

Anaplasmosis Revisted

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Anaplasmosis is a rickettsial infection of cattle that is widespread in the United States, including the Southeast. The causative organism, *Anaplasma marginale*, parasitizes red blood cells and causes cattle to become anemic. In California and the intermountain West, ticks are the most important vectors because the organism can multiply in the tick's digestive tract. The specific ticks, *Dermacentor occidentalis* and *D. andersoni*, feed on both cattle and deer, and unfortunately, black-tailed deer and mule deer can harbor *A. marginale* as silent carriers. These ticks are not present in the Southeast, and our resident tick species, including *D. variabilis*, are not efficient vectors. However, in the Southeast, infection is transmitted by horseflies or by unsterilized needles, syringes, or surgical equipment.

Splenectomized white-tailed deer that have been experimentally inoculated with *A. marginale* can maintain low-level infections in their blood. This knowledge, combined with the fact that closely related western deer species are carriers, has caused speculation that white-tailed deer could be a source of infection for cattle. A pre-1966 survey of white-tailed deer from areas in the Southeast with known infections in cattle did not reveal evidence of infection. Blood samples from 270 deer were injected into susceptible calves without producing infection. Since then, serum tests that were developed for cattle have been used on several occasions to test deer and other wild ruminants. These tests have proved unreliable and have yielded some false positive reactions. Thus, suspicions have been maintained and cattle owners still point toward the omnipresent whitetail when anaplasmosis is diagnosed.

Recently, a highly specific and accurate indirect fluorescent antibody (IFA) serum test was developed that can be used in white-tailed deer. Through collaboration with USDA's Animal Disease Research Unit at Washington State University, the IFA test was provided to SCWDS and a retrospective region-wide survey has been conducted from samples in our serum bank. Only 1 positive was identified in 1,419 deer serum samples tested from a 13-state area. In addition, blood samples have been obtained from 3 areas with ongoing anaplasmosis in cattle, and none of 25 deer sampled have been positive. Further sampling will be made from deer on other known infected farms. Experimental infections of white-tailed deer also will be done to learn whether sufficient organisms are present in deer blood to support transmission by horseflies. Once completed, this study will provide a modern data set on the status of white-tailed deer in regard to anaplasmosis.