

Treatment for Anaplasma Marginale in Beef Cows
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Disease due to the rickettsia, *Anaplasma marginale* is a significant health concern for beef cattle producers within the state of Florida. Current health estimates place annual losses for U.S. producers at \$300 million. These costs include production and death losses, treatment costs and restrictions on international trade.

Bovine anaplasmosis occurs when red blood cells become infected with the rickettsia *Anaplasma marginale*. Once infected, cattle can serve as reservoirs. The disease is spread by insect vectors such as ticks and biting flies, and also by fomites like multi use needles, ear tagging equipment, and tattoo pliers.

Treatment with long-acting injectable oxytetracycline has long been recommended as one method to clear the carrier state from infected cattle. In older studies, diagnostic methods which identified the presence of antibodies against *Anaplasma marginale* were used to assess success of treatment with long-acting oxytetracycline. These studies reported that treatment with tetracycline was an effective method to clear the carrier state. However, newer more sensitive diagnostic methods such as ELISA or PCR which detect the genetic material found in the *Anaplasma marginale* organism have identified animals as continuing to be a carrier of the organism after multiple treatments with oxytetracycline.

A recent study was conducted to determine if multiple treatments of beef cows with oxytetracycline was effective in eliminating the carrier state. In this study, a commercial beef herd grazing native pasture and known to be naturally infected with *Anaplasma marginale* was utilized. In this herd of 236 cows, 63 cows were found to be carriers of the organism. Thirty four of the 63 positive cows were test subjects. Five of the know infected cows served as the control (did not receive treatment) while 29 cows received oxytetracycline treatment. The regimen selected served to mimic ranch practices where cows were dosed on an average weight for the herd (1,200 lbs). Each cow received 5ml/100 lbs of body weight of a long acting injectable oxytetracycline product containing 200 mg/ml of oxytetracycline. Cows receiving treatments with the antibiotic received a treatment every three days for a total of three treatments. All injections were give subcutaneously in the neck, with a new sterile needle utilized for each treated animal. All cows were managed in a single grass pasture following treatment with no neighboring animals that could serve as a source of reinjection, and no new animals were introduced into the herd during treatment. All test animals were treated topically for external parasites.

The treated cattle were tested utilizing a PCR 20 days prior to treatment, and 14 and 74 days after treatment was initiated. The results of the testing were as follows, 20 days prior to treatment all animals (treated and control) tested positive, 14 days after treatment was initiated all control animals and 26 of the 29 treated animals were positive for *Anaplasma marginale*. On day 74, all controls and 25 of the 29 treated animals remained positive. Finding animals positive for *Anaplasma marginale* 14 and 74 days after treatment was contrary to earlier published research. This difference was probably

due to enhanced diagnostic tests utilized in the most recent study which are more sensitive and specific than the older diagnostic methods.

The conclusion from this study is that treating cattle with three injections of a long acting oxytetracycline at three day dose intervals was not effective for eliminating the carrier state of *Anaplasma marginale* from naturally infected mature beef cows.

This research is relevant to Florida beef cattle producers. Anaplasmosis is a significant health concern for the Florida beef herd. Producers need to understand that previous research that indicated treating beef cattle with long acting oxytetracycline was efficacious in eliminating the carrier state in that animal may be incorrect. Carrier animals may remain and be a source of infection for susceptible animals.

References

1. Wallace J.O., Hollis L, Reinhardt C D, Coetzee J, Renter D, Llewellyn D,. Failure to Eliminate the *Anaplasma marginale* Carrier State in Beef Cows Following Multiple Treatments with Long-acting injectable Oxytetracycline, *The Bovine Practitioner* Vol 41 No 2, pg 84-87, Summer 2007