L-2333
10/05

AgriLIFE EXTENSION
Texas A&M System

Common cattle parasites

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Calves are more susceptible to internal parasites.

WITH PROPER PREVENTIVE AND TREATMENT METHODS, producers can control many common internal and external parasites in cattle. Common important internal parasites of cattle are hairworms, lung worms, liver flukes and coccidia. Common external parasites include horn flies, lice and grubs.

Internal parasites

Hairworms

The gastrointestinal tract of cattle is often infected with hairworms, also called stomach worms and intestinal worms. These worms are transmitted when:

1. Infected cattle pass eggs in manure onto the ground;
2. Eggs hatch in the manure;
3. Rain washes the larvae from the manure; and
4. Cattle swallow larvae on wet grass in moderate temperatures.

The worms mature in about 3 weeks and lay eggs. In June, July and August, larval development of the brown stomach worm, the most common and harmful of the hairworms, is inhibited in the stomach lining. The worms are usually transmitted when soil temperatures are 55°F to 85°F in rainy periods in spring (April through June) and fall (October). Pasture larvae hibernate in winter (November through March) and die from heat, sunlight, drying and nutrient depletion in summer (July through September).

Normally the disease (wormy cattle) is secondary to inadequate nutrition. Poor nutritional management practices such as overcrowdedness and overgrazing create inadequate nutrition and allow cattle to be reinfected continuously. Under these conditions, the cattle's gastrointestinal tracts are a suitable environment for worms to establish; their immune response is low, allowing establishment; and being in poor condition, the wormy cattle cannot withstand effects of the worms.

The primary malnutrition condition, a protein deficiency, worsens because the larvae interfere with digestion, causing diarrhea and reducing the appetite.

Calves have low immunity and usually become wormy during their exposures. Heavy exposures cause disease; light exposures produce immunity. Adult cattle and young cattle have immunity from previous exposures, but often become wormy when:

- Nutrition is inadequate and their immunity has lowered;
- Brown stomach worm larvae have emerged from the stomach lining in September; and
- Heavy exposures have occurred.

Clinical signs of wormy cattle include pale mucous membranes, bottle jaw, pot belly, diarrhea, drawed, not grazing, not chewing cud, rough and dry haircoat, thinness, weakness and inability to stand. These signs are similar to those caused by malnutrition and liver flukes.

The most important way to control hairworms is to maintain good nutrition by:

- Rotating pastures;
- Preventing overcrowding and overgrazing; and
- Providing good quality pasture, hay and supplements.

When cattle have a diet with enough protein, vitamins and minerals, fewer worms are normally established and the cattle are more able to withstand their effects. Management practices that maintain good nutrition also prevent severe reinfection of worms. Addi-

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Manure-contaminated environment provides exposures to internal parasites.

tional control measures include proper drainage and sanitation, separating age groups and strategic worming.

Lung worms

Lung worms cause a lung disease in cattle with clinical signs similar to those caused by viruses, bacteria and allergies. Transmission and control are the same as for hairworms. Lung worm disease occurs in previously unexposed cattle, such as in calves or moved cattle.

Liver flukes

Cattle living in wet areas with alkaline soils may develop liver fluke infections. Liver flukes are transmitted when:

1. Infected cattle, deer and rabbits pass eggs in manure and drop the manure in water;
2. Eggs hatch in water and larvae develop in snails; and
3. Cattle swallow cysts on grass or hay.

Clinical signs of digestive inefficiency are evident in young cattle with acute liver disease and in older cattle with chronic liver disease. Fluky cattle show signs similar to those with malnutrition and hairworms.

Strategic worming

Wormers are administered to cattle not only as a treatment to kill internal parasites and to stop damage caused by parasites, but also to prevent pasture contamination and reinfection of the cattle. Strategically administering drugs reduces environmental contamination and infection of cattle and snails.

A strategic method requires proper timing. This means that a drug against a parasite must be administered at the right time considering the parasite's biology. Therefore, the correct time is not when the cattle are confined and accessible, or because it has been a long time since the cattle received a drug, or because administrations are spaced evenly (fall and spring, every 6 months). The correct time is when cattle have become infected, the parasite is beginning to develop and cause damage, and conditions are best for transmission.

Administering a drug at the right time breaks the life cycle of the worms and prevents them from building up in cattle. The right time to administer cattle wormers normally depends on the parasite and the development of optimal environmental conditions, which include moderate temperatures, rainfall and wet grass. For stomach worms, administer drugs 3 to 6 weeks after optimal environmental conditions develop. For liver flukes, administer drugs 4 to 6 months after optimal conditions are present.

Examine feces each month to check fluctuations of worm eggs per gram of feces, which will help you time the drug administration properly and monitor the effectiveness of your control measures.

Drugs to control internal parasites should supplement but not replace management practices to improve sanitation and nutrition. Table 1 shows what products can be used for various parasites and how to administer them.

Coccidia

Coccidia cause an intestinal disease of young cattle, usually 3 weeks to 6 months old, but can affect cattle up to 2 years old. They are transmitted when:

1. Infected cattle pass cysts in manure onto the ground;
2. Rain washes the cysts from the manure;
3. The cysts develop under moist and moderate temperature conditions; and
4. Cattle swallow cysts on moist ground.

As with hairworms and lung worms, transmission is common during rainy times in spring and fall. The diarrhea caused by coccidia may be confused

Good nutrition and sanitation practices prevent severe reinfection of internal para-

with the diarrhea caused by hairworms, bacteria and viruses.

Wormers are ineffective against coccidia. Effective drugs are amprolium (Amprol®, Corid®), decoquinate (Deccox®), lasalocid (Bovatec®), and sulfonamides. After 1 week of optimal conditions, administer the drug in feed or water for 2 weeks to calves maintained in a manure-contaminated environment, such as haying and feeding areas. Control measures include the management practices for hairworms.

External parasites

Horn flies

Horn flies reproduce in fresh cattle manure from early spring to late fall. Horn fly populations usually peak in late spring and again in late summer or early fall. Hot, dry conditions may naturally reduce horn fly numbers during mid-summer. Thousands of flies may infest a single animal, causing extreme nervousness and energy loss. Horn flies suck blood, irritate and annoy, reduce weight gains and cause weight losses. The annoyance and irritation interfere with cattle's feeding and resting.

Treatment is economically justified when horn fly populations reach 250 per head. To control them satisfactorally throughout the season, use self-treatment insecticides or routinely apply spray, pour-on, spot-on or dust chemicals.

Used properly, self-treatment devices are more effective than hand application in controlling horn flies and lice. Such devices include oil back rubbers, dust bags and tubes, liquid wicks and impregnated ear tags. Insecticide-impregnated ear tags control horn flies well for 2 to 5 months if they are properly attached to the ear and if pyrethroid resistance is not a factor. Currently labeled ear tags contain either a pyrethroid, an organo-phosphate or a pyrethroid/organophosphate/synergist mixture.

Pyrethroid ear tags (permethrin, fenvalerate) have induced widespread horn fly resistance. Vary the types of ear tag insecticides rather than using the same kind year after year. Remove tags as soon as possible once they have lost their effectiveness in killing horn flies. Tags used 4 to 5 months emit too little insecticide to control fly populations adequately. Tags emitting reduced doses seem to add to the resistance problem by prolonging fly exposure, thus making the surviving population more resistant to the insecticide.

Lice

Biting lice and blood-sucking lice are transmitted between cattle by contact, especially in the fall, winter and spring when egg production increases in cool weather. Because cattle tend to bunch up more in cold weather, uncontrolled lice spread easily from animal to animal and quickly infest an entire herd.

Lice cause a condition called lousy, an itching skin disease with possible anemia. Clinical signs are dry, scaly skin, hair loss and itching exhibited by biting, rubbing and scratching. Lice bites and allergies to lice cause the itching. The allergic dermatitis may persist after the lice are gone. These signs may be confused with malnutrition and allergies caused by horn flies, mosquitoes and gnats.

Although chemicals do not harm lice eggs, cattle can be treated effectively by administering insecticides twice at a 2-week interval or once with avermectins (Ivomec®, Eprinex®, Dectomax®) or milbemycin (Cydectin®). Use spray, dust, pour-on, spot-on, injection or self-treatment methods in fall and winter for control. Injection does not work for biting lice.

Grubs

Cattle grubs (warbles, wolves) are larvae of heel flies, which lay eggs on hairs of the lower legs of cattle in late winter and spring. Grubs appear in the backs of cattle in winter. The migratory damage by the grubs in cattle causes weight losses and reduces weight gains and milk production.

To control grubs, administer systemic organophosphate insecticides (CoRal®, Warbex®, Spotton®, Neguvon®, Tiguvon®, Prolate®), avermectins (Ivomec®, Eprinex®, Dectomax®) or milbemycin (Cydectin®) to cattle no later than 3 months before grubs appear in the back. Use pour-on, spot-on, spray or injection methods to kill migrating grubs before they reach the esophagus. If cattle are not treated for cattle grubs in the summer, the systemic organophosphate insecticides and avermectins used in the fall and winter for control of lice, horn flies, and worms may cause reactions in the esophagus if many grubs are present.

Horn flies and lice cause hair loss and itching.

Table 1. Cattle Parasiticides

Products (Trade Name)	Parasites	Methods
Levamisole (Levasol®, Tramisol®, Totalon®)	Stomach worms[1], lung worms[1]	Drench, injection[1], pour-on, bolus, feed, block
Fenbendazole (Safe-Guard®)	Stomach worms[1], lung worms[1]	Drench, paste, feed, block
(Panacur®)	Stomach worms[2], lung worms[1], tapeworms	Drench, paste
Oxfendazole (Synanthic®)	Stomach worms[2], lung worms[1], tapeworms	Drench, paste, injection[5]
Albendazole (Valbazen®)	Stomach worms[2], lung worms[1], common liver fluke, tapeworms	Drench, paste
Moxidectin (Cydectin®)	Stomach worms[2], lung worms[1], grubs, sucking lice, mange mites, biting lice, horn flies	Pour-on
Eprinomectin (Eprinex®)	Stomach worms[2], lung worms[1], grubs, sucking lice, mange mites, biting lice, horn flies	Pour-on
Doramectin (Dectomax®)	Stomach worms[2], lung worms[1], grubs, sucking lice, mange mites, biting lice[3]	Injection, pour-on[4]
Ivermectin (Ivomec®)	Stomach worms[2], lung worms[1], grubs, sucking lice, mange mites, biting lice[3], horn flies[3]	Injection, pour-on, bolus[6]
Ivermectin + Clorsulon (Ivomec Plus®)	Stomach worms[2], lung worms[1], grubs, sucking lice, mange mites, common liver fluke	Injection[4]
Clorsulon (Curatrem®)	Common liver fluke	Drench

[1]Adults, developing larvae; [2]Adults, developing larvae, inhibited larvae; [3]Pour-on; [4]Subcutaneous; [5]Intraruminal; [6]Sustained release

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Produced by AgriLife Communications and Marketing, The Texas A&M University System

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Issued in furtherance of Cooperative Extension Work in Agriculture and Home Economics, Acts of Congress of May 8, 1914, as amended, and June 30, 1914, in cooperation with the United States Department of Agriculture. Edward G. Smith, Director, Texas AgriLife Extension Service, The Texas A&M University System.

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