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FARM NEWSLETTER - November 2017

Pasteurella Pneumonia In Sheep



Sheep and lambs dying or requiring treatments for pneumonia seems to have been a recurrent feature of this autumn with outbreaks occurring just as mule gimmer lambs are being prepared for sale, fat lambs are finished or tups are ready for work.

Cause

The source of the infection is usually symptomless carrier adult animals that infect many lambs within the flock with Pasteurella (Mannheimia Haemolytica) bacteria which invade the tonsils but spread no further due to the lamb's immune system containing the infection. However, under certain circumstances, these organisms which have colonised the tonsils multiply rapidly and invade the lungs causing a pneumonia condition.

Factors predisposing lambs to outbreaks of Pasterellosis include:

- Housing
- Moving lambs from poor pasture to richer aftermath pasture in late summer
- Extreme weather conditions or changes
- Concurrent infections involving other respiratory pathogens including lungworm
- Liver fluke infestation, heavy gut worm burdens or trace element deficiencies which can all compromise the immune system
- Stress due to handling



Clinical Signs

The clinical signs of Pasteurellosis vary. Mild cases may involve a cough and discharge from eyes and nose, whereas in more severe outbreaks animals are usually just found dead. Treatment of clinical cases involves both antibiotic and non-steroidal anti-inflammatory drugs.

Prevention

Vaccinating lambs with a Pasteurella vaccine (e.g. **Ovipast**, **Ovivac P**, **Heptavac P**, 2 doses 4-6 weeks apart) will give some protection against the disease although not all strains of Pasterella are included in the vaccines. Recognising the trigger factors (such as moving, handling, fluke burdens etc.) so as not to overstress lambs at vulnerable times will be beneficial.

Under certain circumstances, once a diagnosis has been confirmed, it may be appropriate to use preventative antibiotic injections on the group as part of a control programme in the face of an outbreak. For more information about vaccination protocols, trigger factors or managing an outbreak please speak to one of the farm vets.

THE SCIENCE BEHIND BEEF BREEDING

There is a vast amount of data available to measure traits in the beef animal. I view the information as a jigsaw where you select the pieces you need to build the herd you want. One piece of information will not give you the whole picture and of course your eye is an important part of overseeing it all.

EBV (Estimated Breeding Value)

Traits such as growth, fertility and carcase traits are controlled by many genes, there is therefore a huge number of possible combinations in a mating to give varying outcomes. A mathematical system has been developed that can predict these traits. Data is collected from individual cattle and when compared across groups and genetics a calculation is made to give each trait an EBV. It's all very clever—these mathematical chaps can remove the impact management and environmental factors have on the data. This means you can reliably compare animals that are in top show condition against those that have had a more commercial rearing. The EBV are presented so you can compare animals within each breed in terms of below average, top 25 %, top 10 % etc.

The biggest question I get asked is 'what numbers should I look for?' Some rules of thumb that I would suggest are:

- When selecting for a trait the accuracy should be above 65% to be meaningful.
- An animal in the top 25% for a trait will make a significant impact on genetic improvement.
- If you want to select for easy calving look at the Birth Weight and Calving Value figures. The Calving Value is a combination of gestation length and calving ease.
- If you want to breed replacement heifers the maternal calving ease and 200day milk figures are most relevant. These predict how easily the daughters from that animal will calve and how milky they will be.
- If you want to select for growth, the 200 day and 400 day growth figures are the figures to concentrate on.

Myostatin

Where one gene is responsible for a trait it is easier to predict the outcome of a mating, an example of this is the myostatin gene. It is increasingly being used to predict calving ease and muscling qualities. It should be remembered that myostatin should be used as one of many pieces in the jigsaw. The research on the effects of these genes is limited and there is, to coin a phrase, a lot of 'false news' out there! I have put together a quick summary about what we do know, if you want to read more see our website daleheadvetgroup.co.uk or limousin.co.uk for recent articles.

Myostatins are genes that determine the amount of muscling in an animal. Natural mutations of the gene produce proteins that are less effective at controlling muscle development, which results in increased muscle mass.

The presence of Myostatin mutations in continental cattle is beneficial in several ways

- Meat Yield: The carcases of double-muscled cattle dress out at between 65 and 70 percent due to a combination of increased muscle mass, reduced body fat, reduced bone mass and smaller internal organs. This is up to 19% higher than cattle that don't exhibit double muscling.
- Feed efficiency: double-muscled cattle have better feed efficiency than other cattle.
- **Meat Quality:** Meat from double-muscled cattle is of better quality due to a combination of increased tenderness, reduced fat content and a higher proportion of polyunsaturated fats.

There are a few things that are key to understanding gene markers so if you cast your mind back to school science lessons:

• Pairs of genes: Each animal carries 2 strings of DNA. One is inherited from its dam, the other from the sire.

- **Dominance:** Most single gene traits have dominant and recessive forms of the gene. The combination of these carried by each animal determines what the animal looks like. For example, if the polled gene is dominant (represented by P) and the horned gene is recessive (represented by p).
- If an animal carries two horned genes (pp) the animal will be horned.
- If it carries two polled genes (PP) it will be polled.

• If it carries one of each (Pp) it will be polled, as the polled gene is dominant. Homo- and Heterozygous: If we use the same polled example again:

- Animals carrying two polled genes (PP) or two horned genes(pp) are homozygous.
- If the genes are different (Pp) the animal is heterozygous.

There are nine known mutations of the myostatin gene in cattle, some of which are breed specific and others which affect more than one breed. There are three main mutations that we see commonly in continental cattle and the Aberdeen Angus.

• F94L

This gene is associated with increases in the size of muscle fibres with no associated increase in calving difficulty, lowered fertility or longevity.

Homozygous animals (two copies of F94L) show increases in primal cut weights of up to 19%, and a retail Beef Yield by up to 8%, better rates of feed conversion, meat quality is also typically better with higher rates of tenderness, reduced fat and higher proportions of polyunsaturated fats.



Heterozygous animals also exhibit these characteristics but not to the same degree.

• nt821

This gene causes larger loin depths, reduced fat depths and large, rounded rump and thighs. Animals with these genes have heavier birth weights bringing with it the potential for more difficult calving.

This variant is recessive, this means animals that are homozygous nt821/nt821 will exhibit all the characteristics of the condition.

If animals are heterozygous with F94L (i.e. F94L/nt821) they will still exhibit quality carcase characteristics but are less likely to be affected by a more difficult calving. These animals are known as 'carriers'.

• Q204X

Animals that are homozygous (two copies of the Q204X gene) will exhibit characteristics of larger loin depth, reduced fat cover and greater meat tenderness. They have the potential to exhibit larger birth weights and females have a reduced milking ability.

This is a 'partially dominant' mutation of the gene. This means animals that are heterozygous (i.e. F94L/Q204X) – also known as 'carriers' - will still exhibit quality carcase characteristics but may or may not be affected by larger birth weights and reduced milking ability.

What are the Disadvantages of Myostatin?

Difficulties present themselves when animals carrying nt821 or Q204X are mated to animals that also have a copy of nt281 or Q204X. There is a much bigger chance of having the negative impacts of the myostatin.

Knowing the genotypes of breeding stock will help select animals for the best possible outcome that capture the beneficial characteristics. The genes of the commercial beef cow are in most herds unknown. A continental x dairy bred cow will carry one myostatin mutation. Bearing this in mind it follows that using a bull with a copy of nt821 or Q204X increases your risk of a difficult calving. A bull who is F94L /F94L (homozygous F94L) is less likely to give you a hard calving.

BULL		COW	
		F94L	Q204X
	F94L	F94L/F94L	F94L/Q204X
	nt821	F94L/nt821	Nt821/Q204x

Malignant Catarrhal Fever

We have seen a few cases of malignant catarrhal fever in cattle recently, and although the disease is not that common, it is worth keeping in mind for cows in contact with sheep. Malignant catarrhal fever is a frequently fatal disease of cattle. The causative virus (ovine herpes virus 2) is carried by sheep and deer without causing symptoms but can be spread from the silently infected animals to cattle where it causes severe disease. Fairly close contact between susceptible animals and sheep is necessary for spread of the virus. The virus does not spread between cattle. The virus may take anywhere from 9 to 200 days from infection to development of clinical signs in the host animal.

Clinical Signs

- Sudden death
- Fever
- Watery discharge from eyes and nose, which may become thicker and yellow
- Ulcerated and/or necrotic mucous membranes and skin
- Corneal opacity starting at the rim of the cornea and moving inwards
- Inappetence
- Hyper-salivation
- Horn and hoof covering may become loosened and fall away from the underlying skin
- Swollen joints
- Reduced milk yield
- Neurological signs e.g. lowered pain threshold, head pressing, poor coordination, etc.

Diagnosis

Diagnosis is based upon clinical signs and confirmed by demonstration of MCF virus/antibodies and/or characteristic post mortem findings Epithelial surfaces are haemorrhagic and/or ulcerative

Treatment

Treatment is often unsuccessful and the prognosis is poor. The disease is fatal in almost all animals that show clinical signs. We therefore recommend that affected cattle are euthanased immediately for welfare reasons. There are not currently any vaccines for malignant catarrhal fever. Control relies on avoiding contact with sheep but such management is not always possible on most mixed stock farms



IMRESTOR

All cows suffer from immunosuppression around calving which makes them more susceptible to conditions such as mastitis, uterine infection, IBR etc. Imrestor was launched by Elanco last year with the license claim to reduce the suppression of the cow's immune system thereby reducing the incidence of clinical mastitis around calving and in the first 30 days of lactation (the initial trials had shown that Imrestor significantly reduced the number of clinical mastitis cases in early lactation by 26%).

When the product was first made commercially available further trial work was carried out on a number of farms nationwide including 3 in our practice to see what the potential benefits of using the product are not just on mastitis but also on uterine infection, subsequent fertility, milk yields and culling rates. Most of the farms carried out split herd trials where for a period of time half of the cows (e.g. cows with even numbered freeze brands) received Imrestor whilst the other half (odd numbered freeze brands) received no product. The cows had their subsequent performance monitored. Data has now been analysed from the farms that returned reliable information which does show some very encouraging trends including:

- 45% reduction in clinical mastitis in first 30 days of lactation
- 22% reduction in retained afterbirths
- 9% reduction in metritis
- 2.5% less culls in the first 30 days of lactation
- 138 extra litres of milk per cow over the first 100 days of lactation
- Up to 10% improvement in conception rate to first service

With milk producers increasingly being asked to monitor and justify antibiotic usage and to show what measures are being taken to reduce the amount used the manufacturers of Imrestor are now looking at whether its use as part of a herd management programme will help to reduce the amount of antibiotic used on farms.

Imrestor Guarantee:

To encourage farmers to try using Imrestor in their herds Elanco have introduced the 'Imrestor Guarantee' for herds who sign up to trial Imrestor for a period of 5 months in a split herd trial. Herds participating need to milk record and cows will be randomly allocated to either a treatment or non-treatment group. Data will be collected for mastitis incidence over the first 30 days, milk yield over the first 100 days and culling rates over the first 30 days and if the improvement in performance in the Imrestor treated group isn't greater than the cost of the product used then Elanco will refund the difference. Farms wishing to participate should discuss the offer with one of the farm vets. Farms need to register before the end of December to take part. Use of Imrestor involves giving 2 injections, the first at approximately 7 days before calving and the second on the day of calving.

Liver Fluke Treatments for Cattle After Housing

Following the wet summer which we have just endured it is likely that cattle grazing outdoors will have picked up significant fluke numbers before housing and will therefore benefit from treatment after housing. It takes 12 weeks for immature flukes picked up off pasture to migrate through the liver to become mature egg laying adults in the gall bladder so when choosing a product to treat fluke it is important to time the treatment to kill off all stages present in the cow.

Triclabendazole based drenches (Tribex, Endofluke, Fasinex) will kill flukes down to 3 week old immatures, closantel based products (Closamectin injection or pour on) will kill down to 8 week old immatures as will nitroxynil (Trodax injection). Albendazole (Albex, Tramazole) and

oxyclozanide (Zanil) drenches will only kill adult fluke so that treatment with these products should ideally be delayed until animals have been housed for at least 3 months.

To check whether your cattle are carrying fluke and need treating we can examine pooled dung samples at the surgery for fluke eggs (showing adult fluke present in the liver) or send samples off for coproantigen which demonstrates presence of immature fluke over 5 weeks of age. If Triclabendazole resistance is suspected on the farm then other products should be used. When treating dairy cattle or fattening cattle, programmes may need to be modified in order to accommodate meat and milk withdrawal periods. To discuss your fluke control programme or for a quote please contact our AMTRA qualified pharmacy staff, Anne or Anna at the surgery on 01729 823538.





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