



# U of M Horse Newsletter

Providing research-based information to Minnesota Horse Owners

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Volume 13, Issue 5

May 2017



## Research Update: Feeding Order

It has been suggested that feeding hay before a grain meal will slow the rate of grain intake. This concept is not well researched; therefore, a study was designed to test the hypothesis that feeding hay before a grain meal would slow intake rate. In addition, type of grain, morning versus afternoon feeding, and adaptation to treatment were studied by Purina Animal Nutrition.

Ten adult, Quarter Horse geldings were assigned to one of 5 treatments. Treatments included hay only; hay fed 20 minutes before pelleted feed; hay fed 20 minutes before textured feed; pellet feed and hay fed simultaneously; and textured feed and hay fed simultaneously. Horses were fed at 7:30 am and 2:30 pm. Grains were offered at 4 pounds and hay at 0.5% bodyweight.

Grain intake rates were reduced when hay was fed 20 minutes before the grain meal compared to when the grain and hay

meals were fed simultaneously. When hay was fed before grain, grain consumption was 0.3 pounds per minute compared to 0.4 pounds per minute when hay and grain were fed simultaneously. Hay fed 20 minutes before pelleted feed had the slowest rate of intake. There were no differences in rate of grain intake for morning versus afternoon feedings. The rate of hay intake was slowest when hay was fed 20 minutes before the textured feed.

This research confirms that grain intake was slower when hay was fed before grain. However, the impact of feeding order on rate of feedstuff passage through the gastrointestinal tract of the horse should also be considered when determining a feeding order.

For more information on this research, click [here](#).

Summarized by: Krishona Martinson, PhD, University of Minnesota

## Winter Injury or Winterkill in Alfalfa Hay Fields

Throughout Minnesota and Wisconsin, it is estimated that 40 to 50% of alfalfa hay fields are suffering from winter injury or winterkill (see photo). Lack of snow cover along with cold temperatures, freezing and thawing in February, and ice sheeting are some possible causes for winter injury and winterkill this year. For more information on winter injury and winterkill, click [here](#).

Although hay stocks in the region are plentiful, high quality hay is harder to find. We encourage all horse owners to contact their hay supplier(s) now to ensure a quality and consistent hay supply in 2017. If you are in need of a temporary or new hay supplier, a list of Minnesota Horse Hay Producers and hay auctions can be found [here](#).

Finally, remember to check pastures as pasture forages can also be impacted by winter injury and winterkill. Weed control, over-seeding, or even re-seeding pastures may be necessary in areas affected by winter injury or winterkill.

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### Inside This Issue

Research Update: Feeding Order	1
Winter Injury or Winterkill in Alfalfa Hay Fields	1
Grazing Annual Grasses	2

### Upcoming Events

**Equine Pasture Management Program**  
One farm visit and a customized pasture and grazing management plan  
April 1 - August 1, 2017  
\$650 per farm  
To register, click [here](#).

Visit our [Facebook](#) page for "Research Update Monday", "Tip of the Week Wednesday", "Friday Funny" and special events.

Visit (and share) our [Webinar Library](#) for recorded lectures on over 20 horse-related topics.

Check out our latest horse-related videos on our [YouTube Channel!](#)

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## Grazing Annual Grasses

By: A. Grev, C. Sheaffer, and K. Martinson, Univ. of MN.

With one of the greatest expenditures of horse ownership being feed costs, horse owners often look for ways to decrease these costs. Pastures can provide a lower cost source of forage for horses, and have the capability to meet or exceed the dietary requirements for many categories of horses. Therefore, maximizing pasture productivity can be a valuable tool for reducing feed costs.

In the upper-Midwest, cool-season perennial grasses are the foundation of productive horse pastures. However, there may be opportunities to utilize alternative forages to extend the grazing season or provide forage in emergency grazing situations when perennial forages are lost following winterkill, floods, or drought.

The objectives of this study, conducted at the Univ. of MN, were to evaluate the preference, yield, and forage nutritive value of annual cool-season grasses under horse grazing during the summer and fall seasons.

The research was completed in the summer and fall of 2013 and 2014. Annual grasses seeded in the spring and grazed during the summer included spring barley, spring oat, spring wheat, winter wheat, and annual ryegrass. Grasses seeded in the summer and grazed during the fall included the same five spring-planted species plus winter barley, winter rye, and a forage-type spring oat. Adult horses grazed all grasses for 4 hours a

day, beginning in June for summer-grazed grasses and in September for fall-grazed grasses. Immediately after grazing, horse preference was determined by visually assessing the percentage of available forage removal on a scale of 0 to 100. Grasses were mowed to an even height and allowed to regrow, and grazing was repeated once grasses regrew.

Horses showed distinct preferences among the grasses. In general, horses preferred annual ryegrass, spring wheat, and winter wheat, which had percent removals ranging from 35 to 94%. Horses had a lesser preference for spring oat, spring forage oat, winter barley, and winter rye, which had percent removals ranging from 7 to 32%.

Yield differed among grass species. Among the summer-grazed grasses, yields were typically higher for annual ryegrass and spring oat (1.7 to 2.1 T/A) and lower for spring wheat, spring barley, and winter wheat (1.1 to 1.8 T/A). Among the fall-grazed grasses, yields were typically higher for spring forage oat, annual ryegrass, and winter barley (1.2 to 2.9 T/A) and lower for spring wheat, spring barley, and winter rye (0.9 to 1.9 T/A).

Additional consideration should also be given to regrowth potential, as a greater amount of regrowth following grazing will result in increased forage availability for future grazing events. In general, annual

ryegrass and the winter species had the greatest regrowth potential, producing more even and consistent yields across subsequent grazing events. In contrast, spring barley, spring oat, and spring wheat produced a higher portion of their total season yield during the first grazing, but had little to no regrowth available for subsequent grazing events.

Forage nutritive values differed among annual grass species. Forage nutritive values were affected primarily by plant maturity, with winter species remaining more vegetative and generally having greater forage nutritive values compared to spring species. However, all grasses contained  $\geq 18\%$  crude protein,  $\leq 58\%$  neutral detergent fiber,  $\leq 17\%$  nonstructural carbohydrate, and  $\geq 0.94$  Mcal/lb of equine digestible energy and would meet the CP and digestible energy requirement of many classes of adult horse.

When making forage pasture decisions, it is important to consider horse preference, yield, yield distribution, and forage nutritive values. Based on a combination of these factors, annual ryegrass appears to be a good option for horse owners looking to extend the grazing season or in need of emergency forage during both the summer and fall seasons.

For more information on this research, click [here](#).