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# Treating ANAPLASMOSIS IN CATTLE

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Anaplasmosis is an infectious, parasitic disease of cattle caused by the microorganism, *Anaplasma marginale*. This parasite infects red blood cells and causes severe anemia. The result may be abortion, severe loss of weight, loss of milk production and sometimes death of the infected animal. Once recovered from the clinical disease, the animal is not cured but remains a carrier, harboring the disease agent in its bloodstream. The carrier animal can then act as a continual source of infection in the herd where the disease can be transmitted by insect vectors or by mechanical means, such as dehorning or vaccination. The disease can be transmitted any time fresh blood is transferred from an infected to a noninfected animal.

In Idaho, the disease is found statewide but is most prevalent south of the Snake River. Annual loss from anaplasmosis in Idaho is estimated to be \$1 million.

## Treatment

The treatment of anaplasmosis is an important problem that is yet to be adequately solved. Treatment programs for anaplasmosis are of 2 types: treatment directed at the acute stage of the disease when the animal is actually sick and treatment directed at the carrier state in an attempt to remove the source of infection from the herd.

Acute anaplasmosis is difficult to diagnose because clinical signs are usually not seen until the disease is in an advanced state. The symptoms most often observed are anemia, lack of appetite, fever, depression, frequent urination and constipation. As the anemia becomes more severe, the skin around the eyes and nose becomes very pale, later turning yellow or "jaundiced" in color, and the animal becomes very weak. The death loss can range from 0 up to 50% of the infected animals.

The decision to treat the acutely infected animal or let the disease take its natural course is a hard one to make. If the animal is in the acute stage with severe anemia, any stress such as from moving it or restraining it to give treatment can cause death. Factors to be considered in deciding on treatment include the facilities and management available, the value of the animal and the severity of infection at the time.

Recommendations for treatment and handling of acutely infected animals are administration of tetracycline antibiotics such as liquamycin or oxyject at the rate of 5 mg/lb of body weight, blood transfusions, rest, adequate shelter and easy access to feed and water. The sooner these steps are taken, the more likely the animal will recover.

Recently, greater attention has been given to treating carrier animals in an attempt to remove the source of infection from afflicted herds. To date, the only accepted drugs which are effective against the organism are the tetracyclines. Various dosages with oral, intramuscular and intravenous routes of administration have been successful in treating carrier infections.

Oral treatments administer an antibiotic such as aureomycin in either palatable crumbles, pellets or mixed feeds, with the dosage of 5 mg/lb of body weight per day for 45 days being the most successful. Field trials in Idaho have shown that this treatment eliminated the carrier infection in 88.7% of the treated animals. Oral treatments, while effective, have some drawbacks. Some interference with management practices results since the treated animals must be isolated and fed separately for an extended period. Providing adequate feed bunk space and having animals hungry when fed the medicated feed are important. Still, 100% results may not be possible because not all animals will consume the medicated feed.

Intravenous and intramuscular routes of administration have also proven capable of eliminating



carrier infections. By this method, all animals are assured of receiving the proper dosage of drug. Treatments using the dosage of 5 mg/lb of body weight of antibiotic intravenously or intramuscularly daily for 10 days have been the most successful. In a recent University of Idaho experiment, the carrier state was eliminated with a dosage of 10 mg/lb body weight intravenously, daily, for 5 days.

### **Future Prospects in Anaplasmosis Treatment and Control**

Much attention is being given to the use of antibiotic treatment to control and eventually eradicate the disease. "Test and Treat" programs have been implemented to determine the feasibility of this approach. By this method, selected herds are tested, the carriers treated, then the entire herd retested at 3 to 6 month intervals to evaluate the success of the treatment.

At present, all treatments involve some drawbacks, such as cost of the antibiotic, the length of the treatment period and interference with management practices.

Much work is being directed toward development of improved treatment programs that are applicable in different management situations. Experimental drugs and approved drugs are being used in various dosages and combinations in an attempt to provide quick, safe treatments to eliminate the carrier state. Elimination of carriers and subsequent maintenance of "clean" herds is the first step toward control and eradication of the disease.

### **Ongoing Anaplasmosis Research at the University of Idaho**

The Department of Veterinary Science is:

1. Treating carrier animals in infected herds in an attempt to establish clean herds in which to study rates and modes of re-infection.
2. Investigating the presence of anaplasmosis in elk and mule deer to determine if these species could represent a source of infection for cattle during grazing on mountain ranges.
3. Developing new treatment programs to eliminate the anaplasmosis carrier state. Work is directed at treatments which shorten the time required for successfully eliminating the organism from the carrier.
4. Determining if a degree of immunity exists in animals after the carrier infection has been eliminated by antibiotics.
5. Determining the relative importance of ticks, mosquitoes and flies as vectors (ability to transmit the disease from one animal to another) of the disease.

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*Trade names are used in this publication to assist in understanding of the information presented. This does not imply endorsement by the University of Idaho nor criticism of similar products not mentioned.*

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