

Flies and Pinkeye

Lew Strickland, DVM

Extension Veterinarian

University of Tennessee

Infectious bovine keratoconjunctivitis, more commonly known as pinkeye in cattle, is a highly contagious bacterial infection of the eye. Although pinkeye is non-fatal, it has a major economic impact on the cattle industry with an estimated 150 million dollars in annual losses as a result of lower production (i.e. growth) and sale value and because of treatment costs. Research has shown that pinkeye can reduce weaning weights in calves as much as 40 to 60 pounds. So, pinkeye costs producers money two different ways. Calves that get pinkeye gain less and are worth less per pound when sold.

Cause

Pinkeye is caused when the bacterial organism *Moraxella bovis* infects the surface of the eye. Multiple strains of *Moraxella bovis* have been identified, each capable of creating pinkeye in cattle. The surface of the bacteria has hair like structures known as pili, which extend from the main body of the bacteria. The pili allow the bacteria to attach to the conjunctiva of the cornea and colonize, causing inflammation of the tissue lining of the eyelid and the eyeball itself. Ultimately, the cornea may become ulcerated, resulting in pain and possible blindness. Seed heads, dust, pollen and UV light are environmental factors that can increase trauma to the eyes of cattle. These irritants can scratch the cornea of the eye and allow for easier attachment of the *Moraxella bovis* bacteria. Traumatized eyes will result in an increase in the tearing of the eye; increasing the attraction of the face flies that can spread the pinkeye causing bacteria.

Transmission

The organism is located in the eyes and nasal cavities of infected cattle and asymptomatic carriers can harbor the organism for a period that may exceed one year. Transmission occurs through contact with secretions infected with *M. bovis*. This may be direct contact, through face flies, or contact with an in-animate object containing *M. bovis*. Face flies are the primary vector responsible for spreading the bacteria from animal to animal. Face flies travel from animal to

animal. They feed on the watery tearing from cattle's eyes. When they do so they spread the bacteria that can cause pinkeye from animal to animal. Since face flies can visit several animals a day they can rapidly spread the pinkeye bacteria throughout a herd.

Clinical Signs

There are four stages of pinkeye with clinical signs ranging from conjunctivitis, excessive tearing, photosensitivity, ocular pain, squinting of the eyelid, corneal edema, and corneal ulcer to corneal rupture and blindness. Appetite may be depressed because of ocular discomfort or visual disturbance that results in inability to locate food. The usual clinical course varies from a few days to several weeks. Most corneal ulcers in cattle with IBK heal without loss of vision; however, corneal rupture and permanent blindness can occur in the most severe cases. Typically, recovery occurs in three to five weeks.

Treatment

Early treatment of cattle with pinkeye is important, not only for successful outcome of the individual animal affected but also to stop the shedding of the bacteria and decrease the risk of transmission to other cattle. *M. bovis* is most often susceptible to oxytetracycline, ceftiofur, and penicillin. Systemic antibiotic therapy is usually effective, especially in the early stages of the disease. When severe corneal ulceration exists, protect the eye from UV light, flies, and other irritants through the use of eye patches, or creating a third eyelid flap. In addition to systemic antibiotic, consider the use of local (injection into the bulbar or palpebral conjunctiva) antibiotics (i.e. penicillin) and anti-inflammatories (dexamethasone) with more severe stages of pinkeye. This procedure should be done by a veterinarian or someone that has been adequately trained.

Note: Sprays and ointments are only effective if used three to four times daily, which generally is not feasible for most producers. Also, many of the commercially available ointments are either illegal to use in cattle or have very long withdrawal times. Give all SQ injections in the neck or in front of the shoulder. If treating several animals, you may want to wash your hands or change gloves between animals so you do not further spread this bacteria. Never use any powder or spray containing nitrofuracin, as its use in cattle has been illegal since May 2002. A veterinarian should be consulted before using any medications.

Prevention

An ounce of prevention is worth a pound of cure in this situation, but can be time consuming. Since face flies are responsible for transmission, a solid fly control program is imperative! Management practices that reduce the risk factors associated with pinkeye are the most effective tools in decreasing the incidence of disease. An appropriate vaccination program which includes IBR and BVDV along with a good nutrition program will decrease the incidence of pinkeye. Appropriate grazing, along with clipping pastures will prevent seed-head development, reducing the irritation to the eyes of cattle. To decrease the effect of UV light, breed for eyelid pigmentation and ensure shaded areas are available to cattle. Commercial and autogenous pinkeye vaccines are available. However, they should not be the sole means of controlling pinkeye. Due to the numerous strains of *M. bovis*, they have not proven to be consistently effective in prevention. Vaccination is only part of a pinkeye prevention program and is best utilized when combined with other management strategies.

Work with your Extension Agent or local Veterinarian to establish a fly control and pink eye prevention plan. If you have any further questions, please feel free to contact me @ 865-974-3538, or lstrick5@utk.edu.