

Drinking Water for Livestock



The quantity and quality of water required by livestock are important considerations for the overall maintenance of herd health and productivity.

- Amount of water required depends on several factors.
- Quality of water may influence consumption and health of livestock.
- Protecting and maintaining water supply are critical.

If water is suspected of causing a health problem, seek veterinary assistance to determine a diagnosis.

How much water do livestock typically require?

How much water cattle need each day may range from 7 to 20 gallons and depends on several factors:

Forage dry matter. Green forage is higher in moisture than dry forage. Cattle have increased water consumption when consuming hay compared to fresh forage.

Season. Higher temperatures increase water consumption. High humidity reduces daily consumption.

Physiological state. Water consumption increases with age, weight, pregnancy, and lactation.

A general rule of thumb is livestock need 2 gallons of water per 100 pounds of body weight each day.

What are the acceptable ranges of water quality for cattle?

Surface waters are a source of drinking water for many livestock in Alabama. Waterborne contaminants may be naturally occurring (salinity, iron) or introduced and thus exceed natural levels (nitrates, pathogens). There are acceptable levels of contaminants in livestock drinking water that, when exceeded, may result in reduced water intake or health concerns. Research has shown that improving water quality and palatability results in increased water consumption, feed consumption, and weight gain. If the drinking water has high levels of contaminants, livestock will drink less of it.



Figure 1. Test livestock drinking water annually to avoid problems that could result in health issues.

Temperature. Cattle prefer water between 40 and 65 degrees F. They will reduce consumption of water warmer than 80 degrees F.

Salinity/total dissolved solids (TDS). Salinity includes sodium chloride (common salt), magnesium (Epsom salt), calcium, and sulfate. Levels of salinity less than 1,000 mg/L are considered safe to drink. Above this level, livestock may limit water intake and experience adverse health effects such as diarrhea. Drinking water with salinity greater than 7,000 mg/L should be avoided if possible. Water consumption increases when cattle are fed supplements that contain salt.

Nitrate. Safe nitrate levels for livestock drinking water are below 100 mg/L. As levels increase, ensuring a balanced diet with low-nitrate feeds is important. Nitrate levels above 300 mg/L may result in severe health problems and death. Nitrate is reduced to nitrite in the rumen. Nitrite limits the amount of oxygen that can be carried in the blood, which is of special concern during drought when certain forages may accumulate high concentrations of nitrate (i.e., summer annual grasses, bermudagrass, and Johnsongrass under conditions of high nitrogen fertilization).

Pathogens. Pathogens are disease-causing organisms that may be introduced by untreated animal waste. Consuming untreated waste can lead to health concerns.

Cyanobacteria (blue-green algae). Excess nutrients and stagnant water can stimulate harmful algae growth, such as cyanobacteria or blue-green algae. Cattle can become sick from toxins (microcystins) released by blue-green algae.

Protecting Water Quality for Livestock

Test the drinking water source annually. The Auburn University Soil and Water Test Lab can screen water samples for 16 parameters of interest including nitrates, pH, and total dissolved solids. If water is suspected of causing a health problem, veterinary assistance should be sought to determine the actual health problem.

Don't let livestock loaf in ponds or wet soils. Infections from soilborne bacterium, such as fusobacterium or foot rot, may be transmitted with increased exposure to stagnant water and wet soils.

Fence or limit livestock access to ponds or other surface waters (streams). Keep a healthy streamside forest to protect streams and rivers.

Protect the watershed of your pond or water source by maintaining plants and limiting chemicals and manure transport into the water.

Pipe water to a quality water trough or other waterer. Freeze-proof troughs, such as floating ball top waterers, work well in cold weather and keep water cool in the summer. They also keep water relatively clean and free of algae.



Eve Brantley, *Extension Water Quality Resource Specialist*, and Kim Mullenix, *Extension Beef Cattle Specialist*, both with Auburn University
For more information, contact your county Extension office. Visit www.aces.edu/directory.

© 2017 by the Alabama Cooperative Extension System. All rights reserved. The Alabama Cooperative Extension System (Alabama A&M University and Auburn University) is an equal opportunity educator and employer. Everyone is welcome! New March 2017, ANR-2381