Cattle Are a Major Reservoir of Anaplasma marginale

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Cattle persistently infected with *Anaplasma marginale* are a major reservoir for transmission of anaplasmosis. This is because a main mode of transmission is by ticks, yet the ticks involved in transmission do not transmit the organism to their progeny through the eggs. This lack of transovarial transmission means that new generations of ticks must acquire infection by feeding on an *A. marginale*-infected host. Once an immature tick stage acquires infection, it is transmitted to subsequent developmental stages, including the adult stage. Any infected stage that feeds on cattle can transmit the infection during feeding.

Uninfected ticks can acquire *A. marginale* infection by feeding on cattle which have very low numbers of infected erythrocytes. In fact, the number of infected erythrocytes can be 10 to 10,000 times less than can be detected by microscopic examination of stained blood smears. Once the tick is infected from small amounts of organisms obtained by feeding on persistently infected cattle, organisms replicate to high levels in the tick’s salivary gland and can be transmitted to uninfected cattle during feeding. Based on this information, ticks cannot be a long-term reservoir for *A. marginale*. However, cattle are infected with *A. marginale* for life and can serve as a continual source of infection for tick populations which can then transmit to uninfected cattle. The information that cattle are a major reservoir of *A. marginale* provides a rationale for testing herds in regions where anaplasmosis occurs and removing infected cattle from these herds. Since antibody is continuously present in *A. marginale*-infected cattle, testing for antibody is the easiest and most economical way to identify persistently-infected cattle for treatment with long-acting oxytetracycline or culling.


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