



# COW SENSE CHRONICLE

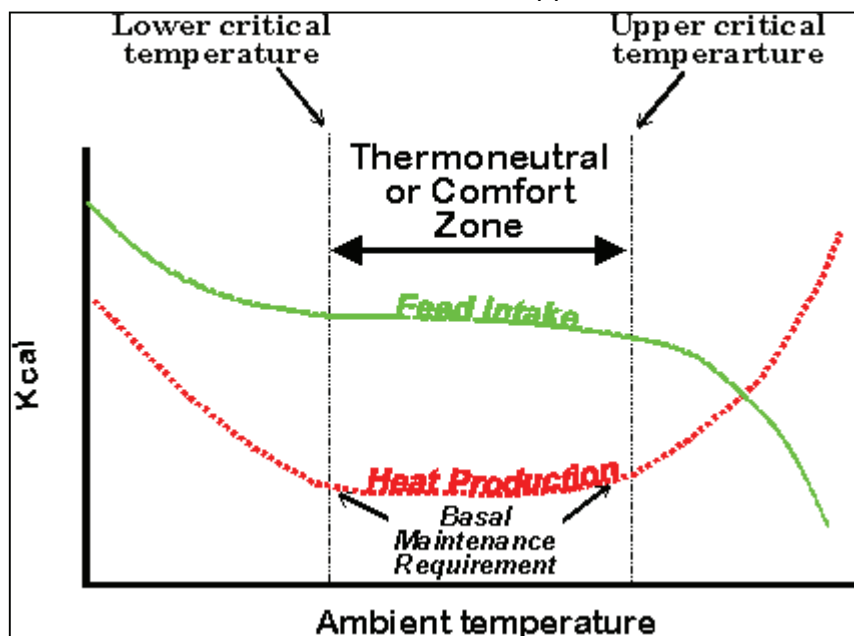
## DECEMBER 2013

### COLD WEATHER FEEDING CONSIDERATIONS

Here is it, the last month of 2013...I have no idea how it got here so quickly! As you might know, producing a monthly e-newsletter was my Extension resolution for 2013. I'm proud to say Cow Sense Chronicle has its first 12 months under its belt. Thanks so much for reading!

Considering the abrupt drop in temperatures to single digits above and below zero (and colder!), this month's topic is cold weather feeding considerations for beef cattle. We'll start with the interaction of temperature and energy requirements. When cattle (or any animals) are in the thermoneutral zone (see Figure 1), they don't have to expend any energy to maintain body temperature. When it gets warmer than the upper critical temperature, cattle have to use energy to cool down. When it gets colder than the lower critical temperature, cattle have to use energy to warm up.

Figure 1. The thermoneutral zone lies between the upper and lower critical temperatures.



University of Guelph

You might be wondering, “what *is* the lower critical temperature?” Like any good animal science question, the answer is, “it depends!” In this case, it depends on hair coat and weather conditions (see Table 1). With a summer hair coat, or a wet (to the skin) hair coat at any temperature, the lower critical temperature is quite warm at 59° F. On the other hand, the lower critical temperature for a cow with a heavy winter coat is 18° F.

Table 1. Estimated lower critical temperatures for beef cattle.  
From *Beef Production and Management Decisions* (Field, 2007)

<b>Coat Description</b>	<b>Critical Temperature</b>
Summer coat or wet	59° F
Fall coat	45° F
Winter coat	32° F
Heavy winter coat	18° F

When a cow is experiencing cold stress, the major effect on nutrient requirements is an increased need for energy, which generally indicates the total amount of feed needs to be increased. A simple rule of thumb (more detailed information is available) is to increase the amount of feed 1% for every degree of coldness below the appropriate lower critical temperature.

For example, let’s say you have a 1200-pound cow with a winter hair coat. It’s currently 20° F with a 15 mph wind and you normally feed 24 pounds of hay per day. The effective temperature with the windchill is 6° F, and the appropriate lower critical temperature is 32° F. Subtracting 6 from 32 yields 26, so the amount of hay needs to be increased by 26%. This would be just over 6 pounds of additional hay for a total of about 30 pounds.

In the short term, cattle can make behavioral changes to alter the effective temperature, such as finding protection from the wind. In the long term, the hair coat is their main defense against cold, in combination with those behavioral changes. Thick-hided cattle have lower requirements across all conditions compared to thinner-hided cattle. Energy requirements will increase with wet, windy, and(or) cold-temperature conditions.

Questions for Rachel?  
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Sun	Mon	Tue	Wed	Thu	Fri	Sat	
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i> SAY Weigh Day	<i>7</i> Billings	
<i>8</i>	<i>9</i>	<i>10</i> Ennis Whitehall	<i>11</i> MT Stockgrowers Association Convention—Billings				<i>14</i>
<i>15</i>	<i>16</i>	<i>17</i>	<i>18</i>	<i>19</i>	<i>20</i>	<i>21</i>	
<i>22</i>	<i>23</i>	<i>24</i>	<i>25</i> Christmas Holiday	<i>26</i>	<i>27</i>	<i>28</i>	
<i>29</i>	<i>30</i>	<i>31</i>					