



Fall 2005



TESTING SEEDS SINCE 1895

## UP COMING EVENTS

### Genetic Technology Workshop February 7-9, 2006

A three day "Super Workshop" involving workshops in Immunoassay, Molecular Genetics, PCR, Herbicide Bioassay, and Electrophoresis.

\* Check back with the ISU Seed Science Center or with the SCST website (<http://www.seedtechnology.net>) for updates and registration information as this workshop is in the planning stages.

## Further Reading

Check out these Iowa State University Extension links for the latest in crop production news and publications:

- "Remember 50 Degrees"  
<http://extension.agron.iastate.edu>
- ISU Agribusiness Ed Program  
<http://www.aep.iastate.edu/index.php>
- What's New: ISU Soybean Production  
<http://extension.agron.iastate.edu/soybean/pp-calendar.htm>
- "USDA Funds Gigantic Research for Soybean Rust Management"  
<http://www.extension.iastate.edu/news/2005/sep/030901.htm>
- "Corn and Soybean Crop Performance Test Results Get New Look"  
<http://www.extension.iastate.edu/news/2005/sep/072001.htm>
- Iowa Grain Quality Initiative  
<http://www.extension.iastate.edu/grain>
- ISU Seed Lab Website  
<http://www.seeds.iastate.edu/seedtest/>

## ISU Seed Lab Provides Students with Hands-On Lab Experience

This fall semester six students are utilizing the Seed Science Center facilities for their class, Plant Pathology 594. This graduate level course, taught by Dr. Denis McGee, focuses on seed pathology. The class not only provides the students the opportunity to employ their knowledge in a real lab, but have Plant Pathologist Lisa Shepherd as their lab instructor.

Graduate level labs, like Plant Pathology 594, are challenging. These labs push students to question findings, methods, and theories. Lisa Shepherd explained that the course is a practical lab. Students are required to apply knowledge gained in lecture and from previous labs to future testing procedures.

As a graduate level course, the Plant Pathology lab prepares students for work in the service testing field. Lisa Shepherd, who has taught the lab for six years, explained that the class trains students on the different methods for



testing samples. The students will gain the knowledge and skill to work with bacteria and viruses in a lab like the ISU Seed Science Center.

Contrary to the stigma of the impersonal lab course, this grad class is quite close and caring. Both the students and instructor have had the chance to get

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## Meet Our Staff: Anania Fessehaie



As an Assistant Scientist, Dr. Anania Fessehaie dedicates most of his time in the DNA Research and Development section at the Seed Science Center, Iowa State University. Dr. Fessehaie received his PhD and M.S. in Plant Pathology both from the Institute of Plant Pathology and Plant Protection, Georg-August University of Göttingen, Germany. During his postgraduate studies, he worked with scientists in several laboratories in Germany, the Netherlands, and the United Kingdom. These opportunities provided him with considerable experience in seed health testing and plant disease diagnosis. Upon completion of his PhD, he was awarded a Biotechnology Visiting Fellowship in Canadian Government Laboratories Program by the Natural Science and Engineering Council of Canada (NSERC) (1998-2000). This prestigious Fellowship is awarded to candidates who present the exceptional research ability, and most meritorious, and exceptional ability to conduct original research. During the NSERC fellowship, Anania made significant contributions to potato disease diagnostics by developing DNA array for simultaneous detection of bacteria in potato samples.

In 2002, Anania moved to the United States to work as a Research Scholar in

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## ISO 9001 Quality Policy

The Iowa State Seed Laboratory is committed to exceeding the expectations of our customers by offering the highest quality seed testing services. We are committed to a strategy of continual improvement of our laboratory's operation and we strive to achieve complete customer satisfaction.

## Contact Information

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## Students

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to know one another's backgrounds, interests, and future prospects. Shepherd commented that it's "fun to interact with the students and see what they're studying. It keeps it interesting. And, they're a pretty nice group."

## Anania Fessehaie

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the Seed Pathology Lab at the University of Georgia. There he developed a multiplex real-time PCR assay for simultaneous detection of bacterial fruit blotch and gummy stem blight of watermelon. Then in August 2005, Anania and his wife Nazreth Amanuel were recruited by the Seed Science Center.

Currently, his research focuses on (1) the development of molecular detection assays for high-risk pathogens and (2) providing technical support for the Seed Testing Laboratory in the area of pathogen detection and trait-specific screening of genetically modified organisms.

His research interests include:

- Develop DNA-based multi-pathogen detection assays
- Explore advances in nanotechnology aimed at improving diagnosis and molecular epidemiology of pathogenic bacteria, fungi and viruses harmful to plants, humans and animals, and
- Investigate the potential of DNA micro array technology and DNA chip to the screening of event-specific DNA sequences of genetically modified agricultural crops

## ISU SEED LABORATORY

For over 100 years, Iowa State University has provided accurate, professional and seed testing services to the seed industry. The Seed Testing Laboratory annually performs test on tens of thousands of seed samples, making it one of the world's largest seed testing programs. The Seed Testing Laboratory tests corn, soybeans, and more than 300 other species of seeds.

## What are my options for AP testing?



Many seed and grain buyers insist on products that have little or no GMOs. These products must be tested for Adventitious Presence (AP testing is testing for unintended presence of GMO's) through one of many different testing methods. Some contracts specify the use of PCR testing, but there are other, less expensive screening options. For example, EISA plates or lateral flow strips are quick, inexpensive alternatives. An option for detection of herbicide-tolerant traits is a herbicide bioassay test. The ISU Seed Lab offers a full line of genetic testing techniques including qualitative and quantitative PCR, immunoassay and herbicide bioassay. Whatever your genetic purity or AP testing needs, we have the methods and expertise to give you timely, accurate results!

## Quality Seed Germination in Fall 2005

The germination lab has seen some very good quality seed this fall. The corn germination average for October was 97%, which is above the normal 94% germination. Other than the occasional seeds that fall prey to *Aspergillus flavus*, which is a storage mold, no other diseases are affecting the seed corn to this date.

In soybeans, seed size is fairly average to large this year and the germination average for the month of October was 93%. We have not seen any visible Bean Pod Mottle Virus or Soybean Mosaic Virus. It is thought that these two viruses promote the "bleeding hilums" and the "mottled soybeans" of the past years. We have seen very little Phomopsis (pod and stem blight) from Iowa soybean seed lots this year. However, there have been reports of seed lots severely affected by Phomopsis from southern Indiana. Overall, we expect this to be a normal germination year for our corn and soybean customers.

