



## Don't let mycotoxins be your Waterloo

By Janet Fallon, CCA - Dairy One Forage and Soils Lab

A plant pathologist/history buff I know maintains that mycotoxins may have played a role in Napoleon's defeat at Waterloo in June of 1815. He found evidence that Napoleon's army suffered a very large mortality in their horses the winter and spring leading up to that infamous battle. The historical record confirms that growing conditions in 1814 were quite stressful and could have resulted in moldy grain. This moldy grain, probably loaded with mycotoxins, could have contributed to the high mortality of Napoleon's horses, not to mention his utter defeat at the hands of the Duke of Wellington!

So, just in case you think that mycotoxins are something new.....they aren't! They have been plaguing mankind since the beginning of time! Molds and mycotoxins can occur in most feeds including grain, hay and silages. Improved detection methods over the last 20 years, has led to increased awareness of mycotoxins as a potential problem. As time moves forward, we continue to learn more about mycotoxins and their impact on animal health and production.

High producing cows are typically more susceptible to metabolic diseases and toxins in their diet. Also, higher producing cows eat more, which effectively increases the potential daily load of mycotoxins entering the rumen.

We will never be able to completely eliminate molds and mycotoxins from feed but there are a few things we can do to minimize their potential impact so they don't become OUR Waterloo!

Good management is essential for preventing the development of mycotoxins. The following suggestions help minimize potential for mold and mycotoxin production:

- Silos need to be sized for rapid feedout.
- Plant adapted species & plant on a timely basis.
- Use disease & insect resistant varieties when available.
- Reduce crop stress by providing a balanced fertility program, and controlling insects & weeds (including volunteer corn or small grains).
- Harvest at the correct maturity & moisture content.
- Consider processing corn silage.
- Fill silos fast, pack well & cover to exclude oxygen.
- Use a reputable fermentation aid.
- Manage the silage face to minimize spoilage.
- Discard spoiled feed.

If you're experiencing problems, work with your veterinarian or feed consultant to identify potential reasons for chronic (reduced intake/production) or acute (death) health problems in the herd. Rule out other possible causes first.

Test feeds for the more common toxins including DON, T2, Zearalenone, and Aflatoxins. There are literally hundreds of different mycotoxins, but the presence of one (especially DON) is a good indicator that others may be present. Keep in mind that there may be mycotoxin hot spots & low spots in the feed that may or may not correspond to the presence or absence of visible mold. For this reason, sampling for mycotoxins is difficult, since they are not always uniformly distributed in the feed. It is recommended that you take numerous subsamples and create a well mixed composite sample to submit for analysis. Also, freeze wet samples in a zip lock bag and use an overnight delivery service if possible.

If mycotoxins are part of the problem, the next step is to work with your veterinarian and feed consultant to develop a strategy for feeding affected feeds safely;

- Remove or dilute the feed ingredient containing mycotoxins. Complete removal of that feed is especially important for transition cows & calves that may be most susceptible.
- Make sure cows have enough effective fiber and buffers in their diet since acidic diets may magnify toxin effects.
- Consider using mold inhibitors to minimize mold and toxin production in risky feeds during storage and feedout.
- Adsorbents are not approved by the FDA but several products appear to reduce intestinal absorption of certain mycotoxins.
- Vitamins and antioxidants may also help alleviate the problem.
- More aggressive measures may be necessary with categories of livestock (poultry & swine) that are more sensitive to mycotoxins.

The bottom line is this. Mycotoxins are prevalent in feeds. Some years, locations, crops, planting dates, etc. are worse or better than others. Mycotoxins are toxic to livestock depending on the level and type of toxin and the species of livestock! Prevention is important but diagnosis is key to managing mycotoxin related losses in your operation. Who knows--Napoleon may have had a totally different outcome at Waterloo if he had only known what was in his horses' feed!

### ***Mycotoxin Service***

Dairy One recently launched a new mycotoxin service. We now use HPLC (High Performance Liquid Chromatography) to determine the levels of Aflatoxin B1, Aflatoxin B2, Aflatoxin G1, Alfatoxin G2, Vomitoxin (DON), 3-Acetyl DON, 15-Acetyl DON, T2 and Zearalenone. HPLC is the method of choice for a wide array of sample types including grains, byproducts, corn silage, hay and haylage.

The new Mycotoxin Panel includes **all toxins** for \$65.00 (individual toxin analysis will no longer be performed). Visit our web site [www.dairyone.com](http://www.dairyone.com) or contact customer service (1-800-344-2697, ext. 2172) for more information.

### ***Get Ready for Spring***

It took winter a while to get here but it is finally here. That said, Spring really isn't that far away and now is a good time to go over your corn planter and make any necessary repairs or maintenance needed to ensure you are ready to hit the field running. Research has shown that uneven plant to plant spacing or emergence can reduce yields by as much as 7 to 15 bushels per acre!

Here are a few pointers from The Corn Growers Guidebook at <http://www.kingcorn.org>:

- With plate-type planters, match the seed grade with the correct planter plate.
- Planters with finger pick-ups should be checked for wear on the back plate and brush. Use a feeler gauge to check tension on the fingers, then tighten them correctly.
- Check for wear on double-disc openers and seed tubes.
- Make sure the sprocket settings on the planter transmission are correct.
- Check for worn chains, stiff chain links, and improper tire pressure.
- Lubricate all chains and grease fittings.
- Make sure seed drop tubes are clean and clear of any obstructions.
- Clean seed tube sensors if you have a planter monitor.
- Make sure coulters and disc openers are aligned properly.
- With air planters, match the air pressure to the weight of the seed being planted.

Once you have your planter in ship shape condition, don't forget to **CALIBRATE THE PLANTER**. You can still get lousy results with a well maintained planter if it isn't calibrated properly. Follow the directions in the planter operators manual for best results and remember, you should do this for each seed lot and make sure everyone operating the planter knows how to use this information. And while you're at it, calibrate any pesticide and fertilizer planter attachments. Double check the application rates and placement. It's also a good idea to check that the planter toolbar is parallel to the soil surface when the planter is in the ground and running. The consequences of not being parallel with the

ground affect disc opener depth, press wheel efficiency, and the adequacy of seed to soil contact. Further adjustments may be needed in season depending on changes in soil conditions, etc.

### ***Bottom Line ...***

A little attention and TLC paid to your planter now will pay big dividends later in terms of more uniform stands of corn and higher yield potential. The beauty of this advice is that most of the maintenance and adjustments necessary for bringing a planter into shape are relatively inexpensive, while the potential returns in yield can be quite large.