ISU SEED TESTING LABORATORY December 2001

Iowa State University Seed Testing Lab

New Testing Season off to a great start!

(See back page for related article)

Upcoming Events

- **GMO Workshop February 18, 2001 at the Seed Science Center, ISU, Ames, Iowa**
- **Seed Technology Conference on February 19, 2002 at the Scheman Center on the campus of ISU**
- **AOSA Seed Analyst Short Courses**

Purity: April 23-26

Germination: April 29– May 2, 2002

Soybeans

Soybean seed quality is much better than last year. Through November, Kimpak germination averaged 90% and sand germination 92%. The AA test, a vigor test for soybeans, is 20 percent higher than last year. Field conditions during 2000 greatly affected soybean germination. Extremely dry seed made most any handling of seed result in mechanical damage. This summer's conditions were apparently more favorable.

Fungi continue to plague a few food grade soybean samples. Fungi seen include Aspergillus flavus and Phomopsis.

Corn

Corn seed quality continues to be high. The germination average is 90%. Cold germs are averaging around 85%.

Traits

We continue to test for StarLink for our corn customers. As you may already know, the USDA recommended that seed containing the StarLink gene not be sold in 2001 and any year thereafter. Many seed corn companies are continuing to test for the presence of CRY9C, (the StarLink protein) by ELISA or PCR to ensure that their seed supply does not contain any detectable amounts of the gene.

Su-Yi analyzing a tray of soybean seedlings.

ISU Seed Testing Lab Now Tests for Presence of GMO's Using PCR Techniques

What is PCR?

See the back page for a short description of PCR

Under the leadership and training of Dr. Reva Bhushan, ISU Seed Testing Lab Staff have undergone extensive training in the latest techniques of PCR.

A room in the Seed Science Center was modified to create a laboratory devoted exclusively to testing seed using the PCR method

The addition of this procedure to tests offered at the Seed Lab is due to an increase in the requests by our customers for GMO-non-GMO testing using molecular techniques. These requests have been prompted by the requirements of our customer's clients who are located in other countries. Some seed must now be tested and determined to be free of GMO's using the PCR method. This is another example of the ISU Seed Lab responding to our customer's needs.

Seed Science Center
Iowa State University
Ames, Iowa 50011 USA

Manager: Dan Curry
Phone: 515-294-6826
Fax: 515-294-8303
http://www.seeds.iastate.edu/

Our Goal: To exceed the expectations of our customers by offering the highest quality product verification services.

ISU SEED TESTING LABORATORY

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

The Seed Laboratory provides a wide range of tests and services. The staff is a group of dedicated professionals with many years of experience. The lab's modern facilities include the latest scientific and computer technologies.

Some of the tests performed on a routine basis include: germination test to both AOSA and ISTA standards, vigor, purity and noxious exams, traits tests and over 130 different seed health tests.

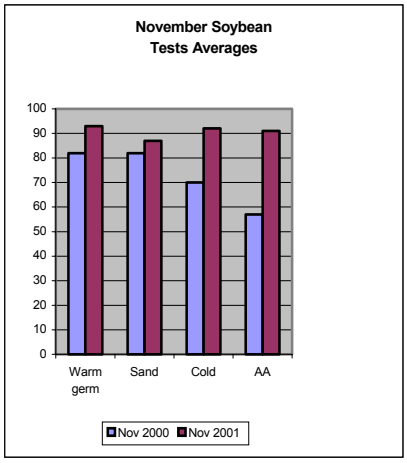
What is PCR?

PCR, short for polymerase chain reaction, is a method of multiplying short sequences of DNA (deoxyribonucleic acid). This technique can be used to distinguish between biotech and non-biotech seeds (or GMO's) by amplification of a particular region. This test is extremely sensitive and specific. It is a qualitative test which results in a yes or no answer and depending on the sample size used this method can detect the presence of biotech seeds in conventionally seeds as low as 0.01%.

What happened to last year's Soybean Seed?

Last fall, much of the Midwest experienced extremely dry growing-conditions. This continued with a dry harvest which set the seed up for mechanical damage when the seed was combined and transported. Problems were exacerbated when conditioning the soybean seeds caused further damage. The resulting lower germination results due to mechanical damage were unprecedented for most soybean producers. Vigor tests, such as the accelerated aging test, also showed a marked decline from past years for many soybean seed lots

Seed companies responded to this germination challenge by being very selective on the soybean lots that they shipped to their customers. From most accounts, soybean growers were happy with the quality of their seed and reported normal stands. This fall, the soybean germinations are much higher.



Meet our Helpful Staff

Mike Stahr has worked at the Seed Testing Lab since 1979. He started working as a student planting and evaluating corn and soybeans while going to school at ISU and he is now the senior germination analyst at the Seed Lab. Mike's specialties include germination and vigor tests, trait testing and now PCR testing. Mike currently is the chair of the GMO Committee for the AOSA. His hobbies include raising livestock and deer hunting. Mike lives in Ogden, Iowa with his wife Julie and two children, Jenny and Jeremy. If you have any questions on seed testing, Mike would be glad to talk with you.