

Toxic Algae Threaten Livestock Health

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Editors note: Last month we received a call from a Lawrence County cattleman following the death of seven head of cattle. We immediately got to work gathering the facts. We talked to the State Diagnostic Lab, ADEM and SE Pond Management. Blue green algae was a suspect so we collected pond samples and took them to Dr. Wilson in the Auburn Fisheries Department. Dr. Wilson is studying blue green algae which can be toxic to cattle. More details are explained in his article below.

Maintaining healthy herds is fundamental for producers. Livestock health can be negatively affected by a number of factors including drinking water quality. Although delivery methods vary, man-made ponds serve as an important source of drinking water and cooling for livestock around Alabama. Water quality in livestock watering ponds can vary widely depending on livestock access, watershed features, rainfall, and season. There are several contaminants in water that can negatively affect the health of the livestock including toxic pollution such as pesticide runoff, waterborne diseases, and algal blooms. Furthermore, during periods of low rainfall, these problems are often made much worse as everything becomes more concentrated in less water. Recent droughts throughout Alabama reduced water quantity to dangerously low levels and compromised the quality of livestock ponds through the promotion of blue-green algae (also called cyanobacteria) that tend to become abundant under warm, stagnant, nutrient-rich conditions.

Blue-green algae are a group of ancient, microscopic plants that are found in all types of waterbodies around the world. Some blue-green algae can produce toxic chemicals that can poison the livers and nervous systems of livestock that drink contaminated water. The first report of a toxic algal bloom occurred over 130 years ago when dead sheep were found near a scum of blue-green algae. Furthermore, toxic algal bloom-related livestock deaths

commonly occur each summer in the U.S. In fact, toxic algae caused the death of four cows at a Georgia farm last summer. Even if these toxins do not kill livestock, they can cause stress that can reduce animal growth or milk production. Clearly, blue-green algae pose a serious threat to livestock health and being knowledgeable about water quality can be critical for managing healthy herds.

The first step in avoiding the detrimental effects of toxic algal blooms is their early identification. Blue-green algae can form dense, paint-like scums on pond surfaces (see photo), especially during the summer months when the algae take advantage of warmer temperatures and longer days. Pond fertilization from nearby livestock through defecation and urination can further promote toxic algal blooms. When these algal scums are present, we advise producers to minimize exposure of their herds to the livestock ponds (i.e., find an alternative drinking water source)

and to contact a local extension agent to determine the best way to chemically (e.g., copper sulfate) or physically (e.g., mixing, flushing) treat the algal bloom. Just like with livestock, we recommend that dogs and children not be exposed to ponds with surface scums of algae.

Cattle affected by blue-green algae may be found dead without previous clinical signs or may demonstrate lethargy, anorexia, and neurologic signs secondary to hepatic encephalopathy. On necropsy, the liver often appears pale and hemorrhaged. Histologically, hepatic necrosis is usually acute and severe. However, because multiple hepatotoxins can cause similar lesions, it is important to submit the appropriate tissue samples and water samples to definitively diagnose blue-green algae toxicosis and rule out other causes of acute death.

If blue-green algae are believed to be responsible for livestock health issues or deaths, we encourage producers to quick-



A scum of the blue-green alga, Anabaena, on the edge of a pond at Auburn University's E. W. Shell Fisheries Center (Photo by Alan Wilson).

ly contact Dr. Alan Wilson (wilson@auburn.edu, 334-246-1120) to aid in the collection of samples from the livestock ponds and deceased animals to confirm the link between water quality and death to increase our knowledge about these systems. Suspect cases can be submitted for necropsy to the Alabama Veterinary Diagnostic Laboratories located in Auburn, Boaz, Elba, and Hanceville. Practitioners may also perform field necropsies and submit samples to these laboratories. Finally, we welcome the opportunity to engage producers around Alabama to discuss the threat that toxic algae pose to livestock.



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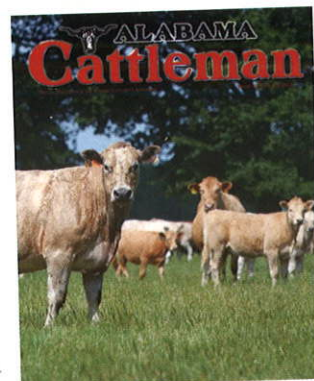
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