

Managing Dairy Cattle in Extreme Cold Weather¹

For your human workers - on a day like today frost bite can occur within 10 minutes to exposed skin. Faster if skin is wet! Stay warm, be prepared, wear layers, and be safe. The most vulnerable are the sick, elderly, and young so pay careful attention to them. For your animals the same rules apply. The most vulnerable are the young animals, sick animals, and any animal not prepared for the cold weather. So what can you do? Follow these guidelines to minimize the risk to your animals and get them through the cold:

General Guidelines

ALL animals must have shelter from the wind and be able to use the shelter at the same time- This may be a wind block, trees, or an enclosure for mature animals.

Increase food availability - animals are spending a lot of energy staying warm. Make sure fresh water is available to all animals. Snow is not a water source for animals.

A lactating cow will drink in excess of 15 gallons of water per day. A weaned heifer will consume 5 gallons per day. They must be offered this throughout the day. If water cannot be continuously available, offer them water 2-3 times a day until all animals have drank their fill.

All vulnerable animals (young animals, a body condition score < 2, sick animals, or have a thin or wet hair coat) should be kept out of the wind with a bedding source to prevent contact with frozen ground. They will be much more vulnerable to the cold than healthy mature animals.

Any animals shivering MUST be immediately moved to a warmer area.

Specific guidelines for young stock

Newborns: Do not expose newborns to outside temperatures if not 100% dry. Calves may be kept in the calving area longer by putting bedding in a stock tank or blocking off a corner of the calving pen and bedding it well to minimize risk of exposure to disease pathogens from cows.

When newborns are moved to the nursery area - keep them warm and out of the wind. They are as vulnerable to cold as a poorly dressed person in this weather due to their limited body fat reserves, large surface area and minimal hair coat. Transport them in a box, trailer, or covered device with bedding. Do not move in open such as in bucket or wheel barrow without bedding and at least a calf blanket. Below 42F they are spending energy to maintain their body temperatures and are vulnerable to frost bite, hypothermia, and starvation.

Milk-fed Calves: At -13F (current temperature in Madison) a 100 lb calf needs 1.59 lbs of dry matter from milk (~7 quarts of whole milk) JUST for maintenance and a 200 lb calf needs 2.7 lbs of dry matter (~ 10 quarts of whole milk) just for maintenance. This does not take into account the wind chill and does not apply to calves that are even slightly damp. This means that calves CAN NOT get enough energy from 4 or even 6 quarts of milk per day in this weather.

(continued)

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For calves to maximize the use of their energy in this weather ensure they are dry, have enough bedding to at least partially cover their back leg and calf blankets should be considered. Any sick calf should have a blanket in this weather as they are especially vulnerable to the cold. Keep in mind that calves spent approximately 16 hours a day laying down. Make sure they have a warm surface to do this. Ears are particularly vulnerable at this time so make sure calves cannot suck on each other's body parts as it can lead to frost bitten ears.

Do not wean calves during this extreme cold weather - this will be very stressful for these animals and leave them vulnerable to illness and weight loss.

Replacement Heifers: Heifers energy needs greatly increase in this weather. Compared to 32F (5mph wind) maintenance requirements can roughly double for most animals.

Example 1...600 lb Holstein heifer - not pregnant

Temperature	Wind speed	Coat Condition	% Increase in maintenance energy demands compared to 32F and 5mph
-13 F	19	Dry	210 %
-13 F	19	Wet	290 %
-13F	3	Dry	180 %

At -13F, with no shelter from the wind a 600 lb calf's energy demands could increase 2-3 times depending on coat condition and wind speed compared to a day at 32F with 5mph wind.

Example 2...Energy demand for an 18 month old (926 lbs) Holstein heifer 90 days pregnant at minus 13 F compared to energy demands at plus 32 F.

Wind speed	Coat Condition	% Increase in energy demands compared to 32F and 5mph
19	Dry	180 %
19	Wet	240 %
3	Dry	120 %

At -13 F an 18 month old pregnant Holstein heifer (926 lb) energy demands could range from 1.2 to 2.4 times greater compared to their maintenance requirements on a day at 32 F & 5 mph wind.