



U of M Horse Newsletter

Providing research-based information to Minnesota Horse Owners

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U of M Speakers & Tours at the MN Horse Expo

Date	Time and Location	Topic	Speaker
Friday, April 29	Noon - DNR Building	Reducing Hay Waste	K. Martinson
	1:00 pm - DNR Building	Remodeling the Barn	C. Clanton
	2:00 pm—DNR Building	Preventing Flies	R. Moon
	1:30, 3:00 and 4:30 pm	Equine Center Tours	Passes at L611
Saturday, April 30	10:00 am—DNR Building	Remodeling the Barn	C. Clanton
	11:00 am - DNR Building	Reducing Hay Waste	K. Martinson
	2:00 pm—DNR Building	Preventing Flies	R. Moon
	10:00, 11:30 and 1:00pm	Equine Center Tours	Passes at L611

Ask the Expert: Vitamins in Dried Hay

Q: What is the vitamin content of grass hay? Specifically A, D, and E?

R: I am not aware of any published values for vitamins in grass hays or other forages, mostly because vitamins are generally only seen in low amounts or not at all in dried forages (hays). Plants do not actually contain vitamin A, but they do contain beta-carotene which is converted into vitamin A within the horse's gastrointestinal tract. However, beta-carotene isn't stable once the forage has been harvested, so levels decrease quickly (within weeks) until the amount left is insufficient to meet a horse's nutritional needs. Consequently, vitamin A should be supplemented when horses are fed harvested forages. Vitamin A is known for its role in night vision.

Vitamin D plays an important role in calcium absorption and similarly to vitamin A, the active form of vitamin D is not found in plants; however sun-dried forages tend to be good sources of the vitamin D precursor, which is later converted in the skin (after ultraviolet

irradiation) and in the liver and kidney to the bioactive form. Hays tend to be good sources of the vitamin D precursor although there can be variations in the content of forages and the precursor will deteriorate over time in storage. Horses with normal sun exposure do not usually need additional Vitamin D supplementation.

Vitamin E is a best known for its antioxidant properties and is readily found in fresh forage, but levels quickly decline upon hay processing and storage. While extra vitamin E would have been stored in the liver of the horse that was consuming fresh forage during the summer, the levels are depleted in the fall when the horse is fed hay that has insufficient levels. Consequently, vitamin E should be supplemented if horses are fed a diet consisting mostly of dried hay. Generally, naturally derived sources of vitamin E have higher biological activity than do chemically synthesized sources.

Authors: Krishona Martinson, PhD and Marcia Hathaway, PhD; Univ of Minn.

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Upcoming Events

Free Stallion Castration Clinic

Saturday, April 16, 2011
Cold Spring, MN

Stallion owners must be referred by a certified horse rescue, humane agent or their veterinarian based on an economic hardship. Stallions must be halter broken, have two descended testicles and be in good health. Castrations must be scheduled in advance and appointments are limited. Contact Krishona Martinson at 612-625-6776 or krishona@umn.edu to schedule an appointment.

2011 MN Horse Expo

April 29 to May 1
St. Paul, MN

Horse Pasture Management Program
Customized pasture and grazing management plans
Contact Jennifer at 612-624-7455 or jeearing@umn.edu for more information.

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Food Allergy in Horses

By: Bryan Waldrige, DVM, Kentucky Equine Research

Food allergy in horses is rare and extremely difficult to diagnose. There are several caveats that horse owners and veterinarians must keep in mind when interpreting results of allergy testing. It is not unusual for normal horses to react to at least some of the allergens on the allergy panel. In other words, normal horses can have positive reactions to allergens that they are actually not allergic to.

The panel of allergens used on the test may not contain the allergens that the horse is most allergic to, which means that whatever the horse is allergic to may not be tested against. It is very important to consult a board-certified veterinary dermatologist to interpret the allergy test, to determine if hyposensitization, in the form of allergy shots, is necessary, and to formulate which allergens should be included in hyposensitization. Allergy panels should be tailored for specific geographic areas, as veterinary panels are usually based on the most common human allergens in the region. Therefore, horses should be tested by veterinary dermatologists who practice in the area where the horses live to ensure that horses are tested for the most commonly encountered allergens.

Studies have shown that the most reliable diagnostic method for equine allergy is the intradermal allergy test (IDAT). This test involves injection of allergens such as mold and pollen into the horse's skin. The dermatologist looks for skin reactions (wheals or hives) and measures them for several hours after injection. The largest wheals indicate which allergens should be used in hyposensitization injections. Usually this test is performed on the side of the horse's neck, and the hair is clipped in an area about the same size as a regular sheet of paper. Horses to be tested should not be treated with corticosteroids or antihistamines for several weeks prior to allow for more reliable results.

Allergy testing using serum has not been shown to be as reliable as IDAT. This is unfortunate because these blood tests are very convenient. The most significant problem with serum allergy testing is that the antibodies (IgE) that are most important for allergic reactions are more abundant in the skin than in the blood. IgE antibodies in the skin are found on mast cells that burst and cause the redness, pain, swelling, and itching that occurs when the antibody encounters its allergen. These are the reactions

that are evaluated during an IDAT, and the test is based on this principle.

Food allergy in horses are confounded by allergy tests that often show hypersensitivity to something the horse commonly eats. Clinical signs of food allergy include hives, itchiness, and possible self-trauma due to scratching. The only dependable method to test for food allergy is to completely remove the suspected food allergen from the horse's diet for 4-8 weeks and to observe for a decrease in itching or hives.

If a specific food allergen cannot be pinpointed, a practical way to begin a food-allergy trial is to remove concentrates (grain or pellets) and all supplements from the horse's diet. Ideally, if the horse responds well, then the suspected allergenic feed is fed again to see if clinical signs return. However, few owners are willing to challenge the horse, especially if it has improved with dietary change. Allergic horses are usually also sensitive to insect bites and inhaled allergens such as mold spores and pollen. Insect control and avoidance are essential.

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Ask the Expert: Deer Feeding with Horses

By: Chrisite Ward, DVM, PhD, U of M

Q: Do you know if horses can get any diseases from deer? With the amount of snow we had this winter, the deer are eating hay out of the round bale feeder.

R: Unlike cattle and bison, which can contract tuberculosis (TB) from deer, horses seem to be less susceptible. I have never personally seen a case of TB in a horse in

approximately 20 years as a practicing veterinarian. The risk exists, but is very low. There have been extremely rare reports of meningeal worm (*Paralaphostrongylus tenuis*); a parasite in deer feces that can migrate into the central nervous system of animals grazing contaminated pastures. Meningeal worm is a significant problem for

sheep, goats, and camelids, but horses are minimally susceptible.

Some horse owners do prefer to fence the deer out of hay piles, which is basically impossible to do at a round bale feeder, unless horse access is also restricted. If the deer herd is large, fencing can reduce the economic impact of hay loss associated with deer feeding, which is likely of greater concern.