knowledge and support.

Eleven entities have joined the system including the California Seed and Plant Lab; Iowa State University Seed Testing Laboratory; Pioneer Hi-Bred International, Inc.; the Idaho, Illinois, Indiana, and Nebraska Crop Improvement Associations; Professional Seed Research; Seminis; STA Laboratories; and Syngenta Seeds.

Accreditation can be for any of four options

- Seed health testing
- Phytosanitary field inspections
- Seed sampling for phytosanitary testing, or
- Visual inspections for phytosanitary certification

The majority of current accreditations are for phytosanitary field inspections. Recently, an interest in accreditation for visual inspection of seed and sampling seed for phytosanitary testing has been increasing. These two options can be viewed as an affordable and easy option for companies interested in accreditation but not wishing to invest in the setup of a pathogen testing laboratory or field certification program.

Recently there has been a surge in accreditation schemes within the seed industry for various programs. The NSHS, as one of the first accreditation programs, and one of the only with validation through the Federal Register, has recently been used as a model program for others wishing to start a certification system.

One of the unique components in the NSHS system of standardizing methods is the use of technical panels of experts (industry professionals, scientists, etc.) to determine the best protocols for use in the system. Many other systems often use referee (or ring) testing of methods among multiple laboratories where, for instance, every lab would receive a standardized sample to run according to a certain protocol, and lab to lab results would then be compared. However, such a process is time consuming, and with current restrictions against the movement of plant pathogens without proper permits, referee tests can be very difficult for use with seed health methods. The NSHS instead uses a system of “experts” for each pathogen and/or crop that reviews sets of known methods. They then send their expert opinions on whether or not the method is acceptable back to the NSHS’s group of representatives for final approval. Tests are ranked as “a” (acceptable without changes), “b” (needs further research and development), or “c” (not acceptable for use as a standardized test). Part of the NSHS’s future goal is scientific research to convert the “b” ranked-tests into acceptable standardized methods. This method of peer-reviewed method approval has allowed a number of commonly used test methodologies to become approved as standardized tests in a relatively short period of time.

While accreditation into the NSHS is not necessary for all companies moving seed, it does play a vital role in phytosanitary export, as accredited labs test seed with standardized methods, or state and federal officials use NSHS standardized guidelines for a uniform set of U.S. regulations for the movement of seed. In the end, the U.S. gains better credibility as a country with standardized phytosanitary protocols, which will help to harmonize and expedite the international movement of seed.



MISRA MODERATES ROUNDTABLE AT WORLD FOOD PRIZE SYMPOSIUM

Seed Science Director Manjit Misra led 22 farmers from 19 countries in a discussion of the challenges of feeding the world at the Second Global Farmer-to-Farmer Roundtable, held October 17, 2007, in Des Moines, Iowa.

“It is very important that farmers have access to new technology because they are the first implementors,” said Seed Science Center Director Manjit Misra. “Therefore, we brought them together to share their personal experiences in the search for solutions to their common problems.”

At the event, hosted by Truth About Trade and Technology, Misra urged participants to concentrate on strategies to face challenges rather than focusing on the challenges themselves. Together, the Roundtable participants identified biotech strategies, including a willingness by the farmers to stay connected and to support each other, and the establishment of a web-based Global Alliance for farmers around the world.

As part of the event, Rosalie Ellasus was named the first recipient of the Kleckner Trade and Technology Advancement Award. Ellasus, a small farmer from the Philippines, is president of the Philippine Maize Federation. She earned the award for her work in promoting biotech corn in her country. Ellasus said that during her years as a farmer she found growing pest-resistant biotech corn increased her yields, reduced aflatoxin levels, and improved profit levels on her 15-acre farm and for other small farmers in her area.

The Roundtable was held in conjunction with the World Food Prize and Norman E. Borlaug International Symposium.

VISITING SCIENTIST STUDIES PHENOLIC INGREDIENTS IN SEEDS

Kalidas Shetty, professor of Food Science at the University of Massachusetts, Amherst, spent two months in 2007 collaborating with faculty members from the Seed Science Center, the Institute for Food Safety and Security (IFSS), and other faculty at Iowa State.

Shetty, whose research focuses on using redox biology to develop phenolic metabolites from dietary plants and food-based microbial systems, conducted research from June through August with Seed Science Center Director Manjit Misra and Iowa State faculty members Anthony Pometto, Hans vanLeeuwen, Murli Dharmadhikari, and Larry Johnson.

Shetty collaborated with Seed Science faculty to research antimicrobial strategies to control bacterial pathogens in emerging sprouts and fresh produce and analyzed phenolics in seeds. Shetty, Misra, and Pometto also studied functional phenolic ingredients in a variety of seeds and accessed their ability to combat diet-linked chronic diseases and promote gut health.

“Ingredients like these will be targeted as antimicrobials for enhancing food safety and ingredients for gut health, which has relevance for improving human and animal health against chronic infections,” Shetty said.

He added that the research collaborations conducted this past summer have laid the foundation for significant solutions to major changes in food safety practices that will improve food systems and promote health.



Above: Bean sprouts are one of the sources of phenolics that Kalidas Shetty analyzed for antimicrobial properties while conducting research with Seed Science faculty.

CLEMENTS SPEAKS AT SEED SCIENCE CENTER

Gary Clements, chief, Biotechnology and Textile Trade of the U.S. Department of State, spoke in the Seed Science Center High Tech Room on October 15. Clements spoke on “The State Department’s Role in Promoting Biotechnology,” in a seminar sponsored by the Seed Science Center, BIGMAP, and the Institute for Food Safety and Security (IFSS). Clements was in Iowa to attend the World Food Prize Symposium.



DID YOU KNOW?

In 1976 the Iowa General Assembly appropriated the funds to construct a new building to house the Seed Laboratory at Iowa State. The

33,000-square-foot facility was completed in 1978. Wallace Farmer commemorated the event with the headline “Iowa’s New Seed Lab is Most Modern in U.S.”



ISU SEED WORKSHOP/SHORTCOURSE SCHEDULE FOR 2008

Workshop/Shortcourse Title	2008 Training Dates
Commercial Popcorn Conditioning	March 18 - 20
Purity Testing Short Course for Seed Analysts	April 21 - 24
Germination Short Course for Seed Analysts	April 28 - May 1
Color Sorting - Sortex	June 2 - 3
Color Sorting - Satake	June 4 - 5
Commercial Seed Corn Conditioning	June 16 - 19
Seed Treatment	June 25 - 26
Soybean & Small Grain Seed Conditioning	July 7 - 9 & July 28 - 30
Gravity Separation	August 5 & August 7
Research Seed Corn Conditioning	August 11 - 14
Seed Corn/Soybean Quality Evaluation	August 20 - 21

✓ **SAVE THE DATE – BIGMAP SYMPOSIUM APRIL 23, 2008**

For more details visit www.ucs.iastate.edu/mnet/bigmap/quickregister.html

For updates or more information about ISU seed workshops/shortcourses, visit www.ucs.iastate.edu/mnet/seedsceince/home.html or email agaul@iastate.edu.



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