



THE
PRICE
OF

MYCOTOXIN CONTAMINATION



Part 1: The nutritional impact

by Theodore Hohls

Mycotoxins are secondary metabolites that are produced by on-field and in-storage fungus growth. Due to the size and unique structural characteristics of mycotoxins, their presence and their deleterious effects on animal nutrition are sometimes difficult to quantify. With mycotoxin contamination on the rise worldwide, it is critical for both producers and nutritionists to fully understand the risks that their animals are being exposed to, as well as the possible nutritional cost of these mycotoxins to their livestock. This article is the first in a three-part series aimed at exploring the real impact of mycotoxins.

A COMPLEX PROBLEM

The degree to which mycotoxins affect livestock is dependent on a few factors, which may include the length of exposure, age and sex of the animal, and other genetic and environmental factors. These effects can reveal themselves symptomatically, depending on the type of mycotoxin present, the degree of co-contamination, and the livestock species that is being assessed.

THE METABOLIC CONSEQUENCES

Mycotoxins are largely characterised as immune-suppressants, as they work to stimulate an inflammatory response from the animal as a reaction to gut-damaging and other toxic effects on the animal. This immune response is where we can measure the biggest losses in animal production and efficiency. An overactive immune response in an animal will lead to large losses in

Figure 1 Visible signs and symptoms of mycotoxin contamination per species

MYCOTOXIN	POULTRY	SWINE	RUMINANTS	
	Deoxynivalenol (DON)	Feed refusal Oral necrosis	Feed refusal Vomiting	Reduced feed intake Diarrhoea Reduced reproductive performance
	Zearalenone (ZEA)	Reduced eggshell thickness Hormone-induced cloacal swelling Development of cysts in the oviduct	False heat Swelling of the vulva	Change to fertility status Decreased calf survival rate Increased incidence of vaginitis and oedema
	Fumonisin (FUM)	Feed refusal Decreased weight gain Liver and kidney damage	Porcine pulmonary oedema (PPE), which affects lungs and heart	Diarrhoea Haematological changes
	T2 Toxin (T-2)	Altered feather patterns Decreased egg production Thinning of eggshell walls	Vomiting Diarrhoea Leukopenia Haemorrhagic shock Death	Feed refusal Gastroenteritis lesions Production losses

energy, as disposable and stored energy within the animal is now being used to manage the immune response rather than working towards growth and production.

The metabolic consequences of this overactive immune activation can include a drop in feed intake, feed conversion efficiency, and weight gain. In addition to the metabolic cost and loss of production efficiency, increased veterinary and nutritional costs, increased excretion of vital nutrients, and the overall negative environmental impact all spell loss for the farmer.

CONCLUSION

Mycotoxin contamination is difficult to detect and even more challenging to get rid of. Studies have shown that, even with the use of efficient mycotoxin binders, once mycotoxins have been ingested and the animal is symptomatic, it is incredibly difficult to restore that animal back to its original nutritional status. Early awareness as well as the regular inclusion of an efficient mycotoxin eliminator are vital keys in waging war against mycotoxins and ensuring that your animals and your business are truly protected. [mpo](#)



Mycotoxins are secondary metabolites grown on-field and in-storage. These mycotoxins are produced by fungus species such as *Fusarium* (left), *Aspergillus* (middle), and *Penicillium* (right).