

Bison Research Project

Examining Causes of Death in Alberta Herds

By Roy Lewis DVM

The preliminary results are in from a bison research project examining the post mortem findings and pathogenic agents causing bison deaths in Alberta herds. The research group, composed of four veterinarians (Drs. Burrage, Clark, Lewis, and Tremblay) have examined the causes of 100 bison deaths in herds across the province. Although only preliminary, the results have a considerable impact to the bison industry.

Based on available information, this is the first time this many bison deaths have been investigated with lab diagnosis to determine the exact cause of death. Knowing the causative agent can assist to determine preventative measures. What shocked the researchers was the main cause of death in this study. Historically respiratory agents, parasitism and injuries were the main causes of death. Although the study is not completed and the population in the study is small, last year the cause of death in the majority of cases was respiratory with the respiratory problem being a specific type of pneumonia.

Injuries for the number of bison handled appear to be minimized by our increasing knowledge of how to handle them and skills at designing better handling systems. Older established and experienced farmers and ranchers are educating new bison producers on proper handling techniques. This experience is complemented by written information that has been completed over the past few years. The few manufacturers of bison equipment like "Morand Industries" in Onoway Alberta have modified their equipment to make it as bison friendly as possible, keeping in mind the need for bison and human safety.

Parasites can be bison killers but adhering to strict deworming schedules (most times only yearly), regularly monitoring bison fecals and following your veterinarian's advice have greatly reduced the losses from parasitism.

Back to the post mortem study. The researchers found increasing causes of death within some instances of high mortality upwards of 20-30% from pneumonia more specifically Mycoplasma Bovis pneumonia. Mycoplasma Bovis (M. Bovis) is not a virus and not really a bacteria but fits between the two groups. It is not overly responsive to antibiotics. It causes over time pyogranulomas which are drier pus pocket throughout the lungs which destroys them over time. In bison, especially mature ones, we primarily have seen weight loss, increased respiratory rate and coughing which eventually leads to death. The way the organism behaves and the lesions it causes in the body can resemble tuberculosis. M. Bovis can also find its way into the joints causing lameness because of the arthritis and can also cause abortions in pregnant cows and on occasion causes mastitis.

According to the literature, this organism is not new to the bison industry. Several outbreaks have been documented in large herds in the United States as well as Saskatchewan dating back to the mid to late 1990's. The disease seemed to rear its ugly head, cause high death losses in all ages of bison, and then disappear. Feeder bison, cows, bulls and in a few cases young calves still nursing are also susceptible. Whether your bison are in a feedlot or on the open range, once introduced into the herd it runs its course and in most cases the following year pretty much disappears. Treatments were tried by most

producers. Treatments have involved separation from the herd where possible and treatment with, in most cases, Draxxin under the supervision of the veterinarian. There are almost no products approved for use on bison so the use of Draxxin has to be under the direction and through a prescription from your veterinarian. Currently a study is in the planning stages for developing a known withdrawal time for Draxxin in bison. Some producers vaccinated for the common respiratory organisms in cattle but in most cases it only marginally improved the situation. There is no current vaccination for Mycoplasma in bison or in cattle for that matter. According to the vaccine manufacturers it is a very hard organism from which to produce a vaccine.

In the study half of the cause of death on bison under 30 months of age was mycoplasma and in the mature over 30 months of age bison, the majority died or were put down because of chronic Mycoplasma. Mycoplasma causes a severe pneumonia where most of the lungs are destroyed. When viewed at necropsy, it is easier to understand why antibiotics or any form of treatment are ineffective.

Whenever your veterinarian autopsies any dead bison make sure he or she checks the tonsillar area and larynx as this can be the starting place for the mycoplasma infection. The organism has a predilection for the tonsillar area.

In most of the herds infected with Mycoplasma last year the common denominator was introduction of new bison into the herd or two herds purchased and mixed together or individual animals bought and introduced to a breeding herd. All these scenarios are making the researchers ponder several questions about how and why the Mycoplasma organism is spread and if there are carrier animals. How long is the incubation period? Is there any predisposing stressor? What makes a population so susceptible? These are questions to which the researchers are trying to find answers.

Because of Mycoplasma being North and South of the border an international team of investigators from the two veterinary schools in Canada as well as several veterinarians in the USA have teamed together with the original four veterinarians to try and decipher the answers to these and other questions. In my mind Mycoplasma is the single most significant disease affecting the North American bison industry today. In order to help the bison industry progress answers to this Mycoplasma Syndrome are very important and worth pursuing until answers are found. It is becoming a very costly disease to the bison industry.