THE SCIENCE BEHIND SOME HORSE WHISPERING: OVERSHADOWING

Is overshadowing what that pesky groundhog did in early February? No, but it does relate to spring, or at least spring vaccinations perhaps! Stick with me, folks. There are many ways to train horses to do what we wish or need them to do. I’m always looking for a way that will make it safer and more pleasant for horses and humans alike. While I admire the folks that can just get in there and hang on, I can’t. I need ways to work with the horse to make things happen, such as vaccinate needle shy horses or desensitize a horse that’s quite reactive to stimulus.

Behavioral science recognizes that a horse can learn to become non-reactive to aversive stimulus (scary or seemingly unpleasant things like clippers, fly spray, or vets) through a number of different means. They can gradually habituate to a stimulus if they’re allowed to be exposed to the stimulus, but not prevented from showing fear such as moving away from the object in question. Afraid of flapping tarps? Maybe I’ll try attaching one to the fence of your large, safe paddock, Pony, and I’m guessing that eventually the you’ll get used to the noise and sight of it so much that you might end up even turning it into a toy. With time, some horses decide that it isn’t worth the energy to move away and decide it is OK to stay, but not all horses.

Counter-conditioning is something I’ve often used with things like fly spray. Make the aversive stimulus a predictor of something good. Spritz—treat—spritz—treat and so on. Hopefully, eventually, the stimulus is equated with a good thing vs. something to dislike. Habituation and counter-conditioning can be layered or work together to reduce the fearful responses to scary stuff.

Overshadowing is a process that occurs when two stimuli of different strengths are applied at the same time and typically the stronger stimulus “overshadows” the weaker one, resulting in the weaker one becoming eased. Research shows that the desensitization to an aversive stimulus through overshadowing is retained over time. The method described in the research done at the Australian Equine Behaviour Centre involved beginning with having a horse work in hand with a halter and lead and establish that he would quietly and easily step forward or backward softly from stimulus (cues) given through the lead rope to the halter. Once the horse did this well while standing against a wall in the arena, a second person with the aversive stimulus (for us today, it was a set of running clippers for a...
WHAT’S IN YOUR HORSE’S COAT?

This time of year is full of people beginning to plan breeding crosses for next year’s foal crop. We are all advised to not let color contaminate our dreams as color doesn’t make the horse, but pretty colors are nice to see. All horses are either chestnut or black; every other color is due to a modifier acting on the gene that controls these two base colors: the extension locus. The location of a gene on the chromosome of each horse is called the locus; every horse (in theory) has the same gene at the locus, but the gene may not code for the same thing. For example, the extension locus (controlling the expression of the black or chestnut color) is on the same chromosome in the same spot of every horse, but the color that the extension gene codes for is not the same on each horse, or there would be no variation in color. To get the other main Morgan horse colors (bay and brown), two other modifiers contribute: agouti (for both colors) and mealy (brown only).

A bay horse is a horse with the code for black at the extension locus and the agouti gene activated (a black horse would not have the agouti gene activated). Eumelanin is a pigment that controls the black color in horses, and the agouti gene controls where the eumelanin is activated. On a bay horse, this means that the eumelanin is restricted to the points. Since a black horse does not demonstrate an active copy of the agouti gene, the eumelanin is present all over the body creating the black color. A chestnut horse can have an activated copy of the agouti gene, but since the horse has no black in the coat to restrict to the points, you cannot tell if the horse possesses the gene without genetic testing (UC Davis offers this service) or through careful examination of the horse’s offspring with a strong understanding of genetics.

Darker bays and brown horses carry the active copy of the agouti gene on a black coat base, as well as the “mealy” modification. The mealy modification makes light patches appear on the belly, inner legs, ears, and muzzle. The coat color on the body is not truly black (although it may appear so) since the agouti gene is present. This misleading look has led many Morgans to be incorrectly registered as a color that they aren’t over the years.

Breeding for a specific color can be tricky business, especially without knowing the horse’s specific genetic makeup. There are also many more modifiers present that can change the colors above even more making it that much more difficult to breed for one specific color. Although breeding for a certain color may seem like a shot in the dark, there is actual science behind it! Regardless, the color doesn’t make the horse. Happy breeding!

— Allison Romer

* Allison is a spring semester equine intern at Miner gaining more equine experience. She hopes to study biology in the fall on a pre-veterinary track.

SAVE THE DATE: MINER INSTITUTE OPEN HOUSE
JUNE 25, 2016
12-4 pm

More details coming soon!
EQUIDAY - MARCH 19, 2016
Free & Open to the Public!
Joseph C. Burke Education and Research Center at Miner Institute
586 Ridge Rd., Chazy, NY

AGENDA:

9 – 9:30 a.m.: Registration & Refreshments

9:30 – 10:40 a.m.: Fueling the Equine Engine: Nutrition for Muscle Function, Fuel, & Repair
Joe Monroe, Equine Nutrition Specialist with Nutrena and Progressive Feeds

10:40 a.m.– 11:50 a.m.: Diseases and Vaccines for Horses in 2016
Dr. Philip van Harreveld, Vermont Large Animal Clinic, Equine Hospital

11:50 a.m. – 12:15 p.m.: Lunch Break; Available for purchase

12:15 – 1 p.m.: Adirondack Tack’s Annual Fashion Show
Carol Tetreault, Adirondack Tack

1 – 2 p.m.: Back Country Horsemen of America: What it is, how to get started and why land issues matter to horse owners
Deb Balliet, former CEO of Equine Land Conservation Resource, volunteer President of Saratoga Back Country Horsemen

2 - 3 p.m.: Showmanship 101: Good Horsemanship isn’t only the showing!
Hillary Fay, New England 4-H carded judge

3 p.m.: Door Prize Drawing- must be present to win.

For more information, contact Karen Lassell at lassell@whminer.com or 518-846-7121, ext. 120.
NY FARM BUREAU APPLAUDS SIGNING OF ANIMAL CRUELTY EDUCATION BILL

Animals in this state are the real winners today. Governor Cuomo has signed legislation that will create new educational and training opportunities for law enforcement regarding existing animal cruelty statutes. This will help eliminate any confusion surrounding Agriculture and Markets Law that may hamper both the criminal investigation and punishment of animal abusers.

The legislation will do three main things. First, it allows the NYS Department of Agriculture and Markets (NYSDAM) to develop police training policies in conjunction with the Municipal Police Training Council as they relate to the enforcement of animal cruelty and protection laws. It also requires the Division of Criminal Justice Services to assist NYSDAM in developing information about animal cruelty and protection laws to be used by law enforcement. Finally, that information will be made available in both written and electronic form for use by police agencies, officers, and district attorneys. There will also be coordination among NYSDAM and DCJS to develop training programs as well.

New York Farm Bureau takes the issue of animal cruelty seriously. It is why we partnered with law enforcement and the New York State Humane Association during the legislative session to advocate on the bill’s behalf. And today, we thank the Governor for recognizing the law’s significance and taking action. We also appreciate the efforts of Agriculture Committee Chairs, Senator Patty Ritchie and Assemblyman Bill Magee, to pass the bill through their respective chambers. When abuse happens anywhere, it is crucial for our law enforcement officers and district attorneys to be able to recognize it and prosecute fully, according to the law.

— New York Farm Bureau

* New York Farm Bureau is the State’s largest agricultural lobbying/trade organization. www.nyfb.org

OVERSHADOWING, Continued from Page 1

young horse) walked slowly towards the horse stopping in place the moment the horse showed signs of fear. At that moment that the horse was thinking about moving its own feet to escape the clippers, the handler asks the horse to move back and forward a step or two at a time with little lag between the back and forth. At first, the horse will resist and it may require more intensity of the lead on the halter- this is because the clipper stimulus is taking up some of the horse’s attention; continue to move the horse until the softness of the back and forth returns. The person with the aversive stimulus (me with the clippers) moves in again towards the horse until the horse is ready to (but doesn’t) flee. Aversive stimulus stops, horse handler moves the horse forward and back. Repeat this until you can be at the horse with the stimulus — we ended today’s session with the horse standing quietly with the clippers running held against her neck. When the clippers turned off, I gave the horse lots of generous rubs and scratches at the base of the withers to reinforce the good behavior. They found that it can take several sessions to fully remove the fear reaction to stimuli.

In the article “Overshadowing: A Silver Lining to a Dark Cloud in Horse Training” published in 2008 in the Journal of Applied Animal Welfare Science, Dr. Andrew McLean goes into great detail describing the learning and training of horses used at the AEBC. There he outlines the steps to overshadowing, the science as to why it works and the caveats to watch for such as extreme fear or what mistakes can cause the overshadowing to not go as you thought it might.

Back to spring vaccines; does your horse not like needles? Or associate the veterinarian with discomfort? Maybe this is a way to try working through those issues without so many struggles and it is a great way to spend time with your horse while we wait for Spring to spring!

— Karen Lassell

lassell@whminer.com

Reprinted with artist permission.
Horse people are notorious for stretching a dollar; fix it with a little baling twine and duct tape, and do not throw anything away because you never know when you might need it! However, when it comes to feeding horses, owners may be spending more money than necessary. One way to fix this is to have hay tested. Once you know exactly what nutrients your hay contains, you may find that those expensive supplements and fancy bagged feeds are no longer necessary.

In addition to saving money, having your hay tested is also important to your horse’s overall health. Horses require 1.5-3% of their body weight in forage daily. Throwing a few flakes to your horse everyday will probably keep him or her alive, but chances are it won’t allow your horse to reach optimum health and performance. Knowing what your hay contains will allow you to properly balance your horse’s diet and ensure all nutrient needs are met.

For a hay sample to be truly representative, randomly select 12-20 bales and take core samples of each one. Place each sample in its own labeled plastic sample bag and mail those, along with the sampling sheet, to the lab you choose to use. Equi-Analytical is a lab commonly used for equine-specific results. Once you receive your results, deciphering and figuring out how to apply them can be difficult. You will be given numbers on an “as sampled” and “dry matter” basis. Either can be used when ration balancing as long as one is used consistently. For assistance balancing rations contact your local feed rep. Most importantly, always remember to feed each horse as an individual. Below are a few key components to focus on when reading your hay analysis.

**Digestible Energy (DE), Mcal/lb:** This is the amount of energy available to the horse. Energy is expressed in megacalories per pound. An average horse in light work should consume about 20 Mcal per day. Hay samples on average contain .76 to .94 Mcal/lb of DE.

**Crude Protein:** Crude protein is a measure of the total protein concentration in the sample. It generally ranges from 8-14% in grass hay and 15% to more than 20% in legume hay. Most horses require approximately 10% crude protein daily or around 600 grams of crude protein.

**Acid Detergent Fiber (ADF):** ADF refers to the lab process used and is a measure of cellulose and lignin. The higher the ADF value, the less digestible the hay is for the horse. Values below 35% are considered good.

**Neutral Detergent Fiber (NDF):** NDF also refers to the lab process and is measure of insoluble fiber consisting of the cell wall or structural carbohydrates. The higher the NDF, the less likely the horse is to consume the hay. Levels between 40 and 50 are considered good, and hay containing levels above 60 will not likely be consumed.

**Non Fiber Carbohydrates (NFC):** This is a mathematical estimate of starch, sugar, pectin, and fermentation acids and is a readily available energy source for the horse. For horses with metabolic disorders such as insulin resistance or laminitis, an NFC of 12% or less is often recommended.

Different hay tests can tell you more detailed information on specific vitamin and mineral levels you are interested in. Once all the results are analyzed, you can determine whether you need to supplement your horse with a ration balancer, a different type of grain, or specific supplements. Computer programs make this easy and consulting with your feed rep is also a good idea. Here at Miner, we only feed most of our easy-keeper Morgans a half pound of a ration balancer concentrate daily: Poulin’s MVP.

Make testing your horse’s hay part of your annual routine to ensure their health and well-being as well as make sure you aren’t spending unnecessary money. Contact your local extension office, feed dealer, or us here at Miner with any questions!

— Shannon Heibeck
heibeck@whminer.com

Miner Institute was the host site for a Feb. 27 “Farming in the Basin” seminar on Matching Hay to your Horse. The seminar had nearly 50 participants and was supported by NEIWPCC (New England Interstate Water Pollution Control Commission), Lake Champlain Basin Program, Cornell Cooperative Extension, Clinton County Soil & Water Conservation, and Miner Institute. Materials from the seminar are available online at lcbp.org.
There was a large volume of traffic on State Route 28 due to the Governors Challenge weekend. That traffic had begun to back up which had caused a minor issue with me getting to the scene. Upon my arrival at the scene I observed a mangled pickup truck that was connected to a large horse trailer that was upside down in a ditch. The trailer was wedged down in a trench at an angle so you couldn’t just walk straight in. Looking into the trailer, I recall seeing four very large horses tangled up with each other,” said Patrol Officer Matthew Fish of the Warren County Sherriff’s Department.

“There were already a couple of people attempting to help get the horses out, but with no success,” Officer Fish remembered. “I radioed Headquarters to attempt to make contact with a vet to respond to the scene to provide assistance. A short time later I was advised that there were no such resources at our disposal.” The horses ranged in age from mid-teens to early 20s and each weighed around 2,000 pounds.

Melissa says that she doesn’t know how she and George were able to get out of the truck. Even though George was bleeding from scrapes on his head, his primary concern following the accident was the horses. “There was no movement coming from the trailer,” he said.

On the hot July day of the accident, it was more than 100 degrees in the trailer, George remembered. Volunteers used a hose from a responding fire truck to cool the horses in the trailer while they worked to get them out. Star was the last horse out. She had been stuck in the nose of the trailer on her back with no way to roll over. Country Dreams’ horses wear collars rather than halters. So George was able to put one rope on Star’s neck collar and another rope on her two front feet. Dozens of volunteers pulled on the rope and were able to pull her up and over so that she could stand up and get her weight under her. “It looked like a tug of war,” George said.

Officer Fish had radioed Headquarters advising them to contact Circle B Ranch, a horse farm about 20 minutes from the scene. Nancy Johnson from Circle B brought a horse trailer and plenty of equine medical supplies to the scene. The horses recovered at Circle B Ranch for several days after the accident. Two horses needed stitches, and one suffered a puncture wound on the shoulder. Dr. Kerry Alexander from Saranac drove to Circle B Ranch to provide care for them and ensure that there were no injuries more serious than first assessed, which luckily was the case.

“The scene upon my arrival was pretty chaotic. Original location for emergency personnel. A resident came by and was able to pinpoint their signal was not strong enough to pick up a GPS cell phone so that Melissa could call 911. They fortunately had cell phone service and lent a phone to Melissa so that she could call 911. The truck was on its side, the truck sideways. The truck rolled four times.

“The scene upon my arrival was pretty chaotic. “It was horrendous,” George added.

Some motorcyclists from Tennessee were traveling behind them and saw the accident. “They were sure they were coming on dead people,” Melissa said of the motorcyclists, who fortunately had cell phone service and lent a cell phone so that Melissa could call 911. They had no idea where they were, and the signal was not strong enough to pick up a GPS location from the phone. Eventually, a local resident came by and was able to pinpoint their location for emergency personnel.

“The scene upon my arrival was pretty chaotic. There was a large volume of traffic on State Route 28 due to the Governors Challenge weekend. That traffic had begun to back up which had caused a minor issue with me getting to the scene. Upon my arrival at the scene I observed a mangled pickup truck that was connected to a large horse trailer that was upside down in a ditch. The trailer was wedged down in a trench at an angle so you couldn’t just walk straight in. Looking into the trailer, I recall seeing four very large horses tangled up with each other,” said Patrol Officer Matthew Fish of the Warren County Sherriff’s Department.

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“Here in Warren County we have several large horse farms and many smaller horse farms that add a large amount of trailered horse traffic to our roadways. Having horse vets that are willing to be on call and farms that are willing to participate in being on call to provide aid if such an event happens again will allow us as first responders to get aid to the scene more quickly and thus help us do our jobs better,” Officer Fish said. “I feel that our ability to work together with so many different aspects of responders was what allowed us to get all of the horses out of the mangled trailer alive. We spent hours on the scene working with North Creek Fire and North River Fire who utilized the Jaws of life to try cutting sections of the trailer away. NYS DOT assisted with shutting down traffic and trying to get heavy machinery into the scene. Mueller and Sons Towing responded and assisted with getting the trailer level to help the horses get out and of course Circle B Ranch who responded to the scene and transported the horses,” he said.

The real takeaway for Melissa and George is to be prepared. “Never get behind the wheel until you’ve double checked everything,” George cautioned, adding that they had done all the right things and likely would not have prevented this accident even with an additional thorough check before departing. “Triple check your insurance,” Melissa advises. “There is a major misconception in the horse world that a trailer is covered by the insurance of the vehicle towing it. There is no collision coverage implied at all unless it is explicitly listed on the insurance policy,” she said.

Melissa and George are both incredibly grateful to all the passersby who came to their aid and to the Warren County Sheriff’s Department and Circle B Ranch. They both consider themselves “very fortunate” to have walked away from the accident with their own lives and those of their horses. They credit the quality of the trailer and the calmness of the horses for saving their lives. They had no warning the accident was imminent and therefore didn’t tense up, so that likely worked in their favor also.

—Rachel Dutil
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Learn more about Country Dreams Farm by visiting https://www.facebook.com/CountryDreamsFarm/
**FOCUS ON FEET IN MAY!**

**Friday, May 13: 6 to 8 pm**

Hoof Health Basics for the Horse Owner. A presentation by Dr. Sammy Pittman at the Joseph C. Burke Education and Research Center (586 Ridge Rd., Chazy). Pre-registration is not required, but an RSVP is appreciated for planning purposes. $5 per person, free for 4-H members. Light refreshments will be served. Let Karen know you’ll be there! lassell@whminer.com or 518-846-7121, ext. 120

**Saturday, May 14: 9 am to 5 pm**

*Equine Podiatry Clinic with Dr. Sammy Pittman: Focus on Navicular Syndrome (For Farriers and Veterinarians)*

Understanding lower limb anatomy allows the farrier and vet team to design a shoe that will unload the painful interaction between the navicular bone, flexor tendon and supporting ligaments of the navicular bone.

Morning lectures in a comfortable presentation room will cover diagnosing and evaluating the horse and the mechanics of a therapeutic shoe in managing the navicular case. A hearty lunch will keep you energized through the afternoon which will feature supporting demonstrations on live horses in the classroom of the horse barn. Improved diagnostics of recent years and advances in the understanding of hoof mechanics lead us as professionals to seek better ways to treat our clients’ horses from the ground up. $65 if pre-registered by April 30; $85 after May 1. Contact Karen at lassell@whminer.com for more info or download the forms at www.whminer.org

Sammy L. Pittman, DVM of Innovative Equine Podiatry and Veterinary services, PLLC in Collinsville, TX, graduated from Oklahoma State University College of Veterinary medicine in 2003. He began shoeing horses growing up in a ranching environment and continued throughout college and vet school. Furthering his equine podiatry education, Dr. Pittman has studied extensively under Dr. Ric Redden of the International Equine Podiatry center in Versailles KY. See www.innovativeequinepodiatry.com for more information about Dr. Pittman.

Additionally, on May 14, Miner Institute will host the Fourth Annual Strides for James 5K/10K charity run/walk. This is a great event that raises money for the James Dean Wilson Memorial Scholarship at Clinton Community College. Learn more about the event and register at http://stridesforjames.org/aboutus.

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**28TH ANNUAL EQUINE REPRODUCTION WORKSHOP**

**April 8-9, 2016 at the UVM Morgan Horse Farm**

Lecture, procedures, and techniques taught by experts from:

- Miner Institute
- Balanced Rhythms, Inc.
- Meadowbrook Equine
- UVM Animal Science Department
- UVM Morgan Horse Farm

The staff of the UVM Morgan Horse Farm 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 $260 registration fee includes workshop, materials, and meals.

Spaces are limited to 25 participants.

For more information or to register, email uvm.morgans@uvm.edu or call 802-388-2011.
FEATURED MINER MORGAN:
THE RINGO KID

The Ringo Kid (MSMF The Brass Ring x Jadine) is a 2007 Buckskin gelding that came to Miner through the generous donation of a long-time friend of the equine program working with one of the Morgan Horse rescue groups, Forever Morgans. He’s as sweet as they come and has added a welcome change to the color palette of bay and chestnut to the boys’ pasture. As part of the horse offerings at this summer’s open house on June 25th, we’ll have a “Kissing Booth” and give visitors a chance to get up close and personal with a few Miner Morgans with a donation jar for those kisses. All proceeds of the Kissing Booth will go to a Morgan rescue, so come to Kiss early and Kiss often!

The Ringo Kid is seen here with Kim Farnum, who was a summer experience in equine management student and later the year-long intern in 2012. Kim is now a field advisor for New York Farm Bureau.

Learn more about the Miner Morgans at www.whminer.org/equine.html