

Water: A Cost-Effective Way to Improve Productivity

Water is the most essential nutrient for dairy cattle and plays a crucial role in their overall health and milk production. Daily water requirements will vary based on factors such as size, growth stage, environmental conditions, lactation stage, and diet composition. Since milk consists of approximately 87% water, ensuring proper water intake is vital for maintaining milk yield and cow health.

Water Consumption and Factors Influencing Intake

Dairy cows typically consume between 76-114 liters (20-30 gallons) of water per day, but this can increase to 189-227 liters (50-60 gallons) under heat stress conditions.

Water consumption by dairy cattle*		
Dairy Cattle Type	Level of milk production (kg milk/day)	Water requirement range (L/day)
Milking cows	13.6	68-83
	22.7	87-102
	36.3	114-136
	45.5	132-155
Dry cows	N/A	34-49

*Adapted from <https://www.ontario.ca/page/water-requirements-livestock#foot-1>

Water intake is highest immediately after milking, with cows consuming 30-50% of their daily requirement within an hour of being milked. Factors that affect water consumption include:

- **Environmental conditions:** Temperature, humidity, and exertion levels.
- **Water quality:** Temperature, salinity, and impurities influence taste and odor, affecting intake.
- **Diet composition:** High-moisture feed reduces drinking water needs, while dry feed increases them.

Water for Dry and Fresh Cows

Dry and fresh cows require special attention regarding water quality and availability. Clean, fresh water increases daily intake, which in turn enhances dry matter intake (DMI) and supports metabolic health. Waterers in pre-fresh and fresh cow pens should be cleaned daily to encourage higher intake and reduce disease risks.

Water Needs for Heifers and Calves

During the liquid feeding stage, calves obtain most of their water from milk or milk replacer. However, research shows that offering free-choice water alongside a liquid diet improves growth rates and encourages earlier dry feed intake. During heat stress, ensuring a sufficient water supply is particularly critical.

Water Accessibility and Infrastructure Considerations

Ensuring adequate water access is essential for maintaining optimal water intake. Current recommendations suggest providing 3.5 linear inches (9cm) of waterer space per cow, with a minimum of two watering locations per group. Reducing congestion and competition around waterers is important to ensure cows have access to water when they need it.

Considerations for waterer placement include:

- Ensuring a minimum of 12 feet of clearance around the waterer for ease of movement, with the entire width of the crossover totaling 14 feet.
- Installing waterers at a height of 24-32 inches (measured from the standing surface) for Holstein cows and 21-29 inches for Jerseys.
- Providing a water flow rate of at least 23-26.5 liters (6-7 gallons) per minute to meet peak demand.

Importance of Water Quality

Water quality directly impacts intake and overall herd health. Contaminants such as fecal matter, feed residue, and microbial growth can reduce water consumption and increase disease risk. Routine water quality assessments should be conducted at both the source and drinking location. Water troughs and bowls should be cleaned regularly to prevent slime buildup and the presence of pests like rodents and insects.

Common water quality concerns include:

- **Foul odors and tastes** that discourage drinking.
- **Bacterial contamination** in cisterns and water lines.
- **Concentration of mineral compounds** that can be above accepted levels and cause health issues.

By prioritizing water access, quality, and infrastructure, dairy farmers can improve cow health, enhance milk production, and optimize overall farm efficiency.