



The North Dakota Seed Journal

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Newsletter of the North Dakota State Seed Department

Inside

- 1 Conditioners/Sampler's Reports
- 2 From the Commissioner's Desk
- 3 Why Research Fees Are Important
- 4 Another Abnormal Potato Year
- 4 Rye as a Cover Crop
- 5 What's in Your Planter?
- 5 Seed Commission Approves New Administrative Rules
- 6 Calendar

Conditioners/Sampler's Reports

Joe Magnusson, Field Seed Program Manager

When a sample is submitted for final certification, the information provided on the Seed Sampler's Report is used to determine the tests performed on that sample. Once samples are routed to the labs and the testing has started, they cannot be terminated and the grower will incur charges. Conditioners should not assume the grower wants all tests on every lot of seed. Even though we encourage new germination tests after conditioning, a grower may want to use a preliminary test result. Ask the grower which tests they would like performed and if they have done any pretesting on the seed lot before submitting the sample. If pretest results are to be used, be sure the grower has included the field inspection number(s) with the sample or we will need to do a new germination test.

Fill plastic sampling bags with at least two pounds of seed. If we do not receive enough seed for testing, the sample will not get processed in a timely manner as additional seed will have to be submitted. If you would like a copy of analysis and final certification results emailed to you, note on sampler's report "copy results to conditioner". If online bulk certificates will be used, mark "Online" where it asks for number of bulk certificates requested. Remember, each bin is a separate lot and requires a separate sample and sampler's report.

Carryover Seed

When submitting samples of carryover certified seed for new germination testing and bulk certificates, several things are required. In order for us to process your sample we need a completed Relabeling Request for Carryover Certified Seed form. The form is on our website under Online Forms. Include this form with your sample in our manila envelopes if possible, and include the number of bushels, the previous certification number and the number of bulk certificates needed, unless you are using our online bulk certificates. Do not use our plastic bags for carryover seed; they are only to be used for final certification samples.

If a carryover certified seed lot will be combined with newly conditioned seed, a germination test must first be done on the carryover seed to make sure it has not gone out of condition or the carryover seed can be conditioned with the new crop and new testing will be required on the combined lot. When you combine bushels that were previously certified with new seed, note on the sampler's report the number of bushels that were carried over and the previous certification number and you will not be charged final certification fees for those bushels.

Conditionally Passed Seed Fields

Some seed fields may pass field inspection conditionally due to excessive weeds or other crops which may be difficult to separate during conditioning. Before conditioning, ask the grower if they had any of these fields. A five-pound representative sample must be submitted along with the Seed Sampler's Report. If a seed sample from a conditionally passed field is submitted without the required amount of seed, you will be notified to resubmit additional seed which will delay the final certification process for the labeler. Conditioners are advised to always check Field Inspection Reports before conditioning a seed lot.



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From the Commissioner's Desk

I swore I would never do an article related to this topic but here goes: hemp. I won't delve too deeply into the issue, certainly not from the technical side, since I understand my limitations in that regard. Everyone reading ag trade publications sees hemp-related articles monthly, weekly, almost daily. It's an ag topic that's "blown up" in a way unlike anything I've seen, and resembles a gold rush craze.

I'll also admit a bias; our agency has had experiences certifying clones and selections of true varieties of seeds. Certainly, while our view is affected by a number of technical issues, one in particular is driving our willingness to dive into the deep end of the hemp pool: legal risk.

We've now adopted standards for the certification of hemp seed, grain and fiber types. Fortunately for all of us, these types have been inspected and tested for a number of years in Canada and Europe and their standards have proven (reasonably) reliable. Those grain and fiber types are described varieties with documented pedigrees. They comply with the requirements of uniqueness, uniformity and stability that certification is built upon. The standards have been vetted by provincial, state, national and international organizations. While still gaining experience with a new and unique crop, our agency has the benefit of standards that have been utilized and adopted by sister agencies. Steve Sebesta, one of the most knowledgeable certification experts in the country will tell you, despite that foundation, even grain/fiber types of hemp present a challenge in certification terms.

Now, CBD-type hemp has overtaken and surpassed interest in grain/fiber.

There are a host of moving targets too long to list on this topic- feminized seed production, certification of clones, USDA rules in the making are just a few. Varietal purity and identity (the

Ken Bertsch.....State Seed Commissioner
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Kent Sather.....Director, Potato Program
Jason Goltz.....Field Seed Program Manager
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Mike Oosterwijk.....Potato Program Supervisor

main purposes of seed certification), seed quality and other traditional standards are not front and center discussion points. Instead, THC content and excessive male plants, among other quality factors (and affected by environment) are the critical elements for which variety developers need quality assurance inspections. AOSCA agencies are pushing the development of certification standards for this crop faster than any of us has seen, and yet are playing catchup to an industry that is moving the marketing and production of CBD-type seeds at an impossible pace. Ultimately, hemp breeding programs are outpacing our ability to determine the unique, uniform and stable characteristics of varieties, much less to document a breeding history for lines being produced. I am hesitant to put the Seed Department stamp of approval on a CBD-type clone called Stormy Danielz: the name is irrelevant; the pedigree and stability of plant and seed characteristics are critical.

Many of those previously mentioned sister agencies are being hammered by the demand to "certify" CBD hemp. Many of the companies or individuals demanding services have no clue what "certification" means, but look to our agencies to provide some/any sort of quality assurance for their seed products. AOSCA, our national organization, has been deluged with requests for information on where to locate, and/or, wanting to certify clones of CBD hems. This is entirely logical; AOSCA agencies have the expertise and experience in all things related to seed quality. What we don't have is the ability to certify performance of a seed whose "quality" is measured by the number of female plants and amount of CBD oil produced by the plant.

There have been similar inquiries to our agency for inspection and certification of CBD types, and we know of commercial production of CBD hemp in ND. We also understand the risk commercial growers face in accessing viable/reliable seed sources. Ultimately, it's a buyer-beware marketplace until seed quality assurance inspection and testing standards can catch up with breeding programs that may or may not generate "varieties" that merit a certified tag. We've staked out a position that, if pressed to provide inspection services, we would do so under a QA label: inspect seed crops under company-provided standards. Our belief is that, for legal and other reasons, certified tags would be impossible to provide.

There are a number of issues that are critical to satisfying our obligations to the seed industry, while ensuring the financial health of the Department. One of the many things we must do is evaluate whether the introduction of a new program or service is needed, of value to the ag industry, can operate at a breakeven level, and can be accomplished within our administrative rules. That's a mouthful, and is short of the entire list of considerations, but some of the most critical when evaluating whether to inspect and certify CBD hemp. Armed with a set of properly vetted standards, yes, we would inspect and certify if, as the Attorney General has told us, "you can follow your own rules". Currently, as the party responsible for the agency's financial and legal well-being, I have deep concerns for the liability concerns surrounding CBD-hemp certification.

In the meantime, we'll maintain close contact with this emerging industry while awaiting well-vetted and proven standards for certification of CBD hemp. These standards are the only thing standing between our agency and a world of unknown legal risks associated with certifying new crops.

Best wishes for a warm and profitable winter season.



Why Research Fees Are Important

Steve Sebesta, Deputy Commissioner

For more than a decade, the State Seed Department has collected research fees on behalf of the region's public variety owners. We just completed collections for the 2019 sales year which, for us, began last July when reporting forms were mailed to labelers. As of January 6, about 95% of the labelers have reported and paid. The remaining accounts were turned back to the variety owners for collection.

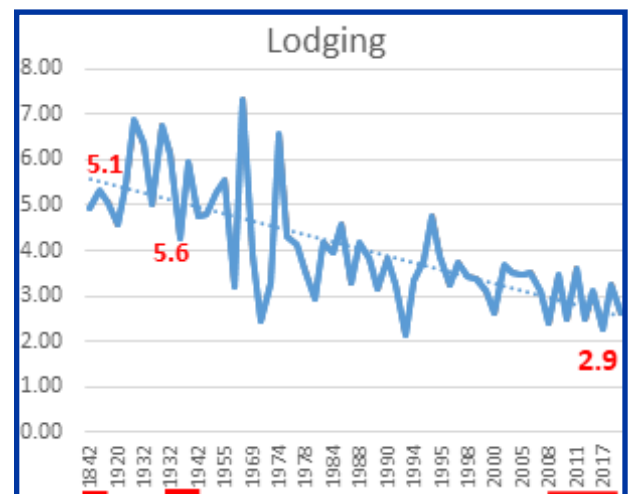
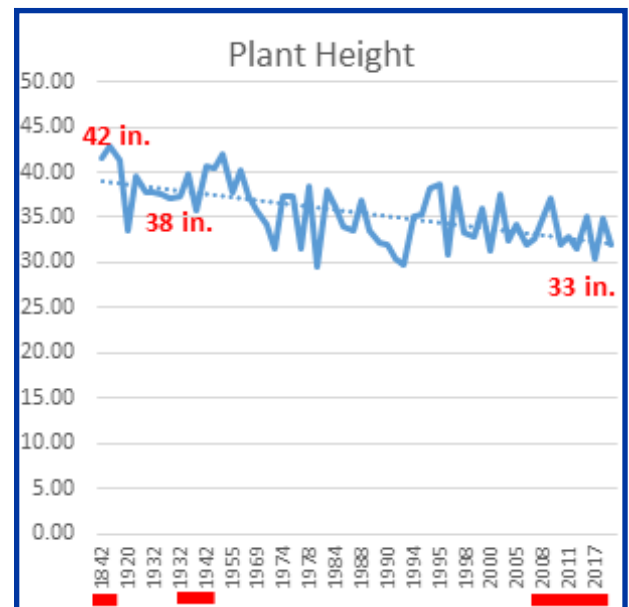
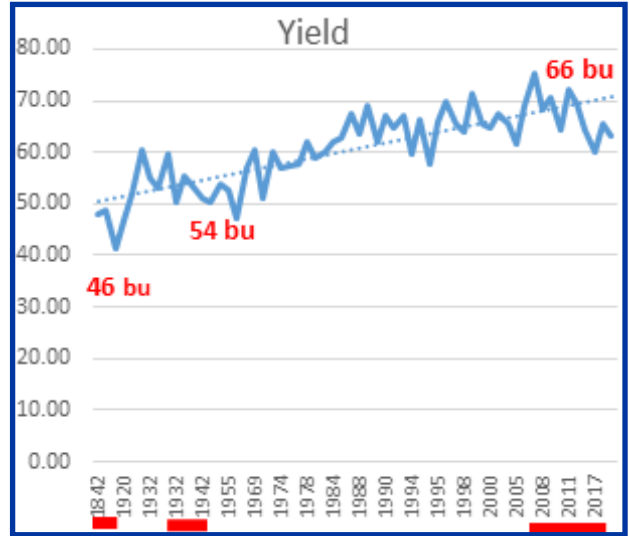
Occasionally, we receive questions from seed producers regarding the purpose for research fees in the first place. Research fees, or royalties, are financial tools developers use to help fund their research programs and offset expenses such as intellectual property rights protection, like PVP. Some organizations, mostly public programs at land grant institutions, are transparent about their fees while others, mostly corporate programs, do not disclose their fees which are paid directly to the company by their licensees.

Sometimes, fees include the cost of accessing specific traits developed by third-party breeding programs. Such is the case with the trait for soybean aphid tolerance from the University of Illinois, which assesses a 25 cent per unit royalty on sales of varieties with this trait. That money goes back to their breeding program to fund additional research. NDSU brought this trait to the market for North Dakota growers in 2018 with ND18008GT soybean.

The observable impact of research fees is not always obvious, but is significant nonetheless. Take, for example, the spring wheat breeding program at NDSU. The last two years, Dr. Andrew Green has planted a historical wheat plot at the Agronomy Seed Farm in Casselton. This year, the plot contained nearly all spring wheat varieties released by the North Dakota Agricultural Experiment Station for more than 175 years, dating back to 1842. If you had the opportunity to walk this plot and observe the different varieties, you would have noticed the significant contributions of plant breeding to agriculture. Some of the old varieties looked more like land race varieties – tall, no straw strength or disease resistance, short spikes, late maturity, etc.

To illustrate the genetic improvement in varieties, I charted three traits important to North Dakota wheat growers using Dr. Green's data to compare varieties that were prevalent in Dakota Territory to today's public varieties. I then selected three timeframes on the graphs of approximately a decade each (the 1800's, 2008-17 and the chronological mid-point, 1932-42), and calculated mean performance for the varieties in those groups. The mean performance of the varieties represented by those timeframes are shown on each graph. Overall, the charts show improvement in all three traits – mean yield has increased 43%, plant height has decreased 9 inches and lodging scores have decreased by almost half.

Robust plant breeding programs are critical for continued improvement of the crops we grow in North Dakota. Similarly, sustainable funding sources are important to ensure breeders have the tools necessary to deliver the traits you desire in varieties. Research fees are one part of that funding formula and your payments go a long way in providing much-needed support for research and development.



Another Abnormal Potato Year

Kent Sather, Director, Potato Programs

2019 harvest conditions for North Dakota made the record books, again. It seems all crops and areas of the state were affected to some degree; potato acreage was no exception. Our growers struggled with cool spring temperatures resulting in slower emergence and development. Our dryland acres received limited moisture through the summer, then in the fall, growers struggled with saturated fields creating difficult or delayed harvest. The October blizzard only exacerbated the situation, adding more delays from snow, moisture, and colder soil temperatures. And soon thereafter, the freezing temperatures ended the harvest in its tracks.

After this unprecedented harvest season, the big question is “How much seed is available?” This is difficult to answer. The following estimates of what was left in the field are based on discussions with certified seed potato growers after harvest: Overall, of 13,026 certified acres, about 2,140 acres, or 16.4% were unharvested. Note that 300-400 of these acres were likely destined for non-seed purposes. The range among growers was 0% to 100% harvested of their North Dakota crop.

An estimate by type of potatoes is as follows: Of red skinned varieties, 3,216 acres were entered and accepted for certification. Approximately 832 acres (about 25%) were unharvested. Russet skinned potatoes consisted of 6,717 acres accepted for certification. Approximately 1,191 acres (about 18%) were left in the field. White skinned and specialty potatoes accounted for 3,102 acres of our total. Only about 96 acres (3.1%) were abandoned in the field.

The reduced harvest affected commercial crop acreage as well. As a result, open market prices for potatoes are high. Quality potatoes may sell for a higher price for table market washing than they would for seed potatoes. The price may sway certified seed potato growers to sell non-contracted potatoes for a commercial pack instead of seed.

The Seed Department encourages any surplus, non-contracted certified seed to be sold as a certified seed product, even with other market options this year. This would help mitigate seed shortages, and reduce potential of commercial growers replanting common seed with potentially high levels of communicable disease.

Are you hoping to buy seed this year? If you haven't already, check with your seed supplier. Also, please understand the North Dakota seed law. This requires potato acreage to be planted with current certified seed. There is a year-out exception, allowing a grower to plant their own increase if it was from certified seed

the prior crop year. It is against the law, however, to sell or trade potatoes for replanting unless they are fully certified.

Since my employment with the North Dakota State Seed Department, I have witnessed only four potato crops. Growers confirm that none have been ‘normal’. Perhaps 2020 will be that elusive normal year!

Rye as a Cover Crop

Jason Goltz, Regulatory Manager

Rye is a popular option for cover crop because it is planted in the fall with growth taking place in the spring. One benefit of a fall planted cover crop is to avoid normally wet planting conditions in spring. When purchasing any seed, always look for a label and remember some varieties of rye are protected.

Some people start with the intention of planting rye as a cover crop, but change their mind about terminating it in the spring if they have a strong and healthy stand and good grain yield potential. Shifting intent from cover crop and allowing the crop to fully mature for grain production isn't problematic. Where the problem begins is when the grain crop transitions to a seed crop.

Even common, or unprotected rye needs to be tested and labeled in order to be legally sold as seed. North Dakota allows common rye to be sold “Variety Not Stated”, but if you know what the variety is, then it is a good idea to put it on the label anyway.

There are two notable exceptions. Varieties such as ND Dylan or ND Gardner are protected under PVP Title V. Any variety protected with PVP must be sold by variety name, and varieties protected under Title V of the Federal Seed Act must be sold as a class of certified seed. Federal labeling laws supersede state laws.

When a protected variety is planted and there is interest in selling the crop for seed, don't wait until harvest to ask questions. A key component in seed certification is the field inspection which could be possible if Foundation or Registered class was planted and there was a chance to inspect before harvest. If Certified class of seed was planted it would not be eligible for certification.

Plan ahead and call the department if you think there is the possibility your rye crop may be marketed as seed. Before selling the rye crop for seed, pay close attention to the variety and class if applicable. Labeling a protected variety as “Variety Not Stated” will lead to a fine of up to \$10,000. Asking the right questions can prevent issues later.

What's in Your Planter?

Steve Sebesta, Deputy Commissioner

With apologies to Jennifer Garner and Capital One, I'm borrowing and adapting their slogan to apply it to the seed business. This year, perhaps more than ever, it will be really important to know. Early last fall, we were receiving numerous calls about factors related to seed quality such as falling numbers and sprouting in cereals, overall seed quality and what these meant for seed availability. The Seed Lab has completed germination testing on nearly 2,700 samples so far this year, enough that we can begin to make some assessment of seed quality for the coming planting season.

After variety selection, high quality seed is probably the most important input on the farm, in my opinion. Planting high quality seed of the best variety for your farm sets the stage for success at harvest time. Proven seed quality + superior product performance = greater profitability. We analyze samples for certain factors that are used to determine seed quality, such as germination, purity, seed count, and seed-borne disease.

When a sample arrives at our office, it is entered as either a certified sample or a common sample. There is no difference in how a germination test is conducted, but the results are used differently internally. The chart below shows data from seed analyses so far this year. With only two exceptions, certified seed samples, on average, outperform common

seed samples in all important seed quality factors. Purities are about the same, but there are notable differences and advantages for certified seed in germination percentage and seed count. All of these factors contribute to overall better crop performance through easier plantability, greater vigor for faster and more uniform stand establishment and less competition from weeds and diseases.

Crop	Certified Seed Samples				Common Seed Samples		
	Germ	Seed Count	Purity		Germ	Seed Count	Purity
Spring Wheat	94.0	12,626	100		92.4	14,394	99.9
Durum	87.2	9,823	99.8		82.2	10,320	98.6
Barley	95.6	9,682	99.9		91.3	11,067	99.7
Oats	94.1	14,047	100		91.7	13,870	99.4
Field Beans	94.6	1,714	99.9		87.5	1,815	98.9
Field Peas	86.8	1,909	99.9		88.6	2,104	99.5

Green shade indicates advantage

We don't know what planting season will bring us, but we can pretty much bet there will be some less than ideal planting conditions based on last year's weather, the amount of crop still in the field yet to be harvested resulting in cooler soils from crop residue, etc. It would be prudent to make wise decisions about the seed we plant. What's in your planter?

Seed Commission Approves New Administrative Rules

The Seed Commission approved a set of proposed administrative rule changes at its December meeting. The changes to seed certification rules and standards reflect the needs of the seed industry in North Dakota. Fee changes for hemp field inspections, potato shipping point inspections, potato virus testing and hourly rates were also approved.

Two changes updated field standards that were adopted at the 2019 Association of Official Seed Certifying Agencies annual meeting including field isolation standards for hemp and field purity standards for sunflower. We also updated our inspection requirements for hemp and adjusted fees accordingly.

Other changes include the addition of Palmer amaranth (*Amaranthus palmerii*) to the prohibited noxious weed seed list, new faba bean rules and standards and new hybrid rye standards.

The proposed rules are posted in the News section of our website. A public hearing will be held February 13 at the Seed Department or written comments will be accepted until February 27.

North Dakota State Seed Department

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NDSSD Calendar

Jan 19-21 ND Grain Dealers annual meeting, Fargo

Jan 27-28 Northern Pulse Growers annual meeting, Minot

Jan 29-31 KMOT Ag Expo, Minot

Feb 5-6 ND Crop Improvement annual meeting, Minot

Feb 13 National Hard Spring Wheat Show, Williston

Feb 18 ND Cert Seed Potato Growers annual meeting, Grand Forks

Feb 19-20 International Crop Expo, Grand Forks

Mar 1-7 North Dakota Winter Show, Valley City