



Stable Sheet



UNDERSTANDING THE EQUINE DIGESTIVE SYSTEM

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It is important to understand the digestive process in the horse so you can feed the most effective diet. Each part of the digestive tract has a role in digestion that allows for adequate nutrient utilization. By understanding those roles, we can properly formulate diets for the health of the horse. This will ensure that they get the nutrition required to support natural processes as well as supply the energy needed by the equine at any stage of life.



aids in the breakdown of the food ingested. Saliva production is very important because it lubricates the food as it leaves the mouth and it acts as a buffer to the acid produced in the stomach. Because horses do not produce saliva until food is being chewed, it is important to feed several small forage based meals that will ensure there is adequate saliva production to aid in the beginning parts of digestion.

Forages (hay or pasture) are the primary food source in the horse's diet. During grazing, they consume small amounts of food continuously, digesting forages slowly over several days to extract nutrients. Feed concentrates (grains) should be added to the diet of the horse to provide additional energy, protein, vitamin or mineral requirements.

The food then travels down the esophagus and enters the stomach, where it is digested for an average of 2-4 hours. The stomach holds about 2-4 gallons and is separated into a glandular and non-glandular region. The glandular region secretes hydrochloric acid and enzymes that begin the breakdown of proteins into amino

Digestion begins in the mouth. Chewing begins the mechanical breakdown of food into smaller particles, allowing nutrients to be more readily absorbed later in the tract. Saliva contains the enzyme amylase that also

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EquiDay is March 12, 2011!



See page 4 for more information.

RESPIRATORY DISEASE — INHALANT THERAPY

(reprinted courtesy of Dr. Randy Franz)

Chronic Obstructive Pulmonary Disease (COPD or “heaves”) is a progressive inflammatory disease of the lower airways. It results from chronic inhalation of airborne dusts and molds commonly associated with hay and bedding. COPD is debilitating and widespread; studies have indicated that lower airway diseases like it are common causes for poor performance in athletic horses. The silver lining to this grim statistic is the advent of devices that allow medications to be administered via the inhalation route as opposed to the traditional oral and injectable methods. This is beneficial for a number of reasons, and the use of metered-dose inhalers (MDI) is quickly becoming the cornerstone of many effective treatment protocols.

Management of the horse’s environment is one of the most effective therapies for COPD, but the methods for improving the horse’s “breathable environment” (i.e. pasturing rather than stabling them and feeding pelleted diets rather than hay) often are not compatible with harsh Vermont winters and the slowing economy. Horses handle cold weather just fine, but we do not; most horse owners do not feel comfortable leaving their companions outside and exposed when the temperatures reach the freezing mark. Additionally, most pelleted feeds are more expensive than an equivalent amount of hay. Because of these practical limitations, medications often bear the burden of successful COPD treatment.

Corticosteroid and bronchodilator medications have long been recommended for the effective treatment of COPD. When used simultaneously, these drugs do an excellent job of reducing airway inflammation, decreasing mucus production, and counteracting small airway constriction. This triad of inflammation, mucus, and constriction is what leads to the signs of exercise intolerance, nasal discharge, cough, and respiratory distress in affected horses. Despite the benefits of these medications, administering them orally or via an injectable route can be limiting. They are often not absorbed well through the GI tract and therefore reach sub-optimal concentrations



where it really matters – the lungs. More importantly, the long-term use of steroids can be associated with harmful systemic side effects even when the dose is tapered over time.

Delivery of these same medications through a MDI system is advantageous for a number of reasons. Corticosteroids lend themselves especially well to administration via an inhaled route. As is the case with many medications, corticosteroids must attach to receptor sites located on the surfaces of various internal body tissues in order to have a therapeutic effect. There are large numbers of these receptors located within the lungs. This means that the drug’s effect is much more potent when inhaled as compared to that which is obtained when it is injected or swallowed. Furthermore, inhaled medication rarely reaches threatening levels in the horse’s bloodstream with routine use. Subsequently, the chance for potentially harmful side effects is greatly reduced. This liberal safety margin makes possible the use of a wider variety of more potent medications as compared to those that are available for injectable or oral use. Bronchodilators that are administered through a metered-dose inhaler similarly reach higher concentrations in the lower airways than they do when given orally. Additionally, in the case of some bronchodilator medications, a dramatic improvement in airway diameter can be noted within several minutes after successive puffs are administered. This is especially helpful in the instance where a horse is experiencing respiratory distress (similar to a human

asthma attack) since administration of the same medication via an oral route may take several hours or days to have the same effect.

A practical benefit of inhalant therapy in horses is that it’s a procedure that owners can easily learn and perform themselves; the time commitment is negligible, and since most medications are available at human pharmacies, prescription refills are fast and convenient. The Equine Aeromask (Canadian Monaghan, London, Ontario, Canada) is the most widely used device used for delivery of inhaled medications. It has been available for several years and most horses tolerate it well. The device is a plastic mask that fits snugly over both nostrils and is held in place by an adjustable nylon strap that runs over the poll. There is a port at the “nose end” of the apparatus, into which an inhaler is inserted. The owner then administers two to six puffs of each medication as the horse inspires. The entire procedure only takes several minutes and is typically done twice daily. Manufacturers are in the process of improving the design of this device and a less cumbersome inhaler that is hand-held over only one nostril will soon be widely available. Studies have shown that this device may be capable of delivering up to a five times greater concentration of drug as compared to the Aeromask.

The concept of equine inhalant therapy for lower airway disease is now coming into its own. The medications that are available and the means by which we administer them mirror that of human medicine. Just as inhalers have become life saving devices for people with asthma, we are now able to greatly improve the quality of our horses’ lives in an increasingly safe and effective manner. If environmental management is limited or not adequate to achieve the desired effect alone, the use of inhalant therapy can be essential in helping your companion live a long, happy, productive life.

— Dr. Randy Franz
Burlington Equine Veterinary Services
www.bevet.com

DIGESTION, Continued From Page 1

acids, to be later absorbed and utilized by the horse. The acid in the stomach is produced continuously because of the horse's adaptation to grazing all day. The non-glandular region of the stomach is not as well protected by mucous and cell layers and can be more readily damaged by the acid produced in the stomach, leading to ulcers. Feeding a minimum of 2-3 small forage based meals a day will act as a buffer to that acid and can prevent damage to the lining of the stomach.

Next the food enters the small intestine and the food is broken down into even smaller particles. This allows nutrients to be absorbed across the intestinal lining and into the blood supply. The small intestine is the primary site for digestion and absorption of nonstructural carbohydrates (NSC) such as starches and simple sugars, as well as triglycerides and fatty acids, proteins and amino acids, and several vitamins and minerals. It is also here that any detrimental substances, such as mold or toxins, found in poor quality feeds are absorbed and may cause the horse to become sick. The liver and pancreas aid in the digestion process occurring in the small intestine. The pancreas secretes enzymes that continue protein breakdown and bile continuously secreted by the liver (the horse does not have a gall bladder to store bile) aids in the digestion and absorption of fats. Grains and other feed concentrates often contain large amounts of NSC and are quickly digested and absorbed by the small intestine. When a horse's diet contains too many feeds with high amounts of starches and sugars, some may bypass the small intestine before they are broken down and absorbed and can cause problems later in the digestive tract.

The food next enters the cecum where it may stay and digest for several days. Microbes live in the cecum and help digest fiber by slow fermentation. Microbial

fermentation results in the production of vitamins and volatile fatty acids that are metabolized for energy; these microbes are very important. The microbe populations in the hindgut vary depending on the diet given to the horse, so changing the diet of a horse too abruptly or not feeding the horse to maintain a robust population of microbes can negatively affect digestion. Microbial fermentation of structural carbohydrates such as cellulose, primarily found in forages, takes longer to ferment than NSC's such as starches and sugars. If there is too much grain in the horse's diet, the NSC's in the grain may bypass the small intestine, resulting in the rapid microbial fermentation in the hindgut and causing digestive upset or colic due to lactic acid and gas build-up.

Lastly, the digested food moves on to the large colon, small colon and rectum. The large colon also has the ability to ferment fibrous foods and then absorb these products. The large colon is an important site where water is recycled and absorbed from the digested food help the horse to stay hydrated. When a horse is dehydrated, food blockages can occur and are prevalent in the curvatures of the large colon. Providing an adequate amount of clean water at all times is crucial to digestion. After leaving the large colon, the digesta enters the small colon where further water absorption occurs and fecal balls are formed and then moved on to the rectum and excreted from the horse.

Understanding what is in what you feed to your horse, how and where it is broken down and absorbed is crucial to the health of your animal. Knowledge of equine digestion can help you manage your feeding system to prevent sickness and get the most out of your performance animal.

— *Natasha Repard*
Miner Institute Equine Intern

THANK YOU FOR YOUR FEEDBACK

We recently asked for your feedback to help us get a better understanding of who reads the Stable Sheet and what you are interested in. We appreciate the feedback and article suggestions. We will continue to strive to put together an informative equine newsletter that is valued by our readers.

We learned through the survey that, for most of our readers, horses are a hobby. As far as subject matter is concerned, 91% of responders think horse health is a very important topic; 95% of responders think training is somewhat or very important; 62% of responders think breeding is not important; 95% of responders think management is somewhat or very important; 71% think industry issues are somewhat or very important; and 91% think upcoming events are somewhat or very important.

Here is a sample of some of your article suggestions:

- Laminitis and parasite prevention.
- Driving and show preparation.
- Liability insurance laws in New York State.
- Issues relevant to older horses.
- Skin issues.
- Selenium deficiency/balancing in the Northeast.
- Conditioning for competitive or endurance trail riding.
- Farrier work and foot health.
- Cushing disease and insulin resistance.
- Minimum requirements for attending a H/J show – training, safety concerns, where to go for help.

If you have ideas for articles you feel would be useful, you can email them to Rachel Dutil at dutil@whminer.com or Karen Lassell at lassell@whminer.com.

Thanks for your feedback!

EQUIDAY: EQUINE CONFERENCE AT MINER INSTITUTE IS MARCH 12, 2011

EquiDay 2011 at Miner Institute in Chazy, NY is a daylong symposium on horse topics and a mini-expo to launch the spring season in the North Country. Saturday, March 12 the doors will open at 9 a.m. for FREE registration and refreshments with the speaker program starting at 10 a.m. and continue until 3 p.m. ending with a door prize drawing.

Equine genetics may seem a distant topic while you're cleaning stalls, on the trail ride, or brushing mud off your horse's legs, but its relevance is closer than you think! Dr. Samantha Brooks of Cornell University will discuss some of the groundbreaking and important work that's being done in horse genetics and how important it could be for horses and their owners.

Dr. Betsy Greene, Vermont's Extension Equine Specialist, will be presenting on Biosecurity on the Horse Farm. As a major contributor to the online resource for horse owners, eXtension,

Dr. Greene sees everyday how much the horse industry is connected regionally, nationally and globally. Our horses are at risk for many more diseases than a few generations ago, but fortunately there is much information available to help owners keep farms safe.

When the often heard mantra of "cold hose, bute, and stall rest" doesn't work for a lame horse, it is time to call in the vet to diagnose and prescribe treatment. The good news, as will be presented by Dr. Jenny Wilkinson of UVM, is that there are many new treatments available to help heal a lame horse. Shockwave Therapy used to be available only at larger veterinary hospitals, but as the technology has improved it had become more available locally. Dr. Wilkinson will discuss this and other treatments.

Insulin Resistance. Cushing's and Per-Cushing's Syndrome. Equine Metabolic Syndrome. These are all terms folks have heard, but may not know much

about until they are faced with some of the problems associated with them such as laminitis. Karen Lassell, Equine Manager at Miner Institute, will share some ideas on how to understand the alphabet soup of abbreviations, learning to recognize the symptoms of this "easy-keeper" problem, and ways to successfully manage horses with these problems.

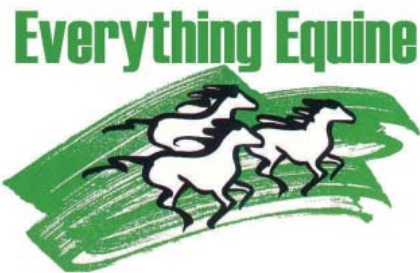
Adirondack Tack of Plattsburgh, NY will once again put on a fashion show and describe the outfits for various disciplines. A good time to find out the latest in what's hot, what's NOT, or simply what's comfortable!

No matter the weather, the show will go on! EquiDay is held in the Miner Center building at Miner Institute at the corner of Ridge Road and Rte. 191, just west of exit 41 off I-87. For more information, visit the website: www.whminer.org, or contact Karen Lassell at 518-846-7121, ext. 120 or email lassell@whminer.com

SAVE THE DATE Everything Equine 2011

"Horses: A Family Affair!"

Everything Equine returns to the Champlain Valley Expo Center in Essex Junction, VT on Saturday and Sunday April 30 and May 1, 2011. Enjoy the beauty and strength of horses through seminars, demonstrations and presentations focused on the equine lifestyle. One of the largest and most popular equine events in the northeast, come spend time with speakers and experts from every phase of equestrian science, industry, and competitive sports.



NY State Horse Council Membership Benefits

- Insurance: \$1M personal liability insurance for each GENERAL member.
- Access to NYSHC's website www.nyshc.org
- Link to your website on our site www.nyshc.org
- Quarterly newsletters
- Discounted advertising fees in the newsletter
- Opportunity to volunteer for committees and become actively involved
- NYSHC Committees include: Safety, Trails, Humane, Racing, Legislative, Legal Affairs, Senior Riding Program, Therapeutic Riding
- Discounted fees at NYSHC annual trail rides and Competitive Trail Clinics held at Otter Creek in June. Check the events page for more details.
- NYSHC works to represent our industry in partnership with:
 - The American Horse Council
 - The American Animal Welfare Council
 - NY State Farm Bureau
 - The Equine Industry Leaders Forum
 - The Empire State Council of Agricultural Organizations
 - NYS Agriculture and Markets
 - NYS Department of Conservation
 - NYS Department of Parks and Historical Recreation

See Page 7 for a New York State Horse Council membership form.

EASTERN EQUINE ENCEPHALITIS & THE ECONOMY

In the state of Michigan, unemployment is in the double digits, industries have been gutted, and horse owners may be failing to properly care for their animals in order to save a few bucks. A recent uptick in the number of Eastern Equine Encephalitis (EEE) cases has led Steve Halstead, the state veterinarian at the Michigan Department of Agriculture, to suggest that cash-strapped horse owners may be skipping necessary vaccinations.

“We have had 133 reports of EEE and 55 of those are confirmed,” Halstead says. “I’m sure that some people who own horses are considering whether they spend the money on the mortgage or on the horses ... and [the number of EEE cases] is unfortunately the impact of having to make those tough financial choices. In 2009, no cases of EEE were reported among horses in Michigan, and only one case was confirmed in 2008.

EEE rates have a cyclic nature, Halstead explains. The prevalence of the virus is influenced not only by mosquito levels, but also by the immunity levels among birds in the region. EEE is most common along the Eastern Seaboard and Gulf Coast,

and, unsurprisingly, many of the cases in Michigan are near the coast of Lake Michigan.

“It’s a dynamic relationship between the birds that are the reservoir, the mosquitoes that are the vectors, and the horses and humans that are the victims,” Halstead says. “Potentially immune wild birds are replaced by their offspring or by migrants that are not immune because they’ve never been exposed to the virus.” It appears the confluence of high mosquito rates and a new generation of birds, along with the economy and the decline in vaccinations, have created an environment in which EEE can thrive.

“After a while vaccines just become routine, and I’m not sure the general public understands the true importance of them,” Hildebrand says. “A lot of the vaccinations are designed to protect humans, and I don’t know if that’s being communicated.” If clients can’t afford to have a vet come out to their property or tow the horse into a clinic, Hildebrand recommends they vaccinate the animal on their own. “It’s not what every veterinarian wants people being told, but our number-one job is to keep the

public safe,” Hildebrand says. “I’d rather they do that and protect the animal than not vaccinate at all.”

While the national economy seems to be rebounding, it will take time for the benefits to trickle down to the animal-care sector, particularly in the hardest hit states. “Michigan was already teetering and had never really recovered from the recession of 2000,” Hildebrand says. “It’s been an almost 10-year recession.” Fortunately, cold weather rolled into Michigan earlier than it did in many states, stamping out EEE’s threat for the year. Nature may have solved the problem for 2010, but veterinarians should direct some effort toward educating patients in order to curb the chance of a EEE resurgence in 2011. “We don’t want folks to forget about it come spring and next summer; it’s always out there,” Halstead says. “We can’t anticipate when it will be a bad year, and if your horse happens to be the first to get it, and tells us it’s going to be a bad year, it’s too late.”

— Chris Sweeney
DVM NEWSMAGAZINE
January 1, 2011

How does trimming or shoeing change a horse’s way of going?

Vermont Farriers Association presents Bob Pethick, CJF with ONTRACK Equine Gait Analysis Software. Saturday, March 26, 2011 from 9 a.m. to 4 p.m. at the Eddy Farm School, 1815 South Street Ext., Middlebury, VT. Join us for an informative hands-on clinic with Bob using the ONTRACK Equine gait analysis software.

Using digital video and stills when assessing the condition and movement of horses has grown in recent years. However equine professionals were still limited by what they could do with digital media. There was the additional need for a practical way to review, document and report this information.

ONTRACK Equine software breaks those limits. Designed for use in veterinary, farriery and training practices, ONTRACK software utilizes video and digital stills with easy-to-use measuring and reporting tools for use when studying gait, lameness, shoeing and equine sports performance.

Bob will take digital pictures and videos of actual horses in the morning, discuss what is seen in the horses and discuss any changes planned and then the horses will be shod. Horses will be re-photographed and videoed; Bob will then compile the information using power point for digital pictures and ONTRACK for gait analysis for an afternoon presentation.

For more information contact Diane Saunders, 1292 South Rte. 116, Bristol, VT 05443 or dlsqrths@gmavt.net or 802-453-3750.

We have 4 spots open for horses at a cost of \$200 for evaluation & shoeing which includes 1 regular clinic participant. There are 8 spots open for hands-on working farriers at \$125 each. Check must be enclosed with your registration for these spots. No refunds unless spot can be filled from a waiting list. Regular clinic participant cost is \$50. Pre-registration guarantees you a clinic spot & lunch. Registration available at the door is an additional \$5. Pre-registration by 3/20/2011.

23rd ANNUAL EQUINE REPRODUCTION WORKSHOP — APRIL 1 & 2, 2011

The UVM Morgan Horse Farm in Weybridge, VT, The William H. Miner Agricultural Research Institute in Chazy, NY and the Middlebury Large Animal Clinic of Middlebury, VT will host the 23rd annual Reproduction Workshop beginning the afternoon of Friday, April 1 and continuing for a full day on Saturday, April 2, 2011.

Dr. Donald Hunt and Dr. Molly Witters are skilled veterinary practitioners in equine reproduction and physiology. They will discuss managing the uses of lights, hormones, and ultrasound in your breeding program, anatomy and physiology of the mare and stallion,

embryo transfer, artificial insemination and foaling/neonatal care. Other topics discussed may include Parasites, Equine Herpes Virus (EHV), and Colic.

The topics covered by Dr. Josie Davis of the University of Vermont's Equine Studies Program and Katie Ballard, Director of Research and Equine Program Coordinator at Miner Institute, will include updates on materials, techniques and procedures for collecting, processing and transporting fresh-cooled and frozen stallion semen.

The staff of the UVM Morgan Horse Farm, Miner Institute and the Veterinarians will

guide workshop participants through hands-on participation and demonstrations of ultrasound, teasing procedures, semen collection and processing, artificial insemination and frozen semen handling. The important step of training the inexperienced stallion to the breeding phantom is also demonstrated.

The registration fee of \$250 includes workshop materials and meals. Door prizes are awarded throughout the workshop. Spaces are limited to 25 participants. Call the UVM Morgan Horse Farm at (802) 388-2011, or email uvm.morgans@uvm.edu for further information.

MAYA: BACK ON HER FEET

Maya (HD Mexico) is now a young 2-year-old filly and is about a year out from check ligament surgery and the follow up stall rest, etc. that went with her procedure for the contracted tendon in her left front foot. Other than a slight lump of a scar at the surgical site, she's 100% normal. The farriers have remarked that if they didn't know better, they'd say her feet matched each other just fine and that she is normal! We understand that not all surgeries are this successful, but we're really pleased that Maya's turned out so well! Odin, our other contracted tendon case, also looks 100% and he was managed strictly through non-surgical practice.



Before surgery



One year after surgery

Visit us online
www.whminer.org





New York State Horse Council, Inc.

2011 Membership Form

www.nyshc.org

Memberships are for the calendar year January 1, 2011 to December 31, 2011

Membership Information (*please print legibly*):

(*Please check one*)

Primary Member _____

Renewal New Membership

Club/Business/Farm Name: _____

Home Address: _____

City: _____ State: __ Zip Code: _____ Phone: (___) ___ - _____

County: _____ E-Mail: _____

NEW MEMBERS: Please check age group of primary member for Vintage Equestrian Program records.

Under age 18: Age 19 – 29: Age 30 – 49: Age 50 – 62: Age 63 and over:

Mark the **NYSHC Chapter** you wish to join. A portion of your dues is transferred to that chapter for local activities.

- | | |
|---|--|
| <input type="checkbox"/> General Membership (<i>no chapter affiliation</i>) | |
| <input type="checkbox"/> New York City | <input type="checkbox"/> Ulster County |
| <input type="checkbox"/> Cattaraugus/Chautauqua Counties | <input type="checkbox"/> Sullivan County |
| <input type="checkbox"/> Orange County | <input type="checkbox"/> Westchester County |
| <input type="checkbox"/> Palisades (Rockland County) | <input type="checkbox"/> Western (Erie/Niagara County) |
| <input type="checkbox"/> Putnam County | |

Memberships

Individual or Family membership includes \$1,000,000 individual 24/7 liability coverage for equine related accidents. Select one of the following:

- Individual - \$55.00 (Includes **one** adult + all children in the household under age 18.)
- Family - \$75.00 (Includes **two** adults + all children in the household under age 18.)
- Life - \$500.00 (Includes **Individual** insurance coverage for one (1) year only.)
- Life Member – Insurance coverage only - \$20.00 for Individual or \$40.00 for Family coverage.

Clubs, Businesses, and Educational Institutions receive one newsletter and one vote at meetings regardless of size. **These memberships DO NOT receive insurance coverage.** Select one of the following:

- Educational - \$50.00 (Recognized equine program)

<u>Equine Club</u>	<u>Equine Business</u>
<input type="checkbox"/> 1 – 50 members - \$ 50	<input type="checkbox"/> 0 - 50 employees - \$ 50
<input type="checkbox"/> 51 – 100 members - \$ 75	<input type="checkbox"/> 51 - 250 employees - \$ 100
<input type="checkbox"/> 101 – 250 members - \$150	<input type="checkbox"/> Over 251 employees - \$ 200
<input type="checkbox"/> 251 – 500 members - \$175	
<input type="checkbox"/> Over 500 members - \$200	

Make check payable to: New York State Horse Council

(*NYSHC is a 501 (c)3 non-profit organization registered with the NYS Attorney General Charities Bureau*)

Mail to: NYSHC Membership
Stephen Ropel
221 New Road
Nassau, NY 12123

Contact: Email: sropel@nycap.rr.com
Telephone: (518)366-8998

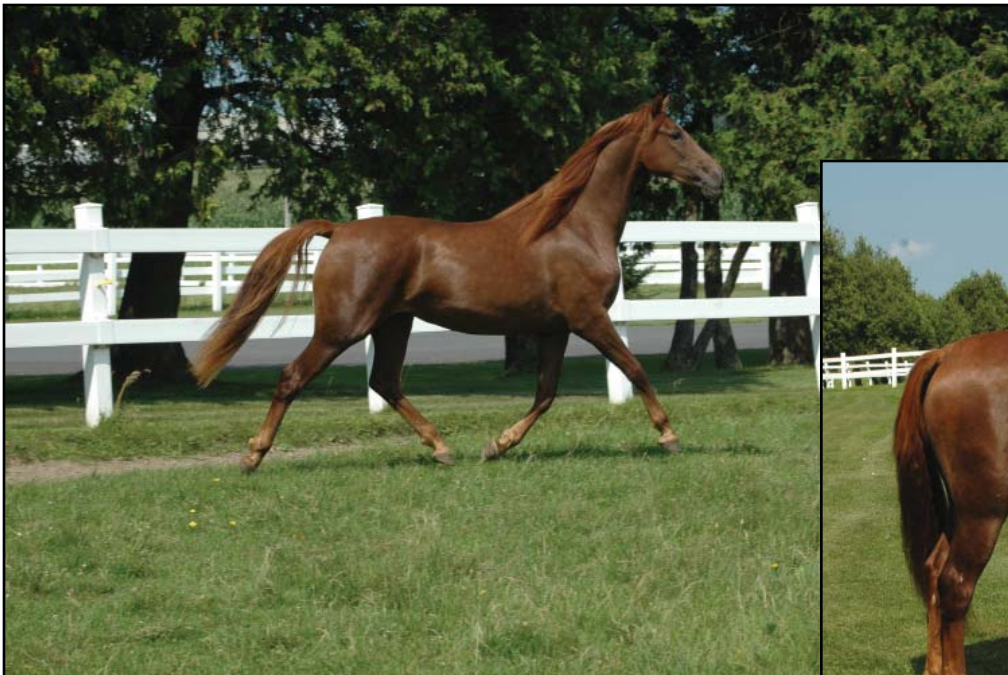


The William H. Miner Agricultural Research Institute
1034 Miner Farm Road
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FEATURED MINER MORGAN: HD AIDEN LAIR



“Lolly” is a 3-year-old mare by Legacy’s Viking and out of HD Massena (UVM Vanguard x Peterbarb Top Delite). Curvy in all the right places and ready to get to work! She’s easy to handle and could do well in western pleasure or as a broodstock for someone seeking lovely old bloodlines! She’ll get started on her saddle career this spring, but would welcome visitors before then...

NYSMHS Futurity Nominated
Sale Price: \$3000

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