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*We will provide industry-leading, reliable, knowledgeable service, in a friendly, courteous and timely manner, to benefit our clients and the communities we serve.*

St Clements Clinic Hours: Mon-Fri 7am to 5pm Open Saturday 7am-12pm

Hwy 89 Clinic Hours: Mon-Sat 7am to 1 pm

CLINICS ARE CLOSED SUNDAY and NO DELIVERY SERVICE SATURDAYS AND HOLIDAYS

Orders for Delivery: Please, call BEFORE 9:30 am, for same day local delivery Monday to Friday

24 Hour Emergency Vet Service - call 519-698-2610 519-323-9002 519-699-0404 1-800-663-2941

## JUNE “DAIRY MONTH” 2023 NEWSLETTER

### July Holiday

Canada Day will be observed Monday July 3 there will be no delivery service. Vet will be available for emergencies. Clinics will be open only in the morning on Monday for pick ups and early residue tests and open as usual the morning of Saturday July 2<sup>nd</sup>.

### ***The Implications of Antibiotic Treatment on the Gut Microbiome in Calves***

The gut microbiome is made up of many different microscopic organisms including bacteria, fungi, and viruses. Both good and bad bacteria can be found in the gut and are a natural part of a balanced microbiome. A healthy microbiome is essential to calf health as this system breaks down nutrients, produces vitamins and minerals and supports the calf's immune system. 70% of the calf's immune system (the system that fights off diseases such as pneumonia and scours) is found at the gut level.

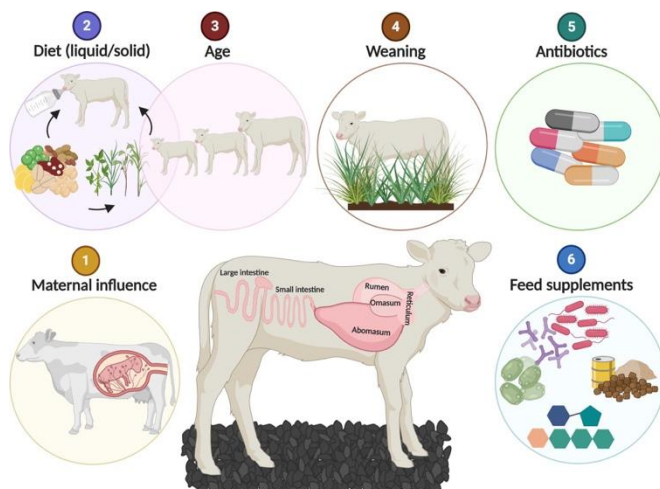


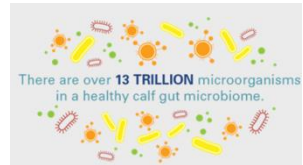
Fig. 1. Factors that influence the initial establishment and development of the gut microbiome in neonatal calves.  
Source: Amin & Seifert.

Stressful events to the calf such as change in environment, diet, transportation and/or weaning can alter the balance of the gut microbiome and make calves susceptible to health issues such as pneumonia and scours.

It is a common practice for producers to treat calves experiencing diarrhea with antibiotic therapy such as Borgal, a broad-spectrum antibiotic and an anti-inflammatory such as Metacam. The goal with antibiotic therapy when treating scouring calves is to target the pathogenic *E. coli*. However, it is important to note that antibiotics are *not* selective for harmful bacteria alone. Antibiotic treatment will wipe out all gut bacteria including healthy gut bacteria. Preliminary studies have shown that it can take up to 6 months for the entire gut microbiome to be re-established following one treatment with antibiotics.

With the imbalance in a healthy gut microbiome, calves may be susceptible to developing digestive upset caused by *Clostridium Perfringens*. *C. perfringens* is a bacterium that is commonly found in the environment and is naturally found within the gut microbiome. With stressful events, poor management practices and/or antibiotic treatment this bacterium can rapidly grow in the gut and produce toxins causing local damage to the gut and spread systemically. *C. perfringens* affects calves rapidly and those that develop toxemia may experience shock and cardiac arrest.

So, what can we do to support the microbiome of calves and to re-establish a healthy microbiome following treatment?



Probiotics are substances designed to promote the growth of microorganisms in the gut. They support the development of healthy bacteria which allows the calf to re-establish a balanced microbiome and to develop a stronger immune system.

Some newer products, now available in clinic, have been proven beneficial in supporting the healthy gut microbiome of calves.

#### *Pro-Flora Calf Capsule*

A digestive care capsule that contains pre and probiotics, postbiotics and vitamins designed to reduce severity of digestive issues (ie. Scours) and re-establish healthy gut bacteria.

- Administer to newborn calves once daily for 3 days (prior to expected scour episode).
- Administer once daily to calves receiving antibiotic therapy or once daily for 3 days following antibiotic therapy to re-establish healthy gut flora.



#### *Resoltz Calf Neonate Paste*

An oral paste that contains egg proteins designed to target and bind pathogens that enter the gut.

- To be administered within the first 12 hours of life and/or prior to stressful events (eg. transportation)



Questions? Please reach out to your herd veterinarian!

#### Sources:

Nida Amin and Jana Seifert. Dynamic progression of the calf's microbiome and its influence on host health, Computational and Structural Biotechnology Journal. <https://www.sciencedirect.com/science/article/pii/S2001037021000398>  
Tom Earleywine, Ph.D. Microbiome 101: The Gateway to Dairy Calf Health. <https://www.purinamills.com/dairy-feed/education/detail/microbiome-101-the-gateway-to-dairy-calf-health>