

Treating calf scours

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Important note: Human health issues

Calf scours can be caused by the same organisms that cause intestinal disease in humans. To avoid getting ill, it is advisable to wear rubber gloves and to wash hands and exposed skin thoroughly after treating scouring calves.

What is 'calf scours'?

'Calf scours' (diarrhoea) is the most common symptom of illness in young calves and is usually a problem in the first month of life. The scour can be white, yellow, grey or blood-stained, and is often foul-smelling. Although more common in hand-reared calves, it can also occur in calves which are being suckled by their mothers.

Scours can be caused by many organisms, and more than one causative agent can be present in the one animal. Viruses such as rotavirus are the most common cause of scours in young calves, but protozoa such as cryptosporidia and coccidia, and bacteria such as salmonella and *E. coli*, can also cause problems. Internal parasites (worms) can cause scours in older calves.

Whatever the cause of the scour, the lining of the bowel is damaged, resulting in the loss of large amounts of body fluid into the gut. As a result, the calf quickly dehydrates, electrolytes become unbalanced, energy reserves are depleted, and the calf may develop shock and die.

The treatment of scours in calves should aim to replace lost body fluids, correct the electrolyte imbalance, and supply energy.

Prevention

Rather than having to treat a disease in an animal, it is preferable to prevent it occurring in the first place. Recommended management practices for preventing the onset of calf scours include the following:

- Ensure newborn calves receive at least 2 L of colostrum within 12 hours of birth. Heifers have lower antibody levels in their colostrum than do cows, so it may be worthwhile to collect and freeze excess first-milking colostrum from older cows (which are free of enzootic bovine leucosis (EBL) and Johne's disease) for feeding to the calves of young cows.

Ideally, calves should receive 2 L of good quality colostrum within 1 hour of birth, and a further 2 L 12 hours later. Colostrum from freshly calved cows can be stored in the freezer for up to 12 months, and thawed in a microwave oven when needed. Note that colostrum must not be heated to over 56°C.

- Clean feeding equipment thoroughly after each use.
- House calves in a warm, dry, well-ventilated, clean location. If calves are kept in paddocks, they require protection from the prevailing winds.
- Clean calf housing regularly — antiseptic treatment of pens may be required. Rotate calf paddocks, ideally spelling them for at least 4 months between batches of calves.
- Provide adequate nutrition — increased feed may be required in cold weather.
- Avoid an abrupt change of milk replacer types.
- Immediately quarantine all introduced calves for 7 days in pens not used by home calves.
- Quickly separate new cases of diarrhoea from the unaffected calves, and clean up any contamination.
- Individually identify scouring calves, and record changes in their condition and any treatments which are given.

Identifying the cause

If calf scours is a problem in your calves, have the cause investigated by your vet. This will involve taking faecal samples from some affected



calves and submitting them to a laboratory for examination.

By knowing what is causing the problem, your vet can advise you as to which control measures should be targeted, and can prescribe the most appropriate treatment.

Treatment

Electrolyte solutions

Scours results in the loss of vital salts, fluid and energy necessary for the calf's survival. Treatment of scours is directed at replacing these losses.

Oral electrolyte solutions provide balanced sources of salts, fluids and energy, and can be fed up to six times a day. However, the energy they provide is not adequate, so continue to feed to the calf its normal milk or milk replacer. Ensure that milk feeds and electrolyte feeds are separated by at least 2 hours to allow normal milk clotting and digestion.

Electrolyte solutions are best fed at body temperature.

The amount of electrolyte solution required by a calf each day depends on how dehydrated the calf is and what ongoing losses are occurring. Table 1 gives a guide to signs seen at different degrees of dehydration.

Table 1. Guide to estimating the degree of dehydration in a calf

Clinical signs	% Dehydration
Diarrhoea, but no other sign.	5
Eyes slightly sunken, skin losing elasticity, but calf still suckling.	7
Eyes sunken, skin slow to flatten if pinched, gums sticky, calf depressed.	9
Eyes very sunken, skin 'tents' (won't flatten if pinched), calf can't stand and is severely depressed.	12

To estimate how much fluid is required by a scouring calf, you need to consider requirements for maintenance as well as losses due to the illness:

- The amount of electrolyte solution needed by the calf each day to correct dehydration is calculated by multiplying the weight of the calf by the percentage dehydration.

- To maintain hydration, calves need about 10% of their body weight in milk or milk replacer each day.

Example

The daily fluid requirement for a 30 kg calf with 7% dehydration is calculated as follows.

Amount of electrolyte solution needed to correct 7% dehydration

$$= 30 \times 7 \div 100$$

$$= 2.1 \text{ L per day}$$

Amount of milk required to maintain hydration (10% of body weight)

$$= 30 \times 10 \div 100$$

$$= 3 \text{ L per day}$$

Therefore the estimated total amount of fluid (electrolyte + milk)

$$= 5.1 \text{ L per day}$$

Electrolyte solutions suitable for treating calf scours are available commercially under a variety of trade names, for example Res-Q®, Lectade® or Vy-trate®.

Severely dehydrated calves, such as those that are unable to rise, may need to have fluids administered intravenously by your vet in order to recover.

Vaccines

If *E. coli* has been shown to cause a problem on the farm, a commercial vaccine, BOvac®, is available. Of course this vaccine will not prevent scours caused by other organisms such as viruses or protozoa. The vaccine is given to heifers 6 weeks and 2 weeks before calving, and a booster is given to cows 2 weeks before calving. Antibodies against *E. coli* are then boosted in the colostrum, and this protects the calves from infection.

Avoid antibiotics

Because most scours have a non-bacterial cause, antibiotics play very little role in the treatment of scours. Antibiotics administered to calves result in meat residues, so any calves treated with antibiotics have to be withheld from sales until the residues have disappeared. The appropriate withholding period for an antibiotic is stated on the label.

Antibiotic residues present in meat endanger our meat export trade and place consumers at risk. If a calf is marketed while residues are still present, the carcass will be condemned and the owner prosecuted. The export slaughter interval for calves treated with an antibiotic must be obeyed.

Injected antibiotics are used to treat calf scours only in cases of salmonellosis, where septicaemia is common. If your veterinarian prescribes antibiotics, for example for blood scours due to salmonellosis, ensure you mark the treated animal with a clear identifier such as an individually numbered ear tag or leg band. The date of treatment should be recorded and the withholding period for that particular antibiotic obeyed. It is advisable to record the earliest date on which the calf can be sold, and to check the treatment record book each time before selling any calves.

Long-acting antibiotics, for example long-acting tetracycline, should be avoided because low residue levels can still be detected long after treatment, and the carcass will be condemned.

Drenching

When internal parasites cause scours in older grazing calves, treat these calves with an anthelmintic drench. Again, the date of treatment should be recorded and the withholding period and export slaughter interval obeyed before the calves are sold.

Further information

Further information can be obtained from:

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