

CALVING EASE

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Calves & Water

One direct benefit of providing free choice water to preweaned calves is increased dry matter intake. This increased intake translates into a higher rate of gain and indirectly to improved health. In the table below we can see that calves with free choice water consumed forty five percent more starter grain than the calves without water.

	Water Feeding	Method
	Free Choice	No Water
Number of calves	20	21
Calf starter grain intake (pounds) in first 4 weeks	25.8	17.8
Weight gain (pounds) in first 4 weeks	18.6	11.6
Water consumed (quarts) in first 4 weeks	47	No water consumed

These “free-choice water” calves also gained sixty percent more weight in the first four weeks. Estimates are that for efficient feed conversion, calves need to consume at least four pounds of water for each pound of dry matter.

What is “Normal” Water Intake?

When water is offered free choice to calves starting at the second day of life, we expect that three major factors will influence consumption. (1) The greater the amount of milk or milk replacer fed, the lower the level of water intake. (2) The higher the environmental temperature, the higher the level of water intake. (3) Individual animal variation.

On one hand, individual calf variation is a huge factor. You probably have had a calf that started drinking water at day two and was regularly drinking more than two quarts daily by ten days of age. Or, remember the calf that would not touch water until we drastically cut back the milk or milk replacer? One study found that even though the average amount drunk was 2.4 quarts daily, the individual variation was from none to nineteen quarts. So much for “normal.”

On the other hand, probably at least two-thirds or even three-quarters of our calves do fit a pattern. During week one there may be minimal consumption. By week three, many calves offered free choice water are regularly drinking one to three quarts daily.

With calves in cold housing, we have all observed how low water intakes fall during sub-freezing weather. Jim Quigley measured water intake with air temperatures between 32 and 95 F. (See www.calfnotes.com Calnote #68) An eighteen degree change in temperature from 32 to 50 degrees increased water intake by about 0.4 quarts daily. But, a small nine degree change from 86 to 95 degrees increased intake 0.5 quarts daily. Changes at higher temperatures mean drastically greater increases in water needs than temperature changes when it is cool.

Clean water (liquid) in Clean Pails

One common management challenge is regularly providing clean liquid water in clean pails. A research project measured the effect of the availability of clean water on growth rate. They assumed that calves would drink more water if it was fresh and in a clean container. For preweaned and transition calves they varied the interval at which the water pails were rinsed and cleaned.

Cleaning Interval	Preweaned Calves	Transition Calves
	Gain in Pounds per Day	Gain in Pounds per Day
Cleaned every day	1.6	3.1
Cleaned once a week	1.5	3.0
Cleaned once every 2 wks	1.4	2.9

In both instances they measured 0.2 pounds per day difference between clean and “not so clean” water. This supports their assumption that fresh, clean water in clean pails and tubs promotes higher growth rates. With higher water consumption associated with greater dry matter intake, the calves gained 0.2 pounds average daily gain (fourteen percent) more than calves with lower intakes.

Practical Summer Water Management Tips

For summer management many farms keep an extra supply of water pails. A number equal to about twenty percent of calves on milk makes sense. Then, each day of the week, one-fifth of the pails can be replaced with clean ones. And, the dirty ones can be scrubbed for the next day. In five days all the pails have been cleaned. Algae and mold problems are controlled.

For calves in the weaning process or already weaned, water consumption in hot summer weather is often very high. Many will drink more than ten quarts daily. This may be a point where larger pails may be added to the hutches or pens. A number of farms have a collection of 5-gallon pails that are clipped to the hutches or pens around weaning time. These larger pails permit once a day watering.

Wiedmeier, R.D., A.J. Young and P.R. Schmidt, “Frequent rinsing and cleaning of drinking water vessels improved the performance of hutch-raised Holstein calves.” *Journal of Animal Science*, Vol 82, Suppl. 2, Pg. 116-117. Kertz, A.F., L.F. Reutzel and J.H. Mahoney, “Ad libitum water intake in neonatal calves and its relationship to calf starter intake, weight gain, feces score and season.” *Journal of Animal Science* 67: 2964-69.

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