



The North Dakota Seed Journal

APRIL 2019

Newsletter of the North Dakota State Seed Department

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Preparing for Field Inspection

Joe Magnusson, Field Seed Program Manager

Plant eligible seed on eligible ground

Seed cannot be planted on fields that had the same crop the previous year unless it was the same variety and that field was inspected for certification. Durum has an additional restriction, which prohibits planting Foundation class seed on fields that had spring wheat the previous two years. If you plant Registered durum seed, one year out of spring wheat is all that is required. Even so, we recommend avoiding spring wheat ground for several years as we have seen wheat carryover and volunteer in some fields for up to five years. Though it is not recommended, you can plant crops on land which we consider inseparable (small grain crops on previous small grain residue) the following year with the exception of durum on wheat as stated above. If this is your only planting option, monitor the field for volunteer crops before the inspector arrives and if you notice patches of other crop plants, you can cancel the field prior to inspection. Some crop admixtures (wheat, barley and oats) if carefully conditioned, can be removed from the seed lot and may pass the final certification process.

Apply for field inspection

Applications for field inspection will be mailed in early May to growers who have applied for inspection the past two years. Field inspection is critical to the certification process. If you don't apply, we can't certify the seed and you will miss out on an opportunity to sell your field-inspected seed for a premium price. Complete the application and submit by the appropriate deadline. Enclose a copy of the proof of seed eligibility (bulk certificate or tag), an FSA map of the field and the proper fee. Applications can be found in the Online Forms section of our website, at your local county agent, or by calling the Seed Department. Don't forget to sign and date the application before sending.

Isolation required

A minimum 5-foot isolation strip is required between inseparable crops and varieties of the same crop. Isolation can be achieved by leaving a bare strip at planting time or by mowing or cultivating. A natural barrier such as a ditch, fencerow or roadway or a separable crop adjacent to a seed field is acceptable. A field will be rejected if isolation is not in place at the time of inspection. A grower may call for a re-inspection after the isolation strip is in place, but a second inspection will incur an additional inspection fee.

Weeds of concern

Field bindweed is the most common weed resulting in a failed inspection. It is a prohibited weed and difficult to remove from small grains due to similar size and density. Control this weed before the inspector arrives to ensure your field will pass inspection. Thistles are also a concern in field peas and crops of similar size. Even though seed of these weeds may not be viable, it is difficult to condition the seed heads from the crop seed. Inspectors will reject all areas found with patches of thistle and require you to avoid these areas at harvest.



The North Dakota Seed Journal is published and edited by the Seed Department, State of North Dakota, under the provisions of Chap. 258, S.L. 1931, as administrative and instrumental matter required for effective transaction of the Department's business and for properly fostering the general welfare of the seed industry in the state.

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Preparing for Field Inspection continued on page 3

From the Commissioner's Desk

April Fools and the Legislative Process

Do not, I repeat do not, draw the wrong conclusion regarding the title of this article. The two issues are unrelated.

I'm writing this on April 1, and there has been a swirl of odd things happening for months. Toughest winter in years, followed by the mystical "bomb cyclone". Flight cancellations and delays just looking in the direction of the airport. Auditors camped out in our conference room. My bracket busted before the Sweet Sixteen. Our custom software program blows up (figuratively speaking), for the first time ever. Seed growers and conditioners can't get to storages; leaving us waiting impatiently for seed samples, testing and final certification. Weird stuff.

And, the state legislature is in session.

The topics are connected, not because the legislature is the aforementioned "weird stuff", but because a legislature-in-session keeps your attention. The number of ag-related legislative issues has dropped dramatically over the past ten years, but invariably something odd-strange-weird pops up.

I'm not complaining. I've admitted before that I spent ten years as a government relations person (code for lobbyist) and am fascinated by state and federal legislative issues. If there are two things I love professionally, it's the agriculture industry and the legislative process. When I'm gone, I want to be reincarnated as either an ag lobbyist or my wife's dog.

As a special fund agency we've been active in legislative issues over the past 20 years, and done well in improving the code governing our agency and state seed laws. We've participated in a full-blown rewrite of

the Department's century code; modernizing, reorganizing and condensing the chapters into better form. We sought and passed an exemption that protects our customers' information from open records statutes. We increased maximum fine provisions for violations of seed laws to the highest level in the U.S. We've successfully pursued dozens of other initiatives over the years, and received approval for most of them from a body that listens closely, and is friendly to, the needs of our industry.

As for this session's attention-getter; HB 1523 failed early in the first half of the session, not without concern from ours and other special-fund agencies and commodity groups. The original bill would have set narrow limits on reserve fund accumulation, stripped excess reserves from affected entities, and transferred those "excess" reserves to the Legacy Fund. As with many bills, this one (probably) affected more agencies and groups than was intended, and the impact on many ag-related agencies, associations and groups would have been negative.

Seed Department revenues are a lot like check-off funds; they are fees for services provided rather than producer checkoffs used to fund research and promotion. Our fees are assessed to the same group of users that contribute to checkoff organizations. Our entire fund balance is grower-producer money, and we don't receive a dime of general fund (tax) money. The Seed Commission approves building reserves in a prudent manner to guard against the same negative economic cycles that production agriculture experiences.

Thanks to friends, association representatives and lobbyists alike, the bill was first amended to exclude commodity groups and the Seed Department, then ultimately failed in the first house of action. This is evidence that, more often than not, reason and logic prevails.

Best wishes for a safe (and quick) spring planting season,



Ken Bertsch.....State Seed Commissioner
Steve Sebesta.....Deputy Seed Commissioner
Kent Sather.....Director, Potato Program
Jason Goltz.....Field Seed Program Manager
Joe Magnusson.....Field Seed Program Manager
Jeanna Mueller.....Seed Laboratory Manager
Starr Thies.....Business Manager
Mike Oosterwijk.....Potato Program Supervisor

Reminders...

In accordance with North Dakota seed law and the Federal Seed Act, all seed sold or offered for sale must be properly labeled. If the seed is offered for sale or sold in bulk, the label (bulk sales certificate) must be provided to the purchaser at or before the time of delivery. If you purchase seed and a label is not provided, be sure to ask.

Rye is among the few agricultural crops in North Dakota that does not have to be labeled by variety name, with one important exception. ND Dylan rye is protected by PVP Title V. Federal laws supersede state laws, therefore, varieties protected under the Plant Variety Protection Act must be sold by variety name, while Title V of the Federal Seed Act requires seed to be sold as a class of certified seed. Be sure you make this distinction when purchasing or selling rye seed.

Preparing for Field Inspection

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Harvest

It is the seed grower's responsibility to ensure each seed field has been inspected and has passed before harvest. Do not harvest a field if you are unsure. Call your inspector or the Seed Department to confirm the status. Review the field inspection report for any corrections or areas to avoid during harvest. Make sure your combine, trucks, bins and all handling equipment are clean prior to harvest. If you utilize custom harvesters, make sure their equipment is clean before they enter your certified field.

Annual reporting forms

The annual report for seed sales, research fee report and carryover seed report will be sent out the first week in July and need to be returned to our office by September 1. Log sheets and unused bulk certificates are also due at this time. If you would like your conditioned and unconditioned carryover seed to be included in the 2020 Field Seed Directory the form must be returned by September 1. The Annual Report of Agricultural and Vegetable Seed and the Variety Development Research Fee report must be returned even if no sales were made. We will convert ND17009GT, ND18008GT, ND Stutsman and ND Benson soybeans from bushels to 140,000 seed units as that is how the royalties will be assessed. Do not pay the total fee that is listed on your research fee report. You are only required to pay fees on seed that is sold, not planted, sold as a commodity or for carryover seed.

Summer Field Days

Field days offer an excellent opportunity to learn more about the latest in agriculture in North Dakota. Private seed and chemical suppliers and public institutions present valuable information on crop varieties, production techniques, and crop protection products. Take advantage of these opportunities to learn more. Following is a tentative list of 2019 field days offered by NDSU Research Extension Centers and the Agronomy Seed Farm.

July 9 - Crops tour, Hettinger REC

July 10 - Dickinson REC

July 10-11 - Williston REC

July 11- Dryland tour, Williston REC

July 12 - Irrigated tour, Nesson Valley

July 15 - Agronomy Seed Farm, Casselton

July 16 - Carrington REC

July 17 - North Central REC, Minot

July 18 - Langdon REC

Seed industry plays important role in controlling Palmer amaranth

Steve Sebesta, Deputy Commissioner

In 2018 plants suspected of being Palmer amaranth were identified in several counties in North Dakota. Seeds from suspected plants were sent to a qualified lab for DNA analysis for positive identification. Those tests confirmed that the plants were, in fact, *Amaranthus palmerii*. Investigations by the ND Department of Agriculture concluded the origins of these plants were not seed related, but from various mechanical sources. One was traced back to the purchase of a used combine that came from a known infested state, and another was traced to a custom combiner that had been in a field out of state before arriving in North Dakota.

Following input from commodity groups, NDSU Extension, county weed boards etc., North Dakota Agriculture Commissioner Doug Goehring added Palmer amaranth to the state's prohibited noxious weed list in January 2019. State Seed Commissioner Ken Bertsch followed, adding it to the state's prohibited weed seed list.

The State Seed Department has had an action plan in place for more than two years in the event Palmer amaranth was detected in the state and became listed. No action was required before then. In the last issue of *The Seed Journal*, Commissioner Bertsch outlined the steps our department takes if amaranth seed is found in a seed sample. Last month our lab found amaranth seed in a sample pulled during routine regulatory sampling. The seed had originated in a state where Palmer amaranth has been established, but not regulated. Regulatory Manager Jason Goltz followed our action plan and notified the labeler of the next steps to be taken for that lot. It turned out the labeler already knew about the presence of the amaranth seed and had already submitted a sample for DNA testing. The amaranth seed was not *palmerii*.

Thanks to educational efforts by a lot of industry representatives including state department of agriculture, NDSU Department of Plant Sciences, NDSU Extension, the Seed Department, commodity groups and many others, most people have at least some awareness of the Palmer amaranth problem and the steps to take if they suspect plants could be Palmer.

The seed industry in North Dakota plays an important role in controlling the introduction and spread of Palmer amaranth in the state and it has already begun to self-monitor their seed lots, especially those coming from states known to have *Amaranthus palmerii*. READ THE LABELS!

To date, no certified seed samples submitted to NDSSD have been found with any amaranth seed of any species. To borrow a phrase from the Association of American Seed Control Officials – "Know what you sow".

The Importance of Completing Forms

Jason Goltz, Regulatory Manager

As deadlines approach for field inspection applications, filling out forms isn't always the first thing which comes to mind when planning seed certification. Usually, thoughts focus on the logistics of planting or bin space available for the harvested product. Forms, however, are equally important to the process of seed certification. Seed certification requires the use of forms at each step of the process and every form becomes part of the record package we retain for every field we inspect and every seed lot that is certified. Complete and accurate records are important but some problems we see with forms are:

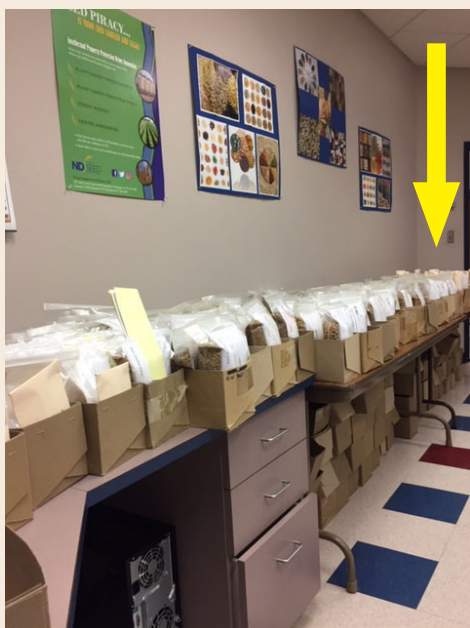
- Illegible writing
- Abbreviated information
- Incomplete information
- Missing forms

Bottlenecks happen rapidly when samples and forms are not present or complete. When this happens, staff must try to research information to complete the forms or contact the sender. It isn't fair to delay the rest of our customers so the problem samples with missing information go to the back of the line until we have all the information required on the form to process the sample. Incomplete or missing forms can cause a delay of hours or days.

Retaining copies of forms submitted to and received from NDSSD will help greatly. Each form in certification builds on the next. For example, information from a field inspection report will be needed for the Seed Samplers Report (SFN 50307). The Relabel Request for Carryover Certified Seed (SFN 61450) requires information from the initial certification. Another helpful tip, provide your labeling permit number or contact reference number on the forms; this can avoid confusion if someone has a common last name or multiple accounts.

With 2,000-3,000 field inspection applications and about 10,000 lab samples processed each year, we do not always have someone

available to follow-up on incomplete or missing forms. With the new growing season approaching, make sure you have all the information you need to avoid any delays. Meeting deadlines and submitting samples with the correct documentation will allow us the best opportunity to provide good customer service.



Problem samples go to the back of the line.

Germination and TZ Testing

Jeanna Mueller, Seed Lab Manager

The nature of seed behavior is a complicated science. The natural behavior for a seed is to germinate and produce a normal healthy plant. This happens under favorable conditions including light, moisture, and temperature, unless the seed kind has dormancy.

According to AOSA Rules for Testing Seeds, "Dormancy is viable seeds, other than seeds, that fail to germinate when provided the specific germination conditions for the kind of seed in question." Viability of firm, ungerminated seeds of all species must be determined by any appropriate method or combination of methods. (AOSA Rules for Testing Seeds)

A germination and tetrazolium (TZ) test work together to determine dormancy of a seed. Both of these tests are critical for testing grasses and other natives, as they provide different information.

Germination, as stated in AOSA Rules for Testing Seeds, is defined as the emergence and development from the seed embryo of those essential structures that, for the kind of seed in question, are indicative of the ability to produce a normal plant under favorable conditions. In other words, is the seedling a normal, healthy seedling which is expected to reach maturity? The Tetrazolium Test is a biochemical seed viability test using the compound 2,3,5 triphenyl tetrazolium chloride (TTC). Seeds are prepared and exposed to a solution containing TTC. The TTC is reduced to formazan in the presence of living (actively respiring) tissue. Formazan stains the living tissue red. At the end of the test, seeds are evaluated for the viability of their essential structures and examined for evidence of seed deterioration.

What we have to consider when testing a species with dormancy is the meaning of the tests as defined by rules, but also what the scores or percentages on a lab report represent. A germination test score (%) stands for only the % of normal seedlings. The TZ % stands for actively respiring tissue or viable which would be both "normal and dormant".

Dormancy is essential for the survival of certain plant species. This information is crucial for the seed grower and the buyer. If you have any questions feel free to give us a call.



The presence of red-stained tissues in the embryos on the left identifies seed capable of producing normal, viable seedlings. Embryos that stain like the seed on the right generally produce abnormal seedlings incapable of developing into a healthy plant.

Potato Virus Y and North Dakota

Kent Sather, Director, Potato Programs

Potato Virus Y (PVY), a serious, yield limiting viral disease in potatoes, continues as the principal challenge for our certified seed potato growers in North Dakota. This can evolve to serious yield loss and potential grade issues for commercial growers. Aphids easily and randomly vector PVY from field to field and plant to plant. PVY is a community disease, affecting certified seed and commercial growers.

Tuber samples representing the 2018 crop of North Dakota certified seed lots were planted in our annual Winter Grow Out (WGO) plots grown in southern Florida. Data from these plots estimates disease levels in seed lots that potentially will be replanted/recertified in 2019. PVY is specifically inspected for and tested against in these plots. Samples representing 8,045 summer acres were at WGO. Samples representing 2,500 acres (31%) were declared ineligible for recertification due to PVY levels greater than tolerance, and 5,545 acres (69%) passed recertification tolerances. Within the 5,545 acres, samples representing only 2,834 acres (35% of 8,045 acres) were free from PVY. Only two years (2011 and 2012) in the past decade had a lower percentage, or fewer acres, that were PVY free. Fewer acres of PVY free seed tasks the future quality of a certification program. Conversely, more acres of PVY free seed enhances a program's quality.

Every year, certified seed growers face rejection of lots due to PVY, requiring difficult management decisions. High level lots are flushed, fields are isolated and rogued, aphid control is attempted. Commercial growers can also play a part in PVY management. Simply purchasing certified seed potatoes with the lowest possible levels of PVY helps reduce inoculum in the potato growing community.

Other recommendations for management include: Don't plant the problem! Purchase the best certified seed potatoes for planting your entire acreage. Select seed based on WGO estimates of virus incidence. Don't plant seed potatoes with symptoms of virus-caused tuber necrosis. Practice strict on-farm sanitation protocols. Destroy overwintering sources of PVY, like cull piles. Plant resistant cultivars if possible.

Additional management recommendations are listed online at <https://blogs.cornell.edu/potatovirus/>. This is a comprehensive website that deals with management of potato tuber necrotic viruses, including PVY, Potato Mop Top Virus, and Tobacco Rattle Virus. Researchers and certification agencies from across the country, including NDSU and NDSSD, have contributed time, research, and data to the development of this information. Browse this website, learn about PVY and other viruses, and incorporate these management ideas to strengthen the potato industry in North Dakota.

People News...



Ashley Thomas, who started at the Seed Department as an Administrative Assistant in October 2017, has moved into the Seed Lab as a seed analyst, filling the vacancy created by Ciara Clark's departure last summer. Ashley demonstrated a real interest in the seed analysis side of our business and we are fortunate to have someone with her ability and a desire to expand her knowledge of the seed industry at the department. Ashley will be working in germination testing primarily and will inspect seed fields in the summer months.



Amber Trosen joined the department in December as an Administrative Assistant. Amber previously worked in a similar role at the UND School of Medicine, Grand Forks. She replaces Ashley Thomas who has moved into the Seed Lab. Amber is the first friendly face and voice customers will see or hear when they enter the building or call the Seed Department. She will also assist with document management and record retention for all programs in the department.



Hilary Hafner has added seed testing responsibilities to her duties following the retirement of Jeff Prischmann. Hilary's main responsibility has been in the potato tissue culture lab and has worked in the genetics lab for several years. She has excellent lab skills and experience performing electrophoresis tests and polymerase chain reaction tests (PCR) for variety ID and GMO trait tests in conventional and GM soybeans. She also has experience performing numerous seed health tests in the Diagnostic Lab.

Special thanks go out to our Potato Lab team, Sue Merkens, Briana Tufte and Dylan Seaver for their extraordinary efforts in balancing the extra workload of Diagnostic Lab duties while maintaining the high quality of their normal work.

North Dakota State Seed Department

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NDSSD Calendar

- May 1.....**Applications due – grasses
- May 27.....**Memorial Day – office closed
- June 1.....**Applications due for industrial hemp
- June 15.....**Applications due – for all crops including potato (except buckwheat, millet & soybeans requiring single inspection)
- July 4.....**Independence Day – office closed
- July 15.....**Applications due for buckwheat and millet
- Aug 1.....**Applications due for soybeans requiring single inspection
- Sept 1.....**Reports due: Annual Report of Agricultural & Vegetable Seed Sold (labeling fees); Research Fee Report; Carryover Seed Report; Applications for Approved Conditioner & Bulk Retail Facilities