

## **FEEDING HORSES WHEN FEED IS SHORT**

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Feeding programs for horses should be based on quality forage. However, when Mother Nature does not cooperate as in the summer of 2002, forage supplies can be limited causing horse owners great concern.

Drought conditions reduced the hay available and with reduced supplies up goes the price. In order to meet your horse's nutrient requirements and control the feed bill, there are a number of strategies horse owners can consider using. These strategies while can help when feed supplies are limited can be used any time.

Have your hay analyzed, it is a good investment. Knowing the level of nutrients the hay can supply will help you to use the feed effectively. In addition, you can plan your supplementation program accordingly to provide those nutrients not supplied by the forage. To properly sample your hay you will need to use a forage probe and core 20-25 bales. This is done to ensure a representative sample is taken for analysis. Each lot of hay should be done separately. The basic analysis needed includes dry matter, crude protein, acid detergent fiber (ADF), neutral detergent fiber (NDF) and minerals such as calcium and phosphorus. For horse owners with breeding stock consider having the forage analyzed for copper, zinc and selenium as these trace minerals are often deficient in Western Canadian forages. Don't rely on last years analysis of hay even from the same field as things can change.

Assess your horses and group them according to their nutrient needs. When you have the horses grouped it is easier to feed them to meet their specific nutrient requirements. Feeding to meet requirements means providing the amount of feed needed, not the amount the horses will eat, as horses may consume more than they need. Monitor body condition or weigh your horses frequently if a scale is available to assess your feeding program. If horses are gaining weight or increasing in body condition above what you want, you may be able to reduce the amount of feed you are providing making those precious supplies last a bit longer. In contrast, horses that are not maintaining their weight will need their ration adjusted. If your hay supply is limited, you may need to feed a concentrate to provide the additional energy to allow your horses to gain the needed body condition. When assessing body condition, you need to determine the optimum for your horses and feed to maintain that condition score.

Don't feed the hay on the ground use a suitable feeder. Feeding on the ground results in waste, and potential for parasite infestation. Horse Industry Branch research in the late 1980's reported that horses fed to meet requirements for moderate growth wasted 20% of the alfalfa grass mixed hay provided when the hay was fed on the ground when compared to the horses receiving hay in a feeder. With hay in short supply, and expensive, no one can afford to waste 20%, and in some cases the waste can be much higher than 20%. In addition to wasting feed, hay fed on the ground forms a mat which will kill any grass under it in a pasture situation or will add to the mud problem in the spring.

Purchase the best quality hay you can find. The better hay will not only supply more nutrients you will find that it is consumed better with less waste. All hay must be free of dust and mold but also be on the alert for weeds and poisonous plants in the hay. If there are adequate supplies of feed horses will select away from the weeds and harmful plants but when hay is short there is the possibility that your horses may eat something that will be harmful. In addition if they don't eat the weeds or other plant material you have purchased feed that is not being used just wasted.

If you are getting hay from a new source check on the composition of the hay. While an alfalfa grass mix is acceptable you will want to avoid a hay that has alsike clover in it. Other clovers such as red clover are fine, but you may see your horses slobbering more when they are fed red clover hay. Also red clover hay can be difficult to cure so watch for mold.

Consider other feeds. If you have always fed a mixed alfalfa grass hay, realize you can use other forages. Developing a feeding program using different feeds may require additional management on your part, but it can be done. Often horse owners feel feed is in short supply because what they normally use is not available, yet other suitable feeds are. This might be a good time to consider your options. What other feeds could you consider? In Table 1 there are nutrient analysis for a number of potential forages that could be included in feeding programs for horses.

Alfalfa cubes are an excellent high quality forage that can replace long stem hay on pound for pound basis. However, a better feeding program might be using these high quality cubes as part of the daily ration and the remainder another long stem forage. The alfalfa cubes will be an excellent source of energy, protein and calcium and can help to extend the primary forage in the feeding program while meeting the horse's requirements.

While alfalfa pellets are nutritionally similar to alfalfa cubes or alfalfa hay, it is generally recommended that alfalfa pellets not be used as a total hay replacement. As with the alfalfa cubes pelleted alfalfa can be used to supply supplemental energy and protein while extending the supplies of long stem hay. A common recommendation is to feed 3-4 pounds of pellets per meal with the more fibrous long stem hay. Some horses do not like alfalfa pellets, so mixing them with some grain may encourage horses to eat them.

Crop residue from combined grasses such as Timothy can work well in horse feeding programs. These grass straws are lower in digestible energy (DE) and protein than the grass hay prior to combining, but they are palatable and horses generally will eat a reasonable amount. They are very good in programs for mature horses at maintenance.

Cereal hay made from oats, barley or wheat can also be used for feeding horses. Oat hay or green feed is a common forage for horses in many parts of North America. Often oat hay is available because the oat crop did not mature to be harvested as grain. Drought, or frost conditions are often the reason that the cereal crop was made into hay and drought stressed or frosted cereal crops can have elevated nitrate levels. If this is the case, the forage should be tested for nitrate content. While limited information is available on the toxicity of nitrate in horse diets, it is recommended that the nitrate content of the total diet should not exceed 0.50%. When you are having your forage tested for other nutrients, ask for a nitrate analysis. When barley or wheat is used to make the cereal hay, caution should be exercised as these feeds can have a significant number of awns present on the seed heads. These awns on the seed heads can cause severe ulcers in the horse's mouth. Good quality cereal hay is produced when the crop is harvested at the dough stage and can be a good source of DE. In general cereal hay is best suited in diets for mature horses. Horse owners using cereal hay need to ensure all horses receive an adequate intake of minerals.

Cereal straw while commonly fed to beef cattle is not commonly used in horse diets. Straw is low in protein, low in DE and high in fiber. While it does provide gut fill, the nutritional value is low. As with many high fiber feeds, intake can be difficult to predict and therefore balancing diets of horses where straw is used is challenging. To be effective, horse owners need to closely monitor their horses to ensure that horses are eating the required amount of all feeds provided and are maintaining body condition. If straw is used as the base forage, all horses must have free access to water to prevent impaction plus ensure all horses have access to a good mineral supplement.

If available, silage or haylage can be used for horses. These feeds are high moisture feeds and work best for mature horses when they make up no more than 50% of the dry matter intake. Horse owners need to watch the quality of the silage or haylage to prevent horses from consuming moldy feed which could lead to digestive upsets.

Other forages such as Pea hay or Pea straw can also be used for horses. The nutrient values for these feeds are highly variable and a feed analysis would be very beneficial when considering these feeds in horse diets. While the nutrient analysis of these feeds in Table 1 suggests these feeds could be reasonable sources of DE and protein, there is a concern regarding intake. Because of the fibrous nature of these feeds, you may find horses being very selective in what they will consume and waste may be very high.

Use of grain, or commercial horse feeds gives horse owners another alternative source of nutrients. While mature horses can be easily maintained on an all forage diet, the use of grain or a commercial horse feed will effectively supply required nutrients. Using a concentrate feed to supply a percentage of the horse's requirements will help to extend your forage supplies. However, horse owners need to control the daily intake of the feeds provided. Don't think that you can free choice the hay and feed grain with the horses eating only what they need. We all know this practice can grow fat horses.

Feeds such as beet pulp are good sources of DE, but care needs to be used when feeding it as pelleted beet pulp has the potential to expand 2-4 times in volume when it is wet. This large change in volume can easily lead to digestive upsets. These disturbances are reduced when horses are fed beet pulp that has been soaked or in the shredded form. In Western Canada beet pulp is typically sold in the pelleted form.

Other feeds may become available depending on where you live. Feeds such as pelleted screenings from the grain industry, other forages or crop residues can also be considered. Regardless of the feed being considered, a nutrient analysis is a must so the horse owner knows what nutrients the feed will provide. When adding these new or non-traditional feeds into the program, take some time to allow the horse to adapt and for you to gain knowledge on how to use those feeds to your advantage.

While limited hay supplies come to mind after the dry conditions of this past summer, horse owners also need to be concerned about their pastures. While this material is late for this past summer, horse owners need to start planning for next year. As with the feeding strategies for hay there are management practices for pastures that can be used anytime to keep your pastures healthy and productive.

Protect your pasture. Stocking rate is always an important consideration. When growing conditions are good, horse owners should consider having 2-4 acres of pasture available per mature horse. When conditions are unfavorable, you will need to have more acres per horse to reduce the pressure on the forage.

Not only do you need to reduce the number of horses per acre, you also need to prevent overgrazing. Overgrazing depletes root reserves resulting in weakened plants which reduces re-growth during more favorable growing conditions. In addition, horses may completely remove the plant material when there is limited forage available leaving bare ground. This bare ground has tremendous potential for erosion and can become a weed patch once moisture becomes available. Many weeds and other undesirable plants can invade your pastures when the grass is weakened or removed due to overgrazing. Horses should be removed once the forage has been grazed down to about 3 inches.

Once you remove the horses, keep them off until the pasture has had time to re-grow and recover. The time to recover will depend on the growing conditions.

In certain situations, horse owners may run out of pasture despite their best efforts to rotate and not over-graze. If the situation arises that there is no pasture to move horses to because there has been no re-growth horse owners have few options. The option left may be to sacrifice one pasture or an area in a pasture and feed hay. This sacrificed area where you are feeding hay will turn into a dry lot with little or no grass. However, by having an area that is sacrificed, you can reduce the number of acres that will need to be re-seeded and the other pastures will be protected.

Once moisture returns and grass starts to grow, horse owners need to practice routine pasture management. Practices such as re-establishing areas that have minimal grass cover by re-seeding, controlling weeds, and of course, regular fertilization need to be considered to return those pastures affected by the previous years growing conditions into productive pastures. Plan your pasture program, treat pasture like any other crop. Check with local agricultural personnel to help with selection of the most appropriate grasses and legumes for your area if re-seeding is required. While most forages can be used for horse pasture, do not use alsike clover for your horse pastures. When pastures have been stressed the desirable plants seem to suffer but the weeds always grow. Getting control of the weeds present can be a challenge but needs to be done by regular mowing throughout the growing season and the use of appropriate herbicides. Regular fertilization to maintain a healthy pasture stand is a must for all pasture programs. This fertilization should be based on a soil test so you will have some preparation required to develop a good fertilizing program. When seeking advice, make sure to inform the fertilizer dealer if you have a mixed legume grass pasture as that will influence the actual fertilizing program. Having a good pasture program can help in meeting the nutrient needs of your horses and reduce the amount of hay you need to feed.

The basis of feed programs for your horses should be good quality forage. Your management strategies should be such that you use your pasture and your hay supply as efficiently and effectively as you can.

**Table 1. Average Analysis of Potential Forages for Horses\***

	<b>DM</b>	<b>DE</b>	<b>CP</b>	<b>Ca</b>	<b>P</b>
Alfalfa Hay <sup>1</sup>	88.9	2.76	18.0	1.75	0.22
Daily Alfalfa Cubes <sup>1</sup>	90.7	2.45	19.0	1.90	0.22
Daily Alfalfa Pellets <sup>2</sup>	91.8	2.36	18.9	1.51	0.25
Alfalfa Grass Hay <sup>1</sup>	89.7	2.76	14.8	1.58	0.18
Timothy Straw <sup>1</sup>	88.0	1.70	4.1	0.30	0.15
Timothy Hay <sup>1</sup>	88.6	2.62	8.0	0.48	0.14
Oat Hay/Greenfeed <sup>1</sup>	86.6	1.92	9.0	0.37	0.21
Oat Straw <sup>2</sup>	92.2	1.62	4.4	0.23	0.06
Pea Hay <sup>3</sup>	89	2.10	14.0	1.4	0.10
Pea Straw <sup>3</sup>	90	1.94	6.0	1.5	0.20

\* - Values are reported on a 100% dry basis.

<sup>1</sup> - Feeds analyzed by the AAFRD Soil and Feed Testing Laboratory 167-1994

<sup>2</sup> - NRC 1989 Nutrient Requirements of Horse

<sup>3</sup> - Morrison's Feeds and Feeding, 20<sup>th</sup> Edition 1939

