

Providing Roughage for Horses with Limited hay Supplies

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It appears hay supplies due to droughty conditions will be in short supply. With the current dry conditions questions are arising pertaining to minimum levels of hay and uses of hay substitutes as sources of roughage for horses.

Whenever we feed mature horses we always like to have the total dry matter consumed made up of at least 50% forages; pasture and/or hay. The higher the forage (roughage) intake the better as the horse is a nonruminant herbivore and requires roughage in the diet to maintain normal gut and digestive function as well as behavior. Although not proven experimentally, it appears a horse requires a certain “chew time” or “chew factor”. If the chew time is not met, behavioral problems may arise. The first problem usually encountered is the development of vices such as wood, mane, and tail chewing. The normal function of the digestive tract may also be comprised with less saliva production due to reduced chewing. Saliva not only helps to digest feed but acts as a buffer to prevent too high an acidity in the gut. The higher acidity in the gut will change the type of bacteria in the cecum and colon and may lower the digestibility of roughages that are consumed by the horse. There is also strong evidence that the higher acidity in the gut may cause the horse to look for something to chew.

Horse diets can be altered so that roughage and grain intake are equal. For all of the reasons mentioned previously caution should be exercised to make sure the horse receives a minimum of 0.75 to 1.0 % of body weight in forages per day. This means an 1150 pound horse should consume 8.6 to 11.5 pounds of hay or hay equivalent per day. Hay equivalent is a key word as a complete pelleted feed with a high fiber content is not the same as a feed that has fiber present that has not been ground and/or pelleted. Hay chopped to a stem length of less than one inch does not appear to provide the same fiber factor as hays that have a fiber length one inch or longer.

How can hay supplies be stretched? One simple way is to weigh the hay before feeding to make sure 0.75% to 1.0% of the horse's body weight is being fed. If round bales are being used limit the time horses can eat from the round bale to 1 to 2 hours in the AM and 1 to 2 hours in the PM. Observing how long the horse actually spends at the round bale will provide a time frame of gut fill. Another way to stretch hay supplies is by feeding feeds that are 14% crude fiber or higher. By feeding higher fiber feeds hay intake can possibly be reduced to 0.5% of the horse's body weight. Caution should be exercised when feeding at this level to make sure the horse's behavior and digestive system remain normal. In addition many feed companies are now mixing and bagging chopped forages.

What can be used to partially substitute for hay in horse diets? Two readily available sources of feed for horses are beet pulp and cottonseed hulls.

Beet pulp can make up to 45% of the total diet of a horse. Normally beet pulp is fed to substitute for 50% of the hay being fed. Beet pulp has a crude fiber and digestible energy content similar to alfalfa hay for horses. The 1150 pound horse doing light work can be maintained on 9.75 pounds of good quality Bermudagrass hay and 9.75 pounds of a grain-sweet feed that contains 10-12% crude protein and 5-8% crude fiber. If beet pulp were used at up to 25% of the diet, the horse could be fed as follows:

	<u>Pounds/day</u>
Bermudagrass hay	4.90
Beet pulp	4.90
Grain mix (10-12% protein, 5-8% crude fiber)	9.75

The same 1150 pound horse doing moderate work could be fed as follows:

	<u>Pounds/day</u>
Bermudagrass hay	5.75
Beet pulp	5.75
Grain mix (12% crude protein, 5-8% crude fiber)	11.00

Cottonseed hulls fed with a grain mix can make up 20% of the total diet by weight. We (The University of Georgia Horse Center) have successfully fed diets containing 20% cottonseed hulls with no hay. Cottonseed hulls have a fiber content twice as high as Bermudagrass hay. Cottonseed hulls could be used to feed the 1150 pound horse doing light work as follows:

	<u>Pounds/day</u>
Bermudagrass hay	6.00
Cottonseed hulls	4.50
Grain mix (10-12% C. Protein, 5-8% C. Fiber)	10.25

The same horse doing moderate work could be fed as follows:

	<u>Pounds/day</u>
Bermudagrass hay	7.50
Cottonseed hulls	5.50
Grain mix (12% crude protein, 5-8% crude fiber)	12.00

Other sources of roughages that can help reduce the amount of hay to feed include; alfalfa cubes and pellets, and soy hulls. Alfalfa cubes can completely replace long stem hay but it is best to substitute at the 50% level. Alfalfa pellets can safely substitute for up to 25% of long stem hay.

Alfalfa products are much higher in digestible energy, crude protein, and calcium than grass hays so this must be taken into account when replacing or substituting for the grass hays. Soy hulls will have a similar nutrient content of grass hays. It has been suggested by one researcher that soy hulls can replace up to 50% of the forage in a horse diet. Most recommendations are to feed no more than 25% of the forage level due to chew factor and potential sorting out of the soy hulls.

There are many options and combinations you can put together to feed your mature horses. The key is to make sure the roughages total 50% (or greater) of the total intake of feed. The second key is to make sure that the alternative roughages used do not make up over 20-25% of the total diet. The third key is to make all diet changes gradual. Diet changes should be made over a seven to ten day period and keep an eye open for behavior changes in horses when introducing a new feeding program. If you need help trying to determine what roughage alternative or amounts can be used do not hesitate contacting your County Agent or myself. We will be glad to put together a custom feeding program for your particular situation.