Farm Vet News

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Lungworm in cattle

Lungworm, husk or parasitic bronchitis in cattle is the result of infection with the nematode parasite, *Dictyocaulus viviparous*. Disease is most commonly seen in cattle during their first grazing season on grass, and as a result animals at greatest risk are youngstock or adult animals that have never been turned out. Occasionally disease may also be seen in second year heifers or adult cows; probably a consequence of exposure to a heavy larval challenge that overwhelms their immunity. When adult herd outbreaks do occur, the impact can be significant with numerous adult cows dead and significant milk yield reduction in those surviving.

Warm, moist conditions favour the survival and dispersal of the parasite on pasture and for this reason we commonly see outbreaks between July and October.

Diagnosis

In an individual, appearance of coughing, an increased respiratory rate (≥50 breaths/minute) and ill thrift in the second half of the grazing season can be regarded as almost pathognomonic for lungworm infection (Jarrett et al, 1957).

More generally, infection is strongly suspected if one or more of these criteria were fulfilled (Forbes, 2018):

- Coughing or tachypnoea in several animals, particularly when disturbed
- Loss of appetite and poor growth rates
- No lungworm vaccination or strategic anthelmintic use
- Mixed grazing with older cattle or grazing of permanent pasture previously grazed by (older) cattle
- July to October

Clinical suspicions can be confirmed with a worm egg count, but in circumstances the result is negative, resampling 7-10 days later is necessary to confirm the result, as a consequence of the life cycle of the parasite (Box 1).

Treatment and prevention

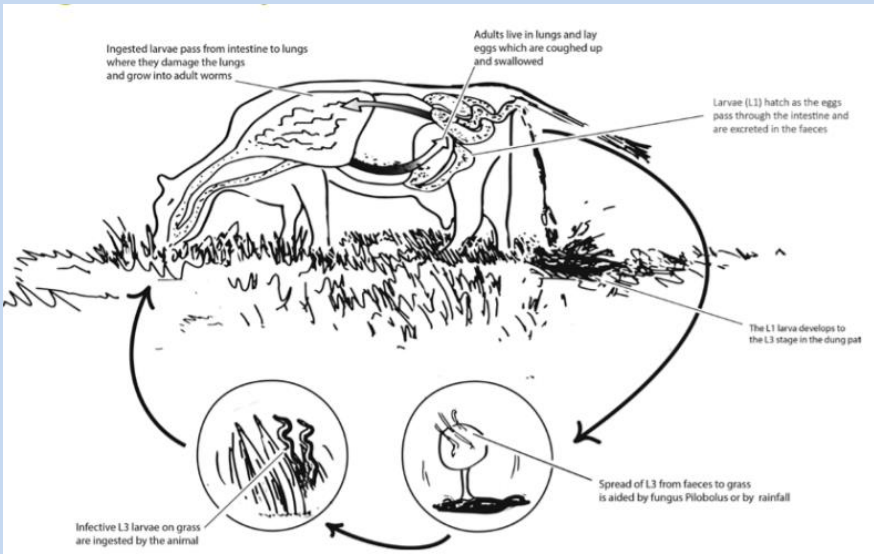
All principle groups of anthelmintics licensed in cattle are effective against adult and larval *D. viviparous*. In cases where individuals are severely affected, occasionally we will recommend using a yellow drench which paralyses the worms and allows the hosts immune system to manage the infection, which might help reduce the extent of any inflammation. The duration of activity of the anthelmintic chosen is perhaps the most important consideration. Fenbendazole (Panacur) and levamisole (Combinex, Levafas, Levacur) have an action that only persists for 24hrs after treatment. In cases where cattle are treated and then turned out onto at-risk pastures, subsequent reinfection is highly likely. Where cattle cannot be moved to a clean pasture following treatment, we would recommend treating with a clear drench (e.g. Bimectin or Ivomec) which may have a longer duration of activity and will provide some protection. Individuals should also be treated with an anti-inflammatory, such as Recocam/Loxicom/Metacam.

Numerous strategies for prevention exist (far more than I am allowed to write about here!), centering their focus on controlling exposure through vaccination, strategic turnout and treatment.

Overall, our aim should be to manage our heifers' exposure to lungworm during their first grazing season to ensure they mount a robust immunity – this then allows us to be less concerned about them contracting lungworm through their adult life. This is best achieved through a combination of vaccination (Bovilis® Huskvac) prior to turnout together with strategic worming through the first summer. A clear advantage of the vaccine is that it promotes development of immunity, something that may not occur in circumstances where anthelmintics are overused

Alternatively, in those herds where the risk of lungworm is deemed low enough, a policy of strategic worming alone may be sufficient – this strategy does potentially however leave your whole herd exposed to infestation should it occur.

The life cycle of *Dictyocaulus viviparous*



- Adults live in the trachea and bronchi
- Eggs are coughed up and swallowed, larvae are passed in the faeces.
- Larvae develop further on the pasture, requiring warmth and humidity
- Once ingested, infected larvae penetrate the gut wall and travel through the circulation to the lungs.
- It takes a minimum of 7 days from ingestion, to arrival in the lungs and production of eggs, which is why faecal sampling can be negative when a cow is infected. (Repeat sampling 7-10d later circumvents this problem).
- A mature adult female can lay up to 25,000 eggs per day for a month.
- On the pasture, larvae become infective within 7 days of being passed in the faeces.

SUMMARY

The parasite *Dictyocaulus viviparous* is highly infective pathogen with the potential to reduce productivity from grass, impair livestock daily live weight gain, incur greater treatment costs and occasionally, to cause death. Prompt recognition and treatment of affected individuals can help minimise morbidity and mortality, whilst formulation of a management strategy to ensure prevention of overwhelming infection and development of immunity is crucial.

If you would like to discuss management strategies for your farm, or anything else relating to lungworm, please do not hesitate to contact one of our vets who will be more than happy to discuss it in further detail with you!

Written by George Lindley BVetMed PgDipVCP MRCVS on behalf of Endell Vets Dairy Team
References: Forbes, A. (2018). Livestock 23(2), pp. 59–66. Image courtesy of Animal Health Ireland