



THE PULSE AGRONOMY NETWORK
PARTNERSHIP WITH INDUSTRY



PAN - All Pulse Bulletin #15 – October 19th, 2009

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Monitoring Stored Pulse Crops

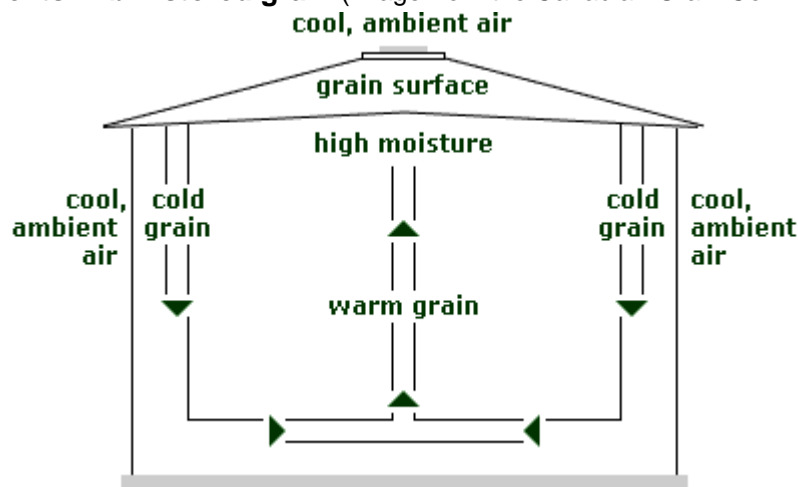
The recent snowfall was a reminder of one way that is used to monitor bins to see if they are heating. If there is snow on the roof of the bins... that's usually a good sign. But the snow has all but disappeared in many areas, and that is not the most effective way to monitor quality. The four major ways to assess stored products is through temperature, moisture/relative humidity, carbon dioxide measurements, and sample removal and examination. The Canadian Grain Commission recommends that stored crops be examined every 2 weeks for signs of heating or infestation; check either temperatures or carbon dioxide levels; and check insect activity by using traps, or probe and sift grain samples.

Some pulse crops can produce a lot of condensation in the bin after harvest, especially peas and chickpeas. Bins should be monitored frequently to check for moisture build-up and spoilage. Mould growth can be a problem with any stored crop. In the most recent edition of Pulse Crop News it was noted that "Fungi are everywhere, and opportunistic. If conditions are favorable, they will manage to grow on any crop they can..." Fungi may subsequently produce mycotoxins. Some micro-organisms will grow at relative humidities as low as 70% and at temperatures as low as -2°C. Using aeration in the winter should allow pulses to be cooled and reduce the relative humidity in the bin to safe levels.

Monitoring Quality

When monitoring, one should not rely on readings of average moisture content or temperature throughout the bin because there may be hot spots in isolated locations where moisture is high and mould can occur. To avoid spoilage, bins should be routinely monitored via probing, and aeration applied as required. (The same should be done in the spring to warm the grain, adjusting for the seasonal temperature change.)

Convection currents in bin-stored grain (image from the Canadian Grain Commission's website)



This diagram shows the cycle of convection currents in bin-stored grain when ambient air outside the bin is cold and the grain is warm.

- Grain is a very good insulator. When it is undisturbed, it holds temperature well.
- If warm grain is placed into storage and left undisturbed, convection currents may develop and cause hot spots and condensation.
- The greater the temperature differential (the difference between the temperature of the grain and the ambient temperature) the stronger the convection current.
- The stronger the convection, the greater the effect of heating and condensation on the grain.
- This is particularly evident when stored grain is not leveled and the pile forms a peak.

More information on managing the quality of stored grain can be found through the following link to the Canadian Grain Commissions website.

<http://www.grainscanada.gc.ca/storage-entrepote/temperature-eng.htm>

How to Monitor Temperature

Check the temperature of the bin every two weeks. Measure the temperature of the stored product by using temperature sensing cables that are permanently installed in the bin or by probing the grain with an electronic sensor device. If devices for measuring temperature are not available,

- Assess the general temperature by inserting a metal rod into the grain at the top of the pile near the centre. The rod should reach at least one meter into the grain.
- Leave the rod for approximately 30 minutes.
- Remove the rod and, with the palm of the hand, test it for warmth at various points from the tip. Any section of the rod that feels warm to the touch is an indication of heating and grain spoilage.

Aeration and Rotation

Aeration is one way of altering the temperature in the bin. To do this, the aeration fan must have adequate power to provide air flow through the grain: the recommended requirement for aeration drying of a pulse crop is about one to two cubic feet of air per minute per bushel; about 2,000 to 4,000 cubic feet per minute for a 2,000-bushel bin. Another option for is the use of a belt conveyor to give the pulse crop a rotation in the bin to prevent spoilage, and the use of a conveyor can accomplish this with very little seed damage. Typically a rotation of 1/3 of the crop in the bin will reduce the number of hotspots in a bin.

Pea Samples Requested – 2 requests

1. An extensive program to define the nutrient content of the major feed ingredients used in western Canada is underway at the University of Alberta. It is being performed so that the feed industry and growers have a better understanding of what these products, including peas, barley and wheat, are worth nutritionally and financially. The researchers are currently at the stage of developing tests that can rapidly and cheaply determine the nutritional quality of peas; however, they require samples with a wide range of nutrient levels in order to make this possible. Pea samples have proven especially challenging to source because two pea samples that look identical may be very different nutritionally, while samples from different grades may be nutritionally identical! Therefore, ACIDF has asked the Canadian Grain Commission to scan the samples collected in the Harvest Survey program, identify the samples most likely to be nutritionally unique, and to contact producers to see if they would be willing to sell a larger amount to the researchers.

This cooperative approach with the Canadian Grain Commission is exciting not only because it promises to be the most cost-effective way to identify and collect samples for the ACIDF project, but also because it holds the promise of reducing costs for future grower-funded research in peas and other crops. Please support this project by either submitting samples in the Canadian Grain Commission Harvest Survey envelopes prior to November 1/09, or by adding your name to the Harvest Survey sample list at: <https://grainscanada.gc.ca/wa-aw/hss-eri/nu-nu/newuser-nouvelutilisateur-eng.asp>.

2. The University of Manitoba, together with the Alberta Pulse Growers and Saskatchewan Pulse Growers, is conducting a study relating to stem and bulb nematode in peas in Western Canada. However success of this project requires your help.

The study requires your assistance to provide pea samples so researchers better understand linkages between the peas and the nematode and understand management practices that influence nematode presence. Participation by as many pea growers as possible to provide pea harvest samples for analysis is very critical as the frequency of occurrence of this nematode pest is very low.

If you have one or many fields of peas, then APG has sample envelopes available to provide samples, with the shipping costs prepaid. Please contact Tammy Jones at the APG office for envelopes by e-mail at tjones@pulse.ab.ca or by phone at 780-986-9398.

PMRA Updates:

1. Select Herbicide Label Expansion

The User-Requested Minor Use Label Expansion (URMULE) for the use of Select herbicide to be registered for the control of labelled weeds on dry common beans has been approved, as of October 9th, 2009. This label expansion allows for Select herbicide to be used on all classes of dry beans rather than only specific ones. Please refer to the Select label or attached pamphlet for more details.

2. Cruiser 5FS Seed Treatment

PMRA has amended its precautionary statement for the handling of seed treated with Cruiser 5FS in the USE PRECAUTIONS section to add the following:

All individuals handling treated chickpea, lentil, dry pea (including field pea), lupin and fababean must wear cotton coveralls over long sleeved shirt, long pants, chemical-resistant gloves and a properly fit tested NIOSH/MSHA approved dust mask classified as N95 or higher when leading seed into hoppers and planting treated seed. Do not graze or feed livestock on seeded area for 45 days after planting. Do no use for food, feed or oil processing. Store away from food and feed.

Please refer to the Cruiser 5FS label for complete details.

Coming Events:

Winter Pulse Crop Walk - Lethbridge Research Centre - Oct. 20, 2009

Date and Time: Tuesday, Oct. 20, 2009 at 10:00 AM - the crop walk will be about 1 hour - weather permitting!

Location: Meet at the Lethbridge Research Centre Visitor Parking Lot. The Research Centre is 1 km east of Lethbridge on Secondary Highway #512 (Goal Road).

Crops: Winter Peas, Winter Lentils and Winter Fababeans

-Attendees will have the opportunity to view crop establishment of winter pulses seeded at three different times in early, mid and late September at three seeding rates.

-Will view and discuss opportunities and challenges with winter pulses

Discussion by: Mark Olson, Robyne Bowness, Ken Coles, Rob Dunn, Ross McKenzie

Sponsored by: Alberta Agriculture - Ag Research Division and Southern Applied Research Association

Hot Coffee will be provided to all hearty attendees

For more information contact:

Ross McKenzie (ARD) at 403-381-5842 or Ken Coles (SARA) at 403-381-5118

Agri-Trade 2009

November 11 – 14

9 am – 5 pm daily

Westerner Park, Red Deer

Mark your calendar for the upcoming Zone Annual General Meetings where you could win admission to Farm Tech! **To pre-register contact Tammy Jones by e-mail at tjones@pulse.ab.ca or by phone at 780-986-9398**

Zone 1 December 7, 2009

Time: 9:30 am Registration

Luigi's in Taber

Contact: Elizabeth Tokariuk

403-345-6550

email: conservation@platinum.ca

Zone 4 December 4, 2009

Time: 9:30 am Registration

Sexsmith Civic Centre

In Cooperation with Alberta Canola

Producers Commission

Contact: Linda Schmidt 780-836-2107

Zone 2 November 16, 2009

Time: 9:00 am - 4:00pm

Three Hills Community Hall

In Cooperation with Alberta Barley

Producers Commission and Alberta

Canola Producers Commission

Contact: Gerry Good 403-337-2212

Zone 5 November 17, 2009

Time: 9:00 am-4:30 pm

Vegreville Social Centre

In Cooperation with the Alberta

Canola Producers Commission

Contact: Wayne Wascherol

780-853-9467

Zone 3 November 18, 2009

Time: 11:30-4:30 Includes Lunch

Alberta Room, Westlock Community Hall

Contact: Cliff Cyre 780-349-4775

Alberta Pulse Growers Commission Annual General Meeting

1:00 pm, January 28, 2010

Mayfield Hotel Inn, Edmonton

Contact APG office for details

780-986-9398

1-877-550-9398

Previous PAN Bulletins

View Previous PAN Bulletins at:

<http://www.pulse.ab.ca/ForProducers/Publications/PulseAgronomyNetwork/tabid/125/Default.aspx>

If there is an article that you would like to see or contribute to the Pulse Agronomy Network, e-mail reply or call 780-986-9398 Ext3.

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