

# Flint Hills District

## Agriculture & Community Development

MAY 2021

### Understanding Internal Parasites in Beef Cattle

By A.J. Tarpoff, DVM, MS, Beef Extension Veterinarian

Internal nematodes (or worms) have been and continue to be a major drain on beef cattle health and economic returns in the beef industry. Internal nematodes impact cattle performance in several different ways. The largest impact is the decrease in voluntary intake which is a physiological response due to changes in the abomasum, followed by decreased absorption and digestion of critical nutrients. Immune function can also be compromised by the constant stimulation of parasitic infections. Economic losses of internal parasitism to the livestock industry have been estimated at over \$3 billion annually. These losses are felt at the cow/calf, stocker, and feedlot sectors of the industry.

Common cattle parasites are found naturally in pastures that cattle graze. The most important nematode species in cattle production are *Ostertagia*, *Haemonchus*, *Trichostrongylus*, and *Cooperia*. Cattle only become infected when they pick up infective L3 larvae as they graze. After eggs hatch in the environment, they molt or change forms twice to become the infective L3 state. Parasite eggs are very resilient and can survive in the environment for long periods of time. This includes surviving drought and winter conditions. This is also perpetuated by the adult nematodes going dormant inside the animal. This is known as hypobiosis. In Kansas, most nematodes will go dormant during the winter months, whereas in the southern United States they will go dormant in the hot dry summer months. This is a survival mechanism of the parasite. Once cattle graze infective L3 larvae, the larvae migrate to either the abomasum or intestinal track of cattle. This is where parasite continue their life cycle into adults. Adult parasites will lay eggs that are passed through the digestive track and into the external environment via manure. Worms can complete their life cycle in about 3 weeks. It is assumed that 90% of the total worm population is on the pasture.

It is important to note that not all cattle are affected by internal parasites the same. In general, calves are much more susceptible than mature cattle, and bulls are often more susceptible than cows. Even within each class of animal, infections are not evenly distributed. It is estimated that within a herd, 20% of cattle harbor 80% of internal parasite infections due to differences in immune status and other genetic factors. Maturity does play a key role in herd infection rates. Cows will develop decent immunity to internal parasites by about 4 years of age. These older animals will still harbor nematodes and shed eggs, but at a vastly decreased rate.

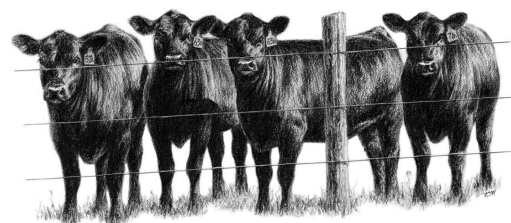
Treatment of internal parasites has numerous benefits to beef cattle production. Improved health, increased weaning weights, and increased fertility are all seen with proper parasite control. There are a multitude of de-worming (anthelmintic) products on the market. Most of today's products fall within the Benzimidazole and the Macrocytic Lactones classes. There are also options when it comes to application including injectable, oral drench, feed additive, and pour-on formulations. Many of the benzimidazoles would be referred to as "white wormers" or drenches, while Macrocytic Lactones commonly are pour-on or injectable formulations. Some of these products are very short acting in the animal, while other formulations have longer acting residual effects. Regardless of product, anthelmintic resistant parasites are a real and increasing concern in the industry today. This means in

some situations the products are no longer as effective as they once were. Prudent use of these therapies is critical to ensure their usefulness for years to come.

Discussing deworming programs with your veterinarian is a critically important conversation. Since every beef cattle operation is different, there are not cookie cutter parasite control programs that can be implemented. Working together with your local veterinarian under a Veterinary Client Patient Relationship will make sure the program fits the needs of the operation. The decisions on product selection and timing can vary depending on history, diagnostics (Fecal Egg Counts), grazing situation, stocking rate, time of year, class of animals, and regionality. For example, cattle entering a feedlot will typically only be dewormed on arrival because they will not be exposed to any more parasites since they are not grazing grass. While stocker calves on permanent pasture will be exposed continuously to parasites while they are grazing, so a different strategy would be implemented. Your veterinarian will also be able to give guidance on product purchasing decisions. Not all formulations are created equal. There are many generic products on the market today that may not have the same efficacy as others or the name-brand formulation. This is due to anthelmintics not having to prove what is called Bioequivalence, which most other generic pharmaceutical products such as antibiotics must prove.

There are some critical control points that every operation can do to limit the impact of internal parasites. One of the most important management pieces to implement is proper dosing of anthelmintic products. These products are dosed by weight. Underdosing can greatly increase the likelihood of resistant nematodes in the environment. Weigh scales on chutes can help with this. Grazing management is another critical component to parasite control. Nematode larvae typically do not migrate further than 5 cm up grass, and 20 cm horizontally from the manure pack. Over grazing grass too low to the ground will increase the opportunity for our animals to be exposed to nematodes. Lastly, ensuring adequate nutrition of our cattle, specifically protein, will enhance cattle's immune response to internal parasites. While this does not clear parasite infections, it does lessen the impact of nematodes in many situations.

Internal nematodes negatively impact cattle operations each year. Understanding and combating the subclinical threat is very important. While overall management of internal parasites may look quite different between operations and regions, the planning all begins with a visit to your local veterinarian.



## Race to Summer!

Sunshine and summer time! This is what is on the mind of every child that is counting down the days to the last day of school. As summer approaches, youth begin planning what their summer will look like. Fishing, traveling, attending the local fair, and swimming at the local pool or farm pond are all items that could be on a child's agenda for the summer. However, have you ever wondered what could be happening to the fish in your pond during the summer?

According to a K-State Research and Extension News piece, water in ponds and lakes are stratified in the summer, and those layers usually don't mix until the fall in a process called fall turnover. A premature fall turnover, however, is one of the main reasons for summer fish kills. Charlie Lee, retired wildlife specialist, describes that normal fall turnover happens typically by late September, so a turnover in July or August is considered premature. According to Lee, oftentimes after a heavy, cold rain, the volume of water that washes into the pond causes a premature turnover. What happens then is the oxygen levels are too low to support fish life because of the large amount of water that rushed into the pond. Oxygen is vital for the fish to survive. Lee states that the summer months often bring both increased oxygen production and increased oxygen use. While vegetation in ponds help supply oxygen, too much atop the pond can also lead to summer fish kills.

In order to prevent summer fish kills, the best solution is prevention. According to Lee, prevention starts with proper pond construction. For example, small, deep ponds that experience a premature turnover would have a larger proportion of water with minimal oxygen compared to large, shallow ponds. Limit the amount of aquatic vegetation growing in the pond using timely management strategies. Finally, consider installing an aeration system in your farm pond.



Best,

Shannon

(Agriculture/4-H Agent)

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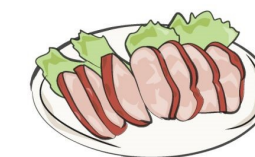
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"Don't judge each day by the harvest you reap but by the seeds that you plant."  
-Robert Louis Stevenson



May Ag Fact  
Pork tenderloin is as lean as a skinless chicken breast.



### Gardening Tips: Use String Line, Board When Planting Vegetables

K-State horticulture expert says simple tools help keep rows straight. Manhattan, KAN.— A pair of simple tools will help ensure success when planting a vegetable garden, according to Kansas State University horticulture expert Ward Upham.

He noted that a string line is commonly used to plant straight rows, while a planting board helps to make spacing vegetables within a row easier.

“Most gardeners make their own string line,” Upham said. “A very simple one can be made with a tent peg, a 12 inch piece of one-by-two inch lumber and some string.”

To make the string line, Upham suggests:

- Wind the string on the one-by-two. Notch the ends of the board, or drive nails near both ends to hold the string as it is wound.
- Tie one end to one nail (or tie between the notches) and the other end to the tent peg.
- When marking a row, drive the tent peg into the ground where you want the row to start.
- Mark the end of the row with a second tent peg and unwind enough string to stretch between them.

“Actually, you will want the string line offset where the plants will go

by a couple of inches so that it isn't in your way,” Upham said. “In other words, you will make your row next to the string; not under it.”

A planting board is a one-by-four inch board and four feet long. For planting, cut relatively deep notches every foot, and shallow notches 6 inches from each deep notch.

“Some gardeners also bevel the side opposite the notches so they can work the beveled end into the soil to make a shallow trench for seed,” Upham said.

When planting, he added, lay the planting board near the tent peg and align it with the string. Using the notches as a guide, “it is now easy to place plants or seeds at the recommended spacing,” Upham said. “Move the planting board with you as you progress down the row.”

Upham and his colleagues in K-State's Department of Horticulture and Natural Resources produce a weekly Horticulture Newsletter with tips for maintaining home landscapes. The newsletter is available to view online or can be delivered by email each week.



### Celebrating 47 Years with Mike Holder

The Flint Hills Extension Board will be hosting a retirement party in honor of Mike Holder for his 47 years of service to Chase County and the Flint Hills Extension District. 4-H families as well as members of the community are invited to attend a come-and-go style reception at the Clover Cliff Ranch Bed and Breakfast on Friday, May 28th from 2-4 PM. The address for Clover Cliff is: 826 A US-50, Elmdale, KS 66850.

Please mark this on your calendar to attend this event!



### Symphony in the Flint Hills Signature Event

Tickets are now on sale for the 2021 signature event! General admission tickets are \$95 plus taxes and fees for adults and \$50 plus taxes and fees for children 12 and under. The event will take place on North Lakeview Pasture near Council Grove in Morris County on June 12, 2021. Gates will open at 1:00 PM. In the education tents, speakers will explore a variety of topics commemorating the history of the Santa Fe Trail coinciding with this year's theme as it is the 200th anniversary of the trail. If you have questions, please call the Symphony office at: (620) 273-8955. You may purchase tickets online or by calling the Symphony office.



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### Upcoming Events

The following are area or Statewide Agriculture, and/or Community Development/4-H events.

For more information on these events please contact the Extension Office

#### May

- 1– Market Beef State Nominations/  
Horse Certificates Due
- 2– Morris Co. Small Animal Weigh-In– 2-4 PM
- 8– Chase Co. Livestock Weigh-In– 9 AM-Noon
- 14– Morris Co. 4-H Lock-In
- 15– Chase Co. Small Animal Tagging Deadline
- 18– Chase Co. Project Day
- 28– Mike Holder's Retirement Party– Elmdale
- 31– Memorial Day– Offices Closed

#### June

- 1– 4-H District Horse Show Entry Deadline
- 1-4– 4-H Discovery Days (Virtual)
- 13– Morris Co. Project Day 2-5 PM
- 15– All Other Livestock State Nominations Due
- 15-18– Sunny Hills 4-H Camp– Rock Springs
- 27-30– Campference– Rock Springs

