

Farm Focus

YOUR FIELD SERVICE AUTHORITY

All in the Family: Heritable Defects of Cattle

After breeding one of your best cows you were hoping she would have a heifer, but this was much different because she had a “monster” instead. It took the vet almost two hours to deliver the calf and the cow almost died. Worst yet, you heard the vet say that the abnormal calf may have been caused by genes carried by the cow. What are you supposed to do? Could your cattle be harboring defective genes?

While the cause of many congenital birth defects is unknown, some are caused by environmental factors and some are inherited. The environmental factors include: an excess or shortage in the level of certain nutrients; toxic plants or other toxic substances; infectious diseases; and/or extremes in temperature during pregnancy. Inherited congenital defects, however are caused by genes.

Continued inside...



Large animal clinicians and veterinary students participated in the 3rd annual Birthing Center at the Tennessee Valley Fair in September. The birthing center is an opportunity for students to interact with the public, and fair-goers got a chance to witness calves being born.

POTOMAC HORSE FEVER

It is that time of year again. The East Tennessee summer is stretching out and providing one last blast of heat before segueing to temperate days and bursts of color that make fall feel as if it were made just for riding and horsing around. This also heralds the peak season of **Potomac Horse Fever (PHF)**. PHF is endemic in our area and has potentially serious implications for the health of your horse. *Neorickettsia risticii* causes PHF. The life-cycle of this organism includes a trematode (flake, parasite) that parasitizes snails, aquatic flies (May flies, caddis flies, etc.), and bat intestines. Horses become infected through eating or drinking the fluke itself or the aquatic insects. Additionally, barn swallows or bats may eat the snails and flies and then pass the *N. risticii* in their feces, which may subsequently be ingested by horses. Therefore, while PHF is found in higher numbers near water, horses may be infected even if they do not live directly by or near bodies of water.

The most well-known manifestation of disease in horses affected with PHF is colitis, or diarrhea; however, the diarrhea is only present in about 60% of clinical cases. Signs and severity can vary significantly between horses and different symptoms may include fever, anorexia, depression, or colic. Decreased appetite due to fever is often the first observed sign of illness, which may then progress to more serious symptoms, including diarrhea, which may result in the need for hospitalization. Horses with PHF respond well to treatment with oxytetracycline antibiotic and supportive care (fluid support, anti-inflammatories, etc.); the oxytet is given intravenously for 3-5 days, and hospitalization is usually required. Up to 30% of horses who become clinically sick can develop laminitis (founder), and half of the horses who founder are euthanized. PHF also causes abortion; mares affected in early to mid-gestation abort an average of two and a half to three months following the initial signs.

Owner awareness and early recognition are key to minimizing the impact of the disease. While a vaccine is available, it produces a variable response and is not effective against all strains of the disease. Anecdotal reports suggest vaccination may decrease the severity of illness, but these claims have not been validated. If the vaccination is administered, it should be given twice a year. Management changes such as keeping water away from lights that may attract insects at night may also aid in preventing the disease.

Diagnosis involves simple blood testing (PCR and serology for antibodies). It is essential to contact your veterinarian early if your horse shows signs of depression and decreased appetite to minimize the potential for the development of the more serious signs and complications associated with PHF.

Acting fast and working with your veterinarian can help you and your horse enjoy each other's company for many autumns to come.

*All in the Family:
Heritable Defects of Cattle
continued from cover.*

Genes are the things that make us what we are. All mammals get half their genes from their mother and half from their father. Genotype is the genetic information in chromosomes and phenotype is what you see when the genes are expressed (red hair, blue eyes, short, tall, dark complexion, etc). The different variations of a gene are called alleles. A dominant allele “trumps” a recessive allele. The inheritance pattern of most genetic congenital defects is simple recessive. The defective calf inherits a recessive gene from its sire and one from its dam. The parents of a genetically defective calf will generally have at least one ancestor in common. When more than one genetically-caused defective calf is born in a herd in the same calving season, their dams are usually related (for example, half sisters) and are sired by the same bull. A change in the breeding program is required to correct this situation.

So what about your cattle? Are they carrying some defective genes that cause congenital defects in calves? Don't jump to conclusions until considering all the facts. Remember, not all congenital defects are inherited and many are due to environmental factors. If the defect appears to be inherited, and a test is available, submit samples for testing and parentage verification. Finally, if some of your cattle are carriers of a heritable defect, all is not lost. With testing and proper breeding management, valuable genetics can be preserved.

The inherited birth defects in cattle listed below have only recently been described, and testing is now available for each defect. In addition to testing affected calves, the carrier-status of cows and bulls can be determined.

- **Arthrogryposis Multiplex** (Curly Calf Syndrome)
- **Brachyspina Syndrome**
- **Neuropathic Hydrocephalus** (NH)
- **Osteopetrosis** (Marble Bone)
- **Pulmonary Hypoplasia with Anasarca** (PHA)
- **Tibial Hemimelia** (TH)

ROUTINE FALL
HERD
WORK

Fall brings the time of year when many beef producers are getting calves ready for weaning and other activities. One of those activities is properly immunizing calves in order to protect them against disease.

Vaccination of beef cattle is a type of insurance, protecting cattle against catastrophic disease. Often, producers consider vaccinating a cost with little likelihood of a return on their investment. However, vaccination is a proven method to increase weight gains in calves and decrease reproductive problems in cattle.

If you haven't already vaccinated your herd during the spring, it is not too late. If you have, then you primarily need to booster certain vaccines. The food animal team at the University of Tennessee College of Veterinary Medicine can design an individualized vaccination program for your herd.

The vaccination program listed below is generic. Although it may fit some herds as is, it is intended to be used as a guide that can be customized. Consult your veterinarian for a protocol to fit your specific operation.

- **IBR, BVD, PI-3, BRSV** - in combination to protect against Bovine Respiratory Disease Complex. These are 4 viruses that frequently cause pneumonia, diarrhea, and other issues in calves. Reproductive problems such as abortions are also seen.

- **Leptospirosis** - causes kidney disease, abortions, and death and can spread from infected cattle, rodents, stagnant water, dogs and other animals.
- **Clostridial 4-way or 7-way** - causes Blackleg and other diseases often leading to death.

Additional vaccinations to consider include:

- **Bacteria that cause Shipping Fever** such as Pasteurella, Mannheimia, and Hemophilus.
- **Brucellosis** – a reportable, bacterial disease that causes abortions and is a risk to human health.

Calves' vaccination history determines if they will require booster vaccinations.

Utilizing MLV (modified live vaccines) versus killed vaccines is another option for the producer to consider when vaccinating calves. This may depend on whether the calves are to be retained, backgrounded, sold at a stockyard, delivered to a feedlot, etc.

Another important task each fall is to have cows checked for pregnancy status. Feeding an open cow through the winter months is very costly. Pregnancy diagnosis is a cost-effective procedure easily performed by your veterinarian.

Don't forget the risk of poisonous plant toxicosis in the fall. Fall is a time of increased risk as pastures are often at their worst, leading livestock to try other, possibly harmful plants. The risk is even higher if drought occurs. Some offenders include purple mint, frost-killed Johnson Grass/Sorghums and acorns.

We look forward to working with you or your veterinarian in developing a comprehensive beef production program. Working together allows our veterinary students to gain valuable experience under the direction of our doctors.

DO I HAVE A
COLICKY HORSE?!

Colic is one of the most common emergencies that equine veterinarians treat. Colic, or abdominal pain, can be caused by an endless list of things not all of them directly related to the gastrointestinal tract. Most horse owners and enthusiasts know how colicking horses act, but it never hurts to review the clinical signs and discuss things you can do while waiting for your veterinarian. The clinical signs of colic vary between horses and often depend on their level of pain. Foals typically swish their tails and lay down. If the pain is more severe foals often roll up on their backs and stay in the fetal position. Some foals that are colicking appear to be nursing- but on closer inspection, they are just nudging at the teats and not actually drinking.

The most common clinical signs in adult horses are stretching, pawing the ground, looking at their flank, laying down and rolling. Extreme pain can cause horses to get up and down repeatedly and roll. While most horses that are colicking will not be interested in feed, some will continue to eat, especially if their pain isn't severe. Most horses have increased heart rates (normal heart rate for a horse is 36-44 beats/min). Your veterinarian can easily show you how to check your horse's heart rate.

Call your veterinarian immediately if you see any signs of colic because some horses become sick very fast (within hours of the first signs).

Things to do while waiting for your vet:

- Do not get hurt trying to control a violently colicking horse. If your horse is experiencing severe pain, he is unable to be controlled or consoled. Leave him in a relatively bare stall or paddock so the horse can't hurt himself.
- Remove the feed and hay from any horse that is showing clinical signs of colic. While most horses will not eat when they are painful, there are some conditions that can worsen with feed. Your veterinarian can help you determine when and what you should feed your horse after a colic episode.
- Walk your horse if he doesn't resist and it seems to calm him. Avoid excessive exercising as this can lead to dehydration and may worsen the colic.

- Determine with your veterinarian whether to administer flunixin meglumine (Banamine®) before the vet arrives. Only give one dose of this medication every 12 hours (at the most) because it can cause kidney disease and gastrointestinal irritation. If one dose doesn't decrease the horse's pain another dose within 12 hours will not likely help and may cause more problems.

Dealing with a painful horse is a high-stress and emotional situation. Try to remain calm and keep your horse as calm as possible without getting hurt while waiting for your veterinarian to arrive.

Future articles will discuss different types of colic and some of the treatments available.

HOT ISSUES!
FREE POST-MORTEM ANIMAL
DIAGNOSTICS FOR CATTLE,
SHEEP, AND GOAT

The Tennessee Dept. of Agriculture (TDA) and UTCVM have partnered to expand free post-mortem animal diagnostics to cattle, sheep, and goat farmers in East Tennessee. TDA will reimburse the veterinary college for necropsy (animal autopsy) examinations of cattle, sheep, and goats. For more information contact us at (865) 974-5673.

*Clients are responsible for transporting the carcasses to the appropriate location. **For information regarding on-site necropsies please call (865) 974-8387.*

Free necropsies are also available at TDA's C.E. Kord Animal Disease Diagnostic Laboratory in Nashville and the West Tennessee Animal Disease Diagnostic Laboratory at UT Martin.

Here to Service You...
Your UTCVM
Field Services

EQUINE AND FOOD ANIMALS:

- **Herd Health/Production Medicine:** Blood Work, Deworming, Health Papers, Herd Disease Investigations, Nutrition Evaluations and Recommendations, Vaccination, etc.
- **Field Restraint:** Anesthesia, Portable Chute, etc.
- **Field Medicine & Surgery:** Gastrointestinal, Musculoskeletal, Reproductive, Wound Management, etc.
- **Reproduction:** Artificial Insemination, Assess Fetal Sex, Breeding Soundness Exams, Pregnancy Exams (Including Ultrasound), etc.
- **24 Hour Emergency Care:** Birthing Assistance, Choke, Colic, Down Animal, Founder, Wounds, etc.

EQUINE SPECIFIC SERVICES:

- **Dental Work** (Including Mechanical Teeth Float)
- **Endoscopy, Insurance Exams**
- **Lameness Workup** (Including Digital X-Ray Capabilities)
- **Pre-Purchase Exams**
- **Acupuncture**

CALL **865-974-8387** FOR ALL
YOUR LARGE ANIMAL NEEDS

Welcome to the team.

Dr. Betsy Coffman is our new field services veterinary intern. She was raised in Albuquerque, NM and Denver, CO, and her family relocated to Clinton, TN in 2001.

Since then, her blood has turned orange as she completed both her undergraduate and veterinary degrees at the University of Tennessee. When not on duty, she spends as much time as possible riding her horses along the numerous trails in the area.

Your Feild Services Team 2009-2010:

Brian Whitlock DVM, PhD, DACT
Maria E Prado MV, PhD, DACVIM
Matt Welborn DVM, MPH, DACVPM
Amy Plummer DVM, DACVS
Kristie J.Steuer DVM
Betsy Coffman DVM



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\$\$ DOUBLE THE BANG \$\$ FOR YOUR BUCK!

Special limited time UT matching gift opportunity

UT will match, dollar-for-dollar, gifts and pledges of at least \$12,500 to the College of Veterinary Medicine.

The funds will be used to help construct and equip the Large Animal Hospital renovation and expansion. Help us build a new large animal hospital to better serve you and the animal industries of Tennessee.

Please contact Claire Eldridge, UTCVM Development Director, at (865) 974-6477 or celdridge@utk.edu

Pledges must be paid in full by March 15, 2011 to qualify.

COMING EVENTS!

UT CATTLE HEALTH PRODUCER CONFERENCE

When: Saturday, December 12, 2009

Location: UT College of Veterinary
Medicine, Room A118

Cost: \$15/individual

UT GOAT PRODUCER CONF.

When: Saturday, February 20, 2010

Location: UT College of Veterinary
Medicine, Room A118

Cost: \$20/individual

For more information on either one of these conferences please contact: Dr. Jerry Roberson at (865) 974-5707 or visit www.vet.utk.edu/clinical/lacs

Fall 2009

UT College of Veterinary Medicine

Farm Focus

YOUR FIELD SERVICE AUTHORITY

UTCVM's field service team brings you "FARM FOCUS": information to help you provide the best care for your animals.

You can visit www.vet.utk.edu/departments/LACS for this and other information.

To receive "FARM FOCUS" electronically, please visit our site to sign up.

THE UNIVERSITY of
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