

Pinkeye in Cattle

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Pinkeye is a highly contagious, non-fatal infectious bacterial disease of the eye. Pinkeye cost the cattle industry an estimated \$150 million dollars in the U.S. alone from decreased weight gain, decreased milk production, and treatment costs. There is a 1.1% infection rate for pink eye which is second to scours and diarrhea (1.7%) for calves and in mature cattle it is a 1.3% infection rate.

The primary infectious agent is *Moraxella bovis* (*M. bovis*) but it can also be caused by Chlamydia, Mycoplasma, and Acholeplasma. Other instrumental factors include excessive ultraviolet light (sunlight), various types of flies, plant material, and dust. With these factors present causing irritation, it enables the disease agents to invade the eye.

Lack of pigmentation around the eye allows increased ultraviolet (UV) light to sensitize the eye and therefore cause infection. Flies are an aggravating irritant in general but with cattle infected with pinkeye, they exacerbate the situation. They feed off the secretions from the eye and in turn transmit the infecting agent to non-infected cattle. Face flies have the ability to remain infected with *M. bovis* for up to three days.

Cool and warm season grasses, forage sorghums, weeds, and brush produced air-borne irritants, pollen, and chaff as well as serve as mechanical irritants. Foreign body irritation can be caused when animals eat out of the middle of round bales or in overhead feeders because there is a hay "shelf" over the cows head and the foreign bodies can easily fall into or be pushed into the eye.

Dust has minimal importance in the induction of pinkeye when compared to other irritants, however its a contributing factor in confined feeding operations.

UV light, flies, growing plants, and pollen are at peak production during the summer and fall which is when we see the highest incidence of pink eye. Weaning distress, transitioning to a more densely populated area, and hay feedings occur most commonly in the late fall, winter, and early spring. This means that pinkeye can be a present during any season of the year.

Young cattle are most susceptible to pinkeye as mature cattle have a higher probability of acquired surface immunity. The incubation period is generally 2 to 3 days but can be up to 3 weeks. Some common signs you will see in affected cattle include: swelling and redness of the conjunctiva, excessive tearing, and squinting.

Those cattle affected will have decreased appetite due to the excessive pain, and a moderate body temperature (fever). After the cattle have been infected for 2 days, a small opaque area will appear on the cornea. By day 6, you will see the entire cornea covered with a grey-white to yellow color with deep ulcerations of the cornea. Some common outcomes of pinkeye are: severe ulceration and corneal rupture with loss of eye contents, cone-shaped bulging of the eye, and blindness. Cattle will most like have a complete recovery in 3 to 5 weeks, however, few eyes will have a persistent white scar present on the cornea.

In antimicrobial sensitivity studies, *M. bovis* is most often susceptible to oxtetracycline (LA-200 IM or SQ), ceftiofur (Naxcel), penicillin, and sulfonamides. Oxytetracyclines have been found to be very effective in treating cattle in the early disease detection. Oxytetracyclines have also been found to clear the eye of *M. bovis* within 24 hours of treatment which will eliminate that animal as a source of the infection. Penicillin injected subconjunctively (the thin membrane covering the white of the eye), has similar healing rates as oxytetracycline but unfortunately is more labor intensive. In clinical studies, calves performed the best and recovered fastest when they were injected with a long-acting oxytetracycline and received a subconjunctive dose of penicillin.

Draxxin is also effective against pinkeye and is long acting (14 days). Nuflor is classified as an extra-label use against pinkeye but is also extremely successful.

When severe corneal ulcerations exist, it is necessary to protect the eye from UV light, flies, and other irritants. The most common forms of protection include eye patches, suturing the eyelids, or creating a third eyelid flap. You will need to consult your veterinarian at Timbercrest for assistance in treating a pinkeye infection to determine drug dosages and proper treatment protocols.

Management is key to the prevention of pinkeye. If appropriate methods are not followed, it can prove to be a costly endeavour. When environmental conditions, animal nutrition, and herd immunity are properly managed, your animal's health will increase and as a result the incidence of disease outbreaks will decrease. Managing pinkeye has four major components: fly control, grazing management, UV light, and disease management.

Fly control is very important and because there are several products on the market, do not hesitate to ask your vet's opinion. You can use insecticide fly tags, sprays, back rubs, and dust bags as chemical controls but don't forget that manure and weeds can also contribute to a thriving fly population.

Grazing management must be taken into effect in order to reduce pollen numbers and other methods of mechanical irritation. This can be done by brush beating, mowing, and spraying. It is best to feed hay in lower overhead feeders and to make sure there is plenty of bunk space. Check your hay to make sure there is no manure, seed head or cheat grass present. All of these can go into the eye and cause irritation.

In order to protect your cattle from UV light, breed for eyelid pigmentation and provide shade and tree rows with plenty of space to prevent crowding.

Disease management has several components. Immunize your cattle against viral diseases, isolate any infected animals so they cannot be a source of infections for healthy cattle, and decrease the occurrence of environmental and nutritional distress to increase your animal's immune response.



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