

Strategic Parasite Control—Practices That Pay

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Introduction

Control of internal parasites is an important management tool for the cattleman in Florida. Common internal parasites that should be controlled in Florida beef cattle include the stomach and intestinal worms and liver flukes. Although lungworms can be a serious problem for weaned calves, they are usually controlled as a side effect of properly controlling stomach and intestinal worms and thus require no other specific treatment. Coccidia are primarily a feedlot problem and thus are of little significance to the Florida rancher. Likewise tapeworms, while common in cattle, are virtually harmless and little or no economic return is generated by their control.

Control of stomach and intestinal worms and liver flukes can yield big economic dividends, provided control programs are applied in a timely and cost-effective manner. Antiparasitic drugs are most effective when administered as a limited number of strategically-timed treatments timed so as to coincide with key events in the locally important parasites' life cycles. Throughout the Florida cattle industry much money is wasted each year from the administration of unnecessary, ill-advised, or untimely anthelmintic treatments.

Liver Flukes

Liver flukes are transmitted from snails to cattle primarily in the winter and spring. Florida's summers are simply too hot for survival of the snails that transmit this parasite, so they burrow into the mud and become dormant (aestivate) until autumn. Flukicidal treatment of cattle in late summer will prevent them from shedding fluke eggs in their manure and thus reinfesting the snails as they

emerge from aestivation in the autumn.

The key question the rancher must ask with respect to flukes is "do I have liver flukes on my property?" Unlike stomach and intestinal worms, tapeworms, and lungworms, which occur wherever cattle are raised in Florida, liver flukes occur only on those ranches whose soil type support the fluke's snail intermediate host. Many ranches in peninsular Florida (south and east of the Suwannee river) support snails that transmit liver flukes, whereas few properties, if any, in the panhandle are infected.

The best way to learn whether or not flukes are present on your ranch is to follow your cull cows to slaughter and find out whether or not their livers were condemned for flukes. Alternatively, manure samples from a couple of dozen cattle representative of your entire herd (heifers, cows, and bulls, but not calves) can be tested for the presence of fluke eggs.

If flukes are found in your herd then you should treat for flukes every year in late summer (about Labor Day — a month or two earlier than has been previously recommended). If your ranch has a heavy fluke infestation or the weather has been unusually wet in the autumn and winter, a supplemental spring treatment should be given. Any modern flukicide (Clorsulon[®], Ivomec-F[®], or Valbazen[®]) can be used for the late summer treatment. However, only Clorsulon[®] should be used in the spring, because it is the most effective drug against the immature flukes that are more abundant in cattle in the spring than in the autumn.

Experience has shown that after several years of aggressive flukicidal treatment, only a minimal fluke infection will remain within many beef herds. Unfortunately, it is usually not possible to eradicate flukes from a herd, and their numbers can quickly

rebuild if the fluke control program is relaxed. However, once fluke numbers are greatly reduced, it may be possible to decrease the frequency of flukicidal treatment — it should be safe to skip spring treatment in all but unusually wet years, although flukicidal treatment should continue to be given each autumn in all but the very driest of years.

Gastrointestinal Nematodes

Stomach and intestinal worms (more correctly termed gastrointestinal nematodes) are among the most common and widespread parasites of cattle, since nearly all cattle are infected with some worms. Florida has two distinct worm seasons. Worms typical of temperate climates are a problem during the winter and spring, whereas worms typical of the tropics are a problem mainly during the summer. Regardless of the time of year, these worms are only harmful when they are allowed to build up in large numbers. Adult cattle usually have a strong immunity to worms, thus they are often only lightly infected and benefit little from anthelmintic treatment.

In contrast to adult cattle, calves do not acquire full immunity to gastrointestinal nematodes until about a year after they are weaned, thus weaned calves are very susceptible to worms. Since they shed large numbers of worm eggs in their manure, an initially light infection can build up to a dangerously heavy infection within a few months. Anthelmintic treatment of weaned calves timed so as to reduce the number of worms eggs shed when they are first placed on a pasture almost always pays good dividends.

Although nursing calves are also very susceptible to worms, they tend not to be as heavily infected as weaned calves. This is because they get a substantial portion of their nutrition from their mothers' milk rather than from grazing, thereby reducing their worm intake. Furthermore, they graze pastures occupied by relatively immune cows that do not contaminate the pastures with lots of worm eggs, thus what grass they do eat is not as "wormy" as

that on pastures grazed exclusively by weaned calves.

Nursing Calves Although nursing calves acquire few worms early in life, theoretically they should benefit from treatment by the time they are 5–6 months old. Unfortunately studies have not been done to confirm the value of this treatment under the various types of management used in Florida.

Heifers and Stockers Cattle normally require at least one season at grass following weaning before they develop significant immunity to worms, thus weaned cattle in their first season of grazing following weaning are at greatest risk of suffering disease or production loss from gastrointestinal nematodes. Aggressive deworming of these animals can be expected to yield big dividends, provided treatments are administered at the proper time.

Any calves that are not immediately sold should be dewormed at weaning. Subsequently, they should be dewormed anytime they are moved to a new pasture. If heifers (or stockers) are overwintered on temporary pasture that was planted on land not grazed by cattle since the spring, a single deworming at the time the animals are placed on that pasture is sufficient. If the temporary pasture is on land that was grazed by cattle since the spring, the calves should be dewormed at turn-out and again 30 days later.

The situation is not so clear for heifers overwintered on permanent pasture with supplemental feeding. Undoubtedly, they should be dewormed at the time they are turned out to that pasture, but the value of any subsequent dewormings is unclear. It likely varies with stocking rate and the quality of the winter nutrition — lower stocking rates and better winter nutrition reduce the need for additional treatments, although exact recommendations have not been worked out for Florida. Heifers coming out of the winter in less than good condition should benefit from a spring deworming.

Worms may become a problem after the summer rains begin in June. A single anthelmintic treatment

administered in May will greatly delay their buildup, especially if the month has been dry. A supplemental treatment 30 days later may be of benefit if stocking rates are high or May has been a relatively wet month.

Heifers also will benefit from a single deworming in their second autumn, especially if they are moved to a separate winter pasture. The value of additional treatments during the following winter has not been demonstrated. Once again, low stocking rates and good winter nutrition should reduce the need for additional anthelmintic treatments.

Cows Well-managed cows have a remarkably good immunity to worms, and, as a result, tend to acquire only light, relatively harmless infections. Despite advertising claims by pharmaceutical companies, the value of routine spring and fall treatment of the brood cow herd has not been conclusively demonstrated in Florida — sometimes there is a benefit and sometimes there is not. Again factors such as low stocking rates and good winter nutrition reduce the need to deworm cows. Cows coming out of the winter in less-than-good condition will probably benefit from a deworming in the spring, and it is also a good idea to deworm first calf heifers in the spring regardless of their condition.

Bulls No work has been done to determine the benefit from deworming bulls in Florida. It is known that intact male ruminants are much more susceptible to worms than female ruminants, thus it is likely that bulls would benefit from aggressive deworming. Typically, treatments should be administered at the beginning and end of the breeding season. Additional treatments may be needed in the late autumn and/or late spring when those dates do not coincide with the breeding season.

Type II Disease and Inhibited Larvae The problem of Type II disease and inhibited larvae has been widely promoted by pharmaceutical companies selling drugs effective against inhibited larvae. When cattle in Florida are properly managed with respect to timely anthelmintic treatment and good winter

nutrition, Type II disease caused by inhibited larvae is simply not a problem. Furthermore, this condition is uncommon in Florida because this state is at the southern limit of the geographic range of the parasite involved (the Brown Stomach Worm, *Ostertagia ostertagi*). As a result, the widely-promoted summer treatment to prevent this condition is seldom needed in Florida. The rare exception is in cases where cattle suffered clinical parasitic gastroenteritis during the preceding winter and/or spring.

Choice of Wormers All modern anthelmintics labeled for control of gastrointestinal nematodes of cattle are suitable for use in Florida (phenothiazine does not count as a modern anthelmintic and its use is not recommended). Therefore the reason to choose one anthelmintic over another usually comes down to issues of price, activity against other parasites such as tapeworms, liver flukes, or hornflies, and convenience of administration. Pharmaceutical companies often engage in “worm wars,” touting that their product is labeled for control of five or six more nematode species than their competitors'. Since the additional worm species are of only minor importance in Florida, all modern anthelmintics are “good enough to use in Florida.”

There are, however, a few differences in products that may need to be considered. Ivermectin, particularly in its pour-on formulation, persists in its activity for several weeks after administration. It may, under some circumstances, outperform other wormers where duration of action is important. Ivermectin also has activity against some external parasites such as grubs and lice, and the pour-on formulation will provide several weeks of hornfly control. Ivermectin, albendazole, fenbendazole and oxfendazole are the only drugs effective against inhibited nematode larvae if it were necessary to treat specifically for inhibited larvae. Albendazole, fenbendazole, and oxfendazole have activity against tapeworms, but no economic advantage has been demonstrated for control of cattle tapeworms in Florida. Finally, albendazole and an ivermectin/clorsulon combina-

tion (Ivomec-F[®]) have activity against adult liver flukes, as well as gastrointestinal nematodes. However, these two products have little activity against immature liver flukes, thus their use for fluke

control should be limited to the late summer when cattle are infected almost exclusively with adult flukes.