Moldy Feed And Mycotoxin

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Mold problems with this year's corn crop are widespread in some areas because of the cool, wet growing season and harvesting problems. Both whole-plant corn silage and corn grain are involved.

Some production or weight gain problems in livestock stem largely from the degree of mold present. Mold poisons or mycotoxins also may be involved in some performance and health problems when feed is obviously moldy. However, mycotoxins also may be present when very little or no obvious mold is seen.

Moderate reductions in milk production, growth, or gains from feeding moldy grain or forages often result from depressions in the digestibility and palatability of moldy feed. More drastic reductions in performance of 15 percent to 25 percent or more within a few days to a few weeks may signal a potential problem with mycotoxins. This is especially true when health problems are present, such as a marked drop in feed intake, acetonemia or ketosis, increased incidence of displaced abomasum, hemorrhaging, diarrhea, and signs of liver or kidney problems.

Black mold, which is a major type seen in some of this year's crop, seldom produces mycotoxins, but may appreciably reduce performance. Mold of other colors, when present in any amount, are more likely to produce mycotoxins.

Testing for mycotoxins should be considered when otherwise unexplained and serious reductions in performance occur, especially when accompanied by possibly related symptoms. Quick tests using immumo-assay or TLC methods may be employed for initial screening. Tests should include both aflatoxin and Fusarium mycotoxins such as DON, DAS, zearalenone, and possibly others. Such quick tests often cost $10-$50 each and are available from some feed concerns, feed testing laboratories, and veterinarians.

Preferably, frozen duplicates of samples with a positive quick test should be sent for more quantitative or confirmatory testing using HPLC or gas chromatography.

While corn is most suspect this year, remember that all feeds used on a farm including finished concentrates and especially forages may contain mycotoxins. Therefore, other feeds also should be tested to see if they are the source of the mycotoxin or are contributing one or more mycotoxins to the problem. Black or ultraviolet light scans are only presumptive, since many false positives and negatives may occur.

It is important to take representative samples. It is best to take and freeze a composite of each of three to five feedings. Then combine these and mix well before making a final composite for submission. Keep a frozen duplicate for confirmatory testing (requires a longer processing period) in case a positive quick test is obtained, or submit it at the same time as the initial test. Send about one pound of dried feed, core samples from at least 12 bales of hay, or two pounds of wet feeds such as silages, haylages or wet brewer's grains. Place frozen samples in insulated bags containing frozen cold packs. Hand deliver the samples or mail them overnight to the laboratory. Don't mail on Fridays or weekends to most laboratories.

More quantitative or confirmatory tests may cost $75-$150 each at some laboratories. They are available at a modest charge at the State Diagnostic Laboratory, P.O. Box 367, Summerdale, PA 17903-0367 (717) 787-8808. A processing period of seven to 14 days or more may be necessary for confirmatory mycotoxin testing at some laboratories.

Usually 20 percent to 40 percent of the suspected feeds tested for mycotoxins may test positive. Some laboratories are reporting as high as 80 percent to 90 percent positives, mainly Fusarium toxins this winter.

Some of these positive feeds can be used at reduced levels for some animals or may be sufficiently low to not be indicated in animal problems. Interpretation of tests and diagnosis is hampered by many factors, including a lack of specific tests for many of the mycotoxins known to exist, few hard data on harmful levels, possible additive effects from several mycotoxins being present at low levels, and the minute amounts of mycotoxins that may be present in only part of the supply of a particular feed.

Use the guidelines available on penpages and elsewhere in interpreting test data. Effects on performance and related health symptoms must be considered, as well as levels and types of mycotoxins found.

Feeds with more than 20-40 ppb aflatoxin should be considered highly suspect for young animals, and those with more than 100 ppb on a dry matter basis for older animals. Those containing over 1.0-1.5 ppm of other mycotoxins should be highly suspect of harmful involvement. Moldy feeds or those with the above or higher levels of mycotoxins should be at least temporarily discontinued when their use is accompanied by marked performance reduction or related health symptoms that are otherwise unexplained.

If moderate performance effects are noted without health symptoms, reduce the level of positive or suspected feeds with mold present. Removal or appreciable reductions in suspected feeds should result in considerable improvement within three to seven days in many cases.

Mycotoxin levels indicated here are referred to on a dry matter basis. Often laboratory results are given on an as fed or as received basis. Thus, it is important to know how reports are given and express them on a dry matter basis for interpretation.

Levels of aflatoxin in the total ration dry matter should be limited to 20-40 ppb for milk cows and nursing dams. A longer recovery period may be needed for animals with considerable liver or kidney involvement. Aluminosilicates and some bentonites may be fed to partially reduce harmful effects and levels of aflatoxins in the milk.