

## FEEDING HORSES IN COLD TEMPERATURES

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Several environmental conditions affect horses in the winter—

- Horses decrease feed intake in cold AND windy weather – seek shelter
- Snow accumulation greater than 3 inches covers grass and decreases intake of pasture. Decreases grazing time (24%) and decreases intake (22%).
- Pawing through deep snow to get grass greatly increases the energy requirement of the horse.
- In cold and windy condition horses lose more body heat and burn more energy to stay warm.

In cold and windy condition horses lose more body heat and burn more energy to stay warm. The “Lower Critical Temperature (LCT)” is the temperature below which metabolic heat production must be increased to maintain body temperature.

- Mature Horses (LCT) = 5 to 41°F
  - Thin coat 41°F
  - Thick coat 5°F

- Young Horses (LCT) = 12 to 32°F

For each decrease in coldness of 1 degree Fahrenheit below the critical temperature, there is an increase in digestible energy requirements for body temperature maintenance.

Average 1000 lb horse requires 15Mcal per day for maintenance under normal conditions, the following tables outline the additional digestible energy and hay intakes under inclement winter weather conditions

Fiber should in most cases be the first ingredient to increase in your horses diet when trying to keep them warm. This is because the microbes in the hindgut produce heat as a by-product of breaking down fiber.

Estimated Feed Energy Increase at Different Magnitudes of Cold Below the Lower Critical Temperature of Mature Horses

Difference in F Below LCT	DE Increase (Mcal/day)	Feed Intake Increase (lb/day)*
0	0	0
10	2	2
20	4	4
30	6	6
40	8	8

\*Assuming an energy density of 1.0 Mcal/pounds which is typical of good quality hay.

When wind and rain are added to the environmental conditions the digestible energy requirement increase even further.

Effect of Wind and Rain on Digestible Energy Requirement for a 1000lb Horse at Maintenance

Average Temp	Environment	Additional Mcal/day	Additional Hay
32°F	10-15 mph wind	4-8 Mcal/day	4-8 pounds of hay
32°F	rain	6 Mcal/day	6 pounds of hay
32°F	rain and wind	10-14 Mcal/day*	10-14 pounds/day

\* May not be able to consume enough hay to meet requirements

The tables above assume a 1000 lb horse eating at least 1.5% of its body weight in hay to maintain body condition and health (at least 15lbs of hay). The additional feed/hay intake is on top of the original 15lbs plus of hay, for a horse in freezing temperatures also enduring rain and wind that would 25 to 30 lbs of hay intake per day. This may be an unfeasible amount to supply to your horse or they may not be able to consume this much (older horses or pregnant mares). It should also be noted that most local grass hays are lower in digestible energy with values closer to 0.7-0.8 Mcal/lb, which further increases the quantity need to maintain body condition in wintery conditions.

In these cases additional calorie dense concentrate feeds should be offered such as Equi-Pro FibreMax. Poulin Grains’ Forage Extender Pellets may also help to supply the fiber required by the horse without as much bulk and may be easier for horse owners to store during winter months.

**Contact your Poulin Grain Feed Specialist to test your hay quality and build a diet for your horse.**

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