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ASSOCIATION™

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Seed Sprouting

BY CHRIS TIEDJE

Is sprouting good or a bad? The answer depends on the application. For most of us, sprouted wheat is on our mind – which is bad. But we can learn something from the malting industry where sprout is a good thing. Malt is a result of sprouted barley. Barley is exposed to all the conditions which would be ideal for seed germination. Sprouting barley converts the starches found in the endosperm to sugars. Those sugars are used for a seedling to grow, or they can be used to produce the sweet taste of malt. The sugars in malt can then be used in beer to produce alcohol.

Sprouting is not a one size fits all situation. In the case of wheat, it is a result of variety, environment, and duration. Sprouting is in essence the germination of seed. Although there are ideal conditions for seed germination, there are also conditions in which germination, or enzymatic activity, can occur outside of the seed being planted in the ground. This past growing season is a testimony.

So how do we test this? Michigan Crop Improvement has 3 tests which all tell us something unique about the seed: Standard Germination, Tetrazolium(TZ), and Accelerated Aging.

Standard Germination – For sprouted seed this test can be a bit misleading, based on the timing of



Sprouted wheat kernels in a weathered wheat head.

seed testing. It is intended to determine what seed will germinate and grow. Sprouted seed has initiated the germination process, and when tested shortly after harvest, will continue to grow and produce a seedling. However, this may not be the same as when seed is planted in the Fall. Because of the early enzymatic activity, sprouted seeds will deteriorate and germination rates will follow.

Tetrazolium Test – In the TZ test, seed is imbibed, and then stained with tetrazolium solution. The staining is very good at showing seed embryo respiration. Depending on the level of sprouting, an embryo

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The President's Post

BY CHRIS SCHMIDT, MCIA PRESIDENT



By the time you're reading this issue of The President's Post, the 2021 wheat harvest will be in the rear-view mirror... one way or another.

When the crop came out of dormancy this spring, I made the statement that this crop looked like it could be the best in a generation. No ponding, minimal winter kill, timely fall planting thanks to favorable spring planting conditions in 2020, and so on. Spring N was applied easily and almost with leisure as spring field conditions allowed us to get our N on, whether granular or liquid, without peril of leaving tracks in saturated soil.

And then it got dry. Very dry. And then it got hot. Very hot. And with every day of that hot, dry weather, we gave up yield. Then when harvest approached, it got wet. Very wet. And my dad's oft stated comment that "long periods of dryness are often times followed by long periods of wetness" came back to haunt me. Old farmers have a knack for witty, short statements that generally have some element of truth to them.

But in spite of all the curve balls, spit balls and fast balls we were tossed this season, the seed producing member-

ship of Michigan Crop Improvement, once again, demonstrated their professionalism of how to plant, protect, harvest and process a high quality wheat crop for the benefit of Michigan wheat growers across the state.

While the list of certified wheat seed growers is small, those that have remained in the business all have proven track records of being able to act without delay when the crop is mature and get it in the bin. We've learned that drying seed wheat, while not a desirable option, can be the most economical option vs running the risk of losing the crop to sprout if exposed to inclement weather too long.

So, I've just explained why we're so good at what we do and the Michigan wheat industry flourishes because of it. The reputation and expertise we, as Certified Seed Dealers, have developed over the past 100 years has allowed members of MCIA to continue to fill the essential role of providing the newest and best seed varieties to the Michigan wheat grower. As more competition from private labels enter the wheat seed marketplace, it is increasingly important that we continue to pro-

vide the best seed products to the farmers who

trust us for our expertise in growing, cleaning and packaging their seed. It is also important for our genetic suppliers (MSU and others) to know we are providing them a reliable and consistent stream of royalties to fund their future breeding efforts.

As your President, I am committed to building on these relationships with wheat growers and will continue to relentlessly convey to the leadership at Michigan State University that MCIA is the best outlet for their newest seed varieties. Continued access to the latest seed varieties is essential to all of us. Rest assured I will not stop promoting MCIA's important role in variety release and the Michigan wheat industry. Have questions or ideas on how you can help? Give me a call, I'd love to chat!

A handwritten signature in black ink, appearing to read "Chris Schmidt". The signature is stylized and written in a cursive-like font.

Fun Fact

The Detroit metro area sits atop a gigantic salt mine. According to some estimates, there's enough salt down there to last for 70 million years at the world's current rate of consumption!



Michigan Crop Improvement Association Installs Q-Sage Precision Air Screen Cleaner

In June, MCIA completed the purchase of a Q-SAGE Precision Air Screen Cleaner, this replaced the retired Crippen Fanning mill. Made in Mt. Pleasant, Michigan, this state-of-the-art addition to our seed cleaning procedure will provide increased capacity while distributing excellent seed and grain processing. The Q-SAGE upgrade will deliver optimal mill function with a 4-s mill system. The Q-SAGE demonstrated exceptional cleaning results with the initial wheat seed MCIA

processed. The Q-SAGE Precision Air Screen Cleaner includes variable drive feed and sieve motors, this allows improved control of product introduced onto the screen for cleaning. In addition, the new mill is quieter creating an improved environment for clients, visitors, and employees. MCIA specializes in seed processing and offers the experience and expertise providing seed cleaning and beneficial information to our clients for future production. MCIA remains committed to

improving daily operations through applying the latest technology, equipment, and procedures to deliver premier grain processing to our producers.

Pictured Below: Lee and Butch loading the retired mill onto Dreher Farms trailer (top left). Jeff Dreher and Chris Tiedje ensure the retired Crippen mill is safely secured and ready for transport to Dreher Farms in Minden City, Michigan (top right).

The Q-SAGE PASC mill arrival. Installation was completed with the support of MCIA staff, Q-Sage, Agri Equipment Service & Michigan Mill Equipment (bottom).



The Benefits of Certified Seed

BY CHRIS TIEDJE

Why plant Certified Seed? Why not use grain in the bin? This is a common question raised by all farmers at one time or another. Many take a backward approach of "what can I get by with?" rather than "what is best for top production?" Planting certified seed is a key ingredient to top yields. There are five basic keys to seed certification which separate Certified seed from grain in the bin: the seedsman, seed source, field inspection, seed cleaning, and seed testing. All factors in each of these key areas are documented to insure high quality Certified seed.

All seed production starts with the seed producer. In agriculture no two years are the same. Every year has it's own challenges. It is critical to manage these for quality seed production. A seasoned seedsman understands how environment influences seed quality and will manage accordingly. It is important to understand that seed is a living organism, an example of one of the small miracles in this world. If it weren't alive it wouldn't grow. This makes all harvesting, handling, storage, and conditioning very important. Extra care is taken in all of these areas for seed production by certified seedsmen.

Genetically pure seed is an important step in seed production. All certified seed is planted from Foundation seed which is screened for varietal off-types. The seed is rogued using detailed variety descriptions set by the plant breeder as standards.

This insures that your seed has all the disease resistances that it was originally intended to have.

Field inspection is the heart of seed certification, but why is it so important? The importance of field inspection is to locate seed related problems in the field and isolate them before they are mixed in the entire seed lot. Each crop has it's own contaminates that are detrimental to seed quality. Listed are some of the most common concerns: black nightshade in soybeans and dry beans, quackgrass in oats, common blight and anthracnose in dry beans. These inspections are done by experienced trained field inspectors. They provide a third-party unbiased evaluation of the varietal off-types and diseases.

Professionally cleaned Certified seed provides many benefits. White mold is becoming a common concern in Michigan. White mold sclerotia can be spread from field to field if not properly cleaned from the grain. We all know how devastating this can be. Weed seeds are also common in grain but strictly regulated in Certified seed. All Certified seed is thoroughly conditioned to insure the absence of contaminates commonly found in grain. As an example, in South Dakota samples of screenings from seed being cleaned for seed were analyzed for their weed content. The average number of weeds found in one pound of screenings follow: quackgrass – 1017, Canada thistle – 112, lambsquarters – 11,612, wild buckwheat – 10,314. If

this seed were not properly cleaned, these weed seeds, plus others, would be planted right along with the rest of your crop. The choice is yours.

All Certified seed is also tested in the lab for seedling vigor. Certified seed is tested to see how well it will germinate and also how well it will perform under adverse conditions. Diseases and environmental factors contribute to decreased seed vigor. White mold can kill infected plants prematurely causing uneven ripening and seed development. Because the plants have to be harvested with the rest, they will be exposed to the "weather" for a longer period of time depending on the severity and stage of infection.

The bottom line to planting Certified seed is increased yield. All the factors mentioned previously contribute to this yield advantage. Many studies have shown increased yields from planting professionally grown seed. The most extensive study was done in North Carolina by James Dunphy and Janet Fergeson. The study compared 204 side by side replicated samples of bin run grain to professional seed. It showed a range of results from farmer saved seed doing better, to being equal, to professional seed doing better. But, overall, professional grown seed yielded 1.9 bu/A higher than bin run seed. This can be attributed to higher germination, absence of variety mixtures, absence of seed borne diseases, and absence of weed seed contaminates. CERTIFIED SEED DOES PAY.

MCIA Achieves BRC Food Safety Certification

MCIA retains its third party food safety certification after completing a two day audit of its facilities and documents. At the conclusion of the

audit, MCIA received an AA grade. The grade is the highest a facility can receive after an announced audit. It reflects the commitment MCIA staff has towards product quality, food safety and ensures our customers that a food safety

plan is implemented, practiced and adhered to at MCIA.

Please feel free to contact us with any of your food processing requirements knowing MCIA is committed to quality and food safety.

Manager's Minute

BY C. JAMES PALMER, MCIA MANAGER



A few weeks ago, I received a call from one of our customers who was looking to hire someone to operate his seed cleaning plant. His operator had left the job and, he told me, he was having a hard time finding a suitable replacement. He asked me if I had any ideas or suggestions of where he could look for such a person. Before I answered him, I paused and chuckled, and ultimately reversed the question on him. I explained to him we too had lost one of our seed processors in April and still had not found a suitable successor...we were in the same boat and did he have any suggestions for me?!

During our conversation, I filled him in on all the places we had tried to find help, including all of the recruiting sites you hear about on the radio, all to no avail. We lamented together that a seed processors job, while terribly important, often involves dusty, loud and often hot or cold working environments. Given that other jobs with similar pay and benefits are currently abundantly

available, it is no wonder why there have been very few applicants. After a few more minutes of discussion on what we could do to attract a good candidate, we concluded that neither of us had the silver bullet to solve the problem and we would let each other know if we somehow came up with a resolution.

After careful reflection it is obvious to me that there are several factors in play which make hiring a new person difficult. Problems in attracting a candidate for our open position exist because of extreme demand for people in almost every industry. Unemployment benefits paid for not working is often more lucrative than working at a job, and as I said before, the requirements and working conditions of our job may be more important to the candidate than the pay and benefits. I am confident that patience is the right strategy in this case. Rather than hastily hiring someone who isn't a good fit, we need to find a candidate with priorities that align with ours, and in the end, we will be

happier if we take our time and find the right person, even if it takes a little while longer than we'd like.

As Manager of MCIA, one of my most important tasks is ensuring we have a competent, knowledgeable, and courteous team to serve the membership. I am happy to report our current staff, even though currently a little short, is just that and working hard to cover the current gap. Each team member adds value, eagerly volunteers to assist in other areas and respects our common goal of providing excellent products and services to our customers. When we eventually fill the current job opening, I assure you the candidate we choose will bring value to our customers, be service oriented, take necessary steps to make customer connections and do meaningful work for your association.

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may show light color due to decreasing enzymatic activity or dead portions of the embryo, such as the radicle. The TZ test does not pick up seed which is primed and ready to grow which has not started to deteriorate. A typical grain TZ result will list a germination rate with a category of weak seeds. Weak seeds found in a TZ test will continue to deteriorate and may not be viable at planting in the Fall.

Accelerated Aging (AA) Test –

The AA test pre-conditions seed in a high temperature and high humidity environment prior to placing it in the ideal conditions for seed germina-

tion. This pre-conditioning deteriorates weak seed while strong seed is able to survive. In sprouted seed lots there can be enzymatic activity with or without visible sprouting. Seeds with high enzymatic activity will also deteriorate in the AA test.

Each test tells us a unique component of the seed lot and each seed lot is unique. The only way to truly know the quality of the seed is to fully test the seed lot. One of the first samples tested had the following results:

Germination	95%
TZ Test	92%
Weak (TZ)	4%
AA Test	80%

If this seed lot was planted today 95% of the seeds would grow. The TZ shows us that some deterioration is occurring from sprouting down to 88%. The AA test shows us that additional enzymatic activity is occurring from sprouting down to 80%. So it is possible, by the time this seed lot is planted in the fall, the germination could be somewhat lower.

There are certain components of life which are yes/no and there are certain components which are more gradient. There is a component of seed germination of **will** the seed lot grow? There is also a component of how **well** it will grow.



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What's New

MCIA Licenses Two Wheat Lines From MSU

Michigan Crop Improvement has secured licenses to two new wheat varieties developed by the MSU Wheat Breeding Program. MI16W0133, a high yielding white variety and MI17R0357, a high yielding red variety will be increased this fall and be available for sale as Foundation seed in 2022. Stay tuned for more information!

Contact Us

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Let's get social!

Find us on Facebook at:
Michigan Crop Improvement Association

Calendar of Events

September 6 – Labor Day Holiday

MCIA Offices Closed

November 30 – Wheat Royalties Due

MCIA Office