



CropPest Ontario

Agriculture Development Branch
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Thinking of Taking Advantage of this Year’s Lower Grade Corn as a Feed Ingredient? Here are some Precautions.

**Ron Lackey, Feed Ingredients & Byproducts Feeding Specialist
OMAFRA, Stratford**

There may be opportunities for livestock producers to utilize some low test weight, higher than normal moisture corn that is present in some parts of Ontario this year. After all, research trials would suggest that livestock can perform quite well on this type of corn. However, there are some precautions when considering this lower grade of corn as a feed ingredient.

First is harvesting- if you are hoping to harvest this corn as shelled corn , make sure it is dry enough to go through a combine, of course.

Second is storage –when put into storage as higher moisture corn, fermentation should occur quickly, however the moisture content may be well above recommended levels

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Comments, suggestions or articles are welcome. To be added to the distribution list please contact:

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and the results are therefore less predictable. This may not be a good year to experiment, particularly in large quantities, with new types of storage, such plastic bags or tubes. On the other hand, a small experimental trial may provide a valuable learning opportunity for future use.

Third is handling-wet corn does not flow or blow as easily as drier corn, handling will take more power, energy and time.

Fourth is processing- set rollers or grinders to process this corn as coarse as possible to avoid a finely ground high moisture meal that may not handle or feed well.

Fifth are moulds-much of our mould challenge this year

have been of the Cladosporium type, which make the corn look black and undesirable, however Cladosporium does not generate harmful mycotoxins, and should not affect feed safety. However, extreme infestation levels might affect palatability (this affect is presently unknown). It may be best to first offer a small quantity to your livestock in order to gauge their reaction. Recently there have reports of increasing levels of DON from fields not yet harvested. Check for potentially harmful levels of mycotoxins before putting this corn in storage.

These precautions are not meant to discourage the use of this year's corn as a feed ingredient, where and when appropriate. Provided these considerations are properly managed, higher moisture, low test weight corn can be an opportunity feed ingredient. These risk factors and generally higher handling costs needed to be reflected in any prices negotiated between the buyer and seller.

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2010 Performance Trials for Spring Cereal Crops are now available!

You can contact your nearest OMAFRA office or the Agricultural Information Contact Centre at 1-877-424-1300 or email ag.info.omafra@ontario.ca

The complete performance trials are also available at http://www.gocereals.ca/Spring_Cereal_Infosheet_2010.pdf



The trials contain the most recent varietal information on spring cereals that were planted and harvested in 2009.

2009 Corn—The Fair, the Bad and the Ugly

Greg Stewart— Corn Specialist, OMAFRA, Guelph
Albert Tenuta—Field Crop Pathologist, OMAFRA, Ridgetown



Figure 1. Corn Challenges – The Ugly

Contributing factors

- i. no cob integrity, spongy, discoloured.
- ii. kernels are small, shriveled, high in moisture, discoloured.
- iii. moulds (primarily Cladosporium) present on kernel ends and when ears are broken open moulds are also present in the cob and on the exposed surfaces of the kernels.
- iv. mouldy or fermented smell

In this situation keep in mind the Crop Insurance deadline for reporting on your 2009 corn crop is December 15!

Figure 2. Corn Challenges – The Bad.

Contributing factors:

- i. cob integrity is reasonable with considerably more ear weight, not spongy like in Figure 1 (Ugly).
- ii. moisture is high and test weight low, most of this corn will test Sample Grade based on test weight.
- iii. moulds present on kernel ends and when ears are broken open moulds are also present in the cob and on the exposed surfaces of many of the kernels.
- iv. mouldy or fermented smell.

Over time other moulds such as Gibberella and Fusarium have begun to show and therefore, fields should be harvested sooner than later. Cladosporium does not produce any known toxins and if properly stored or ensiled mould growth should stop under anaerobic (oxygen-free) conditions. If grain is to be used for feed, a mycotoxin test is recommended and the feed may be less palatable to livestock.

Season's Greeting and wishes for a prosperous 2010.....

**from the staff at
 OMAFRA
 Ridgetown
 Resource Centre
 and the
 Field Crop Extension Team**



2009 Corn—The Fair, the Bad and the Uglycontinued




Figure 3. Corn Challenges – The Fair.

Contributing factors:

- i. cob integrity is reasonable with considerably more ear weight, not spongy like in Figure 1.
- ii. moisture is high and test weight low, most of this corn will test Grade 5 or Sample Grade based on test weight.
- iii. moulds may be present on kernel ends but when ears are broken open the cob and kernels faces are relatively free of mould.
- iv. sample smells fresh or sweet.

Of the three scenarios, this is the best situation with the most options for marketing or utilizing the grain.



**Mark Your
Calendar!**
*The 17th Annual
Southwest Agricultural Conference*
Wed. Jan 6 and Thurs. Jan. 7, 2010
University of Guelph –Ridgetown Campus

Visit the website for all the program details:
www.southwestagconference.ca

Only 33 days away!

Hazards of Fines & Dust in Grain Bins

Helmut Spieser, Engineer, Field Crop Conditioning & Environment, OMAFRA, Ridgetown

You may have seen a number of articles talking about the problems that fines may present in bins of corn from an air flow standpoint. Fines do present a real risk of restricting air flow and may cause spoilage to start which left unchecked could result in quality deterioration. Repeated exposure to fines and grain dust can also present a health risk to people working in and around moving grains

Coring Bins

Coring bins this year is critical to minimize as much as possible airflow problems through the winter storage months. Farmers that are coring their bins are doing so every 7 to 10 feet of grain fill. Coring removes the highest concentration of fines so they don't pose as much of a problem. Clean this cored material if at all possible or put it into another bin and ship it first. Be careful what you ship. Buyers have limits on the amount of fines that they will allow. Some companies have raised their amount of allowable fines, some as high as 7%. You'd think this is great news. The scary reality is that even with 7% allowable fines, many loads are still being rejected. Farmers with exceptionally high levels of fines in their stored corn should be very nervous. If you haven't cored your bins, consider doing it now. Finding out you have a problem with fines in February will not be any fun. Coring your bins should lessen any problems that may arise.

Grain Dust Can Make You Sick

Grain dust, hay dust and moulds can make you sick. Here are two conditions that can develop after repeated exposure to these materials.

- FARMERS LUNG, GREEN LUNG long term permanent lung scarring caused by moulds, grain dust, hay dust
- ORGANIC DUST TOXICITY SYNDROME, GRAIN FEVER caused by prolonged exposure to organic dusts
- Can result in reduced lung capacity

Size of Particles

Farmers don't like to wear dust masks for a variety of reasons. Some feel masks obscure their vision while others just find them a nuisance. Properly fitting dust masks or respirators prevent fine particles from entering your airway so you can breathe freely for many years to come. Nose hairs only remove the really big pieces. The extremely small particles can be carried deep into the lungs. If there are moulds present, the symptoms can be

For working with grain, associated dusts and moulds look for N95 or N99 masks.

more severe than just a cough.

The size of dust particles is described in microns. A micron by

definition is a millionth of a metre. To put this into perspective, a human hair is approximately 100 microns in diameter. Here is the depth to which some particle sizes can be deposited in the respiratory system.

- dust can be 0.1 micron to 10 micron in size
- 10 micron particles can be seen floating in sunlight
 - ◇ Caught in nasal passages or upper airway
 - ◇ Discharged as sputum or swallowed
 - ◇ Symptoms – runny nose, watery eyes
- 4 to 10 micron particles will settle in upper lungs and bronchial area
 - ◇ Symptoms - asthma-like conditions, wheezing, laboured breathing and coughing
- under 4 micron particles carried deep into lungs
 - ◇ Symptoms - pneumonia-like, fever, chills, muscle pain, laboured breathing and wheezing

Hazards of Fines & Dust in Grain Binscontinued



Figure 1. Facemask with cartridges - N95 rated



Figure 2. Particulate Disposable Respirator-N95 rated



Figure 3. Particulate Disposable Respirator-N95 rated

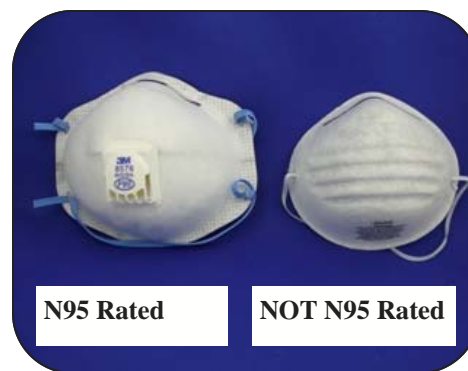


Figure 4. Respirator on the left is o.k. to use - it is rated N95; Dust mask on the right-DO NOT USE WHEN WORKING WITH GRAIN DUST-NOT N95 RATED

Personal Protective Equipment

There are many different styles and types of particulate masks or respirators available. These can range from disposable masks to half-face masks that have replaceable cartridges. Particulate masks or particulate respirators have both a letter and numeric designation. For particulates associated with grain dust use a mask with an N designation. The numeric value on the mask describes the filtration capacity of the mask. The higher the filtration number, the better the filtration capacity. For working with grain, associated dusts and moulds look for N95 or N99 masks.

- N Stands for non-oil resistant, solid or liquid aerosols not containing oil
- Numeric value is the filtration capacity based on its ability to block particles with a 0.3 micron diameter

Sources for Particulate Respirators

Particulate respirators are available at most safety supply suppliers such as these;

- Acklands Grainger
- Safety Supply
- St. George Company

Check your local yellow pages for a full listing of safety supply companies in your area.