

Featured expert of the month...

Elizabeth Santin (Part 2) -

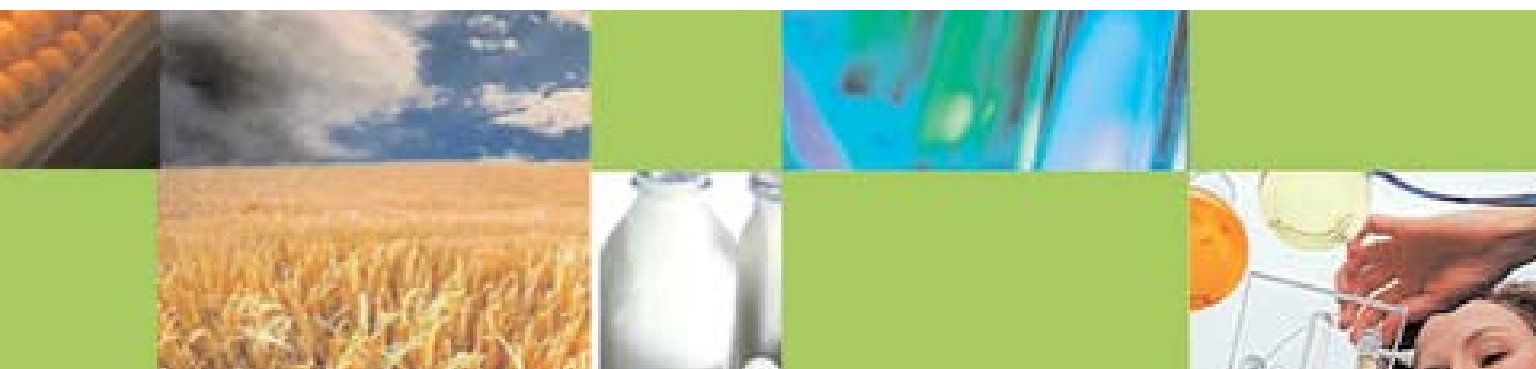
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Practical Tips for the Prevention of Mycotoxicoses

Once the economical impact of mycotoxins is calculated and it is considered significant to implement some prevention strategies, the process of mycotoxin control should start right from the day a new flock has been placed. Once a flock has been exposed to mycotoxins, the cost of lost productivity can never be recovered from that flock. Rather, strategies can be implemented to reduce the further exposure of the flock to mycotoxins. The degree of economic loss due to the cost of a mycotoxicosis outbreak will influence the investment made to prevent the same from happening in subsequent flocks. When the epidemiological aspects of mycotoxicoses are evaluated, the first observation is that mycotoxins are produced in feed ingredients or feed ingredients by fungi. This knowledge directs us to the first point to control mycotoxin problems in poultry: avoid fungal growth on feed ingredients or feed. Therefore, the detection of contaminated feedstuffs is the primary defense against mycotoxins. Affected ingredients can be rejected not only based on analyzed mycotoxin levels but also as per the physical condition of the cereal. Mycotoxin analysis is not always reliable mainly owing to the difficulties encountered in sampling.

From a perspective, a good practice is to analyze grains before use and try to maintain lower levels of damaged grains in the diet. To establish the safe percentage of damaged grains in the feed, it is important to follow the results of the "Correlated Monitoring Program" (damaged grains vs. problems in animals). When the percentage of damaged grains is higher than the guidelines it is possible to apply some managerial and nutritional corrections such as cleaning of the grain (equipment is available which based on different gravity) and/or correcting the formulation of the diet to compensate for the nutrient losses. In the case of storage of grains, it is important to pay attention to humidity and temperature inside the bins. The inclusion of fungal inhibitors such as organic acids will suppress the fungal growth and hence the subsequent production of toxins. Dilution of contaminated grains with clean grains is often used to reduce mycotoxin levels to below toxic levels, although this is not legislated in many regions of the world. This practice does, however, present some risks as you never know exactly how many mycotoxins are present at what levels and how toxic these are for the specific ecosystem and animals in question. The mixing of contaminated grains with clean grains may contaminate the whole lot.



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During feed processing, it is also important to control the cleaning of equipment to avoid accumulation of dust that allows fungal growth and mycotoxin production. After the pelleting process, for example, humidity and temperature levels should be controlled as they could increase fungal growth inside bags or silos on farm. The same standards of cleaning should also apply to any silo or feeder on farm as fungal growth and mycotoxin production could also occur at these points. When mycotoxins are already present, a good alternative is to use a mycotoxin adsorbent or binder. Binding agents such as bentonites and aluminosilicates have been used in feeds containing mycotoxins to prevent intestinal absorption of the toxins. However, typically they are only effective at high inclusion rates. There is a vast array of binding agents on the market, many of which have not been adequately evaluated, and those agents can be normally effective only against a specific mycotoxin such as aflatoxin. Other types of mycotoxin binders are the organic adsorbents such as glucomannan polymer. This organic adsorbent has the advantage of being effective against a broad range of mycotoxins. When selecting a mycotoxin binder it is important to consider the published data demonstrating its efficacy within the target animal species. A low effective inclusion rate is also desirable so not to interfere with any diet matrices or to bind vitamins and minerals.

Key practices to control mycotoxins:

- 1- Know the cost of mycotoxin problems using a "Correlated Monitoring Programme (grains quality and animal problems)"
- 2- Apply cost/gain measures to control mycotoxins. The points that should be controlled in this case are:
 - Quality of ingredients (based on physical analysis)
 - Conditions (dust, temperature and moisture) during grain and feed storage
 - Conditions inside feed mill, especially equipment and on farm
 - Use of an effective and proven mycotoxin absorbent or binder.

