

Ask the Expert...



Bruce Woodacre

Knowledge Management, UK

Do you have any information on the effect of feeding grains or DDGS that are contaminated with mycotoxins on the performance of calves in a feedlot situation? (J.T., USA)

'This depends on your definition of "calves" – to me, these are animals under 12 weeks of age and, as such are highly vulnerable. The rumen is the first line of defence against mycotoxins as many are broken down by rumen micro-organisms. Animals under 12 weeks do not have a fully mature microbial population. Contaminated feed should not be fed to these animals.

With older animals, the effects depend on the level of contamination – in extreme cases, they die! With lower levels, DMI and DLWG will be reduced. The effects are worse if the animals are suffering from acidosis (reduced rumen function).'

In ruminants, every problem that can't be explained in the field is called 'a mycotoxin problem'! And most of all by those who sell mycotoxin binders What is your opinion about it? (S.V., Belgium)

'Yes, mycotoxins are in danger of becoming the new "winter scour".

We have a dilemma here, on the one hand, mycotoxicosis (especially in its "sub-clinical" or sub-acute form) is far more widespread in ruminants than is commonly supposed, and on the other hand, not all poor performance issues are down to mycotoxins!

The problem is that it is rare to see "classical" symptoms that can be attributed to one mycotoxin – fortunately, acute cases are relatively rare. You commonly get a mixture of non-specific symptoms caused by low levels of multiple toxins and these are difficult to separate from other factors on the farm.

If you use Mycosorb as a diagnostic tool – you will find out if you really have an issue very quickly and it is usually cheaper to do this than go through a time consuming analytical process.'

Is there a possibility that suckler calves get into trouble due to the mycotoxin content of their dams feedstuffs, and is it possible that calves are born weak through ingestion of mycotoxins by their highly pregnant dams? (G.H., Belgium)

'Yes and yes. Some mycotoxins (eg Aflatoxin) can be transferred to the milk.

Mycotoxins tend to affect the immune system and will hence reduce the quality of the colostrum. Mycotoxins can also cross the placenta, thus damaging the developing foetus in utero. For example, trials in pigs have shown that Zearalenone fed during gestation significantly reduces birth weight.'

Do mycotoxins affect cows and buffaloes differently? (K.J., India)

'The overall metabolism of the buffalo is the same as that of the cow. However they may be less vulnerable to mycotoxins due to the slower rate of passage in the rumen, thus giving the rumen micro-organisms more chance to metabolise the toxins.'

At times mold count is not a good indicator of mycotoxin presence? Can you explain why it is? (R.A., Bangladesh)

'I think that mould counts are quite a good indicator but not all moulds produce toxins at all stages in their life cycle and toxins will still be present after the moulds that caused them have died. Moulds are also useful indicators, because they can be seen by the naked eye whereas mycotoxins cannot.'

www.KnowMycotoxins.com

Altech®



Is moist feed such as vitagold a possible source of mycotoxins? I have a few cows with thick hocks at 100 days + into lactation. (P.B., UK)

'All moist feeds are a potential source of mycotoxins unless they are effectively stored (ie. In the absence of air) or unless they have a low pH. The specific storage conditions and hygiene during storage are critical.'

Do mycotoxins affect skin quality of dairy cattle? (Dr. A.V., India)

'Endophytes in grasses can cause facial excema and dull coats is one of the symptoms of infected fescue.'

What are the effects on fertility with different mycotoxins and levels? (A.K., India)

'The classical "fertility effect" of mycotoxin contamination is that due to the presence of zearalenone, particularly in corn and corn silage. This binds to oestrogen receptors, causing hyperoestrogenism and impaired fertility.

Any mycotoxin contamination that reduces digestive competence will affect the energy status of the animal and have a subsequent effect on fertility.'

To what degree can mycotoxins contribute to other diseases or problems due to compromised immunity? (G.D., India)

'Virtually all mycotoxins compromise the immune system (often through their effect on anti-oxidant mechanisms) thus decreasing the resistance to challenge from other diseases. This appears to occur at levels which do not cause clinical symptoms of mycotoxicosis and may well be one of the most important commercial effects of the contamination of feeds with moulds.'

I would like to know what the critical level of mycotoxins is in corn, cottonseed and soybean oilcake? (J.G., South Africa)

'This is a difficult area. Up to 20 or so mycotoxins have been shown to have an adverse affect on cows. The literature will give "safe" levels for individual toxins but the problem is that toxins are rarely found individually and low levels of toxins act synergistically with low levels of other toxins found at the same time. It is safe to say that if you can identify the presence of one toxin others will also be present.'

What is the role of mycotoxins in feed palatability and rejection?(C.K., China)

'Firstly the presence of moulds affects the taste and smell of the substrate leading to feed rejection and reduced intake – this is more an effect of the mould than any toxins.

Secondly toxins can affect the functioning of the gastro-intestinal tract (especially the rumen) thus reducing feed digestibility and hence intake.'

In India, it is a common practise to store raw materials such as maize (corn) in gunny bags. How are we going to treat these grains to prevent mold growth during storage? Please explain. (P.G., India)

'Mould spores (which are ubiquitous) will grow in the presence of nutrients, moisture and air.....as long as the pH is above 4.0-4.1. Where storage conditions are not ideal, treating the feed with buffered propionic acid, combined with sodium benzoate will prevent mould growth. If mould growth does occur, its important that preventative measures are taken to reduce the occurrence of mycotoxicosis, for example, by adding an appropriate binder to the feed.'

