

Fall best time for liver fluke treatment

In the southeastern United States, fall is the optimal time to treat against liver fluke for ranchers whose cattle are in or were purchased from a known liver-fluke area.

Preventive treatment against this damaging parasite is recommended at least once a year, and fall treatment has proven highly effective at controlling parasite infestations.

"In the fall — say in September or October — liver flukes are in the adult stage," says John Malone, professor of veterinary parasitology at Louisiana State University (LSU), Baton Rouge. "When liver flukes are mature — or at least in the bile ducts — parasiticides, such as clorsulon, are most effective. In general, the more mature the flukes are, the more susceptible they are to the medication. With a fall treatment, you're getting all of the liver flukes from the prior season because they're all adults."

By getting rid of all the liver flukes in the fall, producers also minimize egg contamination for the following season. "Fall treatments are preventive in addition to being curative," says Malone. "Cattle may shed liver-fluke eggs during the fall, but generally during that time, there isn't

enough moisture on the ground for the eggs to survive. If those liver flukes aren't under control by the time winter rolls around, and the ground is wet in snail habitats, those eggs passed by the cattle can start the liver fluke's life cycle all over again."

The liver fluke's life cycle — and thus the risk of contamination — depends on two factors: the amount of surface water available and air temperature. Liver fluke eggs must be in water, and they require temperatures above 50° F to develop.

Forecasting liver flukes

Each year Malone projects liver-fluke populations by tracking weather conditions during winter and spring months. He notes the amount of moisture and heat to calculate "growing-degree days," which are conducive to liver-fluke growth. The longer soils remain moist and temperatures remain warm during those months, the higher the risk factor will be for liver flukes the following summer, fall and winter. Liver-fluke season ends in the late spring or summer, when soil moisture drops below the soil's top 2 inches of water-holding capacity for two consecutive weeks.

Soil type and terrain of a cattle pasture

also affect fluke risk. Clay soils and flat pasture terrain are more conducive to liver flukes because water accumulates more easily there. In fluke areas there is often wide variation in fluke problems between farms because of this factor, Malone says.

These warm and moist conditions are also needed for the presence of another key element to the liver fluke's life cycle: the lymnaeid snail. "These snails are found on mud banks and shallow water in low spots on the pasture that stay wet more than half the year," says Malone. When a cow passes liver-fluke eggs in feces, and the surface moisture and air temperature criteria are met in snail habitats, the eggs can hatch, releasing a single-celled organism called the miracidium. The miracidium then swims through the water, actively seeking a snail.

"If it's lucky enough to find a lymnaeid snail, it penetrates the snail's body and enters the snail's liver," Malone says. "That's where it multiplies. The miracidium reproduces asexually, so one miracidium can create several hundred tadpole-like organisms called cercariae."

"That's why a single liver-fluke egg can pose a more significant threat than nematodes," he adds. "For nematodes, like stomach worms, one egg becomes one larva. With flukes, one egg becomes many worms. The warmer and wetter the climate, the higher the multiplier effect."

The cercariae exit the snail about six weeks later and attach themselves to either vegetation or mud to transform themselves into the infectious agent, called the metacercariae, Malone explains. If cattle ingest the metacercariae, the parasites travel through the upper small intestine and into the liver, where they migrate for six to eight weeks, consuming little bits of the liver as they tunnel.

"When it's time for them to enter the bile ducts, they round up and create a small lesion because they have to punch their way into the bile duct," says Malone. "And once they enter the bile duct, they begin to grow very rapidly."

Timing affects severity

Liver flukes are generally about 2-3 millimeters (mm) in size when they enter the bile ducts, but they can grow in 2-4 weeks to about an inch in length.

"The liver tunneling is a little damaging — it causes scarring, which can condemn the liver at slaughter," says Malone. "But the real economic effect comes after they bore their way into the bile ducts, where they grow very rapidly, begin to produce eggs, and secrete biochemicals that adversely affect the animal's appetite, debilitating the animal and affecting its weight gain."



Common liver fluke

Steve Nicholson, LSU Extension veterinarian, says yearling cattle are the most susceptible to liver flukes. "In years of high transmission, young cattle with liver flukes can show symptoms by mid-spring," he says. "They look thinner and smaller than normal, and they don't shed their hair properly when it starts to warm up in the spring. Death is possible in cattle with extreme infections."

The degree of economic loss, Malone explains, depends on the incidence of liver flukes and the number of flukes present. "When there are fewer than 10 flukes, there generally isn't any economic loss, except for the condemnation of the liver," he says. "When there are more than 40, then there's


probably some loss. When you get more than 100, there's definite loss. More than 200 flukes is clinical."

Effective treatments

Both Malone and Nicholson say their recommended fall treatments for liver flukes include clorsulon drench, an injectable combination of clorsulon and ivermectin, and albendazole.

"Clorsulon drench is quite effective against liver flukes, not only the adults, but some of the late immature flukes in the bile ducts as well," Nicholson says. "For fall treatment, the ivermectin-clorsulon combination or albendazole can be used to control not only adult liver flukes, but a broad spectrum of gastrointestinal parasites and lungworms as well. During years in which we have very favorable spring conditions for liver flukes, a second curative flukicide treatment may be needed in late

spring or summer to reduce heavy fluke burdens."

Malone says fecal egg counts prior to treatment in the fall are an indicator of whether a producer's control program from the previous year was effective or not. "Our target is an average of less than one egg per gram (of fecal material) for every 10 samples from the herd," he says. "More than three eggs per 2 grams is damaging, and a count of more than 10 eggs per 2 grams usually means that a producer's cattle are really in trouble. If only half of your animals are shedding eggs, and they average less than one egg per gram, that's a good indicator of a successful fluke-control program in which flukes shouldn't hurt you economically." 

Editor's note: These articles are provided by Merial, the maker of Ivomec® brand of products.

Fall parasite control provides economic benefit

As herds come in from pasture, fall is an ideal time to treat cattle that have been infected with damaging internal and external parasites during summer grazing. Fall treatment has proven highly effective at controlling parasite infestations, veterinarians report.

Mike Slattery, a veterinarian with Red Willow Animal Clinic in McCook, Neb., notes that parasite control plays a key role in comprehensive herd health management. "Although the potential for contact with parasites decreases in fall and winter, producers still need to treat for parasites the herd picks up on grass in the summer," he says. "Especially in areas with many cow-calf operations, such as Nebraska, reducing the parasite load in late summer or at fall weaning increases immune response, and calves will respond better to vaccination programs and treatment protocols."

According to Slattery, one of the economic benefits of fall treatment is increased weight gain. This means cattle treated for parasites prior to or at weaning time can add more pounds with less cost.

Slattery says external parasites, particularly lice, are a problem in the North Central region around December and January. Biting and sucking lice typically are found on the skin surface around the neck, withers and root of the tail. Infested animals attempt to relieve the itching by scratching themselves, on fences or other objects or by biting and licking themselves.

Hide damage can be severe, and heavy infestations can tear! to anemia, hair loss, and decreased weight gain and milk production. Any untreated animal can be a source of reinfestation, so all animals in the pen or pasture should be treated at the same time.

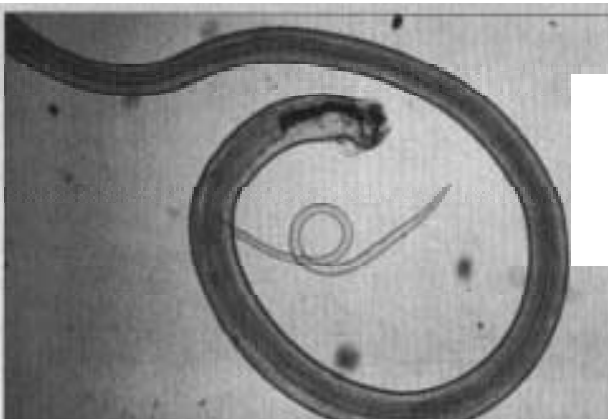
During this season, producers also should treat for worms that interfere with productivity. The brown stomach worm (*Ostertagia ostertagi*) is the most economically important internal parasite in cattle.

Ostertagiasis, the disease that results from infection with the brown stomach worm, often occurs in young calves and can cause significant weight loss. Protective immunity can be acquired with age; however, there is not an absolute immunity in older animals, so adult cows may still be infected with nematodes and can serve as a source of pasture contamination and infection for other cattle.

Good management practices, including fall parasite-control treatment, will ensure a healthy herd through the winter. "If we use a product on all the cattle at the same time and don't introduce any new animals into that group, they should remain parasite-free under good management practices," says Slattery. "However, if you introduce new cattle, you need to re-treat."

"Stomach worms and intestinal worms, as well as external parasites such as lice, are big concerns in the winter," adds Slattery. "Therefore, producers will want to use a combination product that is effective against a broad range of parasites."

"A sound management program, including parasite control, will help producers achieve their goals by allowing animals to gain weight to their full genetic potential," according to Dan Otto, veterinarian and manager of Merial's Veterinary Professional Services.



An adult male brown stomach worm (*Ostertagia ostertagi*) with a fourth-stage larva (L₄). The brown stomach worm is the most economically important internal parasite of cattle. Fall is an ideal time to treat for internal and external parasites.