

Winter Pinkeye?

Idaho rancher/author shares her experience with a mysterious eye inflammation caused by burrs.

Story & photos by Heather Smith Thomas

Full and winter can bring unexplained eye problems in horses and cattle. For many years on our ranch, we had a few cases every winter of what looked like pinkeye. The affected eye would be held shut, irritated and watering. Then it would become blue and blind, often with an ulcerated protrusion. We couldn't understand why cattle would get "pinkeye" so late in the year; neither could our vet.

We treated the eyes as we would for pinkeye, using antibiotics injected into the inner surface of the eyelids and sewing the lids shut to protect the eyeball. The problem eyes cleared up, though it often took several weeks for recovery.

► Microscopic barbed slivers from burdock seeds (burrs) can cause eye problems in horses and cattle. Symptoms include sensitivity to light, holding the eye closed, discharge and weeping, contraction of the pupil, and uptake of positive fluorescein dye at the site of corneal damage.



► Several calves in a group that were weaned in a brushy pasture containing burdock plants developed eye problems and had to be treated.

The cause of the inflammations eluded us. Then, in 1993, we learned that veterinarians at Cornell University had found microscopic barbed slivers from burdock seeds (burrs) to be a cause of eye problems in horses and cattle.

We talked with Cornell veterinarian William Rebhun (now deceased). He said that seeds or pieces of hay or straw in the conjunctiva (the membrane that lines the eyelids) usually work their way to the corner of the eye, where tears wash them out. Sometimes they get trapped under the lid and cause irritation and scraping of the cornea (the tough, transparent covering of the eye), leading to inflammation, erosion

or ulceration. Large seeds can usually be seen during an eye exam, and they can be flushed free or removed.

By contrast, foreign bodies less than 3 millimeters (mm) long can be hard to locate. Tiny slivers may become entangled in folds of the eyelid lining. When caught under the lid, they

create a sore by scraping against the eyeball each time the animal blinks. As Rebhun explained, their presence affects the area of the cornea next to the affected lid, creating abrasions, erosions or ulcers.

Symptoms include sensitivity to light, holding the eye closed, discharge and weeping, contraction of the pupil, and uptake of positive fluorescein dye at the site of corneal damage. These symptoms may mislead the examining veterinarian into thinking it's a corneal injury. An embedded foreign body may not be suspected until the damage fails to respond to conventional therapy (such as topical antibiotics and drugs to keep the eye dilated) within a reasonable period.

The plant

Burdock (*Arctium minus*) is one of several plants with seeds that stick to fur, hair or clothing. Cocklebur (a short plant with smaller egg-shaped burrs) and burdock seeds stick to anything that touches them, due to hooks and barbs on the seedheads. It was this tenacious design that inspired the inventor of Velcro®.

Burdock thrives in moist soils and is often seen along fences, roads and where ground has been disturbed. It often grows in shady, wet places, around brush or along ditches. Cattle that go in the brush for shade can become covered with burrs.

Burdock blooms in late summer, producing a seedhead burr that matures by mid-August in southern areas, or later in northern climates. When the seeds ripen, they release hundreds of microscopic barbed slivers. When the burr is shredded during attempts at removal, seeds are scattered.

Rebhun said that even if you pull off burrs that stick to your clothes, some slivers may remain, causing itching when the clothing is worn again. Slivers can become embedded in human flesh, causing irritation. A sliver is too small to see with the naked eye and, thus, difficult to remove.

Fall and winter are common times for burdock-caused eye problems. Burrs can hang on the dead, dry plant all winter and into spring. Sometimes old plants are still standing, and animals may come into contact with burrs even before new plants put forth seeds.

A horse or cow may get a burr sliver in an eye if hay or bedding contains shredded burrs, as when burdock plants get baled with straw. If animals root around in their hay or bedding, or if they sling and shake the hay as they eat, shreds of burrs will float around in the air and may end up in an eye.

Eye problems

If a sliver gets in an eye it can cause inflammation and infection. It usually becomes caught in an eyelid or third eyelid (a transparent inner eyelid), where it scratches the surface of the eyeball with every movement of the eye or lid. Inflammation persists and does not respond to treatment. The cornea may become inflamed and ulcerated; the eye may turn cloudy and have a white spot or bulge.

In cattle, this may be mistaken for pinkeye, but it is usually the wrong time of year. Burdock slivers are most apt to get in the eye in fall or winter after seedheads ripen.

The sliver is so small that the focal light and magnifying lens typically used by veterinarians to examine an eye may not be

powerful enough to locate it, especially during an on-farm examination.

Rebhun said locating the general area of irritation is crucial to pinpointing the exact location, since “the actual viewing of it can be extremely difficult without extensive magnification. Also, the inflamed and reddened conjunctiva can easily hide the sliver.” The veterinarian must narrow the search by looking at the portion of the eyelid that abuts the damaged cornea during eye movement.

Some slivers can be removed with forceps, but those that can't be grasped can be removed by vigorously scraping the surface of the inflamed conjunctiva with a scalpel. After removing it, the eye typically returns to normal with minimal treatment using topical antibiotics, though eyes inflamed for a long period of time may take longer to heal. In some cases, when no foreign body could be seen, scraping the inflamed conjunctiva and following up with supportive treatment resolved the problem.

If an animal has an inflamed eye that doesn't respond to antibiotic treatment, a burr fragment can be suspected. Most injured or inflamed eyes respond to standard treatments and show signs of improvement after three or four days of medication. If an eye does not improve, Rebhun recommended taking the animal to a clinic with specialized equipment for eye examinations.

Eradication and control

Chopping burdock down before it matures enough to put forth seeds can control the weed. It can also be controlled with herbicides. Don Morishita, Idaho State weed specialist, says any good broadleaf herbicide, if used properly, will kill burdock.

Burdock is a biennial; it lives two growing seasons. During the first year, it doesn't grow tall stalks or bloom; it grows leaves and accumulates food reserves in its roots, like a carrot (also biennial). The second year, it grows a long, deep taproot and tall stalk, producing flowers and burrs. This exhausts food reserves in the root, and the plant dies after burrs mature.

After the stalk comes up, it's harder to kill with herbicides — it's sending food up from the roots instead of down. Morishita says you should use broadleaf herbicide like 2,4-D that can move down into the root.

If you spray early in spring, you generally kill the new young sprouts and last year's rosettes (plants that are trying to create more food reserves in the root for a big push to complete second-year growth and make burrs). If you spray in the fall, you will kill



►The burdock plant has large composite leaves and grows to 6 feet tall or more, producing round prickly burrs.



this year's rosettes — the plants that would mature and create burrs next year.

The main thing when using herbicides is to not overdo it, Morishita says. “If you use too much, it quickly kills leaves and doesn't get down into the taproot.” The root survives, and the plant survives. You want a slower kill so leaves survive long enough to transfer herbicide down into the root to kill the whole plant.

Chopping the plants down is also effective, but you must do it at the right time or they will regrow from the roots. The best time to chop it is after the stalk is budding, but before burrs are ripe. At that point the food reserves are so low in the root that it cannot regrow, Morishita says.

Even though you chop or spray the plants, there may be viable seed in the ground from earlier years. Keep checking those patches, he says, and get rid of new plants that grow up from old seeds.

