Illinois Seed News

January - March First Quarter, 2010

CEO Report

by Dennis Thompson, CEO
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This N' That

As soon as this copy was submitted to our staff for inclusion in the Illinois Seed News, I hopped in the car and headed to Chicago for the ASTA Corn & Sorghum and Soybean Seed Research Conferences. This meeting is certainly a highlight of the year for many "seed people" around the globe.

Throughout the week, five from our Illinois office were involved meeting with clients, exhibiting in the Seed Expo, participating in committee meetings, attending research meetings, seeing old friends and making new ones. Scheduled staff members who joined me in attending this industry event included: Doug Miller, Business Development; Hannah Hudson, Operations Manager; John McKinney, Quality Manager; and Steve Beals, Assistant Director of our Seed Laboratory.

Farmers and seedsmen alike couldn't wait to see the 2009 crop year in their "rear-view" mirrors. What a year in Illinois and for many regions across the US! Harvesting the 2009 commercial soybeans and corn crops was much like a trip to the dentist and many would have opted for having a tooth pulled.

Seedsmen struggled to get production fields both "in" and later "out" of the ground. The weather played havoc with many field trials and thus it delayed "number crunching" and the data analysis so vital for preparation for 2010 and beyond.

The industry as a whole (me, too) wonders how farmers will react to the price levels we are expecting to see on some seed products for 2010. Will they pay? Will they shift to different products or brands? How will they define "value?"

What might be the long term impact of Midwestern farmers who "mudded" out the 2009 corn crop then seemed to "forget" about the mud and standing water and chisel plowed their ground? This flabbergasted me.

Are land prices going to continue their climb in 2010? Will the ethanol industry get revitalized to a greater extent in 2010? How will the modified IRM refuge requirements work in 2010? And I can't help but wonder what's in store for us next year related to biofuels.

Lizandro Perez, Station Manager of our Winter Farm in Puerto Rico, and his agronomy team in conjunction with Quality Manager, John McKinney and I have developed a new quality management system for the operation. The system went "live" on October 1 and is currently being implemented. This effort compliments the ISO/IEC 17025:2005 quality management system in place for our Illinois-based laboratories. We chose to address not only field introductions related to biotechnology but all projects irrespective of breeding techniques utilized and/or regulatory status. Quality management applies across our service offerings.

Speaking of our Puerto Rico Winter Farm, they had an extremely busy summer season (the South American Winter) but had the farm in great shape to support North American and European clients. Then, it began raining which caused delays. Keep in mind, our farm is located on the arid south coast of Puerto Rico and requires irrigation…., but this season, it rained. However by mid-December, all was well again.

Calendar of Events

January 19-21, 2010
IPSA Annual Conference
Indianapolis, IN
Web: independentseeds.com

March 2-3, 2010
Illinois/Indiana
Seed Conditioning
Workshop
Champaign, IL
Web: ilcrop.com

In This Issue





Seed Lab News

by Gary Cook, Seed Lab Director • gcook@ilcrop.com

Seed Quality

Better than expected

Soybean

Soybean seed quality has been better than expected to this point with germinations averaging in the mid nineties and pod & stem blight infection not nearly as high as one would have expected with the wet weather we experienced this fall. This is the line I would have written in early October. Since then things have changed. We started receiving samples from fields that stood through a lot of wet weather after maturity. Pod and Stem Blight rates are a lot higher than earlier tested samples. White Mold sclerotia has been noted in a number of samples, with a small percentage of the soybean samples exhibiting signs of seed infection. Thorough conditioning of contaminated lots is necessary to avoid spreading this disease. A few seed treatments are available to help control this disease if the seed infection does occur, although some pathologists do not recommend keeping seed from a field which had a white mold problem. Seed treatment should also be a great help in controlling the Pod and Stem Blight and other diseases present.

Corn

Corn seed quality has also been good for the most part, although we have received several sheller run samples with both fusarium ssp. and diplodia. Very few lots have sub-standard germination results after conditioning and treating. Frost or cold weather injury has not affected very many lots received in the seed laboratory to date. Although some seed lots have had major reductions in viability due to frost or freeze, this seed will probably not be used under any conditions. We may see more cold weather damage on seed corn lots a little later in the season that will probably show up on the vigor tests first and then viability.

Freeze damaged corn during germination with fungi present

Sunflower

Sunflower seed quality relates primarily to sclerotinia diseases which may be the major cause of poor fill this year. The scientific name for this disease is Sclerotinia sclerotinium; the same organism that causes White Mold in soybeans. This organism can attach to the sunflower plant in multiple ways causing Sclerotinia Wilt, Sclerotinia Middle Stalk Rot and Sclerotinia Head Rot. In some cases, all of these may occur in the same field depending on weather conditions during a particular stage of plant growth. Some of the unconditioned sunflowers have heavy concentrations of sclerotia. We also have a number of conditioned sunflowers that still contain a few sclerotia. This is primarily due to the fact that the shape and size of these fungal particles makes them difficult to remove from similarly shaped sunflower seeds. Sclerotinia can also infect the sunflower seed, but the rate of infection is low.

Any comments or questions about seed testing and seed quality issues, please contact me at the IL Crop office.

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Soybeans showing some Fusarium infection

Pod and Stem Blight infected soybeans

Freeze damaged seed corn sample

Sunflower with sclerotia particles present





Field Services News

by Doug Miller, Field Services Director • dmiller@ilcrop.com

One More Test

Liberty Link soybean is now a reality. Ten years ago, the technology was shelved due to export market concerns. As most of you know, non-GMO soybean products have enjoyed a relatively uncomplicated testing regime compared to non-GMO corn. Soybean producers, processors and exporters serving non-GMO markets had one basic concern: the Roundup Ready trait. Other traits were a possibility, including High-Oleic and Liberty Link. But the obvious focus was on the Roundup trait utilizing bioassays, immunoassays or PCR.

Bioassay is still the most cost effective way for evaluating seedlings for herbicide tolerance traits. The results are quantitative in that each seedling is scored as trait positive or trait negative, e.g. 3 trait positive (tolerant) and 372 trait negative (non-tolerant).

Bioassay is still the most cost effective way for evaluating seedlings for herbicide tolerance traits

The bioassay is appropriate for seed testing due to the fact that viable seeds are tested while foreign matter or broken seeds do not impact the test. Remember that plant parts will also carry GMO proteins and DNA fragments that can be detected in an immunoassay or PCR test respectively. The most limiting factors in a bioassay include time required for seedling growth and the relatively small sample size of 400 to 600 seeds.

Immunoassay is one of the most cost effective means of evaluating large numbers of seed for unintended traits. The material is ground, sampled and tested using anti-bodies that detect specific GM proteins. Immunoassays are cost effective in their ability to provide a qualitative or semi-quantitative estimate using sample sizes that exceed those of a typical bioassay. Since the material is ground, the amount of protein detected in the assay can be used to estimate the number of GM seeds in the original sample. Typical soybean immunoassays range from 200 to 1,000 seeds per replicate. The power of an immunoassay is further enhanced by running 2-3 replicates of 200 to 1,000 seeds each. Immunoassays are ineffective in cases where it is important to differentiate traits that utilize the same or similar proteins. Roundup Ready and Roundup Ready 2 Yield utilize the same protein to provide resistance to Roundup herbicide. An immunoassay cannot be used to differentiate the two products.

PCR, short for Polymerase Chain Reaction, goes straight to the horse's mouth by analyzing trait specific DNA sequences. With the right DNA sequences, or primers, the DNA of interest can be amplified for detection or quantification. As with immunoassays, testing for unintended traits is only cost effective when a large number of seeds are ground and tested. The interpretation of the results can create some confusion if you are used to seed purity reporting. A quantitative result such as 0.1% GMO refers to the number of DNA copies detected relative to the total DNA in the sample. Applied to seed 0.1% is 1 seed in 1,000. However, the number of GMO seeds responsible for the number of DNA copies detected is subject to interpretation.

As Liberty Link soybean varieties enter the market, non-GMO seed and grain producers should expand their testing as they see fit. IL Crop is offering a quick immunoassay technique that yields a qualitative result by testing two or more replicates for the Liberty Link soy protein. I expect that Roundup Ready soybean testing will continue to be the focus for non-GMO soybean markets. Having two Roundup Ready products on the market does not change the fact that your goal is to keep unwanted traits out of your soybean production.

IL Crop is offering a quick immunoassay technique that yields a qualitative result by testing two or more replicates for the Liberty Link soy protein

When the day is done, you will still need an appropriate testing regime to bring your hard work to market.

Known as the detection limit, the limitation of the immunoassay dictates the number of seed per replicate. To change the statistical power of the tests, the number of replicates tested can be increased or decreased. A typical LL stick test is two replicates of 200 seeds each. If both replicates test negative, you can make the following statement for the trait in question. "I am 95% confident that the lot impurity (LL soy) is less than 0.75%." If one of the two replicates is positive, then you must adjust your statement as follows. "I am 95% confident that the lot impurity (LL soy) is less than 1.82%." It is important that you review your obligations and request additional replicates as necessary.

Article continued on page 7





by John McKinney, IPG Lab Director • jmckinney@ilcrop.com

New Juicer for Soymilk & Tofu Process Test

Why have we changed and what are the differences

Illinois Crop Improvement Assoc. has offered the Soymilk and Tofu Process Test since the mid-1990's. This test uses the method developed by Niels Nielsen (Purdue), Evan Evans (Purdue), and Chigen Tsukamoto (Japan). It provides parties, such as brokers, aggregators and buyers, interested in the properties of soymilk and tofu from particular beans a means to evaluate those properties. Its major advantage over other methods has been the relatively small sample size requirement, allowing breeders to evaluate new varieties at earlier stages. Many previous methods required a bushel or more of soybeans. The method results in approximately 450-500 ml of soymilk, much of which is used to produce about a pint of silken unpressed tofu.

The test is relatively simple in nature, yet quite sophisticated (and challenging) in practice. Whereas most commercial tofu is made from beans that have been soaked in water, this method begins with the grinding of dry soybeans. Water is added and the soluble components are extracted in a blending process. The slurry is steam cooked to inactivate antinutritional enzymes, cooled so that it may be sufficiently handled, and screened and filtered to remove large insoluble solids (a pulp called okara). This screening process has been a recent area of concern.

The method uses a specific Mitsubishi centrifugal juicer for the screening process. The industrial-size counterpart to this juicer is a machine called a basket centrifuge. It may be thought of like the spin cycle on a washing machine, with the solubles-laden soymilk being considered like the dirty water, able to escape through the small holes in the washer drum, and the okara being equivalent to the clean clothes. Centrifugal force is a very effective means of separating liquids from solids.

We have always known that the machine would eventually cease to be functional. Over the past few years, I have searched to no avail for new juicers of its type and for replacement parts. We did an evaluation of a different centrifugal juicer several years ago with unacceptable results. The trial machine left too much soymilk in the okara.

In early November, the screen of the juicer failed. Fortunately, we had a spare screen; however, the incident also resulted in some damage to the drive rotor. Some super glue gave us a fix, but the lingering concern remained – What if the repair doesn't hold or if the new screen fails?

Mitsubishi Centrifugal Juicer

The juicer was purchased directly from Japan. In fact, there is little English writing on the machine. A search for replacement parts resulted in the same results as previous attempts. I could not even find reference to any juicers made by Mitsubishi. The final determination was made to find a new machine that could suitably replace the Mistsubishi.

Several criteria were set in place for the evaluation:

- The yield, solids content, protein content, and color of the soymilk should be similar to that produced in the Mitsubishi.
- The subsequent filtration steps should not be affected negatively.
- Ideally the machine would be relatively quiet and easy to clean.

We evaluated two juicers that are highly rated for producing a dry pulp with high juice yields, a centrifugal juicer by Breville and a modified screw-press type juicer made by Omega. The Breville juicer gave better results than juicer tried years ago, but the yield was still greatly reduced. The Omega actually appears to provide slightly higher yields than the Mitsubishi, but with slightly reduced solids and protein contents. The color of the soymilks is virtually identical.

The increased yield is most likely due to reduced process losses during screening. The Mitsubishi machine has a large dome on which the soymilk may spatter during the separation.

Article continued on page 7





Puerto Rico News

by Lizandro Perez, Station Manager • lperez@ilcrop.com

Happenings on the Farm

Increase in growouts, new agronomist trained and changes being made by the Secretary of Agriculture

Another hurricane season passed with no effects over our beautiful island. October was unusually dry, but in early November we got more rain than usual causing some delays in our plantings. By early December, we were back on schedule. After a slow beginning, reservations started to pick up and looked like we were going to have more planted acres than last year. For the crops of cotton, barley, peanut, sorghum, sunflower and wheat, we already have more acres planted than last season. Corn growout and dry beans acres are down for this season, but corn nurseries acres are almost the same as last season.

We are still planting soybeans and we have others projects in progress. We are also in conversations with clients for new projects. The soybean acreage for the 2009-2010 season could be more than the previous season as a result of new soybean crossing projects under consideration. Conversations are developing that may result in more soybeans crossing blocks for the farm. One of the challenges that we are going to have from the end of March to beginning of April is harvest, because peanuts and cotton should be ready to harvest at the same period of time as some of the soybean increases. Last season we went through a similar situation, but we hired more workers. Clients also sent people to help us on the supervising and logistics for the different projects. Both projects were a success and for this season, the clients decided to send more material to our farm.

In the field inspections area, we now have an agronomist trained to do field phytosanitary and certification inspections on the North side of the island. He began to do field inspections for us in December 2009. This way, our Agronomist Tamar Detres, does not have to travel to the North side too often, allowing her to concentrate more on the South side where most of fields for certification or phytosanitary inspections are planted. We also have another agronomist on the South side of the island ready to be trained if needed. So far, Agronomist Tamar Detres has been able to handle the load of inspections, but we are not at the peak yet. Other companies on the island are showing interest for IL Crop to do field inspections for them, but conversations are still in progress.

In one of last year's issue, I commented about the new Puerto Rico governmental administration related to agricultural development. The Secretary of Agriculture is trying to provide seed companies the resources for growing on the island. To give you an idea, the growth of the seed companies that are operating in Puerto Rico in the last five years has increased around 300% putting seed production in the top 10 agricultural business. In the next issue, I'll give you details of the government ideas to help the seed production business grow in Puerto Rico.

IL Crop has added a 100X field microscope to its equipment roster. The microscope is intended to help technicians and field inspectors identify viable and non-viable corn pollen. Technicians will use the microscope to determine if viable pollen is present in a corn crossing nurseries. Field inspectors will use the microscope to determine if fertile off-types are present in male-sterile corn lines.

Illinois Seed Trade News

by Tom Newman, ISTA President • tnewman@wyffels.com

Be The Source

The Illinois Seed Trade does have a bunch of resilient customers, don't we? Our IL corn growers this fall were faced with a late harvest, wet field conditions, high moisture grain, high drying costs, undersized drying facilities (either at the elevator or their own dryer set up), grain quality issues, late night harvests and prospects of limited fall fertilizer application and fall tillage. In spite of all these obstacles, they continue to plug away everyday to bring in this year's large crop. They do so because that's what pays the bills. Profitability will be down because all these obstacles have a cost to the corn grower. The grower that can manage these costs and minimize their impact will improve his bottom line for the year.

As a seed industry, we should remember that what affects our customers also affects us. Are we as an industry prepared to provide data, product information, and most importantly crop management advice to aid in the many management decisions that occur during the busy and late harvest season? Can we approach these busy individuals with optimistic attitudes, a long range view of the corn and soybean production system, and bring value and benefit for your part of his annual inputs? Seed plays a critical role in a grower's success, but it must be coupled with proper fertilizer and tillage management, proper product placement and a set of products that match his needs and management style. A seedsman that can consistently provide this will be welcome on many farms.

So, have you asked yourselves, do I or my seed representatives do all these things for your customers? Or better yet, ask your customers what would help most as they complete harvest and consider next year's cropping plans. Many decisions may be delayed due to the late harvest. So preparation for repeated discussions on product performance and product placement will be necessary. The Seed Trade will benefit as it becomes "the source" of product and trait information, management advice and support for our IL corn growers. There is no better source for trait management, usage, and support than our IL seed professionals.

Oh, by the way, have you noticed that you don't see any little combines anymore, unless, of course, you are next to a research test site?

Illinois-Indiana Crop Improvement Seed Conditioning Workshop

Circle "March 3" on your work calendar and note "Champaign, IL." You'll want to join us for the 24th Annual Illinois-Indiana Seed Conditioning Workshop at the Hawthorne Suites. (8:30 am -4:30pm)

The feature presentation "Basics of Seed Cleaning" will be delivered by Alan Gaul, Iowa State University. This core segment will focus on corn, soybean and small grain seed conditioning principles. Alan will provide information about proper equipment operation and explain practical means to help you most efficiently retain high quality seed while discarding lower quality product. Gaul will present an expanded session specifically to address seed treatment activities and calibration.

A variety of additional industry related topics will also be presented to compliment the core training delivered by Gaul. Jim Larkin, Illinois Department of Agriculture will assist with the program by providing relevant information pertaining to the regulatory process and labeling activities. In addition, several vendors will be present to "show and tell" about their products and services. We think companies will appreciate our special 2010 registration program. The first person registration fee per company is $90.00. Additional people from one company may then register for only $60.00 each.

Plant personnel who are responsible for performing the day-to-day conditioning activities will find the presentations helpful in performing their company roles. This Seed Conditioning Workshop provides an excellent in-service training opportunity to a wide range of company employees.

Full details will be released in the near future via postings on ilcrop.com; E-update and US mail. Contact Heather Chinn at 217-359-4053 or Email hchinn@ilcrop.com to request registration materials.

IL Crop News Continued.....

Field Services News

One More Test

(continued from page 3)

For Roundup Ready soybean, IL Crop offers both quantitative and qualitative assays to meet your needs. Both lateral flow stick and ELISA tests are available. Standard service is 3 days with same day service available. IL Crop has a full range of soybean services ranging from Puerto Rico crossing nurseries to tofu analysis in the IPG lab. Please contact us for all of your testing and research needs.

IPG Lab News

New Juicer

(continued from page 4)

The Omega juicer has a much smaller area for material to be trapped.

The Omega machine leaves more solids in the slurry to be filtered out, but the cheesecloth handles this well, with little to no fine material left for the final filtration step, similar to the Mitsubishi results. In addition, the modified Omega juicer operates much quieter than the centrifugal juicers and is easy to clean. The juicer design has been used for years, and replacement parts are readily available.

For the time being, we will be using the modified Omega juicer for our Soymilk and Tofu Test. We will work with clients to help them understand any difference in the old and new process, and we will work to fine tune the process to make it even better.

Below: The okara exits the end of the machine after the soymilk has been pressed out. The soymilk drains through mesh screens in the bottom and end of the press.

Left: The cooked soymilk slurry is fed through the extractor to remove the large, insoluble material (okara).

Congratulations to Our Picture Winner

Every year, during the ASTA Seed Expo held in Chicago Illinois, we have the pleasure of giving away a framed print taken by Larry Kanfer of Larry Kanfer Gallery. We would like to congratulate this year's winner, Jim Schweigert of Gro Alliance, Cuba City WI, and say thank you to everyone who visited our booth and participated in the drawing.

Picture Left: Framed photo titled "Center Stage" given away at IL Crop drawing

IL Crop was represented at the ASTA Corn & Sorghum and Soybean Seed Research Conferences and Seed Expo by Steve Beals, John McKinney, Hannah Hudson, Doug Miller and Dennis Thompson. Steve Beals coordinated our new display booth at the Seed Expo. More than 30 meetings took place during the week. The weather impeded or prevented travel for some of our clients and we hope everyone stayed safe. If you were unable to travel or stop by to meet with the IL Crop team, feel free to contact us anytime by phone or email. We are excited about our comprehensive service that augments your product development and improves your production processes. We want to be your partner in the advancement of seed products and technology.

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