



U of M Horse Newsletter

Providing research-based information to Minnesota Horse Owners

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Research Update: Hay Soaking

Horse owners have resorted to soaking hay in water to remove water-soluble carbohydrates to manage horses diagnosed with laminitis or Polysaccharide Storage Myopathy (PSSM). Researchers have suggested that complete rations (hay, grain and supplements) contain less than 12 and 10% nonstructural carbohydrates (NSC), which are the starches and sugars in the forage, for horses affected with laminitis and PSSM, respectively. The objectives of this research, conducted by faculty at the University of Minnesota, was to determine the impact of water temperature and soaking length on the removal of carbohydrates and dry matter (DM) from alfalfa and orchardgrass hays.

Hay types included bud and flowering alfalfa, and vegetative and flowering orchardgrass. Flakes were submerged for 15, 30 and 60 minutes in 7 gallons of cold (72°F) and warm (102°F) water and for 12 hours in cold water.

Prior to soaking, both alfalfa hays were below the 10 and 12% NSC recommended for horses diagnosed with PSSM and laminitis, respectively, and would not

have required soaking. This is common for alfalfa, since legumes store their carbohydrates as starch, compared to grasses that store their carbohydrates as fructans (a sugar). The orchardgrass hays were above these recommendations (approximately 14% NSC pre-soaking), however, after soaking for 15 to 30 minutes, were at or below 10 to 12% NSC.

Dry matter losses were similar among all hays after soaking for 15, 30 and 60 minutes in either warm or cold water. Dry matter losses after soaking for 12 hours were greater than other treatments.

Owners should rely on forage analysis, both before and after soaking, as the primary method of determining the appropriate hay for horses, especially when feeding horses diagnosed with laminitis and PSSM. Soaking hay for short durations (15 to 60 minutes) is an acceptable management method, but should only be used if preferred hay is not available. Soaked hay should be fed immediately to reduce the chance of mold.

Summarized by Krishona Martinson, PhD, Univ. of Minn.

Ask the Expert: Treats By: Krishona Martinson, PhD, Univ. of Minn.

Question: I recently received a gift of two horses, a Percheron and a Quarter Horse. These two horses grew up eating anything, including banana and potato peels, even if they've started to decay. The original owner continues to bring these "treats" over for the horses. The horses in good health, but are over weight. Is this good for them?

Response: I'd suggest your neighbor bring more typical horse treats to the horses, such as apples, carrots, or manufactured horse treats. Anything novel or not normally found in the horses diet can cause problems. If the

food is slightly decayed, the possibility of the horses ingesting mold or a mycotoxin is real and could be deadly, even in small amounts.

Equally important, the risk of laminitis and other metabolic issues is greater in over-weight horses (especially the breeds you have), so for the health of the horses, the treats should be eliminated. Once your horses weight is reduced, the treats, if given in small quantities, could be reintroduced.

If the well-intended original owner understands the risk, hopefully they'll be willing to bring different treats or stop all together.

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Upcoming Events

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 Collaborators Needed

The University of Minnesota Equine Genetics and Genomics Laboratory is investigating the genetic basis of the mealy (or pangaré) coat color. Researchers are looking for horses (all breed types) with and without the mealy coat color, and are especially interested in Norwegian Fjords, Halfingers, donkeys, and Belgians. Horse owners interested in helping with this research are asked to contact Dr. Jessica Petersen at jlpeters@umn.edu

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Equine Recurrent Uveitis

By: Sarah Wahlert, Veterinary Student, Univ. of Minn.

Equine recurrent uveitis (ERU), also known as moon blindness or periodic ophthalmia, is one of the most common eye conditions in horses and the leading cause of blindness. It is an immune-mediated disease, meaning the body's immune system attacks its own tissues in the eye. The exact cause of the disease has yet to be discovered and no cure exists, making this disease a challenge for owners and veterinarians alike. While the exact number of affected horses is unknown, it is estimated that as many as 10-25% of horses in the United States suffer from ERU. Appaloosas, paint horses, drafts, and warmbloods are at higher risk, while standardbreds and thoroughbreds appear to be less affected. Appaloosas are 8.3 times more likely to develop uveitis (of any type) than all other breeds combined and 4 times more likely to go blind as a result of equine recurrent uveitis (ERU). Of the horses diagnosed with equine recurrent uveitis, 25% are appaloosas. It has also been shown that leopard appaloosas are more at risk than those with blankets or dark, solid-type patterns.

But no horse, regardless of age and breed, is safe from this disease. ERU can impact your horse's quality of life and your relationship together, as well as interfere with training, decrease performance, and prevent participation in competitions because of drug withdrawal times. Prompt detection and treatment is crucial to preserving your horse's eyesight and quality of life.

Diagnosing equine recurrent uveitis can be difficult in the

beginning because it cannot easily be differentiated from other causes of uveitis. A definitive diagnosis of ERU is typically only made after the horse has had several recurrent episodes of uveitis in one or both eyes. Some symptoms are fairly easy to recognize if you take the time to look at your horse's eyes on a regular basis. Others require special training to detect, which is where your veterinarian comes in. You may notice your horse squinting or holding the affected eye shut in response to pain and sensitivity to light. There may also be excessive tearing. A closer look at the eye may reveal a bluish or cloudy appearance to the cornea, the white portion of the eye (sclera) may look bloodshot, and the pupil may be smaller than normal. Your veterinarian, who is trained to examine eyes, will be able to detect more specific clinical signs during a complete ophthalmologic exam.

The damage to the eye is progressive, even with prompt and aggressive treatment. Horses can develop scarring within the eye, cataracts, glaucoma, chronic pain, pthisis bulbi (shrunken eye), and some will ultimately become blind.

There is no cure for equine recurrent uveitis. Therefore, the recommended treatment for active episodes of uveitis is aimed at decreasing the inflammation within the eye, controlling the horse's pain, minimizing the damage to the structures of the eye, and delaying the onset of blindness. Each horse and situation is unique, but treatment includes a combination of topical and

systemic anti-inflammatories, steroids, and immunosuppressive drugs. Treatment of active episodes typically requires at least four weeks of medications. Horses can quickly become resentful of this and your veterinarian may recommend hospitalization and placement of a subpalpebral lavage catheter. This small tube, only slightly larger than a spaghetti noodle, runs over the top of the horse's head and through the upper eyelid. This allows for the delivery of the medications directly onto the eye without asking the horse to tolerate handling of his face. New surgical treatments are showing promise for providing longer-term control of ERU but they require a skilled ophthalmologist and the proper equipment. Initial studies have shown that these procedures increase the time between reoccurrences, shorten the duration of active episodes of uveitis, and delay the onset of blindness. Hopefully in the near future these new treatments will be more widely available and will provide horse owners with more rewarding options for managing their horse's ERU.

The Equine Genetics and Genomics Laboratory at the University of Minnesota is currently studying the horse genome in an attempt to find an answer for why so many appaloosas are affected. This discovery could lead to the development of a genetic test that when used properly and incorporated into breeding decisions, could decrease the prevalence of this condition in the appaloosa population. Researchers are also searching for possible bacterial and viral causes of ERU.