

# NADIS Health Bulletin



Knowledge transfer to farmers

## Diarrhoea in beef suckler calves

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Diarrhoea or calf scour (Fig 1-2) is a major cause of calf mortality and lost profit in many beef suckler herds. Financial losses result from dead calves but more importantly from the severe check in growth of young calves. Purchase of replacement calves (Fig 3) risks introducing many disease organisms, most importantly Salmonella species, on to the farm.



Fig 1: Mild diarrhoea or calf scour

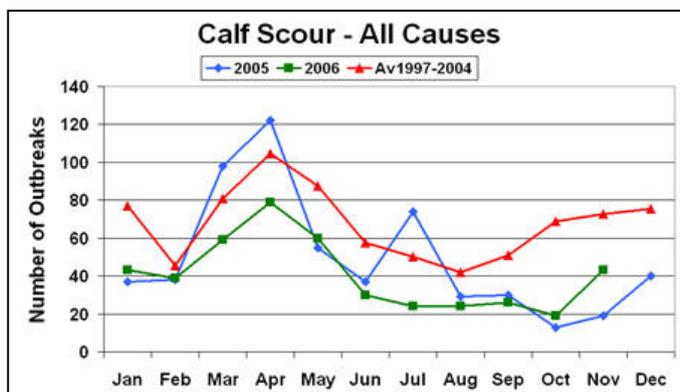


Fig 2: Moderate diarrhoea requiring oral rehydration solution to overcome dehydration

### Rotavirus infection

Rotavirus infection is the most common cause of severe diarrhoea in young beef suckler calves. Infection can produce the complete range of clinical signs from no observed abnormality through to severe diarrhoea and dehydration with high mortality.

Calves are most commonly affected at 8 - 14 days of age when there is an acute onset of diarrhoea with the passage of very watery yellow/green faeces (Fig 2) with infection spreading rapidly among young calves in the group (Fig 3). Typical early signs include a reluctance to stand and suck, mild depression and salivation. The calf rapidly becomes dehydrated and recumbent (Fig 4). The abomasum and intestines are often distended with fluid and gas. The eyes are sunken and the skin becomes tight and inelastic.

The calf should be isolated in a dry, well-bedded pen. 1-2 litres of oral electrolyte are given 2 to 4 times daily. While a stomach tube/oesophageal feeder can be used once, veterinary advice should be sought if the calf will not suck fluids through a teat 2 to 4 hours later. Intravenous fluids administered by a veterinary surgeon are essential in dehydrated calves that are unable to stand unaided (Figs 4). Oral antibiotics are generally not necessary. Parenteral antibiotics should be used to control



Fig 3: Infection rapidly spreads among calves

concurrent infections, e.g. navel ill, calf diphtheria. Return to a milk diet should be a complete change and not diluted with electrolyte. Alternate milk and electrolyte solution should be fed every two to four hours. It is important to offer fluid by teat not oesophageal feeder because active sucking is the best indicator of the calf's improvement.

Drugs and staff time employed to treat scouring calves prove costly (approximately £15 for mild cases treated with oral fluids; a dead Charolais bull calf may cost as much as £180 to replace). Once a herd has experienced problems with rotavirus infection, annual vaccination of the cows costing £6-8 per cow is essential 1 - 3 months before their calving date.

### Coronavirus diarrhoea

Outbreaks of calf coronavirus diarrhoea are similar to, or more severe than, those observed for rotavirus infection. Fortunately, coronavirus infection is much less common than rotavirus.

Typical clinical signs include depression, reluctance to suck and the passage of faeces containing mucus and milk curds. The disease can progress rapidly to weakness, recumbency, severe dehydration and death. Coronavirus infections cause diarrhoea in calves up to 20 days-old.

Treatment for coronavirus infection is as outlined above for rotavirus. Annual vaccination with a combined rotavirus, coronavirus and K99 combined vaccine is an invaluable insurance policy in all beef herds.

### Enterotoxigenic E. coli

In calves this term is used to refer to strains of the bacterium *E. coli* possessing the K99 antigen. Recent surveys have shown the incidence of K99 *E. coli* to be low (around 1 % of diarrhoeic calves), but when infection occurs in a herd, losses can be high.

The disease characteristically affects calves aged 1-3 days-old when there is sudden onset of profuse yellow/white diarrhoea causing rapid and severe dehydration. The calf quickly becomes recumbent. Accumulation of fluid in the abomasum and intestines gives the abdomen a bloated appearance.

Diagnosis is based upon severe diarrhoea with high mortality affecting calves aged 1-3 days-old with confirmation following isolation of K99 + *E. coli* from faecal samples.

### Control

Movement of all pregnant cows to clean pastures and isolation of newly-calved cows should markedly reduce the incidence of ETEC disease.

Vaccinate all pregnant animals immediately with Rotavec-Corona K99 but it will take 10-14 days for sufficient protective antibody to accumulate in the colostrum. Oral antibiotics may be administered to all calves at birth during this period as a temporary prophylactic measure.

### Cryptosporidiosis

It is only within the last ten years that *C. parvum* has been recognised as a primary cause of neonatal diarrhoea. *C. parvum* is not host specific and severe outbreaks occur when there is a build up of infection, namely towards the end of the



**Fig 4:** Intravenous fluids administered by a veterinary surgeon are essential in dehydrated calves that are unable to stand unaided



**Fig 5:** Calving accommodation should be kept clean and well-bedded; preferably mucked out between calvings.



**Fig 6:** Timely ingestion of colostrums cannot be over-emphasised

For all diseases affecting the young calf the calving accommodation should be kept clean and well-bedded; preferably mucked out between calvings (Fig 5). Ingestion of 2 litres colostrum within the first two hours of birth cannot be over-emphasised (Fig 6).

lambling or calving period and especially if the same fields or buildings are used for autumn/winter calving then spring lambing as the protozoan parasite can remain dormant for months.

Diarrhoea is caused by the physical loss of absorptive area of the small intestine and exacerbates the viral infections described above. Suckler calves aged 10-21 days old are most commonly affected. There is a profuse yellow/green diarrhoea with much mucus present. There is only mild dehydration but the calf rapidly loses condition over 2-5 days and has a dull tucked-up appearance. Whilst morbidity is high, the mortality rate in uncomplicated cases is usually low.

**Simple control measures include:**

1. Do not use same fields for calving/lambing.
2. Change fields every year or when clinical cases occur in that season.

3. Move newborn animals immediately on to clean pasture.

In uncomplicated cases ensure that the scouring calf is properly hydrated and use oral electrolyte solutions as necessary.

Cryptosporidiosis is a zoonotic disease (can affect man). Children and the elderly are most at risk when handling calves, less so contaminated boots/clothing and other indirect sources of infection.

## TEST YOUR KNOWLEDGE - HOW DO YOU SCORE?

A better understanding of disease control and prevention will save you money and improve animal health and welfare.

Test your knowledge on the NADIS Animal Health Quiz at <http://www.nadis.org.uk>

The following questions are amongst those to be found in the quiz:-

1) The most common cause of severe diarrhoea in young beef suckler calves 1-2 weeks-old is which one of the following?

- A Cow with too much milk
- B E. coli
- C Cryptosporidiosis
- D Rotavirus
- E Salmonella

2) Rotavirus infection is best controlled by which one of the following answers?

- A Annual vaccination of pregnant cows 1 - 3 months before their calving date.
- B Treatment of all calves at birth with antibiotics
- C Vaccinating calves at birth
- D Use of probiotics
- E Use of purchased colostrum supplements

(Answers at bottom of page 1)

## HAVE A GO – SEE HOW YOU SCORE

<http://www.nadis.org.uk>

NADIS Health Bulletins are designed to improve farm income, animal health and welfare by promoting disease control and prevention.

Discuss how health planning can improve the profitability of your farm with your veterinary surgeon.

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