Animal Science
Info Series: AS - B 349
The University of Tennessee
Extension

FEEDING MOLDY HAY TO BEEF CATTLE

James B. Neel
Professor
Department of Animal Science

Can moldy hay be fed to beef cattle? Hay that is harvested and stored with excess moisture will produce heating and molding.

Are there problems in feeding moldy hay? Reduced intake, reduced nutrient value and potential ingestion of mycotoxins could occur.

The degree of heating of the hay affects the nutrient value. With a limited amount of heating, protein denaturation occurs. This results in less protein being degraded in the rumen making more of the hay protein available for absorption in the small intestine. Where degradable protein is still adequate in the rumen, this may actually be beneficial. Where total protein in the diet is marginal to begin with, a source of natural protein should be provided.

Excessive heat induces the browning reaction with a result loss of digestible protein and energy. This causes a caramal, tobacco-like odor and a darker color.

A South Dakota study compared the nutritional value of moldy alfalfa hay to good quality alfalfa hay fed to steers. Water was added to the good quality hay to produce moldy hay. Moisture levels at the time of storage in the moldy hay was 37.9%. The “molded hay” heated to an average maximum of 140.9°F at 42 hours after stacking. The amount of heating was associated with the level of moisture at time of storage with higher moisture producing greater

maximum temperature. Results of the study are illustrated in the following table.

Nutritional Value of "Good" or "Moldy" Alfalfa Hay

Item	Good Hay	Moldy Hay
Analyses at Feeding		
Dry Matter (%)	90.0	84.7
Crude Protein (%)	20.1	21.8
Cattle Performance		
Hay Dry Matter Intake (lb.)	15.6	14.3
Daily Gain (lb.)	1.6	1.3
Feed Conversion	26.4	29.5
Digestibility (%)		
Dry Matter	63.7	53.7
Protein	76.9	53.0
Energy	63.1	54.4

The researchers reported that the nutritional value of the moldy hay was reduced; 15 to 20 percent

The question on problems that could occur from the ingestion of mycotoxins has not been appropriately answered. As would be expected, a high concentration of toxins would reduce the consumption of hay. Ruminants, especially older beef cattle, have a relatively high tolerance for mycotoxins (fungal metabolites) in feedstuffs.

The effect of the moldy hay can be reduced by feeding a higher quality hay and grain or commercial supplement. Severely moldy hay should be diluted to no more than 30 percent of the ration in order to reduce the risk of mycotoxicosis and reduced performance. Hay with limited heat damage and mold should be diluted to 40 percent to 60 percent of the total ration. Do not force cattle to consume moldy hay without other forage available.

Source: David Lalman and Stan Casteel. Mizzou Beef News. Vol. V, No. 1.