

# ANIMAL SCIENCE E-NEWS

October 2009

Vol. 2, No. 4

## Inside:

- Calves Leaving the Ranch at Weaning Get Sick
- Comparing Hay Feeding Methods
- Arkansas Milk Stabilization Board Update

## Laminitis – Signs to Watch For

Jeremy Powell, DVM, Ph.D.

Laminitis is a painful lameness condition that can affect any breed of horse or pony. Although the exact mechanics of the ailment are debatable, laminitis will result in inflammation and a compromise of blood flow to the sensitive and insensitive laminae of the horse's foot. The laminae are important interwoven structures in the foot that secure the coffin bone to the hoof wall. In chronic, long-term cases, the coffin bone can rotate downward away from the hoof wall. These more severe cases that include rotation of the coffin bone are more commonly referred to as "founder." Laminitis can affect one foot or multiple feet, and it most commonly occurs in both front feet at the same time.

Many different factors can initiate a chain of events leading to laminitis in a horse. Overconsumption of grain is a common cause of laminitis in horses. Laminitis due to an overconsumption of grain usually occurs 12 to 18 hours after the grain is consumed. Other potential causes of laminitis in horses include repetitive concussion of the hoof sole on a hard surface ("road founder"), overloading a healthy leg when the opposite leg has been injured,

retained placenta/abortion, certain drugs or toxins and other medical conditions such as Cushing's disease. Another cause of laminitis that can occasionally be overlooked is the overconsumption of lush forage. This typically occurs in the spring, when forage available for grazing is most nutrient dense. The amount of grass consumed by a horse can also be difficult to judge because much of it can be eaten as quickly as it grows and consumption may never be observed by the owner. One other cause of laminitis is a toxin found in black walnut wood shavings. Therefore, never use black walnut wood chips for stall bedding.

A horse exhibiting signs of acute laminitis may be very reluctant to move due to the pain in the horse's feet. If the horse does move, obvious lameness can be observed. The horse may stand in a leaned back position (see Figure 1) to try and remove pressure from the front feet. Upon closer inspection, heat may be felt in the hoof along with a bounding digital pulse. Due to the pain, the horse may act anxious or exhibit signs of sweating, trembling and increased respiration rate. The horse's gums and mucous



Figure 1. Stance commonly noted with acute laminitis.\*

membranes may have an off-color appearance.

If your horse exhibits signs of laminitis, contact your veterinarian. Medications provided by a veterinarian can control pain, reduce inflammation and speed recovery to limit the potential for long-term damage to the hoof. Stall rest is usually mandatory. Deep stall bedding should be provided to improve comfort. If the horse is reluctant to move, do not force the horse to move. Too much movement can exacerbate rotation of the coffin bone. For more chronic cases of laminitis, other treatment options may be indicated. Chronic cases may require corrective shoeing and more frequent trimming of the hooves. Your veterinarian can advise you on diet changes that should be initiated and if the horse will require special shoes.

\*Picture provided from American Association of Equine practitioner web site and Dr. Rustin Moore.

The prognosis for laminitis can be variable, but the prognosis is highly correlated to the degree of rotation of the coffin bone. Typically, as lameness worsens and rotation of the coffin bone increases, the hope for recovery deteriorates. Horses may or may not eventually recover from a laminitic episode. Some horses that suffer laminitis can recover

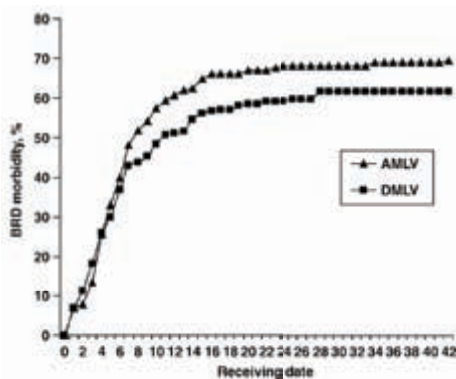
and be a rideable horse again, while others may only be used for breeding purposes. However, if laminitis persists longer than 10 days, the chances of recovery are unlikely. Also, if rotation of the coffin bone penetrates the sole, commonly referred to as a “sinker,” chances of recovery are poor. Horses that are suffering with laminitis that do not have a

favorable chance of recovery should be humanely euthanized. Your veterinarian can watch the horse’s progress and adjust treatment accordingly, giving the horse the best chance of recovery. For more information about horse diseases and horse management, contact your county Extension office.

## Calves Leaving the Ranch at Weaning Get Sick

Shane Gadberry, Assistant Professor

Any stocker operator can attest that management is everything during the first couple of weeks upon receiving cattle. These calves have just undergone the most stressful activity in their life – weaning. Not only have these calves experienced weaning but also transport, marketing, co-mingling and finally being placed in a distinctly different environment. Unfortunately, these stressors create challenges to the immune system, and calves may not have been immunized prior to weaning to protect them against viral diseases. When increased stress is combined with poor immunization, calves become sick. A study conducted in 2007 at the University of Arkansas Livestock and Forestry Branch Station near Batesville observed a 50% occurrence in calf illness within the first 7 days following arrival. Calves were considered ill and were treated with an injectable antibiotic when rectal temperature measured 104° F+ (101.7° F normal). Total incidences finally reached a plateau nearing 70% by day 14 (AMLV, see figure below).



The purpose of the study was to examine the effect of delaying a modified live bovine respiratory disease complex (BRD) vaccine 14 days (DMLV) compared with vaccinating upon arrival (AMLV). All other processing upon arrival occurred as usual: castrating,

deworming and vaccinating against clostridial diseases. Delaying vaccination showed a nonsignificant reduction in observed illness (DMLV, see figure in column 1).

In a similar study conducted at the Savoy Research Farm near Fayetteville, the response of delaying the clostridial vaccine, BRD vaccine or both by 14 days was examined. The cattle in that study received a metaphylaxis antibiotic upon arrival, which the cattle in the previous study did not receive. Morbidity rates were still high and averaged 69%. Once again, delaying vaccination did not affect morbidity rates.

The interesting factor within these two studies was morbidity rates were high regardless of whether or not the calves were vaccinated upon arrival or 14 days after arrival. Managing receiving health continues to be an industry challenge. Feedlot research has demonstrated cattle that get sick do not gain as well, have a greater cost of gain and do not grade as well as healthy cattle.

The immune status of calves leaving the farm at weaning appears to be easily compromised by stress and disease exposure through marketing channels and commingling. Development of immunity before calves leave the farm begins with nutrition; trace minerals – copper, zinc and selenium – play a role in immune function and are commonly deficient in forages. Vaccination and vaccine handling are other control points. Too often, cattle producers fail to booster killed vaccines. Improper mixing, expiration and storage temperatures can reduce the effectiveness of vaccines. Finally, management control points can influence post-weaning health and performance.

Preconditioning programs are designed to change weaning management as an effort to reduce morbidity and mortality losses throughout the rest of

the production chain. These programs create an environment where calves are weaned on-farm versus on-truck. Buyers of preconditioned calves in the Oklahoma Quality Beef Network program reported a 6.7% morbidity and 0.1% death loss for preconditioned cattle versus 29% and 3% for nonpreconditioned cattle, respectively. Preconditioning is not only designed to get calves through weaning and establish immunity, but also to create a learning environment for calves including drinking from a tank and eating supplement from a bunk.

The challenge for the cow-calf producer is developing a management plan for weaning calves that will yield a positive return on investment. The overlying question becomes “where is the intersecting point of how much more the industry can pay for calves that are better prepared to face the physiological challenges after leaving the ranch and of the cost imposed upon the cow-calf producer to establish the calf that will overcome those challenges.”

In the two studies mentioned earlier, death losses averaged 1.8%. The first study reported a BRD treatment cost of \$9.00 per calf. The animal loss and vet medicine cost associated with morbidity at today’s market value would impose a per-head cost of \$18.50 or \$4.27 per cwt. This does not include labor cost. In a recently organized preconditioned calf sale, preconditioned calves received a \$4.71 per cwt premium. Some buyers appear ready to pay cow-calf producers the equivalent cost of their expected health-related losses. There is usually enough premium for the cow-calf producer to pay for vaccines and anthelmintics (assuming no on-farm mortality); but each individual producer must determine if the pasture, hay and supplement costs can be kept below \$15.00 per head to break even. Otherwise, the value of weight gain will need to exceed the cost of gain to offset the difference.

## Comparing Hay Feeding Methods

Kenny Simon, Program Associate-Forages

Hay feeding practices can greatly influence the amount of hay that is required to carry a herd throughout the winter. Unlike harvest losses, feeding losses are more easily identified and controlled. Hay storage and feeding loss demonstrations are being implemented across the state as part of the 300 Days Grazing program. A feeding loss demonstration was conducted in Scott County comparing three different methods of feeding hay: unrolled, unprotected or shredded and fed in tires. A large feed mixing wagon was used to shred the round bales before being fed. Hay that was used for the project was net wrapped and stored outside. An average of 47 fall calving cows weighing approximately 1,250 pounds were exposed to an allotment of hay for 24 hours.

Unrolling is a common practice for feeding hay and offers some advantages. Advantages of unrolling hay include 1) dispersing the bale allows “boss” cows and timid cows to consume the same bale at the same time, 2) reducing hoof action damage by relocating where the hay is unrolled and dispersing the cows over a larger stretch of land and 3) a controlled amount of hay can be allotted proportioning bales. However, losses from unrolling exist and will vary with the feeding situation. Unrolling excessive amounts of hay can contribute to feeding losses. Once the cattle are full, activity around the bale including trampling, defecation, urination and lying in the hay will result in hay losses. In this project, hay that was unrolled had an

average dry matter weight of 1,126 pounds. The cattle consumed an average of 682 pounds (61%), leaving 444 pounds (39%) wasted.



Feeding bales in the roll still remains the most common practice. When feeding bales in this fashion, they should be protected from animal activity other than feeding. For the bales fed in an unprotected roll, the average dry matter weight was 786 pounds. On average, the amount of hay that was consumed was 400 pounds (51%), leaving 386 pounds (49%) wasted. Other studies have shown up to 40% of hay wastage has occurred when feeding bales in an unprotected roll. The cows used in this demonstration were accustomed to the hay being shredded and fed in tires. Therefore, the amount of hay wastage associated with unrolling and unprotected bales may be greater than normal. If the animals had been accustomed to eating hay that was unrolled, the amount of wastage might be less.

The third method of hay feeding was shredding the hay with a feed mixing wagon and then auguring it into large tires. Hay that was fed in this method

had an average dry matter weight of 991 pounds. Cattle consumed almost 100% of what was allocated (99.97%). Shredding the bales before feeding in this situation minimized hay feeding loss. However, it takes large specialized equipment to do so and can be time-consuming.

Protecting hay from animal activity can help reduce losses; however, variations in wastage can occur with different types of bale feeders, with a ring feeder being the most commonly used feeder in Arkansas. A little more waste can be expected with this type of feeder as compared to the cone feeder, but it still prevents excessive waste. Other types of feeders include cradle feeders and hay wagons. These type feeders are not common in Arkansas but are seen in surrounding states. Research has shown a 15% waste associated with cradle feeders similar to hay wagons.

In summary, feeding unprotected hay results in excessive losses. Feeding losses can be greatly reduced by either unrolling hay or by using a hay feeder.

Feeding Method	Amount of Hay Wasted
Unprotected	40%
Cone Feeder	4%
Ring Feeder	6%
Wagon Hay Feeder	11%
Cradle Feeder	15%

### Scott County Project Summary

Treatment	Dry matter weight of bales (lb)	Amount of bale consumed (lb)	Amount of bale consumed (%)	Amount of bale wasted (lb)	Amount of bale wasted (%)
Unrolled	1,126	682	61	444	39
Unprotected	786	400	51	386	49
Shredded	991	991	99.9	0.32	0.03

## Arkansas Milk Stabilization Board Update

Wayne Kellogg, Professor

After many months of planning—and a lot of hard work—by the Arkansas Milk Stabilization Board, the grants awarded for July were received by dairy producers. The grants totaled were based on \$5.00 per cwt of milk produced during July. The annual cap on grants is

\$2.00 per cwt, so it is obvious that the sorely needed funds were provided to ease the immediate financial crisis faced by many in the dairy business. Because it was ‘front-end loaded,’ there will be months when no grants can be provided. However, the crisis is now!

Milk produced in Arkansas has declined dramatically in the past decade, but it is hoped that the level will be stabilized or hopefully increased. This will be a difficult task unless milk prices improve. However, the program of the Board is very helpful during the current crisis.