Watch Corn Quality As The Weather Warms

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Ah, finally the weather has broken, and we have warmer temperatures and green grass. However, you still must remain vigilant to protect the health of your cattle. Increasing temperatures can cause shelled corn to deteriorate in bins and other storage units. With the unseasonably wet weather, late fall harvest, and the need to dry corn rapidly, shelled corn may not dry enough in bins. These unfavorable conditions can lead to heating, mold growth and mycotoxin build-up. The following points may help you avoid problems this spring.

The moisture level of shelled corn in the bin should be 14 percent or lower. Greater than 14 percent can heat and allow for mold growth. The fans should be turned on to move air and reduce risk of mold growth. If corn fines (broken corn pieces and small kernels) have been removed prior to storage, you may expect fewer problems.

Grain moisture content may be determined by direct or indirect methods.

Direct methods are commonly used for laboratory work where exact determination is critical. A direct method is heating the grain sample to drive off moisture and weighing before and after heating, according to a standardized procedure, to find water loss.

Moisture meters, commonly used with farm drying installations, indirectly measure moisture. They measure the electrical conductance or capacitance of the grain, since moisture in grain affects these electrical properties of the kernels. A reading on the moisture meter is converted to a moisture reading by use of a calibration chart or table.

So why should you be concerned? Corn ear molds can produce mycotoxins. Mycotoxins are naturally-occurring, secondary metabolites produced by a variety of molds and can be toxic to livestock. The mycotoxins of major importance include aflatoxin, deoxynivalenol (also known as DON or vomitoxin), fumonisin, and zearalenone. Giberella and Fusarium molds can potentially produce deoxynivalenol, zearalenone and fumonisin. Aspergillus molds can produce aflatoxin.

What are the signs of mycotoxin? Look for rumen disorders and reduced cud chewing. Check for looser fecal discharges. You may notice a reduction in dry matter intake. Moldy feed may have reduced digestibility. Molds grow and propagate, deriving energy from the feed's protein, fat and carbohydrate. Moldy feeds are less palatable and may reduce dry matter intake. This, in turn, leads to a reduction of nutrient intake, reducing weight gain or milk production.

Performance losses of 5 to 10 percent are typical with moldy feeds, even in the absence of mycotoxins. Mycotoxin contamination increases production losses, even when mold is not readily visible.

Additional evidence of mycotoxin consumption includes reduced fertility/conception rates or abortions, swollen vulvas and nipples, and vaginal or rectal prolapse.

Initially, mycotoxins cause relatively minor problems. The reduction in performance may be negligible. But within days or weeks, the effects of continued mycotoxin consumption on performance (milk production or weight gain) becomes more pronounced.

The effects of mycotoxins are amplified by production stress. Rapidly growing feedlot cattle are more susceptible to the effects of mycotoxins than low producing animals. It is extremely difficult to make blanket recommendations for all classes of cattle, but feedlot cattle are less susceptible than younger cattle, higher-stress cattle, breeding males and females, or pregnant females. Young calves and virgin replacement heifers are more sensitive to mycotoxins than cows in early lactation prior to breeding, nonlactating mature cows, and feeder/feedlot cattle.

What are additional management factors to consider?

Watch the quality of your shelled corn. Look for signs of heating, mold development and damaged corn kernels. Testing for mycotoxins can be expensive and misleading.

Obtaining a representative sample is difficult. You can ask your feed supplier for mycotoxin-tested flow agents that can reduce the impact of toxins. Check that the product is effective on vomitoxin (also called DON) which is the most common mycotoxin. A commercial flow agent (binder) containing yeast cell wall extracts, or MOS (mannan oligosaccharide) products are recommended.

The bottom line is this: It is much easier to test the grain before feeding to determine whether mycotoxins are present and, if so, in what quantity. Clinical signs due to mycotoxins tend to be vague and may not show up until long after the offending feed is consumed, making diagnosis after the fact difficult. Δ

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