

VET VIEWS *from the University of California, Davis*

Preventing Pinkeye in Your Herd

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Last year was very bad for pinkeye in calves and adult cattle, so it is important to be on the lookout for more pinkeye as this promises to be a difficult summer for fighting this disease. We discussed fly control earlier this year as a primary method to help prevent pinkeye.

Face flies are very efficient at transmitting pinkeye agents from one animal to the next and so fly control is an essential part of prevention. One of the important pinkeye agents is *Moraxella bovis*; this organism has been proven to cause pinkeye in cattle. We suspect the recently characterized *Moraxella* species, *Moraxella bovoculi*, is also involved in causing cattle pinkeye. Also, if the calves in your herd are having more cases of pinkeye—it is most important to put the fly tags in the calves' ears versus the cows. It is important to put together a total “game plan” to control the flies on your operation.

Plants as an eye irritant One aid in the prevention of pinkeye is to clip your pastures if the grass is too long and headed out. This will decrease much of the irritation to the cattle's eyes that can initiate the beginnings of a pinkeye outbreak.

The irritation of dust, plant pollen or weed seeds will promote tearing from the eyes and shedding of the bacteria (*M. bovis*, *M. bovoculi*) by a few “carrier cows” in the herd. These carriers then spread the organism by contact and via face flies to the rest of the herd and susceptible animals may become infected and develop clinical pinkeye.

As mentioned, eye irritation can be caused by tall grasses; however, foxtails, another common plant, can cause significant irritation. These foxtails (or other weed seeds or awns that stick in the eye) lodge in the eyes of cattle and can cause significant damage, irritation, and watering (tearing) of the eye. This can lead to further spread of the bacteria that cause pinkeye. Face flies that are attracted to this tearing can easily spread the pinkeye organisms between animals.

Cattle examined for pinkeye should also be examined for the possible presence of these foxtails or plant awns. If they are found, they must be removed. One clue to the presence of foxtails is the location of the damage in the eye.

With uncomplicated pinkeye the damage usually begins in the center of the eye and spreads outward. With a foxtail or other foreign body the damage will be “off-center”. The examination of the eye for foxtails and pinkeye creates another opportunity for spread of the disease and this spread must also be prevented.

Keep it clean When examining the eyes, it is important always use be as sanitary as possible. One way this can be accomplished is by using disposable latex gloves. The pinkeye agents can bind to your hands and you can become a very effective transmitter of the disease. So you can become a “giant face fly” in terms of causing more problems in your herd. When you do treat a pinkeye animal, be sure to use disposable needles and syringes—then dispose of them!

Just as with your hands, your clothing can easily become contaminated with the pinkeye agents. Therefore, it is best to treat any pinkeye or potential pinkeye cases after you have done all the routine animal handling procedures on healthy animals for the day. Alternatively, change clothes after handling pinkeye cattle and before handling normal cattle.

The routine use of a disinfectant for any equipment used on animals with pinkeye is necessary. Nolvasan (chlorhexidine; Fort Dodge) is an excellent choice because it is not irritating to tissues and works well as a disinfectant. Your veterinarian can also suggest other disinfectants that will accomplish your goals.

Things to be disinfected include (1) forceps, hemostats, or tweezers used to remove foxtails; (2) nose tongs for restraint; or (3) rope or nylon halters. It may be a good idea to clean and disinfect the head catch or head restraint area of the chute as it may be an area of contamination and spread of the agents.

Consult your veterinarian about vaccination

Your veterinarian may be the most important part of your prevention plan. Get your veterinarian’s advice about prevention before the outbreak, or, if you had problems last year, seek their advice ahead of time. Topics to be covered should include (1) fly control; (2) vaccines; (3) disinfectants; (4) tools and supplies to have on hand for prevention and treatment; and (5) treatment protocols and any necessary prescriptions.

Vaccines can also be very effective in preventing pinkeye and there are a relatively large number of vaccines available—which usually means no single vaccine works perfectly. It is usually recommended for producers to start with one of the commercial vaccines and it should be one recommended by your veterinarian. He or she will have knowledge about which vaccines are currently working well in your area and more importantly, which are not working well.

Remember most vaccines for pinkeye require 2 doses to be effective and it usually takes a month or so for immunity or protection to develop. Thus, the most effective vaccination programs begin well before the start of pinkeye season.

The chart below has some general information on some currently available vaccines for pinkeye that may be of some help to you and your veterinarian.

PINKEYE VACCINE INFORMATION

FEATURE	SolidBac® Pinkeye IR/PR®	MAXI/GUARD®	20/20® with SPUR®	20/20® Vision™ with SPUR®	SolidBac® Pinkeye IR/PR®
Marketer	SolidTech	Addison	Intervet	Intervet	SolidTech
Strains/Isolates	8 isolates	8 isolates	8 isolates	8 isolates + clostridial	8 isolates
Initial doses required on label	One application (two doses)	One dose	Two doses	Two doses	One application (two doses)
FEATURE	Ocu-Guard® MB	Ocu-Guard® MB-1	Alpha 7/MB™	Alpha 7/MB™ -1	Pinkeye Shield™ XT4
Marketer	Boehringer-Ingelheim	Boehringer-Ingelheim	Boehringer-Ingelheim	Boehringer-Ingelheim	Novartis
Strains/Isolates	8 isolates	8 isolates	8 isolates + clostridial	8 isolates + clostridial	4 strains
Initial doses required on label	Two doses	One dose	Two doses of MB required	One dose	One dose

FEATURE	Piliguard® Pinkeye-1 Trivalent	PINKEYE-3	Piliguard® Pinkeye + 7	Piliguard® Pinkeye TriView®	I-Site™
Marketer	Schering-Plough/Durvet	Aspen	Schering-Plough	Schering-Plough	Agri-Labs
Strains/Isolates	3 strains (EPP63, FLA64, SAH38)	3 strains (EPP63, FLA64, SAH38)	3 strains (EPP63, FLA64, SAH38)	3 strains (33, 89, 109) Subunit	3 strains (EPP63, FLA64, SAH38)
Initial doses required on label	One dose	One dose	Two doses	One dose	Two doses

- Addison Pinkeye Antigens
- Novartis Pinkeye Antigens
- Schering Pinkeye Antigens

If pinkeye cases do occur, what are the treatment options? Two professors at the University of California, Davis, School of Veterinary Medicine, John Angelos, DVM and Lisle George, DVM have researched this topic for many years and this short summary contains many of the practical items they have discovered.

1. Long-acting tetracycline (Biomycin® 200 or LA-200®)

Dose: 4.5 ml/cwt (hundred pounds of body weight)

Route: intramuscularly or subcutaneous (these products are irritating to tissues and should be given sub-Q whenever possible) both are labeled for sub-Q use.

Frequency: Two injections 48 to 72 hours apart.

Label: Both products are labeled for pinkeye and you will not need your veterinarian's prescription if you follow the label instructions.

2. NuFlor® (florfenicol)

Dose: 3 ml/cwt

Route: Intramuscularly

Frequency: two injections 24 hours apart

Alternatively, NuFlor® can be used as single injection for longer action.

Dose: 6 ml/cwt

Route: Subcutaneous

Frequency: one treatment

Label: NuFlor® is not currently labeled for pinkeye and you must have your veterinarian's prescription to use this drug for pinkeye in cattle.

3. Excede® (ceftiofur)

Dose: 1.5 ml/cwt

Route: Subcutaneous--on the back of the ear or at the base of the ear as per instructions on the label. You will need to get your veterinarian to train you in the proper administration of this drug. It is relatively easy; however, if given incorrectly the drug will kill the animal very rapidly.

Frequency: one injection provides therapy for 7-8 days.

Label: Excede® is not currently labeled for pinkeye and you must have your veterinarian's prescription to use this drug for pinkeye in cattle.

4. Draxxin® (tulathromycin)

Dose: 1.1 ml/cwt

Route: Subcutaneous in the neck region.

Frequency: One injection.

Label: Recently approved for pinkeye, your veterinarian's prescription is required.

The pinkeye agent is a bacterium and therefore, antibiotics are indicated for treatment. The question has been, "Which antibiotic, what dose, what route?" the best treatments proven by research in beef cattle are outlined below.

These treatments are very effective and should be considered the best methods currently available for the treatment of pinkeye in cattle. None of the above methods require any injections into the eye.

Continued use of tetracyclines in areas with high numbers of anaplasmosis cases may make the cattle susceptible to sickness due to anaplasmosis. Consult with your veterinarian regarding this potential problem.

NOTE: if any antibiotic product is not labeled for pinkeye, you must obtain a prescription from your veterinarian, as this constitutes an extra label use of this product.

Another treatment option is to give penicillin as an injection under the white part of the eyeball (the sclera). If you are not expert in this method, have your veterinarian train you on the proper way to administer this treatment. Do not attempt this method without training. To achieve good results, give 1 ml under the sclera of both eyes for at least three days. This method can achieve good results, but is more difficult and potentially more dangerous to the animal than giving an intramuscular or subcutaneous dose of oxytetracycline, NuFlor®, Draxxin® or Excede®. Again, you will need your veterinarian's prescription for the use of penicillin as it is not labeled for use in pinkeye.

For many years, Furox sprays or powders (Nitrofurazone, Furox®, Topazone®, NFZ Puffer, P.E. 7, etc.) placed into the eye were used for the treatment of pinkeye. This method was not as effective as the above methods. However, beginning in 2002 this treatment became illegal for cattle.

This is irrespective of whether or not you have a prescription or if a drug supply company sold you a furacin containing product. Do not use the furacin-type drugs in cattle.

There are some liquids and spray-type products still available for pinkeye treatment. These products only stay in the eye for about 7 minutes before the tears wash it out and therefore, are much less effective than any of the methods described above. As with all treatments that are placed directly into the eye, proper restraint is necessary and the use of disposable latex gloves is recommended.

For many years, treatment with dexamethasone (Azium®) has been popular. Research indicates that when this is given under the sclera, there is no difference in the rate of healing. Therefore, use of this product is not usually recommended.

Keep written records of treatments and results. Discuss these with your veterinarian as you reevaluate pinkeye prevention and treatment plans for the future.

Also, if your cattle are copper deficient or selenium deficient, the number of pinkeye cases will be greater and the severity will be worse. Be sure your mineral program is working, as this is important in the animal's immune response to this bacterial pathogen.