Looking into lungworm

The Control of Worms Sustainably (COWS) group has launched a survey to find out more about lungworm and its treatment across the UK.

10.12968/live.2024.29.3.94

Helen Carty, veterinary centre manager, SRUC; Control of Worms Sustainably (COWS) group.

Bovine lungworm caused by the nematode *Dictyocaulus viviparus* has long been recognised as a serious risk to cattle and causes potentially fatal disease.

Understanding of lungworm's clinical and economic significance improved hugely in the 1950s, leading to the development of a live irradiated larval vaccine which soon became a valued control measure.

But with the rising popularity of long-acting anthelmintics treating both roundworms and lungworms, vaccine use fell in the 1980s.

However, despite these innovative anthelmintics and with limited evidence of lungworm anthelmintic resistance in the UK, the number of cases of lungworm reported remains high.

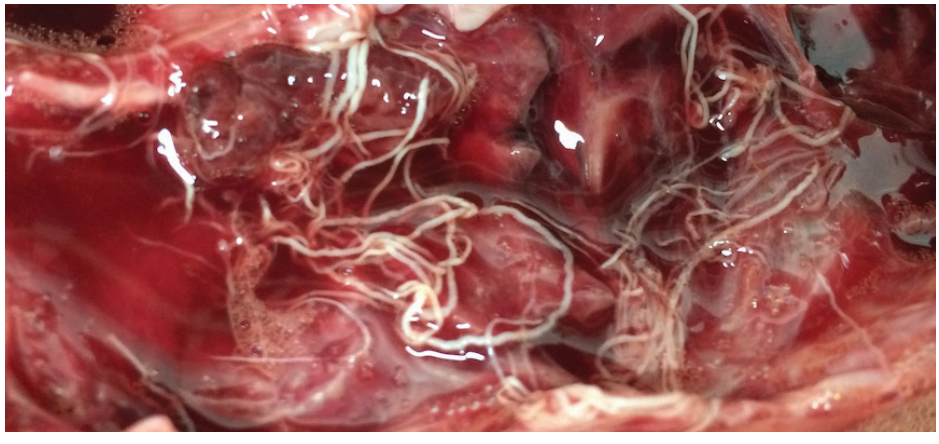
In surveys in Northern European countries, around 40% of farms showed evidence of lungworm infection in first grazing season beef and dairy calves (Forbes, 2021). There has also been a significant rise in cases in recent years in older dairy cattle.

The epidemiology is complex, and outbreaks are often extremely unpredictable. Years differ, with climatic conditions being a major factor. Warm summers with higher-than-average rainfall, or rainfall concentrated in short and intense periods, significantly increase incidence.

Control of Worms Sustainably (COWS) wants to learn more about when outbreaks are occurring, what type and class of stock is most affected and what clinical signs are seen.

In recent years, there have been reports of suspected lack of efficacy of wormers to treat lungworm infections in cattle. However, it can be very hard to determine if this is because of anthelmintic resistance, errors in administration or apparent failure as a result of other respiratory pathology.

Many farmers use a pour-on wormer when they hear cattle coughing out in the fields. If the cough goes away it is presumed that the wormer has worked. If they cough again, what should a farmer do then? It can be hard to know if the cough is because lungworm are still present, or if the cattle have developed a bacterial infection because their lungs have been damaged.



Bovine lungworm is caused by the nematode Dictyocaulus viviparus.

Clinical signs of lungworm are most commonly seen in first-year grazing cattle in late summer and autumn but can occur earlier in the year. The most characteristic clinical sign of lungworm infection is widespread coughing within the herd. Outbreaks have also been reported from early May until December.

Young animals exposed during their first grazing season are most at risk because of a lack of immunity. The cornerstone of developing immunity relies on trickle exposure to a sparse number of larvae which keep the immune system stimulated and prevent clinical disease onset.

Vaccination

Where lungworm is a known problem, there is no easy way to predict when it will hit and waiting until coughing starts is less than ideal. Using a preventative vaccine on farms with a known lungworm history will allow farmers to relax about what is arguably the most serious risk at grazing to youngstock.

The live vaccine, which is produced fresh each year, is given orally to calves aged at least 8 weeks old. Two doses are given, 4 weeks apart. Vaccinated animals should not be mixed with unvaccinated stock or allowed to graze on pastures recently used by unvaccinated animals until 2 weeks after the second dose, to allow immunity to develop.

In his MSc thesis looking at the lungworm situation in the UK, COWS member and SQP/RAMA Mark Pass, found there to be many barriers for farmers using vaccination, including the cost, two-dose regime, timing of dosing and oral administration (Pass, 2022).

Post-vaccination, natural infection by pasture larval challenge is necessary to enhance the immunity induced by vaccination. Subsequent exposure at grass allows development of immunity against the adult stage worms in a controlled fashion.

Diagnosis of lungworm infections can be complicated. Routine worm egg count tests cannot be used and a different Baermann preparation is needed to detect lungworm larvae. Clinical disease can precede patency or persist after patency, and in adult cattle lungworm infections do not generally become patent. Therefore, vaccination is an added secu-

Further reading

Control of lungworm in cattle: the latest evidence-based information on lungworm from experts in the COWS group. https://www.cattleparasites.org.uk/app/uploads/2023/09/lungworm-240823.pdf

rity where lungworm is known to be present on the farm.

Survey

COWS has devised a pro-forma survey hosted in Survey Monkey available on the COWS website for vets to fill in with their farmer clients when they come across cases of lungworm. It can also be accessed at https://uk.surveymonkey.com/r/lungworms

The collated, anonymised data from the survey will be used to form the basis of future discussions around the issue. The results of the survey and subsequent discussions will be released in 2025.

If there is a suspected lack of efficacy, vets are encouraged to ensure the Veterinary Medicines Directorate (VMD) and pharmaceutical company are notified. LS

References

Forbes AB. Lungworm infections in cattle. In: Parasites of cattle and sheep: a practical guide to their biology and control. Wallingford, UK: CABI. 2021:116–138

Pass TM. 'It's a lung story.' Analysing stakeholders' perceptions of Dictyocaulus viviparus: an exploration of attitudes towards lungworm and understanding of effective sustainable control in dairy cattle. 2022. www.cattleparasites.org.uk/learn-about-lungworm/ (accessed 18 April 2024)

Box 1. Farmer perspective

Ed Jones runs a mixed beef and arable farm on 50 hectares of owned land with further rented land, at Malpas, in the south west corner of Cheshire. Since finishing milking in 2006, he has moved the business into a range of enterprises including the rearing of dairy beef calves.

There are currently 190 cattle on the farm in different age groups and when ground conditions allow, first and second season youngsters go out to graze.

Two autumns ago, the herd suffered from rapid onset coughing in one group and three calves died. The vet confirmed these deaths were because of lungworm infection. Since then, he has always vaccinated calves with Huskvac to prevent this problem happening again. 'The vaccination regime takes planning, especially as we are taking in calves all year round,' Ed admits. 'I start talking to my vet and SQP Mark Pass at Christmas about ordering vaccine and to get everything planned and implemented well in time for turnout. For example, for one group we give the first dose on 3 March, the second dose on 2 April and then turn them out from mid-April. The cost and effort of vaccinating the calves is much higher than using worming treatments, but this is more than worthwhile, knowing we will not be losing calves to lungworm again.'

The first season grazers go out to the grass fields in the arable rotation which offers safe grazing, allowing a trickle of immunity to lungworm all summer before coming inside in the autumn to either grow on or to finish.