



The North Dakota Seed Journal

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Newsletter of the North Dakota State Seed Department

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Forms are Fundamental for Efficient Business

Jason Goltz, Certification Manager

Since we are now transitioning from seed production to seed testing and final certification, it is a good time for a reminder about sample submissions. Each year, we conduct about 15,000 tests on approximately 10,000 seed samples. We can only effectively provide services to our customers if we have a clear understanding of what we are being asked to do. Use of the proper form when submitting samples is critical. The following are some guidelines for sample submission:

Certified Seed Samples

- Submit samples in the plastic sample bags which have the document pocket. **These bags are for certified seed only.**
- Complete a **Seed Sampler's Report (SFN 50307)** and insert into the document pocket. One sample-one report.
- Samplers Reports are for certified seed and official samples. Forms are available on our website, www.ndseed.com
- Instructions for completing the form are in the appendix of the Seed Conditioner's Manual (online).
- Complete the form entirely; missing information will delay sample processing.
- Write your permit number next to your name (or company name) to ensure the sample is entered under the correct account.

Pre-germs/Re-germs for Carryover seed

- Use the manila envelope.
- If the pre-germ test result will be used for final certification, check the box and include the field number(s) on the envelope.
- When the conditioned sample is submitted for final certification testing, the lab sample number from this test must be included on the final Sampler's Report in the pre-germ box. If you don't, we will automatically retest the seed and bill you for it. The most current germination test result is used for labeling purposes.
- When re-germing carryover seed, complete the **Relabel Request for Carryover Certified Seed Form (SFN 61450)**.

Common Seed Samples (Any seed not in the certification program)

- Sample should be submitted in the manila sample envelope. Sturdy Ziploc bags can work if envelopes are unavailable.
- The envelope is the form and has all the information we require. Or, you can use a **Lab Test Request Form (SFN 61461)**.

All forms are available on our website. Samples arriving without the required information will be set aside until we have time to contact you. Please call or email (ndseed@ndseed.ndsu.edu) if you have any questions. It takes much less time to answer a question than it does to fix a problem later.



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

Legislature Approves NDSU Agricultural Field Lab Project

I wrote an article for the April 2022 *Seed Journal* that discussed a years-long effort to improve agriculture infrastructure on the NDSU campus. The article addressed the inadequacies of Waldron Hall and other facilities that house many of the breeding and pathology programs critical to our land grant's mission to improve agriculture in North Dakota. That article is relevant to this discussion and can be found on our website (www.seed.nd.gov/news) under *Seed Journal* links.

The 2023 Legislature authorized \$97 million to fund construction of a new Agricultural Field Lab designed to replace Waldron Hall, Wiidakas Lab, the Potato Research Lab and Lord & Burnham greenhouses. All of these facilities were constructed in the 1940's to 1960's and are inadequate in meeting the needs of modern breeding and pathology programs important to the Seed Department's certification mission, seed industry needs and the future of a changing industry. The \$97 million authorization contains \$87 million in public funds, and requires NDSU to seek \$10 million in private support.

In combination with the Dalrymple Ag Research Complex greenhouses and the Peltier Complex (slated to open in spring 2024), the Agricultural Field Lab will help vault NDSU agronomic and plant sciences research programs to new heights. The Seed Commission contributed \$250,000 to the Dalrymple complex in 2016, believing that use of seed grower funds to improve research capacity was important to the industry and Department.

At our July 2023 Seed Commission meeting, a decision was made to provide \$1 million

Ken Bertsch.....State Seed Commissioner
Steve Sebesta.....Deputy Seed Commissioner
Adam Winchester.....Director, Potato Program
Jason Goltz.....Field Seed Program Manager
Jeanna Mueller.....Seed Laboratory Manager
Presley Mosher.....Diagnostic Laboratory Manager
Starr Thies.....Business Manager
Dustin Smith.....Regulatory Program Manager
Robert Sauter...Interim Potato Program Supervisor

in Department funds as a leadership gift for the private fundraising component of the Agricultural Field Lab project. I'm personally thrilled that the Seed Commission shares the same vision as NDSU leadership, the Legislature and myself regarding this project. My comments in the press release regarding the NDSSD gift read:

"Crop breeding and variety development, disease identification and testing, weed science, foundation seed — all are examples of the critical scientific and production advancements provided to our industry by NDSU," Ken Bertsch, State Seed Commissioner and CEO of the State Seed Department, said. "Our staff are engaged with NDSU breeders, pathologists, scientists, department chairs and administrators on a frequent basis. Every seed grower and consumer will benefit from this new facility, and they are all functionally supporters of the project since their dollars pay for every service provided by the Seed Department."

I believe it's imperative that public breeding programs remain relevant in this state and region. NDSU's place in cereal, pulse crop and potato breeding is important to every user of those seeds, and equally important to our agency as the certification authority for field crops and potato in North Dakota. Private company breeding and seed production programs are extremely important to the ag industry and NDSSD, and also benefit from university research and exchange of parental lines. Ultimately, consumers of seed insist on having a choice between public and private varieties/brands, and ag research infrastructure improvements will help growers preserve access to multiple choices in the seed marketplace.

Our agency has been blessed with strong inspection acres and financial stability over the past two decades, allowing for a slow/steady increase of reserves. We've worked hard to balance operating costs and fee increases to help maintain that stability. I look at this gift as a long-term investment in the future of agriculture, by and for the seed industry, in the continued advancement and stability of both crop production and the Seed Department's inspection programs.



Variety ID Testing Fee Changes

Steve Sebesta, Deputy Commissioner

For the last few issues of the *Seed Journal*, I have written about changes to our variety ID testing program. In cooperation with our genetic testing partner, the National Agricultural Genotyping Center, we have been implementing a phased approach to the conversion of all of our variety ID testing to capillary electrophoresis (CE). When evaluating the potential adoption of new technologies or processes, we evaluate pros and cons and the impacts on our customers. Terms such as "better, faster, cheaper" have been used to describe the potential impact of CE on our testing program.

We implemented CE testing for spring wheat last February and barley in May. Test development and validation for the field pea methodology were completed over the summer and as a final test, I sent a set of blind samples containing pure seed and mixes to the lab in September. Every sample was correctly identified including mixes of 2% and greater. Based on these results we have now added field peas to the list and henceforth

Variety ID Testing Fee Changes

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New Opportunities

Adam Winchester, Potato Program Director

Seed Acreage Report

Potato seed acreage in 2023 was down 3.3% from 2022, continuing the downward trend since the early 1990s (Figure 1). North Dakota, however, is proving to be a great place to grow new varieties. Additions to our state this year include Becca Rose, LaBelle Russet, Rainier Russet and Natalia. Another noteworthy variety that is now commonly grown in North Dakota is Dakota Russet. Since achieving its status as a McDonalds-approved variety, Dakota Russet has consistently been grown as seed on more than 1,000 acres of land in North Dakota annually. Total acreages for this variety, and all others grown in North Dakota, can be viewed in our upcoming 2023 Seed Directory. We are two weeks ahead of schedule this year with releasing the Directory and we hope to have copies in hand in the next two weeks.

Field Inspection Report

2023 is presenting many challenges, as well as opportunities for the Potato Program. Our three most senior employees retired this spring, taking with them many years of valued experience. The remaining employees stepped up to the challenge and saw the Program through a great field inspection season. In total, three lots, totaling 86.2 acres were rejected this summer due to PVY in excess of tolerance. An additional 10 lots (446.78 acres) were downgraded to certified class due to the presence of PVY.

Upcoming Winter Test Report

The Seed Department will conduct its annual winter test in Waialua, Hawaii this December. In order to match industry standard, a few changes were made to our winter test protocol. We are no longer planting 300 and 600 tuber samples. Instead, sample sizes have been reduced to 200 and 400 tubers. We plan to plant December 4 and return for readings January 5. We look forward to the new opportunities Hawaii will bring.

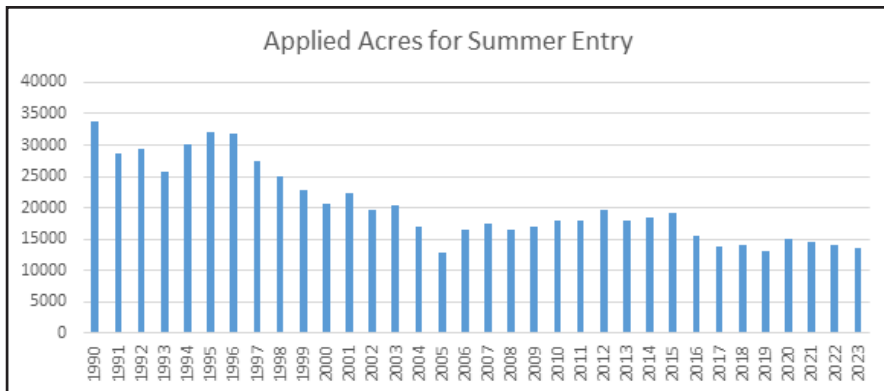


Figure 1. Trend in potato seed acreage in North Dakota 1990-2023

Field Inspections

Ciara Clark, Field Seed Specialist

Seed certification is a process established to ensure varietal identity and genetic purity of seed. Field inspections are an important first step in that process. Conversations I've had with a few of our inspectors made me aware that some of our customers might not understand exactly what a field inspection entails.

Before inspections even begin, each application submitted to the Seed Department is reviewed. We check the previous crop to ensure the field history meets eligibility requirements. We check the bulk certificate or tag to make sure the variety and class are eligible for certification. Any issues identified on the application are communicated to the applicant for correction.

We conduct annual training for inspectors during which staff cover policies, inspection procedures and crop standards. Inspectors are assigned their fields and each new inspector is paired with a veteran inspector as a mentor. Next, inspectors map their fields and contact growers to check on the growth stage of the fields they will be inspecting so they can prioritize their inspections and maximize their efficiency.



When the inspector first enters a field, they determine the sample area to be observed based on the type of crop and plant population. During the inspection, inspectors walk through each field, checking for different factors that can affect genetic purity. The presence of other varieties or other crops is quantified in 10 sample sites across each field. Inspectors also report weeds found, especially those that are prohibited or objectionable and those that may be difficult to separate during conditioning. They also check to make sure that there is proper isolation from any inseparable crops in adjacent fields. Finally, the inspector will compare the totals for other variety and other crops found to the appropriate standards for the crop and class and determine a pass or fail status.

After the inspection, the inspector completes a field inspection report, which is given to the applicant and grower. This report contains all the information that the applicant or grower needs to know about the field. There are three possible outcomes of the inspection; pass, conditionally pass or fail. It is important for the grower to check. There are instances when a problem such as noxious weeds or another crop can be resolved by isolating and not harvesting that area to prevent contamination. For fields that have passed conditionally, a five-pound sample of seed is required for final certification. The seed conditioner needs this information when they prepare samples after conditioning. Seed from fields that have failed should not be comingled with seed from fields that passed.

Our goal is to help seed growers produce the best product possible. Field inspections are a very important part of the certification process. They give us a chance to identify any issues that could impact the genetic or mechanical purity of the seed crop. As always, if you have any questions about field inspections please contact your inspector or the office.

Labeling Seed for Interstate Sales

Dustin Smith, Regulatory Program Manager

According to the Federal Seed Act section 201.16(a): *the names of the kinds of noxious-weed seeds and the rate of occurrence of each shall be expressed in the label in accordance with, and the rate of occurrence shall not exceed the rate permitted by, the law and regulations of the State into which the seed is offered for transportation or is transported.*

Sourcing and selling certified seed across borders is pretty common, but with all of the attention focused on noxious weeds recently, specifically Palmer amaranth, regulatory agencies are cracking down. It's unfortunate, but we're starting to see warnings, violations and stop sale orders for labeling issues on North Dakota certified seed. If you sell seed into another state, certified or common, you are required to label seed according to the laws of that state. In just about every case, that's going to require a noxious weed statement. A standard purity analysis from our lab will list the North Dakota noxious weed seeds found, but the noxious list is different in every state. An All-States noxious test (sometimes referred to as USA noxious) will list every noxious weed seed found in a sample and which states consider it noxious.

Who should consider requesting an All-States noxious weed seed test?

- Sellers of packaged seed. As the labeler, you are responsible for making sure seed meets the requirements wherever it ends up, even if someone else moves it across state lines. A noxious test is always recommended for packaged seed.
- Sellers near a border. If you are advertising in another state or close enough that out-of-state buyers may be calling you, a noxious test should be part of your normal lab test routine.
- Sellers of Foundation and Registered seed or seed producers of associate networks. You're more likely to attract out-of-state buyers if you're selling higher generations or less readily available varieties.
- Sellers to retailers. If your seed comes with an All-States noxious analysis, that's one less thing a bulk retail facility or a reseller has to worry about.

A few other things worth noting:

- We recommend having the All-States noxious test requested with your purity analysis, but seed samples submitted to our lab are kept on file. If you find out after the fact that a seed lot may move out-of-state, you can always call and request an All-States noxious test be done on that file sample, assuming there's enough seed.
- Our database does not have the ability to automatically add a noxious statement to certified seed tags or bulk certificates. We have the ability to manually edit printed certified seed tags and bulk certificates to include it, but not online bulk certificates. This is something that will be fixed in a future version of our software, but for now, please provide your customers with a bulk certificate and a copy of the All-States noxious analysis, or request printed tags or bulk certificates and indicate you'd like a noxious weed statement included.

If you have questions about moving seed across state lines, it's always best to give us a call.

Variety ID Testing Fee Changes

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all samples will be tested using CE.

We will continue our policy of not charging customers separately for variety ID testing on samples submitted for final certification. However, for those instances where you may want to double-check the identity of a seed lot we are happy to announce that due to the testing efficiencies resulting from the new technology and the efforts of the NAGC, we can deliver on the promise of "better, faster, cheaper" by reducing costs significantly. Test cost for field peas and barley have been reduced from \$250 to \$150. Spring wheat remains \$150.

The Importance of a Purity Test

Jeanna Mueller, Seed Lab Manager

Every producer, farmer and seed company first thinks of germination testing as a first step to ensure they have a good product. But really, we should think of purity testing as equally valuable information. A purity test is an excellent way to discover the makeup of a seed lot.

There are several components to a purity test.

Pure Seed Portion - All inert matter and broken seed removed (this portion is used for the seed count)

Inert Matter - Removed from the pure seed portion of the test and includes broken seeds, chaff, stones, ergot, etc. Drier conditions at harvest cause more inert matter in a seed lot. Mechanical breakage of seeds may occur during harvesting, threshing, loading, hauling, unloading, and cleaning operations. Large-seeded legumes such as field beans, soybeans and peas are especially susceptible to threshing or combine damage.

Other Crop - Seed considered other crop by AOSA Rules for Testing Seeds. We find the biggest issues with spring wheat in durum or durum in spring wheat. It can be difficult to distinguish the characteristics between the two with an untrained eye.

Weeds - Includes common and noxious weeds. The type of weed examination depends on where the seed lot is being sold.

Seeds Count - Number per pound; may be higher this year because of thinner seeds due to drought. Our normal range for seeds per pound for a spring wheat, for example, is 11,000 to 13,000.

Most major problems in seed lots are preventable. Seed quality testing is cheap insurance for a good product. Send in your samples sooner rather than later. January through planting is our busiest time. We are here to help, give us a call with any questions or concerns.

New Anthracnose Test Implemented

Presley Mosher, Diagnostic Lab Manager

The NDSSD Diagnostic Lab has adopted an updated testing method for detection of the anthracnose pathogen in edible bean. This molecular method, known as polymerase chain reaction or PCR, detects DNA of the fungal pathogen (*Colletotrichum lindemuthianum*). The test was developed by scientists at the National Agricultural Genotyping Center for use by the NDSSD. Funding was provided through the USDA Specialty Crop Block Grant Program.

Anthracnose is a concern for edible bean producers in North Dakota. Bean anthracnose is easily spread by infected seed, rain splashing, and by being blown from field to field on infected crop residue. This disease can result in significant yield losses. Certification standards have a zero tolerance for this pathogen in seed lots.

Previously, a bioassay method relying on visual readings was performed in the Diagnostic Lab. This method is more time consuming than PCR testing. The bioassay test takes 14 full days to grow out until seedlings can be evaluated. An additional benefit of the new method is that it can be done in as few as 2-3 days including time for a seed soak, DNA extraction, and PCR. This test is highly sensitive and is able to detect 1 infected seed in a 1,000 seed sample.

If you would like to have a sample tested, please submit 2 pounds of seed. This amount remains unchanged from the former testing requirement. Please contact the NDSSD Diagnostic Lab if you have any questions at 701-231-5430 or pmosher@ndseed.ndsu.edu.



Bean pods displaying typical anthracnose symptoms of lesions with tan centers and reddish brown borders. Visible grainy masses contain spores that are easily spread by wind-blown crop residue and rain. The pathogen can spread to new fields in infected seed. NDSSD Photo

Potato Staffing Changes

Our Potato Program has been fortunate to be staffed by long-time, experienced personnel. While periodic changes in program managers and inspectors have occurred, our growers have benefitted from stability and experience of this team of veterans for decades. All of this changed in 2023.

Kent Sather, who joined our staff as Program Manager in 2016, retired June 1 after a 40-year career of potato certification in Nebraska, Colorado and North Dakota. Kent's calm and thoughtful approach to his job provided stability and contributed to teamwork throughout the Department.

Mike Oosterwijk, who served as our State Supervisor for over 30 years and a member of our staff for 45 years, also retired in June. Mike recently received the Northland Potato Growers Distinguished Service award, indicative of his contributions to the entire industry.

Graham Smith, long-time field and shipping point inspector (35 years) retired in May as Senior Inspector. Graham was not only a great inspector, but a superb mentor to junior staff members throughout the years.

Fortunately, all of these individuals continue to work part-time, providing inspection services and training new staff. Replacing this experience and expertise is a challenge, one being addressed with the following additions and promotions.

Adam Winchester joined the Potato Program as Director in February. Adam received his MS degree from NDSU, and then managed the Nebraska certification program for five years. Adam grew up in the potato industry in Idaho and has worked beside Kent the past few months familiarizing himself with the complexity of our program.

Robert Sauter has been promoted to Senior Inspector and interim State Supervisor. Robert has been with the Potato Program for nearly ten years and has served as lead in multiple program areas including PCN sampling, USDA food safety audit programs and post-harvest testing. Robert has organized shipping point and field inspection activities the past few months and is highly-organized in his approach to services and with staff supervisory duties.

Amanda Monson joined the Program in the Inspector I position last December. Amanda worked as a seasonal inspector last summer and fall, training for field and shipping point duties. **Seth Mathison** joined our staff this summer in the same capacity, and both inspectors will be licensed for USDA Shipping Point inspections going forward and training for potato certification duties for the next 1-2 years.

Congratulations to all of our veteran team members on their well-deserved retirements! We are excited to have our new team members on-board and look forward to their contributions to the program.

Field Seed Staff Change

Ashley Thomas was promoted to Field Seed Specialist in May. Ashley has been with the department for six years, starting in our Administrative Support Program. She moved into the Seed Lab in 2018, primarily working with germination testing. She also conducts field inspections during summer months. Ashley will continue her seed analyst duties but will take on a greater role in seed certification activities such as field and facility inspection and final certification. She will also have a role in our Regulatory Program, conducting inspections, audits and compliance monitoring.

North Dakota State Seed Department

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NDSSD Calendar

- Nov 10**.....Veterans Day observed, office closed
- Nov 23**.....Thanksgiving, office closed
- Nov 29-30**.....NDAA Northern Ag Expo, Avalon Event Center, Fargo
- Dec 11**NDCISA Western Regional meeting, Minot
- Dec 13**NDCISA Eastern Regional meeting, Grand Forks
- Dec 25**.....Christmas Day, office closed
- Jan 1**New Year's Day, office closed
- Jan 14-15**ND Grain Dealers Association, Fargo