Wet Year Brings *Fusarium*, Watch out Livestock Producers

By Jesse Williams, Special Areas 2 Ag Fieldman

Did You Know?

FHB was first recognized as a fungal disease in North America about 120 years ago. But it wasn't until 1993 when a severe outbreak in Manitoba brought it to the Canadian Prairies.

Fusarium Head Blight (FHB) also known as scab or tombstone is a fungal disease that affects kernel development in cereal, corn and many wild and tame grasses. A certain species, *Fusarium graminearum*, is of particular concern to crop and livestock producers as it is declared a pest under Alberta's Agricultural Pest Act, and has been found inside the borders of Special Areas in recent years.

Fusarium Head Blight, particularly the *graminearum* strain, causes significant losses in grain yield, grain quality, reduces germination and results in downgrades in baking/milling wheat and malting/brewing barley. It also produces a mycotoxin called vomitoxin or deoxynivalenol (DON). In cattle DON has been associated with reduced feed intake, reduced growth rate, poor feed conversion, general unthriftiness, low milk production and lowered immunity.

Above: FHB symptoms on barley kernels include darkened, shriveled seeds. DON levels reached 15 ppm in this sample. Image from Alberta Agriculture & Forestry.

The Right Crop Conditions

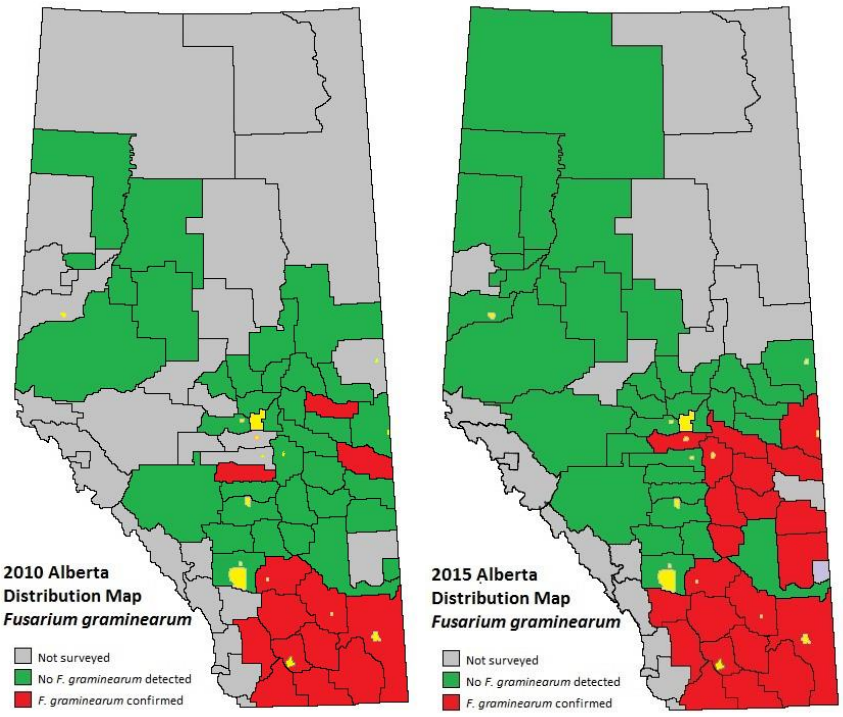
FHB typically overwinters in crop and grass residues, in the soil and on seed. Wind borne spores spread the infestation during the flowering stage of cereals. Warm, moist weather worsens the infestation as rain-splashed spores can infect head tissue. The greater than average rainfall in the Special Areas this past year may have contributed to increased levels of Fusarium Head Blight infected crops.

Symptoms of FHB in-crop include premature bleaching or blighting of heads. The bleached seeds do not fill properly and appear shriveled. Florets may have looked pink or orange near their base.

Right: Partial F. graminearum infection of the head. The bleached portion of the head is killed. Image from Alberta Agriculture & Forestry.

Fusarium in Alberta

There are several species of the *Fusarium* fungus that affect Alberta producers. *Fusarium colmorum* is more often found in Alberta, versus its regulated cousin F. *graminearum,* but both are a concern due to their DON vomitoxins. While incidence in Alberta is still relatively low, there has been an increase in *F. graminearum* in recent years. In 2010, only 13 counties within the province had confirmed fields, but 2015 surveys showed there were now 22 positive counties.



Left: The 2010 versus 2015 Fusarium graminearum distribution maps of Alberta. Images from Alberta Agriculture & Forestry.

Each year your Ag Fieldmen complete a FHB survey within Special Areas. In 2015, there were no *F. graminearum* positive fields sampled in Special Areas 2, however there were confirmed *F. culmorum* fields. Within Special Areas 4 there were 3 confirmed cases, and within Special Areas 3 trace amounts were detected in samples.

Because *F. graminearum* is regulated under the Agricultural Pests Act you cannot sell, distribute or use any *F. graminearum* infested seed, and it is up to the land owner or occupant to take measures to prevent the establishment of the pest. To assist pest inspectors and producers in limiting the introduction, escalation, spread and impact of this disease, the **Alberta *Fusarium graminearum* Management Plan** was created. You can access it online through www1.agric.gov.ab.ca.

If you are concerned that your grain or feed may be infected with *F. graminearum* you can submit samples for laboratory testing, through BioVision, 20/20 Seed Labs Inc or Precision Seed Testing. Testing can be done on seed, grass, hay and cereal straw.

Reduce Your Risk

The greatest risk to introducing *F. graminearum* to your farm is with infected seed, feed or crop residues like straw. You should therefore always use healthy seed and feed with no detectable levels of *F.graminearum*, which can be proven with a seed health report from the seller.

Feed Management

If you suspect feed could be infected with FHB, grain, feed and straw samples should be submitted to a laboratory for DON analysis. The level of mycotoxins identified will determine if the product is suitable for feeding. Certain levels of *F. graminearum* can be fed to finishing cattle, which will aid in eliminating the pathogen and contaminated grain, however it is important to consult with a professional about the concentration and amount fed. FHB contaminated feed should not be fed to pregnant cows or young calves.

Bedding straw represents a very high risk of spreading FHB because the practice of spreading straw in fields can bring the pathogen in direct contact with the soil. If the straw is not collected and composted properly, it is an excellent way to establish the disease in that field.

If possible, limit the storage of feed/grain products in uncovered piles, or where there is contact with the soil. Avoid range feeding of infected products. If any infected feed is spilled, consider removing and composting at 60-70°C for two weeks. If knowingly transporting infected products be sure to thoroughly clean trucks and equipment at the unloading site, for composting.

Agronomic Management

Producers who irrigate their cereal crops are under a greater risk due to the humid conditions conducive to disease development. Irrigation should be limited for 5 to 10 days when the crop is entering the flowering stage. Excessive irrigation during this time can greatly increase FHB risk.

Crop rotations are essential in controlling diseases. You should leave at least two years between host crops, which include all small grain cereals, corn and native/tame grasses. You should also avoid planting small grain cereals immediately adjacent to cereal or corn crops that are suspected *F. graminearum* fields. Pay close attention to your seeding rates. By increasing seeding rates you will promote a healthier, more uniform stand with reduced tillering and shorter flowering period. This will help reduce the stage where the crop is most susceptible to *Fusarium* infection. Stagger field seeding dates to avoid all cereals flowering synchronously.

When available, seed varieties with the best levels of resistance. This will not completely eliminate the risk of *Fusarium*, but can be a management tool. **You can download a variety listing here.**

When there is high risk of FHB suspected growers should consider the use of a well-timed fungicide registered for FHB management.

More Questions? Ask Your Local Ag Fieldman

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