

The Cow – Calf Manager
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Reducing Effects of Weather Stress in Cows and Calves

Weather stress on cattle was big recently with the blizzards in South Dakota, but weather stress can occur during normal Idaho winters. Producers failing to adjust their management and nutrition program to the weather may have calves born in poor body condition, produce weak calves, and fail to breed back. Calves born in cold or wet weather conditions have reduced chances of survival.

Effects on Cows

Cold, wet snow, and wind alone together can create weather stress on cows. Lower critical temperature (LCT) is the temperature below which an animal must burn extra energy to keep warm. The lower critical temperature for Idaho cows with heavy dry winter coats is about 18°, but the LCT of wet cows is 59° (Table 1). If the energy is not supplied as extra nutrition then cows will burn fat and lose weight to keep warm.

Cows that lose weight during late gestation end up in low (BCS 4) to thin (BCS 2 or 3) body condition will have lower pregnancy rates this spring. Thin cows will produce weak calves that have a reduced chance of survival. Research from Colorado State indicates that first calf heifers calving in body condition score 4 or less produce colostrum with reduced antibody levels. Calves from these undernourished heifers were more likely to become sick than calves from well-fed heifers.

Table 1. Lower Critical Temperature (°F) for cattle depends on coat condition.

Coat Description	Lower Critical Temperature (°F)
Summer or wet	59°
Fall	45°
Winter	32°
Heavy winter	18°

From Marsten et al., 1998

An increase in windchill or wet weather can dramatically increase the cold stress on cows. Table 2 shows the windchill temperatures for cattle with winter coats, and Table 3 indicates the general average temperatures and windspeeds of Idaho during January, February, and March. Producers should use their monthly and yearly averages for their area of the state. Remember to use the average daily temperature not the average low temperature.

Table 2. Windchill factors for Cattle with Dry Winter Coat.

Wind Speed (mph)	Temperature (°F)										
	0	5	10	15	20	25	30	35	40	45	50
Calm	0	5	10	15	20	25	30	35	40	45	50
5	-6	-1	3	8	13	18	23	28	33	38	43
10	-11	-6	-1	3	8	13	18	23	28	33	38
15	-15	-10	-5	0	4	9	14	19	24	29	34
20	-20	-15	-10	-5	0	4	9	14	19	24	29
25	-27	-22	-17	-12	-7	-2	2	7	12	17	22
30	-36	-31	-27	-21	-16	-11	-6	-1	3	8	13

Table 3. Average Daily Temperatures and Windspeeds during Winter in Idaho

	Central Mountains		Snake River Plain	
Month	Temperature (°F)	Windspeed	Temperature (°F)	Windspeed
January	15	2	25	9
February	20	3	32	9

Table 4. Percentage of Increased Energy Added per Degree of Temperature Below Lower Critical Temperature.

	Cow Weight (lbs)			
	1,000	1,100	1,200	1,300
Coat Type	Percentage increase in energy req. per degree below LCT			
Summer or wet	2.0	2.0	1.9	1.9
Fall	1.4	1.3	1.3	1.3
Winter	1.1	1.0	1.0	1.0
Heavy winter	0.7	0.7	0.6	0.6

Strategies to reduce this stress start with keeping the cows well fed and in good body condition. Cows that calve in good body condition (BCS 5-6) have stronger calves with greater energy reserves. These cows are also less likely to run out of energy during calving and will be up drying off the calf sooner than underfed cows.

Extra diligence in checking cows for signs of cal