U of M Horse Newsletter

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Research Update: Bodyweight Estimation

Excessive bodyweight has become a major health issue in the equine industry. The objectives of the study, conducted at he University of Minnesota, were to determine if the addition of neck circumference and height improved existing bodyweight estimation equations; develop an equation for estimation of ideal bodyweight; and develop a method for assessing the likelihood of being overweight in adult equines.

In 2011, 629 adult horses and ponies were measured and weighed at two horse shows in Minnesota (WSCA Champ Show and State 4-H Horse Show). Personnel assessed body condition score (BCS) on a scale of 1 to 9, measured wither height, body length from the point of shoulder to the point of the buttock, neck and girth circumference, and bodyweight using a livestock scale. Individuals were grouped into breed types and equations for estimated and ideal bodyweight were developed. For estimated body weight, the model was fit using all individual equines. For ideal bodyweight, the model was fit using only individuals with BCS of 5. Breed type, height and body length were also considered as these measurements are not affected by fat deposits. Finally, a bodyweight score to assess the likelihood of being overweight was developed and standardized using horses with a BCS of 5.

Breed types included Arabian, stock and pony. Mean BCS was 5.6.

Bodyweight (lbs) was estimated by taking girth $(in)^{1.486}$ x length $(in)^{0.554}$ x height $(in)^{0.599}$ x neck $(in)^{0.173}/119$ (Arabians), 119 (ponies) or 114 (stock horses). Ideal body weight (lbs) was estimated by taking length (in) x 15.65 + height (in) x 23.47 – 1,344 (Arabians), 1,269 (ponies) or 1,333 (stock horses).

Equines with a BCS of ≥ 7 had a greater likelihood of being overweight and the model suggested cutoffs at the 48th and 83rd percentiles for underweight and overweight horses, respectively. In conclusion, body measurements were successfully used to develop equine bodyweight-related equations.

To encourage use of the equations, the research team developed a mobile app for Apple and Android operating systems. Users enter the body measurements and the app calculates estimated and ideal bodyweight and a bodyweight score. Information on the "Healthy Horse" app can be found here. *Summarized by Krishona Martinson, PhD, Univ. of Min.*

Preservative Use in Hay

In years when the weather will not cooperate for hay making, it is common for farmers to use preservatives to help prevent mold formation in hay.

Researchers have found that when given a choice, horses preferred hay that was not treated with a preservative over hay that had been treated with a preservative. However, horses will readily consume treated hay when a choice is not given. Yearlings receiving hay treated with a preservative consumed and gained just as much over the trial period as yearlings consuming untreated hay. Clinical measures of well-being were not affected by consumption of preservative-treated hay, indicating the preservative had no negative effects on the horses. Therefore, feeding horses hay treated with preservatives is a safe and common practice, especially in years when poor weather conditions exist for making hay. *Summarized by Krishona Martinson, PhD, University of Minnesota*

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Upcoming Events

5th Annual Horse Forage Field Day
Wednesday, August 20
6:30 to 8:00 pm
St. Paul Campus
$15 per person
To register, visit:
www.regonline.com/HorseFieldDay2014

Lunch and Learn Webinar
September 10, 2014
Noon - 1:00 pm
"Equine Winter Care"
presented by Abby Neu,
Univ. of Minn. Extension

75th Annual Minnesota Nutrition Conference
September 17 and 18, 2014
Mystic Lake Casino
Prior Lake, MN
For more information, visit
www.mnnutritionconf.umn.edu
Full day equine session on September 18, 2014

Visit our **Facebook** page for "Research Update Monday", "Tip of the Week Wednesday" and "Friday Funny"

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Ask the Expert: Hay Consumption

By: Krishona Martinson, PhD, Univ. of Minn.

Question: How many square bales does a horse eat a day. Is it necessary to have hay/feed in front of a horse all day.

Answer: It is difficult to estimate how many small square-bales of hay a horse needs each day since bales vary in size and weight. Its better to feed based on weight. The average adult horse required about 2% of its bodyweight in feed (hay plus grain) each day. For example, a 1,000 adult horse at maintenance would require 20 pounds of feed daily. If your small square-bale weighs 40 pounds, then the horse should be fed half the bale each day. If the bale weighs 80 pounds, then one quarter of the bale would be required each day.

If you are feeding grain, then subtract that amount from the hay meal. For example, if you are feeding 5 pounds of grain, then reduce the amount of hay fed by 5 pounds. Using the above example, the hay ration would then be reduced from 20 to 15 pounds. Adding the 5 pounds of grain to the 15 pounds of hay fed daily would help ensure the horse was receiving 2% of their bodyweight in feed each day. It is also a good idea to assess horse body condition each month and adjust the amount of hay (and grain) fed as needed.

It is not necessary for horses to have feed in front of them all day. In fact, this practice can lead to obesity if high quality, energy dense feed is offered without sufficient exercise. Feeding 2 to 4 small meals throughout the day, that equal 2% bodyweight, is ideal since horses evolved to consume several small meals throughout the day. However, feeding more than two meals throughout the day is not feasible for many horse owners. One management method that has proven to extend foraging time while allowing horses to remain on a controlled diet in the use of slow feed hay nets. A recent study at the University of Minnesota found that horses took 3.2 hours to consume a hay meal when fed off the stall floor and 6.5 hours to consume the same hay meal when fed from a slow-feed hay net. Researchers concluded that slow-feed hay nets represent simple and affordable management tools for extending foraging time when meal feeding horses. For more information on the hay net study, click here.

Anaplasmosis in Horses

By: Julia Wilson, DVM, MN Veterinary Medical Association

Anaplasmosis is the tick-transmitted disease that most commonly causes illness in horses. The causative organism, *Anaplasma phagocytophilum*, is a bacterium that was previously called *Ehrlichia equi*, hence the persistent older disease name, equine ehrlichiosis. Ticks can also transmit this organism to humans and other animal species, including dogs and livestock, resulting in similar clinical illness.

Most commonly, the bacteria are transmitted from small mammals such as deer mice and wood rats via deer ticks, which may also be infected with the bacterium causing Lyme disease, *Borrelia burgdorferi*. In horses, clinical signs of anaplasmosis usually appear 10-45 days after infection. Fever is typically accompanied by limb swelling, and the appearance of small hemorrhages on the mucous membranes of the nose, mouth, eyes and/or vulva. Much less commonly, signs of incoordination, muscle inflammation or digestive tract pain may be observed.

Diagnosis is based on clinical signs in a horse with possible tick exposure during warm weather. The veterinarian attending the horse may confirm the diagnosis by drawing blood to assess the platelet count (cells responsible for clotting) which are usually low, and to look for the organism in white blood cells, particularly neutrophils. At the time the horse shows signs of illness, a raspberry-like structure called a morula may be observed in some of these white blood cells of an infected horse. Blood can also be sent off to a lab for molecular tests for the organism or looking for antibody, but this is seldom necessary.

The disease can be fatal if not treated. Antibiotic treatment is usually very effective if the horse is treated soon after the signs of illness begin. The antibiotic of choice is oxytetracycline, which is administered intravenously at least once a day for 5-10 days. Oral doxycycline may be recommended either following initial oxytetracycline treatment, or in settings where daily veterinary visits are not feasible. Both antibiotics carry a slight risk of causing diarrhea. Relapses may occur if antibiotic treatment is too short. Other supportive care, such as nonsteroidal anti-inflammatory drugs (NSAID, eg. Banamine), and leg support wraps, are often employed.