

Management of the Scouring Calf

For Irish Farmers, Advisors, Vets



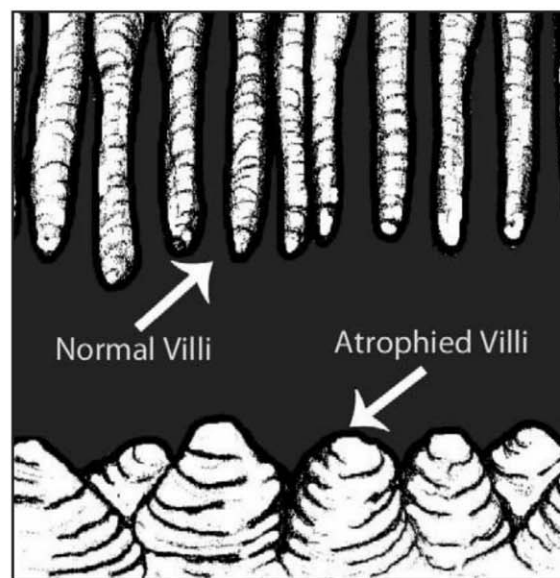
CALF HEALTH PROGRAMME

What is scour?

Scour refers to watery or custard-like faeces. It results from a badly damaged gut, which leads to a loss in function. An intestine that is not functioning properly causes the calf to lose salts and water in the form of diarrhoea. The initial damage to the gut is caused by a variety of infectious agents, including parasites, viruses and bacteria.

Once the damage is done, the calf will continue to scour until the intestine is repaired. No treatment is available to speed up this repair time.

Calves that are fed high volumes of milk (especially ad-lib fed calves) will normally have somewhat looser faeces.



Damage to villi results in scour as nutrients will not be absorbed properly

What causes scour?

A number of infectious agents can cause scour in calves and often more than one of them is involved.

Parasites	Cryptosporidia**	most common
	Coccidia* (generally in calves older than 3 weeks)	
Viruses	Rotavirus	less common
	Coronavirus	
Bacteria	Salmonella**	rare
	E. coli (only in calves under 5 days of age)	

*Coccidia cause diarrhoea in older calves, more information overleaf

**Cryptosporidia and Salmonella may cause diseases in humans. Good hygiene when dealing with sick calves is essential to avoid infecting yourself.

Contrary to popular opinion, it is **not possible** to tell from the appearance of the scour what has caused it. Fresh whole milk or good quality milk replacer given in reasonable portion sizes does not cause scour. Scour is rarely caused by nutritional reasons (over-feeding, poor quality milk replacer) alone and generally will have an underlying infectious cause.

Should you treat with antibiotics?

Antibiotics should be given by injection only when the calf looks very sick (weak or unable to rise, sunken eyes) or has a temperature outside of the normal range of 38.5 to 39.5°C (See Veterinary Technical Note).

Antibiotics do not work against the parasites and viruses that are the most common causes of calf scour. Thus it makes no sense to treat calves with antibiotics just because they are scouring, unless there is an accompanying fever or the calf looks sick. If antibiotics are used when they are not needed, there is a good chance that they won't work when they are really needed (See Background Information).

How should you treat a calf with scour?



1 Separate the scouring calf!

Remove the calf from the group – this helps prevent spread of infection and gives the calf a better chance to recover. Scouring suckler calves and their dams should be separated from other calves and their mothers.

2 Give Oral Rehydration Solutions!

The single most important treatment is to replace the salts and fluids that are lost with scour. Healthy calves need up to 4 litres of fluid a day and scouring calves need an additional 4 litres to replace lost fluids.

Give one or two extra feeds (2 litres each) of a good quality oral rehydration solution (see *Veterinary Technical Note*) **as soon as the calf starts scouring and while it is scouring. These should be given independent of the milk feeds (for example, at lunchtime and, if the diarrhoea is severe, again late in the evening).**

You can safely give these solutions by stomach tube if the calf refuses or is unable to drink.

3 Continue To Feed Milk!

Continuing to feed with milk or good quality milk replacer does not cause, worsen or prolong scour. The milk actually helps the healing of the intestine. **Continue to offer scouring calves normal amounts of milk or milk replacer as long as they want to drink. Do not feed diluted milk to calves. Leave suckler calves with their dams.**

Milk or milk replacer should not be stomach-tubed. Milk given repeatedly by stomach tube will lead to the build-up of acids in the rumen and damage the ruminal wall. Therefore, it is not recommended as a method for feeding of milk to calves that are not drinking due to ill health. Stomach tubing can, however, be used for feeding of electrolyte fluids quite safely.



If calves are fed normally they can grow like healthy calves despite having had scour!

If milk is withdrawn, calves quickly lose body condition/weight, become stunted, and may die from starvation.



When should you call your local vet?

If calf scour is a problem in your herd, your vet can investigate what infectious agents are involved and give you advice on the best measures of prevention and treatment.

A calf with scour should be seen by your local vet if:

- It refuses to drink several feeds in one day.
- It is down or very weak.
- Its eyes are sunken from dehydration.
- Its temperature is above or below the normal range (38.5°C - 39.5°C).



How can you prevent scour?

1. Feed colostrum properly.
2. Introduce and maintain dry clean housing.

Whether a calf stays healthy or gets scour is determined by the balance between the resistance of the calf to infection and the level of infection to which it is exposed.

Enhancing resistance

Good colostrum management is the single most important factor to improve the resistance of the calf to infection (see *AHI leaflet - 'Colostrum Management'*).

In dairy calves, the provision of adequate nutrition (at least 13 -15% of the calf's birth weight in whole milk or high quality milk replacer) throughout the first weeks of life is also crucial for the health and thrive of the calves (see *AHI leaflet - 'Early Nutrition and Weaning of the Dairy Calf'*).

Reducing infectious pressure

Even if you have excellent colostrum management, good hygiene is still critical. Keeping the calf comfortable, dry and clean is important through all stages of calf rearing (calving area, calf housing and bedding, on pasture).

Cryptosporidia, in particular, can cause severe diarrhoea, **even** in calves that have received adequate amounts of colostrum, if the hygiene is poor.

A variety of housing and feeding systems can be used to successfully rear calves. Some basic hygiene rules are important to follow, no matter what system you use.

- Individual or group calf pens or hutches must be cleaned out between calves.
- Clean, dry bedding is essential wherever your calf is housed. This can be done by cleaning out regularly or by generously topping up a straw bed. Get on your knees: the bed needs to be dry enough so that your *knees do not get wet*.
- As the calving season progresses there is a tendency for infection to build up. It is important to have your calf housing as clean at the end of the season as at the start.
- Do not forget to keep the feeding equipment clean.



Do scour vaccines work?

With calf scour vaccines, the cows are vaccinated before calving so that their colostrum will have increased antibodies against some of the viruses and bacteria that can cause scour.

These vaccinations can only be of benefit if the colostrum management is optimised!

For the vaccination to have an effect it is recommended by most manufacturers that colostrum and transition milk from the vaccinated dams are fed for a prolonged period of time (10 to 21 days) to the calves, as occurs naturally with suckler calves. However, on dairy farms this may prove difficult if best practice on storage and pooling of colostrum is followed (see *AHI leaflet - 'Colostrum Management'*).

Are there drugs against cryptosporidia?

There is no vaccine against cryptosporidia which is one of the most common causes of calf scour.

Halofuginone is licensed to protect against cryptosporidiosis. To be of benefit, it should be given as a preventive according to the manufacturer's instructions.

However, halofuginone on its own is unlikely to solve a cryptosporidia problem if general hygiene is not improved along with the treatment.

Background information

1. Antibiotic resistance

Using an antibiotic in calves with scour may result in the antibiotic not being effective if needed to treat a calf with a serious disease, for example septicaemia. Bacteria that are resistant to one or more antibiotics are on the increase worldwide, and pose huge challenges in human and veterinary medicine. Data from Irish farms have shown that the more any given antibiotic is used on a farm, the more likely it is that bacteria resistant to that antibiotic will be found on the farm.



2. Continued milk feeding

There have not been any studies that have shown that withholding milk is of any benefit to scouring calves. However, several studies have shown that scouring calves that continue to be fed milk while scouring have not deteriorated. Neither has the scouring period been protracted when compared to calves where milk was withheld. The most important reason to continue to feed milk, as long as the calf is still willing to drink, is to prevent the calf from starving.

Starvation delays a speedy recovery and continued weight gain.

Veterinary technical notes

Antibiotic use

In calves with diarrhoea and systemic involvement (marked depression, anorexia, fever), the risk of bacteraemia or septicaemia as well as bacterial overgrowth of the small intestine is increased. In such circumstances, administration of broad-spectrum antimicrobials is recommended. As indicated previously, it is very likely that these drugs are only of benefit if used responsibly.

Antibacterials used as last resort in human medicine (e.g. fluoroquinolones, 3rd/4th generation cephalosporins) should only be used in single animals for a limited number of strict indications where other antibiotics fail.

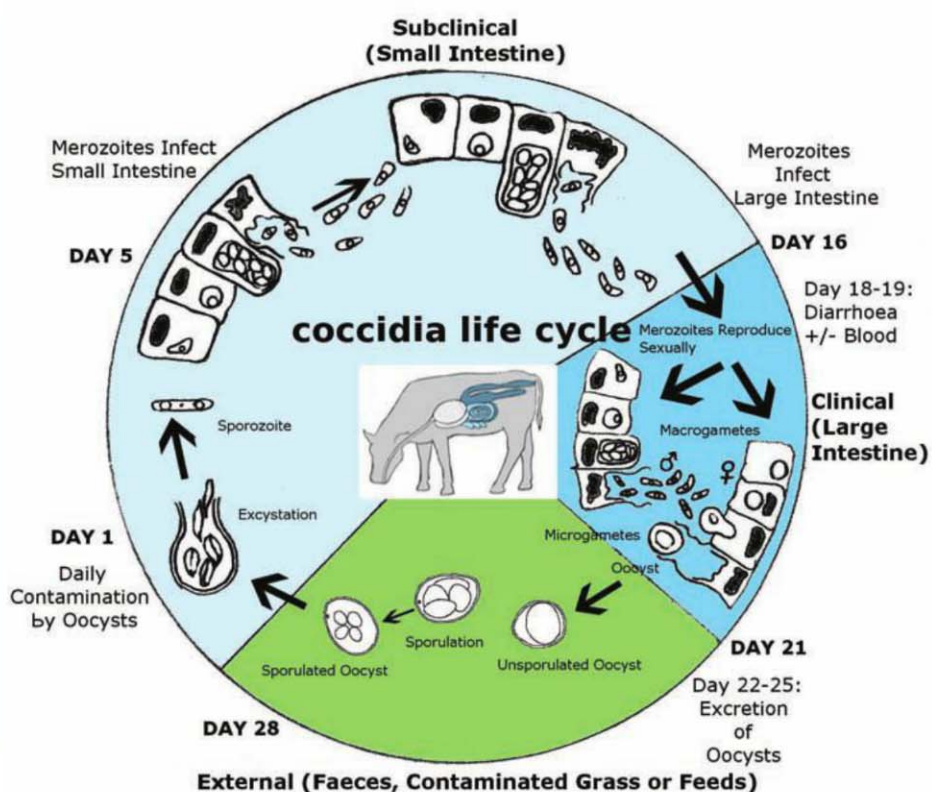
Choice of oral rehydration solutions

Oral rehydration solutions should contain:

- 90 to 130 mmol/L sodium
- glucose and/or another facilitator of the absorption of sodium and water
- an alkalinizing capacity of 60 to 80 mmol/L from bicarbonate or bicarbonate precursors (you can calculate the strong ion difference (SID) to find out: $SID = [Na^+] + [K^+] - [Cl^-]$)
- 10 to 30 mmol/L potassium.

Coccidiosis

Coccidia are parasites that multiply in the lining of the intestines. The life cycle takes about three weeks from the intake of the infectious stages (oocysts) from the environment to the excretion of millions of new oocysts. Scour develops during the later stages of the life cycle, which means that by the time scour is seen, severe damage has already been done to the lining of the intestines and specific treatment at this stage is unrewarding. However, supportive treatment should be undertaken, such as isolating the calf, putting it under an infra-red lamp and giving it fluid and milk.



The length of the life cycle means that scour caused by coccidia generally occurs in calves that are more than three weeks of age.

Coccidiosis Contd....



Coccidia can cause severe bloody diarrhoea which can be accompanied by straining and rectal prolapse. Even if calves show no signs of scour, the infection can have an impact on growth rate.

The risk factors are similar to those that trigger other causes of scour in younger calves: group housing with high stocking density, poor ventilation and wet bedding. There is no evidence that birds transmit coccidiosis to calves.

Calves on heavily contaminated pasture with a high stocking density will be at great risk, especially if conditions are warm and humid, leading to an

increase in infectious pressure. Poor colostrum intake and poor nutritional status decrease the **resistance** of the calf.

If you suspect coccidiosis in your calves your vet can send **faecal samples** from several calves in the group to the lab to support the diagnosis. It is important to take several samples, since scouring calves do not excrete oocysts all the time. If the diagnosis is confirmed, the above mentioned risk factors should be assessed and improved where possible (for example: reduce stocking density, provide dry bedding, move to different paddock). All of the calves in the group should be medicated since they are all infected, even if they are not showing any signs. Groups that are known to be at risk should be treated preventively. However, the treatment schedule should not be so tight that the calves are not able to build up their own immunity against coccidia.

Points to Remember

Continued milk feeding speeds up the recovery of the scouring calf

Feeding electrolyte fluids is the most important treatment for the scouring calf

Antibiotics should only be given if the scouring calf has a high temperature and / or looks very sick

If any calves in a group are diagnosed with coccidiosis, the whole group should be treated

If you have an ongoing serious problem with calf scours look into your colostrum, nutrition and hygiene management and seek a veterinary diagnosis



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 Ingrid Lorenz, John Fagan, Simon J. More (2011): Calf health from birth to weaning. II. Management of diarrhoea in pre-weaned calves. Irish Veterinary Journal. 64:9. <http://www.irishvetjournal.org/content/64/1/9>

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