

## Section 6

# Other Common Conditions



### Introduction

Although scour and pneumonia are the two most common calf diseases, there are a number of other pathogens and parasites (internal and external) that can pose problems for calves during rearing and during their first season at grass.

- ① Umbilical infection (navel ill).
- ② Pink eye.
- ③ BVD (Bovine Viral Diarrhoea).
- ④ Clostridial (bacterial) diseases.
- ⑤ Internal parasites.
- ⑥ Cerebral cortical necrosis (CCN).
- ⑦ Lice.
- ⑧ Calf diphtheria.
- ⑨ Ringworm.
- ⑩ Bloat.

# Other Common Conditions

## ① Umbilical infection (navel ill).

Navel or joint ill is a disease of young calves, usually less than one week of age. It occurs as a result of infection entering via the umbilical cord at, or soon after, birth.

### Symptoms

Navel ill:

- Swollen, painful navel that does not dry up.
- An abscess may develop from which pus may burst.
- The calf may have a high temperature and reduced appetite.



A healthy navel.

Joint ill:

If the infection spreads from the navel, or navel ill is not treated, further signs will develop as bacteria spread via the bloodstream and establish themselves in other parts of the body.

- The most common sites for bacteria to settle are the joints. This leads to swollen, stiff painful (often hot) joints.
- Temperature will be raised while the bacteria spread but by the time the disease is noted it may be normal.
- Loss of appetite and depression.

Other sites where bacteria can settle include the eyes, around the heart and the brain. Death is common in the latter case.

In some calves, infection spreads from the navel to the liver causing a liver abscess. In this case problems may not be noted until the calves are older (one to three months).

### Treatment

- Separate and isolate infected animals.
- Antibiotics and painkillers are effective in most mild cases.
- Antibiotic treatment should continue until after the signs have disappeared. Severe cases may not recover even with prolonged antibiotic treatment.
- For large navel abscesses, veterinary intervention to drain and remove the infected tissue is often necessary.

### Prevention

- Ensure adequate colostrum intake and a clean calving environment.
- Apply disinfectant (such as 7% iodine solution) shortly after birth to the navel.
- Bulls' navels tend to dry more slowly than heifers' making them a higher risk. Applying disinfectant two or three times to bulls can reduce this risk.
- Ensure calves are not moved to other pens or contaminated pastures until the navel has dried completely.

## ② Pink eye.

Pink eye, or infectious bovine keratoconjunctivitis, is an inflammatory bacterial infection of the eye that can cause permanent blindness in severe cases.

Pink eye commonly occurs during the calf's first summer and is contagious. It can affect up to 80% of a herd, with affected weanling calves losing up to 10% of their body weight.

### Cause of pink eye

Most cases of pink eye are caused by the bacterium *Moraxella bovis*. The bacteria produce a toxin which attacks the surface of the eye (cornea) and conjunctiva, causing inflammation and ulceration.

Infective material discharged from the eyes of affected cattle can be spread to other animals by flies, or onto long grass grazed by the cattle. Sunlight and dust make the problem worse. There may also be other organisms, such as viruses and mycoplasmas, which cause eye damage and allow *Moraxella bovis* to become established.



### Symptoms

The first signs of pink eye are:

- Watery eye discharge.
- Aversion to sunlight.
- Signs of irritation e.g. excessive blinking.
- Reddening and swelling of the eyelids and the third eyelid.

The eye will then go cloudy in the middle and the cornea may ulcerate over the following two days. In a small number of untreated cases, ulceration may progress to abscess formation, with possible rupture of the cornea and permanent blindness.

After recovery, about 2% of affected eyes have a residual white scar on the cornea. Most animals are completely recovered three to five weeks after infection without treatment and usually only one eye is affected.

### Treatment

Many cattle recover from pink-eye without treatment. Treatment options are based on antibiotics to counter the bacteria and anti-inflammatory drugs.

Application of Cloxicillin based eye antibiotic ointment into the conjunctival sac (under the upper and lower eyelids) is effective. Other topical preparations include antibiotic sprays or powders. However, these only give short term antibiotic coverage and must be repeated several times per day to be effective.

In late and more severe stages, injection of a combination of a broad-spectrum antibiotic and an anti-inflammatory drug underneath the upper eyelid is often successful. Eye patches offer protection from further irritation from sunlight, dust and flies and reduce the weight loss often caused by pink eye.

### Prevention

- Maintain an irritant-free environment. Irritation to the eye allows *Moraxella bovis* to invade and cause pink eye.

- Limit the spread of the bacteria by controlling fly numbers on cattle with the use of pour-on synthetic insecticide.
- Ensure the prompt segregation and treatment of any stock with pink eye.

### 3 Bovine Viral Diarrhoea (BVD).

Bovine Viral Diarrhoea (BVD) is a highly contagious viral disease of cattle caused by Bovine Viral Diarrhoea Virus (BVDV). It can be spread directly by infected animals, or indirectly, for example via slurry and contaminated visitors or equipment.

#### Transmission

There are two types of infected animal: Persistently infected (PI) or Transiently infected (TI).

PI animals are those that have been exposed to the virus during gestation, i.e. unborn calves exposed within the first 120 days of pregnancy. These animals shed BVDV at high levels for life, and PI animals are therefore the most significant source of the BVD virus. There is no cure for these animals and their movement is restricted under the National BVD Eradication Scheme. They should be euthanised or slaughtered immediately on confirmed identification.

Most infections with BVD are Transient Infections (TI). A transiently infected animal is one that became infected after it was born and does not show any clinical signs. After being exposed to BVD and becoming a TI, the animal will develop long term immunity to the disease.

#### Clinical signs

PI animals can look completely normal, but also may be stunted or fail to thrive. Eventually the majority of PI animals will develop a severe, and always fatal, wasting condition with diarrhoea called Mucosal Disease, typically between six and 18 months of age.

In calves the most commonly recognised birth defect is *cerebellar hypoplasia*. Signs of this are:

- Ataxia/lack of voluntary coordination of muscle movements.
- Tremors.
- Wide stance.

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- Stumbling.
- Failure to nurse.

Transient infections include diarrhoea, calf pneumonia, increased occurrence of other diseases, and death. Often animals fail to thrive for no apparent reason and sick calves respond poorly to veterinary treatment.

### *Treatment and prevention*

There are three key steps to control BVD:

#### 1. *Remove the infection*

Where individual animal testing has confirmed the presence of PI animals, these PIs should be isolated immediately and slaughtered at the earliest possible opportunity.



*Ear notch testing is mandatory in newborn calves at registration and identifies infected animals.*

#### 2. *Preventing infection*

Having a coherent biosecurity plan is the key to preventing the introduction and spread of BVD.

- Prior to purchase try to ensure animals are virus-negative.
- Do not mix or house animals in the same airspace with animals whose BVD status is unknown.
- Quarantine and test all animals coming onto the farm.

- Maintain stock-proof boundaries on the farm (3m gap from neighbouring farms).
- Avoid co-grazing land with other farms and/or other animal species.
- Have well maintained footbaths and ensure all visitors use them.
- Clean and disinfect trailers and all veterinary equipment.

#### 3. *Managing immunity/vaccination*

Aim to buy calves from dairy farmers whose cows were vaccinated for BVD, or whose BVD status is known to be clear/negative.

#### ④ **Clostridial (bacterial) diseases.**

Clostridial diseases are a significant cause of mortality in Irish cattle, with a disease rate of between five and 10% recorded in animals sent for post mortem examination.

Clostridial organisms cause a variety of diseases, including blackleg, pulpy kidney, black's disease, tetanus, bacterial redwater, malignant oedema and enterotoxaemia. These organisms are commonly found in the soil where they are able to survive for long periods.

Unfortunately, the most common sign of these diseases is sudden death.

#### *What is blackleg?*

Blackleg is one of the most common clostridial conditions and is mainly a disease of grazing animals. It can also occur in housed animals that have grazed infected pastures. Although it mostly affects cattle from six months to two years of age, it can occur in calves a few months old.

Spores produced by the bacteria are eaten by the animal. After ingestion these spores can be found in the muscle, liver and spleen. If the area of muscle where the spores are located is damaged, the spores germinate and produce a fatal toxæmia. Usually, the animal is found dead. On rare occasions the animal may still be alive. If the muscle in a limb is damaged, the animal will be severely lame. As the disease progresses, there will be a build-up of gas in the area of the lesion. The lesion will be spongy to the touch and you can hear gas crackling when you press on the lesion.



### *Treatment for clostridial diseases*

A post mortem examination should be carried out on suspect deaths to determine the specific clostridial bacteria responsible. This allows an appropriate vaccination programme to be put in place on farm. Where this information is absent, farmers can use a multivalent clostridial vaccine.

On the rare occasions that the animal is still alive, contact your vet immediately. They will prescribe the necessary antibiotic.

### 5 **Internal parasites.**

Parasitic infections are a potential problem in dairy born calves upon turnout to grass for their first grazing season. The most important parasites to combat are the three main groups of helminths:

- Stomach and intestinal worms ('gutworms').
- Lungworms.
- Liver fluke and rumen fluke.

Treatment of cattle for internal parasites can be delivered by three methods:

- Orally e.g. bolus or drench.
- Injection.
- Pour-on.

The most important thing to remember about any dose is to give the recommended rate for the weight of the animal.

#### I. *Gutworms*

Gutworms are present on every farm and in all ages of grazing cattle. If uncontrolled, they can cause clinical disease in first grazing season animals and loss of performance in older animals.

Control measures include:

- Turning first grazing season calves out onto clean pasture i.e. pasture not grazed by young cattle since mid-summer/autumn the previous year.
- Regular monitoring of parasite egg excretion (faecal sampling).
- Strategic treatment with appropriate anthelmintic.
- Weighing animals regularly.

#### II. *Lungworms*

Lungworm infections are less predictable than gutworm infections. Their main impact is made through clinical disease, such as hoose or husk.

Affected calves can exhibit clinical signs ranging from a slight cough after exercise to severe coughing and respiratory distress, often leading to secondary viral and bacterial infections.

Close monitoring for early clinical signs of respiratory disease, particularly coughing, is the best approach for management of lungworm infection.

#### III. *Fluke*

The two types of fluke that are problematic for calves are:

- 1) Liver fluke
- 2) Rumen fluke

Fluke challenge can vary from year to year. Therefore, close monitoring of the DAFM fluke forecast can help prevent infection.

#### *Treatment of parasitic worm infections*

Tactical management incorporating targeted selective treatment (TST) approaches are now recommended for the control and treatment of worm infections. These are based on good grazing practices, frequent monitoring of animals and only treating animals when necessary.

If performance is lacking in the first 6-8 weeks, gutworms and lungworms are the main parasitic 'suspects', as the lifecycle of liver fluke typically means that calves will not be affected until after eight weeks of grazing (i.e. first possible exposure).

#### a) *Grazing management*

Calves should be turned onto clean pasture, i.e. pasture not grazed by young cattle since mid-summer/autumn the previous year.

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*Calves will not require a worm drench before mid-summer if turned out on to clean fields.*

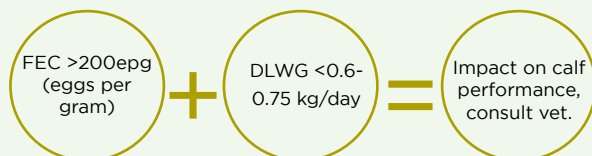
## b) Monitor daily liveweight gain

The daily liveweight gain (DLWG) of calves 6-8 weeks after turnout is correlated with their level of exposure to parasitic worms and predicts growth performance up to housing. Therefore careful monitoring of DLWG is important for parasitic worm detection. Use weighbands or a weighing scale.

## c) Faecal sampling and Faecal Egg Counts (FEC)

Faecal egg counts should be monitored closely.

- Fresh dung samples (from 10-15 calves) should be collected, approximately eight weeks after turnout, and sent to a laboratory.
- Dung samples should be as fresh as possible i.e. not picked off the ground.
- The lab should receive the samples as soon as possible (within 48 hours) after collection.



## d) Relocate to fresh grass

Prior to treatment, calves should be moved onto the new pasture for four to seven days. During this period, they should be monitored closely to select the TST animals, i.e. those that would benefit the most from treatment.

This can be done on the basis of DLWG, body condition factor or carrying out FECs on calves that have loose faeces. If there is evidence of lungworm infection then all the calves may have to be treated. Animals are held on this pasture for 48 hours after dosing before being moved to 'clean' pasture. Ideally, treat only calves with high FEC and/or low DLWG.

## e) Treatment of worm infection

If clean grazing is not available, a group treatment with an anthelmintic should be carried out with further monitoring approximately eight weeks later (depending on the level of worm challenge and how long the product protects animals from re-infection). This practice is less favoured because it increases the risk of anthelmintic resistance.

## 6 Cerebral cortical necrosis (CCN).

CCN or Polioencephalomalacia (polio) is a non-infectious neurological disease of cattle. There are two basic forms of the disease:

1. The **acute** form, sporadically seen in feedlot cattle where affected animals are frequently found in a coma.
2. The **mild or sub-acute** form sporadically seen in animals on pasture.

## Cause

Pathologically, CCN is characterised by brain swelling and necrosis of the cerebral cortex, resulting from interference with brain metabolism. This is associated with a deficiency of thiamine (Vitamin B1) at cellular level. This deficiency is due either to thiamine destruction or inadequate production in the rumen.

## KEY POINT:

**Most cases of CCN in calves occur when young animals are placed onto lush, fast growing grass containing high levels of starch and sugars. The fast build-up of sugars causes a sudden pH change which can alter or kill the rumen microflora.**

In cattle, CCN is rare; it mostly affects calves from six to 18 months of age.

### Symptoms

Affected calves show signs of meningitis due to brain cells being destroyed by the lack of B1. They will often be found away from the group with a staggering gait.

Characteristic signs include dullness, head pressing, blindness, opisthotonos (head pushed back and up), nystagmus (involuntary eye movement) and paddling movements of the limbs.

Animals will go off their food and, if left untreated, will start having convulsions and die.

### Treatment

The animal should be isolated in a quiet, well bedded pen, with feed and water readily available, and monitored closely. Ensure that the animal takes in fluid to help prevent dehydration.

Affected calves should be given vitamin B1 intravenously, followed by muscle injections every three hours for one to two days. If the animal is found late other treatments such as a drip may be required.

### HOW TO:

#### Prevent CCN in calves

- Minimise sudden dietary changes.
- Closely monitor calves and act quickly when symptoms are seen.
- Avoid feeds and water with a high sulphur content or introduce these slowly.
- Be aware of risks associated with animals starting grazing after a long period without grass.
- Where an animal has had the condition, give the entire group an injection of B1 to help prevent further cases.

#### 7 Lice.

Lice infestation is common in young housed calves in the winter months. Heavy infestation may cause weakness and anaemia, especially if calves are underfed. Lice spend their entire lives on cattle and spread occurs via direct contact.

### Symptoms

- Loss of hair around the neck and tail and the coat becomes rough and shaggy.
- The lice cause considerable irritation resulting in persistent scratching, rubbing and licking.
- Examining the coat may reveal large numbers of small pale or blue coloured lice, just visible to the naked eye.
- Eggs may be found attached to the roots of the hair.

### Treatment

Insecticides are available as pour-ons, sprays and dusts for the treatment of lice.

Lice develop resistance to insecticide quite rapidly and some resistant strains are widespread. Always follow the manufacturer's recommendations carefully.

#### 8 Calf diphtheria.

There are two forms of calf diphtheria. The most common is an acute oral (mouth) infection. It occurs sporadically and is usually seen in calves less than three months old (typically 2-4 weeks of age). The second form is usually seen in older calves and affects the larynx (or voice-box).

Calf diphtheria is caused by the organism *Fusiformis necrophorum*. This organism also causes foul-in-the foot (foot rot) and liver abscesses in older cattle. It can be found in contaminated bedding, dirty pens and contaminated feeding equipment.

### Symptoms

The condition is characterised by severe inflammation of the mucous membranes of the cheeks, tongue, lips and throat. The condition is very painful and the calf will have difficulty swallowing.

At first, the calf may have a swollen jaw and dribble. The inside of the mouth will show a foul-smelling ulceration. Temperature may be normal at the start and calves may appear bright and active.



# Other Common Conditions

However, if untreated, more signs develop which include:

- High temperature.
- Coughing.
- Loss of appetite and depression.
- Difficulty breathing, chewing and swallowing.
- Swollen pharyngeal region.
- Deep ulcers on the tongue, palate, and inside of cheeks.
- Pneumonia.

### *Treatment and Control*

Strict attention to hygiene and the use of clean equipment and adequate clean bedding will help to prevent outbreaks.

#### KEY POINT:

**Immediate treatment of the calf with antibiotics leads to complete recovery.**

#### 9 Ringworm.

Ringworm is caused by a fungus which survives from year to year on building walls and partitions. Spread from calf to calf is rapid, especially if animals are in poor condition, but recovered cases are solidly immune. Humans, particularly children, are readily infected by contact with diseased animals.

#### *Symptoms*

Initially there is hair loss, followed some weeks later by the formation of a dry grey crust. Circular lesions are commonly found around the eyes and on the head and neck.

#### *Treatment*

The condition is self-limiting. Spontaneous recovery without treatment occurs three to four months after infection, particularly when calves are turned out in the spring.

Treatment is most useful early in an outbreak to limit contamination of the environment by infected animals. As lesions do not become apparent for several weeks, treat in-contact animals as well as affected animals.

#### *Prevention*

Anti-fungal preparations include an in-feed additive given daily for seven days and liquids which can be applied as a wash or spray.

Thorough cleaning and disinfection of calf houses will limit the carry-over of infection.

#### 10 Bloat.

Bloat is an over expansion of the abomasum or rumen due to the build-up of gas which is unable to escape. Organisms, and not necessarily pathogenic ones, produce the gas that causes bloat. The susceptibility of animals to bloat varies, and genetics can play a part.

#### *Classification of bloat*

There are two types of bloat:

- 1) **Abomasal bloat.** If milk is delayed from emptying out of the abomasum, bacteria can ferment the sugars leading to excessive production of gas. This usually occurs in calves less than three weeks of age. Clostridial bacteria are the suspected cause of abomasal bloat, although other organisms may be involved.
- 2) **Ruminal bloat.** If milk continuously flows into the rumen, the bacteria can ferment the sugars and produce large amounts of gas. When this happens, normal rumen contractions decrease and belching becomes impossible, meaning the gas cannot be released.

#### KEY POINT:

**Do not attempt to insert a stomach tube to remove.**

#### *Management factors that contribute to bloat*

Bloat is caused by a number of contributing factors. Their management and correction are crucial to preventing calf bloat. Factors include:

- **Poor colostrum management.** Ensuring a newborn calf receives an adequate supply of high quality colostrum is the most important factor in preparing the animal to withstand disease challenges during the first few weeks of life.
- **Closure of the oesophageal groove.** This directs milk to the abomasum. External stimuli and regular feeding times help to



close the groove and prevent milk going into the rumen.

- **Cold weather.** During cold weather animals become stressed and are more susceptible to disease.
- **Milk feeding temperature.** Under normal circumstances, milk and milk replacer should be fed at body temperature.
- Poor hygiene. Dirty, contaminated equipment will introduce and spread unwanted microbes to calves. Teats should be at the correct height (66-70cm) and in good condition.
- **Water intake.** The amount and quality of water provided has a significant effect on rumen development and function. Management practices that slow down or impede rumen development can set the stage for bloat and other digestive problems.
- **Feeding time.** Feed at the same time each day. Variable feeding times can cause calves to become very hungry. Hungry calves eat and drink quickly and often over-eat, leading to changes in digestion.
- **Abrupt diet changes.** Feed volume and feed types should be consistent. Any changes must be made gradually.

- **Mixing of milk powder.** The correct concentration of milk helps to ensure optimal abomasal emptying time.
- **Health status.** A calf that has repeated scours or respiratory problems is more likely to develop the digestive conditions leading to bloat.
- **Dry feed.** Calf starter is essential for rumen development and should be provided from day three.

By evaluating and adjusting management practices on farm, many of the above factors can be eliminated. This should reduce the occurrence of bloat on your farm.

#### KEY TIPS:



**The most important factor to control bloat is a consistent feeding program. Work with your vet to establish treatment programs so that cases of bloat get managed quickly and effectively.**



*Excellent hygiene is essential to help prevent bloat.*