

# Pinkeye in Beef Cattle Herds

## Introduction

Pinkeye is a general term used to describe symptoms impacting eye health for cattle. These symptoms include excessive tearing, conjunctivitis (inflammation of eyelid), photophobia (aversion to light) and corneal ulcers. Pinkeye is primarily a summertime disease but can be seen during all seasons of the year and affects all breeds of cattle. It is much more common in pastured cattle than in feedlot cattle. It is second only to calf scours as the most prevalent condition affecting pre-weaned calves. Researchers have reported a difference of at least 20 pounds in weaning weights for calves afflicted with pinkeye during the summer grazing season. Annual costs attributed to treatment of pinkeye and decreased cattle production are estimated to be over \$150 million in the U.S.

## Cause of Pinkeye

Pinkeye is diagnosed in cattle of all ages, but occurs primarily in young animals. Pinkeye is spread by direct or indirect contact with infected cattle. Face flies are a major vector for animal to animal transfer of the infectious agents. Face flies feed on eye secretions from infected animals and transfer the bacteria from animal to animal. Irritation of the eye is a major predisposing factor to pinkeye. Common eye irritants suspected to predispose some cattle to pinkeye include sunlight, dust, pollen, weed and grass seeds or awns are major eye irritants. Face flies transmit the bacteria to the eye and if the eye has been irritated bacteria can colonize on the surface of the eye.

Infectious bovine keratoconjunctivitis (IBK) is the major form of pinkeye and is caused by the bacteria *Moraxella bovis*. Other pathogens (disease-causing agents) such as *Moraxella bovoculi*, *Moraxella ovis*, *Mycoplasma* species can sometimes cause similar disease symptoms. Viruses such as Infectious bovine rhinotracheitis (IBR) can cause eye lesions, but a central corneal ulcer is usually not present

with a viral infection. There has been a lot of attention on *Moraxella bovoculi* as a primary cause of pinkeye. *M. bovoculi* has been cultured from numerous cases of pinkeye submitted to diagnostic laboratories. However, researchers have been unable to produce pinkeye lesions experimentally with these bacteria.

## Clinical Signs

The first clinical sign of pinkeye is excessive tearing of one or both eyes. Astute herdsman will also notice slight reddening of the conjunctiva (inner surface of eyelids and outer surface of eye) and frequent blinking. If untreated, the infection may progress causing the cornea (clear surface of the eye) to become inflamed and turn a cloudy white to blue color. Typically, an ulcer will develop in the middle of the cornea. As the disease progresses, the animal will hold the eye partially or completely closed. As healing begins, blood vessels migrate across the normally unvascularized cornea (normal cornea does not have blood vessels) toward the ulcer.



Figure 1. Healing pinkeye lesion. Photo courtesy of G. Dewell.

Depending upon severity, a white scar may remain in the center of the affected eye. The disease course is usually four to eight weeks. Damage to the affected eye may result in permanent blindness. The affected animal may decrease feed intake, presumably because of pain or blindness. Studies have shown that calves with the affliction will have a reduction in weaning weight of 20 to 35 pounds.

## Treatment

Pinkeye can often be successfully treated, but it should begin early when calves first show signs of disease. Prompt treatment is important to reduce the chance for permanent damage to the eye and repeat treatment may be necessary except for mild cases caught early in the disease process. An untreated pinkeye lesion can result in the rupture of the cornea and the subsequent loss of the eye. Multiple products are approved to treat pinkeye in cattle. Contact your veterinarian for specific treatment recommendations and for non-responsive cases. Due to the excessive pain of a pinkeye lesion, non-steroidal anti-inflammatory drugs (NSAIDs) may provide some relief. Usage of NSAIDs would be considered extra label drug usage and require a prescription by your veterinarian.

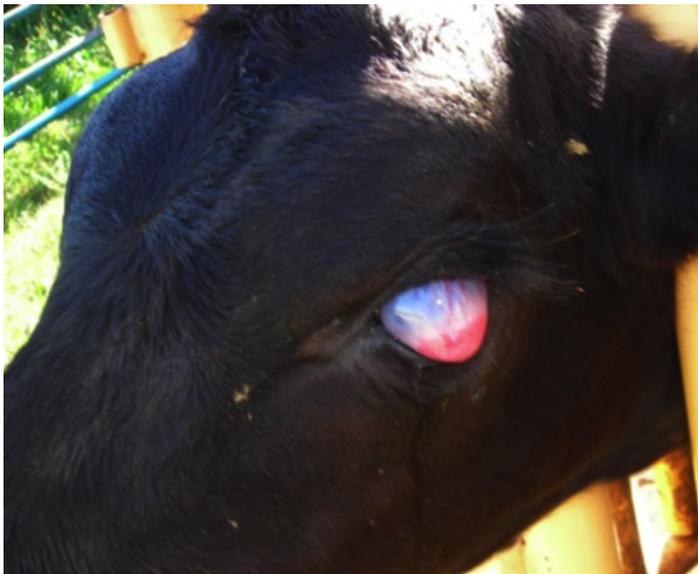


Figure 2. Loss of eye from severe lesion "pop-eye."  
Photo courtesy of G. Dewell.

Protecting affected eyes from sunlight and flies is helpful. Inflammation of the eye is very painful, especially in direct sunlight. Protecting the eye from sunlight will decrease irritation to the eye and minimize pain and weight loss. Eye patches are available that can be glued over the eye to provide protection. Cattle with more advanced cases may benefit from having the eye sutured closed by a veterinarian to provide complete eye protection.

## Prevention

Evaluate your fly control program regularly during the fly season and adjust as necessary to maintain good control of fly populations. Good face fly control is an important part of pinkeye control and programs should be started early in the season to prevent fly populations from being established. Fly control programs to prevent face flies in calves may be different than fly control programs for mature cows that focus on horn flies. Insecticide ear tags, dust bags or sprays are helpful to control flies. Herds with recurring severe pinkeye problems should consider placing insecticide eartags in both ears of all calves as fly-tags in cows will not protect calves from face flies. Larvicidal products can be delivered to cows in feed or mineral blocks to assist in reducing the number of flies. Another option is to target calves with spray or dust bags. Utilizing dust bags or face wicks along with creep feeders can provide control for calves that can't use devices made for cows.

When herds experience higher-than-normal cases of pinkeye, consider altering management practices to reduce pinkeye. Eliminating eye irritation is critical in preventing pinkeye. Seed heads of grasses and weeds, along with pollen, can cause extensive eye irritation. Cattle graze close to the ground where mature plants may cause eye irritation. Mowing pastures can reduce eye irritation caused by pollen or seeds. In the fall and winter, feeding hay in wagons may lead to eye irritation because cattle must reach up to eat and expose their eyes to dust, pollen or other potential irritants in the hay.

Although several pinkeye vaccines are available, efficacy is very limited. Most controlled research trials designed to evaluate vaccine efficacy of pinkeye vaccines have not demonstrated any significant reduction in pinkeye infections in vaccinated calves. The two main reasons for

poor efficacy of vaccines is that there is not significant excretion of antibodies onto the surface of the eye until after the eye becomes infected and there are over 100 different strains of *M. bovis* that make targeting a single vaccine for coverage almost impossible. To develop a plan to prevent and treat pinkeye that works for your operation, work with a veterinarian.

## References

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