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# DAIRY NEWSLETTER

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## Mycotoxins in Your Feed

An abnormally wet Fall across most of Southwestern Ontario has led to significant challenges with getting crops harvested, manure spread, land worked and next year's seeding done. It seems like the sun rarely shines and never for long enough to dry out the fields. The humidity in August and September, followed by wet conditions has created a perfect environment for mycotoxins in this year's feed. Mycotoxins are produced by fungi (molds) growing on crops in the field or in storage. There are over 400 different types of mycotoxins, but only a few have been found to have detrimental impacts when consumed by animals.

Molds (such as *Fusarium*) growing on the corn stock or ear are the main concern following the weather we experienced this Fall. They propagate in both the grain and forage parts of the plant leading to high mycotoxin levels in corn silage, high moisture corn, cob-meal and dry corn.

Below is a table illustrating the main types of mycotoxins found in our area along with thresholds and possible effects.

<b>Mycotoxin</b>	<b>Possible Effects</b>	<b>Threshold in Final Dairy Cow Diet</b>
DON (Deoxynivalenol or Vomitoxin)	-can cause off-feed, LDA, milk decrease, diarrhea -generally associated with poor performance	3ppm based on dry matter
Zearlenone (ZEA)	-estrogenic effects -vaginitis, vaginal secretions, poor repro performance, cystic cows, mammary gland enlargement (virgin heifers)	400ppb based on dry matter
T-2 Toxin	-can cause feed refusal, enteritis, intestinal hemorrhages, death, decreased milk production, absence of estrous cycles	600ppb based on dry matter

DON (Vomitoxin) is often the initial mycotoxin measured when feed is sampled. If DON is elevated, there is a high likelihood that both Zearlenone and T-2 are also elevated and further testing should be done to confirm their levels.



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Mycotoxins can be found in feed that has not been ensiled properly. In this instance, they do not invade the crop prior to harvest, but are soil-borne mold spores that are brought into the silo during harvest. If the silo or bunk is improperly sealed, the desired low oxygen and low pH environment are not achieved, allowing the growth of mold and production of mycotoxins. Mycotoxins produced in silos can be from different families than those mentioned above. This underlines the importance of feed storage and management in halting the production of mycotoxins.

If there are so many different sources and types of mycotoxins, how can we deal with them? First and foremost, knowing what levels you have in your final total mixed ration is a critical first step. If TMR levels are above the thresholds listed above you can follow up with further investigation to determine the source and how to combat the problem. The following are options for dealing with mycotoxins in feed:

#### 1. Binders

There are a wide variety of different binder types that can be added to the feed at appropriate levels. Consult with your veterinarian and nutritionist to pick an appropriate product based on the mycotoxins found and their level.

#### 2. Dilution

Dilution can be used exclusively or in conjunction with a binder to help lower mycotoxin levels in the final total mixed ration being fed. For example, if you have high mycotoxin levels in both corn silage and high moisture corn, it may be beneficial to sell your high moisture corn and buy back corn with lower mycotoxin levels.

#### 3. Alternate Feed Sources

Sourcing other feedstuffs to include in your ration such as beet pulp, citrus pulp or cottonseed, etc. can help minimize the use of high mycotoxin feed. Be sure to avoid by-products from corn that contains mycotoxins, as these by-products will be as high or higher.

All of these options should be discussed with your herd veterinarian and nutritionist and they will develop a strategy that works on your farm.

### **Take Home Messages**

- 2018 corn has a high likelihood of containing mycotoxins due to a humid, wet Fall
- Different types of mycotoxins can have different effects on an animal
- Binders, dilution or alternate feed sources can be used to mitigate the effects of mycotoxins
- Ask you herd veterinarian and nutritionist to develop a strategy that works on your farm