

Fairfield House

Veterinary Surgery

# Beef News

Winter 2021/22



## The winter months always feel the

**longest** with the endless mud, rain and finger-biting, toe-numbing cold. For us vets, it's a busy time of year, as everyone wants their TB tests done while the cattle are housed (fair enough!) – we often find ourselves wishing the crush and race could be housed as well!

Fertility season is also in full swing with our autumn-calving herds. Our dairy friends are well aware of the benefits of a tight calving block, and the best beef herds are taking note. With close observation and a little veterinary help, you can achieve >95% pregnancy rate in less than 10 weeks. We suggest getting your cows first scanned after the bull has been in 6 weeks, firstly to check any cows still appearing empty at 6 weeks are in fact cycling, and also to give the most accurate calving dates on your early PD positives. A second scan 6 weeks after the bull has left will confirm any later pregnancies.

For our spring-calving herds, the arrival of the next generation isn't far away, and our thoughts turn towards their safe delivery. We have provided a checklist to ensure you have everything ready (a bit like packing a hospital bag for the girls!) Emily is also here to discuss the immediate care of the neonatal calf, to ensure he gets off to the best start in life.

We return with the second of our two-part series on bovine respiratory disease. In the Autumn newsletter, we discussed some of the major causes of respiratory disease. This time, we'll be discussing their all-important prevention and treatment, including the role of the immune system.

Thank you for your ongoing support!

*Team Farm*



## Pre-Calving Checklist

To fail to prepare is to prepare to fail, and when you have cows calving, it's a lot less stressful if you have everything you need to hand.



- Calciject 2 (green top) or 5 (red top)
- Flutter valve
- Metacam 20 mg/ml injectable
- Pen & Strep
- Electrolytes – Effydral or Selekt Restore for cows, Lectade for calves
- 10% iodine (spirit based) for calf navels
- Syringes – 2.5ml, 5ml, 20ml
- Needles – 18g 1.5 inch, 20G 1 inch
- Colostrum – either fresh frozen or powdered (+ jug + whisk)
- Calf stomach tube
- Bottles and teats
- Lubricant
- Long plastic disposable gloves – optional, saves scrubbing your arms so much!
- Rope halter
- Calving jack
- Calving ropes – washed and disinfected between cows
- High energy, high magnesium lick blocks
- Elastrator bands and applicator
- Ear tags and applicator
- Towels
- Clean indoor individual pen(s)
- Good quality straw and forage (no mould)

## Colostrum for Beef Calves

Emily Oliver MRCVS

With calving well under-way for some of you and around the corner for others, now is a good time to think about colostrum management for when our calves hit the ground.

### What is colostrum?

We all know that colostrum is the first milk produced by dams after calving, but what is actually in it? And why is it so important? As well as glucose, growth factors, essential vitamins and minerals, colostrum contains maternally derived antibodies. These antibodies are absorbed by the calf within the first few hours of birth and provide life-saving immunity against common viruses and bacteria until the calf develops its own immunity.

### When should colostrum be given?

The first 6 hours after birth is the optimal window for antibody absorption. After this the ability to absorb colostrum antibodies wanes quickly and by 24 hours old calves are no longer able to absorb antibodies by mouth at all.



### How should colostrum be given?

In an ideal world all calves would suckle enough colostrum from their dams within the first 6 hours of life, but we all know this doesn't always happen. Tube feeding colostrum at birth is a guaranteed way of ensuring that a calf receives the right amount of colostrum at the right time. We recommend tubing 3 litres of the dam's colostrum within the first 6 hours of birth. There is no substitute for fresh cow colostrum stripped directly from the dam. This is not only at the right temperature but also contains antibodies against bugs specific to that farm.

If fresh colostrum isn't available then powdered colostrum can be used as an alternative.



### Which calves are at high risk of not receiving enough colostrum?

It is estimated that between 30-50% of calves do not receive enough colostrum, however tube feeding every calf at birth is often not practical meaning we have to prioritise which calves we focus on. Twins, calves born to assisted calvings and calves born to heifers are all at risk of receiving insufficient colostrum and should be the animals we focus our attention on.

### How can we tell if there is a colostrum issue on farm?

To assess if calves have received enough colostrum we can take a blood sample within the first 10d of life. We would consider there to be a colostrum issue on a farm if more than 20% of calves had a failed blood test. In the event of this happening we would go through the farm colostrum management plan and provide tips on how we can improve colostrum intake. If the farm colostrum management plan appears to be good then we may need to investigate reasons why colostrum quality isn't up to scratch. This may include blood sampling dams to check for trace element deficiencies, looking at pre-calving diet or assessing the colostrum quality itself.

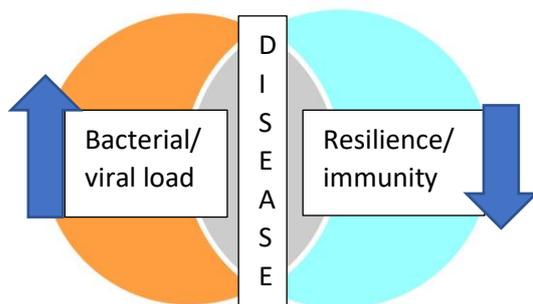
### Why bother?

Calves which don't receive enough colostrum are at far greater risk of suffering from navel ill, joint ill, scours and pneumonia to list a few. Therefore investing time in committing to a good colostrum management plan will avoid nasty vet bills and promote better growth rates in calves. A win win!

## “Just a case of pneumonia?” – PART 2

In our Autumn Newsletter, we discussed the major causes of bovine respiratory disease (if you can't remember it, go and treat yourself to another read!) This time, we'll be looking at why respiratory diseases occur, so we can understand the best preventative tactics. We'll also discuss how to spot the signs BEFORE irreversible damage takes place, and get it treated effectively.

### Why?



- Dirty/wet environment
- Poor ventilation
- Mixed age groups
- Bought-in animals
- Warm, damp weather
- High stocking density
- Inadequate colostrum
- Other disease
- Stress (e.g. transport)
- Cold/draughty environment
- Nutritional deficiencies

The majority of respiratory diseases commonly seen in cattle are caused by viral and/or bacterial infections. We are often asked “where did it come from?” The answer is that most of these pathogens are ubiquitous in the environment. They only cause disease when the number of pathogens the animal is exposed to (the bacterial or viral “load”) exceeds what the immune system can effectively fight off. When the immune defences are overwhelmed, the pathogen is able to invade the airways.

The immune system is extremely complex and amazingly clever, with the ability to distinguish harmful, non-self particles from those that aren't harmful, such as those that form part of the animals' own body. The animal has several lines of defence, including the obvious physical barriers, such as skin layers, mucus and stomach

acid, to the invisible cellular responses, mounted by five different types of white blood cells. The immune system is also able to adapt and improve itself, by remembering pathogens it has been exposed to before, so it can be more specific and aggressive in its counter-attack next time.

Specific antibodies produced by white blood cells can destroy a pathogen before they invade the host cells, provided they have come across that pathogen before. This is how vaccination works – we inject specific proteins from the pathogen, to trick the body into developing antibodies against it. Vaccination plays an important role in disease prevention, especially in environments where the pathogenic load may be higher than we'd like.

A pathogen that has entered a cell, or settled itself between cells, can only be eliminated by sacrificing the cells they have become established with. This battle between infection and immune system can be extremely dangerous, even life-threatening, to the animal. Inflammation is part of this immune response, helping to remove harmful pathogens and promoting healing. However, sometimes inflammation becomes uncontrolled and excessive, leading to clinical signs such as coughing, wheezing, fever and pain. Ongoing exposure to pathogens, leading to chronic inflammation, can cause permanent damage to the tissues affected.

It seems the more complex something is, the more delicate it is, and the immune system is no exception. A well-functioning immune system relies on good overall health – so poor nutrition (especially iodine deficiency), extremes of temperature, stress and concurrent diseases can all prevent it working appropriately. To look after the health of the animal is to look after its immune system, and vice versa. It is therefore vital that these stress factors are minimised.



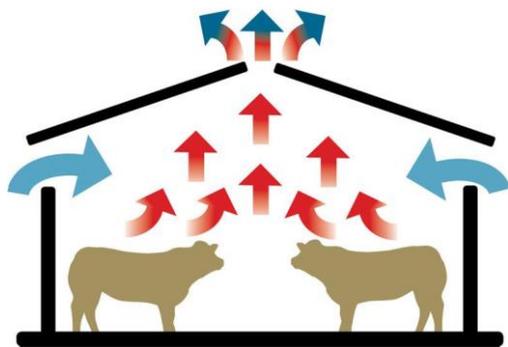
## How?

Our first line of protection against these pathogens is to minimise the number the animal is exposed to in the first place.

Maintaining a **clean, dry environment** may seem costly in terms of straw consumption, but will pay dividends in reducing the pathogen exposure. If cattle are constantly battling high levels of bacteria and/or viruses, even if they have no obvious clinical signs, they will struggle to keep condition, potentially increasing feed costs and stunting growth rates.

**Good ventilation** helps reduce the concentration of water droplets suspended in the air, which harbour bacteria and viruses, as well as ammonia which can damage the airways' defences. Most sheds can be adapted cheaply to improve ventilation, for example by removing ridge panels in the roof, using slatted Yorkshire boarding instead of solid side panels in the top half of the walls, and installing a large fan (>2m high) at one end of the shed.

Figure 1: The stack effect



If you have stock of varying ages, for example if you have multiple calving blocks or run a calf-rearing unit, operating an **all-in, all-out** policy gives you a chance to fully muck out and disinfect pens between groups. Without this, we'd expect a continuous increase in pathogenic load, which would be perpetuated by younger, more vulnerable animals joining the group. When the pathogens infect these younger animals, they are able to replicate faster than they would in the older animals that have been there some time. The best advice is to only keep groups of animals of similar ages together, with the youngest calves going straight into clean, disinfected, freshly bedded pens. This policy also ensures calves stay in stable social groups,

avoiding unnecessary stress that can compromise the immune system.

**Stocking density** and pathogenic load are directly correlated. Allowing the recommended space as shown in the table below will help keep beds clean for longer, and avoid air humidity and ammonia concentrations from building up .

Weight of calf (kg)	Minimum (m <sup>2</sup> per calf)	Recommended (m <sup>2</sup> per calf)
<50	1.5	2.0
50-100	1.5	3.0
100-150	1.5	4.0
150-200	2.0	5.0
>200	3.0	6.0

If the weather is mild, many farmers will clip the backs of calves to prevent sweating, which would otherwise also increase humidity.

Any kind of stress will increase the circulating levels of cortisol hormone, which in turn suppresses the animal's immune response. Although some stress is difficult to avoid, for example at weaning, try to **avoid multiple stress factors** at once. A common example of this would be drenching at weaning, then transporting them to winter housing, where they are mixed with new cattle.

A fully-functional immune system relies on a **healthy, robust animal**. This starts with good quality colostrum within two hours of birth – see Emily's article above! Body condition, trace element status (especially iodine!) forage quality, and access to clean water all have major implications, which are often not even recognised until improvements are made. It's always worth having a chat with the vet and nutritionist to ensure you are on the right lines. Addressing parasitic diseases, lameness, mastitis and Johnes will ensure the immune system is not having to deal with too much at once.

## When things go wrong...

The specific treatment of respiratory diseases depends largely on the diagnosis and the type of animal(s) affected. Always speak to the vet for advice. A visit and examination may be warranted, especially if multiple animals are affected, as the vet can take samples to get a specific diagnosis. This helps us make a plan together for treatment, as well as future prevention by means of vaccination.

## Diagnosis:

### Auscultation:



The vet will listen for specific patterns of lung sounds, such as crackles, wheezes, murmurs, muffled heart sounds and fluid lines. We also listen for quieter areas which might indicate consolidation or scarring of lung tissue.

### Temperature:

A high temperature suggests an active, acute infection as opposed to a non-infectious or chronic disease. The normal rectal temperature for an adult cow is 37.8-39.2°C (100.0-102.5 Fahrenheit), and a little higher for a calf at 38.6-39.4°C (101.5-103.5°Fahrenheit).

### Ultrasound:



We can use our pregnancy ultrasound scanner to scan the lung tissue and pleural spaces for changes associated with pneumonia. These lesions can often be picked up before the onset on clinical signs. It is a relatively new technique that is most useful when faced with an outbreak of pneumonia in a group of calves, allowing us to detect and treat infections before they cause permanent lung damage.

### Blood samples:

A single blood sample can be used to screen for presence of antibodies against pathogens such as BHV-1 (which causes IBR), RSV and PI3 viruses. Sometimes, early in infection, there may not yet be a detectable antibody response, or there

may only be a low level of antibodies – we can't tell if these are significant or simply residual from a previous infection. A second blood sample, taken 3-4 weeks later, will give us a definite diagnosis, as an active infection will cause an increase in the circulating antibodies. These serial blood samples are extremely sensitive, and allow us to choose appropriate vaccines specific to the bugs on your farm.

### Nasal swabs:

Nasal swabs can be useful to look for specific pathogens early in the course of disease (before the increase in circulating antibodies are detectable on bloods). We can send them for bacterial culture and sensitivity, to guide our choice of antibiotic – this is especially useful in incidences of treatment failure, when antibiotic resistance may be suspected. Viruses can also be isolated from the swabs by PCR. We can experience problems with non-harmful bacteria and viruses contaminating the swabs and affecting the results. We must bear in mind that a negative result doesn't necessarily mean a pathogen isn't present – it could simply be that it wasn't being shed at the time of sampling.

### Treatment:

The first action to take is isolation of the affected animal(s), with their dams if they aren't yet weaned. They should be unable to touch noses and not be sharing airspace with unaffected animals.

A non-steroidal anti-inflammatory, such as Metacam, is the first line of treatment for all cases of inflammatory airway disease, and should be given immediately. As well as making the animal feel better, thereby keeping it eating and drinking, by keeping inflammation down we reduce the amount of damage to the lung tissues. Very mild and early cases of pneumonia can often be treated with Metacam alone.

However, by the time clinical signs are observed, there is often a secondary bacterial infection present, even if the primary cause was viral. This means antibiotics such as Terramycin or Nuflor are often prescribed as a first-line treatment. It is vital you give the full course, at the correct dose, as directed by the prescribing vet.

## IN THE NEWS:

### Future Farming Resilience Fund – less than 3 months left to apply

Farmers are being encouraged to apply for free support from the Future Farming Resilience Fund, which is designed to help farms cope with the phasing out of the BPS scheme. There are 19 different organisations funded by DEFRA to provide free consulting advice on a range of issues, including succession planning, benchmarking and adapting business models. Some of this support will be in the form of one-to-one consultations and farm visits with follow up reports. Other providers are running workshops, webinars, tours and networking opportunities to help farmers support each other.

The names and contact details of the organisations involved can be found by following the link below. You can then contact the providers directly to access the support on offer.

[The Future Farming Resilience Fund: access free support - Future Farming \(blog.gov.uk\)](#)

### Geronimo culture results inconclusive

An alpaca known as “Geronimo” hit the news headlines back in August, after two positive TB tests and a four-year court battle eventually resulted in his euthanasia. His post-mortem examination showed TB-like lesions but no bacteria could be cultured from these lesions. This has prompted further backlash from Geronimo’s supporters, who claim this proves he didn’t have TB in the first place. However - unfortunately this isn’t the case – the Mycobacterium responsible for the disease tuberculosis can be very difficult to culture, as it replicates extremely slowly even under specialist laboratory conditions, and can even become dormant. The culture is not used to validate the result of the TB test, but instead to try to grow enough of the

Mycobacteria to perform whole genome sequencing (WGS). This can then allow scientists to trace where the TB has come from due to the different “families” of TB found in different local areas. However, in Geronimo’s case, the Mycobacterium would not grow in the lab, so this WGS testing could not be performed.



### TBAS newly expanded

The TB Advisory Service (TBAS) is now available to help any farm in England which keeps livestock susceptible to TB, not just those in high risk and edge areas. This means farmers in Kent, Surrey and West Sussex (i.e., the low-risk area) can also benefit from free bespoke advice, to help safe-guard their herd from TB. Sheep, goat, alpaca and pig farmers can also make use of the service.

TBAS offers over-the-phone advice on how to avoid inadvertently bringing TB-infected stock onto your farm, and how to minimise infection risk from neighbouring farms and wildlife.

The main benefit of the service however, is the free farm visit, in which a TBAS-trained vet comes out to the farm, sees your set-up, and provides tailored advice focused on TB biosecurity. They will also advise on how to make your farm business as “TB-proof” as possible, so you are in the position to cope with a potential outbreak.

Sarah Tomlinson, technical director at TBAS, said the new expansion will allow the more farmers to be equipped with the knowledge and tools to improve their farm’s resilience against this potentially devastating disease, and prevent TB from spreading into areas that are currently deemed to be safer from the disease.

