



U of M Horse Newsletter

Providing research-based information to Minnesota Horse Owners

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Research Update - Composting

Evidence suggests that parasites commonly affecting the horse are becoming resistant to many of the deworming products currently available. Consequently, new research has focused on identifying alternative methods of control. A recent study, by researchers at the University of Kentucky, evaluated the use of windrow composting as a means of reducing the viability of *Parascaris equorum* (large roundworm or ascarid) eggs.

Feces were collected from foals confirmed to be shedding *P. equorum* eggs, and manure samples were placed in filter bags and buried in the center of a newly prepared compost windrow. Filter bags were removed after 2, 4, 6, 8, 10, 12, 14, and 18 days of composting and

viability of the *P. equorum* eggs was determined.

Continual temperature monitoring showed windrows maintained a minimum average temperature of 50°C between days 1 and 3, and the highest average maximum temperature was recorded on day 5 (57° C). The average viability of the eggs was significantly reduced after 2, 4, or 6 days in the compost windrow. The viability dropped to 0% after 8 days of composting.

Researchers concluded a well-maintained compost system is capable of rendering *P. equorum* eggs non-viable within 8 days, when eggs are located within the interior of the windrow.

Summarized by: Jennifer Earing, PhD, previously with the Univ. of Minn.

Ask the Expert: Feeding a Laminitic Horse

Question: I have a mare that came down with laminitis this spring (I did take acclimate her to pasture). The barn where I board has very "rich" hay; 60% legumes and 40% grass. What are some recommendations for feeding a horse post laminitis?

Response: Now that your horse has foundered, you should try and keep her overall diet to less than 12% non-structural carbohydrates (NSC). If she is in good body condition, do not feed her grain or treats. Maximize her forage and include a ration balancer (vitamin, mineral, amino acids) to fill in any essential nutrients that dried hay (even good quality) lacks. Unlike grain, ration balancers are fed in small quantities.

Since hay will be your primary source of nutrition, it is essential to get the hay tested. Once you receive the results, look for the NSC value or add together the water soluble carbohydrate and starch values to estimate NSC. Hopefully that number is close to or below 12%. If it is,

great! If not, you might want to consider a quick soak (15-30 minutes) in water to remove some of the carbohydrates. Some horses may recover and can return to a "normal" diet. Before making any changes, work with both your veterinarian and an equine nutritionist.

The alfalfa will actually be helpful in your situation since alfalfa tends to have less NSC compared to grass. The reason most horse owners with laminitic horses shy away from alfalfa is because of the higher caloric content compared to grass. Most laminitic horses also tend to have a weight problem, and feeding energy dense alfalfa hay will only make that problem worse.

In the future, look for a mature (i.e. seed head and flowers) mixed alfalfa-grass hay, or hay that has taken a long time to dry (slightly yellow color), or had a light rain prior to baling. These hays tend to be naturally lower in carbohydrates.

By: Krishona Martinson, PhD, University of Minnesota

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Upcoming Events

Regional Horse Owner Program—Fergus Falls

Red Horse Ranch Arena

Fergus Falls, MN

Thursday, November 8th

6:30 to 9:00 pm

Registration deadline is November 6th at 11:59 pm.

To register online visit www.regonline.com/2012HorseFergusFalls

Looking for a "speaker" for your next equine function?

Consider using our webinar library! There are almost 20 recorded webinars to choose from at

www.extension.umn.edu/horse/webinars

Research Collaborators Needed

The U of M Equine Genetics and Genomics Laboratory is investigating the genetic basis of the mealy (or pangaré) coat color.

Researchers are especially interested in Norwegian Fjords, Halflingers, donkeys, and Belgians.

Contact Dr. Jessica

Petersen at

jlpeters@umn.edu to participate in the study.

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Seasonal Pasture Myopathy Cause Identified

By: Anna Renier, DVM, Univ .of Minn.

For decades, hundreds of horses in North America and northern Europe have died from a pasture-associated muscle disease whose cause, prevention, and treatment have remained elusive. Even with early diagnosis, the fatality rate for this disease, known as Seasonal Pasture Myopathy (SPM) in North America and Atypical Myopathy (AM) in Europe, is between 75 and 95%. Breakthrough research from the University of Minnesota has now identified seeds from the box elder tree, and possibly other Acer species trees, as the cause of SPM in North America and likely Europe.

Characteristic signs of SPM include stiffness, difficulty walking or standing, dark urine and eventually breathing rapidly and become recumbent. The disease can be easily confused with colic or founder, and its cause has evaded clinicians and researchers until now. SPM occurs most often in the fall with fewer numbers of affected horses seen in the spring and summer. It is typically not seen when snow is present. Horses do not naturally eat box elder seeds but if horses are pastured for over 12 hours a day on sparse, wooded pastures without being fed supplemental hay they may eat box elder seeds, especially if windy conditions or rain knock down seeds. The presence of numerous box elder seeds on pastures is the final key risk factor for SPM.

In North America, box elder trees are found in Canada, the midwestern and northeastern USA, south to northern Florida, and west through Texas. They are seen as a non-native tree species in Europe as well. The Minnesota study found the toxin hypoglycin A in the seeds of box elder trees and high

concentrations of hypoglycin A's toxic metabolites in blood and urine from SPM-affected horses. These findings demonstrate that horses with SPM have ingested box elder seeds containing the toxin hypoglycin A. If horses eat sufficient quantities of box elder seeds, the toxin blocks fat metabolism and breaks down their respiratory and postural muscle cells sometimes affecting heart muscle. When one horse becomes affected, herd mates are also at risk due to the presence of seeds on pastures. However, not every horse on a pasture with box elder seeds will develop the disease. In fact, there are many horses on pastures with box elder trees that have remained health for years. This may be because the horses have other preferred sources of feed and do not consume box elder seeds, or because toxin levels in seeds on those pastures are very low.

If you suspect that your horse may be affected by SPM, rapid diagnosis and treatment are essential to your horse's survival. Contact your veterinarian promptly if your horse demonstrates any of the above signs. Aggressive medical therapy is warranted in any case that is confirmed or suspected to have SPM; hospitalized care provides the best odds for survival. Blood tests that detect muscle damage and hypoglycin A toxin levels in your horse are available through the University of Minnesota and can help determine if your horse has SPM.

As treating SPM can be very difficult, preventing the disease is very important. Simple management changes for horses on pastures where box elder trees are present can be made to reduce your horses' risk of SPM. Preventing

overgrazing of pastures through pasture rotation or providing hay to horses on over grazed pastures can reduce a horses' desire to eat weeds and seeds. If horses are turned out in an area with box elder trees, it may be prudent to limit their turn out to less than 12 hours each day during high risk periods, such as in the fall, during a drought, or after heavy wind or rain events. It is recommended that horses not be introduced to a new pastures with box elders immediately prior to or during high risk periods. Trimming low-hanging box elder tree branches or removing trees when possible will help to reduce a pasture's seed burden.

Assessing your pastures and horses' potential for toxin exposure can be done at any time, even prior to the development of any cases of SPM. More detailed information on minimizing your horse's risk of SPM and on recognizing and treating SPM is available on the University of Minnesota's SPM website (<http://www.cvm.umn.edu/umec/SPM/home.html>).

If you think your horse has experienced, or is experiencing SPM, please contact your veterinarian and complete the SPM Risk Assessment Survey found on-line (<http://www.cvm.umn.edu/umec/SPM/Risk/home.html>) and a University veterinarian will contact you promptly regarding your concerns and possible testing of blood samples from your horse for hypoglycin A toxicity.

We are more prepared than ever before to prevent and recognize SPM, and ongoing research will continue to expand our diagnostic and therapeutic options for this disease.