



# Vet Call

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## Pinkeye

*As we move into the summer months, some cattle herds will deal with the very frustrating problem of pinkeye. The bacteria *Moraxella bovis* (*M. bovis*) is the most commonly recognized cause of pinkeye infections. However, a number of factors are involved in making the animal susceptible to infection and in passing the organism from one animal to another.*

### Causes of infection and outbreaks

Some of the factors that are associated with pinkeye infection are age of the animal; face fly infestation; irritation from plants, dust or pollen; and ultraviolet light damage to the surface of the cornea. Cattle that do not have pigment around the eye have greater eye irritation due to sunlight, but the disease affects all breeds of cattle. Younger cattle are most commonly and most severely affected by pinkeye.

Pinkeye can affect a large number of cattle within a herd, and the outbreak can last for several months. In situations where the herd has very few additions, the outbreak is often confined to one grazing season, but can occasionally reappear for two or even three years in a row. Herds that import many new cattle each year are more likely to suffer from pinkeye problems that reoccur in the next grazing season.

A number of other diseases can mimic pinkeye in cattle. Infectious bovine rhinotracheitis (IBR), *Mycoplasma* infection, vitamin A deficiency and foreign objects in the eye or eyelid (dust, grass seeds, etc.) can cause or contribute to irritated, watery eyes. Some cases that are suspected to be pinkeye are, in actuality, one of these other eye diseases.

The organisms that contribute to pinkeye

### Signs of pinkeye, in usual order of appearance

1. Excessive tearing
2. Intolerance of light (shading or closing the eye)
3. Inflammation and redness of the tissue around the eye
4. Holding the eyelids closed
5. Corneal cloudiness
6. Ulcer in the center of the cornea
7. Contraction of the pupil
8. Thick, yellow discharge from the eye
9. Corneal destruction
10. Small blood vessels invade the cornea
11. Fibrosis of the cornea

are often found in the eye and nasal secretions of animals with active cases of pinkeye and in carrier animals that do not have symptoms. Anything that transports secretions from one animal to another can spread pinkeye.

Although a number of fly species can carry the pinkeye organism, the face fly is considered the primary problem. The face fly feeds on the secretions around the eyes, and the act of feeding causes irritation to the eye. By moving from one animal to another, face flies help to spread the disease through a herd.

Other methods of passing the disease to animals include accidental movement of germs from infected calves to other cattle in the herd on the hands and fingers of producers and veterinarians while processing or performing other health work, and even on bottles and other containers of pinkeye medicine that are used on multiple animals. Direct contact by cattle rubbing on each other's face can also transmit the organism.

### Infection and what can be done

Once the pinkeye organism infects the eye, it can release enzymes that damage the cornea. The body responds to the damage with inflammation, which causes the animal's own cells to release other enzymes that can further damage the cornea. The damage often continues to the point that the cornea becomes cloudy, pitted and/or scarred. The disease usually lasts three weeks or more in individuals, but eyes can gradually and partially clear over the next several weeks to months. In severe cases, blindness may result if the cornea is damaged so severely as to allow damage to deeper layers of the eye.

Diagnosis of pinkeye is usually done by eliminating the likelihood of other causes of eye problems in cattle. Pinkeye typically has a pit (or ulcer) in the center of the cornea that is absent in other eye diseases. It is always important to examine under the eyelid to

make sure that no grass seeds or other object is present.

Although I consider treatment of pinkeye to be labor-intensive and frustrating, it is often successful because the eye has a tremendous ability to heal and because the most common organisms (such as *M. bovis*) are susceptible to many available antibiotics. The antibiotics can be administered as an ointment on the surface of the eye (topical treatment), as an injection into the eyelid, or as an intramuscular or subcutaneous (under the skin) injection. But because both topical treatment and eyelid injection of antibiotics need to be repeated two to three times daily, most veterinarians recommend subcutaneous or intramuscular injections of long-acting antibiotics that can be given once or only repeated after several days.

Atropine, which causes the pupil to dilate, is also used to decrease the pain associated with pinkeye, but because of the pupil dilation, the eye must be sewn shut or covered with a patch for protection. Whether or not atropine is used, protecting the eye from sunlight and dust/pollen with a patch or by sewing the eyelids shut is often helpful.

### Management practices

Strategies to prevent pinkeye involve decreasing the face fly population on the herd and separating affected animals from the rest of the herd as early as possible. Historically, pyrethrin ear tags are the most effective method to decrease the herd's face fly population, and although horn fly populations can become resistant to pyrethrin insecticides, face flies are generally less likely to have resistance. Because the pinkeye organism can be transmitted very rapidly, removal of affected animals at the earliest sign of disease is necessary to prevent spread in the herd.

Other management strategies to control the contributing factors of pinkeye are also beneficial. Grazing and pasture management to keep grass in the vegetative stage (not producing seedheads) and eliminating weeds helps to prevent eye irritation from tall plants. Providing shade and selecting for cattle with pigment around the eyes decreases the ultraviolet damage to the cornea. And, because IBR infection may either mimic or predispose animals to pinkeye, vaccines to decrease the risk of IBR are probably helpful.

Both vaccination against *M. bovis* or other organisms and feeding tetracycline antibiotics in a supplement or mineral mix have been used in efforts to prevent pinkeye. Neither method is universally successful.

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