UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Drought Management: Water

The dry, hot weather has certainly taken a toll on pastures, crops, and water sources. Although many producers are concerned about low stocks of hay and stored feeds, it is important to remember water is arguably the most important nutrient to animal. Animal performance and function depends heavily on adequate water intake and proper water quality.

Water requirements depends on:

- Rate of Gain
- Stage of Production
- Activity
- Feed Intake
- Type of Diet
- Outside Temperature
- Weight of the Animal

How much will a cow drink?

"**Lactating cows** may consume 18% of their body weight in water. A 1200 pound spring calving cow will require about 216 pounds of water on a hot summer day (not counting calf consumption). A gallon of water will weigh roughly 8 pounds, this equates to **27 gallons of water per cow per day**" according to OK State Extension.

Table I. Approximate total daily water intake of beef cattle[1].

Temperature in °F[2]						
Weight	40°	50°	60°	70°	80°	90°
Lb.	Gallons	Gallons	Gallons	Gallons	Gallons	Gallons
Growing Heifers, Steers, Bulls						
400	4.0	4.3	5.0	5.8	6.7	9.5
600	5.3	5.8	6.6	7.8	8.9	12.7
600	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
Wintering Beef Cows[3]						
900	6.7	7.2	8.3	9.7		
1,100	6.0	6.5	7.4	8.7		
Lactating Cows[4]						
900	11.4	12.6	14.5	16.9	17.9	18.2
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

[1]1996 National Research Council Nutrient requirements of Beef Cattle, Seventh Revised Edition, 1996. Table derived from an article by C. F. Winchester and M. J. Morris, Vol 15, No 3, Journal of Animal Science, August 1956.
[2]Water intake is a function of dry matter intake and ambient temperature. Water intake is constant up to 40°F.
[3]Dry matter intake influences water intake. Heavier cows are assumed to be in greater body condition and require less dry matter and, therefore, less water.
[4]Cows larger than 900 pounds are included in this recommendation.

(Rick Rasby, UNL, "Water Requirements for Beef Cattle")

Water Quality Factors:

- Dissolved Solids

  In a drought, dissolves solids can reach levels that negatively effect water intake. Reduced palatability is the main concern, but toxicity of the following minerals can result. Poor water intake can result in poor performing animals.

- Blue-Green Algae

  Extreme heat tends to promote animals loafing in water sources. The disturbance of sediment, manure, and urine all promote a favorable environment for algae and bacteria. Blue-Green Alge is a Cyanobacteria which is toxic to cattle. Water sampling and testing is the only true way of knowing presence, but inhibiting animals to loaf in water will mitigate the risk.

- Nitrates

  When nitrates are converted to nitrites, in the rumen, the result can be toxic to beef cattle. Nitrites are absorbed into the bloodstream. The result is hemoglobin converted to methemoglobin, which reduces the oxygen carrying capacity in the blood. Water over 100 ppm nitrate nitrogen should be a concern.

- Salinity

  Water that includes high levels of dissolved salt will be detrimental to performance. Salinity levels of 5,000ppm total dissolved salts will result in poor performance and should not be used for pregnant cows.

- Sulfates

  The sulfate upper limit depends on the size of the animal. Calves should be kept under 500 ppm Sulfate, but cows can be exposed to as much as 1,000 ppm. High levels of Sulfur in the water can contribute to polio' (PEM) in calves. Many co-product feeds are high in sulfur, especially DDGS and CCDS. If feeding high levels of co-products, sulfates in the water could result in problems at lower than cautioned levels

UNIVERSITY OF ILLINOIS
EXTENSION

Travis Meteer, MS
Beef Extension Specialist

Orr Beef Research Center
37737 Perry Fishhook Road
Baylis, Illinois 62314
(217) 236-4961 • *fax* (217) 236-3003
cell (217) 823-1340
email wmeteer2@illinois.edu • wmeteer@gmail.com

For more info on water quality in a drought:
http://web.extension.illinois.edu/oardc/