

May 2011

## **Clostridial Disease in Cattle.**

Over the past 3 weeks, we have seen several outbreaks of clostridial disease in groups of cattle, either housed or at grass. The common thread in all cases is that the animals were found either dead or dying. There is no effective treatment generally, but vaccination is very effective on farms which have a problem.

The following information is reproduced from NADIS. For more information on these and other important diseases, please see the IR website: [www.nadis.org.uk](http://www.nadis.org.uk)

The more important clostridial diseases of cattle include black disease, blackleg, malignant oedema, tetanus and botulism. Clostridial spores are widespread in the environment, particularly in soil and organic material. Disease in cattle is triggered by various factors which damage body tissues activating latent spores, followed by very rapid multiplication in the animal's body with toxin production, causing death within hours. The response to antibiotic treatment is very poor. Prevention of clostridial diseases by vaccination is standard practice in sheep and should be seriously considered in cattle where there is a history of disease on the farm or where risk factors exist.

### **Black disease (Infectious necrotic hepatitis)**

In the UK black disease is typically associated with migration of immature liver flukes during late summer/early autumn and can affect unvaccinated cattle and sheep of all ages.

Clinical signs are rarely observed and cattle are simply found dead.

There is no treatment for black disease. An appropriate fluke control plan, combined with an appropriate clostridial vaccination programme, will prevent black disease.

### **Blackleg (Blackquarter)**

Cases of blackleg often increase when animals are turned out or moved to new pastures, so farmers need to be aware of the signs so that action can be taken to prevent further disease

Clostridial spores can enter the body of an animal through skin wounds, and contaminated needles/injection equipment. Muscle trauma from bulling events in heifers (involvement of back muscles)- and injuries at congested feed barriers (neck) can also trigger spore activation and lead to disease. Outbreaks of blackleg have been reported after earthworks such as field drainage work and new road construction, and exposure of earth floors during mucking out buildings, causing exposure of the highly resistant clostridial spores in the soil.



*Blackleg affecting one hind leg – note the extensive swelling and black (necrotic) muscle*

Affected cattle are often found dead. More typically, affected cattle are very dull and depressed, do not feed and have a very high rectal temperature ( $>41.0^{\circ}$ ). Involvement of one limb results in sudden onset severe lameness. There is obvious muscle necrosis at postmortem examination.

Penicillin is unlikely to be effective unless started in the very early stages.

When blackleg is a problem on the farm vaccination is essential. With clostridial vaccines, like all vaccines, care should be taken to follow the manufacturers' instructions. The best protection is a two-dose course followed by annual revaccination. Other regimes can be effective but check with your vet before using these.

## Malignant oedema

Malignant oedema can be caused by various clostridia and has been reported after contaminated intramuscular injection and following injection of substances that cause local tissue necrosis activating latent spore infection. There is extensive oedema causing swelling and pain at the site of infection causing severe lameness. Affected cattle die within 24-48 hours. Penicillin treatment is rarely successful. Multivalent vaccines are commercially available but are not routinely used unless there is a farm history of disease.

## Tetanus

Disease follows production of a powerful toxin which attacks the nervous system. - Clinical signs are most frequent following puncture wounds-or infection of the castration site following the application of rubber rings or contamination of the surgical site.

Affected calves show hindleg stiffness and difficulty walking. Animals stand with the legs abducted giving a *õsawhorseõ* stance. They have an anxious startled expression with bulging eyes with the ears held back towards the poll, and nostrils flared. The animal is unable to open its mouth *õlock jawõ* and there is moderate bloat. Very often an infected animal will show a raised tail head. Despite treatment, in some cattle the condition progresses over two to five days such that the animal is unable to raise itself. Seizure activity is precipitated at first in response to loud noises then occurs spontaneously, followed by death from respiratory failure.

*Two month-old beef calf with advanced tetanus probably from an infected castration wound.*

Idiopathic tetanus is thought to arise when



conditions in the forestomachs allow the small

number of *Clostridium tetani* organisms normally present to multiply and produce sufficient toxin to cause disease. Outbreaks have been reported associated with feeding root crops heavily contaminated with soil. This form of the disease is characterised by bloat and less pronounced clinical signs with a much better response to supportive treatment.

Vaccines against tetanus are commercially available and should be routinely used when there is a farm history of disease.

## Botulism

Most sporadic cases of botulism in cattle have been associated with poultry litter spread onto pasture. The feeding of ensiled poultry manure and bakery waste has caused very serious losses in cattle on individual properties. Bird carcasses in silage clamps have been implicated in some sporadic cases of botulism.

Botulism is caused by ingestion of pre-formed toxins of *Clostridium botulinum* where clinical disease varies from apparent sudden death to recovery after 14-21 days. Clinical signs are confined to the nervous system with muscle weakness affecting the hindlegs during the early stages with eventual recovery. More usually, weakness progresses over four to seven days to involve the forelegs, head and neck. Affected cattle have difficulty chewing and swallowing and there is paralysis of the tongue. Cattle must be euthanased at this stage for welfare reasons otherwise eventual involvement of respiratory muscles and diaphragm causes death.

*There is paralysis of the tongue in this advanced case of botulism.*



There is no effective treatment. Disease can be controlled by specific vaccination but it is not included in standard multivalent clostridial vaccines.

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The Healthy Livestock Initiative is gathering pace!! We are currently visiting farms to assess the current status for BVD and Johnes infection. Using My healthy herd, an assessment is made of the risk of disease entering the farm and spreading. Finally a control plan is devised to reduce the financial impact of the diseases.

If you feel you are missing out, it's not too late!! To get involved you will need to come to a meeting to find out more about the diseases and then we can organise funding for the farm visits. These are usually held over a lunchtime at a local pub, and include lunch!

Please let us know! We will be organising a BVD and a Johnes meeting in June, with the hope that most of the silage making will be done and you'll be wanting a break!!

**Call the practice to register your interest and we'll get you on the list!!**

**We can also arrange visits to assess your farms for Lameness and mastitis risks and control. Give us a ring for more information**

### **Cattle Lameness.**

The annual Cattle Lameness Conference was recently held at Nottingham University. With speakers from all over the world and vets, foot trimmers, farmers and consultants attending there was a wide range of topics covered. We have summarised some of the most interesting and relevant points and topics below. Much of it is not new material, but helps to reinforce work vets and farmers are already doing to help reduce lameness levels on farms, and with the prevalence of lameness nationally currently running at 25% (number of cows lame at any one time) there is plenty more to do!

- A heifer with a Sole Ulcer is 3 x more likely to have an ulcer in the next lactation

- Cows trimmed once per lactation (compared to twice) are 2x more likely to be treated for acute lameness

- In-calf heifers fed on a wetter diet (silage vs straw based) had significantly increased numbers of sole lesions both before and after calving

- Due to increased feeding time, decreased lying time and looser slurry

- Moving cows from a soft to a hard surface around the time of calving is not a good idea, worst is moving heifers from straw yards straight into cubicles

- If possible train heifers in cubicles and on concrete pre-calving

- Keeping fresh calvers on straw yards for a few weeks can help (but beware mastitis risks!)

- Less emphasis is being placed on acidosis and laminitis in herd lameness problems

- If a cow is fed a good well balanced diet which leads to minimal negative energy balance, has good levels of vitamins and minerals in it then there is probably little need for extra supplementation

- The thickness of the Digital Cushion (the fat pad at the back of the foot which helps to absorb impacts) is directly related to Body Condition Score (BCS) so thin cows are more prone to lameness, as well as all the other problems associated with cows losing too much condition. A normal cow is at her thinnest at 4 months post calving.

- 5-7% copper sulphate solutions are probably the best for general foot bathing to help control DD.

- But more important than the solution in the footbath is the footbathing regime used and the design of the footbath to ensure it works correctly.

- Cows with hock sores (hair loss and/or ulceration) had an increased mobility score

- Hock sores alone can make a cow lame so without any lesion in the foot. So the next lame cow you pick up with no lesions on her claws so check her hocks!

- Sawdust on mats/mattresses is a big risk factor for getting hock sores

- As mattresses get older the risk reduces so do they get smoother?

## Lameness in Grazing Herds

There was a very interesting talk by a vet from New Zealand on the types of lameness problems that they experience in their extensively grazed herds. Whilst we tend to mainly see over grown hooves leading to problems such as solar ulcers through the winter housing period, in their pasture based systems they tend to see very thin soles leading to penetration and white line lesions.

The two biggest risk factors for lameness in grazing cows are track maintenance and how the cows are handled. A poor track surface leads to much greater wear on the soles leading to thin soles. Poor handling of cows on tracks and in the yards leads to cows stepping on objects and shearing forces leading to white line separation.

Both the above are generally required to get lame cows because if the tracks are good and soles are thick then they can cope with a degree of bad handling, and if the tracks are bad and the soles are thin but the cows are handled well they can cope with the thin soles.

Foot wear on track = thin soles

Thin soles + poor cow flow on track + impatient herds person = sole bruising and sole penetration

Thin soles + poor cow flow in yards + impatient herds person = white line separation

## Tracks

The ideal track:

- Should be less than 1km
- For 120 cows 5m wide, 250 cows 6m wide, 450+ cows 7m wide
- A min of 5m means one dominant cow can not stop all flow
- Level
- Straight
- Even width
- Crowned (3-5% gradient on each side, not more than 8%)
- Non-abrasive surface
- Well drained and drying (not tucked under a hedge or dug into ground)
- Wider as it gets closer to farm

## Cow flow on tracks

The stockman must allow cows to flow at their own pace, keeping far enough back to not bunch up the rear cows (out of their flight zone), with just gentle calling out to encourage them to keep moving. Leader/dominant cows set the walking pace and the rest of the herd follow on a good track this can be up to 4.5km/hr. Sharp bends, narrowing of the track, loss of the fine top layer, poor drainage and gravel on concrete all cause disruption to the flow of the herd. The most common problem area is the junction with concrete or a transition material such as a limestone fines for 30-50m before the concrete can help, but this area still needs the most attention/maintenance with regular sweeping and topping up of the track material, particularly after rain washes it away from the track and onto the concrete.

A good track allows for good stockmanship as the cows will flow well, a bad track means poor flow and the stockman having to hassle the cows to keep them moving. A cow moving at her own pace will keep her head down and avoid objects such as stones, while a cow being rushed will have her head up not looking at where she is placing her feet.

## Yards

The walking order of the herd is not the same as the milking order of the herd, when cows arrive from the track into the collecting yard they change order, they need space to move around! Collecting yards should have a minimum area of 2sq meters per cow. Concrete should be grooved/non-slip, avoid sloping concrete, avoid sharp corners and entrances into dark parlours. Backing gates should not be used to push cows but just gradually reduce the size of the yard. They should not move more than 1m in any movement. In round yards they shouldn't move faster than 12m/min and 6m/min in rectangular yards. Milkers shouldn't enter a collecting yard to get cows in as this alters the milking order of the cows and will cause extra movement and pushing between the cows. On the exit of the parlour sharp turns should be avoided, there should be a minimum of 4m turning area at the front of the parlour.

**Where cow flow is voluntary (their pace not yours!)  
No horn, no ATV, no dog!**

**And foot wear on the track is minimal**

**Lameness levels are lower!**