



U of M Horse Newsletter

Providing research-based information to Minnesota Horse Owners

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Volume 3, Issue 4

April 2007



Come See U of M Faculty At The MN Horse Expo

Friday, April 27	Topic	Speaker
2:30, 4:00 & 5:30 pm	Tours of University of Minnesota Vet School including Dental, Aqua Treadmill, Laproscopy, Imaging, Lameness, & Toxic Plants.	
2:00 pm	Vaccinations	Stacy Tinkler, DVM
3:00 pm	Barn Disaster Planning	John Shutske, PhD
4:00 pm	Pasture Establishment	Krishona Martinson, PhD
5:00 pm	Poisonous Plants	Krishona Martinson, PhD
Saturday, April 28		
10:00 am, 11:30 am & 1:00 pm	Tours of University of Minnesota Vet School including Dental, Aqua Treadmill, Laproscopy, Imaging, Lameness, & Toxic Plants.	
11:00 am	Barn Disaster Planning	Betsy Gilkerson
12:00 pm	Caring for Newborn Foals	Jean-Yin Tan, DVM
1:00 pm	Care of Geriatric Horse	Cassandra Johnson, DVM
2:00 pm	Herpes Virus Update	Julie Wilson, DVM
3:00 pm	Vaccinations	Stacy Tinkler, DVM
4:00 pm	Travel Preparedness	Spring Halland, DVM
5:00 pm	Pasture Establishment	Krishona Martinson, PhD
Sunday, April 29		
2:00 pm	Poisonous Plants	Mike Murphy, DVM
3:00 pm	EPM	Stephanie Valberg, DVM

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Up Coming Events

PASTURE MANAGEMENT

Thursday, April 5th
6:00 pm to 9:00 pm
Monticello Middle School
Contact Brenda for more info at 763-682-7381.

MN HORSE EXPO

April 27, 28 & 29
St. Paul Fairgrounds

All U of M presentations (listed to the left) will take place in the Ramberg building and tours meet at Liggett Street.

U of M Vet Med and Horse Team booth is L608 in the Livestock (Cattle) Barn.

Ask the Expert

By: Paul Peterson, PhD, U of M

Q: When should I begin grazing my horse this spring?

A: Spring turn-out (grazing initiation) should be determined by: stocking rate (how many horses/total pasture acreage), pasture species and condition, ability and availability of mowing/haying equipment for paddocks that may get too mature for effective pasturing, and species height and maturity. On average, 2 acres of well-managed pasture can provide the forage needs for one horse from spring to fall. "Well managed" means subdivided into multiple paddocks, fertilizing according to soil tests, and controlling weeds. If you have that much or more acreage per horse, you may want to start grazing early to get a jump on the spring pasture growth. If you have less than 2 acres per horse, the pasture cannot be expected to meet all the forage needs for your horses during the grazing season. In this case, plan to provide some hay and designate a sacrifice area/paddock to feed horses as needed to allow adequate rest (on average 2 weeks in spring and 6 weeks in summers) for the pasture. Grass pastures with good stands of Kentucky bluegrass or smooth brome grass can handle early spring grazing. "Early" means when bluegrass is 3-4" tall and brome grass is about 6" inches tall. These grasses are sod-forming and tolerant of horse hoof damage. Pastures dominated by bunchy-growing grasses like orchardgrass and timothy should be taller, about 10" in height. These grasses are more easily damaged by hoof action and grazing. If conditions are really wet, it's best to wait, regardless of plant height. Introducing horses to spring pasture gradually will reduce the chance of laminitis. Slowly begin grazing (15 minute grazing periods at first), working your way up to a full day over a couple of weeks.



Spring Pasture, Fructans, and Founder

By Larry Lawrence PhD, Kentucky Equine Research & Stephanie Valberg, DVM, U of M

All horses are subject to digestive upsets associated with spring pasture. The content of highly fermentable carbohydrates in pasture can be overwhelming to the unadapted digestive system of horses. Ponies, because of a gene that allows them to survive on limited amounts of medium quality forages, and overweight horses, because of insulin resistance and associated high levels of circulating pro-inflammatory agents, are particularly susceptible to pastures with high fructan contents (commonly found in spring). Fructans are specially adapted sugars that are found in cool season forages (most grass pasture species in MN are cool season). Fructans derive their unique properties from the bonds that cannot be digested by the normal enzymatic mechanism for digesting soluble sugars (simple sugars like sucrose) in the stomach and small intestine. Fructans get to the hindgut and are fermented by bacteria into lactic acid and volatile fatty acids (VFA). VFA are normal products of the digestion of digestible cellulose and other cell wall constituents of forages, making them easily digestible by horses. However, lactic acid is not used efficiently by other bacteria or efficiently absorbed from the hindgut. The resulting accumulation of lactic acid

into the hindgut is one of the most direct causes of colic, founder, and laminitis in horses on pasture. Many horses can graze pastures without succumbing to laminitis if they have time to adapt their digestive tract and develop a hindgut buffer that reduces lactic acid accumulation. Fructans are produced through photosynthesis that occurs in the leaves of plants during day light. The sunnier the day, the more photosynthesis, and therefore, the more fructans. During the night (dark), plants use the fructans for plant growth and energy storage. Many cool season grasses store fructans in the lowered 2nd of the stem just above the soil line. However, temperatures at night are critical. If the temperature is not above 40F at night, the plant will not grow and the fructans remain in the leaves in high concentrations. So, when is the best time to graze in order to avoid fructans? The answer, as usual with complicated issues, is it depends. There are daily cycles of high and low fructans levels. When you have warm days and cool nights (below 40F) don't graze sensitive horses, and limit grazing of all horses. If the weather is sunny during the day and warm at night, then horses should be grazed early in the morning when fructan

levels are lowest. There are also plant maturity cycles of fructans. The first growth of grass in spring, has very low levels of fructans. While fructans may be low in early pasture growth, indigestible cellulose and lignin is also low. High cellulose and lignin decrease intake. Because of this relationship, horses tend to eat more, and even though the fructan levels are low, total intake of fructans may still be high due to the volume of forage consumed. Managing pastures so that horses do not overgraze (fructans are stored in the lower 2nd) will help reduce fructan intake. However, horses are selective grazers and may choose to eat high fructan portions of the plant. The condition of the entire pasture must be monitored daily, as horses tend to select the highest fructan plants in a pasture to graze. Finally, stressed pasture plants can cause fructan levels to increase. For example drought or frost can increase fructan levels by 30%. As a general rule, horses that have high energy requirements can handle fructans as long as overall energy balance is taken into consideration. The classes of horses that can handle high fructans, if they are adapted to them slowly, include; growing horses (just don't overfeed grain when fructans are high), lactating mares, hard working horses, thin horses (that are not

compromised by disease or parasites) and breeds that are known to be hard keepers like Thoroughbreds. The general rule for horses that should avoid fructans (i.e. avoid grazing) are easy keepers, ponies, and any overweight horse. The fructan question is very confusing, when in doubt consult your veterinarian, use grazing muzzles to reduce pasture intake, and keep sensitive horses off pasture completely. Sensitive horses usually include horses that have previously foundered. Founder, also known as laminitis, is an inflammation or swelling of the laminae or tissues that connect the hoof wall to the coffin bone. Prevention of founder is dependent on identifying and correcting an underlying cause, as laminitis can be triggered by many diverse events. Prompt treatment of laminitis is important. Treatments are aimed at controlling pain and inflammation, encouraging circulation to the laminae, and stabilization of the foot and coffin bone. Recovery from laminitis depends largely on the amount of damage done to the laminae and the general health of the horse. Treatments vary from corrective trimming and shoeing to surgery. Managing a horse's weight, controlling access to pasture, and close cooperation between horse owners, veterinarians, and farriers are important ways to avoid and manage founder.