

# Preventing Red Water

Liver flukes associated with the disease are spreading in some regions.

by Heather Smith Thomas

Several serious livestock diseases are caused by a group of bacteria called Clostridia. Most cattle producers are familiar with blackleg (and nearly all stockmen vaccinate for that one) and tetanus, or enterotoxemia, in calves. But others may not be familiar with redwater.

## Redwater becoming more common

Redwater (Bacillary hemoglobinuria) is caused by *Clostridium haemolyticum*. This disease is more common in adult cattle. Clinical signs may include red urine, blood-stained feces, yellow (icteric) mucous membranes and severely depressed animals. In most cases, the only sign a producer may see is dead livestock due to the rapid progression of the disease.

“Until two years ago, redwater was not considered a problem in Missouri,” says Craig Payne, DVM, University of Missouri associate Extension professor. Several cases were reported in north central and northeast Missouri, and now he encourages everyone to be aware of the disease regardless of their location. The small number of cases confirmed at the lab do not reflect the magnitude of the problem based on feedback he has received from veterinarians and producers. Redwater has been a continual problem in certain areas of the U.S. for many years, and producers in those regions vaccinate their herds annually (and in some regions twice a year) to keep from losing cattle.

Redwater is a complicated disease. There are several factors involved. In general, *Clostridium* bacteria are spore-forming, and spores can survive in the environment for extended periods — in some cases for many years. When spores are ingested or enter the body through a puncture wound, they can germinate, multiply and produce lethal toxins.

In the case of redwater, *Clostridium haemolyticum* spores are ingested by cattle, cross the intestinal wall and are carried to the liver via blood circulation.

“In the liver, the spores are ‘phagocytized’ (ingested) by what are called Kupfer cells (that engulf the spore and create a compartment around it), and these spores can remain dormant for months,” Payne says.

If liver damage occurs, however, this may provide ideal conditions for spores to multiply and produce toxins which cause a cascade of events leading to redwater disease. The liver damage that triggers this growth can be from any insult on liver tissue, but damage due to liver flukes is often associated with redwater.

## What are liver flukes?

These parasitic flatworms start their life cycle in tiny freshwater snails but end up in the livers of grazing animals, such as cattle, sheep, elk and deer, where they grow, mature and pass their eggs. Feces containing fluke eggs must land in water for transmission to snails. If the feces lands on dry ground, the eggs die.

In water, the eggs hatch; the immature flukes, like tiny tadpoles, start swimming and looking for a snail. They penetrate the soft foot of the snail, get into its body and start multiplying. The immature flukes stay and grow in the snail awhile, then come out, swimming again until they find plants growing in the water to attach to — and be eaten.

Cattle in North America primarily get two types of liver flukes — the cattle fluke, *Fasciola hepatica*, and the giant deer fluke, *Fascioloides magna*. Cattle are an abnormal host for giant deer flukes; when these flukes mature (become adults) and pair up in the liver, the cow walls them off in a fibrous connective-tissue capsule. Cattle are a dead-end host for giant deer flukes (*Fascioloides magna*) because those flukes are walled off in the liver and can't pass their eggs.

Certain areas in the U.S. and Canada have more problems with cattle flukes — wherever there is habitat for the snails essential to

the fluke life cycle. Some areas have more problems with deer flukes. However, because these parasites are endemic in wildlife and get picked up by cattle, deer flukes in cattle can be more difficult to control.

Anne Rogers, DVM, Edson Veterinary Clinic, Edson, Alberta, Canada, has seen a growing number of cases of deer flukes crossing from elk into cattle. “We used to see this problem primarily in cattle grazing pastures that had previously been used by farmed elk, but now

“If you find one dead and don't know why it died, this is an opportunity for the rancher and veterinarian to find out what's going on in the herd. This helps us, as veterinarians, keep track of diseases endemic to the area, like liver flukes and redwater.”

— Anne Rogers, DVM,  
Edson Veterinary Clinic

these parasites are also in the wildlife population; this problem is increasingly spreading west over our practice area,” she says. “We tend to see flukes most commonly in cattle grazing low-lying areas that have water (marshes, etc.), since a snail is the intermediate host. These flukes damage the liver, and we’ve seen everything from cattle not doing well to cattle that die of liver failure if the damage is severe.”

More urgently, cattle can suddenly die from redwater disease. “If we find flukes where a rancher is grazing cattle or the neighbor has had flukes, we recommend vaccinating annually with a Clostridial vaccine that contains protection against redwater,” Rogers says. In some areas, ranchers need to vaccinate twice a year.

It’s helpful to know the cause of death in any animal that dies. “If you find one dead and don’t know why it died, this is an opportunity for the rancher and veterinarian to find out what’s going on in the herd. This helps us, as veterinarians, keep track of diseases endemic to the area, like liver flukes and redwater,” Rogers notes.

With cattle flukes (*Fasciola hepatica*), a veterinarian can determine if an animal is carrying these parasites because the feces can be checked for eggs. “But with the deer fluke, there’s not a good way to test and diagnose this in the live animal,” Rogers says. These flukes get walled off in the liver and are not passing eggs. The problem is generally not diagnosed until the animal dies or is slaughtered.

Though some animals do poorly and lose weight, others appear perfectly healthy. “We’ve found deer flukes in 4-H steers that were fat and healthy,” she says. The liver may be full of flukes, but if the parasites haven’t yet done enough damage to create an impact, it often isn’t found until harvest. If a damaged liver is discovered after harvest, but the animal seemed healthy otherwise, the liver will be condemned, but the rest of the meat is fine for consumption.

“Sometimes deer flukes get mixed up, since they are in the wrong host, and migrate through the body instead of going to the liver. I have found them in the lungs of cattle, creating an issue there,” Rogers says.

### Treatment

The typical treatment for cattle flukes is Albendazole (Valbazen), which kills mature flukes in the liver. But it doesn’t work as well for deer flukes. “If we find a herd that has an issue with deer flukes, we use Albendazole in higher dosage. At necropsy (in treated animals), we’ll find dead flukes in the liver, so it does seem to kill them. There is no drug specifically labeled for deer flukes, however, so your veterinarian would have to recommend and prescribe the higher dose,” she says.

To effectively treat flukes (cattle flukes or deer flukes), people should work with their veterinarian regarding products, dosage and timing since you need to treat cattle at a certain stage of the fluke life cycle.

“The flukes must be at a certain level of maturity before they are susceptible to the drug. There are also

cautions about using Albendazole during the first trimester of pregnancy,” Rogers says.

The crucial thing is to vaccinate at least annually for redwater.

“In many regions, ranchers used to simply vaccinate young cattle for blackleg and maybe revaccinate every few years and got by. I have been trying to educate producers and let them know they need to vaccinate every year with the 8-way vaccine that also contains protection against redwater. This is a very inexpensive and effective vaccine,” she explains.



Cattle carrying liver flukes associated with redwater disease can appear to be perfectly healthy.

It’s hard to say how prevalent deer flukes are in the wildlife or how many hunters have found damaged livers in deer, elk and moose; it’s a little easier to keep track of it in the cattle. The local custom butcher lets her know when he finds a damaged liver. “With veterinarians, ranchers and butchers working together, we get a better picture of what’s going on,” Rogers says.

Deer flukes are an issue in southern Manitoba and parts of the U.S. The cattle fluke is more common in many areas. Redwater is also becoming more common; producers in certain areas are now having to vaccinate even though they’d never had any cases in the past.

“For instance, 20 years ago we didn’t have redwater in our practice area, but it’s been steadily increasing in incidence, moving across this region. Parasites move around with their hosts, and so do various diseases,” Rogers says.

Wherever there is snail habitat, there is potential for flukes, and wherever there are Clostridial diseases in cattle, they can spread with movement of cattle into new areas. In earlier years, flukes were mainly a problem in Gulf Coast states, Pacific Coast regions and parts of the Intermountain West, but today are found in many states due to the constant movement of cattle, wildlife and hay. **BA**