

# 20<sup>20</sup> Tech Bulletin

## Fusarium Tests and How to Use Them

**Fusarium head blight (FHB)** is well established in Saskatchewan and Manitoba. Also known as scab or tombstone, this disease is now spreading throughout Alberta. It is considered a good practice to know the presence of FHB in seed stock. FHB can be caused by four different species of *Fusarium* however *F. graminearum* is of the most concern due to its virulence.



Not only does *F. graminearum* have the ability to decrease yields and affect the appearance of your grain, but it is also able to produce a mycotoxin called deoxynivalenol (DON), also known as vomitoxin.

Seed with high levels of DON cannot be sold into the food market and can cause serious health problems if fed to livestock. *F. graminearum* causes root rot, harvest yield losses, and downgrading of the grain (tombstone kernels) as well as producing a poisonous mycotoxin called Vomitoxin (DON or Deoxynivalenol).

There are a number of tests for Fusarium and each has a specific purpose. These are the three main tests:

### Fusarium Plate Test

- 5-7 day 200 seed (surface sterilized) agar plate grow-out test
- Any intrinsic *F. graminearum* infection identified in the seed sample is reported quantitatively as a percentage.

### Fusarium DNA Test

- Three-day test
- Detects the presence of the *F. graminearum* DNA in the seed sample
- Results are reported as “Detected” or “Not Detected”

NOTE: Test cannot differentiate viable vs non-viable *F. graminearum* DNA

### Vomitoxin (DON Test)

The Vomitoxin test checks for the presence of DON (Deoxynivalenol)

- Three-day test.
- Uses an ELISA (enzyme-linked immunosorbent assay) method to detect the DON mycotoxin.
- Provides you with the amount of the mycotoxin present in the sample, expressed in parts per million (ppm).

NOTE: The ELISA test will not tell you if *F. graminearum* is present on your seed.



**Negative results:**

- Indicate that *F. graminearum* or *F. culmorum* (both of which can produce DON) were not producing mycotoxins at the time of the test.

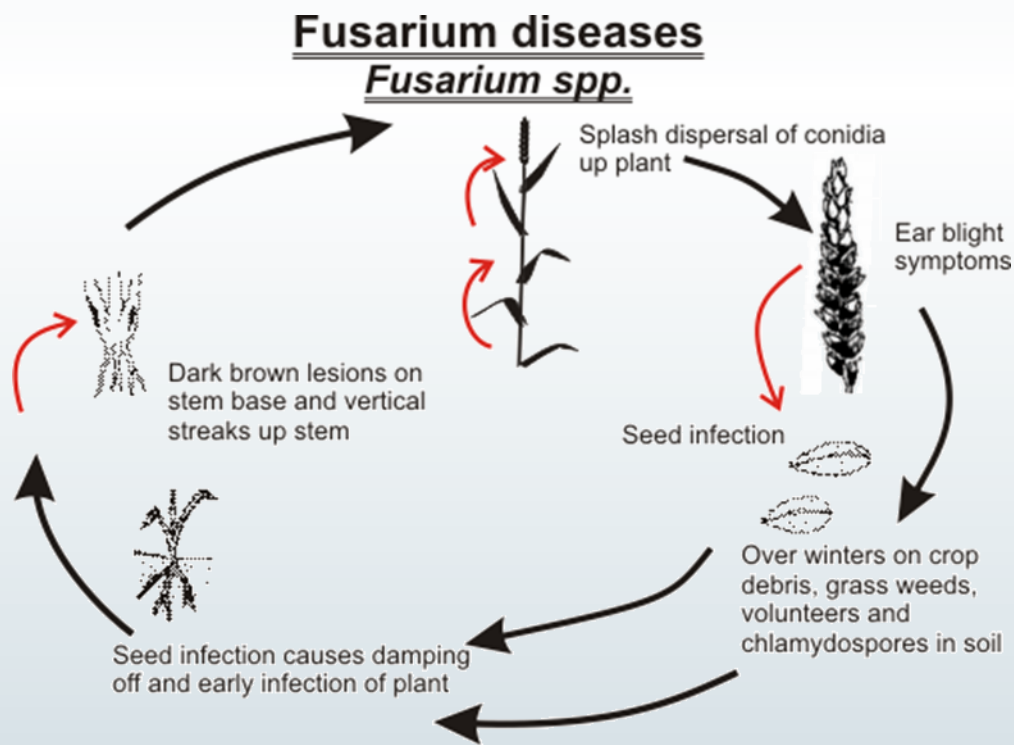
**Positive results:**

- Indicate that *F. graminearum* or *F. culmorum* were present and producing DON in levels detectable by the test.

A Vomitoxin test does not identify which species of Fusarium is producing the mycotoxin nor does it necessarily mean your grain cannot be used for feed.

Seed with high levels of DON cannot be sold into the food market and may cause serious health issues if fed to livestock

Submitting a Sample Please contact us for complete information on how to submit seed for testing or follow the link below: <http://www.2020seedlabs.ca/how-submit-sample-2020-seed-labs-inc>



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