

# Economic Evaluation of Deworming Strategies for Cow-calf Herds

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## Abstract

Approximately 75% of beef cow-calf operations use anthelmintics as part of their preventive medicine program. Most of these operations use 1 dose of an anthelmintic sometime over the year-to-year production cycle. The majority of these doses are given to cows in the fall, targeting internal parasites, grubs and lice at a convenient time—weaning. One of the primary determinants of profitability in cow-calf operations is the weaning weight of calves, and that should be a major consideration for the use of an anthelmintic.

In most cases, the calf should be considered the primary beneficiary of anthelmintic treatment because of its high susceptibility to gastrointestinal nematode infections. Calves begin to acquire nematode infections as soon as they begin to consume pasture forage, which has been contaminated by nematode eggs shed from their dams. Their worm burden and egg shedding increases through weaning. In a typical herd, calves will contribute about 10% of the total herd fecal output. However, their contribution to pasture parasite contamination may become quite substantial by the end of the grazing season. Cows typically have a low nematode egg output, usually less than 10 eggs per gram of feces; however, based on volume of feces produced over the grazing period, cows will contribute the majority of pasture parasite contamination.

Before initiating a parasite control program for the cow-calf operation, several questions that need to be asked by the veterinarian in order to recommend the most appropriate class of anthelmintic and product formulation. Some considerations are: 1) Which animals are to be treated; calves, cows, or cows and calves; 2) Timing of treatment, spring, fall, midsummer, or spring and fall; 3) How long is the winter season in the geographic region; and 4) Is the pasture grazed year round. Other considerations may include the need for control of liver flukes, grub, lice, and horn fly infestations.

There are several classes of anthelmintics and formulations to choose from. Each has some advantages and disadvantages. Overall, the endectocides probably provide the best value in terms of efficacy and spectrum, with activity against endo- and ecto-parasites. These products also possess persistent activity that protects treated cattle against nematode reinfection for several weeks after treatment.

The goal of a parasite control program should be to reduce pasture parasite contamination. Therefore, cows and calves of 2 to 3 months of age should be treated in the spring to prevent egg shedding. Most published data refers to spring anthelmintic treatment of cows only, or treating cows and nursing calves, and in some cases these initial spring treatments have been followed by a cow and calf treatment in early to mid-summer. Results of these studies with spring treatments have demonstrated weight-gain responses as much as 51.9 lb in calves of treated dams. Selection of an endectocide may eliminate the requirement of an additional early to mid-summer treatment in a strategic parasite control program.

Based on seasonal variation of pasture infectivity, a valid question is what is the value of a fall (weaning) treatment? Few studies have reported treating cows in the fall, but calf weight gain responses following treatment have ranged from 8 to 20 lb. The benefit of a fall endectocide treatment is most likely twofold: removal of the accumulated parasite burden and prevention of reinfection, especially if treatment is administered early in the fall. Grub and lice control is another consideration for fall endectocide administration. Although grub populations may not be as prevalent since the advent of endectocides, beef trim and hide value are production losses associated with grub infestation. Production losses associated with lice infestation are decreased weight gain and hide damage from rubbing.

Calf weight gain data from all these options will be summarized, along with return on investment—the bottom line to the cow-calf producer.