



# Horse Bits

Horse Industry Newsletter-May/June, 2009



Dr. Dennis Sigler, Editor  
Extension Horse Specialist  
Texas A&M University

## More Research on Effect of Body Condition on Reproductive Performance

Early research at Texas A&M, by Dr. Don Henneke, pointed out the importance of having mares in good body condition prior to breeding to increase reproductive efficiency. A reduction in conception rate in mares in thin body condition has been well documented. In a study involving 927 mares on 5 different breeding farms, only 71% of mares in a body condition score (BCS) of 4 or less conceived, while 93% of those in a BCS of 5 or above conceived. Those in the thinner group also took 2.8 cycles to get in foal, while those in better condition only took 1.4 cycles per conception. The difference in 1.4 cycles is about 30 extra days spent on the breeding farm, at an additional cost of \$240 to \$360 in boarding costs, for mares in thin condition.

Recent published research by Dr. Clay Cavinder, Texas A&M Department of Animal Science, further emphasizes the importance of keeping broodmares in proper body condition in order to avoid problems with rebreeds after foaling. In this study, mares in fleshier condition tended to lose less total body fat and thus maintained better condition if foaling in a BCS of 7 to 8 versus a 5 to 6. The significance of these results reassures breeders that mares in a fleshier body condition are not prone to demonstrate sub-fertility. Mares benefit by foaling at a BCS of at least 6 in order to avoid diminished reproductive capability that may result from the loss of body fat that occurs at parturition and in early lactation. Breeders may want to re-adjust their sights on how much condition to put on the mares going into the breeding season. (Journal of Professional Animal Science, 2009).

## Research on Horse Transportation

The welfare and well-being of horses during transport is an important concern in the equine industry. Studies in the Animal Science Department are continuing to investigate the stress of hauling. Recent research at Texas A&M by graduate student, Shannon Garey and Dr. Ted Friend, studied differences in stress between horses transported for 6 hours in individual stalls versus those animals that were transported in loose groups. Results indicate that transport, in itself, is a significant stressor for all horses. However, there were no differences between stress indicators for horses transported in individual stalls versus horses transported in loose groups. Additionally, the horses were evaluated under group paddock housing and individual stall housing conditions. Horses which were individually stalled had higher stress indicators prior to transport than those who were group housed in paddocks. From these results, horse owners should be encouraged to continue transporting their animals in either individual slants or in a group, whichever the horse is accustomed to, but to take into consideration that the transport experience, in itself, is a stressful one for the horse. In addition, group housing, whenever possible, would be beneficial in lowering horses' underlying stress.

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## CEM Update

Texas stallion and mare owners need to be aware of the continuing investigation into contagious equine metritis (CEM). CEM causes abortion in mares and can be passed during natural service from infected mares or stallions or artificial insemination from infected stallions. According to the USDA, the investigation now includes more than 820 exposed or positive horses.

The investigation began in mid-December 2008, when a Quarter Horse stallion on a Kentucky farm tested positive during routine testing for international semen shipment. According to the USDA's Animal and Plant Health Inspection Service (APHIS), as of May 1 the positive horses included 18 stallions and five mares. In addition to these horses, they had confirmed the locations of 797 exposed horses. The 820 horses were located in 48 states, including Texas. There were 171 exposed or positive stallions in 27 states and 649 exposed or positive mares in 45 states. Authorities were still actively tracking six exposed mares and four exposed stallions.

An exposed horse is one that was bred to a positive horse, either naturally or via artificial insemination, or one that is otherwise epidemiologically linked to a positive horse, as determined by animal health officials. Of the 171 stallions involved, a total of 41 had completed their entire testing and treatment protocol and been determined to be negative for *T. equigenitalis*. Of the 649 mares, a total of 365 had completed testing and treatment.

## Improper use of Nutritional Supplements

The recent death of 21 polo horses in Florida substantiates the widespread over use of supplements in the horse industry. A simple mixing error may have resulted in poisoning of the horses because of an overdose of selenium. Selenium is one of the rare trace minerals that is required by animals, but that has a very narrow range of safety. It can be toxic at about 10X the recommended level. Selenium plays an essential role in the body as an antioxidant. Selenium along with vitamin E is required to prevent peroxidative damage to cell membranes due to excess lipid peroxides in the system. It is essential to prevent such maladies as white muscle disease, but also plays an important role in maintaining the normal immune status of animals and humans as well. With the narrow range of safety, however, selenium can be toxic at fairly low levels in the diet. Because of these toxicity concerns and environmental issues, the FDA actually regulates the amount of selenium which can be added to the daily rations of horse to no more than 0.3 mg per kg of added selenium in the diet. Feeding 3 mg per kg of diet can be toxic. In injectable forms, the safety range of selenium is even more critical.

This latest unfortunate mishap points out the importance of horse owners getting on a good balanced feed ration, that has been properly formulated by a professional and leaving it alone. Properly balanced feeds have been formulated to more than meet the needs of the class of horse for which it is intended. Further supplementation is usually not needed, is often a waste of money and may even be harmful, if total nutrient intake from all sources is not considered.

## Exercise and Heat Stress May Affect Reproductive Efficiency in Mares

Research on the effect of heat stress on uterine environment and embryo survival is ongoing, lead by Dr. Martha Vogelsang in the Department of Animal Science, Reproductive Physiology Section. Previous research by Dr. Chris Mortensen, former graduate student, showed that with an average increase of rectal temperature during exercise of 1.9° C, mares produced smaller follicles and had a longer time to ovulation following PGF<sub>2α</sub> injections. Mares in the exercised group also had lower embryo recovery rates than controls, 34% vs. 68%. This study indicated that the increase in body temperatures in exercising mares in hot, humid environments may be associated with changes in ovarian follicle development and a reduction in embryo recovery. (*J. Animal Repro. Sci.* 2009 110:237)

Current research is focusing on the effects of exercise and changes in body temperature on measured uterine temperature and how these changes affect hormone secretion and cyclic activity in the mare. Preliminary data indicate that environmental stress and exercise can produce heat stress in mares and this may affect reproductive efficiency. Work is ongoing to find the best methods for continual monitoring of body temperature. Several different monitoring devices have been investigated and compared to rectal temperatures. The goal of current research is to determine how fluctuations in body temperature affect reproduction. Researchers are not suggesting at this point, that mares in embryo transfer programs not be exercised. More work needs to be done, however, to determine the extent that these mares can be worked or subjected to heat stress without comprising cyclicity and embryo health. Results of these studies will be coming in future reports.

**For more information contact:**

**Equine Extension**

**Department of Animal Science**

**2471 TAMU College Station, TX 77843-2471**

**(979) 845-1562**

**<http://animalscience.tamu.edu>**

## Snake Bite Cautions for Horse Owners By Ginger Elliot, DVM, Guthrie, Texas

Spring and summer months bring an increase in horse activities and the end of hibernation for rattlesnakes. As they begin to emerge and leave their dens, until their return during cooler fall weather, this movement and activity increases the incidence of horses bitten by rattlesnakes. Of the 27 species of rattlesnakes in the United States, 11 are found in Texas. The Western Diamondback Rattlesnake and the Prairie Rattlesnake are the most common rattlesnakes found in the western part of Texas where veterinarians treat an average of about 6 – 10 cases per year. Over 90% of these bites occur on the face, primarily the nose, in pastures or fields while the horse is grazing. They can also receive some nose bites when the horse gets curious to the sound, site and smell of the rattlesnake. The second most common bite site occurs on the lower limbs. Rarely, horses may be bitten on the chest, abdomen, upper legs or other locations while the horse is lying down.

Rattlesnake venom contains many myotoxins and hemotoxins. Localized signs of rattlesnake bites include significant to severe swelling, pain, and bleeding at the bite site, with significant tissue damage. Horses become lethargic and usually have difficulty breathing. Occasionally, systemic signs such as dehydration, fever and irregularities in heart rate and rhythm can be present. Shock rarely occurs. Severity of reactions may depend on the amount and concentration of the venom injected by the snake. Size, species, health, age of snake and condition of its fangs also can affect the outcome of the bite.

When a horse receives a rattlesnake bite, keeping the horse from moving or becoming excited prevents further absorption and circulation of the venom. This also limits further increases in respiratory rate through a horse's restricted air passages. Most facial bites usually resolve with early treatment but an average of 20% of leg bites can result in chronic problems such as lameness or infection. Rare long term complications include cardiac disease. Medical treatment is aimed at ensuring that the horse has adequate breathing capabilities. Cut off garden hoses or syringe cases can be placed a distance up the horse's nostrils to open up the airways. Although this technique can be a useful tool, some horses won't tolerate it because their nose is too painful and/or they are frightened by the procedure. Medications used by veterinarians include steroids and non-steroidal anti-inflammatory drugs to decrease swelling around the bite site. Tetanus prophylaxis also is indicated. Antibiotics are used as well as local wound therapy on leg bites. Wetting hay and feed for horses with facial bites can help them eat.

## National Reining Horse Association Judging Seminar

The Texas A&M Equine Science Section, in conjunction with the Heart of Texas Reining Horse Association, will be hosting its first ever National Reining Horse Association judging seminar. The 2-day seminar will be held on the campus of Texas A&M University on August 29th-30th. The seminar will be conducted by an approved NRHA clinician and will cover the basics of judging a reining horse run along with in-depth discussion concerning penalties and maneuvers. In addition to providing information on what the judge is looking for in a reining run, participants will have the opportunity to complete the NRHA judges exam in hopes of passing and attending an NRHA approved school. The cost of attendance is \$65 and those who wish to test must pay an additional \$100 and be a current NRHA member. For more information please contact Dr. Clay Cavinder at (979) 845-7731 or by email at [cac@tamu.edu](mailto:cac@tamu.edu).

**Previous issues of Horse Bits can be found at:**

**<http://animalscience.tamu.edu/academics/equine/horse-bits/archives-horse-bits/index.htm>**