

STEP BY STEP GUIDE TO SCOUR IN THE YOUNG CALF DIAGNOSIS AND CONTROL



5 Steps To Investigate & Control Calf Scour

STEP 1

IDENTIFY FACTORS & CAUSES



A discussion with your vet about calf management will help identify a list of possible contributing factors and infectious causes. Mixed infections are common; especially rotavirus and *C. parvum*.

Infectious causes of calf scour, age affected and frequency

Agent	Age (days)	Frequency
Rotavirus	4-21	32.5%
<i>Cryptosporidium parvum</i>	7-12	15.0%
Giardia	5-30	4.4%
<i>Salmonella dublin</i>	14-42	1.7%
<i>E. coli</i> K99	1-5	1.4%
Coronavirus	5-30	0.6%
<i>Clostridium perfringens</i> A/B/C	0-14	-
Coccidia	>21	-

Figure 1. Relative frequency of agents identified in faecal samples of calves up to one month of age.¹

STEP 2

TAKE FAECAL SAMPLES

Scour samples can be tested to determine which bugs are present and if they are likely to be causing disease. Diagnosis is not possible with the naked eye.

Sample at least 6-12 **freshly scouring untreated calves** and collect directly from the calf. Speak to your vet about sampling and testing options available.



Where to go with scour samples?



BioX test kits

- Convenient on farm tool that gives results within five minutes
- Detects key bugs such as some of those listed in figure 1

Send submissions to a veterinary laboratory

- Send faecal samples for comprehensive examination
- Send dead calves for post mortem examination

Scour cause cannot be diagnosed by the naked eye. Discuss with your vet about diagnosing the cause of the scour.

STEP 3

COLOSTRUM MANAGEMENT

1. Measure quality

A sample can be checked by measuring the concentration of antibodies using a colostrumeter or Brix refractometer. Feeding poor quality colostrum will result in failure of passive transfer.

Good quality colostrum results:

- Colostrumeter: >50mg/mL IgG
- Brix refractometer: >22%

2. Blood test calves

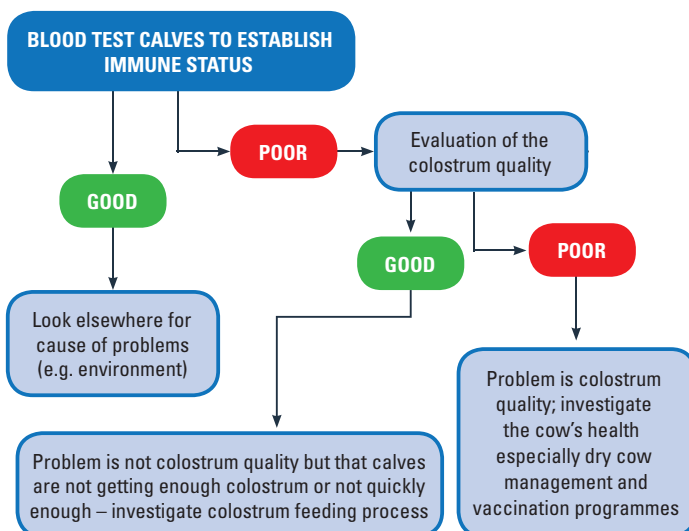
Colostrum management can be monitored by your vet. Common tests include zinc sulphate turbidity (ZST) test and total protein (TP) analysis. When sampling a batch of calves the following should be considered:

- Take a representative number (>12)
- From healthy calves aged 1-7 days of age (sick calves are often dehydrated and will give false results)

Target: 90% of calves tested achieving results:

- >25 units on ZST test
- >5.5g/L on TP analysis

For more information on colostrum see page 6.



Use this flow chart and discuss the results with your vet to come up with a colostrum action plan on your farm

STEP 4

TREAT SICK CALVES

- Isolate sick calves (scour is contagious)
- Continue milk feeding
- Rehydrate with electrolytes (or IV fluids)
- Give pain relief +/- antibiotics

Calves diagnosed with *C. parvum* and in-contacts should receive treatment with the MSD AH product containing halofuginone lactate.

Cryptosporidiosis is a zoonotic disease (humans can be infected too) therefore it is a must that those working with calves protect themselves to minimise the risk of disease.

Speak to your vet regarding treatment protocols.

STEP 5

CONTROL

Actions following the diagnosis of calf scour are at three levels:

1. Environment

Young calves need to be kept clean, dry and warm at all times. Aim to snatch calves within 15 minutes of birth to remove from the disease challenges of the calving pen. Further information is provided.

2. Management

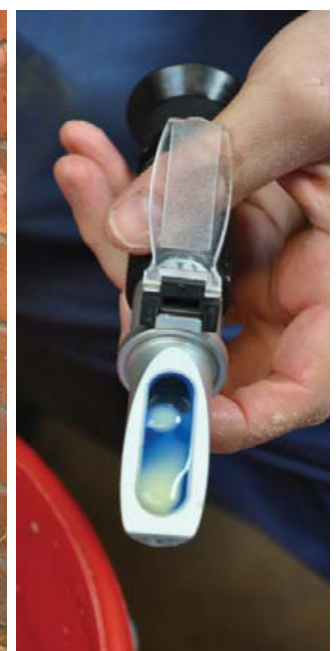
If problems are identified in the previous steps corrective measures should be taken to minimise further effects.

3. Preventative measures

- Vaccinate cows and heifers with the MSD AH calf scour vaccine 12-3 weeks pre-calving. This will boost colostral antibody levels to *E. coli*, rotavirus and coronavirus.
- On farms where cryptosporidiosis has been diagnosed in the past it is advisable that all calves are treated preventatively with the MSD AH product containing halofuginone lactate.



Colostrumeter



Brix refractometer

Preparation in Advance of Calving

Preparation for the next calving season commences with cleaning and disinfection of the calving pens and calf shed after the previous season. A clean **environment** which provides comfort and minimises stress to calves will reduce the risk of disease. **Vaccination** with the MSD AH calf scour vaccine should be given 12-3 weeks prior to the expected calving time.

Sufficient
Space

Fresh Air

Labour
Efficiency

Deep Dry
Bedding

Water
& Feed

Optimal
Hygiene

CALF ACCOMMODATION SHOULD HAVE:

Fresh Air

Optimal housing temperature for young calves is $>15^{\circ}\text{C}$. Ventilation should not be restricted to stop draughts or compensate for cold.

Mechanical ventilation may be a good option in houses with poor natural ventilation.

Check ventilation in pens by crouching down to calf level.

Deep Dry Bedding

Straw is a very good insulator:

- $>15\text{cm}$ deep & dry
- A drainage slope of 1:20 is recommended
- Avoid deep litter bedding in young calves

Optimal Hygiene

Pens should be cleaned and disinfected well in advance of the calving season. Young calf pens should be bedded daily and cleaned out at least weekly (avoid washing while calves are present as this creates a wet cold space).

All feeding equipment should be rinsed and disinfected daily with a dilute peracetic acid or hypochlorite solution.

Cryptosporidiosis Control

C. parvum is difficult to get rid of once established on a farm. Calves become infected by contact with:

- infected calves
- dung from older animals
- contaminated equipment/personnel etc.

Steam cleaning (best) or power washing followed by use of an effective disinfectant, p-chloro-m-cresol, hydrogen peroxide with peracetic acid or 3% peracetic acid is advised. The disinfectants require at least an hour of contact time. Aim to leave pens empty for at least 3-4 months post disinfection (drying out helps to inactivate *C. parvum* eggs).

Vaccination

Store in the
fridge at
2-8°C



Shake
well
before
use



Use a sterile
syringe or
automatic
gun



Use 16 gauge
1.5" needles
& change
frequently



Inject
into the
muscle in
the side of
the neck



Vaccinate
cows &
heifers 12-3
weeks before
calving



Vaccination with the MSD Animal Health calf scour vaccine raises antibodies against *E. coli*, rotavirus and coronavirus.. Optimal results are achievable when the whole herd is vaccinated.

When calves are fed colostrum from vaccinated cows during the first 2 to 4 weeks of life, the antibodies have been shown to reduce the incidence and severity of scour. Reduced shedding of rotavirus and coronavirus⁴ was also demonstrated. Passive protection commences as soon as colostrum is fed to calves and continues until colostrum/transition milk feeding ceases.

Sufficient Space

The greater the number of calves in a single air space, the greater the risk to health. A maximum of 30 to 50 calves per house is recommended.

Individual pens reduce the challenge of disease. Space requirements need to be met, typically 1m wide x 1.7m long for new-born calves⁵.

Group housing of calves soon after birth can increase weight gains and intake of solid feed. It also aids behavioural and social development of calves. Space requirements in group pens varies according to weight e.g. 45kg calf requires a minimum of 1.5m²/calf and this increases with calf growth⁵.

DO group calves by age, in stable groups (ideally <12 calves) and operate an "all in all out" policy

DON'T mix young and old calves, change groups, overcrowd or put stunted calves into a younger group "to bring them on"

Housing with automatic feeders - the same principals as above apply and can be managed successfully.

Supply of Fresh Water & Feed

- Available from the first week of life
- Drinkers and troughs regularly cleaned

Labour Efficiency

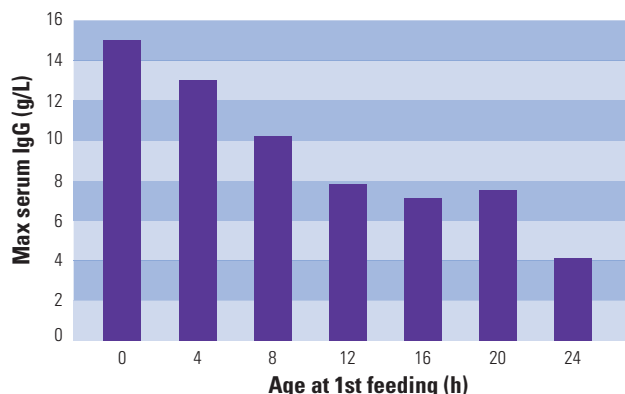
Access for machinery to clean out bedding, good lighting for calf inspection, a good-sized feed preparation area (with hot & cold water supply) are all necessities for calf rearing.

Practical Colostrum Management

The calf is reliant on colostrum to receive antibodies. It helps establish their immune system and it has a higher energy content than milk. It also improves productive traits later in life. It is paramount for the health of the whole group that all calves receive sufficient colostrum.

Timing is important as dairy cows immediately start to produce large amounts of milk meaning their colostrum becomes diluted with every hour that passes between calving and first milking. Secondly, the ability of a calf to absorb antibodies decreases quickly in the hours after birth (see figure 2).

Figure 2. Absorption of antibodies & age at first feeding



Key points to consider



Good hygiene is essential when milking colostrum



Clean feeding equipment as you would the milking machine; cold water first then hot with disinfectant solution e.g. 2% peracetic acid, rinse & leave to dry



- Limit stomach tubing to once per newborn calf
- Have a separate stomach tube for colostrum administration (not the same one as used for sick calves)
- Faster absorption of antibodies with sucking
- 20 minutes of consistent suckling is required to consume enough colostrum



- Fresh colostrum should be used as soon as possible after milking
- Pooled colostrum may lower overall quality & increase the risk of Johnes disease transmission



Colostrum is an excellent medium for bacterial growth (numbers can double every 20 minutes at room temperature)

Contaminated colostrum will reduce the uptake of antibodies by the calf or may even lead to sickness



- Colostrum can be stored:
- In the fridge & used within 24 hours
- In the freezer & used within 12 months



- Before use bring colostrum to 35-40°C in a warm bath
- Never use a microwave or boiling water



1. Use colostrum from the 1st milking for the 1st feed
2. Give within 2 hours
3. Give 3L (or 10% of body weight)

BEST PRACTICE: To benefit from the feed efficiency of early life, attention needs to focus on reducing the disease challenge to young calves and ensuring they receive adequate immunity via colostrum feeding and vaccination. This will allow increased productivity, decreased antibiotic usage, decreased sickness and improved animal welfare.

CALF SCOUR GUIDE

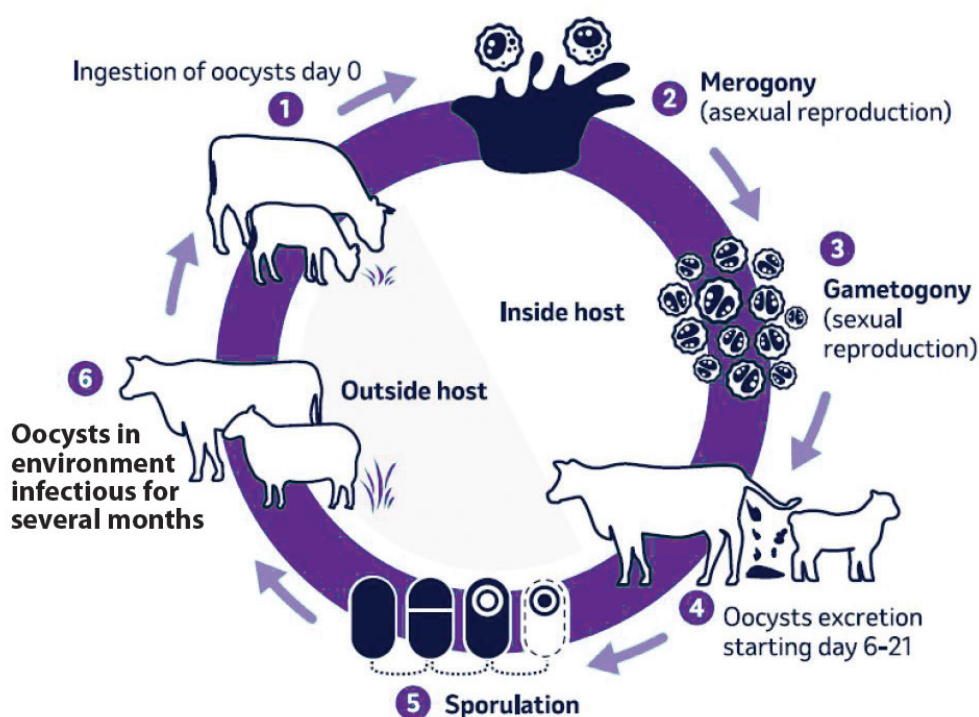
Coccidiosis in Calves

How does coccidiosis occur?

Coccidiosis is caused by infection with parasites from the *Eimeria* family. These parasites cause disease by destroying cells and damaging the lining of the intestines.

How infectious is coccidiosis?

Coccidiosis is very infectious and oocysts survive well in the environment (up to 2 years). An infected calf will excrete millions of oocysts over a period of 4-15 days (for every oocyst ingested 16 million more oocysts can be produced) creating a huge challenge for any non-immune calves in the same environment.



When can coccidiosis occur in calves?

Coccidiosis can occur in calves **from 3 weeks to 6 months of age**. Immunity usually develops quickly after exposure, so disease is most commonly **seen in young animals exposed to a high infection pressure**, before the immune system has had time to respond.

What are the symptoms of coccidiosis?

Infections cause **gut damage, diarrhoea, weight loss** and in severe cases death. Mild infections show no clinical signs, but have an impact on feed intake and growth rates.

How can I prevent coccidiosis on my farm?

Vecoxan is an effective preventative against coccidiosis. **Vecoxan** allows the animal to **develop a natural immunity**, providing long-term protection. However, reducing the infection pressure, minimising stress and maximising the animal's immunity are also key to preventing coccidiosis from occurring.

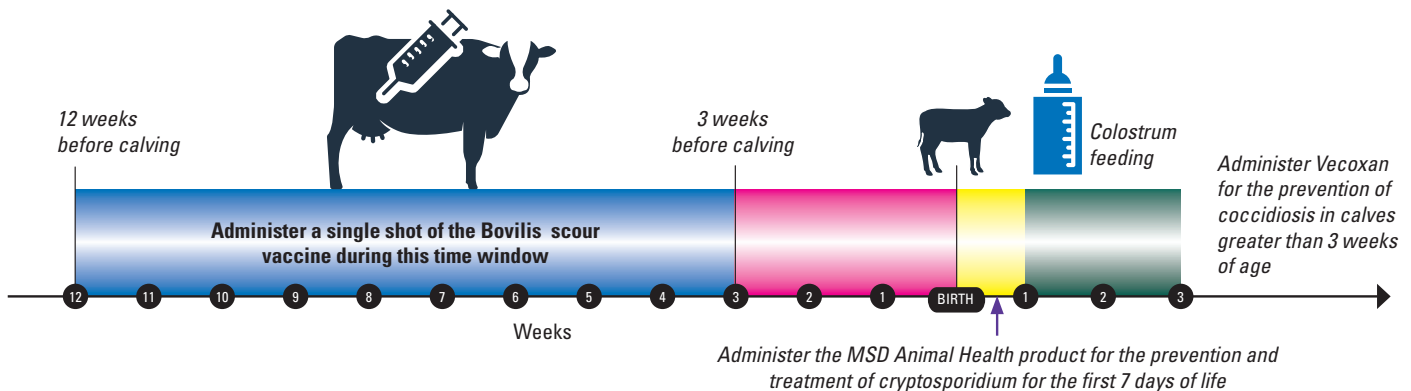
TAKE CONTROL OF CALF SCOUR

Scour Vaccination

Prevention & Treatment of Cryptosporidium



Prevention of Coccidiosis



FOR MORE INFORMATION TALK TO YOUR VET

References:

1. All island disease surveillance report 2019
2. ADAS Economic impact of health and welfare issues in beef cattle and sheep in England (2012)
3. AHI Colostrum management for Irish Farmers, Advisors, Vets www.animalhealthireland.ie (accessed Nov 2020)
4. Mawly et al. Risk factors for neonatal calf diarrhoea and enteropathogen shedding in New Zealand farms. *Vet journal* 2015, 203: 155-160
5. Teagasc publication on calf accommodation. www.teagasc.ie/media/website/publications/2017/Section5-Calf-accommodation.pdf

Vecoxan 2.5 mg/ml Oral Suspension for lambs and calves. It is indicated for the prevention of coccidiosis caused by *Eimeria crandallii* and *Eimeria ovinoidalis* in lambs and *Eimeria bovis* and *Eimeria zuernii* in calves. Legal Category: RO [POM(E)] NI [POM-V]

Scan this QR code for a video on using the scour vaccine and how to check colostrum quality.

For more information visit
bovilis.ie



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MSD Animal Health Ireland - Cattle & Sheep

Use medicines responsibly.

For further information contact
MSD Animal Health, Red Oak North, South County Business Park,
Leopardstown, Dublin 18, Ireland.
Tel: +353 (0)1 2970220.

Email: veter-support.ie@msd.com Web: www.msd-animal-health.ie

