

Livestock Health Series

Pinkeye

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Pinkeye generally refers to inflammation of the conjunctiva, which is the inner lining of the eyelids. In cattle, the term pinkeye (infectious bovine keratoconjunctivitis) specifically refers to a highly contagious infection of the eye from the bacteria *Moraxella bovis*. This bacteria affects the conjunctiva of cattle and the cornea (the clear outermost covering of the eye), leading to painful corneal ulcers and possibly blindness.

Several factors contribute to the onset of disease including UV light, face flies, tall pasture grasses/weeds and a dusty environment. These factors irritate the animal's eyes, thus allowing an opportunity for the bacteria to cause disease. Increased irritation often leads to increased tears, which attract face flies. Flies move from animal to animal, spreading the bacteria that cause the disease. One or both eyes may be affected, and animals of any age are susceptible. Infected animals experience poor vision and pain, in turn causing a decrease in performance and weight gains. In the United States, pinkeye is estimated to affect 10 million head and cost producers over \$150 million each year. The losses are due to the decreased performance, treatment cost and handling cost associated with the disease.

Symptoms of pinkeye in cattle include redness and swelling of the conjunctiva, watery eye discharge and a cloudy or hazy cornea that appears blue to white in color (Figure 1). This color change usually appears in the

center of the eye, and an ulcer may develop in this area. Small blood vessels can sometimes become visible on the cornea as an ulcer progresses. Cattle with the disease tend to keep the affected eye closed because of pain and sensitivity to bright sunlight. In severe cases, the ulceration can penetrate completely through the cornea, which causes the inner eye to prolapse.



Figure 1. Example of pinkeye. Note the cloudy appearance of the cornea and the excess tearing. Photo courtesy of Dr. John A. Angelos, UC Davis School of Veterinary Medicine.

When this occurs, blindness is usually irreversible and surgical removal of the eye is warranted. Because the disease can progress rapidly, cattle with symptoms should be treated immediately under the supervision of a veterinarian.

Treatment for pinkeye typically includes antibiotics and controlling the predisposing factors. Injectable oxytetracycline is commonly used to treat infection. Currently, there are no antibiotics for pinkeye that are labeled for use in feed, and the new Veterinary Feed Directive prohibits extra-label use of antibiotics in feed.

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Show animals often tolerate treatment with topical ophthalmic antibiotic ointment. In severe cases, the veterinarian can place a cannula for injection of antibiotic under the eyelid (subconjunctival).

No matter the method of antibiotic delivery, the predisposing factors must be minimized. Attempts should be made to control fly populations with organophosphate or pyrethroid insecticides in ear tags, dust bags, sprays or pour-ons to limit the exposure for the rest of the herd. Mowing tall grass in the pasture will help decrease the opportunity for cattle to get grass or weed seeds in their eyes, thereby reducing the eye irritation. Shade should be available for animals suffering from pinkeye to reduce the sensitivity to sunlight. Cattle with active corneal ulcers may benefit from an adhesive eyepatch. As a last resort for cattle with a severe ulcer, a veterinarian can suture the eyelids closed and place a subconjunctival catheter. This procedure not only protects the infected eye from light exposure but also provides added support for the eye to prevent proapse. Pain management is also recommended for animals with corneal ulcers and is usually accomplished with an injectable anti-inflammatory drug such as flunixin meglumine given intravenously.

Recovery from this disease can be slow, and many times the cornea may retain a permanent discoloration or scar. Several vaccines are available for use in preventing this disease. Most of these vaccines require a booster dose to be effective during the first year of use, then require a yearly booster thereafter. It is important to note that there are several different strains of *Moraxella bovis*, many of which are not covered by vaccines. Pinkeye symptoms can also be linked to another bacterium known as *Moraxella bovoculi*, which is related to *Moraxella bovis*. Incidentally, *M. bovoculi* is not included in any commercial pinkeye vaccine. *M. bovoculi* appears to be associated with more severe pinkeye symptoms as well as cases that occur sporadically or outside the “normal” pinkeye season. Visit with your veterinarian for treatment strategies and vaccination options for *M. bovoculi*. In general, vaccination will help limit the number of outbreaks in a herd but may not completely eliminate the occurrence of disease. However, vaccination combined with careful management for the predisposing factors provides the best chance for preventing disease.

For more information about pinkeye and other diseases affecting cattle, contact your local county Extension office.

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