

Technical Bulletin

Information from Phibro Technical Services

Dairy Producer Action Plan: Mitigating aflatoxin M₁ concentrations

Dennis Nuzback, DVM, PhD, Research Technical Manager, Phibro Animal Health Corporation

As a dairy producer, you pay careful attention to your cows and work hard to feed them the cleanest, most nutritional feedstuffs available to maintain their health and productivity. Even the best stewards of a dairy herd are subject to finding aflatoxins in their milk — an issue that is detrimental to both your cows and your profit potential.

Aflatoxins can arise as an issue on any dairy at any time. They typically enter your operation from feedstuffs that were poorly stored for lengthy periods or were harvested under less-than-ideal conditions. Both scenarios may lead to moisture-rich environments conducive to the growth of the molds *Aspergillus flavus* or *A. parasiticus* that produce the mycotoxin aflatoxin B₁ in these feedstuffs. This feed-borne mycotoxin when consumed by the cow is converted to aflatoxin M₁ and then is secreted into milk. Aflatoxin B₁ is difficult to detect at feeding time and can have serious impacts on your milk quality.

As a dairy producer, you must adhere to your government's guideline for aflatoxin M₁ concentration in the milk you sell. Milk with aflatoxins above legal levels cannot be brought to market. It's important to react quickly, should your milk aflatoxin levels exceed the legal limit. It's a good idea to create an action plan to help lower aflatoxin concentrations immediately to save you valuable time later.

Fortunately, Phibro Animal Health Corporation offers AB20® nutritional specialty product, a unique, processed bentonite containing hydrated sodium calcium aluminosilicate material that helps bind moisture that is present in feed. Lower moisture in stored feed components reduces the potential for mold growth and mycotoxin contamination. In the study pictured below, milk aflatoxin M₁ concentrations were reduced within five days of feeding adsorbents, which shows how quickly **AB20** works.

Table 1. Percent Reduction of Milk Aflatoxin M₁ After Feeding Adsorbents for Five Days (adapted from Stroud, 2006)

Adsorbent	% Reduction		
	Milk Aflatoxin Concentration	Milk Aflatoxin Secretion	Aflatoxin Transfer from Feed to Milk
AB20	48.90*	52.28*	48.44*
Milbond-TX®	46.49*	48.46*	44.55*
NovaSil™ Plus	40.39*	42.59*	42.09*
Toxynil +®	34.98*	36.36*	34.45*
Condition Ade®	7.85	13.79	13.23
UltraSorb®	7.36	7.85	7.59
Mexsil®	6.62	8.00	7.19
MTB-100®	-7.81	-6.71	-3.60
Pooled Standard Error	12.69	13.75	13.12

*Values are different from zero when $P < 0.05$.

Five Steps to Take if You Find Aflatoxins in Your Milk

- 1. Take Immediate Action.** As soon as a milk processor identifies aflatoxin M₁ concentrations above the allowable concentration, add six ounces (170 grams) of **AB20** per cow, per day. You can expect quick results; M₁ concentrations typically come down within five days of feeding **AB20**.
- 2. Identify the Source.** Continue feeding six ounces of **AB20** per cow, per day until your feed diagnostics have been

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run. This will vary, depending on how quickly you can sample feed ingredients and ship them to a commercial lab for testing. You can expect to receive diagnostic results in a week or less. With the results in hand, you will know what feedstuff caused your aflatoxin levels to spike.

- 3. Address the Problem.** Once the contaminated feed is identified, you'll need to reformulate diets. Replace the contaminated feedstuff with aflatoxin-free feed ingredients.
- 4. Check the System.** You've made feed adjustments, and your dietary concentrations of aflatoxin B₁ have been decreased or eliminated. Now, it's time to decrease your feeding rate of **AB20** by one ounce (28 grams) per cow per day every five days. Visit with your milk processor and verify milk aflatoxin concentrations are indeed below the cutoff before you decrease the **AB20** feeding rate again.
- 5. Confirm the Problem Is Solved.** Continue to monitor your milk aflatoxin M₁ concentrations to ensure the problem has been rectified and aflatoxin levels remain below the permitted level. You've followed an action plan, and you can count on **AB20** to help manage feed aflatoxin

concentrations — but be prepared to immediately return to the feeding rate of 6 ounces (170 grams) per cow per day, and to repeat steps two through four of this process, should you again find aflatoxins in your milk.

No producer wants to have to dump milk because it's contaminated with aflatoxins. Following these simple steps will help get your cows, and your profit potential, back on the right track quickly.

For additional information on **AB20** nutritional specialty product, visit pahc.com, or call your Phibro dairy technical advisor.

Reference

Stroud, J. 2006. The effect of feed additives on aflatoxin in milk of dairy cows fed aflatoxin-contaminated diets. MS Thesis. Department of Animal Science, North Carolina State University, Raleigh.

This information has been prepared for industry technical professionals.