

# Worms in My Tummy!?

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FOR  
WORMS  
IN  
MY  
TUMMY!

Ivomec, Dectomax, Safeguard. We are all familiar with these product names, and many of us have used at least one of these antiparasitics or “dewormers” on our farms. We, as producers, often associate these products with a certain purpose such as treating lice, but we don’t always think about the whole spectrum of parasites these products can be used against. Other producers choose not to use these products due to their potential environmental impacts or their cost and other producers yet choose not to use these pharmaceuticals as they don’t fit with their management style. Should producers treat their animals with a deworming product or not? Is one product better than another? What can happen if producers don’t deworm? In order to answer questions like these, a deeper understanding of cattle parasites, knowledge of potential deworming products is required.

**What’s Out There?** We have a number of different parasites in the Peace Country ranging from more minor external parasites to potentially life threatening internal parasites. One of the most common external parasites seen by beef producers is lice. In Canada, producers can expect to deal with lice regardless of how they manage their herds. A study looking at yearlings coming into Western Canadian feedlots found that depending on the feedlots, 25-75% of incoming yearlings had chewing lice, and 50-100% had sucking lice. Both biting and sucking lice can cause a number of clinical signs such as hide damage, reduced feeding, scratching, hair loss and blood loss that in severe cases can lead to anemia. Cattle can control lice to some extent by grooming, but long winter hair coats can greatly hinder an animal’s ability to remove lice. This manifests in much higher infestation levels from December through to March, with very low levels throughout the summer. Other external parasites include horn and stable flies, ticks, fleas and mites (source: Doug Colwell, Agriculture and Agri-food Canada).



Internal parasites can often have more devastating consequences. In the United States alone, internal parasites cost the cattle industry over two billion dollars every year in lost production and treatment costs (Stromberg and Gasbarre, 2006). The most common internal parasites of cattle are nematodes or worms as they are more commonly known. Nematodes in general cause reduced feed intake, reduced feed utilization, increased loss of protein into the gut and decreased growth with the most severe effects being seen in young animals, animals with poor feed or animals with another ongoing disease. In cattle, nematodes cause both clinical and subclinical disease. Clinical disease refers to disease that is obvious when looking at an animal and often affects only a small portion of a herd. Subclinical disease refers to disease which cannot be readily seen, but often affects the majority of a herd leading to large production losses. In Alberta it is rare to see cattle with clinical disease caused by parasites, however subclinical disease is very common. Cattle can be infected by a large number of nematode species each with its own anatomic and geographic predilection sites.

In Alberta, one of the most common internal parasites is *Ostertagia ostertagi*, also known as the brown stomach worm. *Ostertagia* is a very hardy worm that can survive on pasture for more than a year, even in incredibly harsh climates or overwinter as hypobiotic larvae in its host’s abomasum wall. This small one cm worm can have devastating effects. Subclinically infected animals can suffer from bacterial overgrowth in their gastrointestinal (GI) system as *Ostertagi* gradually increases the pH of the abomasum. When *Ostertagia* causes clinical disease it takes one of two forms. Type 1 Ostertagiosis most often affects calves from July to October, with the majority of calves exhibiting watery diarrhea but only a small number of animals will die as a result of infection. Type 2 Ostertagiosis is much more serious. It tends to affect yearlings from March to Mid-May with affected animals exhibiting rapid weight loss, soft swelling of the lower jaw and anemia. Usually only a small portion of the herd will be affected, but most of the affected animals will die. Animals can develop immunity to *Ostertagia*, however immunity is slow to develop and requires multiple exposures.

*Cooperia* is the second most important worm family affecting Alberta cattle. *Cooperia* is a small red worm found in the small intestine of cattle. Infected animals show signs of inappetance and reduced weight gain but rarely die as a result of infection. While *Cooperia* causes less severe disease than *Ostertagia* it is much more likely to become resistant to common pharmaceutical products.

A third important internal parasite in Alberta is *Dictyocaulus viviparus*, also known as lung worm. It is more common in wet years and can cause devastating infections, especially in young animals. Affected animals show severe signs of respiratory disease such as cough, pneumonia and difficulty breathing. Death loss can be high, with some reports of producers losing up to 40% of their calf crop. Like with other worms, cattle can develop immunity against *Dictyocaulus* but high exposure is required and immunity does wane over time, leading to previously immune cattle becoming re-infected (John Gilleard, University of Calgary).

**What Should I Do About Worms?** A number of different pharmaceutical products have been developed over time to help producers deal with parasites on their farms. These products are grouped into two major drug families: the macrocyclic lactones and the benzimidazoles. The macrocyclic lactones include ivermectin (Ivomec), doramectin (dectomax), and moxidectin (Cydectin), and the benzimidazoles which includes fenbendazole (Safe-Guard). Macrocyclic lactones can be administered in a number of ways including as a pour-on solution or as an injection, as they are absorbed systemically into the animals blood.

# EVENTS

## Annuals for Feed Field Tour

Oct, 2014, Date TBC  
At John Prinse's near  
Enilda

**Cover Crop Workshop with Gabe Brown**  
Oct 27th  
Location: TBC

**Soil Workshop**  
With World  
Renowned Australian  
Soil Scientist  
**Christine Jones**  
Nov 3rd, Grande Prairie

**Peace Cattle Day**  
December 3rd  
Fairview  
Market Updates, Ge-  
nomics update & more!

Contact Monika with  
questions or to RSVP  
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Macrocytic lactones are absorbed into fat after administration and then slowly released over a period of a few weeks leading to protection against parasites for three to six weeks after administration. Macrocytic lactones are effective against GI nematodes, lung worms, sucking and biting lice and some mites. In contrast, benzimidazoles are only administered orally. Benzimidazoles' antiparasitic activity is largely dependent on contact time with the parasites so multiple doses tend to be more effective than single doses. In cattle, the delayed transit through the rumen can slow a drug's exit from the body, making single doses more effective than in most other species. This drug family has broad spectrum activity against internal parasites only (*Alastair Cribb, University of Calgary*).

One of the biggest questions many producers have is how often and when dewormers should be given. Opinions on when to deworm can vary significantly and are largely affected by the parasites affecting your herd. The most effective time to treat lice is thought to be in the fall, as treatment at this time reduces the population before it has the opportunity to reach its peak in early winter (*Doug Colwell*). Designing a treatment plan for internal parasites is more complicated. If your spring pastures are "clean", hasn't housed animals for a time period long enough to kill parasite eggs and larvae (a minimum of one year), deworming should occur prior to placing cattle in the clean pasture. If clean pastures are not available deworming in the fall becomes necessary. In this situation Michelle Arnold from the University of Kentucky recommends deworming calves and young stock up to two years of age twice a year, once in the spring and once in the fall, and only deworming cows once a year. John Wenzel from the University of New Mexico echoes this advice, emphasizing that in dry climates like ours it is best to deworm cows in the fall. He also advises producers to use brand name products as generic products may use different ingredients to carry the active ingredient which can result in differences in efficacy (*Beef Magazine, 2011*). In summary, a macrocytic lactone effective against external parasites is best used in the fall, whereas benzimidazoles are better used in the spring to take care of internal parasites.

Regular deworming can have a number of beneficial effects such as increasing average daily gains in stocker calves by as much as 0.272kg/day (0.6lb/day) over untreated calves. Antiparasitic treatment can also lead to increased pregnancy rates with one study finding treated animals had a 12% higher pregnancy rate than untreated animals over a two year period (*Stromberg and Gasbarre, 2006*).

Natural compounds can be used to treat parasites if your management system doesn't allow for the use of pharmaceutical products. The option with the highest potential for efficacy is predacious fungi such as *Duddingtonia flagrans* which kills parasite larvae in fecal matter. Plant nutraceuticals are another potential option as plants high in tannins may be able to help control intestinal worms. Some of the most commonly used nutraceutical products are actually toxic to cattle even a small doses, so producers should thoroughly research products before using them. Other common organic treatments such as diatomaceous earth and copper boluses have been found in numerous studies to have little to no efficacy. Producers thinking of pursuing pharmaceutical free de-worming programs should consult with a veterinarian or parasitologist experienced in this field prior to starting any program (*Stromberg and Gasbarre, 2006*).

**What About Resistance and the Environment?** Unfortunately, due to wide spread use of macrocytic lactones and benzimidazoles, resistance is becoming an increasingly big issue in most parts of the world. Resistance can be suspected in a herd when a poor response to antiparasitic treatment is seen. Resistance develops from under dosing and frequent treatment. There are a number of different strategies that can be used to help minimize the development of resistance on your farm. New animals should be treated and quarantined before being introduced into your herd to minimize the chance of bringing resistant parasites onto your farm. Using a targeted treatment plan to treat the highest risk animals on your farm, such as young stock and animals with a low body condition score, can help you to reduce total amount of product used (*John Gilleard*). Grazing management can also be a tool to reduce dewormer use and therefore reduce the development of resistance. Nematode larvae cannot migrate more than 4-6 inches from the ground therefore leaving more grass can reduce the likelihood of cattle ingesting infectious larvae. To ensure accurate dosing is achieved, cattle should be as clean as possible as dirt can absorb pour-on products before they reach the skin (*Beef Magazine, 2011*).

Another issue with the use of antiparasitics, and ivermectin in particular, is toxicity to non-target insects. Application of macrocytic lactones can be toxic to dung breeding insects and therefore affect dung degradation. The impact of macrocytic lactone use on dung beetle populations is thought to be small although it is a concern that many producers and parasitologists will have on their radar until further research can be performed (*Errouissi and Lumaret, 2010*).

Deworming is a common procedure on most Peace Country farms. Becoming more educated about why we deworm, the products available, when to deworm and emerging issues with pharmaceutical products can help producers to make more informed decisions for the health of their cattle. For additional information on deworming protocols producers should contact their local veterinarian.

The staff and board members would like to congratulate Monika Benoit on her new position as manager of Peace Country Beef and Forage. She will continue to work out of the High Prairie Office. We would also like to send best wishes to Morgan Hobin as she moves onto her new position as manager of the Dairy Teaching Unit at the University of Saskatchewan.

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