



The North Dakota Seed Journal

MARCH 2009

Newsletter of the North Dakota State Seed Department

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Benefits of Seed Regulatory

Joe Magnusson, Seed Regulatory Manager

The ultimate purpose of seed laws and regulations is to protect the consumer from poor quality or mislabeled seed. These laws also promote fair competition in the seed industry and give the seller confidence that what they are selling is a quality product.

The Regulatory Program protects the seed industry and consumers through inspection and analysis of seed in the marketplace. The program has five qualified inspectors that randomly sample seed throughout the state for truth in labeling testing. These inspectors draw samples from February through the mid-May. The samples are tested and analyzed and the results are compared to the claims made on the label. This ensures the consumer is purchasing properly labeled seed and it protects the seller from seed that may have gone out of condition. If the product does not meet label claims within recognized tolerances, a Stop Sale order is issued. The Stop Sale is released when the seed is brought into compliance or disposed of properly. By testing your seed during the regulatory process there is some assurance your seed will be fit for planting and should lessen your chances for a lawsuit if that seed does not perform as indicated on the seed label.

The program is also responsible for the enforcement of the Plant Variety Protection Act. Most varieties of small grains and pulse crops are protected, and growers must get permission from the variety owner to sell seed. Additionally, many varieties are protected by Title V of the Federal Seed Act and must be sold as a class of certified seed. Brownbagging is a term used to define the sale of seed without authorization from the variety owner. Such seed is generally not tested for purity, germination or varietal identity. When you purchase this grain you may be planting a variety not suited for your area, it may be contaminated with another kind (winter wheat mixed with spring wheat) or it may not grow due to lack of vigor or germination. It may also contain noxious weeds that are difficult to control. When you purchase certified seed, you should be receiving the best quality seed available.

When purchasing seed, make a thorough visual examination to determine whether the product appears to meet the claims made on the label. Keep a sample of the seed, along with a copy of the label and sales receipt, in case the seed does not perform to label claims. **Never buy seed that is not properly labeled.** Without a label, there is no proof the seed was actually intended for planting purposes. Without a label, you have little recourse.

North Dakota State

NDSSD

Seed Department

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

Every two years I try to give an update on some of the legislative issues that affect the seed or general agriculture industries nearing the mid-point of the legislative session.

Something I've noticed over the past ten years or so ... the number of bills affecting either industry is dropping noticeably. This could mean any number of things: 1) federal laws and regulations have a more dramatic affect on agriculture; 2) state laws are, to the largest extent, doing what they need to do regarding our industry; 3) nobody cares.

I've always believed that it's better to legislate only when there is a real need, and stay out of the way otherwise. The lack of legislation in areas like agriculture and natural resources may indicate that those areas are operating smoothly in statutory terms. At least in agriculture we don't have bills that are the equivalent of mandatory football games between two universities. Not that we all haven't seen that type of bill in the past. Someone must care about that game ... a lot.

Our budget bill, Senate Bill 2022, has been heard in the Senate and was the first budget bill passed and moved over to the House. As a self-funded agency, the Seed Department budget process is

usually more of a report to the legislature on our activities, whereupon if in agreement that we are doing a good job with resources, the Legislature provides spending authority for the upcoming biennium.

The Seed Department has one agency bill in play, SB 2125. We drafted the bill to make some amendments to the Chapter that couldn't wait until the 2011 session. Those changes are primarily related to noxious weed definitions, labeling language and an auditor recommendation regarding our appropriations authority. An interim study and re-write of agriculture code in the 2007-2008 interim didn't complete the review of all agricultural chapters, necessitating the introduction of SB 2125. This bill also passed the Senate easily.

The interim study/re-write of agriculture codes will be authorized through passage of HCR 3001. The resolution will provide for an interim Agriculture Committee to finish the work started in 2007 and allow us to work with the Committee and Legislative Council to modernize the statutes that govern the Seed Department's operations and programs. Amazingly, the Department operates under more century code provisions than any other agriculture entity, including NDSU agriculture. It is hoped that we can condense the code while providing the necessary authority to carry out the mission of the agency now and in the future.

There are plenty of other bills that affect the Seed Department, some of which

have survived the first half and some that haven't. Most that are still "alive" have some relevance to operations of state government; they may provide for employee salary or benefits, or adjustments to administrative rulemaking. We track these and others closely to keep up-to-date on administrative issues affecting our operation.

We also watch closely any bill that affects an agriculture agency or association; NDSU agriculture, ND Department of Agriculture and commodity associations in particular. Policy or budget changes with these groups can have an impact on the Seed Department or seed industry at any point in time. Having an understanding of legislation affecting sister organizations is important.

By the time you read this, we could very well be done with committee hearings on many of the bills we track, and waiting for final action on budget bills. With a relatively strong fiscal outlook in North Dakota, we are hopeful that agricultural research and programs will be well-funded. Varietal research forms the backbone of agricultural crop production and much of what we do. Funding of basic crop research, breeding programs and infrastructure (read: greenhouse construction) are all extremely important to the seed industry.

We care about that issue, along with our own legislation ... a lot.

Best wishes for a safe and profitable spring.

- Ken Bertsch State Seed Commissioner
- Steve Sebesta Deputy Seed Commissioner
- Willem Schrage Director, Potato Program
- Joe Magnusson Seed Regulatory Manager
- Galen Briese Seed Certification Manager
- Mark Hafdahl Seed Laboratory Manager
- Jeff Prischmann Diagnostic Laboratory Manager
- Kris Nicklay Administrative Officer
- Mike Oosterwijk Potato Program Supervisor

Seed Labeling Permit is Required to Sell Seed

Any person labeling seed in ND must obtain a permit before any sales are made. Last year over 200 certified seed growers did not have a permit to sell seed. If you are a new certified seed grower this year and plan to label seed in your name but do not have a permit, call the department and we will send you an application. There is no charge for the permit. We will be issuing Stop Sale orders on any seed if the labeler does not have a permit.

Growers Cautioned on Use of Pre-harvest Desiccants

Mark Hafdahl, Seed Lab Manager

During the 2007-08 seed testing season the Seed Lab noticed several seed lots that had germinations in the 70s and 80s due to chemical damage. We sent out an advisory with field inspection applications last spring and alerted producers in the June 2008 Seed Journal. In spite of these educational efforts, we have still seen an unusual number of samples exhibiting signs of chemical damage in the germination test this year.

Growers who have made a habit of applying glyphosate on seed fields prior to harvest should reconsider that practice.

Chemical weed control is most effective when the herbicide is applied to weeds at the proper stage and according to labeled rates and recommendations. While glyphosate is labeled as a harvest aid in spring wheat, durum and feed barley, it should not be used in seed fields because of a reduction in germination. Glyphosate manufacturers include precautionary language on their labels such as "Preharvest application is not recommended for barley or wheat grown for seed, as a reduction in germination or vigor may occur."

Paraquat is NOT labeled as a harvest aid in small grains under any circumstances.

Consult pages 102 and 103 of the 2009 North Dakota Weed Control Guide (NDSU Extension publication W-253) for information on harvest aids for small grains.



Damaged seed (L) and normal seedlings (R).

Seed Health Test Results

Jeff Prischmann, Diagnostic Lab Manager

The Diagnostic Lab conducts many different seed health tests and some are requirements for seed certification. Most seed health tests report the presence, absence, and or the amount of a specific pathogen. These results may have a greater importance depending on the pathogen, the sample source, or the crop.

Pulse Crop Ascochyta: The Diagnostic Lab typically conducts Ascochyta tests using a 500 seed sample. Results are reported as the percentage of infected seed. Small amounts of Ascochyta sp. may be acceptable depending on the crop. In field pea, some sources consider seed infection rates greater than 5% as high. In lentils or chickpeas, that rate may be somewhat lower; in the range of 1.0% or greater for lentil, and 0.3% or greater for chickpea. Producers may want to look for other seed sources in these cases.

Bean Anthracnose: Bean anthracnose tests are typically conducted using 1,000 seed and results reported as positive or negative. Any anthracnose found indicates the sample is contaminated and the level of infection may be higher than what is indicated in the test. In order for bean seed to be certified in North Dakota, it must pass the anthracnose test. Seed containing anthracnose should not be planted due to the high probability of spreading this disease.

Dome Test: The Dome test subjectively indexes the amount of blight bacteria in an edible bean sample. Each sample receives a score based on the amount of blight symptoms observed. Results can range from 0 (lowest) to 9 (highest). The lower the test score, the lower the amount of blight bacteria found in the sample. For certification, a score of four or less is acceptable. Different types of beans may score differently on the Dome test. Kidney beans typically score higher as they inherently contain greater amounts of bacteria in the seed. Navy beans or black beans typically score lower. Pinto beans typically score in the middle of the acceptable range. Another point to keep in mind is that yearly differences in the test scores may be seen. Drier years can result in lower test scores. Wet seasons may increase Dome test scores.

Barley Loose Smut: Loose smut tests in barley are conducted by examining the embryos of 500 barley kernels. Infected embryos are counted and the results are given as a percentage of infected embryos. Yield losses are directly correlated to seed infection rates the previous year. For each percentage of loose smut infection, a corresponding yield loss may occur. In other words, a 3% seed infection level may result in a 3% yield reduction the following year. Barley loose smut is easy to control with fungicides. We recommend fungicide seed treatment for any lot with a test result of 2% or higher.

The bottom line on any seed health test is to look at the results in relation to the crop and consider finding different seed if the results are high. Most seed-borne diseases need optimum conditions to spread during the growing season. So, just because a pathogen is present in a sample doesn't necessarily mean that the disease will develop in the field next year. However, it is more likely that the disease will be present in the field the next year with increasing levels of seed infection.

North Dakota Seed Potato Winter Test

Willem Schrage, Potato Program Director

The control of potato viruses is part of any seed potato certification program and the winter test is the most important tool. The ND winter test was planted in November in Florida in a plot owned by the ND Seed Potato Growers Association, and inspected in January. North Dakota uses the winter test to determine eligibility of seed lots for re-certification. Lots are certified based on summer readings and shipping point inspection. However, seed potato lots must be within the required tolerance of 0.5% virus to be eligible for planting on a certified seed potato farm.

The most important reason for rejection is Potato Virus Y (PVY) infected plants exceeding the tolerance of 0.5%. Results were similar to last year's. PVY susceptible varieties, e.g. Russet Norkotah, Shepody, Silverton and Red Lasoda, had the highest percentage of lots out of tolerance.

PVY is changing. A three-year survey in North America indicates different strains have developed in different areas. A similar development in Europe has resulted in more advanced changes than we have observed in the U.S. The new strains have a tendency to infect plants later in the season, negating some of the maturity resistance. Late-season infection may have a similar symptom expression as current-season infection during the winter test, complicating readings.

New strains may also have the possibility of developing tuber necrosis. According to discussions in Holland, the expression of tuber necrosis symptoms is dependent on temperature as well as virus strains. Development of tuber necrosis has resulted in economic damage to commercial potato producers. In the UK, a tolerance of 1% for tuber necrosis is in place for fresh potatoes. That has resulted in rejection of fresh potatoes by the supermarkets. Verbal communication indicated that rejections have happened in the U.S. too, in the processing industry.

PVY still is a problem mainly for the seed potato producers, who managed to supply seed of such a high standard that negative effects caused by viruses were limited for the commercial producer. The virus content of seed lots in this country have generally not been an economic factor for the customers, i.e. the fresh and processing growers. That may be changing now in some areas and may change even more. It is conceivable that virus content may result in rejection of commercial potatoes. There may be interest in the commercial sector to know what strain or the virus content of the seed lots planted in a particular area.

The third development with the new strains of PVY is that they are often less symptomatic than the old strains. Inspectors notice that symptom expression of PVY is different from what it has been. It is often much milder. This, combined with highly susceptible varieties, is reason to require laboratory testing of leaves from the winter test. Because the winter test is the most important tool for the industry to reduce inoculum, extra measures are taken to determine the presence or absence of viruses as accurately as possible.

Late PVY infections exhibiting mild symptoms, new virus strains and the development of varieties that are almost symptomless, have created extra challenges for the seed potato producer. However, the occurrence of PVY strains that create tuber necrotic symptoms complicates these challenges even more and makes PVY a concern to commercial producers as well. Because many varieties are susceptible to PVY, a solution is to allow only seed lots with a clear or low virus reading to be planted in the seed potato production area. We do not know when or even whether, it will become important for commercial growers to ensure that clean seed stocks are planted to avoid tuber necrosis.

The Seed Department uses visual readings and laboratory testing to determine the virus content of the seed potato lots submitted for the winter test. Laboratory testing helps when symptom expression is expected to be less than optimal, but testing does not preclude contamination occurring in Florida. To avoid current-season infection in the winter test, sprouts can be tested. Sprout testing, however, is expensive when several viruses need to be identified. NDSSD records the results of both leaf testing and inspections in the North American Potato Health Certificates, which are available on request.

The industry is facing a challenge in controlling PVY, but it will face a bigger challenge. It will be necessary for the commercial industry and seed potato industry to cooperate in reducing inoculum.

NDSU Intellectual Property Rights

The NDSU Research Foundation (NDSU/RF) has learned that some of its varieties protected under Plant Variety Protection (PVP) may be in trials and/or utilized in the Ukraine without authorization from the NDSU/RF. Any transfer or sale of protected varieties without consent of the NDSU/RF is illegal.

Under the Plant Variety Protection Act, it is an infringement of the variety owner's rights to export or import seed of a PVP protected variety to any country outside the United States without authorization.

The NDSU/RF will prosecute any known infringers. Any violations regarding the export, import, propagation, multiplication or sale of any NDSU/RF variety protected by PVP could include triple damages in addition to collection of attorney's fees, costs and harvested material. Additionally, upon request, the court could order the infringer to immediately cease the production and/or sale of these protected varieties.

If you have any questions or know of someone who may be in violation of NDSU/RF's PVP rights please call the Research Foundation office at 701-231-8931.

Reminders:

- Tradition barley cannot be purchased from Canadian growers and imported into the U.S. without authorization from Busch Ag Resources Inc.
- Glenn wheat has not been registered in Canada, therefore any sales of Glenn into Canada are illegal. In the event Glenn is officially registered in Canada, Canterra Seeds is the only Canadian entity authorized to import certified seed.

Sending Samples for Final Certification

Galen Briese, Certification Manager

Certified seed samples sent to the NDSSD for final certification testing must be accompanied by proper paperwork. Sampler's reports for conditioned seed must include the field inspection numbers that make up the lot. That number is located in the upper left hand corner of the Field Inspection Report and begins with S08 this year. DO NOT use your own field numbers.

Other information needed is the number of unconditioned bushels for that lot, the final bushels after conditioning, bin number and the number of bulk certificates or tags requested by the labeler. Remember, each bin is considered a separate lot and will require separate samples. Additionally, we need to know who to bill for the tests, and to whom results should be sent.

Lot numbers, variety and class of seed labeled must be reported on the Sampler's Report. The lot number must be some type of identification that the labeler can track and easily identify. When designating a new lot number DO NOT use the lot number of the seed that was planted.

Final certification tests requested must be circled or identified. Check certification regulations for the crop you are certifying.

Samples must be collected and prepared by an authorized sampler. Submit samples in the PLASTIC BAGS furnished by the department. Place the completed Sampler's Report in the mailing pouch on the bag. The conditioner is also required to keep a clean sample for two years. We highly recommend that a sample of unconditioned seed be retained as well. Samples must be properly identified and stored in a manner to maintain the integrity of the sample.

Certified samples must not be submitted in MANILA ENVELOPES. They were NOT intended for new certification samples, so they were not designed for that use, they don't hold enough seed. Manila envelopes may be used for pre-conditioned samples (i.e., for pre-germs) and for carryover certified seed that must be re-germed. NDSSD has a new form called the Re-Labeling Request For Carryover Certified Seed. This form should accompany carryover seed when you need updated labels.

Remember, if you want prompt testing results you must include the correct forms with complete information. EXPECT DELAYS IF THE SAMPLES ARE RECEIVED WITHOUT THE CORRECT PAPERWORK!

2008 Seed Conditioner's Clinic a Success

In November, the State Seed Department and the Montana Seed Growers Association conducted the MonDak Seed Conditioner's Clinic in Williston, ND. We are greatly indebted to the following for their significant contributions as speakers:

Francis Serr, EBM - Principles of separation and product handling
Ron Purvis, Bratney Companies - Airscreen cleaners and length graders
Dave Knudsen, Oliver Manufacturing - Gravity tables
Jim Osment, Degesch America, Inc. Seed storage and treatments
Joe Magnusson, ND Regulatory Manager & Brent Sarchet, MT Dept of Agriculture - PVP and state seed laws
Bill Grey, Montana State University - Seed borne diseases and seed treatments
Mark Birdsall, Birdsall Seed and Grain - Legal concerns and the seedsmen

We also thank the following exhibitors and sponsors for their contributions. Their support and commitment to the North Dakota seed industry is greatly appreciated.

Agassiz Seed and Supply..Dustin Bjugstad EBM Francis Serr
Agri-Resources..... Lee Dybsand Garratt Industries, Inc..... K.C. Garratt
ArrowCorp, Inc..... Scott Theisen Gartner Seed Farm Mike Gartner
Bjerke Brothers..... Tracy Bjerke Lewis M. Carter Mfg Buddy Mathis
Bratney Companies..... Ron Purvis Oliver Mfg..... Dave Knudsen
Degesch America Jim Osment Westrup Inc Gary Muckala

There are countless people who helped make this event a success and we thank all for their contributions.



New Pulse Breeding Program at NDSU

Kevin McPhee

Pulse crop production in North Dakota has increased significantly the past 15 years. North Dakota now leads the nation in dry pea and lentil production. In 2007, the North Dakota state legislature approved funding for a pulse breeding program. This program established a faculty position located on campus at Fargo and an assistant breeder position located at the North Central Research Extension Center in Minot. Both positions were filled during the fall of 2008. I was selected as the pulse breeder while Shana Pederson was selected as the assistant breeder. The two positions will work together and direct the activities of the breeding program.

I am grateful for being selected to the faculty position as pulse breeder for NDSU. I look forward to the challenges and the potential that exists to have a positive impact on the pulse industry in North Dakota and the Northern Plains region. Thirteen years of experience with pulse crop breeding at the USDA-ARS Grain Legume Genetics and Physiology Research Unit in Pullman, WA, provided me a great foundation and understanding of the crops the breeding program will work on at NDSU. The program will concentrate on pea, lentil and chickpea variety development and associated genetic studies. The primary focus will be disease resistance followed by quality attributes for both human and animal feed markets. Superior yield and agronomic performance will also take a top priority in the breeding program.

As the program develops, input from the industry is welcomed and will allow the breeding team to address the most pressing issues affecting production of these three crops. Interaction with the established research programs in the state and the Research Extension Centers will be critical to the success of the breeding program. As time allows in the coming year, I look forward to meeting producers and industry members around North Dakota.

North Dakota State Seed Department

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NDSSD Calendar

- June 15** Field inspection applications due for all crops except conventional soybeans, buckwheat and millet
- July 1** Bulk certificates due
- July 15** Field inspection applications due for conventional soybeans, buckwheat and millet
- July 31** Labeling Fee Report due
- Sept. 15** Research fees due