Drought Conditions Cause Concern Among Cattle Owners for Life-Threatening Toxicity in Livestock

GALENA, Mo. – For the second year in a row, livestock producers are at risk of cattle losses in some fields due to nitrate or prussic acid toxicity, according to Tim Schnakenberg, an agronomy specialist with University of Missouri Extension.

“The biggest concern is for pastures that contain sorghum sudan, millet and Johnsongrass. These forages can accumulate nitrate levels during periods of drought, especially after significant amounts of nitrogen fertilizer or poultry litter have been applied to the crop,” said Schnakenberg.

In drought situations, fescue tends to go dormant and forages like Johnsongrass may continue to stay lush and desirable to livestock.

According to Schnakenberg, the nitrate levels are not only a concern for grazing, but also in hay. Nitrate stays at the same level in hay as it was the day it was cut.

“Excessive nitrates can be poisonous to livestock. Nitrates are converted to nitrites by bacteria in the rumen. If this conversion is interrupted by drought, nitrites can build up and interfere with movement of oxygen through the blood stream and very high levels of nitrite results in asphyxiation. Among bred animals, nitrate accumulation can also lead to abortions,” said Schnakenberg.

The danger is not passed even immediately after a rain. It takes at least four to five days following a good soaking rain before nitrate accumulations in forage may drop to a safer level according to Schnakenberg.

Under very dry conditions, other crops like corn can have high nitrate levels if high rates of nitrogen are applied. Much of the corn planted in the Ozarks was intended, and fertilized for grain. With the drought, its season was cut short and much of it was chopped for silage.

If the corn was at the best stage for silage (60-70 percent moisture), the nitrate level can be reduced during the fermentation period 20-50 percent. If too dry or too wet, it may not reduce as much as expected. Fermentation will take at least 21 days to complete.

There is no way to know the nitrate level unless it is tested. Some extension centers are equipped to do a quick test of lower stalks of plants to determine if the nitrate levels are a concern or not.
“Nitrates accumulate the most in the lower stalk. If they are a concern, it’s advisable to send a sample to a lab to get a quantitative analysis from several samples containing the entire plant that will be consumed,” said Schnakenberg.

Most MU Extension centers can also direct producers to labs that can test for nitrates (please call first). The results can help the farmer to know how to safely feed dangerous feeds to livestock by dilution and determine what types of cattle should or should not be fed the feed.

Schnakenberg warns that prussic acid is another toxin that producers should be aware of. This primarily occurs in lush standing sorghum, Johnsongrass, and to some extent sorghum sudangrass, that is less than 18-20 inches in height. It has also occurred in Indiangrass that is less than eight inches in height.

“In a drought the toxicity is heightened if there is nothing else available to eat in a pasture,” said Schnakenberg. “Prussic acid dissipates after the crop dries down after cutting for hay or grows out of this stage of growth. But, because of the difficulty in sampling for this problem, a toxicity test is not considered reliable.”

For more information, contact any of these MU Extension agronomy specialists in southwest Missouri: Tim Schnakenberg in Stone County, (417) 357-6812; Jay Chism in Barton County, (417) 682-3579; John Hobbs in McDonald County, (417) 223-4775 or Brie Menjoulet in Hickory County, (417) 745-6767.

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