Replacing Water with Clean Snow for Ewes and Beef Cows

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Factsheet

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Clean snow can be an economical water source for mature Ontario ewes and beef cows. Free-ranging flocks and herds in western North America commonly use snow as their sole source of water in the winter.

RESEARCH ON SNOW AS THE WATER SOURCE

Studies in Alberta have shown that dry pregnant ewes and beef cows eating snow as a water source experience no disadvantages compared to those drinking water. Heat produced by digestion and the activity of feeding melts the snow, bringing the resulting water up to body temperature. Snow-eating animals graze small amounts of snow throughout the daylight hours.

At least one study has investigated the inclusion of snow in total mixed rations (TMR) with no ill effect on pregnant cows. By comparison, where liquid water is available, grazing or out-wintered animals drink once or twice a day. These large quantities of water require the animals to use some energy to heat the water up to body temperature. When comparing the two methods of water intake, there is no difference in the amount of feed consumed, the use of energy reserves (stored fat) or in body weight.

In the spring, when water was available to all ewes and cows in the studies, milk yield and lamb/calf growth rates were similar between the groups given water all winter and those fed only snow as a water source during the dry period.

In studies looking at extended-season grazing in Ontario, cattle have thrived using snow as a primary water source to the exclusion of the frost-free water systems provided.

MANAGING SNOW AS WATER

Ewes and cows prefer to consume soft, powdery, clean snow when there is no access to water. For ewes, no signs of abnormal behaviour, such as bleating, were observed after 24 hours of providing only snow. Cows had a brief adjustment period of 3–5 days, but adapted to not having a liquid source of water after that. Once they learn to eat snow, cows can switch quickly from eating snow to drinking water and back again, without becoming stressed. Pasturing an experienced snow-eating cow in with cows that have never eaten snow before can help speed the transition.

For a successful transition to using snow as the sole water source, provide:

- shelter from the wind and extreme temperatures (animals must have adequate fleece or hair coat)
- soft, wet snow for eating (snow with hard granular ice particles in it may cause lower intake and result in decreased feed intake as well)

If hard granular, wind-blown snow or trampled and/or soiled snow is the only snow available, supplement it with liquid water. To make snow covered by ice available, drive a tractor over the ice to break through to the powdery snow below.

Dry pregnant ewes and beef cows must be healthy and should be maintained in good body condition (3.0 or better in a 1–5 system) throughout the period they are relying upon snow as their water source. Check animals daily and have a back-up plan for getting liquid water to animals or animals to liquid water if snow conditions deteriorate. If animals continue to be restless after making the switch from liquid water to snow or decrease their feed consumption, the snow quantity or quality may not be adequate.

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CONCLUSION

Without any apparent stress, dry pregnant ewes and beef cows can use clean snow as their sole source of water. This watering alternative may be used for an extended period of time or when there is a disruption of the normal winter water supply. Clean snow is a safe and economical option as a source of water for Ontario sheep flocks and beef cow herds.

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