

Ask the Expert...



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How fast does Aflatoxin move from mouth to milk? By feeding cows at the time of milking or just after reduce aflatoxin levels in milk? (S.W., India)

Aflatoxins were quickly absorbed through the gastro-intestinal tract of cows. An early absorption might also take place in mouth or oesophageal mucous membranes, before the rumen compartment. The liver is the main site of AFB1 biotransformation with the mitochondrial cytochrome P450 oxidative system converting the AFB1 into AFM1.

In fact, oral exposure to aflatoxin B1 can result in detectable levels of aflatoxin M1 in milk as early as about 15-30 minutes post-exposure. The levels of aflatoxin M1 post exposure may attain the peak anywhere between 45 minutes to 60 minutes from exposure, depending on the dose level of consumption. Up to 5% of the ingested Aflatoxin B1 may get transferred into the milk.

By feeding a lactating cow with aflatoxin contaminated feed just prior to milking, therefore, we are increasing a chance of higher levels of aflatoxin M1 in the milk. Feeding the cow post-milking may be good for today's milk, however, the aflatoxin B1 transferred into the milk as aflatoxin M1, will stay there to show up in tomorrow's milk.

Therefore, the better approach would be minimizing the aflatoxin content of the feedstuff by using a good broad spectrum mycotoxin adsorbent.

For your kind information, the regulations for Aflatoxin B1 in feed and M1 in milk are listed below:

	European standard	US FDA standard
Aflatoxin B1 in feed	5 mcg/Kg (ppb)	20 mcg/Kg
Aflatoxin M1 in milk	0.05 mcg/Kg	0.5 mcg/Kg

Does the size of the egg get effected due to mycotoxin in layer? (S.K., India)

Yes. Certainly. Most mycotoxins have a negative impact on the PROTEIN SYNTHESIS by affecting the reaction at different steps. Aflatoxin, Ochratoxins, Fusarium toxins like T-2 toxins are known to adversely influence the egg size. Reduced feed intake, reduction in lipid synthesis and transport in the liver are the other mechanisms by which mycotoxins affect the egg size.

My pets and I have been exposed to various levels of different mycotoxins and are experiencing extreme side effects. Most symptoms are consistent with those listed in this page and experienced by the pigs. We are currently seeking the most direct diagnosis and treatment available to avoid death and permanent internal injury. (T.T., USA)

Symptoms of several toxins/ poisonous substances tend to overlap considerably. It is very important to differentially analyse the situation to know whether, first of all, it is due to mycotoxins. For mycotoxicoses, there are several confirmatory tests. An exhaustive coverage of such tests is beyond the scope of this interaction. However, for aflatoxins one can go for serum biochemistry parameters such as ALT (Alanine aminotransferase) AST (Aspartate aminotransferase), AP (Alkaline Phosphatase), GGT (Gamma glutamyl transferase), serum bilirubin level, serum globulin level, bile-aflatoxin B1, bile aflatoxin-P1 etc., For ochratoxin one can go for blood urea levels, serum protein levels, serum ochratoxin-albumin adducts, antibody titres etc.

As far as the treatment is concerned, it is very important to identify the source of contamination and avoid it. This is the most basic and compulsory step. Administration of anti-oxidants, detoxificants (such as methionine, glycine,), omega-3 fatty acids would assist a faster recovery, but have to be advised by your nutritionist.

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