

Preventing Pinkeye in Cattle

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Although this year started off with unusually cold temperatures across the US, it is finally warming up and drying out in the southeastern part of the country. Unfortunately, along with warmer weather come the flies and various problems associated with the little pests. Severe fly infestations have been associated with increased incidence of pinkeye, or infectious bovine keratoconjunctivitis (IBK).

Pinkeye is an acute, contagious ocular disease of cattle that occurs worldwide. While cattle of all ages can be affected, more severe infections are seen in calves. Affected animals will develop epiphora (runny eyes), conjunctivitis, and corneal ulcers and scarring in more severe conditions. Severe scarring may result in blindness. Photophobia (sensitivity to light) occurs and affected animals can be seen squinting and seeking shaded areas for relief. One or both eyes may be affected, and the signs of disease can last up to several weeks.

Pinkeye can be a very costly disease to beef producers from treatment costs (including labor and antibiotic costs), reduced value of animals with scarred or “blue” eyes, and potentially reduced weaning weights of calves. Animals suffering from pinkeye may have decreased appetite due to ocular pain or decreased vision that results in an inability to locate food and water.

Causes of Pinkeye

Pinkeye is a multifactorial disease, which means that it has many factors that contribute to the development of the disease. Infectious agent factors, environmental factors, and animal factors must all be considered when examining the cause of pinkeye in cattle.

The bacterium *Moraxella bovis* (*M. bovis*) is the main infectious cause of pinkeye in cattle. The surface of this bacterium is covered in hair-like structures called pili, which allow it to attach to the surface of the cornea and avoid being rinsed away through normal tearing. The organism can be found in both ocular and nasal secretions of infected cattle. Transmission of the infectious organism can occur through direct contact with other infected animals, flies, and fomites (inanimate objects such as instruments and halters).

M. bovis can be transmitted by the face fly as they feed on the eye secretions of affected animals. Flies can cause immense irritation and inflammation to the eye, predisposing the animal to subsequent infection. Other irritants such as excessive ultraviolet light (sunlight), dust, grasses, and pollens may also predispose or worsen the disease in your herd. Irritation can also be caused when cattle eat hay out of the middle of a round bale or eat from overhead feeders.

Lack of pigmentation around the eye, as seen in breeds such as Hereford and Charolais cattle, can allow increased sensitization to UV light, causing additional ocular inflammation. Studies have shown a natural resistance in Brahman or Brahman-influenced cattle.

Prevention and Control of Pinkeye

Fly control is an essential component of both the prevention and treatment of outbreaks. Current methods of fly control include the application of insecticidal ear tags, sprays, pour-ons and charged backrubbers. Fly tags are commonly used to provide a longer protection to cattle. A common recommendation is to begin fly control when 100 or more horn flies are seen on the individual animals. Tags must be removed at the end of the fly season, usually in late November in the Southeastern U.S, and should not be applied too early so that the product loses effectiveness. The type of insecticidal ear tag used (organophosphate or pyrethroid) should be alternated yearly or every other year to reduce the potential for the development of fly resistance.

Keeping pasture cut and free of potentially irritating seedheads is an equally important component of control since small cuts or abrasions on the eye can allow the infectious organism to gain entry. Spread hay out and avoid or lower overhead feeders if possible. Prevent overcrowding at the feed bunk and allow for ample shade.

Long-term, consider breeding for eyelid pigmentation, or consider introducing Brahman-influenced genetics if pinkeye is a severe problem in your area.

Immunity can develop in adult through protective antibodies on the surface of the eye following previous infection. Commercial vaccines are also available against *M. bovis*, and autogenous (“self”) vaccines can be made through approved laboratories against *M. bovis* as well as other organisms that cause pinkeye. Protection from these vaccine products has been inconsistent, with results varying from poor to excellent control of pinkeye. If you are planning on using a vaccination, remember that you need to get them vaccinated *prior* to the start of the fly season. Check with your veterinarian to help you decide whether these products may be beneficial in your area.

Treatment of Pinkeye

Early treatment of pinkeye is essential for a successful outcome, and to stop the shedding of bacteria and decrease the risk of transmission to other cattle.

The *M. bovis* organism has been shown to be sensitive to oxytetracycline and penicillin in antimicrobial sensitivity studies. Long-acting oxytetracycline injections have been shown to be effective when used early, often in combination with medicated tetracycline feeds when large numbers of animals are affected. Penicillin injected subconjunctivally (under the thin membrane of the eye) have also been shown to be very effective but requires more labor and better restraint. This is an off-label use of the antibiotic, so your herd veterinarian must be consulted prior to any use that is not approved on the product label.

It is important to follow the labeled dose and route of administration of the product you are using. Many of the nitrofuracin sprays and puffers that were used years ago are now illegal to use in cattle. Approved sprays and ointments may be quite effective but must be applied frequently (several times a day). Spraying from a distance is usually ineffective since the animals will blink or turn when approached.

Using an eye patch or other material to cover the eye may help protect the eye from further irritation and decrease the spread of the organism. When severe corneal ulcers exist, your veterinarian can perform a third eyelid flap or suture the eyelids closed to further protect the eye.

If you are seeing a large number of pinkeye cases that are refractive to treatment, contact your herd veterinarian. He or she can take cultures to determine specific antimicrobial sensitivity patterns for the infectious organism in your herd since other organisms may be involved in the disease. In some cases, altered antimicrobial sensitivity patterns may exist.

Finally, it is important to remember that pinkeye is contagious, so persons or equipment coming in contact with infected animals can essentially spread the disease. When you examine an animal with pinkeye, use disposable gloves and discard after each animal to reduce the transmission of the organism to other animals in the herd. Disinfect any equipment such as halters or nose tongs that may come in contact with infected secretions. If possible, isolate infected animals to decrease the potential for disease transmission to other animals.

During the late summer and early fall here in the Southeastern US, pinkeye cases seem to increase in cattle. Peak fly season is just around the corner, so it's not too early to start your prevention program. Because of the many factors that predispose an animal to pinkeye, no one single management practice will be successful in preventing and controlling the disease. The higher incidence of pinkeye that we see in the late summer or early fall corresponds to the increase in flies, plant growth, pollen production and hay feeding that is occurring in the animal's environment. By understanding and managing these risk factors, we can prevent or reduce the incidence of pinkeye in our herds.

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