



The North Dakota Seed Journal

JUNE 2013

Newsletter of the North Dakota State Seed Department

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Potato Virus Changing

Willem Schrage, Potato Program Director

The only potato virus prevalent in North Dakota is Potato Virus Y (PVY). The genetic composition of the virus is changing, resulting in different expression of symptoms. These changes, combined with the release of new potato varieties, have shown that PVY symptom expression has become unpredictable. North Dakota certified seed growers have, therefore, requested to have leaves of high generation seed potatoes from the winter test nursery tested with the Enzyme-linked immuno sorbent assay (ELISA) in the Seed Department Diagnostic Laboratory in Fargo.

The risk that a new variety may not show PVY symptoms in the first year after contamination was considered such that ELISA testing was preferred over visual observations alone. The request was expanded to include all high generation seed lots.

With the help of NDSU, a grant had been provided for the ND seed potato industry to identify PVY strains. In 2011 and 2012 all seed potato fields were tested with ELISA. Samples with positive wells were submitted to NDSU for identification of PVY strains with polymerase chain reaction (PCR). Leaves from seed lots expressing limited PVY symptoms in the winter test, and leaves from seed lots destined for Idaho that tested positive in ELISA tests were sent to Cornell University.

The results show that PVY is changing. This influences the symptom expression and makes roguing difficult. Since the grant has expired, strain identification will not be standard operating procedure.

The state of Colorado requires strain identification, and as such, special measures need to be taken if a shipment to Colorado is expected. It may be worth noting that Colorado also requires a late blight test. The state of Idaho requires a laboratory test for PVY and PVA for re-certification of seed potatoes and the province of New Brunswick requires a laboratory test for all seed potatoes to be planted in that province.

Seed lots with PVY are an important factor in the spread of virus, but the virus content in neighboring fields is important as well.

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

I operate under the philosophy that managing everything we do in business and personal terms is situational. By that I mean, while we might practice a consistent method to communicating and problem solving in daily life ... every situation requires a different approach. Everyone does it to some degree.

If there is an industry out there that is as situational in nature as agriculture, I've never seen an example. This holds true under "normal" circumstances; it's even more profound when winter never ends/spring refuses to arrive.

It's May 5th and the snow piles haven't disappeared completely. The scramble for early maturing varieties began long ago in this area and cropping plans are changing in much of the state before the wheels even start turning. Thank goodness we have options here in North Dakota; the ability to be nimble will be a necessity this year.

We have a couple great examples of situational extremes this spring.

Last year's drought affected seed quality this spring, especially in fragile crops. While 2012 harvest conditions were nearly perfect for commodity production, not so much for protecting seed quality in certain crops like field pea and soybean. This predicament demands flexibility from the entire seed community, from retailers to producers. As testing and regulatory officials, we must also be flexible enough to practice

a high degree of due diligence (to the benefit of the seed consumer public) while appreciating the impact of a late season on all parties concerned. Pulling additional samples, testing and re-testing, communicating with labelers... all of these have become the standard in this particular circumstance. It's a tough balancing act for all parties involved, but essential in protecting everyone's interest.

Internally, we've done battle with the seed quality and late spring issues with a seed lab handicap. No, we are not handicapped ... we've been short-staffed. Mark Hafdahl, our long-time Lab Manager retired in December. Jeanna Mueller, our new Lab Manager, went on maternity leave in February when her new baby decided to arrive early (congratulations Jeanna!). Illness took its toll on productivity and pace. Samples arrived in bursts as weather conditions allowed producers and conditioners to go about business.

I believe we met the challenge. Ciara Clark did a wonderful job stepping up to organize workflow and ensure that quality performance occurred in the seed lab. Mark came back and helped out for a couple of weeks at crunch time. Our analysts worked overtime. Various staff from the diagnostic lab, certification and support services pitched in and made sure sample processing went as smoothly and quickly as possible in whatever way they could. We adapted to the situation at hand. My thanks and appreciation to the entire team.

Best wishes for a safe, speedy and profitable planting season.



Ken Bertsch..... State Seed Commissioner
Steve Sebesta..... Deputy Seed Commissioner
Willem Schrage Director, Potato Program
Joe MagnussonField Seed Program Manager
Jeanna Mueller.....Seed Laboratory Manager
Jeff Prischmann.. Diagnostic Laboratory Manager
Kris Steussy Administrative Officer
Mike OosterwijkPotato Program Supervisor

2013 NDSU REC Field Days

July 8Central Grasslands
REC, Streeter

July 9Hettinger REC

July 10 ...Dickinson REC

July 11 ...Williston REC

July 15 ...Agronomy Seed
Farm, Casselton

July 16 ...Carrington REC

July 17 ...North Central REC,
Minot

July 18 ...Langdon REC

Annual Report of Seed Sales

The annual reporting form for seed sales will be mailed to all permit holders the end of June. That form and any fees due must be sent back to the Department by June 30 or late fees will be applied. **The form must be returned even if you did not have any sales in the reporting period. If you wish to cancel your permit, check the appropriate box at the top of the form and return it within 30 days.** We also have a number of permit holders who are selling seed in ND but not reporting any sales or remitting the appropriate fees. If you are a certified seed labeler and sell your own seed, you still need to report the sales and remit fees. When we find unreported sales we will stop sale any seed from that labeler until corrective action is taken.

Whom Do You Trust With Your Seed Testing?

Steve Sebesta, Deputy Commissioner

On occasion, customers challenge our labs when sample test results don't quite meet their expectations. Certainly, in some cases it can mean the difference between a certifiable, saleable seed product and commodity grain. This is a natural response, given the effort put into their product and the difference in value. We understand.

The most frequently contested test result has to be the germination test. On occasion, our results are compared to a customer's personal observations from "home tests" they have conducted. It's likely that these unofficial tests are conducted using non-standard materials, with uncontrolled methods and are evaluated without a full understanding of standardized, industry accepted rules. I'm certain that we have all germinated some type of seed in a warm window sill or the top of a water heater, for example, and just because some type of shoot or root emerged, we called it "good". However, in the real world of seed testing that isn't even close and should never be accepted. How many planting decisions are erroneously based on that kind of a test each year?

There is danger in "home germination tests". According to the Association of Official Seed Analyst (AOSA) rules, germination is defined as the emergence and development of the essential structures of the seed embryo that are indicative of the ability to produce a normal plant under favorable conditions. When conducting a germination test, a seed analyst determines whether each seedling is normal or abnormal. Abnormal seedlings have defects that will prevent the seedling from developing into a mature plant when grown in soil. ALL essential plant parts must be present in the developing seedling.

Figure 1 shows field pea seedlings from two lots of seed. The plants in the top part of the photo are from a high quality seed lot. The plants in the bottom part are from a seed lot with a high number of abnormal seedlings. Figure 2 shows the same abnormal seedlings after washing. Note the lack of

vigor, stunting and poorly developed shoots and roots. Figure 3 shows abnormal seedlings in a wheat sample. How many of you would consider the abnormal seedlings as normal, just because they sprouted?

On occasion we'll retest some samples at alternative official labs to double check our results. This occurred a couple times this year, involving seven field pea samples. To no one's surprise, the results were not identical. However, even though the test results between labs were different, every one was within the tolerances established by AOSA. This means that even though they were different, they were not statistically different. Moreover, one must realize that seed within a given sample will test differently. That's the reason for tolerances.

I recently checked our database for field pea germination tests to evaluate the variability within reps. Among the 309 samples, the mean deviation between replications in a single test was 6.6 percentage points. As one might expect, there is usually more deviation in poor seed lots than in good ones, and that is what was observed. The AOSA publishes tolerance tables in the *Rules for Testing Seeds* to determine whether the reps are within tolerance or whether two tests are within tolerance. Tolerances were established to compensate for differences in seed samples, labs, or analysts.

The point is, there is a reason official seed labs exist. There is a reason these labs are staffed by trained seed analysts. There is a reason for standardized rules for testing seeds. Official seed labs, like ours, staffed by trained and accredited analysts test seed according to the rules of the Association of Official Seed Analysts. They know how to test seed properly.

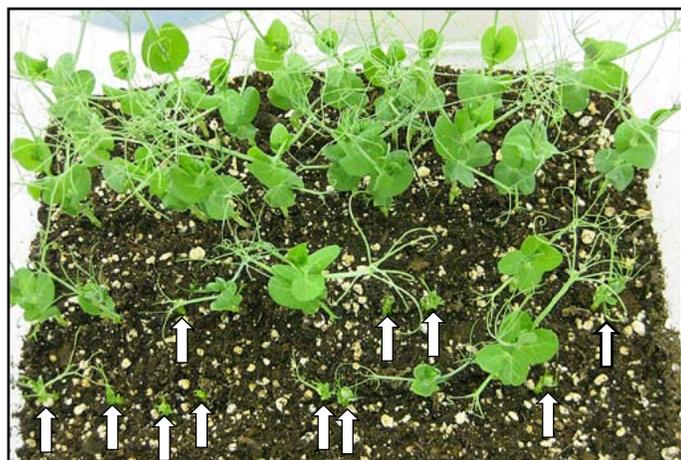


Figure 1. Field pea seedling development from a high quality seed lot (top) compared to a poor seed lot with a high number of abnormal seedlings (arrows).



Figure 2. Poorly developed plants from abnormal field pea seedlings.



Figure 3. Abnormal wheat seedlings compared to normal seedlings (bottom row).

Steele Farmer Fined for Seed Law Violations

Steve Sebesta, Deputy Commissioner

The North Dakota State Seed Department has settled a case concerning state seed law violations by a Kidder County man for an illegal sale of a protected variety.

Michael Rohrich of Steele agreed to pay the State Seed Department \$6,500 in fines for illegally selling seed of Souris oats. Souris, a North Dakota State University release, is licensed to the North Dakota Crop Improvement and Seed Association. Only members of the association's Dakota Select Seeds marketing group are authorized to produce and sell Souris.

Souris oat is protected under the Plant Variety Protection Act (PVPA), which is a federal law that protects the production and marketing rights of the owner. The 1994 amendments to the PVPA prohibit the sale of any farmer-saved seed without authorization from the variety owner.

In addition to the PVPA violation, the sale violated several North Dakota seed laws, including seed testing and labeling requirements.

In a separate settlement, Rohrich agreed to pay the NDSU Research Foundation, which owns Souris, the sum of \$15,000 for infringement of NDSU's intellectual property rights. The total fines for this illegal sale of 321 bushels of seed were \$21,500.



The Farmers Yield Initiative, or FYI, promotes legal seed trade, research, education, seed certification, and the enforcement of intellectual property rights authorized under the Plant Variety Protection Act (PVPA) and patent laws. The purpose of the initiative is to educate the public and encourage compliance with existing state and federal seed laws embodied in the PVPA and state seed certification regulations. If you suspect illegal seed activity please consider submitting a strictly confidential tip to help put a stop to illegal seed trade. You need not identify yourself during the phone call. The caller can remain anonymous, and it is toll-free. Phone completely confidential tips using the toll free number: **(877) 482-5907** Email tips to: **tips@farmersyieldinitiative.com** Mail tips to: Farmers Yield Initiative PO Box 8850 Fayetteville, AR 72703

The North Dakota State Seed Department is responsible for the enforcement of seed laws in North Dakota and considers these violations very serious. State and federal seed laws were established to protect consumers as well as variety owners and provide for the standardization of testing and labeling requirements. Illegal seed sales are detrimental to the state's seed industry and the hundreds of legitimate seed producers, conditioners and retailers engaged in legal trade.

This is the third case in the state resulting from tips to the Farmer's Yield Initiative (FYI) hotline and demonstrates the effectiveness of the public's involvement in helping to protect the legal seed trade in North Dakota.

Perhaps most importantly, these cases demonstrate the willingness of the seed industry to commit to the enforcement of intellectual property rights in agriculture. This effort requires commitment by all parties involved — the variety owner, the seed growers and retailers, and state regulatory officials. If variety owners are not willing to protect their varieties, if seed producers and retailers are content to turn a blind eye to known violations, or if state regulatory authorities are unwilling to enforce seed laws, then our vital and robust seed industry is at serious risk. We would like to think that all of us are committed to protecting our industry and willing to assume that responsibility.

Approved Conditioners and Bulk Retailers

Kyle Bednar,
Field Seed Inspector 1

As this issue reaches most of you, the planting season should be nearing completion and you are preparing for your summer work projects.

Facility Inspection Corrections

For those of you who were noted to be in nonconformance during your 2013 facility inspection, now is a good time to address those identified problems and make appropriate corrections. In early June you will receive a reminder of the corrections needed at your facility. Please take appropriate action to remedy these deficiencies and send the completed form back to our office by August 1.

2014 Agreements

Agreements to operate as an approved conditioner or bulk retailer will be mailed to all current facilities in August. Facility managers should complete the form and return it to our office with the \$100 payment by October 1 to be listed in the Seed Directory. Facility inspections will begin in October.

Reminder...

Labelers are required to return all unused bulk certificates and the corresponding Log Form by July 1.

Summer Potato Virus Testing Changes

Jeff Prischmann,
Diagnostic Lab Manager

In July and August, the North Dakota State Seed Department Diagnostic Lab conducts the annual summer potato virus leaf test as a service to potato growers interested in testing their fields. During the past two years, the Seed Department implemented a mandatory summer leaf testing requirement for all seed lots due to concerns over necrotic strains of PVY. **This year, PVY testing will NOT be mandatory, with the following exception; Russet Norkotah, Shepody, Silverton, and Alpine Russet must be tested for PVY.**

All tests conducted at the Seed Department are ELISA tests. A sample size of 400 leaflets will be required for PVY testing. Growers should submit at least 440 leaflets for this test in order to ensure the proper sample size is tested.

A PVX test can be conducted on the same sample as a PVY test is conducted. PVX tests are not mandatory. Also, Bt-Cry3a tests will also be available at the same time for any grower interested in obtaining a GMO test. This test requires a minimum of 400 leaflets. Growers need to submit a 440 leaflet sample if a GMO test is desired. **GMO tests are not mandatory.** The PVY, PVX, and GMO tests can be conducted on the same sample. **Again, a 440 leaflet sample will be required for PVY or PVX tests. For a GMO test only or a GMO test with a PVY or PVX test, ONE sample of 440 leaflets will be required.**

In early July, each grower will receive an information packet containing instructions on collecting and submitting samples for testing, sample tags, and a test request form. Please use the test request form to indicate when you would like to test. To ensure proper sample identification, the sample tags must be returned with the samples. Please contact the department if you have any additional questions on sampling and testing.

Rau Honored at NDCISA Annual Meeting

Charles Rau received the Distinguished Service Award during the ND Crop Improvement and Seed Association's annual meeting. The award recognizes individuals for their outstanding contributions to North Dakota agriculture and their community.

Charles started farming in 1961 with his father and during Charles' farming career, he and his wife, Lorraine, raised wheat, barley, corn, and alfalfa.

He served in the North Dakota Army National Guard from 1960 until 1983. He is an active member of the Salem United Methodist Church and currently serves on the church council. Currently, Charles serves as a director on the Tri-County Fair Board and has served as president of the Barry-Hoff Post of the American Legion. He is involved in many community boards including:

Logan County Weed Board, 4-H, FFA, and Logan County Livestock and Grain Association. Charles also works closely with the Logan County Extension office. Mr. and Mrs. Rau have also received the NDSU Harvest Bowl award for Logan County.



Logan County Extension Agent, Sheldon Gerhardt (left) and Charles Rau.

Seed Lab News

Ciara Clark, *Senior Seed Analyst*

Each spring the Association of Official Seed Analysts (AOSA) offers training for seed analysts in germination testing and purity analysis at the Iowa State Seed Lab in Ames. The Seed Analyst Short Courses are designed to provide information on seed quality evaluation on many plant species. This intensive training is a great tool in preparation for either the Registered Seed Technologist or Certified Seed Analyst examinations. Short courses usually consist of four days of lectures and hands-on training in the seed lab followed by an examination on the final day.

Seed analysts must complete two years of on-the-job training under the guidance of a Certified Seed Analyst before they are eligible to take the examinations. This helps ensure the analysts understand the basics of seed quality testing and are well-prepared for the exams.

In April I attended the Purity Short Course. The main things that are reviewed include seed structure and identification, guidelines for sampling, mixing and dividing a sample, completing a purity test and tolerances associated with purity testing.

This course is a great chance to meet other analysts from around the country and create contacts within the industry. It also gives us the opportunity to continue our education by getting experience working with crop and weed seeds that might not be common in our area. Most importantly, the classes ensure that seed analysts are technically competent to perform seed quality analyses according to AOSA rules, which are the standard for the seed industry, whether for seed certification or regulatory testing.

North Dakota State Seed Department

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NDSSD Calendar

- June 15** Field inspection application deadline for all crops except buckwheat, millet and soybeans requiring inspection
- July 1** Bulk certificates and log forms due
- July 15** Field inspection application due for buckwheat and millet
- July 30** Seed labeling report due
- Aug. 1** Field inspection application deadline for soybeans requiring pre-harvest inspection only
- Sept. 15** Research fees due