

# Dairy Newsletter

## March 2023



### CVC CLINIC NEWS

Welcome to the March dairy newsletter. Autumn calving season is well on the way and our vets have been trading in the gym sessions for calf pulling! With all these calves about, this issue is going to focus on dairy calf nutrition and colostrum management.

Since we know stomach worms thrive in temperatures between 10-25 degrees and high rainfall, this issue will also briefly discuss brown stomach worms and their life cycle.

### Camperdown Veterinary Centre

1 Leura Street , Camperdown

Ph: (03) 5593 1077

Hours:

- 8:00am – 5:30pm (Monday – Friday)
- 9.00am – 12:00pm (Saturday)



Medication and food collections only on Saturday mornings

**24-hour emergency service available by calling 5593 1077 and**

### Ostertagia in Cattle

Ostertagia (brown stomach worms) are parasites of the gastrointestinal tract. They can be detrimental to production as they invade the wall of the abomasum, limiting its digestive action and subsequent ability to absorb nutrients from feed. This can result in ill thrift predisposing the cattle to secondary diseases.

Worm infections can be acquired as soon as calves start grazing however clinical signs of a parasite burden in suckling calves is rarely seen. Infection is generally seen in weaned calves prior to 24 months of age. As cattle age they naturally develop some immunity to Ostertagia and therefore by 24 months of age, cattle rarely have any clinical disease from these parasites. Younger stock and stock with little or irregular exposure are most susceptible to these parasites.

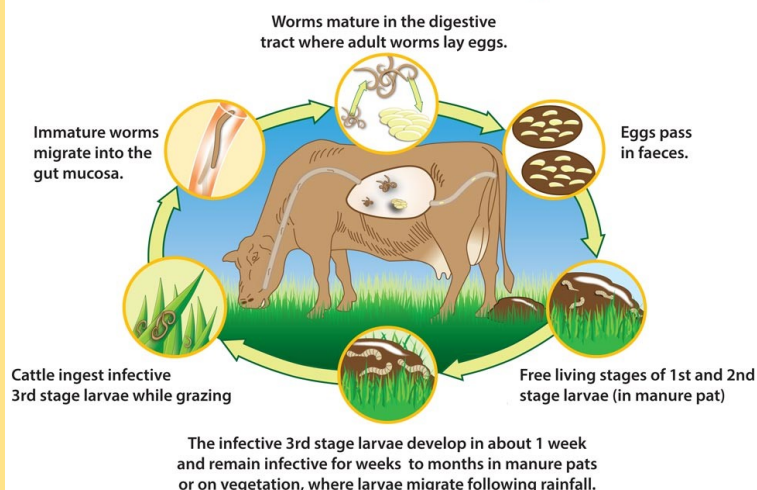
There are two clinical forms of Ostertagiasis. **Type I disease** results from ingestion of large numbers of larvae whilst grazing. Affected cattle can have diarrhoea, weight loss, poor production, swelling under the jaw and brisket, and ill thrift. Type II occurs when larvae that have been ingested in the autumn lie dormant in the wall of the abomasum. In late winter or early spring they emerge producing a profuse scour and severe weight loss. **Type II has sudden onset and can be fatal.**

The life cycle of Ostertagia is similar to many gastrointestinal parasites in cattle. Larval development and survival is dependent on appropriate environmental conditions. In South West Victoria high risk periods involve regular rainfall with temperatures being maintained between 10-15 degrees Celsius. We see peak development between May and October however it is possible for large numbers of infective larvae to survive within faecal pats on pasture throughout summer. With the onset of rainfall over several days in early Autumn, any larvae that have survived the Summer period migrate out onto pasture and infest animals as they graze.

It can be difficult to diagnose gastrointestinal worms in cattle through Faecal Egg Counts so give us a ring



### Stomach Worm Life Cycle



## Colostrum Management

Colostrum is the thick yellow to golden milk produced by cows immediately after birth. It contains IgG (antibodies) which provide immunity to calves in their early life. After their first 24-36 hours of life, the lining of calves gastrointestinal tract change to no longer allow absorption of IgGs. Therefore it is **INTEGRAL** that **calves get adequate quality and quantity of colostrum within the first 24 hours of life**. Failure to absorb enough IgG from colostrum during this time makes the calf more susceptible to disease and death. This is known as Failure of Passive Transfer (FPT) and is relatively common, especially in dairy calves.

Successful transfer of immunity requires strict adherence to the 4 “Q’s”:

**Quality:** Colostrum quality should always be tested! A Brix refractometer can be used to assess the antibody concentration in the colostrum before you feed, store or discard it. High quality colostrum has an IgG content greater than 50 mg of IgG per ml or > 22% on a Brix refractometer. Brix refractometers are relatively inexpensive and can be purchased from the clinic.

Colostrum should be harvested from the dam as soon as possible after calving to ensure colostrum with the highest IgG concentration is collected.

Please be cautious using commercial colostrum replacements. They are often promoted as alternatives to cow colostrum however, wherever possible it is best to use fresh colostrum as many commercial colostrum replacements. Supplements have been found to be very low in IgG's and fail to prevent failure of passive transfer.

**Quantity:** the quantity of colostrum which each calf needs to achieve adequate passive transfer of immunity is dependent on a range of factors including the quality of colostrum, age of the calf (as discussed below) and cleanliness of colostrum.

Calves should be fed 2 x 2 litres feeds within the first 12 hours of life if colostrum quality is > 22% on a Brix refractometer. If < 22% calves will require at least 2x 3 litre feeds within the first 12 hours of life.

Dairy Australia recommends having a system to ensure calves are receiving the correct number of feeds of colostrum. For example painting calves with a dot for each feed of colostrum they receive. It is also important to take note of the size of your oesophageal (stomach) feeder. Often these are not a full 2L and therefore you may be unintentionally underdosing when tube feeding calves.

**Quickly:** Feed calves colostrum as soon as possible, ideally within the first 12 hours of life.

Immediately after birth is when the calves' intestines are most able to absorb large IgG molecules. By 6 hours after birth, the intestines ability to absorb IgG's has decreased by 30-50% and once they are 24-36 hours old the calf has lost its ability to absorb any IgG's through the intestines.

**sQueaky Clean:** good hygiene is necessary to maintain colostrum quality and minimise bacterial growth. Bacteria in collected colostrum may cause disease in the calf or bind to the immunoglobulins, thereby reducing the quality. Teats should be cleaned, disinfected and dried prior to collection from a cow. Colostrum needs to be harvested hygienically into clean collection containers and either fed immediately or stored appropriately.

It is important to not use colostrum from cows which are sick or are suspected to have Johne's disease, Salmonella or Mycoplasma. If there is evidence of faecal contamination in colostrum, it should be discarded and not fed to calves. It is also best to **not** pool colostrum as it can aid in the spread of bacteria and decrease quality if colostrum >22% is mixed with colostrum <22%.



## Colostrum Administration

There are two ways to feed colostrum. The first is via teat feeding with a bottle and the alternative is tubing via oesophageal/ stomach tubing.

### **Teat Feeding:**

*Teat feeding is preferable to tube feeding, where possible, as it triggers the ruminoreticular groove which diverts colostrum directly into the abomasum bypassing the other 3 chambers of the stomach.* This speeds up digestion and therefore allows faster absorption of antibodies. When feeding colostrum to calves over 12 hours old or feeding poor quality colostrum, it is best to utilise this method.

Teat feeding can take longer to perform as often calves need to be taught how to suckle from the teat which can be a frustrating and fiddly process.

### **Oesophageal/ Stomach Tubing:**

This method is preferred by many farmers because it is quick and ensures ingestion of a known volume of colostrum without needing to teach the calf to suckle.

It takes skill to perform, but is especially valuable when feeding very young or sick calves, calves which have had a difficult birth or calves which may not know how to suckle. The disadvantage of using oesophageal tubing is delayed absorption of antibodies as colostrum must pass through all the chambers of the stomach prior to being absorbed.

Correct technique is very important when tubing calves as poor technique can cause damage to the oesophagus and incorrect tubing can result in colostrum being taken into the lungs causing pneumonia or death of the calf.



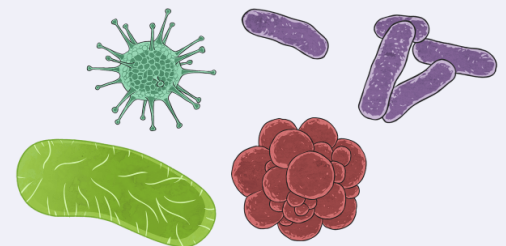
## Colostrum Storage

Storage of colostrum plays an integral role in its quality however is it often something that is overlooked on farm. Bacteria in colostrum can double in number every 20 minutes that it is kept at room temperature.

**Short Term Storage:** All colostrum should be stored in containers with lids to avoid further contamination. They should be refrigerated below 4 degrees immediately and should not be stored in the fridge for more than 48 hours. Colostrum should be warmed to 35-39 degrees Celsius in a warm water bath prior to being fed to calves. Water should not exceed 49 degrees as this can damage the IgG molecules. **Colostrum should not be microwaved to warm it as this will also damage the IgG molecules.** Damaged IgG molecules are not effective in giving calves immunity. Potassium sorbate (preservative) can be added to colostrum immediately after collection to inhibit bacterial growth for up to 4 days (refrigeration is still required).

**Long Term Storage:** Colostrum quality should be tested prior to storage and only adequate colostrum kept. The Brix % and date of collection should be recorded on the container. Colostrum should be stored in thin, flat bags rather than old milk bottles as they cool faster and thaw quicker. It is recommended that colostrum not be stored longer than 12 months.

It is recommended to freeze some good quality colostrum (ideally from vaccinated cows) towards the end of calving to act as a bank for the next calving season. This will be very beneficial when heifers start calving as their colostrum quality can be poorer than cows.



## Dairy Calf Nutrition

Our vets, Ness and George, recently attended a workshop by Dairy Australia called *Calf Management– the New Frontiers*. This workshop focused on new evidence around feeding calves and how to set calves up for successful milking futures. One of the big topics discussed was the amount of milk fed. While we have always been told calves should be fed 10 % of their body weight, current literature suggests calves less than 28 days should actually be receiving **20% of their body weight** over at least **2-3 feeds daily**. Once calves reach 28 days of age and their concentrate and roughage consumption has increased, the quantity of milk fed can be decreased down to around 10% body weight. While calves should still have access to grain and roughage, the aim in the first 28 days of life is to rear the calves like they are monogastric (humans and pigs) rather than ruminants. So they should be getting large amounts of milk with a small amount of solids (concentrates and roughage). This workshop also suggested that the aim should be to wean calves around 60 days of age and the weaning process should be spread over about a week.

### **Well-grown and healthy calves become productive herd replacements.**

Nutrition at the start of a calf's life can have an impact on their general health status, growth rate and weaning age, fertility, future milk production and longevity in the herd.

To achieve good growth rates and excellent rumen development and function, calves need to be fed appropriate amounts of milk and good quality concentrate. While dairy calf nutrition has a focus on growth rates, it is also very important in the development of the rumen for future production. One of the biggest factors in the rumen affected by feed at this young age is papillae development. Papillae are small projections from the rumen wall that absorb nutrients. The early introduction of grain or grain based concentrates stimulates the growth and development of papillae. As papillae develop, more energy can be digested and absorbed from feed increasing the energy and nutrients the calf is receiving.

One of the biggest challenges of calf nutrition is helping the calf transition from being a "drinker" to an "eater". The diagram (right) shows how a calf rumen should transition from birth to weaning. For calves to achieve desired growth rates and production targets it is essential to develop a highly functional rumen as early as possible. The images to the right show the importance of calves having access to grain from day 1 as it is crucial for rumen papillae development. Calves with more developed rumens grow better and produce much more milk in the long term. According to Dairy Australia statistics, for every additional 1kg of live weight a heifer weighs at calving she will produce an additional 20.8 litres over the first 3 lactations.

The key components of calf nutrition are:

- **Feed either fresh milk or milk replacer**—calves require a **minimum of 20% of their body weight in milk per day**
- **Provide access to fresh clean water from birth**
- Introducing **small quantities of grain from day 1**
- Feeding good quality **hay from 3-4 weeks of age**
- There is no difference to the calf whether it is fed warm or cold milk, but they should be consistently fed milk at the same temperature. This means if calves are being fed warm milk, this should continue.

**MILK ONLY DIET**



**MILK AND HAY DIET**



**MILK AND GRAIN DIET**

