

WATER QUALITY AND LIVESTOCK HEALTH

FACTSHEET 2024-01

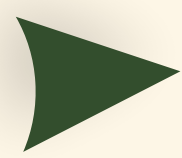


Water accounts for 50-80% of an animal's weight and is involved in every physiological process. In cattle, feed intake is directly related to water intake.

Cattle can tolerate poor water quality better than humans, However, there are many factors that can impact water quality to a point where cattle are affected.

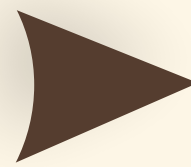
Poor water quality can directly impact growth, lactation and reproduction, leading to significant economic losses for producers.

MAJOR FACTORS IMPACTING WATER QUALITY



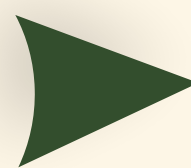
Sulphates (>1000 ppm)

- Less than 1000 ppm is optimum.
- Risk increases with hot weather due to evaporative losses and increased water intake.
- **Ties up copper leading to copper deficiency.**
- Exacerbated by high sulphate feeds including canola, kochia, Canada thistle and pigweed.



Nitrates (>1000 ppm)

- Less than 1000 ppm is optimum.
- Converted to nitrites by bacteria in the rumen.
- Exacerbated by high nitrates in feed sources, including drought or freezing stresses forages, forages from fields with high nitrogen fertilizer rates and weeds known to contain high nitrates such as pigweed.



Salinity (>7000 ppm)

- Less than 7000 ppm is optimum.
- Measured as the concentration of dissolved salts.
- Can cause a refusal of water source followed by times of high consumption leading to illness.

CAN I DILUTE POOR QUALITY WATER?

Following analysis of water samples, dilution can be an effective method of managing poor quality water if high quality water is available for the dilution. This can be a costly method but effective if no other water sources are available.



Do not try to dilute water with blue-green algae present!



Surface water sources should be tested for Total Dissolved Solids (TDS) once per week if water quality is a significant concern.

WHY SHOULD I BE CONCERNED ABOUT COPPER DEFICIENCY?

Copper is essential in reproductive performance, calf growth and health and immune system functionality. Due to antagonists in water, such as sulphates, copper deficiency can become more of a concern.

Signs of copper deficiency:

- Impaired immune system (increased parasite burden)
- Lameness
- Unthriftiness and stunted growth
- Loss of color/bleaching of hair coat



#1

LEADING
FACTOR IN
HERD FERTILITY
ISSUES IS BODY
CONDITION

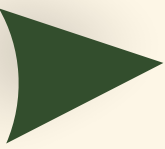
Poor water quality can lead to reduced feed and mineral intake leading to reduced weight gain or even condition loss.

Cows with a body condition score (BCS) of less than 2 are 3x more likely to be open.

Poor water quality can lead to a 30% increase in open cows.

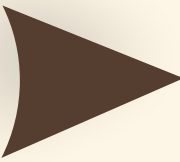
Dr. Cheryl Waldner, Western College of Veterinary Medicine

CONSIDERATIONS WHEN SAMPLING YOUR
LIVESTOCK WATER SOURCES



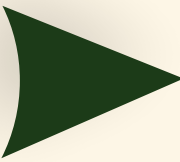
Ensure sample is obtained in a clean bottle

- Can be a lab provided container, glass jar or well cleaned and dried used pop or water bottle.



Collect a representative sample

- Samples need to be representative of what cattle are drinking.
- May need to reach out 4-5 feet into a dugout with a retractable pole to obtain the sample.



Refrigerate your sample

- Ideally, samples should be refrigerated and shipped in a cooler to maintain sample temperature.
- Particularly important for samples assessing bacterial components. Check with your lab of choice for delivery times.



Portable hand-held Electrical Conductivity (EC) and Total Dissolved Solids (TDS) meters can be purchased for home use and are one of the most cost effective methods of obtaining a quick picture of water quality.

If readings are high, follow-up water samples can be sent for laboratory analysis.

UNDERSTANDING TOTAL DISSOLVED
SOLIDS (TDS) AND LIVESTOCK HEALTH

Total Dissolved Solids (TDS) are the amount of organic and inorganic materials, such as salts and minerals, dissolved in a specified volume of water.

1000 - 3,000 ppm TDS is considered satisfactory for all classes of livestock.

3,000 - 5,000 ppm TDS may cause temporary diarrhea, avoid use in pregnant and lactating cattle.

5,000 - 7,000 ppm TDS avoid use for pregnant and/or lactating cows, reduced animal performance and diarrhea.

7,000 - 10,000 ppm TDS avoid use entirely if possible.

FOLLOW-UP RESOURCES



[Economics of Water Systems Calculator](#)

[Impacts of Body Condition on Cow Productivity and Profitability](#)



[Test Stock Water & Reduce Worry](#)

[Livestock and Water Quality](#)



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