

PRODUCING HIGH QUALITY HAY FOR HORSES

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INTRODUCTION

The horse hay market is a unique, highly-competitive niche market for many producers throughout the U.S. Catering to equine needs and horse owners is often much different than that of livestock hay producers. There are several factors that are important to horse owners when finding and purchasing hay for their horses, which may be different from the traditional livestock owner. In a study conducted at University of Nevada (Curtis et al., 2002), researchers surveyed 325 horse owners and 118 hay producers for what they found to be important when purchasing and selling hay.

Table 1. Ranking of what both groups in survey listed as important (ordered by importance in ranking). (Curtis et al., 2002)

What horse owners found more important	What producers found to be more important	What was equally important among both groups
Nutrition	Visual Appearance	Existing Contract
Digestibility	Relationship	Cost
Perceived age		Delivery Method
Pesticide/ Chemical Usage		
Locally Grown		

Recognizing the attributes that are most appealing to horse owners may help producers to get repeat, consistent customers that are happy with their product year after year.

NUTRITION

Forages should form the base of horse rations. Horses evolved to consume low-quality forages, often feeding on the stems and base of the plants, while ruminants evolved to utilize the higher-quality portions of the forage, such as the leaves. However, because of modern day care, management, and even horse requirements, horses are often fed nutrient-dense rations, hay included, which may exceed their daily requirements.

Horses that are at maintenance or low-levels of use can commonly meet their energy and protein needs on a grass-hay or pasture diet. Minerals and vitamins may be required in a supplemental form based on location of forage production, time of year, and production status. Horses with elevated requirements, such as lactation or heavy exercise (Table 2), will need more energy- and protein-dense forms of feed to meet their requirements. One problem is properly estimating their

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horses work load, which commonly leads to an overestimate of how much work their horses are actually doing. This leads to owners who believe they need higher-quality forage, when perhaps this is not necessary. There are new devices currently on the market which owners can purchase to determine heart rate, which will better estimate what level they should be feeding at.

Nutrient requirements will change depending on production status and age as well (Table 2).

Large breeding operations, who have a fairly constant flow of horses that are either breeding or young horses, will often require higher-quality hay than those with horses at lower production status. This will also impact the type of hay that the owners will be looking to purchase.

Table 2. Examples of how production level can change daily energy and protein requirements for a 500 kg horse. Information from NRC, 2007.

	Intake (% BW)	DE (Mcal)	CP (g)
Adult at Maintenance-Average	10 (2%)	16.65	630
Adult at Maintenance- High	10 (2%)	18.15	720
Pregnant- 8 months	12.5 (2.5%)	18.49	759
Working- Moderate	10	23.31	768

Table 3. Example of how two different types of hays and how they can meet the daily requirements for a 500 lb horse in moderate work.

Production level	Intake, lb (% BW)	DE (Mcal)	CP (g)
<i>Working-Moderate</i>	<i>10 (2%)</i>	<i>23.31</i>	<i>768</i>
Alfalfa Hay	22	26.4	2118
Grass Hay	22	20.02	1076

Nutrition and digestibility of the hay can be impacted by both species and maturity of forage at harvest. The more mature a forage is at harvest, typically the less nutrients it will offer, and the less digestible it will be. Legume hays typically have higher protein and higher energy content, when compared to grass hays at a similar stage of maturity. As illustrated in Table 3, the alfalfa hay is able to meet the requirements of a horse in moderate work, however the grass hay is not. This horse, if fed solely grass hay, would require an energy supplement in order to maintain body condition.

Another factor to consider is medical history of the horse. Horses that are predisposed to laminitis, or owners who have experienced laminitis before, will use that in their evaluation criteria for purchasing hay. Insulin resistance, or metabolic syndrome, among many others, will also lead to changes in purchasing requirements for horse owners.

APPEARANCE AND COMPOSITION OF HAY

Horse owners commonly judge hay based on its outward appearance, using color as an indicator of nutrient quality. Based on the survey results mentioned previously, hay producers commonly use this as an indicator when marketing and selling hay. While we know that this is not always

the best indicator of how a horse will perform on the hay, it is a common, and easy-to-use indicator of quality. Problems such as sun-bleaching, or weathering, will likely decrease the price an owner is willing to pay.

Owners also look for uniformity in their hay. They like to see hays that are very similar from one year to the next, without a lot of other material, such as weedy species. Having a weedy hay often makes horse owners shy away from purchasing hay, whether it significantly impacts quality or not. Dusty or moldy hays are also problematic for horse owners, as horses are very susceptible to both of these issues. Dust and molds can create toxicity issues, as well as respiratory issues. Compared to ruminants such as cattle, horses have a lower risk threshold for mold counts in hay that may create health issues (Adams et al., 1993).

ECONOMICS

The bottom-line for horse owners, like most livestock producers, is total cost. While horse owners are notorious for being willing to spend more money than other animal owners on many things, they too want to make sure that they are getting a good deal. More nutrient-dense hays are considered more valuable, because they can feed less while still meeting their animals' requirements, and save money in the long run. These are often hays that are cut at an earlier maturity, and therefore usually more preferred and palatable to their horses. Hays that are more mature, and lower in nutrient density and digestibility will require more amounts to be fed, but also usually cost less. Owners will need to evaluate for themselves which is the way to go to best meet their horses' requirements.

MANAGEMENT STYLE OF OWNERS

Many horse owners are usually small landowners, who do not have large amounts of storage space or a wide variety of farm implements. Because of this, most prefer smaller hay bales, such as small-square bales, rather than large-rectangular bales or round bales. Some owners do have equipment necessary to move and utilize large round bales, however this is usually limited to larger operations or those with a livestock component as well. For these larger operations, it is usually easier to feed the larger bales, due to decreased number of times to feed, increasing convenience.

Waste plays an important role in deciding what size of bale to buy. Martinson et al (2012) and Grev et al. (2014) found significant differences among different types of both small-bale hay feeders and round-bale feeders when fed to horses. Purchasing a feeder can be a large up-front cost, and if owners already have some on their farm, they will likely want to continue to use them. However, use of a feeder, especially in larger operations, may allow for horse owners to be able to feed larger bales more efficiently, therefore decreasing their overall time and labor costs.

Other factors to consider is the attitude of owners in your market: do they often consider their animals as tools, and similar to livestock, or are they more of a pet, or extended family member? There is often a large difference in how owners will take care, and choose their feeds, based on this level of inclusion. Owners who view their horses as pets often are looking to feed, and spend more money on, higher quality forages and feeds than those that view them as livestock or work tools. This is not to say that those who utilize their horses as a working tool feed their horses poorly, but rather they feed them the necessary nutrients to perform rather than spending large

amounts of money on excess, more expensive feeds, as well as other supplemental forms of feeds.

RELATIONSHIP WITH PRODUCER

This is an important aspect to consider, as it can provide both parties with a comfortable and reliable agreement year-to-year. In the Nevada study, relationship was rated as more important by producers (87% of producers surveyed) than horse owners (79% of horse owners), with a vast majority of both groups recognizing its importance. Providing consistent, quality hay and service to owners is an important part of hay production, but also shows that it is not the deciding factor to all horse owners.

REFERENCES

- Adams, R., K. Kephart, V. Ishler, L. Hutchinson, G. Roth. 1993. Mold and Mycotoxin Problems in Livestock Feeding. The Pennsylvania State University.
- Curtis, K., M. Cowee, W. Riggs, A. Cirelli, Jr. "Do Producers and Horse Owners Agree on Important Characteristics of Cool Season Hays?" University of Nevada Cooperative Extension. Special Publication-07-02.
- Grev, A. E. Glunk, M. Hathaway, W. Lazarus, K. Martinson. 2014. The effect of small square-bale feeder design on hay waste and economics during outdoor feeding of adult horses. *J Eq. Vet. Sci.* Vol 34; Issues 11-12, pages 1269-1273.
- Martinson, K., J. Wilson, K. Cleary, W. Lazarus, W. Thomas, M. Hathaway. 2012. Round-bale feeder design affects hay waste and economics during horse feeding. *J. An. Sci.* Vol. 90; No. 3, pages 1047-1055.
- NRC. 2007. Nutrient Requirements of Horses. National Academies Press. Washington, D.C.