

COW/CALF CORNER

The Newsletter

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Control and Prevention of Anaplasmosis

Anaplasmosis is usually thought of as a late summer and early fall problem in the Midwest, but more and more it is causing problems year around. It is caused by a tiny parasitic organism called *Anaplasma marginale* that invades the red blood cells. The animal's immune system tries to deal with the problem by removing the affected red blood cells from the circulation, but in destroying the organism the red cells are also destroyed. This results in a series of symptoms associated with anemia and the characteristic yellow or orange coloration of the body tissues, which comes from pigments released as the red cells are broken down. Because anaplasmosis is a disease of mature cattle and the transmission is more efficient under range conditions, it is usually associated with beef cow herds more than feedlot or dairy animals.

Anaplasmosis is not contagious, that is, it does not spread directly from one host animal to the other. It can, however, be transmitted by both biological and mechanical vectors. The main biological vectors are ticks. The organisms are carried in and multiply in the gut of the tick. They can be passed from one stage of the life cycle to the next and, through the eggs, from one generation of ticks to the next. Mechanical vectors include biting insects such as horse flies, stable flies, and mosquitoes, and the various instruments used by man, such as needles, dehorner, knives, ear taggers, and implant guns. Biological vectors can carry the infection for months, while mechanical vectors, either man or biting insects, can only transfer the organisms for less than five minutes. Infections transmitted by man typically involve an outbreak of several animals within the herd at one time, 4 to 6 weeks after working the herd. Infections transmitted by insects typically involve one or a few animals, followed 4 to 6 weeks later by disease in several animals. Blood from sick animals is 20 times as infectious as blood from carrier animals.

There are four stages of the disease. They are incubation, development, convalescent, and carrier. The incubation period lasts from the introduction of the organism until 1% of the red blood cells are involved. This stage can last from 15 to 45

days, depending on how many organisms were introduced. There are no clinical signs of disease during this stage.

The development stage lasts from the onset of clinical signs until the animal either dies or begins to recover. This stage usually lasts 1 to 4 days. During this time the packed cell volume (PCV) goes down and clinical signs include weight loss, depressed lactation, hard green feces, dark yellow urine, icterus, high fever, and respiratory distress. Normally docile cows may exhibit aggressive behavior due to the lack of oxygen delivery to the brain.

If the animal doesn't die in the development stage, the convalescent stage extends from the peak of the infection through the recovery. During this time the PCV gradually rises back to normal values and the animal gains back lost weight. This period can last for up to 3 months. It is not unusual for abortions to occur during this stage.

Recovered animals are carriers for life, unless they receive specific treatment to remove the remnants of the infection. Recovered animals can show signs of active disease a second time, but it is extremely rare.

During an outbreak, most infected animals are identified by the clinical signs listed above. During the development stage, your veterinarian can also identify the marginal bodies in a stained red blood cell smear. Several serological tests are available for detecting the carrier animals and these involve submitting blood samples to a diagnostic laboratory.

In order to eliminate or minimize anaplasmosis problems it is helpful to think of the following equation; $\text{Outbreak} = \text{carriers} + \text{susceptible animals} + \text{vectors} + \text{no controls}$. More carriers or more vectors lead to a worse outbreak. You can reduce the problem to some degree by decreasing any one of the factors, and the more you decrease a factor, or the more factors you decrease, the better reduction in problems you achieve.

Although total elimination of vectors is not practical, there are things you can do to help. Both biological and mechanical insect vectors can be managed with insecticides and proper disinfection of instruments while processing cattle should be standard practice. In addition, keeping brush and high weeds down in pastures will reduce the habitat of ticks and their access to the animals.

Carriers can be eliminated by feeding or injecting high levels of tetracyclines over a period of time. This is not effective on all animals so it may also be necessary to serum test the herd and cull any carriers that remain. If a large number of carriers are present it may be more practical to divide the herd into carriers and susceptible animals and keep each away from the other.

Vaccination is limited at this time and vaccines of the past caused problems with newborn calves. Vaccination doesn't eliminate the infection, but helps to minimize clinical signs. Perhaps a better control measure is to feed low levels of chlortetracycline in the mineral. In the past, many producers have used this method during the insect vector season, but it may very well pay to consider this as a year round option. When fed on a year round basis lower levels of the drug can be utilized and it is helpful in preventing other problems such as footrot and pinkeye. Another option is to give the whole herd oxytetracycline injections once per month during the insect season. Visit with your veterinarian for specific recommendations and protocols effective in your area to prevent infections or to eliminate the carrier stage.

Treatment during the early development stage with tetracyclines is usually helpful. In addition, blood builders or transfusions may be helpful. In the mid to late development stage, treatment is usually not helpful and can often be counterproductive. Antibiotics are not effective, blood builders do not have time to work, and death occurs easily due to hypoxia if the animals are excited or forced to physical activity. Remember, however, that the blood of these sick animals is many times more infective than that of a carrier so steps must be taken to care for the rest of the herd. Isolation is important, but it may be easier to move the rest of the herd away from the sick animal rather than trying to move the sick animals to confinement. Provide some method of antibiotic protection for the healthy animals.

Anaplasmosis is one of the major problems facing cow-calf producers, but it doesn't have to be devastating. In the winter most producers see their cows daily but in the summer and fall when not feeding daily, it is easy to get involved with haying, farming, back to school, or other activities. Check your cows regularly so that you are aware of the first case, before she contaminates a large portion of the herd.

Fall Feeder Cattle Runs Plus Lack of Wheat Pasture Equals Lower Feeder Prices

The eight-market auction feeder cattle total in Oklahoma this week was slightly higher than the same week last year at 31,000 head but below the four year average of 37,000 head. Weekly auction runs will be seasonally high from now until Thanksgiving. Typically in Oklahoma at this time of year, it is the status of wheat pasture development relative to those large feeder marketings that determines how much seasonal pressure there will be on feeder prices. The distinct lack of wheat pasture demand this year is translating into lower feeder prices in the face of larger auction totals. In the last month, lightweight feeder prices have dropped \$8-12/cwt. while heavy feeder prices are \$4-8/cwt. lower.

Wheat planting and emergence in the state has advanced rapidly the past week but still lags behind normal for this time period. Most of the western two-thirds of the state has received below normal precipitation in the last thirty days and for many locations the last big rain was the tropical storm that redeveloped over the central part of the state on August 19. The bottom line is that there is not much wheat pasture developing soon and there is increasing odds that much of the wheat will not be grazed at all this winter.

The lack of wheat pasture means that other forage based growing programs will have increasing opportunities. There is a strong incentive for feeder cattle, especially the lightweight stockers to stay in country and utilize forage. Without wheat pasture, this may mean grazing other cool season forages, stockpiled summer forages, or backgrounding in drylots with harvested forages. Current prices for stocker calves combined with strong feeder cattle futures suggest that it is possible to hedge a gross stocker margin at or above \$0.90/pound of gain between now and next March. The question then becomes what sorts of production schemes are possible and what will be

the cost of gain. Evaluation of stocker growing programs should consider not only quantity and quality of available forage resources but the cost of supplemental feeds, labor and management requirements, and availability of facilities. It may take some creativity and perhaps some additional work to put together a stocker or retained calf program this winter but it may be worth the effort.

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