

Mycotoxin Tolerance Levels

Over The Past Two Years Mycotoxin Contamination Has Been More Prevalent Due To The Stressed Crop Seasons



By Brian Hoffelt, B.S.

At Crystal Creek we would be very happy if we never had to sell a bag of Fuse 207 or Crystal Creek's Mycotex again because mycotoxins did not exist. If there were no such thing as mycotoxins everyone on the team (farmer, nutritionist and cows) would be happier. Mycotoxins raise havoc with cows on any nutritional program and can be extremely detrimental to a farm. Fortunately, Fuse 207 and Crystal Creek's Mycotex fill the need for a sound and functional method in dealing with mycotoxins present in feedstuffs.

Over the past two years mycotoxin contamination has been more prevalent due to the stressed crop seasons that we have had nationwide. Mycotoxins can plague a herd with poor production, lower components, depressed immune function and poor herd health among many other economically disastrous issues.

There are 3 different strategies that you can apply to deal with mycotoxins in the ration:

1. Don't feed the contaminated feedstuff.
2. Dilute the contaminated feedstuff to a level that is below tolerance level.
3. Utilize an adequate enzyme and binder strategy to degrade and bind mycotoxins in the feedstuffs.

Fuse 207 and Crystal Creek's Mycotex are the most innovative and progressive technology available to deal with mycotoxins in feedstuffs on your farm. Fuse 207 provides a highly concentrated source of yeast cell wall glucans that are known to be effective in binding many mycotoxins. Harder to bind

mycotoxins, such as vomitoxin, cannot be bound because there are limited attachment sites for the binder to utilize. They must be opened up to expose binding sites with enzymes, like those found in Crystal Creek's Mycotex. Once opened up, these mycotoxins can be bound with a functional material such as Fuse 207.

As a Crystal Creek Livestock Nutritionist I have seen mycotoxin problems negatively affect many dairy operations. A herd will progress very well onto our program with overall increases in profitability, herd performance and herd health and then get slammed with mycotoxin pressure when a new contaminated forage or grain source is introduced into the ration.

Because of the high levels of mycotoxins reported in feedstuffs in the past two years, the FDA stated tolerance levels for vomitoxin in feedstuffs have been adjusted upward significantly from 2 ppm to 5 ppm. We have run into a lot of producers that see this FDA data implying that a vomitoxin level of 5 ppm or less in dairy rations is acceptable. Through our own on farm experience we have found this to be off base. Animals with vomitoxin levels in the total ration as low as 0.5 ppm have experienced 10 to 15 lb drops in production, and many other negative herd health issues. Keep in mind vomitoxin tolerance levels are also relative to the presence of other mycotoxins in the ration. The following information is from a herd that I have been working with, and the charts show the dramatic impact vomitoxin can have on lactating

dairy cows. It also gives us a better understanding of the level of vomitoxin that we can effectively deal with when utilizing Fuse 207 and Crystal Creek's Mycotex.

The following graphs show this progress on a particular herd. Progress with this herd on the Crystal Creek Dairy Nutrition Model was very good as there was little production drop, herd health was improving significantly, components were improving and the producers income over feed cost increased significantly until we reached a higher vomitoxin level on April 1. Up until that point we had removed undesirable ingredients in the ration (Rumensin, Buffer, Bypass Protein, Fat) with little change in production level and a positive impact on components, herd health and foot health.

See Figures 1 & 2

On April 1 there was a change in forages with a positive TMR test for vomitoxin at 0.8 ppm, leading to a 12 lb drop in milk production. We tested individual ingredients in the ration for vomitoxin and found that the new corn silage was the culprit.

On April 4 the contaminated corn silage was diluted so that the total ration vomitoxin level was 0.4 ppm from 0.8 ppm in the TMR. Milk production recovered 4 lbs.

On April 7 the producer introduced Crystal Creek's Mycotex into the ration and again increased the corn silage (because of inventory). The vomitoxin level in the ration went from 0.4 ppm to 0.6 ppm in the total

Figure 1

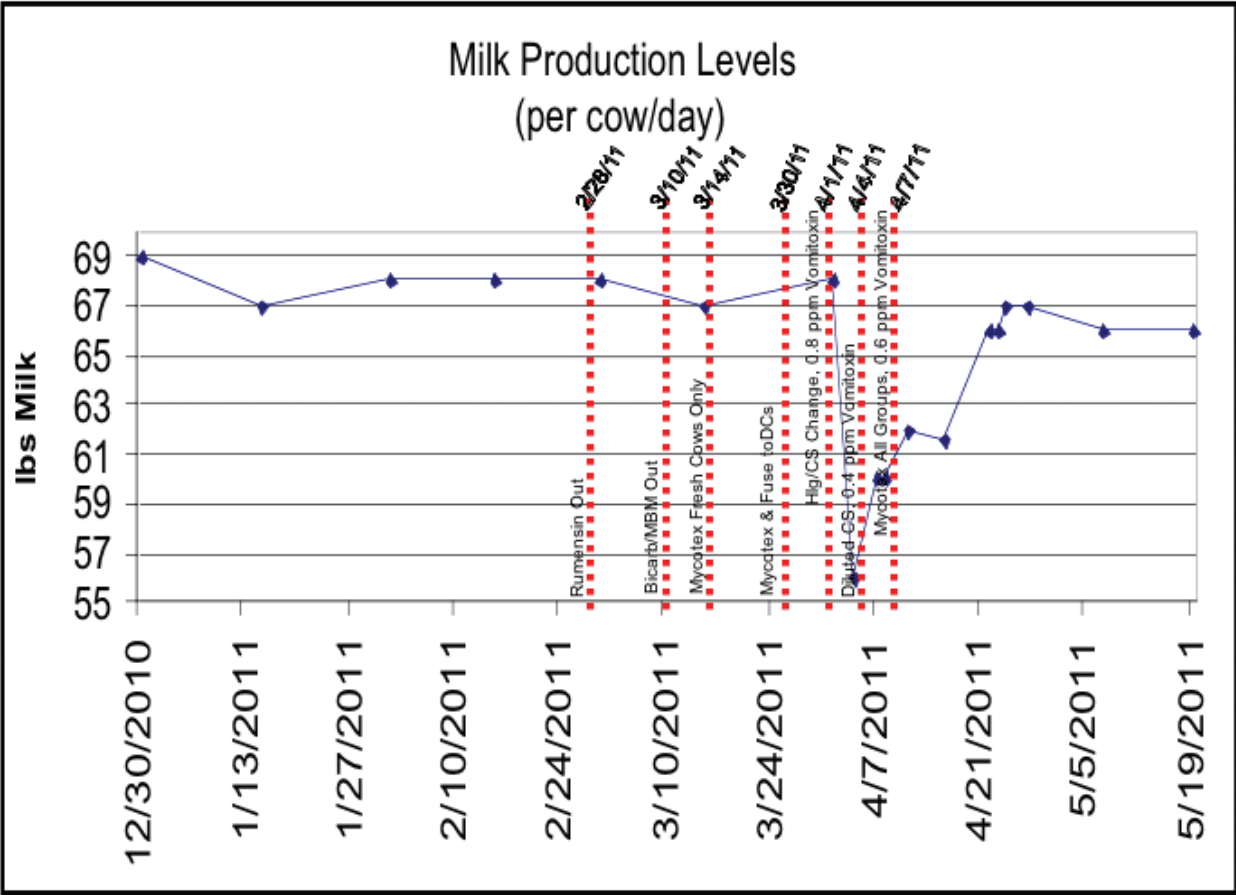
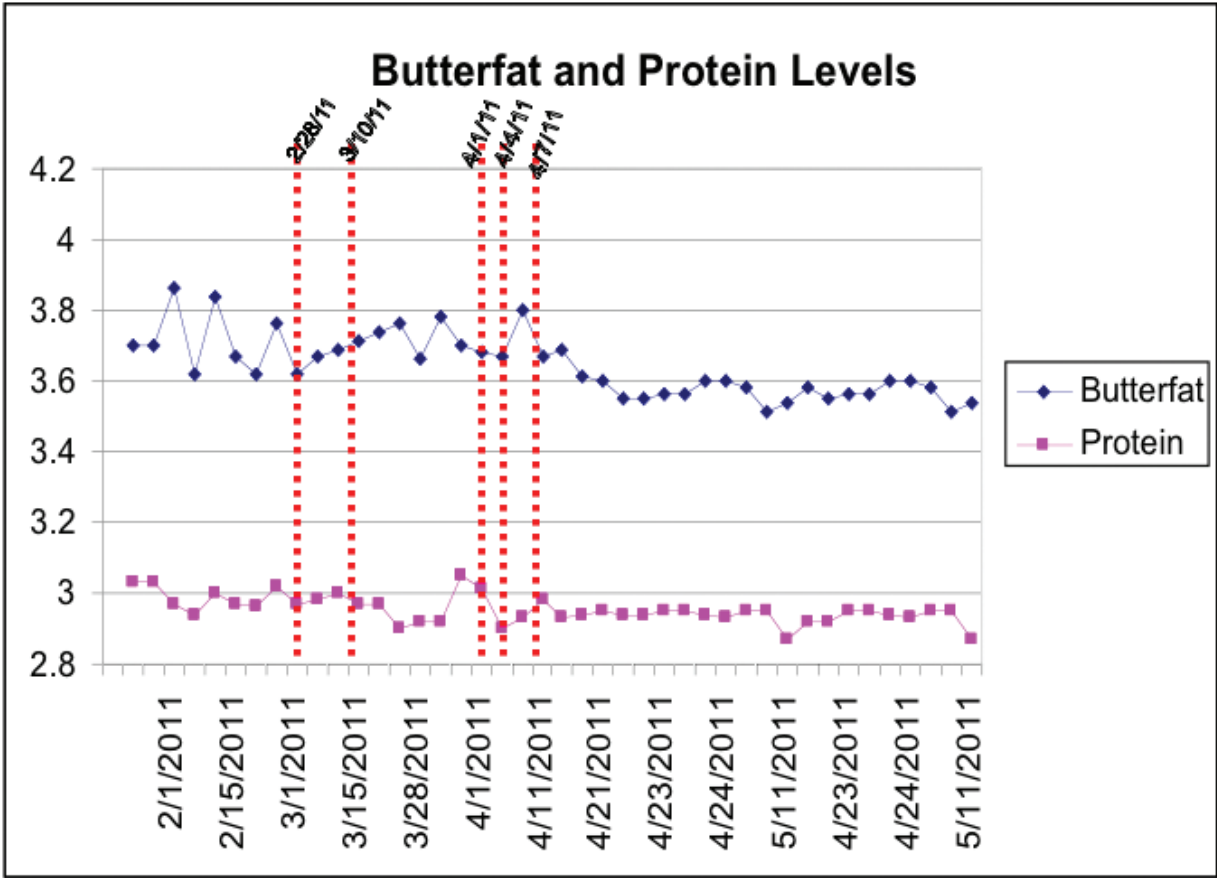


Figure 2



ration. Milk production continued to increase from this point 11 lbs (1 lb less than they were milking before the vomitoxin). This 11 lb increase in production occurred in less than one month.

Overall we are able to cope with the vomitoxin present in the ration very well. It is very evident that the FDA guidelines of 5 ppm (relative to this herd) were much above the actual tolerance level in the cows (when tolerance levels is defined as not negatively impacting production, herd health, reproduction, etc.). We have typically seen a negative response in dairy cows to vomitoxin levels starting at 0.5 ppm. When that level is diluted below the 0.5 ppm there is a positive response in the cows. With Fuse 207 and Crystal Creek's Mycotex in the ration we are able to better cope with these higher vomitoxin levels.

The lactation ration isn't the only place where it is important to monitor mycotoxin levels. Without monitoring mycotoxin levels in the dry cow rations huge problems with the transition to lactation can arise. Vomitoxin present in the dry cow ration can lead to fat impacted livers, liver and other organ damage, retained placentas, uterine infections and suppressed immune function. If a dry cow is exposed to mycotoxins at any time during the dry period she can have a memory of that exposure when she calves (See Dan Leiterman's article, "Dry Cows Have Good Memories" starting on the cover of this issue). According to the attending veterinarian for this herd, the livers in some of the cows were severely damaged from fatty liver syndrome and mycotoxin exposure was the suspected culprit. After Crystal Creek's Mycotex was introduced into the diet the livers were much improved. A notable improvement in liver health was achieved as cows had more time on Crystal Creek's Mycotex and Fuse

207. Until cows had been through the full 60 days of their dry period on Crystal Creek's Mycotex and Fuse 207 we had transition cow problems including ketosis and milk fevers.

The milk butterfat recovery for this herd was much slower than milk volume recovery due to the likelihood that rumen function and

fiber digestion have not yet returned to normal. Milk components should continue to increase as the herd recovers from mycotoxin exposure.

Overall, the take home message of this article should be that mycotoxins are a huge problem for dairy herds, and they need to be dealt with in a timely manner. There can





be recovery in production and in herd health. However, recovery depends on how fast the problem is diagnosed and effectively dealt with. Commonly accepted levels of vomitoxin and other mycotoxins in the ration may be misleading. Low levels of mycotoxins can and typically will impact a dairy herd negatively. Many herds have seen an

increase of 9 to 11 lbs of production along with other positive herd health impacts, when mycotoxins are dealt with properly.

In a perfect world we would not have to deal with mycotoxins. With current levels of mycotoxins in feedstuffs however, it is good to know that there are functional tools

available to work with. Crystal Creek works very hard to bring you the most functional material available to deal with the issues at hand. We have experience in dealing with mycotoxins and can work with you to develop a plan specific to your needs. Call to talk with an experienced Crystal Creek Nutritionist today!