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Livestock Quality Concerns

Last week we took a look at the amount of water required by different classes of livestock. While water quantity is important, all the water in the world will do no good if the quality is compromised. Water quality is important for animal health and performance. Water quality can be determined by appearance, odor, taste, pH and contaminants. Contaminants
can include minerals (total dissolved solids), manure (coliform), microorganisms, nitrates, and algae. In part two today, we'll look at some common contaminates to be on the lookout for.

Dry conditions lead to water quality concerns, particularly in ponds. Declining water levels increase the concentration of total dissolved solids (TDS) in water, some of which are toxic to livestock. Dissolved salts or salinity goes hand and hand in this discussion of TDS. Some salinity can create increased intake, but too much will reduce intake creating health issues. Generally speaking, a TDS level of less than 3,000 ppm (parts per million) is considered safe.

A primary TDS concern is sulfates, since high sulfur can lead to polioencephalomalacia (polio/ PEM). High levels of sulfates can impact livestock health, especially in ruminants. Feeds may also contain sulfur, so the diet will influence the potential for sulfate toxicity. High levels of sulfate can reduce other mineral availability, such as copper. Elevated levels of sulfates may cause loose stool, with very high levels of sulfate inducing central nervous system symptoms.

Nitrates are of elevated concern in drought conditions. Not only can nitrates concentrate in reduced water sources, but also in plants used as livestock feed. This compounding factor can make a bad situation much worse, so monitor feed and water sources. Symptoms of nitrate poisoning include brownish discoloration of the blood, difficult and rapid breathing, muscle tremors, low tolerance to exercise, incoordination, diarrhea, frequent urination, collapse, and death. Pregnant animals may abort and death is always probable in high nitrate situations.

Algae that builds up in ponds or large livestock tanks may be due to a specific species known as cyanobacteria often referred to as blue-green algae. Blue-green algae can be toxic to most animal life, with harmful algae blooms being found in stagnant water, lakes, and ponds, especially when water temperatures rise. High levels of blue-green algae make the water look like paint or motor oil has been dumped into the water and is a good indication of a problem. Signs of blue-green algae poisoning are diarrhea, lack of coordination, seizures, labored breathing, convulsions, and possibly death. More information on blue-green algae can be found in the K-State publication MF3065.

There are several microorganisms that can create water quality issues for livestock. A short list is; fusobacterium, leptospirosis, coliform, and salmonella. Livestock having unlimited access to stand or swim in drinking water sources increase the chance of these microorganisms, solids suspended in the water, and add nutrients from manure and urine - which in turn leads to an increased chance of blue green algae. Limiting access to specific points with fencing, can reduce pond and stream contamination.

Clear water doesn't guarantee safe water, but having water tested does. Monitoring water quality is a way to manage risk. Knowing if there's a problem before symptoms show up is the best way to prevent performance losses or death. Taking a water sample and submitting it to a lab for analysis may take a few extra minutes and some investment of dollars, but extra effort is well worth the knowledge of knowing that the water is safe or not. While ponds are often the most questionable in quality, the water in tanks, troughs and wells may also need to be tested. We have water test kits available in the Extension office and I would be happy to talk through water testing with you. More information on this topic can be found in MF3249.