**What is it and what does it do?**

Coronavirus is an RNA virus that invades the cells in the both the small and large intestine causing them to die and slough off. The intestine has villi, which are finger-like projections and they are necessary for absorption of fluid and nutrients. As the cells die off, the villi become damaged and very short, they lose fluid and electrolytes and are unable to absorb fluid and nutrients resulting in a scour and dehydration.

Once all the cells have been damaged the virus generally dies out on its own and the gut starts to try and regrow but this takes time. During this time the calf is susceptible to other diseases, particularly diseases involving the intestines/guts. It cannot absorb fluid and nutrients properly so the calf becomes weak and dehydrated and growth is impaired.

Coronavirus infection causes profuse watery diarrhoea, sometimes with blood and mucus in it. Affected calves will become dehydrated very quickly, develop a fever and loss of appetite.

There are at least three different types of coronavirus that affect both cows and calves. Coronaviruses like to invade the epithelium. This is the layer of cells that line the inside of the intestines as well as the inside of the throat and some parts of the lungs. This is why coronavirus is associated with both diarrhoea and respiratory tract disease.

**Where do they get it from?**

Coronavirus is transmitted by infected faeces being taken in via the mouth or nose. The virus initially infects cells in the small intestine, and then spreads through to the colon also.

The major source of coronavirus is adult cattle carriers shedding the virus in their faeces and thereby exposing the newborn calves. Carrier cows shed increased amounts of virus at calving time and during the winter months. Once calves are infected, they will shed large amounts of virus in their faeces and can quickly spread the virus to many other calves. Calves can continue to shed virus for weeks even after they appear healthy. Coronavirus is able to survive in the environment from one season to the next.

Coronavirus infection is usually seen in calves between one and three weeks old, although disease may occur up to three months of age. Combined rotavirus and coronavirus infections are common.

Coronavirus infection can be confirmed by faecal testing.
Treatment

As with any cause of calf scours, treatment always consists of providing energy and fluids, therefore electrolyte therapy is the most important treatment, whilst maintaining milk intakes as well.

Specific treatment and prevention of coronavirus involves the feeding of antibodies against coronavirus.

This can be achieved by feeding Rotagen powder with Corona antibodies in the milk, or by feeding the antibody rich colostrum from coronavirus vaccinated animals, to calves for the first few weeks of life.

To make sure the colostrum contains the antibodies against coronavirus, ALL cows and heifers need to be vaccinated between 3 and 12 weeks prior to calving.

If you have a long calving spread vaccination may need to be done in 2 batches and is more successful if the cows have been scanned to establish accurate calving dates.

The colostrum from vaccinated cows then needs to be fed to calves for as long as possible. If you have had coronavirus scours please discuss vaccination with your vet in May/June next season to make sure your cows are vaccinated at the correct time and that you understand what needs to be done to ensure vaccination is successful.

The antibodies in the colostrum or milk coat the gut wall and prevent the virus from attaching.

Bear in mind when dealing with calf scours that Coronavirus is able to infect humans so hygiene is very important.

Disinfection every day with Vetsan is recommended when an outbreak of scours is occurring, making sure that the floor, walls, calves and equipment are sprayed. Also you will need to disinfect clothing and boots between infected and non-infected pens, or if possible have a different set of overalls and boots for each.