

## WHY DO SOME FEEDS NEED TO BE SOAKED AND WHAT ARE THE ADVANTAGES OF DOING SO?



In nature, a horse's main source of food would be fresh grass. Grass from natural pastures differs from dry hay in its water content and fibre composition. In Quebec, we have little choice but to serve our horses dry hay for a significant part of the year. Given this, how can we best replicate the food our horses would find in the wild?

It is useful to note that fibre is simply the tissue that composes the main structure of plants. Comparable to the structure of a house, fibre allows plants to stand up relatively straight while preventing infection by creating a protective barrier against illness and insects. The digestibility of fibre contained in hay depends on the pasture's plant species and maturity. In the springtime, you may have already noticed that as grass is just beginning to grow, it is very flexible. This is because during the early stages of growth, grass contains more pectin, cellulose and hemicellulose than it does lignin. But as the summer progresses, higher proportions of lignin cause the plant to become increasingly solid and stiff, and thus less digestible for the horse. The same principle applies to the different sources of fibre that can be added to the feed. It is also important to remember that this fibre is not digested by the horse per se, but by the bacteria, protozoa and other microorganisms living in the hindgut. When the horse ingests fibre, these microorganisms ferment it before transforming it into volatile fatty acids, which are then used as energy sources. Pectin is the most fermentable part of the plant, while cellulose and hemicellulose are partially fermentable. Lignin is non-digestible. Therefore, a plant will be more digestible the more pectin, cellulose and hemicellulose it contains compared to lignin.

Not all fibrous bi-products are created equal. Here are a few examples of products used in feeds, with an analysis of each food's digestibility included below the chart.

Taken from NRC 2007

Ingredients	Crude Fibre	Lignin	Lignin/(%) Total Fibre
Oat Hulls	33.2%	6.3%	8.2%
Soybean Hulls	34.2%	2.8%	3.7%
Beet Pulp	17.6%	3.6%	4.8%
Wheat Bran	11%	4.1%	9.0%
Rice Bran	8.6%	4.1%	48%

The higher the percentage of lignin/total fibre, the less the fibre is digestible. From the chart, we can therefore see that soybean hulls and beet pulp are much better sources of fibre than the wheat bran, oat hulls or rice bran, which constitutes the worst source. This is why soybean hulls and beet pulp are known as “super fibres.” Beet pulp also produces an effect similar to prebiotics. Unfortunately, the analysis that appears on the package label only lists the feed’s crude fibre content. Thus, there is no indication of digestibility. The only way to inform yourself is to take note of the feed’s list of ingredients, and we encourage you to do so. Fibre brings a level of calories comparable to that found in pasture. Since energy from fibre does not provoke the insulin response, it doesn’t run the risk of overexciting the horse. Generally speaking, the higher a feed’s fibre percentage, the less sugar it contains.

Why then do we need to soak feeds containing high percentages of good quality fibre? The reason is that their pectin content is high. Upon contact with water, this component of fibre expands considerably, creating a risk of esophageal obstruction (choking) and impaction colic. When the fibre contained in a feed is of lower quality and/or less abundant, soaking is not necessary since a lower content of pectin will not expand upon contact with water. Various factors increase the risk of choking, including a voracious appetite, meal size and the horse’s hydration levels.

Soaking these sources of fibre allows the feed to best replicate fresh grass, the horse’s most natural food source. Like grass, the super fibres beet pulp and soybean hulls contain high levels of pectin, cellulose, hemicellulose, and very little lignin. This makes these foods highly digestible. The horse’s digestive system is considerably better designed to assimilate wet food than dry food. At a location known as the pelvic flexure, the large intestine curves and decreases in diameter; in a horse who lacks water, this creates the perfect scenario for a blockage or impaction colic. There are several advantages to serving your horse soaked feed. Here are a few:

- Promoting the minimum required water consumption. You have almost certainly noticed that your horses consume less water during the fall and winter. Both the cooler climate and water’s decreased temperature deters your horses from drinking. Water added to feed will inevitably be consumed, ensuring at least a minimum consumption of fluids. As temperatures descend, adding water to feed will benefit horses who drink very little. When hot water is available, cooler weather is also a good time to serve your horses warm meals.
- Subtly incorporating other ingredients into your horse’s ration. It will be harder for your horse to sort through his food if it is served in the form of a mash. Soaking feed therefore provides the ideal opportunity to add salt, yeast, phenylbutazone and any other product to your horse’s meal.
- Serving food that is soft in consistency. Older horses with dental issues will definitely appreciate your extra effort. It is also important to note that aging horses typically experience more difficulty digesting fibre than younger horses. As such, they will also benefit from the presence of highly digestible fibre.
- Preventing choking and impaction colic, which both pose threats when serving your horse any type of dry food. By soaking your horse’s feed properly, you essentially eliminate any risk of choking and impaction colic.

So how do we go about properly making mash? The answer is very simple: add two to three parts water for each part of mash, and then wait until it expands completely. Soaking time will depend on cube size, fibre content and water temperature. A larger cube will take longer to expand while using hot water will greatly reduce soaking time. If you'd like to make a soup, add the amount of water needed to create your horse's desired texture.

Obviously, soaking feed will mean additional work for you. You will need to ensure access to water and it will take extra time to wait for the mixture to expand. It will also be necessary to clean the troughs more regularly. But the good news is that all of your efforts will translate directly into benefits for your horse.