Brr, it's cold in here!

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We're starting to approach the dreaded cold, winter months which means we're due for another reminder about how cold stress can impact young calves. Every year we remind folks about the importance of preparing for cold stress so that calf performance isn't hindered, but that's because every year we are learning more about the negative impacts it can have.

First, it is important to recognize why calves are especially susceptible to cold stress. Calves are born with very little fat reserves so naturally they have very little to work with if they need to burn fat to generate metabolic heat and stay warm. They also have low surface to mass ratio and poor insulation which makes heat loss a high risk for young calves. Lastly, they do not have a functioning rumen in their early life, so they are unable to produce heat through fermentation the way adult cows do. Combined, these reasons make it increasingly important for dairy calf managers to provide an environment that protects young calves from cold stress.

Secondly, it is important to understand when cold stress can occur. When the temperature starts to drop below the calves' thermoneutral zone, they must use additional energy to maintain their body temperature. For newborn calves up until they are about 4 weeks old, this thermoneutral zone is between 50-77°F, and for 4 week old calves until weaning the thermoneutral zone is 32-77°F (this suggests that older calves are slightly more tolerant to cooler temperatures).

Figure 1 Photo Credit: https://hoards.com/article-28941-calfhood-research-developments.html

Third, it is important to understand what you, as a calf manager, can do to help calves through periods of cold stress. The number one strategy and hopefully your overall goal regardless of weather, is to keep calves healthy. Healthy calves are naturally going to be more resilient to cold stress because they are active and eager to consume their meals. Activity will generate body heat and consumption of warm milk will help keep the calf warm. If a calf is sick, it's likely that she won't be active and that she won't consume her meals as eagerly, or at all. It is recommended to put sick calves in a warm room or put heat lamps on them during periods of cold stress because they are at higher risk of hypothermia. Related, if you have dystocia calves (calves born to difficult calvings), their ability to thermoregulate can be up to 36% lower than non-dystocia calves. This further highlights the importance of paying closer attention to dystocia calves. Providing additional nutrition can also help combat the negative consequences of cold stress. One of these consequences is that calves use the energy supplied from milk to maintain body temperature rather than for growth. Providing additional calories can help calves maintain thermoneutrality while also putting on weight. Be cautious when increasing nutrition though! You don't want to increase the solids content too much by adding extra milk replacer powder, and you don't necessarily want to feed more fluid milk in

each meal. Instead, it is recommended to add an extra meal when possible during the cold months. From a housing perspective, make sure calves have plenty of dry bedding. One easy way to assess if calves have sufficient bedding is to the kneel test. If you kneel in their bedding and your knees get wet, it's not sufficient – add more or change it entirely! Lastly, give calves a calf coat or calf blanket. It's a very easy solution that truly does make a difference for calves.

In conclusion, there are a lot of things that we can complain about that winter brings to the table, but poor performing, or sick calves doesn't have to be one of them! Follow these simple strategies to maximize your calves success during the cold months, and feel free to reach out if you need assistance!