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tips&tools
ANIMAL HEALTH AND WELFARE

Treating calf scours

Exposure to organisms that cause calf scours is a normal part of 'growing up' for a calf, and most farms will have a few calves that have sticky white or yellow diarrhoea around their tail. Calves that are scouring but remain bright and continue to suckle do not require treatment, however calves that are depressed and off the suck should be treated early to avoid calf losses and disease spread.

Key benefits

- Determine which calves require treatment for scours
- Learn how to select and use oral electrolyte solutions for best results
- Know when your veterinarian should be consulted during a scours outbreak

Assessing the sick calf

Calves with scours lose many litres of fluid each day as diarrhoea. Death is usually due to dehydration, not infection. It is important to check cows and calves at least daily during a calf scour outbreak, as calves can rapidly die from dehydration. Any calf that is sick enough to catch should be assessed and treated as detailed in Figure 1 (over the page). It is also important to note whether the dam appears to have an adequate milk supply.

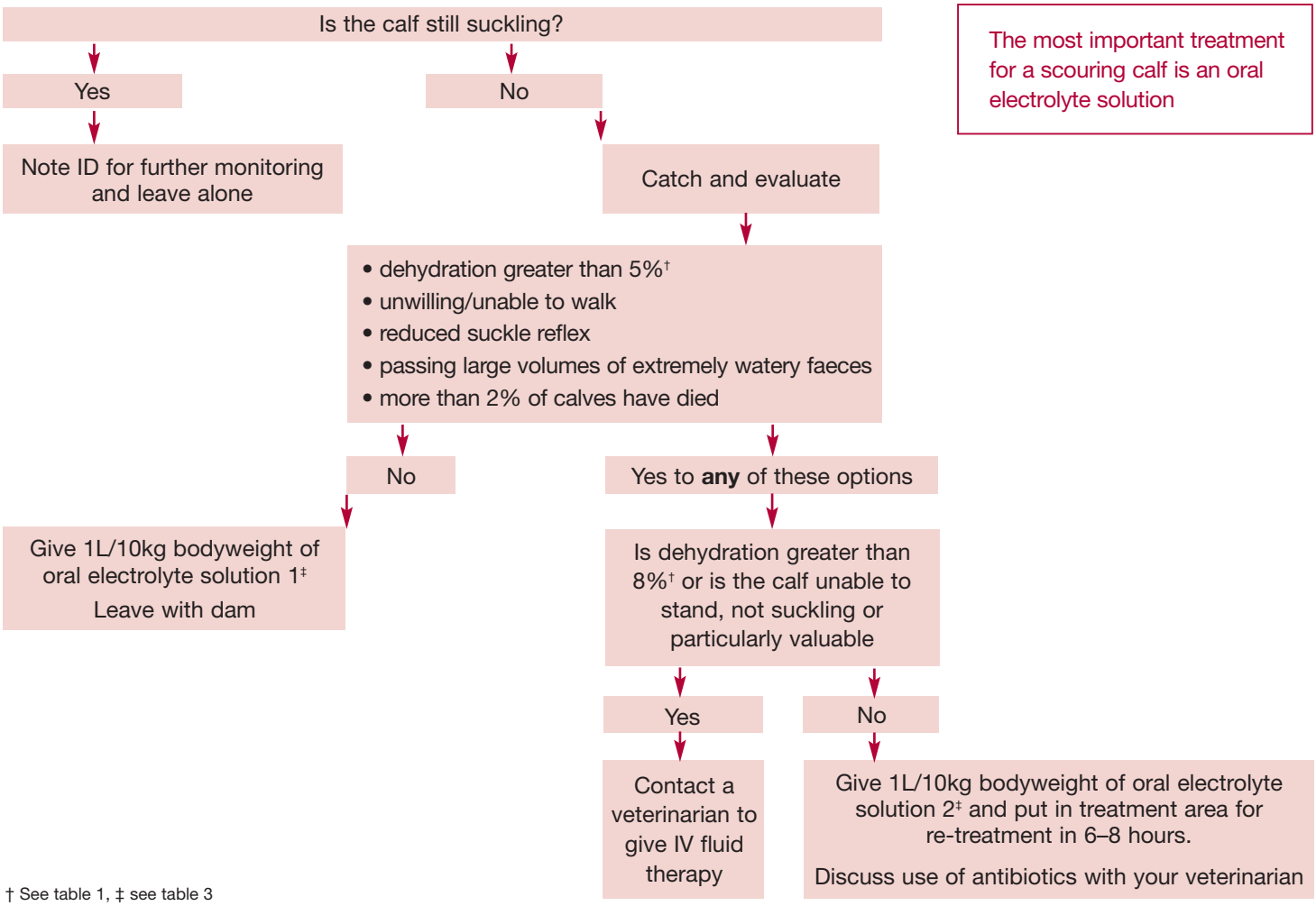
Oral electrolyte solutions (1L per 10kg bodyweight) are the most effective treatment for scouring calves when given early. Many calves require repeat treatments, and in severe cases, electrolytes may be needed two or more times a day. The degree of dehydration can be estimated as shown in Table 1. The duration of 'skin tenting' is measured by pinching up the skin on the neck and seeing how long it takes to return to normal.

Most calves with diarrhoea do not have a bacterial infection, and antibiotics, including calf scour boluses, tablets and liquids, are not required. Antibiotics should only be used if testing identifies a bacterial cause. In these cases, targeted antibiotic therapy can be effective in reducing disease and calf death. Indiscriminate use of antibiotics may compromise the effectiveness of antibiotics on your farm by selecting for resistant bacteria.

Table 1: Estimating dehydration levels in calves

% Dehydration	Attitude	Suckling	Eyeball sunkenness	Duration of skin tenting (Time – seconds)	Gums and nose
1–5	Bright and running, head up	Yes	None/slight	1–4	Moist
6–8	Standing or sitting, unwilling to move, head down	Maybe slowly	Slight separation between eyeball and orbit	5–10	Sticky
9+	Sitting or lying, head down	No	More than 0.5cm between eyeball and orbit	11+	Sticky–dry

Figure 1: How to decide the appropriate treatment for a calf



The most important treatment for a scouring calf is an oral electrolyte solution

† See table 1, ‡ see table 3

Treating scouring calves

A temporary treatment shelter should be constructed to house calves that need ongoing treatment. The shelter should provide protection from draughts and weather, but allow cows to see and smell their calves. Consider 'space blankets' or calf coats for sick cold calves. Water must be available at all times. Relocate the treatment shelter to an adjacent area weekly to minimise pathogen build-up. Fence off the treatment area from other calves to prevent disease spread.

The total daily fluid requirement (including milk if suckling) of scouring calves is shown in Table 2. Assess sick calves daily on their attitude, willingness to suckle and degree of dehydration. Do not worry about the consistency of the scour as electrolyte solutions may make the scour runnier. The easiest way to administer oral electrolyte solutions is via a tube (or oesophageal) feeder. Give a maximum of 1L/10kg bodyweight of electrolyte solution per feed. If calves are uncomfortable treat with less volume more frequently.

Return calves to their dams when they are able to follow and nurse. Aim to return them within 36 hours and give an electrolyte feed before release. If calves are still sick after 36 hours discuss your treatment protocol with your veterinarian.

Table 2: Daily fluid requirement for ongoing treatment of scouring calves Ω

Weight of calf (kg)	**30**	**40**	**50**	**60**	**70**	**80**
	Daily requirement (L)					
Sticky scours	4.5	5.5	6.5	7.5	8.5	9.5
Liquid scours	6.0	7.0	8.0	9.0	10.0	11.0
Profuse liquid scours	9.0	10.0	11.0	12.0	13.0	14.0

Ω *Calves that are >5% dehydrated (see Table 1) will need an extra 2–4 litres of fluids or more if they are collapsed*

What electrolyte solution should I use?

If calves are left with their dam, do not use an electrolyte solution that contains bicarbonate or citrate as this will prevent milk clotting and make scours worse.

Strongly alkalising solutions are most effective for treating sick and collapsed calves that will be isolated from their dam for a short while.

Producers may need to have up to three different types of electrolyte solution on hand in a calf scour outbreak (refer Table 3). Discuss with your veterinarian which brands will meet your needs.

Table 3: Oral electrolyte solutions for treatment of scouring calves

Type 1	A solution containing acetate or propionate for use in calves that are still standing and can be left with their dams
Type 2	A strongly alkalising solution for calves that are severely affected and require repeat therapy and isolation
Type 3	A solution that will provide enough energy for maintenance to use in calves that won't suckle after 24 hours

When should I contact my veterinarian?

Your veterinarian can help you diagnose the cause of scouring, allowing you to put specific preventive strategies in place. They will also establish a correct treatment protocol. Calf scours can spread rapidly and diagnostic tests can take several days to provide results, so it is important to consider the benefits of establishing a diagnosis as soon as calves start to become sick.

Always contact you veterinarian if:

- you are unsure as to the correct treatment protocol or electrolyte to use
- calves are unable to stand, not sucking or not improved 6–12 hours after oral fluid therapy
- calves are dying
- calves have blood in their faeces
- calves are too sick to return to their dams 36 hours after initial treatment
- you have carried out the recommended prevention and treatment measures but calves are still dying

Diagnostic tests for calf scours

Diagnostic tests can be used to determine the causes of scours, and to check if calves have received adequate colostrum. Knowing the cause of the scours will determine if treatment with antibiotics is appropriate and may pinpoint the source of the outbreak and the best preventive strategies to use.

Laboratory testing for all five major calf scour pathogens can be expensive. In smaller outbreaks, testing for specific organisms may be more appropriate. Before deciding on a testing strategy with your veterinarian, estimate the projected size and cost of the outbreak and find out the cost of the proposed laboratory tests. The information in Table 4 can then be used to determine at which point a diagnostic test is likely to give an adequate cost benefit.

Table 4: Common diagnostic tests for calf scours and suggested criteria for using them cost effectively

Proposed test	Indications	Economic benefit likely if:
Enterotoxigenic *E. coli*	Affected calves <4 days old	One calf has died or more than 10 calves are likely to be affected
Salmonella	• Blood in scour • Calves present with severe clinical signs • Calves are dying	Projected cost of disease >2.5 x cost of laboratory tests
Full calf scours investigation	Calves are dying	Projected cost of disease >4 times total cost of laboratory tests and veterinary post-mortem fees
Failure of passive transfer	• Affected calves <3 weeks • Dystocia in affected group >5%	>5 calves affected

Severe copper or selenium deficiency may make calves more susceptible to scours. If your region is known for mineral deficiencies, discuss the benefits of a routine screening test with your veterinarian.

Disinfection

Utensils used for treating calves should be thoroughly scrubbed between animals and disinfected daily. Suitable disinfectants to kill bacteria and viruses that cause calf scours are 1% Virkon™ or a 1:25 dilution of household bleach (final concentration 1,750ppm sodium hypochlorite). Scrub surfaces thoroughly before disinfection and apply disinfectants for at least 10 minutes. None of the common disinfectants kill cryptosporidia, so all surfaces should be thoroughly dried.

When the treatment area is relocated, remove bedding and treat area with lime (1kg/m^2). Treatment area walls should be easy to clean or dispose of and should be disinfected at least once a week.

Human health considerations

Some of the causes of scours in calves also cause disease in people. Young children and people that are immunosuppressed should not be exposed to scouring calves.

Recommendations for people working with calves include:

- Wear overalls and disposable gloves when handling sick calves
- Always wash your hands after working with calves
- Do not eat, drink, or smoke while working with calves
- Do not work with sick calves when you are taking antibiotics or immunosuppressants, or are otherwise immunocompromised
- Contaminated clothing should be kept away from family members especially children, seniors and immunocompromised people

For more information

For more information see also *MLA Tips & Tools: Preventing calf scours in suckler beef enterprises*. To order you free copy of this publication call 1800 675 717 or email publications@mla.com.au

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