Monitor Ponds for Blue Green Algae

Blue green algae blooms are an issue that usually gets discussed this time of year. Calm, sunny, dry, and hot days of summer create ideal conditions for blue green algae to thrive in our livestock ponds. Blue green algae occurrence is sporadic making its threat unpredictable. Despite its name, these blooms are not algae, but a cyanobacteria. Some of these cyanobacteria produce and release dangerous toxins that are of major concern for our livestock.

These “cyanotoxins” typically show up as either neurotoxins or hepatotoxins. Meaning they can damage the nervous system or affect the liver function of animals. Typically, the first clinical sign noticed in pasture cattle that have consumed neurotoxins are dead cattle. If found early enough, cattle may have muscle tremors, difficulty breathing, seizures, slobbering, and diarrhea. Hepatotoxins can cause an acute death like neurotoxins or lead to delayed issues with liver failure. An example of this would be weight loss and photosensitization and can be recognized by severe sun burns on areas of the body not covered with hair. Since there are several causes of acute death in pasture cattle, contact your local veterinarian for diagnosis. Unfortunately, there are no known antidotes to these cyanotoxins. So, understanding what to look for, and avoiding livestock exposure is important.

Blue green algae blooms are green and float at or just below the surface of the water. The appearance almost looks like paint in the water. Once the cyanobacteria die, it turns a blue color. The color can also vary to a grey to almost a red or brown color as well. Toxin concentrations in affected water can vary drastically. The wind can move these blooms and concentrate them in certain areas along the shorelines of ponds. These concentrations increase the lethality of the toxic blooms.

Since blooms can establish quickly, monitor ponds closely and be prepared to sample pond water if the green paint like consistency is observed or if acute animal deaths are found in the pasture. The water sample itself is a snapshot in time, so proper handling, and methods of obtaining the sample helps deliver accurate results. The sample should be at least 500 mL of water (with scum included) held in a sealable plastic bottle or container. Sample blue green algae bloom just below the water surface along the shoreline. Remember, it will have the appearance of blue or green paint floating in the water not floating mats of moss or aquatic vegetation. Use care not to touch the blue green algae with bare skin, as it can cause skin irritation in people. Once the sample is taken, it should be cooled and refrigerated, then shipped chilled with an ice pack. Samples can be sent to the Kansas State Veterinary Diagnostic Lab (KSVDL) for analysis.

Preventing exposure of blue green algae toxins is very important during the summer months. There are some options for livestock producers if blue green algae is suspected or has been identified. Of course, fencing off natural water sources and providing alternative water sources is the best option (well water, hauled water), but is typically financially limiting. Fencing off
certain areas of the ponds (downwind portion of ponds) may help limit exposure. Improved watering areas, such as pipe fed waterers, may also limit exposure if the water inlet is located in a low-risk area of the pond. A submerged inlet in the center of the pond is an area where the cyanobacteria are unlikely to concentrate. Improved water sources like this will also help increase other water quality attributes. Controlled access and tank waterers decrease sediment, nutrients, and fecal coliform bacteria from building in the water source. Treatment of the water source with copper sulfate is another choice. However, extra care should be taken when treating the pond during a bloom. When the cyanobacteria die, they will release toxins into the water. Do not allow cattle to drink from the pond for a week to allow the toxins to degrade. Copper sulfate is also toxic to other plants and fish in the pond. The recommended amount is 8 pounds of copper sulfate per 1 million gallons of water to achieve 1 part per million. Although it may not eliminate blooms from happening, reducing nutrient runoff (specifically phosphorus) into the pond will reduce the likelihood of occurrence. Monitoring of stock ponds during the summer months and having a plan in place to combat blue green algae will help ensure the health and wellbeing of our herds.

Thanks to A. J. Tarpoff for sharing information related to monitoring ponds for blue green algae and for further information on submitting a sample, contact me at any Post Rock Extension District Offices in Beloit, Lincoln, Mankato, Osborne or Smith Center.

Post Rock Extension District of K-State Research and Extension serves Jewell, Lincoln, Mitchell, Osborne, and Smith counties. Blaire may be contacted at blairet@ksu.edu or by calling Beloit 738-3597, Smith Center 282-6823, Lincoln 524-4432, Mankato 378-3174, or Osborne 346-2521. Join us on Facebook at “Post Rock Extension” along with our website www.postrock.ksu.edu.