



RESEARCH FACTS

RESEARCH & TECHNOLOGY DEVELOPMENT FOR THE CANADIAN BEEF INDUSTRY



Better Understanding Cattle Disease Risk Helps Ease Trade Irritation

Project Title:

Risk of Bluetongue and Anaplasmosis Infection in Western Canada following Importation of U.S. Feeder Cattle

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Bluetongue and anaplasmosis are diseases that can infect ruminants such as sheep, goats and cattle. Bluetongue is most often a disease of sheep although infection in cattle is possible. In cattle, it can result in fever, stiffness or lameness and increased respiratory rate. The bluetongue virus is spread by several species of *Culicoides* (biting midges). Anaplasmosis is more common in cattle and results when the organism *Anaplasma marginale* parasitizes red blood cells. It is infectious but not contagious and is spread most commonly by ticks. By destroying millions of red blood cells, it causes anemia and jaundice. Both of these diseases are very rare in Canada because the cold climate prevents the insects that spread anaplasmosis from surviving the winter, and prevents the midges that spread bluetongue from becoming infectious.

However because *Culicoides* do exist in western Canada, bluetongue used to be considered by government authorities to be a potential threat to Canadian livestock and wildlife. Until recently, the Government of Canada required all cattle, including feeder cattle, imported into Canada from the United States to be tested for both anaplasmosis and bluetongue. This caused U.S. feeder cattle to be less competitive in the marketplace and U.S. cattle producers argued there was no scientific justification for the testing requirement.

The project Risk of Bluetongue and Anaplasmosis Infection in Western Canada following Importation of U.S. Feeder Cattle was undertaken to determine the true risk to Canadian cattle from these diseases.

Prevalence of the biting midge that can spread bluetongue (*Culicoides*) was studied in eight locations in southern Alberta – seven feedlots and one rangeland location where *C. sonorensis*, the principle vector for bluetongue, had previously been identified. Black light traps were placed in locations at the test sites where the midges were likely to breed. The insects captured in the traps were identified and the *Culicoides* were counted. Very few *Culicoides* were found at feedlots. Although there was a greater abundance found at the rangeland location, including *C. sonorensis*, to become infectious the bluetongue virus must reproduce within the midge for two weeks at high environmental temperatures. Surveillance found few that had reached this stage.

Research previously carried out in California had determined that approximately 50 bites from infected midges were required for an animal to contract bluetongue. When combined with the fact that few of the midges found in Canada had reached the stage of being infectious, the project concluded that the opportunity for *Culicoides* to infect Canadian livestock with bluetongue was remote.

A survey of antibodies to bluetongue and anaplasmosis in Montana-sourced calves and yearlings was also conducted. Low bluetongue antibody prevalence confirmed the observation of low fly infectivity under southern Alberta/northern Montana climatic conditions. Prevalence of antibodies to anaplasmosis was also low.

This research helped support the Government of Canada's decision to eliminate bluetongue-related restrictions for all classes of cattle imported year round from the United States. It implemented these new regulations at the beginning of 2007, thus removing one significant trade irritant between Canada and the United States.

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