What’s in your water?
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Every day we work hard to keep our cattle clean, comfortable, healthy, and well fed. We work with some of the best people to make this happen. We have veterinarians for herd health checks, and midnight visits for difficult calving’s, nutritionists that sometimes we wonder if they are performing magic after difficult crop years but somehow the cows keep producing where we want them to be, and a whole slew of other consultants that help keep things running like clockwork...ok, maybe not clockwork but no major disasters. We are on the right track, the cows are comfortable and the milk check is keeping us all in a good mood!

Summer is just around the corner and we need to be thinking about cow comfort, heat stress abatement strategies, and water. Not just water availability, but water quality and cleanliness. Water is the most important nutrient for dairy cattle and often the most overlooked. Water is required for all of life’s functions – transport of nutrients to and from cells; digestion and metabolism of nutrients; elimination of waste materials and excess heat from the body; maintenance of proper fluid and ion balance and provision of a fluid environment for the developing fetus.

Cattle require large volumes of clean water every day and meet their requirement through three sources: drinking water, water contained in feed and water produced by metabolism of nutrients. It is estimated that 83% of the total water requirement is met by drinking water. Rules of thumb to estimate a lactating cow’s water intake include: 4 to 5 pounds of water intake/pound of dry matter intake or 3 pounds of water/pound of milk produced.

Now we know how much water our cows need, how are we going to get them that much? Provide adequate waterer space per cow. The standard summer water recommendation says that 15% of cattle in a pen should be able to access water at the same time. If you have 100 cows in a pen, that means you need to provide a minimum of 360 linear inches, or 30 feet, of trough space. Cattle consume the greatest volume of water immediately after milking, therefore clean waterers should be located at the parlor exit or return alley. Additional water troughs should be located near feed bunks and loafing areas. The more water points you have in a barn, the more you’ll break up cow congestion. If cattle are grazing, the water should be located in the shade. Given the choice between water and shade, cattle will choose the shade and become dehydrated. Finally, make sure you monitor water troughs several times a day to avoid waterer malfunctions and ensure cleanliness. It’s essential your cows have enough water to help fight the effects of heat stress.

Water consumption can be negatively influenced by water flow rate, “boss cows”, taste and stray voltage and high levels of mineral(s). In a recent study conducted in Pennsylvania, 26% of water supplies on dairy farm contained at least one component that could reduce milk production. Milk production on these farms averaged 56 pounds/cow, while milk production averaged over 75 pounds/cow on farms that had no water quality issues.
Primary anti-quality factors that are known to cause a reduction in water intake or impair metabolic functions include total dissolved solids (TDS), sulfur, sulfate, chloride, nitrate, iron, manganese and fluoride.

- Drinking water with < 1,000 mg/L TDS is ideal for dairy cattle, with levels of 1,000 to 3,000 satisfactory, >3,000 mg/L can lead to dehydration, reduced water intake and reduced milk production.
- Sulfate concentrations above 350 mg/L can lead to diarrhea and mineral imbalances in calves. In adult cattle it has been reported that high sulfate drinking water reduced feed intake and milk production in early lactation as well as increased the incidence of retained placenta and abomasal displacement.
- Iron is the most frequent and most important anti-quality consideration for dairy cattle drinking water. Iron not only decreases the palatability of water, but iron toxicity and oxidative stress caused by the ferrous from of iron that is found in water lead to compromised immune function, increased fresh cow mastitis, metritis, greater incidences of retained fetal membranes, diarrhea, reduced feed intake, decreased growth rates and impaired milk yield.
- Increased levels of nitrates in drinking water has been linked to poor reproductive performance; increased number of services per conception, lower first service conception rates and longer calving intervals were observed in a 35 month study testing the influence of nitrates on reproductive efficiencies.

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