



The North Dakota Seed Journal

OCTOBER 2022

Newsletter of the North Dakota State Seed Department

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Variety ID Testing

Steve Sebesta, Deputy Commissioner

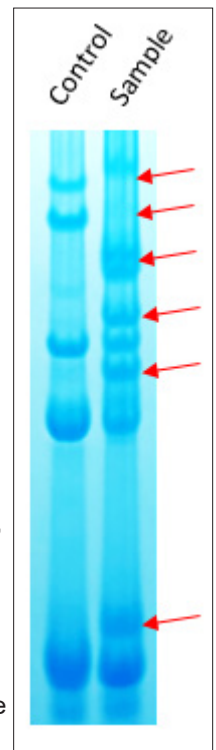
The purpose of certification is to ensure varietal identity and genetic purity. Research conducted by the Seed Department concluded that genetic testing for variety identity would strengthen the certification process. Therefore, in 2010 we implemented testing in three crops that together, represented the majority of seed production acres and bushels produced in our program.

During the 10 years preceding implementation of the requirement, we conducted an average of 470 variety ID tests per year. These were almost exclusively samples our Regulatory team collected during annual inspections of retail facilities, with a smattering of service samples mixed in. During that period, more than 9% of all the samples we tested failed the variety ID test. And since our Regulatory sampling was only hitting about one-half of the seed lots that were being certified in any given year, we knew that the actual number of failures was about twice that which we were seeing, meaning upwards of 100 spring wheat seed lots were mislabeled.

Since implementation, the frequency of seed lots failing variety ID has been greatly reduced. From 2010 to 2020 the number of certified seed lots that failed the variety ID test averaged 0.60%, 0.65%, and 0.61% for spring wheat, barley and field peas, respectively. Perhaps most importantly, once we identified those lots we were able to work with the labelers to correct many of those that failed. It is impossible to fix something when you don't know there is a problem.

However, last year we saw a significant increase in the number of barley and field pea seed lots that failed the variety ID test, which deserves attention. All samples submitted for final certification are tested and the resulting banding patterns are compared to those of the control sample. Extra bands present in a sample indicate either a different variety or an admixture with a different variety. When bands are missing, we conclude the sample is a different variety. In either case, it would fail. [see picture]

The question has come up related to the level of detection, or sensitivity, of these tests. Remember, this is not a purity test, it's "match" or "no match". The level of detection in either gel electrophoresis (spring wheat) or PCR (barley and field peas) is not as high as certified seed standards for "other variety". What does that mean? The standard for contamination with other varieties in wheat and barley is 1/lb in Registered class and 3/lb in Certified class. If we assume an average seed count of 12,500 for these crops, standards would, therefore, allow approximately 0.008% and 0.024% in Registered and Certified classes, respectively. While the variety ID tests are good, they are not that sensitive, therefore, when a sample fails a variety ID test due to admixture, there likely is significant admixture present in a seed lot. Put another way, a detection level of 2% would indicate the possible presence of at least 250 seed/lb, more than 80x the standard for Certified class.



What's the takeaway? Make sure all your equipment is CLEAN. Make sure your bins are CORRECTLY LABELED. Make sure the samples submitted to our lab are CORRECTLY IDENTIFIED. We understand the implications of a failed test to your business, but we also understand the potential results mislabeling seed can have for you and your customers. Varieties differ in performance and customers choose specific varieties for a reason. IT MATTERS.



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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From the Commissioner's Desk

At the risk of further numbing our customers and readers to more discussion about inflation and costs...here we go.

The Seed Commission approved a schedule of fee increases recommended by administration (read, me) at our July, 2022 meeting. The new fee schedules went into effect on October 1. I consider the increases to be minimal, ranging from 5-10% depending on category, but I also recognize that our increases come on the heel of continuous cost increases experienced in your businesses over the past year or two. Adding insult to injury, so to speak.

We commonly look at our laboratory fees every 2-3 years. Labor, supplies and equipment costs are the primary drivers in this area, and fairly easy to calculate when targeting a breakeven. In the interest of full disclosure, our lab services (Seed Lab and Diagnostics) have never been in a positive financial position as enterprises in my tenure as commissioner. It's either my bad management, or recognizing and accepting that labs are support units for our main mission - certifying seed crops. Germination and purity tests increased \$1. From a percentage increase perspective, that's less than 5%.

This year we evaluated all service fees. While labor costs increased in each service area, travel costs affect those programs that have "boots on ground" and in distant locations. Our field crop and potato inspectors drove more than 80,000 miles during July and August alone. State Fleet has advised agencies to estimate vehicle rentals to increase approximately \$.15 to \$.20 per mile in the 2023-25 biennium; a 40% +/-mileage cost increase for our field inspection programs.

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
 Presley Mosher.....Diagnostic Laboratory Manager
 Starr ThiesBusiness Manager
 Mike Oosterwijk.....Potato Program Supervisor

Field seed inspections increase from \$2.50 to \$2.75 per acre on a single inspection crop. While a 10% increase looks like a lot, we will generate only \$37.50 more on a 150-acre field, barely covering the additional mileage costs in most cases. Potato inspections increase by \$2/acre to \$34/acre for a 6.25% increase. A \$.01/cwt increase for potato seed Shipping Point inspections (from \$.13 to \$.14 per cwt) equals a 7.7% increase, and for commercial potatoes equals 5.9% (from \$.17 to \$.18 per cwt).

Seed labeling fees, conditioner/retailer inspection fees and other miscellaneous regulatory fees remain unchanged.

While there are a host of budgetary concerns and influences, declining certification acres and testing among them, the Department remains on reasonably sound financial footing. The real advantage of being a self-funded state agency is being "off-budget" so to speak and not bound by general fund appropriations limits. Our board of directors (the Seed Commission), much like a board of a private business, chooses to make budget and fee related decisions based on the big picture: not expecting that each enterprise or program carry its own weight financially. At the same time, we all look at today and the next 1-5 years to evaluate the need to pass costs on to our customers.

Thanks in advance for your patience, understanding and (grudging) acceptance on the topic.

Best wishes on a successful harvest and wrap-up to 2022.



Important Note About Mailing Samples

As more seed samples begin to arrive at the office, we would like to remind customers to address packages correctly to ensure packages arrive promptly at the correct location. The USPS won't deliver to our street address and the couriers won't deliver to our PO Box. Use the addresses below.

| US Postal Service - use PO Box | FedEx, UPS - use street address |
|---|---|
| ND STATE SEED DEPT PO BOX 5257 FARGO, ND 58105-5257 | ND STATE SEED DEPT 1313 18TH ST N FARGO, ND 58102 |



2023 Approved Facility Inspections

Kyle Bednar, Field Seed Inspector II

The Approved Facility Program provides an assessment and approval process for facilities processing and selling seed. Facilities processing and/or handling certified seed must be inspected and approved by a Seed Department inspector every year.

Inspectors will begin inspections in October. While we realize that some of you will be busy handling a few different fall commodities, a few minutes of your time to assist your inspector would be appreciated in order to assure you get the most out of the process. You may want to think of any questions you have for the inspector such as the process of selling certified seed or getting set up with our new on-line bulk certificate process.

Approved Conditioners should request and review the field inspection report from seed growers in order to determine if there was any other crop found in the field or ascertain what common or prohibited weeds were found during the inspection. If a field passed conditionally, a five-pound sample is required for the purity test.

This would be a good time to look around your facility and see if you have any spilled grain, missing bin numbers, seed samples that are not correctly labeled or 2022 log sheets and unused bulk certificates you haven't returned. A two-pound seed sample for each lot needs to be kept for one year from the last date of sale and properly labeled with kind, lot, class and variety. A copy of the corresponding bulk certificate works best. Make sure you have an updated bin chart and all bins are labeled.

After your facility has passed the inspection you will receive a copy of the inspection report and your 2023 permit. Please retain your copy of the inspection report and display your 2023 permit. Review the report for any deficiencies that may have been found.

UMN Research Fees Increase

The University of Minnesota announced that the Variety Development Fund fee for spring wheat varieties developed by the Minnesota Agricultural Experiment Station increased July 1, 2022. Initial labelers will be assessed \$0.75 per bushel for seed sold after that date and should plan for that increase when setting their retail seed prices for the next year.

Affected varieties include:

| | |
|------------|-------------|
| Bolles | MN-Washburn |
| Lang-MN | RB07 |
| Linkert | Rollag |
| MN-Rothsay | Sabin |
| MN-Torgy | Shelly |

Preparing for Regulatory Inspections

Jason Goltz, Seed Regulatory Manager

Throughout the year, the Regulatory Program monitors seed sales, educates the public and investigates sales and labeling violations. Monitoring sales activity increases in mid-winter as seed lots are positioned for spring sales. During this time, retail facilities should expect a visit from a regulatory inspector.

Inspections are unannounced and the inspector may visit more than once as different seed lots move in and out of a facility. The Regulatory inspector may want to draw samples from seed lots that are offered for sale. These samples will be sent to our lab and tested for germination and the results will be compared to the label. It is normal to see discrepancies, but they must fall within Federal Seed Act tolerances. Tolerances are based on the labeled germination and the lower the germination, the greater the tolerance.

| LABELED GERMINATION | TOLERANCE |
|-------------------------------|-----------|
| 96% or over | 5% |
| 90% or over but less than 96% | 6% |
| 80% or over but less than 90% | 7% |
| 70% or over but less than 80% | 8% |
| 60% or over but less than 70% | 9% |
| Less than 60% | 10% |

Using this table, a seed lot labeled at 95% germination can test at 89% and still be legal for sale. North Dakota does not set minimum germination standards for seed sold, the requirement is that the seed must test within tolerance of the labeled germination; although Certified seed has minimum germination requirements, certified lots can still be sold with a lower germination if they are labeled 'substandard'.

Labels will be reviewed for compliance with seed law and records should be available for review. Regardless if the seed is certified or common, records must be kept for three years after final disposition of the seed lot. The records should allow for tracking the seed lot from beginning to final disposition.

Remember that seed must be labeled for the state in which it is to be sold. When bringing seed in from out of state, check the label to ensure the seed lot is compliant with NDCC 4.1-53 before it is offered for sale. For example, North Dakota requires the state or country of origin and also certain crops must be sold by variety name. Other states may not have those requirements. When seed originates from out of state, a USA noxious weed exam must have been conducted. A weed on the North Dakota Prohibited Noxious list may not have the same status in the originating state or country.

Preparing for a visit from the Regulatory inspector can make the inspection go more quickly. The inspectors are there to answer questions and provide guidance as much as they are to verify labels and review records. Feel free to ask the inspector questions or call the Regulatory Manager at 701-231-5450.

It's (another) What We Do...

Kent Sather, Director, Potato Programs

While certified seed potato growers in North Dakota are actively harvesting 13,707 acres of seed potatoes, our staff have been focusing on performing Food Safety Audits (FSA). It is just another thing we do in partnership with the Specialty Crop Audit branch of USDA-AMS.

Why have food safety audits become part of normal management for producers? The Centers for Disease Control estimates roughly 1 in 6 Americans (or 48 million people) gets sick, 128,000 are hospitalized, and 3,000 die of foodborne diseases each year. Good Agricultural Practices (GAP) have been developed by USDA to curb or reduce these statistics. There are numerous reasons why growers and companies participate in food safety audits. In most cases, it is a required contract component to meet food safety standards so processors and packing sheds can sell their product to a customer that requires GAP certification.

Major principles embodied in GAP include:

1. Producers play a major role in minimizing microbial food safety hazards in fresh produce.
2. Prevention of microbial contamination of fresh produce is preferred over reliance on corrective actions after contamination has occurred.
3. The source and quality of water used on a crop determine the likelihood of contamination.
4. Human or animal feces are major sources of microbial contamination of produce.
5. Use of animal manure or municipal solid waste needs to be managed closely to minimize the potential for microbial contamination.
6. Worker hygiene and sanitation practices when working with a product play a critical role in minimizing potential for contamination.

Seed Department employees are trained by the Specialty Crop Audit branch of USDA and are authorized to perform audits after classwork and evaluations. North Dakota does about 80 audits per year. These are mostly with potato growers, and have to be done while the operation is harvesting. Potato packing and processing operations, as well as some dry edible bean packaging plants have participated in FSA programs.

Our potato industry continues to provide high quality potato products to a growing market. Food safety on the farm and in the plant is imperative to maintain the competitive edge and consumer trust needed to sustain sales. The annual FSA for growers and packing/processing sheds confirms the auditee is following the established policies in their food safety management plan. This enables transparency about the production, and strengthens the foundation of product quality.

More information about FSA can be found at <https://www.ams.usda.gov/services/auditing/gap-ghp>.

Results May Vary

Jeanna Mueller, Seed Lab Manager

"Results may vary" is a phrase we see on many labels, commercials and advertisements. This is a warning to customers that their personal experience with a certain product may differ from that of another customer. Many products have "for best results"... on labels to help consumers optimize their experience with that product. Would it be fair for the seed industry to state on labels "For best results..." on a germination test?

We sometimes have customers mention "I had a germination test done at another lab and they got a higher reading." From a lab analyst perspective, this can be misleading. My first reaction is; how was that test performed? The main factors in a reliable and repeatable germination test are length of time, proper media, and proper temperature. Other critical factors include the training and expertise of the analyst conducting the test.

What type of germination test is performed? This may

sound strange, but we hear different terms that can be confused with a germination test. Some of these are "quick germ", "sprout test" and "quick test". In some cases, the end use of the seed justifies the type of test that will be the right fit for the customer. The terms listed above may be an adequate fit, as long as the results can be verified within the regulatory tolerance for labeling. In the case of certified seed, the germination test must be performed under Association of Official Seed Analyst (AOSA) rules. This rulebook specifies the parameters for testing all types of crops. These guidelines were set up by seed labs across the country to foster uniformity and quality in seed testing. To be an AOSA accredited seed lab, we must follow these rules and maintain accreditation through testing and auditing.

The ND State Seed Department seed lab follows AOSA Rules for Testing Seeds so you can be assured your seed samples are tested properly. It is best to find out how the germination tests are conducted in different labs to clarify any differences in results.

Seed Health Testing Sample Submissions

Presley Mosher, Diagnostic Lab Manager

As harvest is finishing up, now is an excellent time to consider submitting samples for seed health testing. A number of tests are required for certification. Several of these tests require a week or more to complete so plan accordingly. Please be advised that during periods of high sample volume, test length can vary. There are typically many samples submitted in the spring to complete the necessary testing prior to planting. Avoid the rush by submitting early!

Below you can find the seed health tests that are required for certification.

| Test | Host | Test length | Sample size required |
|-------------------|-----------------------------|-------------|-----------------------------|
| Bacterial blights | Edible bean | 10 days | 2 pounds |
| Anthraxnose | Edible bean | 14 days | 2 pounds |
| Ascochyta | Field pea, chickpea, lentil | 7+ days | 1 pound, (Lentil 1/2 pound) |
| Loose smut | Barley | 2 days | 1/2 pound |

Seed health tests are reliable methods to determine the presence and levels of seed-borne pathogens in seed lots. Often, infected seed may look like otherwise healthy seed. Testing is the best way to determine the presence of many of these pathogens.

Additionally, it is important to collect a representative sample of each seed lot. A test is only as good as the sample that is provided. Keep in mind that there are additional seed health tests that the Diagnostic Lab offers. The full list can be found at www.seed.nd.gov/diagnostic-lab-tests. Please contact the Seed Department with any questions.



Dome test for bacterial blights of edible bean

Fee Changes

The State Seed Commission approved a proposal by the Seed Department to raise fees for services performed by the department. Like everyone else, our costs for supplies and labor have increased over the last two years. Nonetheless, seed certification is still a tremendous value for seed growers. Even with these increases, the total cost for certification on a finished bushel basis for spring wheat increased by only about a penny a bushel (assuming average field size and yields). Updated fee schedules are posted on our website, ndseed.com

- Lab fees – about half the fees have increased effective October 1
- Field inspection fees – will increase 25 cents an acre in 2023 for single inspection crops; 50 cents for crops requiring two or three inspections
- Potato shipping point fees – will increase one penny per cwt effective October 1
- Potato field inspection fees – will increase \$2 per acre; \$5 per acre for late applications

Staff Changes

Ashley Thomas has been promoted to Seed Analyst II after completing the requirements and demonstrating the knowledge, skills and abilities required for advancement. While lab work is her primary responsibility, Ashley also assists the Field Seed Program with field inspections.

Christine Bjelkevig joined our team as an Administrative Assistant July 5. Christine is the first person customers interact with when phoning or walking in our front door. She has extensive experience in admin support in banking and an environmental agency for the state of Texas, where she worked for the last 24 years. She and her husband moved to Fargo in April to be with family. Christine is eager and ready to assist you.



North Dakota State Seed Department

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NDSSD Calendar

- Nov 11**Veterans Day (office closed)
- Nov 24**Thanksgiving (office closed)
- Nov 29-30**NDAA Northern Ag Expo Fargo
- Dec 5**SE District Crop Improvement, Casselton
- Dec 6**SW District Crop Improvement, Mandan
- Dec 7**NW District Crop Improvement, Minot
- Dec 8**NE District Crop Improvement, Devils Lake
- Dec 26**Christmas Day observed (office closed)
- Jan 2**New Year's Day observed (office closed)
- Jan 15-17**ND Grain Dealers Association Fargo