

Ag Column Article
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Forage Nitrates and Poisonous Plants

We have had a wetter than normal spring this year, allowing pasture and hay yields to be very good. Even though we have great soil moisture currently, conditions can quickly change as we move into summer with the likely much warmer temperatures. In the event we would move into drier soil conditions, livestock producers should keep in mind the concerns about nitrates and poisonous plants.

Without adequate pasture, livestock are more likely to consume toxic plants. Each year, we hear of someone's livestock dying for no obvious reason. Some of these deaths are likely poisonings due to ingestion of poisonous weeds. Most livestock owners are familiar with the deadly nature of the wild cherry tree in the wilting stage, but there are many other potential deadly weeds in pastures.

Several common poisonous plants in Northeast Tennessee and Southwest Virginia include poison hemlock, nightshade, buttercup, jimsonweed, Japanese yew, laurels, azaleas, rhododendrons, purple or parilla mint, wild cherry, and red maple. A good website for identifying poisonous plants is the Cornell University site, <http://www.ansci.cornell.edu/plants/index.html>. The site also has links to other great sites on poisonous plants databases in Pennsylvania, Indiana and Illinois.

Nitrate poisoning of livestock is a major concern during times of drought stress. Drought stress can cause nitrates to accumulate in summer annuals and warm-season perennials. Examples of high risk plants are sudangrass, corn, bermudagrass and johnsongrass as well as others. High rates of nitrogen fertilization can also cause plants to have high levels of nitrate. Nitrates often dissipate to safe levels when the forage is ensiled.

Nitrates normally are broken down to nitrites in the digestive system of livestock. According to Dr. Dennis Hancock, University of Georgia Extension Forage Specialist, these nitrites are further broken down into ammonia and then amino acids and proteins. The problem occurs when the animal consumes high levels of nitrates which build up nitrate levels. Hancock says the nitrites then get absorbed into the bloodstream due to the excessive levels. The nitrite then prevents the normal transfer of oxygen within the animal.

Forages can be tested to determine if there are excessive levels of nitrates present. Your local Extension office can test the forage to determine if there is a potential threat. In the case of a positive test, a more detailed analysis will be required to confirm and measure the nitrate level. Nitrate levels above 4000 ppm are risky for livestock.