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Rationale

- Publications and web sites on feeding horses give anecdotal opinions from one extreme to another.
- Many of these are based on biases from a limited number of animals (1 or 2) which are generalized on a particular forage.
- This publication emphasizes the forage and hay quality is largely dependent on the maturity of the forage, and thus should be matched to the proper class of horse.
- A team of forage agronomists and animal nutritionists focused on the correct use of alfalfa hay and forage for horses.
- Objectives:
 - Science, rather than myth, is used to guide the use of alfalfa products for varying needs of horses.
 - The proper diet for horses of different ages, class, and activity are given in practical rations.

Science versus Myth

Alfalfa is a high quality, highly digestible feed for horses, but so many myths surround its use that many of the nation's horse owners either underutilize or misuse it. A concise, scientifically based, user-friendly publication by the National Alfalfa Alliance clarifies to owners of one or many horses how to match the characteristics of alfalfa hay to the age, class and activity level of their equines.



Idaho Gem, the first cloned equine, a mule
Photo by Phil Schofield,
University of Idaho



Sampson & Goliath cut hay for Jim Knight
Photo by Glenn Shewmaker

"Alfalfa is often the preferred forage for horses because of its high quality, high digestibility, and good roughage value.

Well-preserved alfalfa hay should be the foundation of a feeding program for young growing horses and active horses.

This publication describes the horse's digestive system and nutritional needs and how to select alfalfa hay.

It provides information on purchasing, storing, and feeding alfalfa hay; and uses science to discuss myths and realities of feeding horses."



Amounts of several nutrients required by horses in different physiological stages on a daily basis

Class	DE Mcal/day	Crude protein	
		Lb/day	% In diet
Recreational	20	1.8	10
Pregnant	20	1.9	11
Lactating	28	3.1	13
Weanling	16	1.9	14
Yearling	20	2.1	13
Performance			
-- Moderate	26	2.2	11
-- Heavy	32	2.9	12



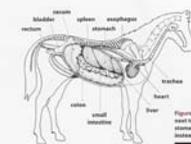
ALFALFA The high-quality hay for horses



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Alfalfa is often the preferred forage for horses because of its high quality, high digestibility, and good roughage value. Well-preserved alfalfa hay should be the foundation of a feeding program for young growing horses, recreational horses, and active horses. This publication describes the horse's digestive system and nutritional needs and how to select alfalfa hay to provide adequate forage for purchasing, storing, and feeding alfalfa hay and uses science to discuss myths and realities of feeding horses.

Figure 1. The digestive tract and internal organs of the horse.



The horse's digestive system

Horses evolved as grazing animals. Compared to most other mammalian species, the horse has a relatively small stomach, a more developed small intestine, and an enlarged hind gut (Figure 1). This arrangement makes horses better adapted to grazing vegetation than to eating one or two large meals. To compare the rate of a horse's digestion to that of a human, it is easy to see why horses should be allowed access to forage throughout the day.

Forage – especially forage – passes relatively quickly through the stomach and small intestine, but can be retained for many hours in the hind gut region. The hind gut is specialized by a diverse microbial population that digests numerous components of hay and pasture. This fungal population that generally passes as effluent at defecation (FEC) as the digester tract of a cow or horse. However, for high quality hay, such as early-donated alfalfa, the difference is much smaller than for lower quality hay, such as late-maturity green hay.

Figure 2. A mule of a horse's stomach from a 1700-lb horse shown next to the daily ration (13 lb) of hay. Because of their relatively small stomachs, horses are better adapted to eating frequent, small meals instead of eating one or two large meals each day.



Lacefield:

Calls the publication an attempt to bring the "best scientific information on feeding alfalfa to horses into one aesthetically pleasing publication that is applicable from Florida to New York to California."

Growing horses
Nutritional programs for growing horses focus on promoting steady, even growth and optimal skeletal development. Numerous deficiencies and imbalances can result in developmental orthopedic diseases that may affect the ability of a horse to perform as an athletic adult. Horses will also be more likely to develop chronic lameness and will be able to compensate enough forage and concentrate to meet their nutrient needs at weaning, which usually occurs around 6 to 8 months of age. Young horses should be fed high quality forage, which is high in digestibility and nutrient density to meet their needs for tissue growth.

Nutrient	Weanling		Yearling	
	Class I	Class II	Class I	Class II
Crude protein	10.0	11.0	11.0	12.0
Crude fiber	18.0	17.0	17.0	16.0
Cellulose	18.0	17.0	17.0	16.0
Starch	1.0	1.0	1.0	1.0
Apparent digestible fiber	14.0	13.0	13.0	12.0

Nutrient	Class I		Class II		Class III	
	Crude I	Crude II	Crude I	Crude II	Crude I	Crude II
Crude protein	10.0	11.0	11.0	12.0	12.0	13.0
Crude fiber	18.0	17.0	17.0	16.0	16.0	15.0
Cellulose	18.0	17.0	17.0	16.0	16.0	15.0
Starch	1.0	1.0	1.0	1.0	1.0	1.0
Apparent digestible fiber	14.0	13.0	13.0	12.0	12.0	11.0



Available from the National Alfalfa Alliance:
Single copies of the 12-page publication can be downloaded from the NAA's Web site at www.alfalfa.org
Multiple copies can be purchased in lots of 25 for \$50, plus shipping and handling.



Purchasing and transporting hay
M... of the problem is... the horse and the hay... should clearly communicate this to the seller... Hay storage... range of alfalfa hay is a... Hay storage... range of alfalfa hay is a... Hay storage... range of alfalfa hay is a...

Feeding hay
B... Hay storage... range of alfalfa hay is a... Hay storage... range of alfalfa hay is a... Hay storage... range of alfalfa hay is a...

Meeting the Nutritional Needs of Horses

- Affected by age and production state.
- Young horses usually require the most nutrient-dense diets.
- As horses age, diets that are less nutrient dense.
- Lactating mares and horses with strenuous physical activities have much higher requirements than horses used for light recreational riding.

Lawrence:
The publication includes easy-to-use tables of example diets for recreational horses, lactating mares, weanlings, yearlings and horses that perform moderate or intense work. "People generally believe that all hay is the same," says Lawrence. "They don't realize that different horses have different requirements for different kinds of hay."

- The publication:
- Describes the horse's digestive system
 - Specific nutritional needs of horses used for:
 - Recreational activities
 - Broodmares
 - Growing horses
 - Performance horses
 - Explains how growth stages of alfalfa affect forage quality
 - Discusses how alfalfa hay is classified
 - Defines terms used to describe alfalfa characteristics and quality
 - Reviews several types of forage products
 - Addresses preservatives and blister beetles
 - Buying, transporting and storing alfalfa hay.