

## **Anaplasmosis**

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Anaplasmosis is disease of cattle that is caused by the blood parasite *Anaplasma marginale*. This organism infects red blood cells, which leads to anemia. *A. marginale* can also infect sheep and goats and some wild ruminants, including white-tailed deer. These animals don't usually show signs of disease, but can possibly serve as a reservoir for the disease. This disease is endemic in the southeastern US, meaning that it occurs regularly and is basically "native" to the area. Be aware that due to increased movement of cattle in previous years, some areas that have been considered non-endemic in the past may now have more anaplasmosis. With cattle moving in and out of different areas, especially those that are drought stricken, the possibility of introduction of diseases, including anaplasmosis, increases.

### **Transmission**

Anaplasmosis is transmitted by insects and/or people. Horse flies, and some species of ticks are the main insect vectors. Spread by other biting flies (such as stable flies), horn flies and mosquitoes is unlikely, but possible during severe infestations. People can spread anaplasmosis through reuse of needles, and improper cleaning of instruments during dehorning, castration or tattooing. In one study, it was determined that < 0.005 mls of blood was required to transmit anaplasmosis from an infected cow to a non-infected cow. In a similar study, a needle used on an infected animal leads to a 60% chance of the next animal being infected if the same needle is used.

### **Clinical Disease**

Once the *Anaplasma* organism infects an animal it usually incubates in the body for 3-5 weeks before the animal actually gets sick. Cattle less than two years of age rarely show any signs, even if they become infected. Cattle older than two years of age have more severe disease and are more likely to die. Whether or not an animal shows any signs, if it becomes infected, it is usually infected for life. These carrier animals are immune to future disease, but become a persistent source of infection for other cattle.

Outbreaks of anaplasmosis usually occur in summer and fall when ticks are prevalent. Some of the common signs are fever, weakness, depressed attitude, decreased appetite, decreased milk production, and a white or yellow color to the gums, white of the eye, or vulva. Aggressive behavior is also common, especially in beef cattle. Abortions may occur in females and temporary infertility can occur in males. Severely infected animals may die, and if they survive, they are likely to be "poor-doers". Infected animals with less severe signs or no signs at all can have drops in milk production and infertility/embryonic death. This leads to decreased numbers

of calves born and decreased weaning weights, both of which add to the financial losses due to anaplasmosis.

### **Diagnosis**

If anaplasmosis is suspected, producers should contact their veterinarian to confirm the diagnosis. There are other diseases such as “red water” (caused by a Clostridium), leptospirosis, that can appear similar. There are tests to find carrier animals. A test called the competitive ELISA (“cELISA”) appears to be the best. Just be aware that in the first days after infection, the test may be negative, even though the animal is infected. So retesting is sometimes indicated.

### **Treatment**

Treatment of cattle with long-acting formulations of injectable oxytetracycline can be beneficial if done in the very early stages of the disease. Many times cattle aren’t recognized as infected until they are severely anemic, and treatment may be too late. In fact, the stress of treatment may kill the animal, so it’s sometimes best to leave them alone. A blood transfusion is indicated in certain situations, but still may not prevent death of the animal. Treatment is best reserved for the remainder of the herd to stop any early infections from getting more severe. As a control measure, oxytetracycline crumbles can be added to the feed. With the new FDA regulations coming in December of 2016, make sure to work closely with your veterinarian to determine the dosage and duration of feeding medications to prevent unwanted drug residues. Treatment of carrier animals to clear them is not usually effective so should not be attempted.

### **Prevention and Control**

For herds in endemic areas there is constant potential for exposure, and total prevention or elimination of the disease from a herd is not realistic. Therefore, the goal is to prevent and minimize clinical and subclinical disease and production losses. Producers in endemic areas should assume there is a good chance they have carrier animals in their herd that look perfectly healthy but can be a source of infection, so practices that could potentially spread the disease (such as reusing needles, or not properly dis-infecting equipment) should be eliminated. Supplying tetracycline products in feed or mineral supplements will not totally eliminate problems, but will greatly reduce them. Tetracycline is added to these supplements at different levels, so make sure that the supplement is labeled for the “prevention of anaplasmosis” to assure a high enough dose. Control of ticks and flies will also decrease spread of the disease. Recently, a vaccine has been approved for use and is available is from University Products, L.L.C. (anaplasmosis.com). Not all states have approval to use this vaccine, but fortunately Tennessee does. This product is relatively expensive compared to other vaccines, but when the costs of deaths, chronic poor-doers, abortions, and milk production decreases are all considered, the vaccine may very well be cost effective in herds in endemic areas.

### **Summary**

Biosecurity measures are key to the control of anaplasmosis. So, have your veterinarian screen herd additions with the cELISA, or purchase animals from test negative herds. Remember though, that because of the potential for false negatives on the cELISA during the incubation

phase, the disease could still sneak into your herd. Also, single use needles, proper cleaning of equipment between animals, vector control, and vaccination are important parts of an anaplasmosis control program. If you suspect anaplasmosis in your herd, contact your veterinarian for a thorough investigation and advice regarding elimination and future prevention.