



CEO Report
 by Doug Miller, CEO • dmiller@ilcrop.com

We Welcome the Renaissance

The forces that change the seed industry are many. One of the biggest changes that is now becoming reality is genome editing. What is genome editing? Think of a word processor for DNA. Think of technology you may have heard about; Zinc Finger Nuclease, TALEN and CRISPR. CRISPR, you’ve heard of that, it is after all the current poster child for genome editing technologies. But I don’t dare say CRISPR is the penultimate and final technology for genome editing. The technology is amazing but I know we are still far from discovering everything molecular science has to offer. None the less we are in an age of precision editing, or word processing genes, as a way to improve the crops we grow.

Many of you saw the dramatic difference biotechnology traits made for seed companies and agriculture as a whole. It changed the way we farmed, the way we did business and how we looked at genetic technology. Regardless of the path that genome editing takes rest assured that our world will continue to be complex and ever changing. Contemplating what could be done with gene editing technology brings up the age old question of “where and how do I assess the identity and purity of my seed?” Gone will be the foreign DNA insertion along with the promotor and terminator sequences that allowed us to detect their presence. Gone will be

the ability to verify the purity of a trait with a herbicide tolerance bioassay or Bt immunoassay. There may be no easy way to test and confidently say 99 out of 100 seeds in variety-A have the desired genetic sequence derived from gene editing technology. And there may be no easy way to confidently say 99 out of 100 seeds in variety-B do not contain any edited DNA sequences. Will we be able to keep up with all of the possibilities in a meaningful way or will we simply stumble along blindly once this technology hits its stride?

While I don’t believe there is one simple answer to any significant change posed by new technology I do know that what we have been doing for almost 100 years can serve as the foundation for the future. Long before we knew that DNA existed we understood genes thanks to Gregory Mendel. Long before we knew that transgenes were possible we understood the importance of varietal identity and purity thanks to the concept of seed certification. With the 100th Anniversary of the Association of Official Seed Certification Agencies coming up next year it is important to remember that we have not stumbled blindly through the issue of identity and purity in the absence of DNA technology. Not having an easy way to test for this or that has never really been a terminal affliction for proper seed production. Testing is important

but it is a way to measure the process and should never be substituted as a way to resolve ambiguous production practices. It is my belief that we will continue to manage and control the production of seed along with testing. This controlled seed production will include field inspections, traditional testing and new bio-chemical and bio-molecular techniques (BMTs) for testing when and where they will do the most good.

Take a good look at existing BMT's in the seed industry. Do we currently test individual seeds for disease resistance genes to determine purity? No. Can we verify that a variety has certain disease resistance genes? Yes. Do we run protein and oil tests on individual seeds for purity? No. Can we verify that a variety has an enhanced protein and oil profile? Yes. Do we run a genetic marker profile or hybridity test on individual seeds? Yes. While my view may be unique I see gene editing technology as a return to the old days when we used seed certification to protect innovations and advances in plant breeding. Gene edited crops can be certified, quality assured and identity preserved just like any other new innovation in plant breeding. Welcome to the renaissance of improving lives and building a future for agriculture through varietal identity and purity.

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Seed Quality Update

Corn germination results have been strong this testing season with an average of 95.6% across Illinois. Corn cold test averages are slightly lower this season at 91.9% across all regions. This is a 1.1% decrease from the cold test germination averages last season. Soybean germination averages are 0.9% higher than the germinations last testing season at 90.4% across all regions this season. Phomopsis (pod and stem blight) has not been such an issue as we have seen in the past. The average disease thus far is 1.09% across all regions. Last year at this time we were seeing an average of 5.45% infection. The region with the highest amount of phomopsis is the Northeastern portion of the state with an average of 17.63%, followed by the Eastern region of the state with an average of 1.73%. The region of the state that has seen the least amount of infection is the Southeast region at 0.61%. Seed applied fungicides may improve the germination results in soybean lots that have a significant amount of Phomopsis infection. The Illinois Crop Seed Lab can hand treat a portion of the seed and test it to help determine if applying seed treatment is an option for questionable seed lots. Please let us know if we can help you with this testing. The soybean cold test average is a bit lower from what we saw last year at this time with an average of 88.3% compared to 92.3% last year. The soybean seed counts are showing a decrease in the size of soybean seed size this year with an average of 2,957 seeds per pound. This decrease is reflected in the average seed count with 251 less seeds per pound than last year. If you have any questions, please do not hesitate to contact the Seed Lab.

Proficiency Testing For Our Analysts

As you may know, we are an ISO/AIEC 17025:2005 Accredited Seed Laboratory. With the ISO accreditation we must participate in Proficiency Testing for the methods that we are accredited for. These tests include germination, various vigor tests and purity testing using both AOSA and Canadian Methods and Procedures. All of our analysts participate in the Illinois Seed Trade Liaison Committee Referee that is promoted by the Illinois Seed Trade Association (ISTA). We typically test 4 crops; corn, soybean, sweet corn, and this year, sunflower. The testing includes standard germination, cold germ, and accelerated aging. Sunflower is tested for standard germination only. The samples are planted once a month for 4 months, November - February. The results are reported to the ISTA Admin Assistant and she compiles the data, runs the analysis, and sends the result data out to the participants.

Our lab has 3 Registered Seed Technologists (RST) that are also required to participate in proficiency through the Society of Commercial Seed Technologists (SCST). The SCST proficiency testing for 2018 will require us to complete a written exam using the AOSA Rules for Testing Seeds and there are plans to conduct a Brassica germination test. Other seed analysts participate in the SCST testing as available. Along with the ISTA and SCST testing programs, we conduct in-house proficiency testing as well as annual seed count proficiency and seed moisture/test weight testing. The Seed Lab also participates in other special testing venues with the SCST organizations as they become available.

Shipping Samples with Illinois Crop Bags

Please take extra precautions when using our sample bags to ship your samples. We are looking to replace our current stock as there have been problems with the closure. To help keep the bag closed during shipment, you can place tape over the end of the bag with the Ziplock™ style closure. Shipping boxes should be packed as tightly as possible to avoid shifting during transit. When we receive a new shipment of bags, we will send out a notice through our E-update and you can then request the new bags. We appreciate your patience with the bags.

2018 ASTA Vegetable & Flower Seed Conference

Brittany Stoll and I will be attending the 2018 Vegetable and Flower Seed conference being held January 27th-30th at the Sheraton San Diego Hotel and Marina in San Diego, California. Illinois Crop will have a display booth at table 28 and meeting table 127 located in the trading room. If you are planning on attending the Vegetable and Flower Seed Conference, please stop by to say hello and talk to us about any seed testing needs that you may have. We will also be available for meetings if you would like to sit down and discuss testing options. If you would like to prearrange a meeting, please call or email me. Otherwise, just stop by the booth and we can make arrangements then.

Should you have any comments or questions regarding seed testing or seed quality issues please contact me by Email at sbeals@ilcrop.com, or call 217.359.4053.



Grower Education

Over the winter the main responsibility of the Illinois Crop Field Services Department is to conduct trait purity and adventitious presence testing on seed samples. However during this time we also look back and review how this past field inspection season progressed. The purpose of the review is to meet our quality management goals of continually improving our inspection processes and identifying the areas to focus attention on for the upcoming growing season.

After doing such a review on the previous inspection season, Field Services found that we need to focus additional resources on grower education of the soybean inspection flagging system in the upcoming year. We have concluded that seed producers may have new soybean growers that do not know what the Illinois Crop flag placed at the corner of a seed field indicates, or there may

be returning growers that would benefit from a refresher on what the flag signifies. Currently, Illinois Crop offers a flyer that explains the soybean flagging system that can be distributed to growers. In addition to the flyer, Illinois Crop would be pleased to send a representative to your grower meetings to give a presentation on



the inspection process and flagging system in person. A benefit of having an Illinois Crop representative attend would be that it would allow growers to get clarification on any aspect of the flagging or inspection process they are uncertain of directly.

If you are unfamiliar with Illinois Crops' soybean inspection flagging system here is a very brief overview.

No Flag = Field has not been inspected or has a severe purity issue. (Inspector will call applicant in this case)

Red Flag = Field does not meet isolation standards. Field meets purity standards.

Blue Flag = Field meets purity and isolation standards.

Several seed producers have already shown an interest in having an Illinois Crop representative speak at their grower meetings this year. If you are interested in having us perform a brief presentation during your grower meetings please contact the office as soon as possible with your dates and locations so we can get a representative scheduled to attend. Additionally, PDF copies of the flagging system flyer are available upon request to seed producers that would like to have them on file to distribute to their growers as needed.

Field Inspection Maps

I often get questions from seed producers about what type of field maps are required to be submitted along with their field inspection applications. There is no specific 'type' of map required. The only requirement is that the map must be able to clearly get someone who has no knowledge of the area to the field to be inspected. This requirement can often be met with a map with minimal information. Examples of maps we have received in the past that have met this expectation include, hand drawn maps on notebook paper, company format specific maps, maps printed

from online sources, seed dealer maps and insurance maps.

A simple map that has the following would be able to guide the inspector to the field; an outline of the field, the closest road intersection to the field and the roads labeled. That's it; if you have all that information more often than not the inspector can locate the field. Information such as access lanes through adjacent areas, field entrance locations, and nearest city are all expected additions that are helpful in pinpointing the field.

We do still receive maps every year that require additional clarification for

the inspector to locate the field. The problem is the maps lack the critical information such as road names or the intersection nearest the field or there are errors on the maps. At some point bad maps cost Illinois Crop money and this cost may be passed back to the applicant. If you have questions or concerns about whether the maps you want to use with your field inspection applications are suitable send an example to fieldapps@ilcrop.com with the subject "sample map" and we will be glad to review it for you.



Expanding Collection

The Identity Preserved Grain lab is celebrating its 30th year in 2018 and one of the fun things we like to show visitors is our collection of specialty grains and lesser known crops. From the early beginnings the various types of corn that came through the lab were of interest. Yes, we have white corn, yellow corn, red corn, blue corn and even purple corn. Corn that is called Nutridense and corn called Cusco from South America that is big, soft and floury; perfect for deep frying and selling as a snack called corn nuts.



Cusco Comparison to American White Corn

Our collection includes most of the wheat classes, soft and hard, red and white along with the more trendy ancient grains. Kamut, also known as Khorasan wheat, Oriental wheat or Pharaoh grain, is a tetraploid the same as durum wheat. Spelt, also known as dinkel wheat or hulled wheat, is also part of the ancient grains in the collection. Buckwheat is another member of the ancient grains whose only real relation to wheat is in its misleading name. Buckwheat is also known as Japanese buckwheat and silverhull buckwheat. Its grain

like seeds are treated like a grain but buckwheat is more closely related to rhubarb and sorrel. Switching back to the true grains we also have triticale. Triticale is a wheat-rye hybrid that plant breeders originally created in an effort to combine the grain quality, productivity, and disease resistance of wheat with the vigor and hardiness of rye. The collection also includes rye, barley and oat to round out the Gramineae members of the collection. Oilseeds, in particular soybeans, have always been important to the Identity Preserved Grain Lab. The collection ranges from the BB sized natto beans to the large food grade yellow soybeans with no hilum color.



Nattō: a traditional Japanese food made from soybeans fermented with *Bacillus subtilis* var. natto. Some eat it as a breakfast food. It is served with soy sauce, karashi mustard and Japanese bunching onion. Nattō may be an acquired taste because of its powerful smell, strong flavor, and slimy texture. In Japan nattō is most popular in the eastern regions, including Kantō, Tōhoku, and Hokkaido.

Conventional soybeans are also represented along with the black seed variety Peking. Peking and its dark seed coat reminds us that wet chemistry is the only good way to measure protein and oil when light

cannot penetrate the seed coat. NIR (Near Infra-red) analyzers should not be used on the dark seed coats of soybeans and other specialty



Black Seed Coat Soybean



Variegated Corn

crops such as red and blue corn. As we continue to celebrate the 30th year of the Identity Preserved Grain Lab be sure to stop in and see our collection and add to it if you have something unique. We can measure protein on anything using combustion so there is no nut too tough to crack!



Hard Work & Commitment Continue

Weather conditions are back to normal at the farm after being hit by hurricane Maria in September and having a rainy period in November. Fortunately, farm facilities damages were not as bad as we were expecting from the magnitude of the event. Despite the disaster caused by Hurricane Maria some positive things emerged. New friendships between people helping each other, stronger communities, learning how to live with less, showing our unity and empathy toward each other at times of natural disasters and other positive things.

Work on the farm continues to progress positively. Acreage planted is a little less than the previous year. This is due to some customers deciding to move their projects to other locations because of the damage caused by the hurricane. The farm was ready to receive and plant seeds in less than three weeks after Hurricane Maria hit. This was possible due to the hard work and compromise of our employees

that no matter the situations they were having at their houses and communities they showed up to work to make sure the farm would be prepared and ready for a winter season.

Crops planted are corn nurseries, corn increases, corn growouts, dry beans, peanuts, soybean crossing blocks, soybean generation advances, soybean increases, soybean growouts, sorghum nurseries, sorghum increase, sunflower growouts, sunflower nurseries and sunflowers in cages. Cages for sunflowers is a new service for the 2017-18 season.

So far all the crops planted look good to excellent with low insect and disease pressure. For pest control we are trying to implement an area wide insecticide resistance management strategy for fall armyworm and corn earworm on corn and cabbage looper and soybean looper on soybeans. PRABIA (Puerto Rico Agricultural Biotechnology Industry Association) and IRAC (Insecticide Resistance Action committee) are also involved

on this project. The main objectives of this strategy are to preserve efficacy of available insecticides and develop pest management programs that provide acceptable, economical and sustained protection against these pests.

Field inspection services has had a reduction of fields of about 15% compared to last season due to adjustments that our clients did after the hurricane.

The farm still does not have power yet but we have been running a generator for the plaza area and another generator for the irrigation pump. Power should be reestablished during the month of January.

A rototiller was bought to help with land preparation along with a three point hitch rock rake for farm maintenance. All current farm equipment is working properly.

With the New Year we have great hopes that everything gets back to normal. Thank you for all your prayers and help.

ILLINOIS CROP CROWDRISE FUNDRAISER

BENEFITING: American Red Cross

DONATE AT: <https://www.crowdrise.com/puerto-rico-seed-professionals>.

For over 30 years Champaign-Urbana, the mid-west and the seed industry as a whole have been linked to the island of Puerto Rico. In 1986 seed corn growouts were planted as purity tests by Illinois Crop Improvement for seed producers. Plant breeders soon followed bringing with them other crops such as soybean, drybean, sunflower, peanut, sorghum and more. The essence of Puerto Rico is more generations per year, performing quality control for seed producers and doubling or even tripling genetic gain for plant breeders. Now Puerto Rico needs our help as it begins the long road to recovery from Hurricane Maria. The damage to the island is catastrophic and has put the people of Puerto Rico in jeopardy. There is a humanitarian crisis resulting from the lack of essentials such as food, water and medicine. The lack of power, fuel and communication has compounded the crisis and will make the road to recovery even more difficult. Regardless of where you are in the row crop agriculture industry the seed you sell or the seed you plant has probably made its way to and from Puerto Rico as part of its development and improvement. The higher yields you enjoy as farmers and consumers comes from the hard work of the seed research and crop breeding professionals of Puerto Rico.



Operating In A Period of Change

Happy New Year! I hope everyone was able to get some time with family and friends to enjoy and reflect on the recent Holidays, and maybe watch a bowl game or two.

Looking back on 2017, it was a year of significant activity and change. A new administration came into power in Washington, causing an interesting political atmosphere that I know I have not experienced in my adult lifetime. Then came a challenging growing season over much of the Midwest. Some areas were too wet, while other parts experienced severe draught. During this time, there were significant changes in the Ag Industry. The ChemChina purchase of Syngenta was completed, as was the merger of Dow and DuPont. In addition, Syngenta announced that they would settle the Viptera Lawsuit brought by corn growers, which could have lasting effects on the timeliness of new technology entering our industry. Then came harvest. Early on there was some variability, but by

the end of harvest most areas were better than expected overall, and in some locations, yields were excellent. Unfortunately this fall we lost a long time member of ISTA, when Tom Burrus unexpectedly passed away. We appreciate the support he showed the organization and will miss his wit and friendship. Finally, a new tax bill was signed into law that will undoubtedly impact all of us to some extent or another.

It appears change will not slow down in 2018. Impacts of the new tax law will be realized, further industry consolidation will continue with some being potentially significant, and a new Farm Bill looms on the horizon. In addition to the legislation I mentioned in the last newsletter that ISTA is monitoring, we will stay apprised of any state legislation that may be initiated based on these or other events that may arise this year.

You should have received your membership renewal notice in the mail a few weeks ago. I would like to

ask for your continued support of the Illinois Seed Trade Association. In these times of considerable change, it is imperative to have a voice in Springfield to represent our seed industry in Illinois. Your financial contribution makes this possible. Thank you!

There is another opportunity coming in March to help support your business. The 32nd annual IL/IN Seed Conditioning workshop. This meeting is a great resource for your production and plant personnel to gain valuable insights on the handling, conditioning, and treating of seed. Please consider sending employees that would benefit from this educational opportunity. Information on this workshop can be found on the following page.

I wish you a prosperous and safe 2018. If you would like to contact the Illinois Seed Trade for any reason please contact me, Richard Denhart, rdenhart_ista@ilcrop.com, or Heather Stone, hstone@ilcrop.com.

Illinois Seed Trade Association Membership Renewals

Membership renewals for 2018 should be arriving in the mail. As a member of the Illinois Seed Trade Association, you are not just in the seed industry; you are the seed industry. Since its founding in 1932, the first objective of the Illinois Seed Trade has been to put its members in touch with each other to address issues of mutual interest. Members form a state-wide network of top seed industry experts in the areas of research, marketing, sales, management, production, etc. This group can bring many benefits to your career and your company. In turn, the organization can benefit from you. There is no better way to meet Illinois seed industry people. These individuals are here all year long as fellow professionals to share information, advice or fellowship.

Your continued support through membership also allows us to be a voice in Springfield as well as help the seed industry through representation at American Seed Trade Association, Farm Bureau Roundtable and the Ag Legislative Day to name a few. If you are not a renewing member and would like more information on joining, please contact Heather Stone at hstone@ilcrop.com or Richard Denhart at rdenhart_ista@ilcrop.com



Illinois Seed News Continued...

Tom Burrus, Friend and Board Member

The Illinois Crop Improvement Family lost one of its own in October. Former Illinois Crop Improvement Board Member and Association Member Thomas M. Burrus, 68, of rural Arenzville, died Saturday, October 28, 2017, at his residence. He was born July 13, 1949, in Jacksonville, the son of Martin Gayle and Jeanette Sullivan Burrus. He married Marcy Bramley of Divernon, on February 2, 1969, at the First Presbyterian Church in Divernon, and she survives.

Tom is also survived by two daughters, Lori (Tim) Greene of Concord and Gail (Chad) Mitchell of Forsyth; four grandchildren, Griffin Greene, Gannon Greene, Taylor Mitchell, and Pete Mitchell; one brother, Todd (Deb) Burrus of Arenzville, and several nieces and nephews. Tom was preceded in death by his parents and one sister, Rebecca Oliver.

Tom worked at Burrus Seed full-time since graduating from Illinois College in 1971. He was currently serving as president of Burrus Bros. & Assoc. Growers. Tom's dedication to the independent seed industry was recognized by numerous accolades throughout his life including the 2010 IPSA Industry Service Award, an Honorary Life Member Award

from the Illinois Seed Trade Association, and induction into the Jacksonville Area Chamber of Commerce Agri-Industry Hall of Fame in March 2010. He was also an ardent supporter of his alma mater, Illinois College. Tom, along with Marcy, was named the 2016 Illinois College Homecoming Parade Marshall and received the Young Alumni Award in 1988.

Tom lived his life with enthusiasm and encouragement to all. He loved conversation, and by the manner in which he asked questions was evidence of his genuine interest in others. His compassion was apparent to family, friends, employees and even new acquaintances. You didn't have to know Tom Burrus long to recognize he needed 26 hours in every day to achieve goals and set new ones. He promoted what and who he believed in. Tom's life was exemplified by his strident support and unwavering advocacy of the independent seed industry and the farmers they served. Known for putting the farmers' needs first, Tom truly believed in the value of service and integrity. His passion for the seed business was both obvious and infectious and will leave an indelible mark on the industry that he loved.

IL-IN Seed Conditioning Workshop

The 32nd Annual IL-IN Seed Conditioning Workshop will be held March 14th, 2018 at the I Hotel and Conference Center in Champaign, Illinois.

We are excited about the workshop, the agenda and our new location. The agenda includes our traditional seed conditioning basics with the theme of "getting the most out of your seed-plant." Several speakers will talk about seed treatment, Avicta application, color sorters, and safety issues in particular PPE for treater operators and staff. The workshop will also include topics covering existing equipment and equipment you may see in the future as well as a session on "How a Dryer Works" that includes a segment on retrofitting options, keeping with our theme of getting the most out of your seed-plant.

On the forefront of technology optical sorters for husking beds will be a new topic. Then on the testing side, laboratory staff will update you on what is being seen this season for Illinois and Indiana. Don Robison from the Office of the Indiana State Chemist will address labeling issues ranging from the good to the bad and perhaps the ugly.

And what seed meeting would be complete without covering Palmer amaranth? Diane Plewa from the University of Illinois Plant clinic will talk about the DNA seed testing methods available for determining if pigweed seeds are in fact Palmer amaranth along with options for determining herbicide resistance in pigweed species.

If you have any questions or want to make sure that you are on the mailing list to receive registration information for this meeting, contact Heather Stone at 217.359.4053 or hstone@ilcrop.com.

Calendar of Events

January 1

CLOSED - Happy New Year!

January 8-10

IPSA Annual Conference
Indianapolis, IN

January 27-30

ASTA
Vegetable & Flower Seed Conference
San Diego, CA

February 6-8

Corn Belt Seed Conference
Indianapolis, IN

February 12-14

Soybean Breeders Workshop
St Louis, MO

March 14

IL/IN Seed Conditioning Workshop
Champaign, IL

March 30

CLOSED - Good Friday

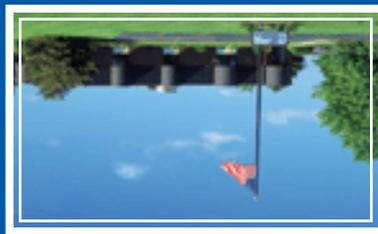


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