Canolfan Milfeddygaeth Cymru
Wales Veterinary Science Centre
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NEWSLETTER CYLCHLYTHYR

Special Edition Newsletter - Tick Borne Diseases

Ixodes ricinus (fig. 1) also known as the castor bean tick is the main tick of importance in Wales.

Figure 1: *Ixodes ricinus* adult

Larvae and nymphs feed off smaller mammals and sheep while adults tend to feed on larger animals such as sheep and deer (fig. 2).

Secreted salivary fluid while feeding allows the transmission of pathogens into the host. They can transmit diseases to their host during both the nymph and adult stages.

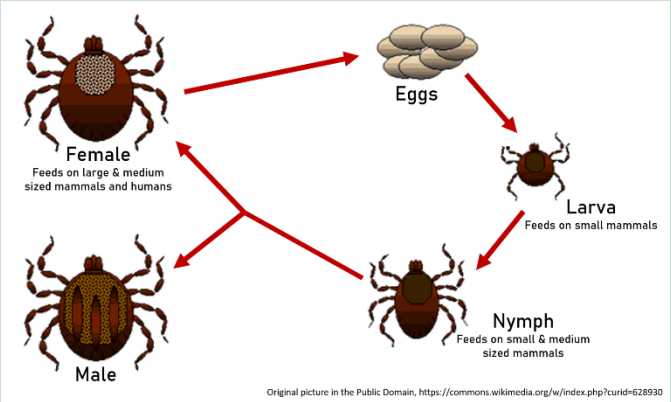

Figure 2: *Ixodes ricinus* life cycle

The warmer climate, environmental schemes and the less frequent use of sheep dip are probably all factors contributing to the increased incidence and geographical area of tick habitats in the UK. Hill areas are the common areas where ticks are found, but also in areas of rough ground on lower lying areas. Ticks like dense vegetation such as bracken and heather and warm, humid conditions.

Diseases transmitted by ticks in the UK include:

- Babesiosis
- Theileriosis
- *Anaplasma phagocytophilum* (Tick borne fever)
- Lyme borreliosis (Lyme disease)
- Louping ill
- Tick-borne encephalitis
- Tick pyaemia

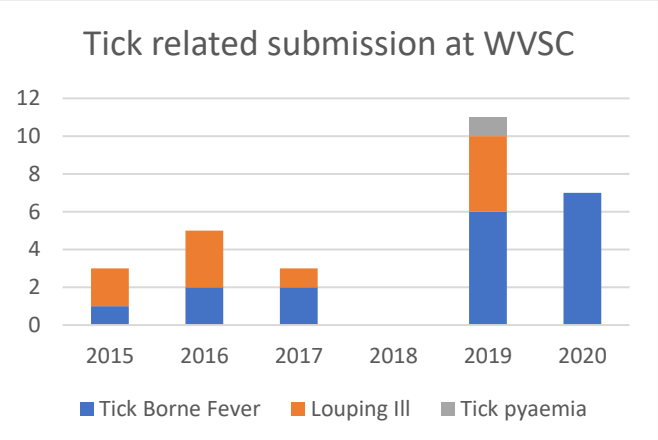

Figure 3: Tick-related submissions at the WVSC

Tick Borne Fever (TBF) caused by the bacteria *Anaplasma phagocytophilum* causes pyrexia, abortion and immunosuppression. Immunosuppression can lead to tick pyaemia, pasteurellosis, polyarthritis and louping ill. Clinical signs seen can range from finding dead animals to ataxia or lameness.

Gross pathology seen with TBF includes splenomegaly and lymphadenopathy, if there is a secondary bacterial infection you may also see polyarthritis (fig. 4) and widespread ecchymoses or petechiae (fig. 5).

Figure 4: Arthritis in a lamb with TBF & *Streptococcus dysgalactiae* joint ill

Testing for TBF is carried out at Moredun Research Institute by qPCR on EDTA blood sample or spleen.

Figure 5: Ecchymoses in the lungs in TBF positive case

Louping Ill is a flavivirus and is found in many parts of Wales (fig. 6). It causes an acute encephalomyelitis in sheep although other domestic animals, wildlife and humans may be affected. A vaccine for louping ill is in development by Moredun research institute.

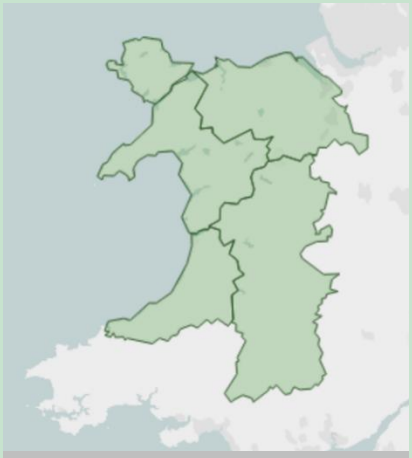

Figure 6: Location of the 32 Louping ill diagnoses in Welsh sheep since 2012 (APHA Sheep Disease Surveillance Dashboard)

Louping Ill cases come from the same farms and regions each year although affected areas appear to be increasing.

Clinical signs seen with louping ill are nervous signs such as ataxia, pyrexia, seizures and apparent blindness though signs can vary if the animal is co-infected with TBF or Pasteurella. Louping ill cannot be diagnosed from a gross post-mortem examination and diagnoses relies on EDTA serology, spleen PCR or histopathology and Immunohistochemistry (IHC) of the brain.

Lambs acquire passive immunity through colostrum but this wanes during their first summer and they become susceptible. Deaths are usually seen in naïve animals such as those recently purchased, new lambs or those who have not been on affected pasture previously.

As with most of the tick-borne diseases, there is no specific treatment and symptomatic treatment such as nursing, handfeeding, quiet dark environments to reduce external stimuli and sedation may be helpful.

Tick Pyaemia is usually seen in lambs up to three months of age, in their first grazing season. It causes abscesses in joints, tendons, muscles, brain and spinal cord. Clinical signs seen relate to the location of the abscesses – lameness and ataxia followed by ill-thrift and death. The abscesses are found at PME and are often seen within the spinal canal accounting for the ataxia seen. There is no specific treatment.

Control of Tick-related Disease - The main method of choice for control of tick related disease is through prevention, by treating at risk sheep with an acaricide treatment. Farms with known "tick" pastures should include acaricide treatments in their flock plan. The timing and choice of products should be specific to the farm and discussed with the local veterinary surgeon. Naïve animals such as purchased replacements should be kept on tick-free areas initially and introduce them gradually well ahead of the breeding season.

Zoonotic Potential – Be aware of the zoonotic potential of these tick-borne diseases. Lyme disease is an important zoonosis carried by ticks and anyone working or walking in tick pastures should look out for a circular "bullseye" rash or target lesion which develops after an infected tick bite. If you see the rash or have flu-like symptoms, please contact your GP advising that you may have been exposed. Always check yourself for ticks and remove ticks promptly and properly.

Useful links:

Vet record case report from WVSC

Moredun information booklets

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Please check the eligibility for **free carcase collection** via this website:

ahvla.defra.gov.uk/postcode/pme.asp

The suitability of submissions for a postmortem exam. must always be discussed with the WVSC duty vet.