Anaplasmosis
Dr. Tom Troxel, Professor

Anaplasmosis is an infectious disease in cattle that affects red blood cells. It is transmitted from animal to animal by biting flies (horsefly, stable fly), ticks and contaminated needles or surgical instruments (dehorners, castration instruments, tattoo instruments).

This disease is typically age related. Calves less than one year of age usually show no symptoms of this disease and are considered mild. Cattle 12 to 24 months of age can show acute signs of the disease, but it is rarely fatal. However, animals that are two years and older will show acute signs of the disease, and mortality rates may be as great as 50 percent if animals are left untreated.

Some cattle that do survive without treatment may become carrier animals for this disease. They will serve as a reservoir and be an underlying source of infection for other susceptible cattle in the herd. Animals in the carrier phase usually show no clinical signs and rarely become ill a second time with the disease.

Outbreaks generally occur in late summer and early fall. The incubation period is from 21 to 45 days, with an average length of 30 days. Once the red blood cells initially become infected, the organism replicates itself in order to infect more red blood cells. During this period, the infected animal shows little or no signs of illness. At some point, the infected animal’s immune system begins to respond and attempts to attack the invader. When this occurs, the immune system destroys the pathogen, but also destroys the infected red blood cells. As a result, the signs of clinical anemia will appear.

Early clinical signs include a rectal temperature of 104°F to 107°F, a decrease in appetite, pale mucous membranes, lethargy, a decrease in milk production and weakness. As the disease progresses, other signs may be noted such as weight loss, yellowed mucous membranes, constipation, excitation, abortion and death. Death is due to a large number of red blood cells being lost. This inhibits the animal’s ability to provide adequate oxygen to the tissues, and death occurs due to anoxia (suffocation).

Prevention

Prevention of this disease can incorporate many factors. Insect control can be difficult, but pesticide applications to the herd may limit the number of potential vectors. Feeding chlortetracycline (CTC) at the rate of 0.5 mg per pound of cow body weight during the vector season will help prevent transmission of anaplasmosis. CTC may be included in medicated feed, mineral mix or feed blocks.

It also is important to be mindful of contaminated needles or instruments. When performing herd work, change needles often and keep castration knives, dehorners or tattoo instruments in disinfectant between uses. Vaccines are also available to help with the control and prevention of anaplasmosis. Contact your veterinarian for additional prevention or treatment protocols.
Knowing one grass from another and also learning how to manage different grasses are some of the things Arkansas 4-H members had to learn to compete in the 13th annual Mid-America Grassland Evaluation Contest in Springfield, Mo. The contest was held June 6. Arkansas 4-H teams from Cleburne, Fulton, Randolph and Van Buren counties competed in a field of 23 teams from Missouri, West Virginia, Ohio and Indiana. The students have to complete four sections in the contest including grassland condition, wildlife, soils and plant ID.

For the grassland condition section, the students must assess current grazing conditions in the field, determine fertilizer and weed control recommendations, calculate how much forage is needed year-round for an example herd and make recommendations for improvement if needed – all in 25 minutes.

For the wildlife section, students must evaluate the field for habitat value for quail and rabbits, make recommendations to improve the habitat and answer 20 general questions on wildlife management.

In the soils section, students are given a soil survey map and several soils descriptions. They must locate the site on the map, choose the correct soil description, answer questions about the soil, guess the slope of the field and determine suitability of 10 forages for that site.

In the plant ID section, the students must correctly identify 25 pasture plants from a list of 75 possible species. An extra twist is to receive points for a correct plant ID, and each plant’s life cycle has to be answered correctly as well.

If that all sounds complicated, well it is and it isn’t. At first glance the material appears overwhelming, but after some study, students and agents find that it covers information most farmers should already be using in their operations. The contest was originally designed to teach proper grassland management skills but in a competitive format. Many county agents and vo-ag teachers from several states have commented that it is probably the most real-life contest available. The county agents who have been teaching the material to 4-H members use much of the information every day when working with farmers. Most of them will readily tell you that learning how to teach the contest material has made them better at their job of helping farmers because of the practical and applied nature of the information.

Arkansas teams competed very well in the Mid-America Grassland Evaluation Contest, with Cleburne County taking second place and Randolph County taking third place. To qualify for the Mid-America Grassland Contest, each team had to place in the top five of the Arkansas Grassland Evaluation Contest held in April. The Mid-America Grassland Evaluation Contest is known for the tough competition and for the difficult field scenarios developed by contest officials.

The Cleburne County team was coached by Staff Chair Michelle Mobley. Mobley’s teams have won the Arkansas contest and placed second in the Mid-America contest each of the past two years. Team members were Matthew Hipp, Daniel Hipp, Aaron Wilson and Rachel Wilson. Aaron Wilson was fourth high individual in the 4-H Division.

Staff Chair Mike Andrews coached the Randolph County team. Andrews has qualified a team for the Mid-America contest for 12 of the 13 years since the contest began. Team members included Jonathan Courtney, Jesse DeJournett, Jacob Kelly and Brittany Yancy. Courtney made a perfect score on the Grassland Evaluation section, the
County fair season is here, and for thousands of Arkansas youth, that means showing livestock. Far too often, we place way too much emphasis on winning and losing at youth livestock shows. While showing those animals is fun, the experience also teaches 4-H members valuable life skills. Ideally, 4-H livestock projects should be a family affair. If the right percentage of time and energy is spent by youngsters and parents together, these projects can help our young people learn basic life skills and develop into better citizens.

4-H members enrolled in animal projects typically develop project skills such as record keeping, health care, proper drug use, ration development and marketing (Gamon, Laird and Roe, 1992). According to Sawyer (1987), acquiring knowledge and skills are the most important aspects of successfully raising an animal. Researchers determined that knowledge acquired and experiences gained in the animal science projects were closely related. More than half of the respondents indicated they had learned about training and grooming their animals, good sportsmanship, choosing proper equipment and feed rations and keeping accurate records. Seventy-five percent of the respondents had applied the knowledge they gained from 4-H livestock projects to 1) develop a feeding program for their animal, 2) care for a sick or injured animal and/or 3) calculate the cost per pound of a market animal.

In another study at Purdue University, 4-H members with livestock projects used many of the skills they developed from raising livestock to complete homework assignments, be on time at work and care for younger siblings (Rusk, Summerlot-Early, Machtimes, Talbert and Balschweid, 2003). In addition, the projects teach lessons on ethics and sportsmanship. In addition, they said their 4-H experience taught them to be committed to projects they had started and to perform better at work.

What is the real value of youth livestock projects? Here are several examples of life skills that are developed from participation in livestock projects.

1. To get along with people. A large number of people in society quit or lose jobs because they cannot get along with others. 4-H’ers who exhibit livestock are around people they have never met but have similar interests. They learn to communicate with these people.

2. Sportsmanship. At a livestock show, there is only one Grand Champion. However, there are many winners. Most 4-H’ers who show livestock for any period of time usually experience the extreme high feeling of an exceptional effort and the extreme disappointment of a project that didn’t turn out as well as was expected.

3. Responsibility. Feeding and daily chores in a 4-H livestock project are essential.
project teach responsibility. Top feeders follow the time clock in their daily efforts. This is a good habit to start at a young age and may reap substantial benefits in a career later in their lives.

4. **Attention to details.** Most young people take care of major items in a 4-H livestock project like fencing, feeding, etc. However, many times it is the little things that make a difference, such as keeping water tanks and feed troughs clean, working on grooming and showmanship several months before the show, keeping pens clean and observing closely for sickness and disease. Paying attention to details is beneficial in almost everything we do in life.

5. **Decision making.** Decision making is never easy at any point in our lives. 4-H livestock projects require that several key decisions be made: selection of project animals, selection of feeding method, care and management decisions, fitting and grooming techniques, etc.

6. **Goal setting.** For every successful 4-H livestock project, there is usually a good plan. Most details and strategies for the project must be planned well in advance. Goal setting is important for everyone, regardless of future endeavors.

Youth enrolled in livestock projects are able to relate how raising and exhibiting their livestock project helped them gain valuable life skills. The youth become more dependable, confident and qualified individuals in school, at home and on the job.

### Cost of Legume Establishment Depends on Planting Procedure

**Dr. Dirk Philipp, Assistant Professor**

A study conducted at the University of Arkansas Division of Agriculture reveals differences in establishment costs and survival of annual and perennial legumes. In an experiment conducted over three years, researchers evaluated broadcasting and no-till drilling of crimson and white clovers into bermudagrass pasture at standard and low seeding rates. In addition, cattle were grazed either before or after planting to evaluate possible effects of cattle hoof action on clover establishment success and survival.

While legumes have many potential benefits, several challenges for a widespread use on beef farms in Arkansas remain. This is mainly due to their site-specificity, adaptation of commonly used legumes to a cooler climate than we have in Arkansas, uncertainty regarding the amounts of N recycled and rather drastic oscillations in legume occurrence over the years. Successful establishment, therefore, depends on getting off to a good start, and costs involved will determine whether producers should be encouraged to adopt certain legume establishment practices or not.

This is where this study comes into play. The combination of broadcasting followed by grazing was considered the low-cost alternative to planting into a short canopy using a no-till drill. Seeding rates for crimson clover were 20 and 10 pounds/acre, while for white clover rates were 5 and 2.5 pounds/acre. Planting took place each year in early October. Five days prior to and after planting, depending on the assigned grazing treatment, three mature cows were stocked in bermudagrass paddocks measuring approximately 100 feet × 100 feet for each of the three replications. Bermudagrass paddocks used for this research were prepared by haying them about four weeks prior, leaving a canopy of 6-8 inches high.

Results revealed that rate of seedling survival depended on species, seeding rate and planting method, but effects of grazing were insignificant. The period between planting in the fall and the following spring determined seedling survival rates that ranged between 17% and 23%. A low seeding rate resulted in a higher survival rate (21%) than a standard seeding rate (17%). This could be attributed to increased seedling competition within the clover stands at standard rates. With respect to planting method, no-till drilling resulted in higher rates of survival than broadcasting in addition to a generally much higher actual number of seedlings in the field.

In terms of costs of establishment, this study revealed crimson clover was more expensive (about $40/acre) to plant than white clover (about $30/acre). Reducing the seeding by half did not necessarily reduce the cost of establishment by the same factor. For example, a no-till drill establishment for crimson clover resulted in $53/acre at a standard seeding rate, while the low seeding rate (half of standard) resulted in a $34/acre establishment expense.

### References


Let’s compare that to broadcasting crimson clover. The results were $45/acre for a standard seeding rate and $27/acre for a low rate. If we take into consideration that the actual number of seedlings observed in the field was about twice as high after no-till establishment than after broadcasting, then I think this is a compelling case for doing the best you can be sorted easily before and after alleys and working pens so animals can be easily driven. Design and material preparation for construction new working facilities.

This may be especially true for small seeds such as white clover. The economists involved in this study showed that the cost per established white clover seedlings was much lower under no-till than broadcasting, which is partly due to lower survival rates of that clover species when using the latter establishment procedure.

Although there were no grazing effects observed, pasture canopies should always be managed before overseeding clovers. A pre-grazing canopy height of about 6-8 inches, as in our case, may not be detrimental to clover establishment with modern no-till drilling machines, but the risk of establishment success may be substantially higher with a canopy that is even just a few inches taller. Therefore, canopy control is crucial next to maintaining a planting depth of no more than one-fourth to one-half inch. To achieve this, no-till drills have to be set up meticulously without cutting corners during the process. Seed tubes can easily become blocked through spider webs or old seed. Coated seeds that are used more and more nowadays especially can clog the mechanism when they become moist, as soil can plug the coulters whenever insufficient care is taken while operating the drill. Costs for canopy control can be minimized by stocking cattle at relatively high densities that should leave the canopy as low as 2 inches.

Managing Cattle With Reduced Stress
Bryan Kutz, Instructor

Stress is a big factor contributing to beef product merit and many diseases which affect cattle. The stress related to extreme weather conditions most often cannot be avoided. However, how cattle are handled, either when processing, vaccinating or even clipping in preparation for a show, can cause undue stress, which can lead to illness and decreased meat quality. Therefore, proper handling, shelter and transportation are important to the safety and welfare of beef production. Facility design, preparation and the right attitude are big steps toward proper cattle handling.

Facility Design

A good facility has been described as being horse high, bull strong and hog tight. You need to keep this in mind as you begin plans and material preparation for constructing new working facilities.

The facility needs to be designed so cattle can be easily driven. Design working alleys and working pens so animals can be sorted easily before and after processing. The corral should facilitate the movement of cattle from a large area into smaller pens and working alleys and into the crowding alley. Avoid corners where cattle will balk, and pay attention to the placement of gates. A curved crowding alley is highly recommended so that animals won’t balk from seeing a dead end. The installation of solid sides on the crowding pen and crowding alley will keep the animal from being distracted or spooked by people and objects on the outside. Blinders on squeeze chutes and solid sides on AI chutes will also help keep the animals calm during processing.

Eliminate hazards in the facilities that will cause injury to animals and humans. Projections and sharp edges on gates and fences can cut and bruise animals. To help prevent injury, floors in the working area should not have a slippery surface. Eliminate openings where animals might entrap a foot or their head.

Unnecessary noise in the working area provides for a very distracting atmosphere for cattle being processed and will cause undue stress. Muffle the sound of banging gates and crashing chutes with rubber or plastic stoppers. Barking dogs or screaming humans will excite and stress animals and simply need to be controlled. Maintain the facility. Make sure hinges, latches and other mechanisms are in good repair and are properly lubricated.

Working Environment

When jobs are done efficiently in a calm and controlled manner, the task will be completed in a satisfactory time frame. Working with a good attitude positively affects other workers and can be transferred to the cattle being processed. And remember livestock are herd animals. Understanding the importance of lead animals can help cattle flow in crowding alleys more efficiently.

As a handler moves into the flight zone of an animal, it will move away. If a handler moves too deeply into the animal’s flight zone, it will either bolt and run away or turn back and run past. Working in proper position will minimize stress on the animal and the possibility of injury to the handler.

Isolated animals will often panic and become very difficult to control. If an animal gets isolated from the group and is out of control, move some quiet animals in with it and give them some time to settle down.
All too often, handlers will shock or prod the animal in the back of the crowding alley and wonder why the animal in the front does not move forward. When facilities are well designed and handling techniques are based on an understanding of animal behavior, it is not necessary to stress or bruise the animals as they move through the working facilities. Use a flag on the end of a prod to sort cattle. This technique is more effective and less stressful.

Many handlers make the mistake of packing too many animals into a crowding pen. As a result, the animals are not able to turn to line up and move forward. Work the animals in smaller groups of six to eight to allow for more room. This also helps alleviate stress during processing.

Avoid working cattle in stressful weather. On hot days, early morning hours are best. Cattle can also be stressed by cold spells, particularly when they have a wet hair coat.

Working cattle in dusty conditions is an invitation to respiratory illness.

Sudden changes in the ration or keeping cattle off of feed for extended periods while they are being worked or transported can cause acidosis.

Weaning is a very stressful period. Work calves several weeks prior to weaning to help avoid weaned stress.

Conclusion

Beef cattle are produced in a variety of production settings, from pasture and range to dry lot and confinement facilities. Cattle are adaptable to a wide range of natural conditions and artificial environments. When behavioral and physiological characteristics of cattle are matched to local conditions and proper facilities and handling techniques are incorporated, undue stress causing illness or reduced beef quality can be avoided.