THE HIDDEN DRIVER TO SUCCESS: HOW WATER IMPACTS BEEF CATTLE HEALTH AND PERFORMANCE

THE IMPORTANCE OF WATER

Providing cattle with consistent access to clean water is not only key for overall health - it helps to maximize growth and performance. Water helps to support digestion, nutrient absorption, and overall metabolic function making it important for weight gain and milk production.[1-4] Poor-quality or limited water increases the risk of illness, limits feed intake, and reduces production outcomes.

WATER NEEDS

Cattle get water both from drinking and from the feed they eat. Beef cattle need 26-66L of water per day on average, but exact water requirements for cattle fluctuate based on factors such as:[5,6]

- **Body weight:** Heavier animals typically have a greater water intake requirement
- **Growth:** Growing animals need more water to support growth
- **Environmental conditions:** Hotter and drier conditions increase water requirements
- **Stage of production:** Lactating cows have higher water requirements compared to dry cows
- **Type of diet:** Cattle consuming diets high in protein, salt, minerals or diuretic substances will have a greater water requirement

APPROXIMATE TOTAL DAILY WATER INTAKE OF BEEF CATTLE

Illustrated in the table below, larger animals and animals in energy intensive stages of life (e.g. lactating cows) will need more water. All animals will need more water at higher temperatures.

Approximate Total Daily Water Intake of Beef Cattle

	Intake in litres for temperatures in Celcius (C)					
Animal Description	**4.4°C**	**10.0°C**	**14.4°C**	**21.1°C**	**26.6°C**	**32.2°C**
Growing Cattle (Approx 400 lbs)	15.1	16.3	18.9	22.0	25.4	36.0
Growing Cattle (Approx 600 lbs)	20.1	22.0	25.0	29.5	33.7	48.1
Growing Cattle (Approx 900 lbs)	23.0	25.7	29.9	34.8	40.1	56.8
Bred Heifers	22.7	24.6	28.0	32.9	-	-
Pregnant Cows	22.7	24.6	28.0	32.9	-	-
Lactating Cows	43.1	47.7	54.9	64.0	67.8	61.3
Mature Bulls	32.9	35.6	40.9	47.7	54.9	78.0

Table adapted from *Nutrient Requirements of Beef Cattle*, seventh edition

BCRC
BEEF CATTLE RESEARCH COUNCIL

WATER QUALITY

While an adequate quantity of water is crucial, water must also be of good quality to support health, growth, and productivity. Poor-quality water can be unappealing to cattle, reducing water intake and slowing growth. In some cases, it can also be harmful, limiting production and potentially causing death.[5] Water quality can be monitored through testing and by observing your water source and herd. Watch out for:

- Reduced water intake or hesitance to drink
- Signs of dehydration (e.g., sunken eyes, tightening of the skin, lethargy)
- Weight loss
- Diarrhea
- Slower growth, reduced milk production, reproduction issues
- Water with odour, unusual colour, or algae growth

REFERENCES

1. Arispe, S. (2015, May). Water nutrition and quality for beef cattle. Oregon State University Extension Service. https://extension.oregonstate.edu/animals-livestock/beef/water-nutrition-quality-beef-cattle
2. Utley, P. R., Bradley, N. W., & Boling, J. A. (1970). Effect of restricted water intake on feed intake, nutrient digestibility and nitrogen metabolism in steers. Journal of Animal Science, 31(1), 130-135. https://doi.org/10.2527/jas1970.311130x
3. Brew, M. N., Myer, R. O., Hersom, M. J., Carter, J. N., Elzo, M. A., Hansen, G. R., & Riley, D. G. (2011). Water intake and factors affecting water intake of growing beef cattle. Livestock Science, 140, 297-300. https://doi.org/10.1016/j.livsci.2011.03.030
4. Holter, J. B., & Urban Jr., W. E. (1992). Water partitioning and intake prediction in dry and lactating Holstein cows. Journal of Dairy Science, 75(6), 1472-1479. https://doi.org/10.3168/jds.s0022-0302(92)77904-1
5. Olkowski, A. A. (2009). Livestock Water Quality: A field guide for cattle, horses, poultry and swine. Agriculture and Agri-Food Canada. https://publications.gc.ca/collections/collection_2009/agr/A22-483-2009E.pdf
6. Wagner, J. J., & Engle, T. E. (2021). Invited Review: Water consumption, and drinking behaviour of beef cattle, and effects of water quality. Applied Animal Science, 37(4), 418-435. https://doi.org/10.15232/aas.2021-02136

BCRC
BEEF CATTLE RESEARCH COUNCIL

BENEFICIAL MANAGEMENT PRACTICES

The health and productivity of cattle depends on access to clean, abundant water. The following beneficial practices outline how operations can maintain both water quality and quantity for their herds.

- Provide access to clean water at all times. Having a backup water source is a good way to ensure this.
- Test water annually or anytime changes are noticed.
- Clean water troughs and water lines regularly to prevent algae, mineral and bacterial buildup.
- Increase water availability during hot months or after changes to the animal's diet.
- Consider cattle behaviour and layout of water sources to avoid competition for water access.
- Work with your veterinarian and nutritionist to troubleshoot any issues related to water quality, and balance water and feed nutrients.
- When possible, pump water to prevent cattle from having direct access to water sources.

For detailed information on the effects of various compounds and contaminants on cattle health and productivity, refer to the BCRC's **Water Quality Analysis and Interpretation Guide.**