Animal Science

Info Series: AS-B-254
The University of Tennessee
Agricultural Extension Service

CONTROLLING PARASITES OF BEEF CATTLE IMPROVES PERFORMANCE AND VALUE

James B. Neel, Professor of Animal Science; Gene Burgess, Professor, Plant Pathology and Entomology and Fred Hopkins, Professor, Large Animal Clinical Sciences, University of Tennessee

Controlling parasites can both improve performance and add value to feeder cattle. Losses in performance and value amount to millions of dollars each year from loss of blood and just plain irritation. This article will present a discussion of control of both external and internal parasites.

External Parasites

External parasites that affect cattle include face flies, horn flies and lice. Following are brief discussions of these pests and their control.

Face Flies and Horn Flies. Face and horn flies are annual problems with beef cattle. The fly season in Tennessee starts in April and runs through September. It could start earlier and extend further into the fall as influenced by weather.

Flies reproduce rather rapidly, which makes them difficult to control. Hom flies have a new generation of about two weeks and face flies 8 to 10 days.

Horn flies are blood suckers that irritate cattle and interfere with feeding and resting. Face flies also annoy cattle, interfere with feeding, cause excessive eye secretions and transmit pink eye, which results in reduced weight gain and milk production. USDA research reported that heavy infestation of flies resulted in cows losing about one-half pound of weight daily and a 20 percent reduction in milk production. The Tennessee beef industry annually loses millions of dollars due to these two pests.

On-the-farm demonstrations conducted in Tennessee in 2001 showed that backgrounded calves tagged with insecticide treated ear tags gained 2.34 pounds per day compared to 1.6 pounds in the non-tagged control group. Over a 120-day period, this would produce an extra 88 pounds per animal. In cow-calf herds, calves from herds treated with various insecticide treated ear tags gained 2.84 pounds per day compared with 1.90 pounds per day for calves with no fly control. Over a 120-day period, this would total more than 100 pounds extra weight to market. The level of response to fly control will also be influenced by the level of infestation. Research trials and on the farm demonstrations have shown that 15 to 30 pounds of extra weight gain can be realized by suckling calves over the summer grazing period when horn fly control is practiced.

Face flies are probably a greater concern to cow-calf producers than horn flies due to both reduced performance and contribution to the spread of pinkeye. Market reports have indicated that feeder calves with pinkeye are marketed for $10 to $12 less per hundred pounds due to pinkeye infection. It would be anticipated that cattle with pinkeye would also graze less frequently and experience less gain, dams produce less milk and herd bull s libido reduced, all which would contribute to large economic losses to individual producers and the state s beef industry.

Considering the added weight gain due to fly control coupled with the reduced value of feeder cattle that results from pinkeye infection, the economic advantages to controlling flies can easily be seen.

Control Techniques. Plan fly control strategy early. Methods of control include spot-ons, pour-ons, dusts, dips, sprays, backrubbers, oral larvicides, boluses and ear tags.

Consider what was used the previous year or two when making plans for current year. Insecticide-impregnated ear tags have been one of the most popular methods of controlling flies since they became available. There are three main groups of ear tags: those that are impregnated with an organophosphate, those with a synthetic pyrethroid and those with both. Use a tag which has either a phosphate or a pyrethroid but not both. Flies tend to become resistant to an insecticide that is used for several consecutive years. Therefore, alternating between the phosphates and pyrethroids is recommended. Producers should consider using the organophosphate tags 2 years and pyrethroids the third year.

Since most ear tags are effective for only about five months, it is recommended to wait until the first of May to put them in the ears of cattle. This is later than would normally be recommended for more conventional methods of fly control. Alternatively, control may begin when 100 flies per head are observed. Left uncontrolled the population of horn flies can easily increase to 1000 flies per head.

A combination of practices may be needed periodically during the fly season. If tags are used and flies begin to build up in the peak fly season, supplemental treatments such as a spray or pour-on may be necessary to bring them under control.

Lice. Most producers are not aware of the extent of reduction in performance of cattle due to lice infestation. The effects of lice on cattle performance and vitality are greater in very old and very young cattle and during times of limited nutrition such as the winter. Lice infestation contributes to annual losses of 10 to 15 million dollars to the state s beef industry.

Lice can be categorized as either biting or sucking. Sucking lice are more important from an economic standpoint. Sucking lice on cattle are the short nosed, long nosed and the little blue lice.

Lice are the only parasite that spend their entire life on cattle. This is a plus when it comes to control. Lice can be found on cattle year round but the population declines with the coming of warm weather. The opposite is five with the onset of cold weather. Lice reproduce rapidly during the cold winter months and peak in late February and early March. This also corresponds to the time during winter when the cow herd is in a poor physical condition and feed supply and quality are limited on lots of Tennessee farms.

Control of lice should be done during the fall. Pour-ons are available that will adequately control lice. Some deworming products also aid in lice control. Cattle can be checked for lice by restraining them and parting their hair. If two lice are found per square inch, cattle should be treated. Ten or more lice per square inch can significantly reduce performance.

Producers should carry out practices in the fall and not wait until a build up of lice population occurs in the late winter. The damage and economic losses have already occurred.

Cattle Grubs. Grubs are the larval stage of heel flies. Producers are not aware of grubs except when they observe cattle gadding, in the spring (running from heel flies attempting to deposit eggs on the hairs of their heels) and when grubs appear in the cattle s backs about 9 months later. Cattle grubs are fairly easy to control with the use of systemic insecticides that can be applied as pour-ons or spot-ons . Many of the systemic products are effective in controlling both lice and grubs. The insecticides that control grubs should be applied before November 1 under most Tennessee environments. The use of the systemic insecticides have contributed to the reduction in heel fly population by killing the grubs during their migration through the cattle s body.

Internal Parasites

Internal parasites have long been a problem in Tennessee and the Southeast. Tennessee pastures, cattle management, moderate temperature and rainfall are favorable for the reproduction of internal parasites. Parasitized calves consume less feed and therefore have lower weight gains. Worms also compete with the host for nutrients. Affected animals often have a dull haircoat and may have diarrhea. Death due to blood loss can occur in severe cases. All of this adds up to several millions of dollars annual loss to the state s beef industry.

Factors That Affect The Impact of Parasite Infestation

There are animal, environmental and management techniques that affect the impact of internal parasite infestation on cattle. These include: age, climate, stocking rate, nutritional status of the cattle and grazing behavior.

Age of the Animals. Adult cows and bulls develop a resistence to internal parasites and a positive result from deworming is most likely seen with thin animals grazing short pastures. However, dewormed adults will pass fewer worm eggs in their manure making parasite transmission to younger animals less of a problem. Grazing cattle that range from 3 months to 1½ to 2 years of age will nearly always show a positive response to deworming. Calves under 3 months of age have not been grazing long enough to develop an internal parasite problem.

Climate and Season. Internal parasites are spread by worm eggs which are passed in the manure and hatch into larvae. These larvae climb up blades of grass where they are consumed by cattle. Once inside the animal, they mature to egg-laying adults. This entire

life cycle can be completed in as little as 3 weeks. Hatching of the eggs and development of immature worms occur best below 85° F. Freezing temperatures prevent eggs from hatching, but have little effect on immature worms. Parasite transmission is highest in the spring and fall, reduced in the winter in colder areas and very low in dry summer months in the South.

Stocking Rate. The more cattle grazing an area, the more likely cattle are to graze near fecal piles. This grass is more likely to harbor immature worms. Overstocked pasture will have shorter, average grass length concentrating immature worms and increasing the number eaten with each mouthful of grass.

Nutrition and Body Condition Score. Thin, poorly nourished animals cannot afford to share nutrients with worms or have a decreased appetite. Well nourished adult animals in good body condition with adequate nutrient availability may be able to perform well without deworming.

Grazing Behavior. Cattle pick up immature worms near a pile of manure and this is most likely to happen when cattle are grazing or eating feed spread on the ground. Parasite transmission is not likely when cattle are fed hay in feeders or grain in feed bunks.

In summary worms are most likely to be a problem in thin grazing calves on overstocked pasture in the spring and fall. Most producers assume that internal parasites are a problem and no attempt is made at diagnosis. However, microscopic examination of fresh manure from several animals in the herd, can be used to determine which parasites and the approximate numbers present. These tests are inexpensive and can be helpful in selecting the correct dewormer and deciding when to deworm.

When Should Cattle Be Dewormed?

This is a frequently asked question by producers. However, deworming is generally done when the herd is worked. This is convenient for producers, though often not the best time. Based on the life cycle of the worms and environment, the following are proposed as times to deworm in Tennessee.

June 15 to July 15. Deworming kills worms accumulated during the spring. New parasites are not likely to be picked up during the hot dry summer.

March. Removing worms early in the grazing season reduces the number of immature parasites on the pasture and allows animals to make best use of cool season grass pastures.

December. Deworming in December removes adult worms acquired during fall grazing season. Cattle fed hay in feeders are less likely to acquire new worms.

Early October. Removing worms at this time will reduce the number of immature parasites on fall cool season pasture and allow animals to make best use of available pasture.

Calves can benefit from deworming every 3 to 8 weeks during spring and fall grazing season. Adults are best dewormed in March and October to reduce the number of immature worms they put on the pasture.

Available Dewormers

Virtually all dewormers available are safe and effective and all have advantages and disadvantages. Dewormers may be given either orally, by injection or as pour-ons . Product selection should be based on the type of parasites to be controlled, convenience of administration, product withdrawal times, label precautions and cost. Rotating dewormers among chemical classes is a good idea.

There are several chemical classes of dewormers available to treat cattle. Following is a brief discussion of these products.

Dewormers Available for Beef Cattle

Macrocyclic Lactone Dewormers. These work by paralyzing worms, which then die. They are effective against a wide variety of internal parasites as well as external parasites such as lice, grubs, mange mites and flies. Available products include Ivermectin sold as Ivomec and its generic equivalents. Doramectin is sold as Dectomax®, Moxidectin is sold as Cydectin® and Eprinomectin is available as Eprinex®. Macrocyclic Lactone dewormers have slaughter withdrawal times ranging from 0 to 48 days.

Benzimidazole Dewormers. These work by preventing the worms from making the proteins necessary for life. They are effective against a wide variety of worms. They are less expensive per dose than the Macrocyclic Lactones but are not effective against external parasites such as lice. Oxfendazole is available as Synanthic®. Albendazole comes under the brand name Valbazen®. Fenbendazole can be purchased as Safeguard® and Panacur®. Benzimidazoles have slaughter withdrawal times ranging from 7 to 27 days. Morentel is a feed additive dewormer sold as Rumatel®. Morantel is effective against adult worms only and has a withdrawal of 14 days.

Levamasole Dewormers

Levamasoles paralyze worms and are available as Tramisol®, Levasol®, Levamasole® and Totalon®. They may be used as a pour-on, given orally or given by injection. Levamasoles are effective against a broad range of internal parasites and have a withdrawal time of 7 days or less.

The dosage listed on the label of all dewormers is the minimum effective dose. Using a lower dose will not be effective and can lead to parasite resistance to the dewormer. If there is doubt about the weight of the cattle and scales are not available, a weigh tape can be purchased to estimate body weight by measuring the distance around the animals chest just behind its elbow. In a group of similar sized animals, estimate the weight of the heaviest and deworm all the animals with the dosage for that weight.

Management Practices That Help Control Internal Parasites

Several management practices can help with the control of internal parasites. Pasture rotation allows for both better use of forages and reduction of worm eggs on pastures. In addition, when a pasture is not grazed, immature worms are not eaten by cattle and eventually die producing a safe pasture. The period of time necessary for immature worms on grass to die may be as little as 2 months in the summer but may be as long as 6 months the rest of the year.

Another helpful worm control practice is called worm and move . With this practice, animals are dewormed 3 days before being moved to a new pasture. The deworming eliminates most of the adult worms and the eggs which they have laid are passed out in the manure and onto the old pasture before the animals are moved to the new one. The result is animals that are free of adult worms and eggs being moved to a pasture free of worm eggs and immature worms.

The use of a pasture drag harrow to break up manure piles is of some value in reducing parasite transmission in pastures. Manure piles are broken up so that they dry out faster, killing eggs and immature worms. However, for a couple of weeks after pasture

dragging, immature worms are more numerous since some that were trapped in the intact manure pile can now escape from broken up pieces. Pasture drag harrowing is much more effective during hot, dry summer months when eggs and immature worms die much more quickly when exposed to the environment.

Internal parasites are a costly problem of cattle and certain circumstances make the problem much worse. A number of very effective dewormers are available and their use coupled with adequate nutrition and wise management practices will result in satisfactory internal parasite control in cattle and improved performance of cattle.

R12-4415-00-001-03

COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS
The University of Tennessee Institute of Agriculture, U.S. Department of Agriculture, and county governments cooperating in furtherance of Acts of May 8 and June 30, 1914.
Agricultural Extension Service
Charles L. Norman, Dean