Super Fibers, Super Byproducts

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Horses have a unique monogastric (single stomach) gastrointestinal tract with a well-developed hindgut (cecum and colon) to digest forage through microbial fermentation. The average horse will consume 2-2.5% of its body weight per day in forage on a dry matter basis, with 1% of their body weight being the minimum that should be supplied. Fiber can supply a horse with 30-70% of their daily digestible energy needs depending on the horse's stage of life and use (i.e., growing, mature at maintenance, lactating, moderate work) and can be supplied though sources like pasture, hay, and chaff.

One way a horse's forage requirement can be met is through fibrous byproducts. There are numerous fibrous byproducts that can be supplemented in the equine diet to replace or help meet these daily forage requirements. Although there can be negative connotations with the word "byproduct," many are safe to feed to horses. These prebiotic, high-fiber byproducts are simply the result of processing for another industry and are not only safe, but contain valuable super fibers that benefit hindgut health, are a highly fermentable energy source, and can be cost effective. Examples of these super fibers include fructooligosaccharides (FOS), inulin, and pectin, that support beneficial bacteria in the hindgut.

One of these fibrous byproducts that many horse owners are aware of is beet pulp. Beet pulp is a by-product of sugar beet processing and often comes shredded or pelletized and with or without added molasses. Some may be worried that beet pulp is high in sugar and starch because it comes from sugar beets, but this product is low in these due to extraction methods used during processing. Although added molasses makes beet pulp more palatable and less dusty, unmolassed beet

pulp should be given to metabolic horses. This includes disorders such as equine metabolic syndrome (EMS), insulin dysregulation, polysaccharide storage myopathy (PSSM), pituitary pars intermedia dysfunction (PPID), and laminitis. Beet pulp is especially valuable because of its high caloric content, providing a slow-release energy source ideal for hard keepers or horses needing to gain weight, and can replace up to 55% of a horse's daily forage requirement.

Soy hulls, also known as soya hulls, are also high in pectin. The high fiber content is often utilized in concentrate formulations to balance out protein supplied by soybean meal. It is imperative that soybean products are heat-treated to inactivate the antinutritional factor trypsin, which causes a decrease in protein digestion. They are generally available in their hulled form or in pellets and can be safely incorporated to replace up to 75% of a horse's daily forage needs.

Citrus pulp may be a cost-effective source of fiber depending on your region. It is derived from the fibrous remains after juice is extracted from citrus fruit, with the most common being oranges. Studies on citrus pulp inclusion have incorporated up to 28% of a horse's forage ration with this byproduct and noted no alterations in blood glucose, insulin, and other tested parameters. Citrus pulp does contain limonin which can cause a bitter taste, so pickier horses may appreciate a lower concentration in their diet.

Many people have strong opinions about adding water to fibrous byproducts or processed forages such as cubes and pellets. For horses that eat too quickly (bolt feed), have dental issues, or are missing teeth, adding water can make chewing easier and provide essential moisture for easier swallowing. There's no downside to adding water, and the extra hydration can be beneficial, especially during the winter; however, some horses may refuse to eat if the feed becomes too wet, so it's important to consider your horse's individual preferences. You also do not want to allow feed to soak too long, which can increase bacterial growth.

If owners are interested in incorporating fibrous byproducts into their horse's diet, any dietary changes should be made gradually. These feed ingredients should always be weighed in their dry form. These ingredients often have a great ability to absorb water but will not expand in the same way in your horse's stomach due to the highly acid environment found there. If you're feeding significant amounts of alternative forage or fiber sources, you might want to offer more frequent meals—such as three times a day—to better replicate the horse's natural pattern of eating small, frequent meals.