

# Mycotoxin Analysis

A resource for Vermont's Grain Growers

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# FUSARIUM HEAD BLIGHT OR SCAB

- *Fusarium graminearum*
- *Overwinters on stubble-corn, wheat*
- *Blows in*



Warm, humid conditions at flowering







White shrivelled "tombstone" kernels

## Mold Growth in Grains:

- Change grains' color, consistency, and smell
- Make grains undesirable to livestock/humans
- Decrease fat, protein, and vitamin content, leading to nutritional deficiencies in livestock
- Mold growth can also lead to **mycotoxin contamination.**

# MYCOTOXINS

- Toxins or chemicals produced by certain groups of fungi
- Not all fungi produced toxins
- Toxins are produced under a certain set of conditions
- Just because the fungus is present, doesn't mean the toxin has been produced.
- Can't smell, taste or see if mycotoxins are present

# ARE ALL TOXINS HARMFUL?

- Aflatoxin-most harmful toxin
- Penicillin-harmful to fungi/bacteria
- Harmful ones include:  
aflatoxin, deoxynivalinol or DON, ochratoxin, fumonisin, T-2 and zearalenone



# Deoxynivalenol (DON) or Vomitoxin

- Toxin produced by *Fusarium graminearum*
- Wheat, corn, barley and ensilages
- Vomiting, feed refusal, gastroenteritis, diarrhea, immuno-suppression and blood disorders
- DON-human consumption 1ppm in finished wheat products. (Cows/chickens 5ppm total diet.)
- Important to test if using grain for flour.

# DON testing

- Take representative sample-1 quart ziplock bag as harvesting
- Send check made out to UVM for \$20.00 from July 1-December 1 (higher prices at other times)
- Sample must be clean with no rocks
- Quick turn around

# Mycotoxin Veratox 2/3

.5 to 5 ppm



Fall results-

- variable depending on variety and location
- Range was 0 to 4.1 ppm



# Plant Diagnostic Clinic

- Resource for growers for disease weed and insect identification
- Send samples to Ann Hazelrigg, Plant Diagnostic Clinic, Hills Building or Jeffords Hall,
- UVM, Burlington, VT 05405.
- [Ann.hazelrigg@uvm.edu](mailto:Ann.hazelrigg@uvm.edu)
- <http://www.uvm.edu/pss/pd/pdc/>
- 656-0493



- *What is a PPM?*
- “One part per million” is a lot to think about. Here are some facts that put 1 ppm into perspective.
- • There are approximately 13,960 kernels of wheat in 1 pound. One kernel in 71 pounds is equal to 1 ppm.
- • There are approximately 3,500,000-4,000,000 grains of sand per pound. If you take 4 grains out
- of the pound you have removed 1 ppm.
- • There are 2,678,400 seconds in August. In the time it took to read this, approximately 10 ppm has
- gone by.
- “One part per billion” is 1,000 times smaller than 1 ppm. For example, one second in 32 years is 1 ppb.