

Section 6

Calf diagnosis and Disease Prevention



Introduction

In order to identify potentially sick calves careful observation at, and just before, feeding times is crucial. Prevention of disease in calves should be a priority in all calf rearing enterprises and involves measures to limit the exposure of the calf to infectious organisms while also reducing its susceptibility to infection.

- ① Diagnosing a sick calf.
- ② Why prevention is better than cure.

Calf diagnosis and Disease Prevention

① Diagnosing a sick calf.

If a calf's response at feeding time is abnormal, further observation of its faeces and for signs of coughing or nasal/ocular discharge is essential. The calf's vital signs e.g. temperature, breathing rate, must then be checked and monitored.

Response of calves at feeding		
If you answer "no" to a question below, closer examination of the calf is required.		
Yes	No	
		Does the calf get up and actively position itself at its milk feeding station?
		Does the calf want to drink its milk?
		Does the calf drink its milk at its normal rate?
		With automatic feeding stations, does the calf drink its normal allocation of milk within the allocated time frame?
		Are the calf's ears erect, and is the calf alert? Drooping ears are a sign of illness.

Additional observations at each feeding:		
If any problems are detected, the calf's vital signs should be monitored more closely.		
What is the calf's faecal consistency? <i>Choose the most accurate description. Calves that are scouring need additional fluids; need to be examined more closely; and should be fed last to prevent disease spread.</i>		
		Pudding consistency – normal faecal consistency.
		Yoghurt consistency – semi-formed and pasty, does not warrant feeding electrolytes.
		Loose, syrup-like faecal consistency. Faeces stays on top of bedding, may have strong odour – calf needs closer examination, and electrolytes should be fed in addition to, and separately from, milk.
		Apple juice consistency, watery and runs through the bedding – calf needs closer examination, and electrolytes should be fed in addition to, and separately from, milk.
Yes	No	
		Is the calf coughing and/or has a discharge from its nose or eyes? Closer examination of the calf is needed for potential respiratory illnesses. Consult your vet.



Calf's vital signs			
If a calf's vital signs are outside the normal range, implement treatment protocols that have been developed with the help of your vet.			
Yes	No		Normal or expected vital signs
		Is the calf's temperature elevated?	38.5 to 39.5°C is normal.
		Is the calf breathing rapidly?	24 to 26 breaths per minute is normal in calves <1 month of age. 15 to 30 breaths per minute is normal in older calves.
		Is the calf's heart rate elevated?	100 to 140 beats per minute is normal in calves. An irregular heart beat is a sign of illness.
		Does the calf have a cough?	The calf should not have a cough. Induced repeated coughs or repeated spontaneous coughs indicate a respiratory disorder.
		What is the calf's ear score?	Ears should be up and alert. A head tilt or both ears drooping indicates a severely ill calf.
		Does the calf have a nasal discharge?	A calf can have a normal, serum-like nasal discharge. Calves with excessive mucous and/or cloudy discharge from both nostrils should be isolated.
		Are the calf's eyes sunken into the eye socket? Gently avert the calf's lower eyelid, observe the amount of space between the eyeball and the lower eyelid.	Healthy calves have a minimal amount of space between the lower eyelid and eyeball (<2 mm). As the calf becomes dehydrated, the amount of space between the eyeball and lower lid increases.
		When the skin of the neck is pinched and gently rotated 90°, a tent of the skin forms. Does this skin tent return to normal within two seconds?	The tenting of skin should return to normal within two seconds in a healthy calf.
		Are the calf's gums dry and white?	Normally, a calf's gums are moist and pink. Dry, white gums are a symptom of severe dehydration (8-10% dehydration).
		If the calf is lying down, does it fail to get up when given a small amount of persuasion?	For calves that are unable to rise, contact and follow your vet's recommendations immediately. These calves may need intravenous (IV) fluids to help treat the dehydration and possible acidosis. If not treated appropriately and quickly, the calf may die.

Adapted from an article by D.M. Amaral-Phillips (2012), *Extension Dairy Specialist, University of Kentucky*.

② **Why prevention is better than cure.**

Prevention, rather than cure, is the most effective approach to disease management in any calf rearing programme. In the animal health world, the aim is to change the focus of producer farm health management systems. The goal is to move from the era of post-event disease treatment/management to promoting animal health through preventative and biosecurity measures, ultimately increasing the calves' immunity while decreasing their contact with infections. This leads to reduced antibiotic usage, improved animal performance, increased farm profitability and the production of the best quality products for consumers.

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There are five key points to disease prevention:

- 1) Effective development of the calf's immunity. This is supported by:
 - Adequate colostrum intake.
 - Feeding high quality calf milk replacer and concentrates.
 - Free access to fresh water.
 - A sound vaccination programme.



An essential part of disease prevention is to ensure adequate colostrum intake in the first two hours of life.

Pneumonia	IBR	Clostridial Diseases
<ul style="list-style-type: none"> • Different programmes available. • Programmes cover RSV, PI3 and Pasteurella*. • Two shot program, four weeks apart. • Implemented from two weeks of age. • Booster shot required at next stress period. 	<ul style="list-style-type: none"> • One shot live vaccine. • Can be given with some pneumonia vaccines. 	<ul style="list-style-type: none"> • Essential to vaccinate twice, four to six weeks apart. • Vaccinate from two weeks of age. • Don't administer on same day as the pneumonia vaccine. • Annual booster required. • Use multivalent vaccine to deliver broader range of cover.

**Mannheimia haemolytica*

- 2) Biosecurity:
 - Know the disease status of the source herd.
 - Use and check colostrum status (contamination, quality).
 - Reject sick calves.
 - Aim to buy a three week old animal.
 - Isolate new animals on farm.
 - Practice good personnel hygiene e.g. foot baths placed outside calf houses, regular cleaning and disinfection of waterproof trousers/overalls/footwear.
- 3) Limit stress. Stress inhibits the immune system of calves. Factors such as transportation, sudden feed changes, poor ventilation, crowding, temperature fluctuations and drafts can all impact the disease resistance of calves. Adequate planning, scheduling and management of farm personnel and ongoing monitoring of calves are key factors in alleviating sources of stress.
- 4) Minimise the risk of exposure to bacteria, viruses and parasites in the calves' environment.
 - A broad-spectrum disinfectant should be used regularly to clean and sterilise pens, railings, water troughs, feeders and other equipment and surfaces.
 - Well-bedded and well-ventilated housing with a good protocol around hygiene and calf husbandry will also help to minimise disease risk.
- 5) Structure a management plan. Keeping a careful watch on calves and intervening early if they are not thriving is crucial. If in any doubt as to the diagnosis or best treatment of a calf, contact your veterinarian immediately for advice.