Taking the mystery out of mycotoxins for more effective decision-making

The digitisation of agriculture is being viewed more and more as one of the key ways the sector can meet some of the pressing challenges surrounding animal welfare, food safety and environmental sustainability.

by Martin Minchin,
Global Marketing Manager,
Alltech Mycotoxin Management.
www.alltech.com
www.knowmycotoxins.com

Like most industries, the collection of data is rarely the problem. Rather it is the interpretation of this data and translation into actionable insights that are often the limiting factors in capturing the true value from the wealth of new technologies that are appearing.

Globally, mycotoxins are an ever-present threat in the feed supply chain and pose not just a threat to animal health but also human health, especially in regions such as Africa and Asia where factors like extreme weather and a sometimes underdeveloped feed supply infrastructure mean elevated levels of mycotoxins can make their way into animal feed, and subsequently the food supply.

In the US alone in 2018, an estimated 63.5 million metric tons of grain was contaminated with mycotoxins. Due to the invisible nature of mycotoxins, the only accurate method of identifying contamination in feed ingredients or finished feed is to carry out a mycotoxin test, meaning this data is crucial for the production of safe animal feeds.

Analytical technologies for determining mycotoxin presence continue to advance and provide greater insight into the mycotoxin threat. Commonly used analytical approaches include chromatography, immunodetection or liquid chromatography coupled with tandem mass-spectrometry, and each year, masses of mycotoxin test data are gathered at different points in the feed supply chain.

One of the key focuses of the Alltech Mycotoxin Management Program is to make mycotoxins more visible and provide stakeholders throughout the feed supply chain with the best possible information to make effective decisions when it comes to mycotoxin control.

Testing is a crucial component of this, and between the Alltech 37+ laboratories and Alltech RAPIREAD field testing kits, almost 30,000 mycotoxin tests will be carried out this year, helping reveal the extent of mycotoxin presence in feeds globally.

Access a world of mycotoxin data

Since its initial launch, and using data generated from both laboratory and field testing, the Alltech Mycotoxin Management Portal has provided users with an easy-to-use online tool where they can view and manage their mycotoxin test results.

Recognising the importance of being able to actively manage and utilise this data and generate the most relevant actionable insights, the Alltech Mycotoxin Management team has recently launched an updated version of the Portal.

With these recent updates, users now have access to a whole host of innovative features, with a specific emphasis on visualising mycotoxin test data in an easy-to-comprehend format.

Users will have round-the-clock secure access to their mycotoxin test data, be able to view global mycotoxin contamination trends, assess the risk to different species and compare mycotoxin patterns across different ingredients and time periods.

Knowing the mycotoxin risk is an important step, but Alltech also believes strongly in the need to actually quantify what that risk means to a livestock producer's business in terms of physical and financial performance.

Evaluating risk using tools such as Risk Equivalent Quantity (REQ) and Alltech PROTECT allows them to work with producers to truly understand the potential impact of mycotoxins on their animals and the necessary steps to successfully mitigate these challenges.

John Winchell is Alltech's representative in northeastern USA and has been actively analysing mycotoxin test data for the past few years to better understand the nuances and most effective methods to control the mycotoxin risk on farms in this region, an area that is often termed 'mycotoxin central'.

As well as testing feeds for mycotoxins, John has also been looking at weather patterns and crop diseases to build a better overall picture of the factors that can impact feed quality and subsequent animal productivity.

"I am really excited about what the new Portal can bring to both my customers and me," explains John. "Mycotoxins are fascinating to study, and tools like this can only help to advance our understanding of what we need to do to effectively mitigate the continual challenge."

A changing climate and more extreme weather patterns, the shift to more regenerative tillage practices and new agricultural policy frameworks designed to enhance sustainability are just some of the factors set to impact mycotoxin contamination profiles in the coming years.

More than ever, accurate data will be needed across the feed supply chain to limit the negative impact of mycotoxins on the feed and food supply. By taking advantage of the advancements in data management capabilities, the best outcomes are likely to come from an integrated management approach that includes pre-harvest information, such as agronomic practices, weather and crop status, all the way through to post-harvest mycotoxin testing and crop storage.

Such methods will inevitably require the need for innovative collaborations between organisations both inside and outside the agricultural sector.

This sort of joined-up thinking presents a real opportunity to ensure we are minimising wastage in the feed supply chain, providing animals with the best quality feeds for optimum productivity and delivering sustainable and safe food to the end consumer. ■