

Are mycotoxins compromising poultry performance?

by Dr Alexandra Weaver, Alltech Mycotoxin Management, Technical Support, Sarney, Summerhill Road, Dunboyne, Co. Meath, Ireland.

Feed quality is an important component of managing poultry health on farm.

However, the presence of mycotoxins in feedstuffs can threaten feed quality and safety. Mycotoxins, produced by some species of moulds, can contaminate a variety of feed materials worldwide. These chemical compounds have a toxic effect on the intestines, internal organs, and the immune system. Once birds have consumed mycotoxins, performance and producer profitability can be significantly altered.

Not only do mycotoxins contaminate a wide range of feedstuffs, but several mycotoxins are found together. This co-contamination can increase the overall challenge of mycotoxins to the animal.

Based on results from samples submitted to Alltech 37+ analytical laboratory from September 2014 through March 2015, it was determined that 91% of all global finished feeds for poultry contain two or more mycotoxins (Fig. 1).

The primary mycotoxins found in more than 50% of feed samples come from the Type B trichothecenes, fusaric acid, and fumonisins.

When consumed by birds, these groups of mycotoxins can cause a wide range of health issues from impacts on intestinal health to altered immunity, and changes to productivity.

Risk to performance

In order to help producers more accurately predict the effect of multiple mycotoxins on birds, Alltech Mycotoxin Management has come up with one number that takes into account the concentration and toxicity of each mycotoxin present in a feed sample.

This value, deemed the risk equivalent quantity (REQ), represents the overall threat to a bird's health and performance. Looking at the Alltech 37+ traffic light for risk assessment of mycotoxins in global poultry feeds, it is observed that on average each of these mycotoxin groups are at low

risk individually. However, these low risk levels should not be taken lightly, and one needs to remember that it is the overall combination of mycotoxins that birds consume. In the case of these feed samples, the overall REQ is a moderate risk for broilers and layers.

At a moderate risk, producers may not notice changes on a daily basis, but rather chronic effects to bird performance and health over time.

When mycotoxins impact performance, there is also a loss of profitability. Poultry producers should be aware of the costs of mycotoxins in order to better manage the risk. After examining a database of research on the effects of mycotoxins, the Alltech 37+ REQ can be used to estimate the impact of mycotoxins on poultry performance and producer profitability.

Based on scientific data from 18 research trials (6,359 birds), broilers may have an estimated loss of daily gain by 2.5g/day and have a six point increase in FCR during moderate risk mycotoxin challenges, similar to the risk of above mentioned feed samples.

These effects can impact broiler profitability, equating to an estimated average loss of net return by \$0.13/bird.

Layers can also be impacted by mycotoxins. Based on scientific research, results of moderate risk mycotoxin consumption caused layers to have an estimated loss of 0.07 eggs/hen/week, but with a decrease in FCR by 12 points.

By linking these performance parameters to economics however, the net return decreased by \$0.05/hen/week. As seen with the scientific research, even moderate risk mycotoxin contamination can impact performance and profitability of layers.

Controlling mycotoxins

Due to the negative effects of mycotoxins on poultry performance, management of mycotoxins is crucial. There are several steps that can be taken to help reduce mycotoxin risk, taking control from the field to the bird. By reducing mycotoxin risk at each of these steps, the overall impact of mycotoxins on poultry may be minimised.

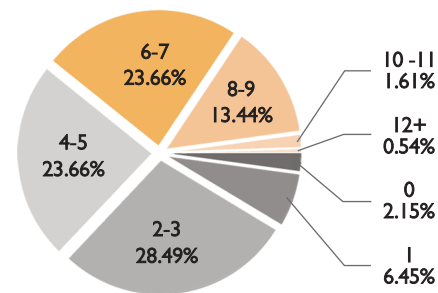


Fig. 1. No. of mycotoxins contaminating feedstuffs (n = 186, average = 4.69).

● Field management

Mould and mycotoxin contamination of grains starts in the field when the plant is growing. Planting and harvesting early, controlling weed and insect population, and rotating crops can all be helpful in reducing mould occurrence and growth. Additionally, avoiding no-till technology can also be beneficial for reducing moulds. Proper analysis of mycotoxin contamination at harvest is a critical step in risk assessment and monitoring programmes.

● Storage management

When feedstuffs or finished feeds are not stored properly, the chance of mould growth and mycotoxin production can increase. The presence of moisture, temperature changes, or even insect or rodent damage can cause variations in the grain environment and lead to the development of storage mycotoxins. Even grains coming in free of mycotoxins from the field can become contaminated with mycotoxins if not stored properly.

● Feed management

In response to the mycotoxin challenges facing the poultry industry, Alltech's yeast cell wall extract Mycosorb and its successor Mycosorb A+ were created to reduce the damaging effects of these compounds on bird health and performance. Scientific research shows that by feeding Mycosorb during a mycotoxin challenge, broiler and layer production can be improved resulting in a positive economic outcome.

Mycotoxins are worth controlling, what do you have in your feed? ■