

Breeder challenges and control choices for mycotoxins

Over many years, science has conducted much research on detecting and identifying mycotoxins. More than 300 types have now been identified. A mycotoxin is a chemical component produced by mould to protect them, so any stress on mould will induce mycotoxins production. For each mould species, stress and local conditions induce different types of mycotoxin. In any case, none of them are beneficial for birds or embryos, they are undesirables, especially in parent stock.

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The problem in breeder versus commercial production (egg or meat) is that we want to achieve the best day-old chick quality possible. All the hatcheries strive to reach this best quality. All breeder farms want to achieve not only a high egg number, or good eggshell quality but also the best embryo livability. Some mycotoxins can affect not only female or male health, but can reduce embryo quality and deteriorate hatchery performance (embryo mortality too high, for example). Consequently, it seems obvious that a control plan of raw material (RM) that is included in mycotoxins analysis is the basic requirement.

This control plan must consider field and storage mycotoxins. The main sources are cereals and their by-products (riskier because there is always a richer envelope where mould exists), but also protein sources (soya can be contaminated) and fibre sources (straw, hulls can reach a very

high level). Controlling feed contamination could be another method, but in this case, you cannot identify which RM is more dangerous. How can the level within the feed itself be reduced if you do not know this level? Feed analysis is only complementary.

Importance of sampling

Sampling is an important topic for mycotoxins, because contamination is not uniform. In the same truck, some areas can be low and others high (from the same field). The best principle is to take many small samples, to mix them and send a final large sample to the laboratory, which will be able to reduce the sample size correctly.

Information from suppliers of toxin binders should not be neglected. Several of them created a global survey. To estimate the risk in your area, this information is very useful.

According to the level of contamination, several strategies can be used:

- Low contamination =
 - RM can be used without any restriction.
- Medium contamination =
 - If you can avoid using it, this is the best solution.
 - If you must consume it, adding a toxin binder at the right dose is required.
- High contamination =
 - Never use it for breeders.

Even if you incorporate the best toxin binder at a high level, nobody is able to guarantee that you will alleviate the negative effects of mycotoxins. That means in all the cases, you will decrease your performances if you keep using this RM (egg number, fertile eggs, hatchery results, day-old chick quality, etc).

Which levels are low, medium or high will depend on the mycotoxins and even the toxin binder suppliers do not have the same recommendations. Laying hens are not very sensitive to many mycotoxins, like the fumonisins or deoxynivalenol (DON).

However, DON is maybe the easiest and cheapest to analyse, and it is a good indicator of global contamination by other mycotoxins in many cases. In fact, RM is never contaminated by only one mycotoxin, it is often a cocktail of several of them.

The impact of multiple mycotoxins

The impact of multiple mycotoxins is the main problem to keep in mind, because finding a publication on the impact of one mycotoxin on reproductive data is easy. However, finding the impact of a cocktail of mycotoxins within your feed is impossible to predict or evaluate.

This is why, in breeders, even if the risk is low, we recommend adding a toxin binder in the critical phase, at a low dose for safety.

When the risk is moderate, you should increase the amount vs the low risk and add toxin binder in the peak feed and pullet developer.

If the contamination is confirmed or has a high risk, toxin binder in all the feeds at the highest dose is mandatory. The RM quality control plan must be well designed to help you monitor this contamination strictly and adjust the incorporation and dose of toxin binder according to the risk.

It is important to consult the data sheet of toxin binders, because they are not designed against all the mycotoxins. A magical binder that can reduce all the mycotoxins does not exist on the market. ■

