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# **NEWSLETTER**

## **AUGUST**

# **2025**

### **This Month:**

**Hot Hot Hot!**

**Treating and Preventing Scour in Pre-weaned Calves**

**Emergency Fluid Therapy in Cattle**



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# HOT HOT HOT!



The warm weather has certainly continued into July. Newport show was a scorcher. The gang that went from here had an enjoyable yet very hot and busy day entertaining those of you that went. We are looking forward to seeing you all at Nantwich Show. Let's hope when you're reading this it wasn't quite as hot.

Maybe it's my age or extra insulation, but I have found periods of the last month or so unbearably warm. As have some cows I have seen. Over the past month various THI-live (Temperature Humidity Index) tools have shown average temperatures reached concerning levels. During these recent heatwaves, of which there has been a few in June and July, reports have shown troubling trends in cow comfort. Average shed temperatures have been above 30C and THI has regularly exceeded 80. Cows experienced increased respiration rates, reduced lying and eating times, and greater water consumption - all heat stress indicators. Cows in sheds not well ventilated to regulate air flow struggle. Prolonged heat stress not only impacts cow welfare but will impact conception rates and will trigger the odd abortion. Decreased dry matter intakes during the hot weather will negatively influence milk yield and quality. These effects may not become apparent until several weeks later when cows are tested (PD'd) for conception rates or even their milk quality. I am certainly seeing dips in both. There is no question that the sheds with ventilation systems have less to even no impact from heat stress. A high percentage of you have invested wisely in various systems over the

years and are seeing the rewards. From my travels, I am appreciating how many of you are in the process or have purchased and awaiting installation, of ventilation systems. Money well spent.

We have also seen multiple heat stressed cows out at grass. Cows often have nowhere to hide from the sun, no shade, and the impact has been fatal on a few this year. This will be accentuated if they have a concurrent ailment.

The recent rain has been very welcome. I'm sure the 4th cuts will make up for the very light 3rds?

Bluetongue update: As of 25th July there have been 7 confirmed cases of BTV-3 for the 2025-2026 vector season. A ram in Wiltshire, a cow in Cumbria and a ewe in Oxfordshire have been confirmed yesterday and today. Previous cases have been in Oxfordshire, Buckinghamshire and Norfolk. The risk of transmission via infected midges is now considered to be very high. Vaccination is still the best insurance against Bluetongue.

Please speak to one of us if you have any questions regarding BTV-3. The different movement restrictions and testing requirement rules take a bit of getting your head around. It would be made a lot easier for our area if at least Wales would follow suit regarding restriction zones. Who knew Offa's Dyke path and Hadrian's wall were such powerful repellents!!!

ROB



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# TREATING AND PREVENTING SCOUR IN PRE-WEANED CALVES

Scour, or neonatal calf diarrhoea, remains one of the leading causes of illness and mortality in pre-weaned calves across the globe. A complex, multifactorial condition, scour not only poses immediate health threats to calves but also results in significant economic losses due to reduced growth rates, treatment costs, and increased labour demands. Understanding the causes, implementing prompt treatment strategies, and enacting robust prevention protocols are critical to managing this condition effectively.



## UNDERSTANDING CALF SCOUR

Scour in pre-weaned calves is typically a symptom of underlying gastrointestinal infection or dysfunction, not a disease in itself. The condition is characterized by loose or watery faeces, often accompanied by dehydration, electrolyte imbalances, and in severe cases, death.

Causes of scour can be broadly grouped into:

### **Infectious agents:**

- Viruses: Rotavirus and coronavirus
- Bacteria: *Escherichia coli* (especially enterotoxigenic *E. coli* or ETEC), *Salmonella* spp.
- Protozoa: *Cryptosporidium parvum*

### **Non-infectious factors:**

- Poor colostrum management (inadequate quantity or quality)
- Poor feeding practices (poor milk replace quality, poor milk feeding hygiene, inconsistent concentrations, feeding temperature inconsistency)

- Environmental stress (cold, wet, dirty conditions)
- Overcrowding and poor ventilation

Because multiple agents may be present simultaneously, diagnostic testing (e.g., fecal PCR or ELISA panels) can be useful for identifying the dominant pathogens in an outbreak.

## TREATMENT OF CALF SCOUR

The primary goal in treating calf scour is to correct dehydration and restore electrolyte balance and correct metabolic acidosis. Early intervention significantly improves survival outcomes.

### **1. Oral Rehydration Therapy (ORT)**

Rehydration is the cornerstone of scour treatment. Oral electrolyte solutions (OES) should be administered to any calf showing signs of diarrhoea—even if they are still suckling. A good OES should contain:

- Sodium and chloride (to combat dehydration)
- Glucose or other energy sources (to aid sodium absorption and provide energy)
- Alkalinizing agents like acetate (to correct metabolic acidosis)

Best practices for electrolyte feeding:

- Feed 2–4 liters of electrolytes per day, divided into two feedings, given for at least three days or until signs have resolved.

- Continue regular milk or milk replacer feedings unless the calf is severely weak or not suckling.

## 2. Intravenous Fluids

For calves that are severely dehydrated (e.g., sunken eyes, inability to stand, cold extremities), intravenous fluids are necessary. Administration of isotonic fluids like Ringer's lactate, possibly with added bicarbonate, should be done under veterinary guidance.

## 3. Antibiotic Therapy

The use of antibiotics should be reserved for cases where:

- There is systemic illness (fever, depression)
- A bacterial cause (e.g., Salmonella, E. coli) is suspected or confirmed

Broad-spectrum antibiotics may be used where necessary, but speak to your vet if you need more specific treatments.

## 4. Anti-Protozoal and Supportive Therapies

If Cryptosporidium is involved, halofuginone (Halocur) or other treatments may be prescribed, although supportive care remains essential.

Additional supportive treatments may include:

- NSAIDs (e.g., meloxicam) for pain and inflammation
- Probiotics to help restore gut flora
- Access to clean fresh water at all times

## PREVENTION OF CALF SCOUR

Preventing calf scour is far more effective and economical than treating outbreaks. Successful prevention strategies focus on breaking the cycle of infection and bolstering the calf's natural defenses.

## 1. Colostrum Management

Ensuring calves receive high-quality colostrum is the single most critical step in preventing early-onset diarrhoea.

**Quality:** Colostrum should contain >50 g/L IgG. Use a colostrometer or Brix refractometer to assess quality (>22% Brix reading)

**Quantity:** Calves should receive at least 10% of their body weight in colostrum within the first 4 hours of life (e.g., 4 liters for a 40-kg calf).

**Quickness:** The first feeding should ideally be within 1–2 hours of birth

**Cleanliness:** Use clean bottles and feeding tubes to minimize bacterial contamination.

Measuring serum total protein levels in calves at 24–48 hours of age can help monitor passive transfer success (target:  $\geq 5.5$  g/dL).

## 2. Hygiene and Environment

Environmental hygiene plays a major role in reducing exposure to pathogens.

- Clean and disinfect calving pens and feeding equipment regularly.
- Avoid mixing sick and healthy calves.
- Ensure calf housing is dry, well-ventilated, and not overcrowded.
- Use individual pens or hutches where possible, or maintain small, age-matched groups.
- Straw bedding should be deep, clean, and dry enough that calves can nest (i.e., legs not visible when lying down).

## 3. Feeding Management

Feed calves a consistent volume and concentration of milk or milk replacer daily, ideally at the same times each day. Avoid sudden changes in diet or feeding temperature, as these can upset the digestive system.

# EMERGENCY FLUID THERAPY IN CATTLE

**We take a break from the Infectious Disease Overview series for some important points about fluid therapy from Laura Donovan.**



Fluid therapy is a very valuable treatment tool for most sick cattle and is often a key factor in the recovery process. The type of fluid, the volume, and the route the fluids are given will help to correct circulatory collapse, electrolyte imbalances and base deficits.

Correcting dehydration will often help to restore kidney function enough that the electrolyte and acid-base imbalances will then self-correct.



or severe endometritis, the gastrointestinal motility will be substantially reduced, making oral fluid therapy less effective. For this reason, IV fluids are often indicated once moderate to severe signs of hypovolaemia are seen.

## HYDRATION STATUS AND ROUTE OF ADMINISTRATION

To assess the hydration status of an animal:

- Check the eye position = look at the distance between the lower eyelid and the eyeball
- Perform a skin tent = pinch the skin on the neck and count how many seconds it takes for it to lie flat again. In a well hydrated animal, it will snap back straight away.
- Check the mucous membranes = Open the mouth and press a finger onto the gums.

When deciding on route of fluid administration it is important to consider the cardiovascular status of the animal. In conditions such as acute toxic mastitis, abdominal catastrophes

## INTRAVENOUS THERAPY

Dehydrated adult cattle need huge volumes of isotonic fluids (fluids that are the same concentration as body fluids) in the vein. This is time consuming and costly. Instead, hypertonic (more concentrated) fluids offer a more practical option in the field situation. We can safely administer 2-3L of hypertonic saline (7.2% sodium chloride)

| Degree of Dehydration | Clinical Signs                                                                                                                                                   |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mild                  | No visible recession of the eyeball<br>Persistence of a skin tent on neck $\geq$ 5s<br>Mucous membranes tacky                                                    |
| Moderate              | Recession of the eyeball $>$ 5mm<br>Persistence of a skin tent on neck 6-7s<br>Oral mucous membranes dry and cold<br>Lethargic                                   |
| Severe                | Recession of the eyeball $>$ 5mm<br>Persistence of a skin tent on neck $\geq$ 7s<br>Oral mucous membranes dry and cold<br>Lethargic, depressed, may be recumbent |

*Fig 1: Clinical signs associated with various degrees of dehydration in the adult ruminant, and Fig 2 (inset): a severely dehydrated cow*



IV over 5 minutes to an adult cow. This corrects electrolyte abnormalities with smaller volumes of IV fluid. However, to effectively correct dehydration and restore circulatory volume, this form of therapy relies on the uptake of water from the rumen. Cattle should be provided with a supply of fresh water immediately after treatment. Most cattle will drink 20 to 40 litres within 10 minutes, though often this will be administered by rumen pump.

For cows in metabolic acidosis due to, for example, grain overload, alkalinising (sodium bicarbonate) IV solutions are used. Dextrose can be used in cows that are not eating or ketotic. Calcium should be supplemented in freshly calved dairy cows.

## ORAL THERAPY

In most situations, an electrolyte solution containing sodium chloride, potassium chloride and calcium and magnesium salts is suitable. There are many commercial sachets available for different situations. The sachet is added to 20-40 litres of warm water and stomach pumped into the cow.

Oral fluids alone are not indicated in the recumbent dehydrated patient. Also, if the rumen is distended with fluid, do not administer oral fluids. There is already an excess of fluid in the rumen in the face of dehydration. Adding more will only increase abdominal distention.

Oral fluids can prove beneficial in a variety of scenarios. In addition to cases of obvious fluid loss, such as diarrhoea and abdominal surgery, oral fluid therapy has also proved to be useful in cases of toxic mastitis, acute ruminal acidosis and immediately after calving. Administering oral fluids to dairy cows at risk of



*Fig 2: Rumen pumping is beneficial in a lot of sick cow scenarios, and is an easily learnt skill for the farm team*

developing a left displaced abomasum is believed to reduce this condition. The rumen will be “weighed down” by the administered fluids, making it more difficult for the abomasum to pass under it.

The main worry when giving fluids orally is that fluids go down into the lungs which is usually fatal. There are two tubes that run down the cow's neck. The trachea (airway) is central and has hard cartilage rings running down it to support it (these can be felt on your own neck). The oesophagus (food pipe) lies slightly to the left-hand side of the neck and is quite flat in structure and cannot be palpated normally.

I do three checks every time:

1. Watch and feel the pipe go down the left side of the neck (see Fig 2)
2. Push the pipe the entire way in and then pull one metre back out (the whole pipe would not fit in the chest)
3. Listen for stomach gurgling sounds and smell.

We are always happy to train staff in using a stomach pump safely so please ask anytime.

## BLOOD TRANSFUSIONS

Another type of fluid that can be given in an emergency is a whole blood

| Oral Fluids                 | Intravenous Fluids            |
|-----------------------------|-------------------------------|
| Mild - moderate dehydration | Moderate - severe dehydration |
| Cow up                      | Cow down / recumbant          |
| Rumen normal or empty       | Rumen distended with fluid    |

Fig 3: Clinical assessment for what fluid administration is appropriate

transfusion. The best cases for this treatment are those where we can stop the initial bleed such as a bleeding artery after calving or a cut vein on the udder. It can be a harder decision when we cannot stop the initial bleed such as in cases of abomasal ulceration but can still aid recovery in some cases. Cattle have a complex blood group system.

Humans have blood groups O, A, B and AB, whereas cattle have 11 major groups: A, B, C, F, J, L, M, R, S, T and Z. In the field situation blood typing is not usually possible and a cow will normally only receive one blood transfusion. A donor cow that is fit and not pregnant is selected and 5-6L (10% of an adult's total blood volume) can be taken safely. This is mixed with sodium citrate to prevent it clotting and then administered to the recipient.

A cow's response to fluid therapy can be very rapid, with improvements in the cow's demeanour and clinical signs showing soon after treatment. Early recognition and treatment via rumen pumping can prevent more severe outcomes, so it's worth investing in the kit and training if you haven't already!

(cont. from p.3)

Feeding pasteurized whole milk or high-quality commercial milk replacers can reduce exposure to pathogens, particularly if whole milk from mastitic cows is typically fed.

#### 4. Vaccination and Prophylaxis

Vaccinating the dam during late pregnancy can increase specific antibodies in colostrum. Available vaccines target Rotavirus, Coronavirus, E. coli (K99) and Cryptosporidium parvum.

Calves can also be given oral antibodies or anti-cryptosporidial treatments during the first days of life if a high risk of infection exists.

#### MONITORING

Implementing routine monitoring allows early detection of problems and evaluation of intervention success. Key metrics include:

- Incidence of diarrhoea (% of calves affected)
- Age of onset

- Response to treatment
- Mortality rate
- Serum total protein values (passive transfer success)

Scour events should prompt a review of current practices, including investigation into potential environmental, nutritional, and infectious causes.

#### CONCLUSION

Scour in pre-weaned calves is a preventable condition that, if unmanaged, can have devastating effects on both animal welfare and farm productivity. Timely treatment—primarily through rehydration—and strategic, science-based prevention programs are essential. By prioritizing colostrum management, hygiene, consistent feeding, and targeted vaccination, farmers can significantly reduce the incidence of neonatal calf diarrhoea and promote healthier, more resilient calves.

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