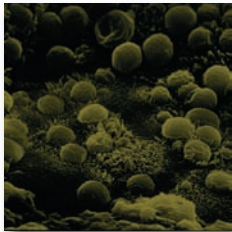
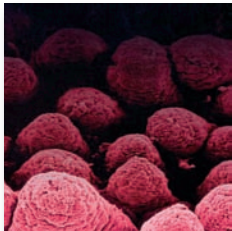




Understanding and **preventing** infectious calf scour



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Understanding and preventing infectious calf scour

An outbreak of infectious calf diarrhoea is often serious and invariably extremely costly for the cattle enterprise.

In the current economic climate, the modern beef suckler producer and dairy farmer simply can't afford the stock losses and growth rate setbacks caused by this disease. It is vital that every practical step is taken to give calves the best start in life and minimising the potential impact of scour should be part of every young stock rearing health plan.

When a calf is born it has no antibodies to fight disease. Without an adequate supply of cow 'first milk' or colostrum as a source of essential nutrients and antibodies, the calf is very vulnerable to infection from its environment and other cattle in its immediate vicinity. Ensuring the newborn animal receives plenty of high quality colostrum is an essential prerequisite for achieving maximum growth rates.

Most calves are surrounded from birth by the pathogens that cause most infectious scours so good hygiene is absolutely essential. It's extremely important to make sure the environment is kept as clean and dry as possible, and when mixing and handling milk and milk replacers do so with scrupulous attention to hygiene.

If there is an ongoing problem with calf scours it is worth asking your vet to take faecal samples to identify the pathogens responsible. Samples should be taken from both healthy and scouring animals to establish a true diagnosis and it is important that samples are taken in the early stages of the disease.

When it comes to scour prevention, there's no doubt that vaccination of the dam against the common pathogens - Rotavirus, Coronavirus and *E. coli* K99 - and then feeding the antibody-rich colostrum to newborn calves can play an important part in any disease control programme. And provided recommended practices are followed, there's no reason why calf rearers cannot limit the costly impact of scours caused by these particularly virulent bugs.

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Royal Veterinary College

The costs, causes and effects of calf scour

Calf scour remains one of the most widespread diseases affecting cattle livestock enterprises. Indeed, scour will affect virtually every dairy or beef unit that rears young calves.



According to a nationwide calf scour survey of over 1,100 farmers¹ representing over 160,000 cows, over 70% of units have experienced calves dying from the disease in the last year. Indeed, more than one in five rearers reported that anywhere between 10 and 30% of their calves had been affected in some way with scour problems over the same period.

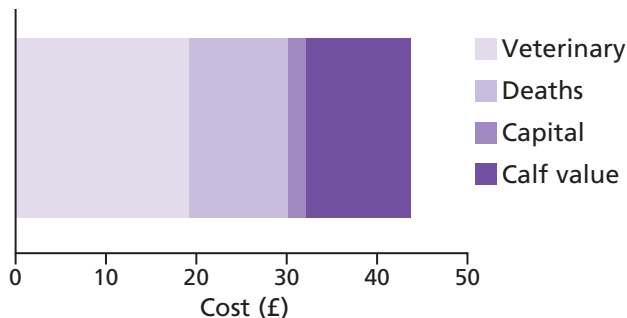
THE COSTS OF SCOUR

In severe cases an outbreak of scour can kill up to a third of affected calves.

But calf deaths only represent a small proportion of the financial damage an outbreak can cause. Research by the SAC² looking at 212 actual scour outbreaks across 20 vet practices has demonstrated that scour will typically cost at least £44 per calf affected (*see chart below*), excluding labour. In addition, dairy calves can suffer a delay in reaching bulling weight and lower yields in their first lactation, and beef calves will take longer to finish.

Cost of an outbreak of scour

£44 per sick calf (excluding labour)





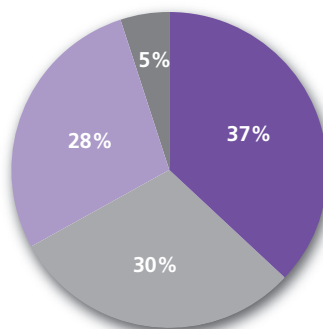
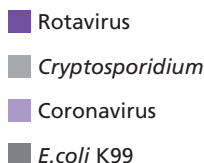
THE CAUSES AND EFFECTS OF CALF SCOUR

Viruses and protozoa are the main causes of infectious calf scour. The 2 biggest causes are Rotavirus (a virus found on most farms, carried by 90-100% of cattle) and *Cryptosporidium* (a protozoan organism). Other viruses, such as Coronavirus, and the bacteria *E. coli* and *S. dublin* also cause problems.

Intervet/Schering-Plough Animal Health runs a scheme called ScourCheck. Since its launch in the spring of 2009, faecal sample data has been collected from 172 farms, representing both the dairy and beef suckler sectors (see pie chart below). The results showing the prevalence of infectious agents are consistent with other national data.

Viruses like Rotavirus and Coronavirus, and the protozoa *Cryptosporidium* cannot be cured with antibiotics. So prevention through vaccination and other specific medicines is the only effective way of controlling these on your farm.

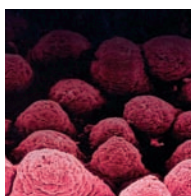
Prevalence of infectious agents (ScourCheck)



Unseen damage caused by scour pathogens



Normal healthy gut lining.



Diseased gut lining.

Unseen damage caused by scour pathogens. Villi (gut lining) are permanently damaged. As a result, affected calves, even if they recover, will never grow as fast as healthy animals.

The crucial importance of colostrum

When a calf is born it possesses no natural antibodies to fight disease. Fortunately, by drinking colostrum the calf receives food, fluid and antibodies all in one.

Colostrum contains 20% or more protein and a little more fat than normal milk. It is also normally rich in vitamins A and D, but of much greater importance is its ability to deliver the first supply of antibodies to the calf, which protects it against various bacteria and viruses.

However, it is important to remember that colostrum is only effective at protecting the calf from infectious scour if it gets into the calf before the bugs do. Unless the calf receives adequate quantities of good quality colostrum it will remain vulnerable to infection and lifetime performance could be significantly compromised.

HOW MUCH COLOSTRUM IS ENOUGH?

Up to 50% of calves do not get enough colostrum. Newborn calves need at least 3 litres (6 pints) of quality colostrum within 6 hours of birth. This normally requires at least 20 minutes of sucking, but research has shown that if left alone to suckle the dam, 60% of dairy calves will not acquire sufficient antibodies.



The easiest and most practical way of ensuring that a newborn dairy calf obtains sufficient colostrum is to milk the cow and administer 3 litres of good quality colostrum using a stomach tube as soon as possible after birth (see *image*). The technique is easily learnt and causes minimal stress to the calf and stock person.

After 6 hours antibody absorption into the bloodstream significantly reduces. At approximately 12 hours after birth, the efficiency of absorption of these antibodies falls by as much as 50%. And 24 hours after birth, absorption efficiency is towards 10% of the level achieved in the first 6 hours.



WHAT IS GOOD QUALITY COLOSTRUM?

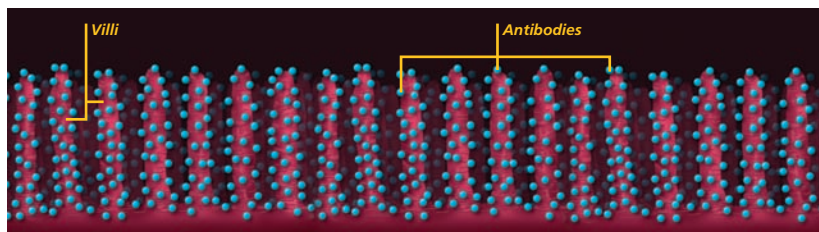
Quality and quantity are not necessarily the same thing. Higher yielding cows may produce more colostrum, but the higher volume leads to a lower antibody concentration. Periodically sampling colostrum using a colostrometer can help you determine its antibody content.

PROLONGED COLOSTRUM FEEDING

There is a significant benefit in terms of scour prevention from prolonged colostrum feeding if this is practical. This is because colostral antibodies, as well as being absorbed into the blood, also offer the calf local protection in the form of an 'armour plating' over the villi lining the gut wall, preventing viruses and bacteria gaining a foothold and causing disease. But this 'armour plating' effect only persists for 3 to 4 days after stopping colostrum feeding, simply because the protected lining is continually shed and replaced. This is why it is beneficial to continually protect the gut with colostrum from vaccinated cows.

Scour caused by organisms like Rotavirus, Coronavirus and *E. coli* K99 predominates in the first 2 to 3 weeks of life. Optimum protection is only achieved through a continual local supply of antibodies in the intestine during this risk period and, secondly, the absorbed antibodies in serum.

Villi in the gut wall coated with antibodies



Preventing calf scour

HYGIENE

In addition to an appropriate vaccination regime, good hygiene and a clean calving environment will help prevent scour taking a hold on your unit. It is also extremely important that milk and milk replacers are prepared cleanly and accurately.



FOR DAIRY CALVES

- Provide plenty of clean bedding
- Disinfect calving boxes and pens between calves
- Minimise contact with other calves' faeces



FOR BEEF CALVES

- If indoors, provide plenty of clean bedding
- Consider calving outside

Most scour bugs come from the faeces of the dam and other mothers, so minimising exposure of the calf to cow dung significantly reduces risk of disease. On some farms, removing the calf from the cow to a clean pen after colostrum feeding may be the easiest way of improving the cleanliness of the calf's environment. When it comes to cleaning up scour problems on your farm, prevention is very much better than cure.

THE IMPORTANCE OF VACCINATION WITH ROTAVEC™ CORONA

Calves are most at risk from the infectious scour pathogens in the first 3 to 4 weeks of life and need a source of continuous protection - through antibodies in the colostrum - to keep them healthy. Preventing calf scour is largely an antibodies numbers game! The more antibodies a calf has, the more secure the protection.

On many farms, normal colostrum does not provide sufficient antibodies. Vaccination of the calf's mother with Rotavec Corona before calving helps to ensure high levels of antibodies against Rotavirus, Coronavirus and *E. coli* K99 in the colostrum. It is these antibodies that confer immunity on the calf and act as a protective barrier to infection in the gut.

Colostrum antibody numbers can be boosted with vaccination. A single 2ml shot of Rotavec Corona may be given at any time between 12 and 3 weeks before calving. This means that all cows calving over a 9 week period can be vaccinated on a single day - saving on labour and allowing minimal handling of in-calf cattle.

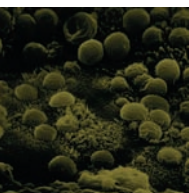


Controlling scour caused by *Cryptosporidium parvum*

Cryptosporidium parvum is a protozoan parasite and can infect a wide range of mammals. Humans are also susceptible to infection with *Cryptosporidium* which is usually via contaminated water or from handling infected animals.



In the calf, infection leads to severe damage to the lining of the intestines and destroys its ability to absorb nutrients, water and salts. Once infected, it takes approximately 4 days for scour to develop which usually lasts for 15 days. Affected calves suffer dehydration, lose weight and become dull, some will die.



Scour in the calf is evidence that millions of oocysts are being shed, which contaminate the environment leading to infection in other calves. Removal of *Cryptosporidia* from contaminated housing is extremely difficult as the protozoa are resistant to many common disinfectants, and as adult cattle show no signs but can shed millions of oocysts, it can be virtually impossible to clear a herd of *C. parvum*.

AIM TO REDUCE THE IMPACT OF INFECTION

- Reduce shedding of oocysts from individual calves
- Reduce clinical signs in infected calves
- Reduce level of challenge to non-infected calves
- Minimise environmental contamination with *Cryptosporidia*



HELP PREVENT CRYPTOSPORIDIA SPREADING WITH HALOCUR®

Halocur works best by preventing *Cryptosporidia* spreading through a group of calves. Treat all newborn calves with Halocur (within the first 24-48 hours of life) once *C. parvum* has been diagnosed in a herd. Your vet will advise whether Halocur is suitable on your farm.

Halocur is the only licensed product for the prevention of scour caused by *C. parvum*. By interfering with the life cycle of *C. parvum* the challenge to the calf is decreased and at the same time the calf becomes more immunologically competent against *C. parvum*.

Treating and investigating calf scour

If scour hits, the key to successful treatment is to avoid delay and start fluid therapy as soon as you see the first signs of scouring. Your vet will also be able to advise you whether antibiotic treatment is likely to be effective, but the main causes of scour - such as Rotavirus and *Cryptosporidium* - do not respond to antibiotic treatment.

HOW DO WE STOP IT HAPPENING AGAIN?

Find out what you are dealing with. It is very difficult to diagnose the cause of an outbreak of scour just by looking at affected calves. The first thing you should do is isolate the sick calf or calves and seek veterinary advice. Discuss with your vet taking faecal samples from affected animals. You are less likely to have an inconclusive result if samples are taken from freshly scouring calves. Samples should be taken before animals are treated with antibiotics and must be taken from the calf and not the floor.



Scour management checklist

- ✓ ☒ Colostrum is pure liquid gold. It gives the calf food, fluid and antibodies all in one. Make sure your calves get enough.
- ✓ ☒ Newborn calves need at least 3 litres of good quality colostrum within 6 hours of birth.
- ✓ ☒ Try and feed colostrum for as long as possible. As well as being absorbed into the blood, colostral antibodies continually provide a local protective coating over the gut lining to prevent bacteria and viruses gaining a foothold.
- ✓ ☒ Boost antibodies in colostrum by vaccinating the calf's mother with Rotavec Corona. This will give the calf protection against Rotavirus, Coronavirus and *E. coli* K99 - the key causes of infectious scour.
- ✓ ☒ Do not rely on scour pastes - they do not provide enough antibodies.
- ✓ ☒ Most scour bugs come from cow faeces, so practising sound hygiene significantly reduces the risk of disease.
- ✓ ☒ Where *Cryptosporidia* is diagnosed, prevention of disease in future calves can be aided by the use of Halocur from days 1-7 of each calf's life.
- ✓ ☒ Scour prevention through good hygiene, vaccination and a sound colostrum-feeding regime is the best disease management strategy. Protecting calves against infectious scour is an antibodies numbers game. The more you can get into the calf, the more secure the protection. Treating calves affected with infectious scour is rarely effective and even animals that recover never do as well as non-affected ones.



Product information

Rotavec™ Corona is a combined bovine Rotavirus, Coronavirus and *E. coli* K99 vaccine (inactivated).

Uses

For the active immunisation of pregnant cows and heifers to raise antibodies against *E. coli* adhesin F5 (K99) antigen, Rotavirus and Coronavirus.

Contra-indications, warnings, etc.

Warnings: Do not vaccinate unhealthy animals.

No information is available on the concurrent use of this vaccine with any other. It is therefore recommended that no other vaccine should be administered within 14 days before or after vaccination with this product. Part used containers of the vaccine should be discarded within 8 hours of opening.

Side effects: The oil adjuvant provides the convenience of a single shot vaccine and has been carefully chosen to minimise any consequent side effects. It may produce a detectable swelling at the site of injection in a proportion of animals. The injection site reaction gradually reduces in size until

it is no longer detectable, usually 14 to 21 days after treatment.

As with all vaccines occasional hypersensitivity reactions may occur. In such cases appropriate treatment such as adrenaline should be administered without delay.

Withdrawal period: Zero days.

Operator warning: To the user - If you inject yourself accidentally with this product, go at once to the nearest Accident and Emergency (Casualty) Department of a hospital and show the information printed below to the doctor (or nurse) on duty.

To the doctor - Accidental self-injection with this oil-based product can cause intense vascular spasm which may, for example, result in the loss of a digit. Expert PROMPT surgical attention is required and may necessitate early incision and irrigation of the injected area, especially where there is involvement of finger pulp or tendon sheaths.

Legal category: POM-VPS

Halocur® contains 0.5 mg/ml halofuginone lactate in an aqueous excipient.

Uses

For the prevention of diarrhoea caused by *Cryptosporidium parvum* in new born calves.

Contra-indications, warnings, etc.

Warnings: Do not use on an empty stomach. Do not use in cases of diarrhoea established for more than 24 hours and in weak animals. For the treatment of

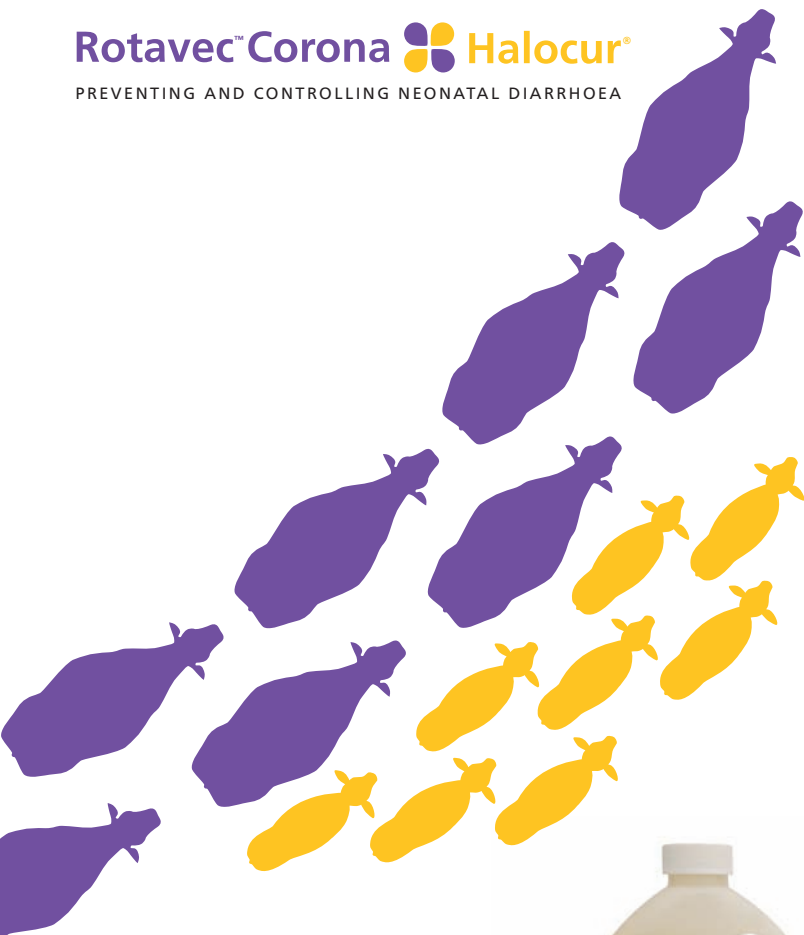
anorexic calves, the product should be administered in half a litre of an electrolyte solution by stomach tube. Toxicity may occur at 2 times the therapeutic dose, accurate dosage is essential. Wear protective gloves while handling the product, avoid contact with skin and eyes and wash hands after use.

Withdrawal period: Meat and offal - 13 days.

Legal category: POM-V

Rotavec™ Corona Halocur®

PREVENTING AND CONTROLLING NEONATAL DIARRHOEA



References: 1. ISPAH Scour Survey August 2010. 2. Stott A W & Gunn. Scottish Agriculture Economics Review 1995; 8: 83-88.

'Use Medicines Responsibly'. Please see: www.noah.co.uk/responsible for more information.

Halocur® is available from your veterinary surgeon, from whom advice should be sought.

Further information is available from:

Intervet/Schering-Plough Animal Health, Walton Manor, Walton, Milton Keynes MK7 7AJ • Tel: 01908 685 685 • www.intervet.co.uk