



U of M Horse Newsletter

Providing research-based information to Minnesota Horse Owners

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Choosing Forages for Horses By: Jen Earing, PhD, Univ. of Minn.

Forage selection should be based on horse needs, as there is no *one* forage best suited for *all* classes of horses. For example, providing a nutrient-dense forage like vegetative alfalfa hay to 'easy keepers' can create obesity issues; however, that same hay would be a good option for a performance horse with elevated nutrient requirements. With so many forages available, how does one choose? Differences in the nutritive quality of forages (hay or pasture) are largely based on two factors: plant maturity and species.

Maturity. Regardless of plant species, stage of maturity significantly affects forage quality. Young, vegetative forages are very nutrient dense and contain fewer fibrous carbohydrates (hemicellulose, cellulose, and lignin). As the plant matures (flowers and seed heads are indicators of maturity), the proportion of fiber in the plant increases, to provide structural support as the plant gets larger. The increased level of lignin associated with maturation interferes with the digestion of cellulose and hemicellulose by hindgut microorganisms, thereby reducing the digestibility of the forage. More mature forages also have lower energy and protein levels than their immature counterparts. Most horses do well on mid-maturity forages; horses with elevated nutrient requirements benefit from receiving young, less mature forages, while more mature forages are best suited for 'easy keepers'.

Legumes vs. Cool-Season Grasses. Legumes (i.e. alfalfa and forages) generally produce higher quality forage than cool-season grasses (i.e. orchardgrass, timothy, bromegrass, bluegrass and fescues); if baled at the same maturity. Often, legumes have higher energy, protein, and mineral (specifically calcium) content when

compared to grasses at a similar stage of maturity, and are typically more digestible and more palatable. Legumes are an excellent source of nutrients for horses; however, a horse's nutrient requirements can easily be exceeded when fed immature legumes. Consumption of excess nutrients, particularly energy, may result in obesity. Legume-grass mixes or mid- to late-maturity legumes (less nutrient-dense) often provide adequate nutrients, without exceeding the horse's requirements. Average nutritive values of forages commonly fed to horses are shown in Table 1.

The digestive system of the horse has been designed to efficiently utilize forages, and most horses can fulfill their nutrient requirements on these types of diets. Matching the nutrient levels in the forage to the nutrient requirements of the horse is one of the primary goals in forage selection. A variety of factors, including plant species and maturity should be considered when making this decision.

Table 1: General nutrient characteristics of forages commonly fed to horses.

Nutrient ¹	Cool-Season Grasses	Legumes
DE (Mcal/kg)	1.7-2.5	2-2.5
CP (%)	6-18	14-26
NDF (%)	55-65	35-45
ADF (%)	30-40	30-40
Ca (%)	0.25-.050	0.8-1.5
P (%)	0.20-0.40	0.2-0.35

¹DE, digestible energy; CP, crude protein; NDF, neutral detergent fiber; ADF, acid detergent fiber; Ca, calcium; and P, phosphorus.

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Upcoming Events

Lunch and Learn Webinar
May 22 at noon (central)
"Marketing Your Horse in the 21st Century"

Presented by

Leanne Hoagland, MBA
Dawson Comm. College

To join the free webinar, log onto

<https://umconnect.umn.edu/market/>

Free Equine Castration Clinic

Saturday, May 19, 2012
Isanti County Fairgrounds
Must have a referral from a humane agent, veterinarian, or equine rescue to participate.

Contact Krishona Martinson at 612-625-6776 or krishona@umn.edu to schedule an appointment or with questions.

Equine Pasture Management Program

Fee-based, customized pasture and grazing management plans, including two farm visits. Contact Jennifer Earing at 612-624-7455 or

jeearing@umn.edu



Research Update - Economic Impact of Trail Riding in MN

Minnesota has an active equine industry with an estimated 90,140 horses and 13,048 farms, ranking Minnesota 13th in the nation with a \$1 billion impact on the state annually. In Minnesota, more than 1,000 miles of horseback riding trails are managed by the Department of Natural Resources, with more than 200 miles of additional trails on other lands. Minnesota is home to over five million people, of whom 4.5% participate in horseback riding. The objectives of this research were to document the profile of recreational horse trail users, their motivations, expenditures, and their economic impact on the state.

Minnesota residents who purchased a state horse trail pass were used to develop the survey database. From this database, a random sample of 804 Minnesota residents was selected. An eight page mail questionnaire was developed, pre-tested and implemented in fall 2008. The questionnaire included sections on experiences, trips and expenditures, and demographics. There was a 60% response rate. Spending and economic impacts were estimated at the destination regions. Estimates from an exit-survey of Minnesota state park visitors were used to

determine trip spending for major consumer items. Park attendance data was applied to the average spending to project visitor spending.

Eighty percent of respondents were female, between the ages of 41-50 (55%), and were White, non-Hispanic (90%). Respondents reported an average of 27 years of horseback riding experience. Of the 20 possible motivations for horseback riding, seven were important or very important to more than 75% of respondents, including to view the scenery (96%), be close to nature (94%), get away from the usual demands of life (94%), experience nature (93.1%), explore and discover new things (90%), relax physically (90%), and be physically active (88%).

Respondents spent an average of 23.5 days trail riding within 30 minutes of their home. Trips to nearby trails by residents accounted for 72% of total days spent on horseback trails in the state. Resident horseback riders spent an average of \$26.88 per person-day at nearby trails. Horseback riding by residents resulted in almost \$43 million in consumer spending. Out-of-state visitors added \$6.9 million which increased total spending on Minnesota horse trails to almost \$50

million.

It is estimated that total horseback trail riding expenditures produced \$34.7 million in output of directly affected businesses, and the gross state product amounted to \$29.4 million. Three hundred and fifty-nine jobs were supported by the direct spending, plus an additional 163 jobs from indirect impacts on related businesses and local suppliers. Total labor compensation was estimated at \$16.9 million, and state and local tax revenues at \$3.7 million.

Average annual per person equipment expenditures for horseback riding included \$536.55 in horse feed, \$521.91 in truck/trailer maintenance, \$243.20 in veterinarian costs, \$201.25 in farrier costs, \$189.15 in new equipment, and \$101.62 in the purchase of used equipment. Total spending reached \$530.2 million. This resulted in, \$390.9 million in gross state product, and \$49.4 million in state and local taxes.

This study demonstrates the importance of the horse industry to the Minnesota economy. Maintenance of existing horse trails and consideration for trail expansion in Minnesota is recommended. *Summarized by K. Martinson, U of M*

Ask the Expert: Using Rainwater By: B. Liukkonen, Water Resource Center, Univ. of Minn.

Q: Rain barrels are commonly used to collect rainfall for use in watering ornamentals. What are your thoughts and concerns about using gutters and downspouts to catch rainwater in stock tanks with the goal of watering horses?

R: It is not recommend to use rain barrel water for human or pet consumption, or even for watering root crops and vegetables that will

be consumed. There are potential issues with runoff from rooftops in terms of safe drinking water.

Atmospheric deposition of fine metals and particulates can be carried into roof runoff and possibly concentrated in the rain barrel water, as can petro-chemicals from shingles. New roofs can be especially prone to releasing particulates and chemicals into runoff, particularly

when there hasn't been much rainfall for a while and the sun has been heating the rooftop.

In a setting where there may be birds roosting or resting on the rooftop, you can also get significant amounts of bird droppings in the runoff, and that can contain salmonella and other bacteria that can be potentially pathogenic (disease-causing).