



# The North Dakota Seed Journal

SEPTEMBER 2005

Newsletter of the North Dakota State Seed Department

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## Impact of Fusarium Head Blight Widespread

Steve Sebesta, Deputy Commissioner

As small grain harvest moves north the main question continues to be the impact of Fusarium Head Blight. Reports are already coming in indicating significant yield losses attributed to scab. But beyond the obvious yield losses, scab can also have a significant effect on the quality of a seed crop.

### What impact will scab have on seed production and availability in 2006?

Growers are cautioned not to plant scabby seed. The most obvious effect of planting seed heavily infected with *Fusarium* is stand reduction due to poor germination. "Tombstones" are dead seed and will not germinate. However, other seed infected with *Fusarium* may still germinate and these may result in seedling blight and/or root rot which will further contribute to stand loss.

**Therefore, it is extremely important to remove as much of the scabbed kernels from the seed as possible**

**during conditioning.** Gravity tables will be very beneficial this year because length and width grading alone may not remove all the light weight kernels if size differences don't exist. The gravity table will eliminate more of the lighter seed resulting in a higher quality seed lot. The two pictures shown below demonstrate the effect of professionally conditioning seed. Figure 1 shows an unconditioned intake sample with a high level of infected seeds including "tombstones." Figure 2 shows the same seed lot following proper conditioning. One should also keep in mind that pre-conditioned samples infected with FHB will likely show lower germs before conditioning.

### Are there differences among varieties for tolerance?

Yes, there are differences, and breeders continue to select for tolerance. One

**Impact** continued on page 2

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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Figure 1. An unconditioned intake sample with a high level of infected seeds including "tombstones."



Figure 2. The same seed lot following proper conditioning.



## From the Commissioner's Desk

I love this time of year.

The weather is great, the landscape is beautiful. School is starting, harvest continues. Bison football, hunting season... the list goes on. Our people are still out finishing off another in the line of great seasons for certifying seed. All this activity is what is really exciting about fall.

By the time this edition of the Seed Journal hits the mailbox, we'll have a much better indication of the variable nature of this year's crop (how many times do we attach the term variable to anything related to agriculture?). Scab seems to be the big issue, again, along with heat stress affecting overall yield and quality of small grain crops. We'll hope that row crop results are as good as they look currently.

Since we are on the topic, thank goodness for an arsenal of tools to battle fusarium head blight. Whether chemical or varietal, the industry has pursued remedies to the problem and seems to be making headway. Alsen wheat has saved the agriculture industry in this region untold millions of dollars. By all indications, Glenn and Freyr, among other wheat varieties,

Ken Bertsch ..... State Seed Commissioner  
Steve Sebesta ..... Deputy Seed Commissioner  
Steve Marquardt ..... Director, Potato Program  
James Swanson ..... Seed Regulatory Manager  
Joe Magnusson ..... Seed Certification Manager  
Mark Hafdahl ..... Seed Laboratory Manager  
Jeff Prischmann .... Diagnostic Laboratory Manager  
Kris Nicklay ..... Administrative Officer  
Galen Briebe ..... Field Seed Specialist  
Mike Oosterwijk ..... Potato Program Supervisor

seem to have potential as tools to battle the scab war. One of these days, scab will be replaced by another problem in small grain production. Probably about the time the ultimate scab resistant variety is developed. In my mind, this is a lot like the Devils Lake flooding issue. I've always said that a solution will be found about the time the next drought hits.

A short comment on one of the articles in the Journal. We've gone and done it again. You will read that a new fee schedule in our Seed Laboratory is being instituted effective October 1. While I hate seeing costs increase as much as the next person, as an administrator I understand the necessity of balancing service quality, finances and long-term program outlooks. The Seed

Department has done a masterful job in holding prices down over the past twenty years or so, but unfortunately it catches up sooner or later.

The Seed Commission and staff approach fee adjustments with two objectives in mind: 1) attempt to break even in each department enterprise, and 2) stay in line with industry pricing standards. We are closer in some agency programs than others, but this particular move in the laboratory service area should stabilize our goal of providing solid service at a reasonable cost to the agriculture industry. I welcome any feedback or suggestions you have on this topic.

Wishing you a safe and profitable harvest season.

### Impact continued from page 1

benefit of years such as this is that they provide breeders the opportunity to effectively make selections to improve future varieties. If you have paid attention to the NDSU "Crop & Pest Report" this summer you have seen several articles by Dr. Marcia McMullen, NDSU Extension Plant Pathologist, describing NDSU's efforts to quantify scab infections and rate the disease reaction of the most commonly grown varieties. **Preliminary** reports indicate there were significant differences among varieties. The final report will include data from multiple locations and will also include yield data. If you do not already get a copy of the "Crop & Pest Report" call the NDSU Entomology Department at 701-231-7582 to subscribe.

### Do seed treatments help?

Research has shown that certain seed treatments can be effective in improving the germination of *Fusarium* infected seed.

### Stay informed

In summary, growers and conditioners need to be aware of the effects a severe disease year like this has. It not only affects the current crop, but can have significant implications for next year as well.

Battling complex diseases such as scab usually takes a team effort and growers should recognize that funding important research like this is made possible, in part, by research fees generated from the sales of royalty-bearing varieties of certified seed.

### In Memory

David Jensen, Jamestown, passed away unexpectedly July 26, 2006. Dave inspected fields in the Stutsman County area for the last 10 years and his experience and service to the North Dakota agricultural community will be missed.

## Laboratory Fees to Increase

The ND Seed Commission approved fee increases for a number of tests provided by the ND State Seed Laboratory at their July meeting. **The new fee schedule will be effective October 1, 2005.**

NDSSD administration completed financial and operational analyses of laboratory services in April. The project included an examination of internal costs and a comparison of fee structures with regional providers. Administration proposes fee increases based on these two criteria, while the Commission is responsible by law to approve all fee adjustments in the department.

Germination and purity testing on most cereal, legume and oilseed crops will increase \$2 to \$4 depending on the crop and test. For example, cereal crop germination charges increase from the current \$8 per test to \$11 per test; cereal purity tests increase from \$9 to \$12.

Clients should note that the new price structure still remains *at or below* the fees charged by competing laboratories in the tri-state region. The most recent increase in laboratory services occurred five years ago.

As a public agency, the Seed Department seeks to provide services at the lowest possible cost to our customers. This increase allows our laboratory enterprises to operate closer to a breakeven level, while providing timely and accurate results to growers and seed companies.

Customers can receive a new fee schedule by calling the Seed Department or accessing our website at [www.ndseed.com](http://www.ndseed.com). The updated schedule will also be printed in the 2006 Seed Directory.

## Imaging System Added to Diagnostic Lab

*Jeff Prischmann, Diagnostic Lab Manager*

The Diagnostic Lab is now equipped with a new imaging system that will primarily be used to capture electronic images of both protein and DNA gels run in the lab. Customers will now be able to request digital images of gels that contain analyses of seed protein (electrophoresis test) or DNA from their samples. This new imaging system will allow the department to electronically archive and analyze all gel electrophoresis performed. In addition, we will now have the capability of creating an image database of all the varieties that we perform protein and DNA testing on.

The diagnostic lab currently conducts varietal identification testing of several cereal crops that uses either seed protein or seed DNA. We currently conduct protein electrophoresis tests for varietal identification

on wheat, durum, oat and barley. DNA markers are also used for barley variety identification. A varietal "fingerprint" is developed for each test after gel electrophoresis is performed. It is this fingerprint that we are able to electronically capture using our new imaging system.

Please contact the department with questions or for further information about seed testing services and how we can put this new tool to work for you.



## Vomitoxin Test Offered by the Diagnostic Lab

The Diagnostic Lab now offers vomitoxin testing for wheat and barley to detect levels of DON. This test is a quantitative ELISA procedure that can detect levels of DON up to 3 ppm. This test can be performed as a qualitative test (positive or negative) or a quantitative test (DON values from 0 to 3 ppm). The fee for this test is \$25 per sample. A 200g (half pound) sample is required.

Please contact the department with questions or for further information.



# 2005 Annual Regulatory Report

For Fiscal Period Ending June 30, 2005

James E. Swanson, Seed Regulatory Manager

## Seed Labeling Requirements

All seed exposed, offered or transported for sale to the public must be properly and truthfully labeled and represented. The Seed Labeling Fee Permit system requires that any person or business that labels seed must have a permit, report seed sales and submit a fee annually to the State Seed Department. Seed labeling fee reports are due back in the department's office 31 days after the end of the reporting period, i.e. August 1. Anyone not reporting by the due date will be assessed a late filing fee whether a balance is due or not. Approximately 1,500 permits are currently in place.

## State Seed Arbitration Board

If a dispute between a seed labeler and a seed customer occurs, a petition may be made to the state agriculture commissioner to arbitrate the dispute before the State Seed Arbitration Board. If the dispute is heard, the board will make a recommendation to the parties involved toward resolution of the dispute. If the parties involved do not accept the recommendation of the board, the parties can pursue resolution through a litigation process.

## Cooperation With The Federal Seed Act

North Dakota, as well as all states, has a cooperative agreement with the Federal Seed Branch of the Agricultural Marketing Service, USDA. The department cooperates with the Federal Seed Branch enforcement authorities in regulatory matters pertaining to seed shipped in the state. All violations of interstate-shipped seed are reported to the Federal Seed Branch.

When seed is shipped or transported in interstate commerce, the labeling must comply with the rules and regulations under the Federal Seed Act and with the state into which the seed is delivered. If the U.S. Postal Service is used to advertise seed, those seed lots also must be truthfully advertised as required by Federal Seed Act regulations.

## Plant Variety Protection

Owners and developers of unique varieties of plants may apply for Plant Variety Protection on a variety they own. Protection may be granted in two ways.

1. **Protected** – owner retains exclusive control over the production and distribution of the protected variety – generations are unlimited.
2. **Protected – Title V Option** – owner specifies the variety can only be sold as a class of certified seed – owner determines the number of generations allowed.

Certain limitations apply to producers planting seed of a protected variety.

1. Producers can save seed for their own use.
2. Producers cannot sell seed of a protected variety without authorization of the owner (for Title V varieties, certification constitutes authorization).
3. Producers may not knowingly condition seed of a protected variety for unauthorized propagation.
4. Protection extends to harvested material grown from illegally acquired seed.

## Inspection Report

The inspection staff, consisting of Kyle Bednar, Dave Drechsel, Don Jablonsky, Ordean Jacobson, and Tom Weippert drew 1,730 samples that were tested for germination and purity. Seed quality was generally excellent this past season which was borne out by the low violation rate. "Stop Sale" orders were issued on nine samples that were found out of tolerance with the label claim. This is a very low violation rate in relation to the number of samples drawn (<1%). "Stop Sale" orders were issued on an additional 32 seed lots, primarily for out of date labels. See the following table.

## State Seed Law and PVP Infractions Result in Fines

Administrative action was taken, and fines and fees were assessed against Milnor Grain Co., Milnor, ND for violations of North Dakota State Seed Laws and the Plant Variety Protection Act. A routine regulatory inspection of company records uncovered the illegal sale of a seed variety protected under the Plant Variety Protection Act. Further investigation revealed that several sections of the North Dakota Seed Laws had also been violated.

Milnor Grain Co. of Milnor, ND was fined a total of \$7,250.00 for violations of the Plant Variety Protection Act and North Dakota Seed Laws as follows:

- \$750 for violation of Sec. 4-09-10, Labeling requirements for agricultural seed
- \$750 for violations of Sec. 4-09-12, Invoices and Records
- \$750 for violation of sec. 4-09-14.1-b, Prohibitions
- \$5,000 for violation of Sec. 4-09-17.1, Plant Variety Protection Act

**“Stop Sale” orders were issued on the following seed lots that were out of tolerance with the label claim**

Name and Address of Vendor/ Labeler	Kind and Var. Lot#	Mislabeled as to	Claimed	Found
Arthur Companies, Arthur, ND Same	Cert. Knudson Wheat AFE-KNU-0501d	Germination	97%	76%
Dakota Midland Grain, Voltaire, ND Same	Cert. Robust Barley 2005-108B13V	Noxious weeds	0.00%	.03% 13 wild oats/lb.
FU Oil & Agronomy, Williston, ND Land O’ Lakes Inc, Ft. Dodge, IA	MP 2000 Alfalfa N268-5A	Germination	90%	75%
Haaland Grain Farm, Berthhold, ND Same	Reg. Sierra Chickpea PPI-04-33	Germination	86%	75%
Howe Seed Farm, Casselton, ND Same	Reg. Legacy Barley S0410113-2.	Germination	98%	83%
Renville Elevator Co. Tolley, ND Same	Pembina Flax Eide Red Hopper	Germination	93%	77%
Renville Elevator Co. Tolley, ND Same	Webster Flax 1st. 5000 E. of Eide Hopper	Germination	94%	78%
Sunprairie Grain, Minot, ND Same	Reg. Lacey Barley R-2164-10	Excess other crop Excess noxious weeds	00% 00%	5 wheat/lb. 1 wild oats/lb.
Sunprairie Grain, Minot, ND Same	Bethune Flax 125	Germination	94%	84%

**“Stop Sale” orders were issued on the following seed lots with out-of-date labels**

Name and Address of Vendor	Name and Address of Labeler	Kind and Variety	Lot #
Hubbard Feed & Seed, Bismarck,ND	Kaltenberg seed Farms, Waunakee, WI	Seed Corn	NB 6154
Hubbard Feed & Seed, Bismarck,ND	Kaltenberg seed Farms, Waunakee, WI	Seed Corn	5784
Hubbard Feed & Seed, Bismarck,ND	Kaltenberg seed Farms, Waunakee, WI	Seed Corn	6151
Mainline Agronomy, Eldridge, ND	Hansmeier & Sons, Bristol, SD	Reg. Webster Flax	03120
Nogosek Hardware, LaMoure, ND	NK Lawn & Garden, Chattanooga, TN	Various garden seed lots	Various
Larsen Grain Co. Lamoure, ND	Same	Various grass seed lots	Various
Larsen Grain Co. Lamoure, ND	ADM, Reese, MI	Cert. Mayflower Navy Bean	Various
Alco, Lisbon, ND	Northrup King	Various grass seed lots	Various
Plains Grain & Agronomy, Lisbon, ND	Mycogen Seeds, Indianapolis, IN	Mycogen Alfalfa	RL10563357
Plains Grain & Agronomy, Lisbon, ND	Syngenta Seeds, Minneapolis, MN	Various Alfalfa lots	Various
True Value Hardware, Lisbon, ND	Scotts Co. Maryville OH	Various grass seed lots	Various
Menards, Minot, ND	Performance Seeds, St. Cloud, MN	Shady Grass mix	04201AB
True Value Hardware, Minot, ND	Scotts Co., Maryville OH	Various grass seed lots	Various
True Value Hardware, Minot, ND	Scotts Co., Maryville OH	Various grass seed lots	Various
Farmers Union Oil, Mohall, ND	Croplan Genetics, Minot, ND	Northern Lawn Seed	48746
Farmers Union Oil, Mohall, ND	Mountain View Seeds LTD. Salem, OR	9140 Show&shade mix	M6-4-UHSS-1
New Salem FU, New Salem, ND	Croplan Genetics, Minot, ND	640 Alfalfa	W-0130-4
New Salem FU, New Salem, ND	Hubbard Feed & Seed, Bismarck, ND	YB Sweetclover	2003-2
New Salem FU, New Salem, ND	Discount Seeds, Watertown, SD	Seed Corn	02
Oakes True Value, Oakes, ND	Scotts Co.	Sun & Shade Mix	40058
Engh Hardware, Sherwood, ND	NK Lawn & Garden, Chattanooga, TN	NK Fast & Fine Lawn seed	47512-4121
Tappen Farm Supply, Tappen, ND	NK Lawn & Garden, Chattanooga, TN	Various grass mixes	Various
Tappen Farm Supply, Tappen, ND	Mountain View Seeds, LTD. Salem, OR	Various grass mixes	Various
FU Oil A& Agronomy, Williston, ND	Monsanto Co, St. Louis, MO	Sorghum Sudan grass	5357PAEZX
FU Oil A& Agronomy, Williston, ND	Monsanto Co, St. Louis, MO	SX17 Sorghum Sudan	1752KAPZY

**A “Stop Sale” order was issued on the following lots due to missing or incomplete labels**

Name and address of vendor	Name and address of labeler	Kind and Variety	Lot #
Berlin Farmers Elevator, Berlin, ND	Sabre Initiatives, Inc. Wilmar, MN	CSR0500 Soybean	5505N11GS
Berlin Farmers Elevator, Berlin, ND	Sabre Initiatives, Inc. Wilmar, MN	MBS 59310RR Soybean	5505N13GS
Souris River Grain Coop, Souris, ND	Pulse USA, Bismarck, ND	Oat-pea mix	not available

**“Stop Sale” orders were issued on Certified seed being sold through a non-approved facility**

Name and address of vendor	Name and address of labeler	Kind and Variety	Lot #
CHS Inc. Pisek, ND	Northwest Grain, Warren, MN	Cert. Alsen Wheat	04-AW-7793
CHS Inc. Pisek, ND	Northwest Grain, Warren, MN	Cert. Alsen Wheat	04-AW-7853

**“Stop Sale” orders were issued on Certified seed lots delivered to a Bulk Retailer without proper labels**

Name and Address of vendor	Name and address of Labeler	Kind and Variety	Lot #
Fred Mitzel Farm, Edgeley, ND	Same	Cert Knudson Wheat	#1GG
Fred Mitzel Farm, Edgeley, ND	Same	Cert. Alsen Wheat	SW#3

## Handle Soybean Seed Carefully to Avoid Quality Losses

Mark Hafdahl,  
Seed Laboratory Manager

Every year the Seed Lab receives soybeans samples that don't make the minimum 85% germination standard. With the exception of last year's frost damaged seed we rarely see a lot of new crop seed that contains more than about 3% dead seed. That leaves abnormal seed, which, in almost every case is mechanically damaged.

Low moisture at harvest sets the stage for mechanical damage to occur. If the seed is at 8 to 10% moisture it can not survive any rough handling. Even at 12% moisture the seed parts are brittle and can easily be damaged. However, soybeans stored above 12% moisture during warm weather may mold.

Mechanical damage may happen in every step of production from filling the planter to harvesting to conditioning. Any time the seed is dropped or augered it can be damaged. Steel flighting in grain augers can cause seed splitting and seed coat damage resulting in reduced germination. Run augers slow and full to reduce potential damage.

Bean ladders in storage bins reduce the velocity at which soybeans fall during bin filling. Avoid using grain spreaders while filling bins because they can cause more damage.

Handling soybeans at cold temperatures also contributes to damage. The solution is to manage harvest moisture properly, eliminate as many drops as possible and don't use an auger.

## Seed Storage Guidelines

Kenneth Hellevang, Ph.D., Professor, Extension Engineer

It is very important for seed to be stored at cooler temperatures and at acceptable storage moisture contents to maintain germination. The germ of the seed is normally affected by mold growth, but germination will be damaged **before** mold growth is visible. The germination of wheat can be affected within weeks if stored damp and warm.

**The allowable storage time is approximately cut in half with each percentage point of moisture content increase or with each ten degree increase in grain temperature.**

Wheat seed germination may be reduced during a few months storage at moisture contents exceeding 13% and temperatures of 70F or warmer. Normally, the allowable storage time for commercial grain storage is based on a 0.5% dry matter loss. Significant amounts of visible mold growth are not normally expected during these allowable storage times, but germination can be damaged.

**It is very important that seed be cooled using aeration and for it to be dried to recommended long-term storage moisture contents to maintain germination.**

### Estimated Safe Storage Period (weeks)

Criterion: Germination

Grain	Temperature (F)	Moisture Content (%)						
		12	13	14	15	16	17	18
<b>Barley</b>	68	80	50	32	19	10	5	2
	59	170	100	65	40	20	10	4
	50	400	260	160	90	50	21	8
Grain	Temperature (F)	Moisture Content (%)						
		12	13	14	15	16	17	18
<b>Wheat</b>	68	55	40	23	16	10	5	2
	59	100	75	40	25	16	9	4
	50	200	140	77	49	29	15	8

### Estimated Safe Storage Period (weeks)

Criterion: Visible Mold Growth

Grain	Temperature (F)	Moisture Content (%)						
		12	13	14	15	16	17	18
<b>Cereal Grain</b>	68	*	*	*	*	100	20	10
	59	*	*	*	*	*	30	20
	50	*	*	*	*	*	60	30

\* Exceeds 100 weeks

## Research Fees Due September 15

In July labelers were mailed Research Fee Reports for all royalty-bearing varieties of certified seed labeled in their name. The deadline for payment of those fees is September 15. The Seed Department is contractually obligated to turn all delinquent accounts over to the variety owner for further collection efforts. If you have not paid your Research Fees for 2005 sales please do so soon.

## Carry-over Seed Report Due October 1

**Unconditioned** carry-over seed produced in 2004 and eligible for final certification must be reported by October 1 in order to be listed in the 2006 Seed Directory. Call the office if you did not receive a report form.

## Conditioners...

Make plans to attend the conditioner's clinic scheduled for November 8-9 at the Fargo Civic Center. Registration information will be mailed to all conditioners soon.

## NDSSD Seeking Regulatory Manager

Due to the impending retirement of Jim Swanson in January 2006, the Seed Department is in the process of recruiting a Seed Regulatory Manager.

The ideal candidate would have knowledge, understanding and experience in the implementation and enforcement of state seed laws and the Federal Seed Act. Working knowledge of Plant Variety Protection is an integral part of the position. The position reports directly to the Deputy Seed Commissioner, supervising regulatory activity and providing leadership in the Field Seed Program.

Questions regarding the position should be directed to Ken Bertsch or Steve Sebesta. A job description and application materials are available by calling the Seed Department. Recruitment will begin September 15 and the application deadline is November 1, 2005. Candidates are encouraged to check the department website at [www.ndseed.com](http://www.ndseed.com) for additional information.

## Crop Improvement District Meetings

The North Dakota Crop Improvement and Seed Association has scheduled its district meetings. You are encouraged to attend.

## Soybean Growers...

Final soybean field inspections will be underway soon. Make certain your fields are ready before the inspector arrives. Isolation strips must be in place for certified seed fields. For fields enrolled in the QA program, consult the company for whom you are producing seed to determine whether you need isolation. Nightshade must be rogued from ALL fields before the inspector arrives.

**Fields that have been combined before the final inspection will be rejected.**

If you are ready to harvest and you have not received verification that the final field inspection has been completed call the Seed Department. We'll try to get an inspector out to you as soon as possible. However, with more than 400 fields scattered over a large area, response time may be delayed depending on the location of the inspector. Plan ahead to avoid harvest delays.

## Tips for Submitting Seed Samples

*Rhonda Rabideaux*

Follow the steps outlined below to ensure your samples are processed quickly and correctly. Failure to do so will increase turn-around time.

**When sending in a sample for testing, please be sure to:**

1. Include a return address so we know who to send the results to.
2. Identify the kind, variety, lot number and what tests you want done.
3. Identify field-inspected seed by using the current field application number (e.g. S0512345) — **not** the lot number of the seed that was planted.
4. If we are supposed to send a copy to someone else, or bill someone else, let us know.
5. Submit enough seed for the tests you want done (see *Seed Directory* for sample size requirements).

**Conditioners — when sending in a sample for final certification, please remember:**

1. We need a sampler's report for each lot (remember — **each bin is a separate lot**).
2. Be sure to fill in the blanks on the sampler's report, especially the field inspection number(s), clean bushels, number of bulk certs requested, who to send them to, who to bill, and any special instructions.
3. If the seed is being re-tested or has been re-conditioned, be sure to provide the certification number from the initial sample.
4. If we are supposed to use a pre-germ, smut, dome, anthracnose or ascochyta test that was previously done for the lot you are submitting, be sure to provide those test numbers so we don't repeat those tests.
5. Fill the plastic bag full and make sure you seal the ziploc seal as well as the second sticky seal.

## North Dakota State Seed Department

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Permit No. 229

# NDSSD Calendar

**September 13-15...** Big Iron, Red River Vally Fairgrounds

**September 15.....** Research Fees Due

**October 1.....** Unconditioned Carry-over Seed Report Due

**November 8-9.....** Conditioner's Clinic, Fargo Civic Center

**November 29-30....** NDAA Northern Ag Expo, Fargodome

## Crop Improvement District Meetings Scheduled

**December 7.....** Southwest District — Mandan

**December 8.....** Northwest District — Minot

**December 9.....** Northeast District — Lakota

**December 12.....** Southeast District — Valley City