

Water: Amount, Quality and Sources

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Cattlemen that have been through the UT Extension Master Beef Producer program will remember that we talked about water as one of the five basic nutrients. We do not always think about water as a “nutrient” but it is the largest component of a cattle’s body and is required for all bodily functions. We often take it for granted because it is more abundant here in the southeast than it is in some other parts of the country (especially this past spring). But, in recent years we have seen times when water was short and the water that was available was poor quality.

The amount of water cattle need each day depends on many factors like air temperature, humidity, milk production level, pregnancy status, physical activity, growth rate, animal size and the type and amount of grass or feed they are eating. The following table can be a guide when calculating the amount of water cattle need each day.

Water intake estimates, gallons						
Temperature, °F						
	40	50	60	70	80	90
Weight, lb	Growing beef calves					
400	4.0	4.3	5.0	5.8	6.7	9.5
600	5.3	5.8	6.5	7.8	8.9	12.7
800	6.3	6.8	7.9	9.2	10.6	15.0
Finishing cattle						
600	6.0	6.5	7.4	8.7	10.0	14.3
800	7.3	7.9	9.1	10.7	12.3	17.4
1,000	8.7	9.4	10.8	12.6	14.5	20.6
Pregnant cows						
900	6.7	7.2	8.3	9.7		
Lactating Cows						
900	11.4	12.6	14.5	16.9	17.9	16.2
Mature bulls						
1,400	8.0	8.6	9.9	11.7	13.4	19.0
1,600+	8.7	9.4	10.8	12.6	14.5	20.6

Source: NRC, 2000. Adapted from NRC Nutrient Requirements of Beef Cattle, 7th revised edition.

Not all water must come from drinking, feeds and forages contain variable amounts of water. Water intake usually refers to free-drinking water plus water from feedstuffs. Pasture forages, green chop, and silage generally contain large amounts of water, while hay and feed grains tend to contain lower amounts of water. Lush forage may consist of approximately 75% water, while forage in the form of hay may contain closer to 10% water. When balancing rations, feedstuffs are normally corrected to dry matter weight assuming cattle will drink more or less to accommodate for as-fed water content.

Water source can have a significant impact on water quality. Possible water quality problems may include high concentrations of minerals or salt, high nitrogen or nitrate, contamination with fertilizers or other chemicals, bacterial contamination, or algae growth. In times of drought and rapid evaporation, these contaminants become more concentrated in surface water (ponds, springs and streams). As this begins to occur, cattle will reduce their water intake which reduces their feed intake and leads to decreased performance (average daily gain for stockers and body condition and reproductive efficiency for cows and heifers). High water temperature further reduces intake.

While well and municipal water sources can be more consistent in quality and supply, they are often cost prohibitive to have in remote pastures. If cattle rely on pumped water, it is important to make sure that the supply rate and trough space can keep up with the heaviest demand for the number and size of cattle in that pasture or pen during heat stress. Pumping water directly from a fenced pond to a waterer does reduce contamination from cattle loafing in the pond. However, it does not remove possible toxins gathered from runoff or algae blooms.

Water placement in pastures impacts grazing distribution, particularly if cattle are forced to travel long distances to water. Recommendations based on Missouri research propose that pasture systems be designed to provide water sources within approximately 650 to 1000 feet of all areas of the pasture for optimum uniformity of grazing. For intensive grazing systems, strategic water placement should be planned. Use of centralized watering stations in a fence line, lane, or wagon-wheel location allows multiple paddocks to be served by one water trough. One problem with lane locations of waterers is that lanes to waterers will become high traffic areas subject to trampling action and concentration of nutrients from manure and urine.

Water is the most important nutrient for cattle. Providing adequate and high quality water supplies to cattle at all times is essential for beef cattle operations. If poor cattle performance or health arises, evaluation of drinking water quality should be considered. Testing water for anti-quality factors can help diagnose suspected problems. Producers can strategically manage water sources to best provide for cattle water needs to maintain peak performance and promote water use efficiency.