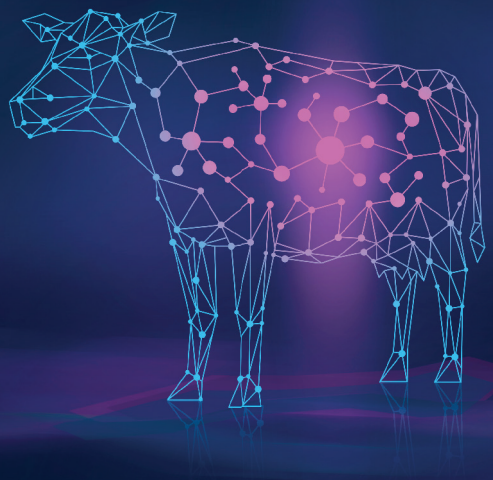
MAIZE MYCOTOXINS OUTLOOK

September 2025



Maize can be an excellent forage for dairy cows. It is high in energy, while slowly fermentable and containing enough fibre to maintain rumen health. It is very palatable and encourages good feed intakes. However, it can be a difficult forage to store and is prone to the development of moulds and fungi.

Moulds and fungi in feed materials cause spoilage and degradation of nutrient value. They also produce mycotoxins, which are tiny chemicals with the capability of causing health and performance issues in animals if consumed. Additionally, with moulds, there is more likely to be increased wastage of forage, which is very costly to the farm.

FEFAC REPORT

The most recent FEFAC report from the European Feed Manufacturer's association outlined the incidence of mycotoxins in last year's EU harvest. The report showed that maize was the most likely crop to contain a high or medium level of mycotoxins. The most prevalent mycotoxins found in maize across Europe were aflatoxin B1, deoxynivalenol (DON), zearalenone (ZON), fumonisins and T2/HT2. Presence of particular mycotoxins depends on the local climate and environmental conditions.

Table 1: Incidence of mycotoxina in EU harvest 2024 (Situation in January 2025)

Harvested in	AB1	DON	ZEA	FUM	T2/HT2	OTA	Ergot
FR	Low	**Maize** Others: low	**Maize (South)** Others: low	**Maize (South)** Others: low	**Maize (South)** Others: low	Low	
FR, BE, PL, GB IE, SE	Low	Low	Low	Low	Low (? for PL)	Low	
DK	Low	Low	Low	Low	**Oat** Others: low	Medium	Rye
DE	Low	**Maize** Others: low	**Maize** Others: low	Low	Low	Low	Rye and wheat
HU (all regions) SRB (North) HR (some areas)	**Maize** Others	Low	Low	Low	Low	Low	
RO (South), BU Non-EU maize	Maize Others: low	Low	Low	Low	**Maize** Others: Low	Maize Others: Low	
Non-EU maize	**Brazil, US, Ukraine**	**Canada**	**Canada**				
IT	**Maize**	?	?	**Maize**	?	?	
AT	**Maize?**						

Pink: high **Blue:** medium **Black:** low

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BUILDING ON DON AND ZON

DON and ZON are very commonly found mycotoxins in maize feeds. It is important to utilise high quality feeds like maize, however they should be fed with the understanding that there is a high risk of contamination with these mycotoxins.

Typical clay mycotoxin binders work by adsorbing mycotoxins to their surface and preventing mycotoxin uptake into the cow's blood. This prevents an inflammatory response occurring, which uses up energy.

However, depending on the polarity of the mycotoxin, some are easier to adsorb than others. Very polar mycotoxins e.g. aflatoxin will adsorb easily to the surface of a clay, whereas non-polar mycotoxins e.g. DON do not adsorb easily to clays. Non-polar mycotoxins require other ingredients to bind and simply feeding an ordinary clay binder will not be effective. Therefore, it is wise to feed Ultrasorb mycotoxin binder in rations containing maize ingredients, as it has been specifically formulated to bind and transform a wide range of mycotoxins, including DON and ZON.

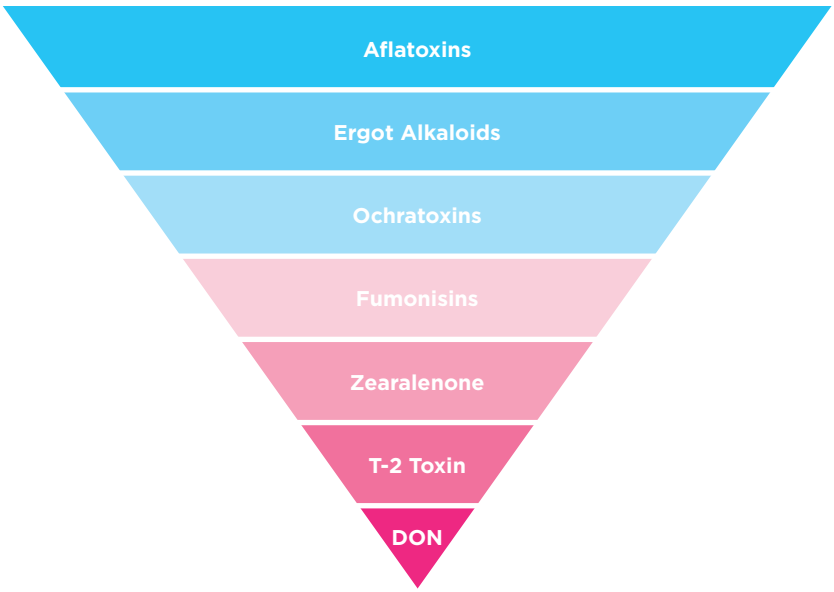

Figure 1: The decreasing adsorption efficacy (binding ease) from very polar aflatoxin to very non-polar DON

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CLINICAL ISSUES WITH DON AND ZON

What are the typical clinical signs of mycotoxicosis due to DON and ZON?

DON has been widely associated with gastrointestinal tract damage and diarrhoea. Inflammation in the gut can lead to an increased likelihood of leaky gut, which can result in the increased absorption of mycotoxins, endotoxins, and microbes into the bloodstream. This initiates an immune response which requires energy which could have otherwise been used for milk production or growth.

Research has shown in a Holstein dairy cow, the energy requirement to fuel an active immune response is around 2kg of glucose per day. This equates to around 7kg milk (Kvidera et al., 2017).

ZON is typically associated with disrupted fertility and may be the cause for low conception rates or increased abortion rates. ZON mimics the biological activity of oestrogen, and for pregnant cows, increased levels can result in loss of the pregnancy. This can have hugely negative impacts on herd profitability due to increased costs of repeat insemination and veterinary intervention.

WHAT DO THESE RESULTS MEAN FOR FARMERS

While it isn't necessary for farmers to know great depth of information about each mycotoxin, it is important to make them aware that feeding grains and forages likely to contain mycotoxins can put cow health and performance at risk. They should also be aware there are different effects and levels of risk associated with each type of mycotoxin. It is a good idea to regularly test feed materials on farm for mycotoxin presence using the free MycoCheck service.

The MycoCheck service analyses a wide range of feed materials in the UK and Ireland and has given us an idea of the mycotoxins most commonly found. Upon receipt of results, the nutritionist and farmer can make informed decisions on exactly the support required for the herd and feeding strategies altered accordingly.

WHAT TO WATCH OUT FOR ON FARM

Some typical signs of mycotoxicosis:

- **Reduced milk production or liveweight gain**
- **Increased somatic cell count (SCC)**
- **Poor immunity**
- **Fertility problems**
- **Diarrhoea and/or blood-stained faeces**
- **Feed refusal**
- **Unexplained swellings on the legs or udder**

These are all common signs of mycotoxin exposure; however, they can be associated with other health issues. Therefore, it is very important you consult with the farm vet and nutritionist if cows show any of these signs.

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CAN RUMINENTS DEAL WITH MYCOTOXINS THEMSELVES?

Yes, it has been shown that ruminant have some degree of natural defence against many mycotoxins. Rumen microflora can degrade some mycotoxins into less toxic forms. However, this relies on a healthy, well-functioning rumen and a thriving rumen microbial population.

However, modern farming and feeding systems in both high-producing dairy and intensive beef systems have had significant impact on rumen function through feeding diets high in rapidly fermentable carbohydrates with increased risk of acidosis. This increases the exposure of the animal to mycotoxins through increased grain feeding and damage to the gut wall. Additionally, if the ruminant is able to detoxify mycotoxins itself, this still incurs an energy cost, which partitions energy away from milk production and liveweight gain. Even at low levels, mycotoxin exposure requires an energy input to detoxify and remove from the blood system.

HOW TO MINIMISE THE EFFECTS OF MYCOTOXINS

It is important we utilise high quality feed ingredients like maize, but we also need to support cows and prevent the effects of mycotoxin exposure. Ultrasorb is a highly effective mycotoxin binder which has been formulated based on the commonly found mycotoxins in the UK and Ireland. It is highly effective at binding DON and ZON, which typical clay binders are unable to bind. This makes Ultrasorb the most suitable choice for feeding with maize.