MARYLAND COOPERATIVE EXTENSION
UNIVERSITY OF MARYLAND
COLLEGE PARK • EASTERN SHORE

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EXTENSION HAPPENINGS
CALL THE EXTENSION OFFICE TO REGISTER:

- **SAVE THIS DATE!! Saturday, November 19, 2005** – Maryland Cooperative Extension's Horse Seminars. Miss the Pleasure Horse Seminars? Then you need to come to this day of learning, with topics ranging from Farm and Business Management to Pasture Management and Health and Nutrition. Featuring keynote speaker Dr. Temple Grandin, an internationally acclaimed animal behaviorist. Sponsored by the Maryland Horse Industry Board and MidAtlantic Farm Credit. Booth space is available; call 301-405-8337 or 301-405-4690 to inquire!
- **September 1** – October 13, 7-9 p.m. – Beginning a Successful Farm Operation, Part II, Frederick County Cooperative Extension (301-631-3576)
- **September 11** – Maryland 4-H State Dressage Show and Combined Test, Carroll County Ag Center
- **September 17** – Central Maryland Research and Education Center Open House, 4240 Folly Quarter Road, Ellicott City. This is the grand opening for the new Equine Research Unit at CMREC! Please come tour our research facility and meet the horses, the grad students and the faculty!
- **September 24** – Pasture Walk, Prince George's County Cooperative Extension (301-868-9366)
- **September 25** – Rural Heritage Day, Talbot County Cooperative Extension (410-822-1244)

Ask the Experts

Q I have been dealing with founder in my horse for months. I've heard that my horse should get a low-carb diet. How do I know which feeds are high vs. low carb?

A Chronic laminitis, a.k.a. "founder," is an inflammation of the horse's foot resulting in severe pain and possibly downward rotation of the coffin bone. Obviously, working closely with your farrier and vet is a necessity. However, diet and lifestyle modification is also going to be necessary! Often, horses that suffer from pasture or grain founder are obese and need to be put on a weight-loss plan and exercise scheme (once they are sound enough to exercise, that is). One of the major causes of founder is ingestion of high levels of non-structural carbohydrates (NSC); these can be found either in your horse's grain, his pasture or his hay.

It's easy to believe that grains contain high levels of NSC, mostly in the form of starch. In fact, the grains most commonly found in horse feeds, corn, oats and barley average from 50 – 73+% NSC. Pasture grasses contains NSC in the form of fructans. Fructans are an important source of energy storage for cool-season grasses such as fescue, orchard grass or timothy. Fresh grass can range anywhere from 8-17% NSC, most of it in the form of fructan in those cool-season grasses. But what about hay? I'll bet you thought all hays were "safe," right? Sorry! Even mature straight grass hay can be as high as 18% NSC!

Researchers have been able to show that fructan levels vary throughout the day, generally peaking in the afternoon hours. The safest time to allow your horse to graze is when fructan levels are low, which is from late night to early morning. Fructans will also be high in a plant during times of stress, such as drought or freezing temperatures. Fructans are large molecules and are thought to bypass digestion in the stomach and small intestine and spill over into the cecum and colon. The microbes in the hindgut of the horse will digest fructans and any spill-over starch from grain in the cecum and colon, leading to a decrease in the pH. This acidic environment favors the production of **lactic acid**. Lactic acid is a normal product of digestion of feedstuffs by the horse, but at high levels, it tends to kill off other beneficial microbes found in the gut. When these microbes die, they can release toxins. The combination of these toxins and the lactic acid are thought to destroy the basement membrane in the hoof, leading to the inflammation and eventual rotation of the coffin bone.

On the other hand, warm season grasses (such as Bermuda grass) and legumes (such as clover and alfalfa) store energy in the form of starch and pectins. Why is that different than the starch found in grains? Technically, it's not; however, the starch levels are much, much lower than those found in grains (usually only about 3%), and the starch is digested and absorbed in the small intestine. Very little will reach the cecum and colon in the horse. Pectins are considered to be very safe for horses; another feed that is high in pectins is beet pulp.

So, what should you feed a horse if it is prone to grass or grain founder? Obviously, you need to evaluate each horse as an individual and design a diet that will meet its needs, yet not go overboard on NSC! If your horse is fat (see last month's Ask the Experts article), a diet is in order. That doesn't mean starving the horse, but definitely cutting back on intake. If your horse is on pasture and you have no way of restricting it and feeding hay, use a grazing muzzle to decrease his or her intake. The best thing, of course, would be to totally restrict your horse's access to feeds it shouldn't have. Have your hay tested and look for a NSC level below 12%. If that doesn't work, see if you can find a warm-season grass hay. (Check http://www.hayexchange.com for a listing of hay by state – you may have to go farther south than Maryland.) If you are unable to find that type of hay, you can soak your usual hay for about 60 minutes to reduce the fructan levels. Feeding alfalfa hay or beet pulp may also be a way to reduce NSC intake; however, be aware that alfalfa contains high levels of protein, something that most horses don't need. Be sure to eliminate all grain from your horse's diet. Replace it with a low-calorie "ration-balancer" that contains the vitamins and minerals he needs instead. Most feed companies have representatives that can help you design a ration that is specific to YOUR horse's needs. You can also contact me for help with your special-needs horse!

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