

Sustainable parasite control in sheep

The discovery of anthelmintic resistance within the worm population has made it clear wormers must be used in a sustainable manner if we are to continue to farm sheep productively in the years to come. Here, highlighting some of the published SCOPS guidance, the author provides an independent overview of the essentials of parasite control in sheep, including advice to offer farmers.

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IMAGE: Phil Scott, NADIS and Mental Animal Health

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anthelmintic (wormer) resistance is one of the biggest issues facing the sustainability of the sheep industry today. Without the ability to control gastrointestinal parasites in sheep, growing lambs becomes impossible and productivity and profitability inevitably suffers.

The discovery of anthelmintic resistance in the worm population has, therefore, made it clear wormers must be used in a sustainable manner in the future if we are to continue to farm sheep productively.

In this article, I will primarily discuss sustainable use of wormers and anthelmintic resistance in gastrointestinal nematodes. However, it must be remembered resistance can also occur to other drugs used to control external and other internal parasites affecting sheep (such as liver fluke, sheep scab, flies, lice and ticks) and that the principles of sustainable control of all sheep parasites are broadly very similar.

What is wormer resistance?

When considering how best to advise farmers on the control of parasites in sheep it is vital the principles of anthelmintic resistance are fully understood.

Drug resistance is a natural phenomenon in which certain worms in a worm population have the ability to survive the dose of the drug. These mutant (resistant) worms then have a reproductive advantage over the drug-susceptible worms killed by the drug and will increase in number within the worm population. Whenever the worm population is exposed to that particular drug, this will increase the proportion of resistant worms within the worm population compared to the number of susceptible worms.

Drug resistance cannot be prevented, but there are certain practices that will increase the rate of drug resistance development. It follows, therefore, there are also measures that can be taken to reduce the rate of resistance development and these will be discussed. It is essential we aim to encourage farmers to use anthelmintics sustainably to reduce the rate of resistance development on farm.

Initially, as resistance develops, there are no obvious visible signs. The drug used will still kill the majority of worms within the sheep and so there will be no apparent evidence of the presence of resistance. This is, however, the start of a long, slippery slope and failure to act at this stage can have devastating consequences. Once the level of resistance within the worm population reaches a certain level it will become clinically apparent with signs that range from a reduction in lamb growth and productivity to out-and-out drug failure with severe clinical disease followed by death.

Unfortunately, once anthelmintic resistance is present on a farm it cannot be reversed. It is, therefore, essential we act now to reduce the rate of resistance development before it is too late and the situation is out of control.

What is SCOPS?

SCOPS stands for "sustainable control of parasites in sheep" and is an industry-led group formed to develop sustainable strategies for parasite control in sheep, facilitate and oversee the delivery of these recommendations to the industry, and ensure new research and development is incorporated to refine and improve advice given to the sheep industry¹.

SCOPS principles

The SCOPS technical document contains eight points designed to help reduce the rate of anthelmintic resistance. Taking each



IMAGE: Phil Scott, NADIS and Mental Animal Health

point in turn, I will offer my interpretation of the principle behind the recommendation and how each may be put into practice to ensure sustainable control of parasites in sheep.

Work out a control strategy with the farm's veterinarian or advisor

All farms are unique in their management systems, aims and potential problems. For this reason, it is not possible to set out a generic set of criteria on how to control worms on a sheep farm. Each farm should be considered individually by the relevant advisor to devise the most appropriate worm control strategy for that particular farm. Factors that can vary between farms and have a significant effect on worm control include pasture availability, grazing strategies, stocking rates and worm species present on the farm.

Use effective quarantine strategies to prevent importation of resistant worms in introduced sheep

The prevalence of anthelmintic resistance can be rapidly increased on a sheep farm by resistant worms in bought-in sheep or by grazing home sheep for a period of time on rented ground that has been contaminated by other sheep flocks. If the sheep are not given quarantine treatments before grazing on the home farm they will contaminate the home pastures with resistant worms that have been acquired elsewhere.

The gold standard quarantine protocol recommended by SCOPS is as follows:

- Treat all incoming sheep with two classes of wormer (either oral moxidectin and monepantel given sequentially, or the dual active drench containing derquantel and abamectin) to aim to kill worms resistant to the 1-BZ, 2-LV and 3-ML wormer groups. If sheep scab is a risk the first option is preferable, but using the one per cent injectable moxidectin rather than the oral drench.
- Hold sheep off pasture on yards for 24 to 48 hours after treatment to allow all worm eggs to pass out in the faeces. This prevents pasture contamination with resistant worms and worm eggs.
- Turn out sheep on to dirty (contaminated) pasture to allow them to pick up the susceptible worms that are already present on the farm, thus diluting any resistant worms still present within the sheep that have survived treatment with the two products.

Test for anthelmintic resistance on the farm

Knowledge is power and, therefore, knowing the level of resistance on a farm in a specific worm population to the various anthelmintic groups is very important. This can allow decisions to ensure the most effective treatments are used and that the sustainability of the use of those treatments can be maintained for as long as possible on a that farm. Resistance can be monitored in many ways in a worm population, but those methods are outside the scope of this article. Please read the SCOPS technical document at this point for an in-depth discussion on the different methods¹.

¹Source: www.scops.org.uk