

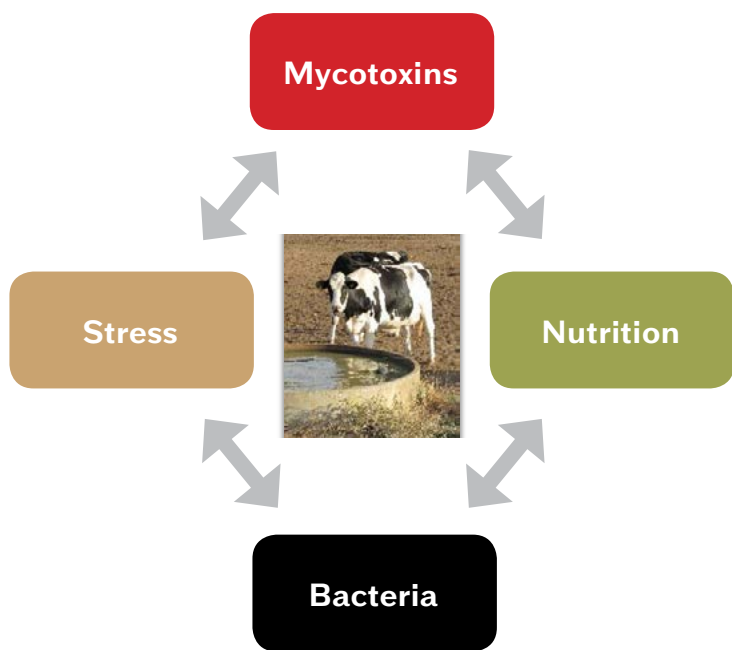
# Anti-Nutritional Trends And Thoughts With 2017 Feeds Across The Midwest

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Historically, mold, yeast and mycotoxins are thought of as the primary contaminants in feed that rob high performing dairy cattle of health and nutrition. More recently, stress and pathogenic bacteria have been better recognized as contributing factors that interact with fungal and mycotoxin contaminants. See Figure 1.

## Figure 1

*Interactions that affect animal health and performance:*



Feed hygiene and cleanliness has become a recognized topic on farms. The 2016 corn crop (silage and grain) brought considerable fungal and mycotoxin contamination, which

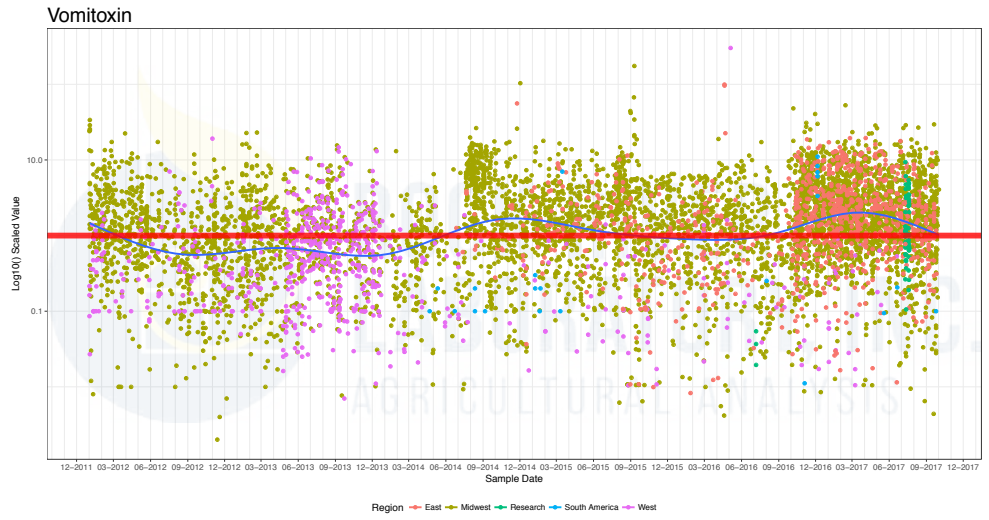
subsequently challenged dairy cattle health and performance. Further, corn grain rumen digestibility trended downward (data not shown), which likely contributed to more grain bypassing the rumen into the lower digestive tract (small intestine and hind-gut). Mycotoxin impact, rumen bypass starch and pathogenic bacteria present on some farms materialized in a pathogenic “perfect storm” which lead to digestive upsets and eventual animal death in some cases; challenging dairy performance and profitability.

With the 2017 corn crop beginning to come off the fields, the desire is a cleaner crop. Professor Damon Smith, University of Wisconsin-Madison Plant Pathology Professor, and his research team are seeing less mold with this year’s crop. Confirming their observations, Rock River Laboratory’s team have also recognized downward trends in Vomitoxin and T-2 toxin concentration across all feeds as fall progresses. See Figures 2 and 3. Pathogenic bacteria, such as *Clostridia perfringens*, concentrations appear to be sporadic. See Figure 4.

In summary, the 2017 crop appears to be cleaner than that harvested in 2016 yet recent heavy rains coupled with cooler weather could create conditions where contaminants grow. Our focus should be optimal fermentation through aggressive management, which will help create a clean feed. Bacterial and fungal contaminants warrant consideration when nutrition, environmental or mycotoxin stress are present, contributing to immune suppression in cattle. Concern levels for contaminants are shown with red lines in Figures 2, 3 and 4. Feed and TMR fungal, bacterial and mycotoxin contamination measures and services, along with interpretation guidelines, are available online at Rock River Laboratory, Inc.: [www.rockriverlab.com](http://www.rockriverlab.com).

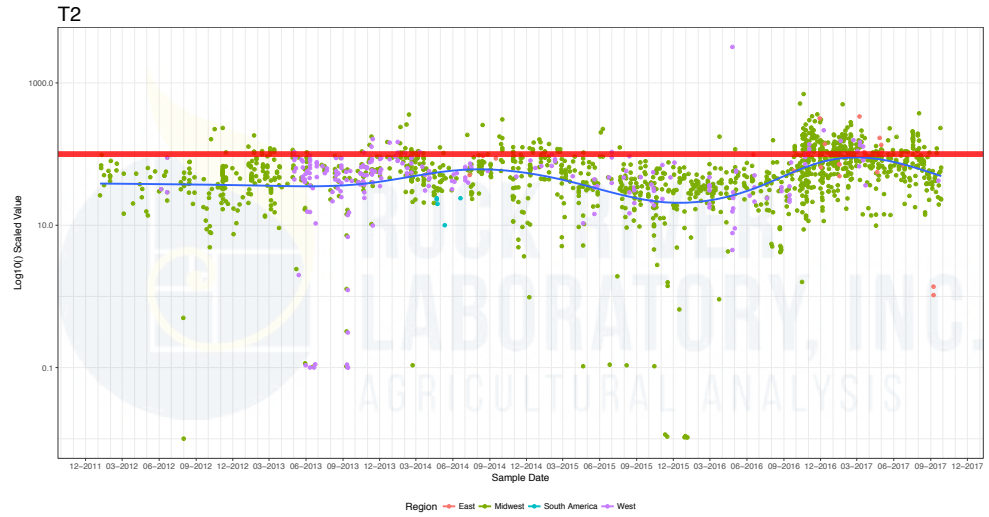
**Figure 2**

Vomitoxin concentration (parts per million, with red line position at 1.0 ppm) across all feed stuffs analyzed by Rock River Laboratory since 2012.



**Figure 3**

T-2 toxin concentration (parts per billion, with red line position at 400 ppb) across all feed stuffs analyzed by Rock River Laboratory since 2012.



**Figure 4**

Clostridium perfringens count (colony forming units per g feed, with red line positioned at 100 CFU/g) values for all feeds analyzed by Rock River Laboratory since 2015.

