Gastrointestinal parasites: management in small ruminants on lifestyle blocks

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Why do worms matter?

When we talk about parasites in small ruminants, we primarily think of round worms. Round worms are present in all pasture around New Zealand to varying degrees and when our small ruminant patients graze on these pastures, they will inevitably become infected at some stage in their lives.

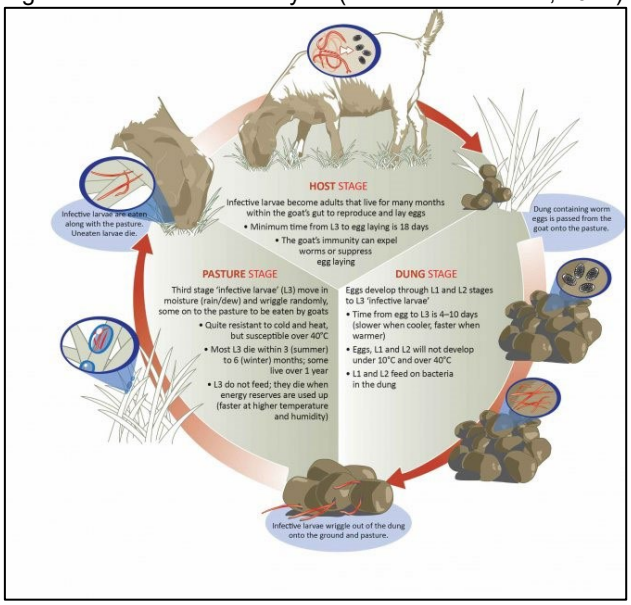
We are seeing a worrying increase in the instances of worms developing resistance to multiple anthelmintic medications (drenches) in recent years on both lifestyle blocks and commercial farms very likely linked, at least in part, to the non- judicious use of these medications which poses a significant risk to animal welfare in the long term.

Unfortunately, there is a common misconception amongst the public that any time their sheep or goat shows any sign of illness, that giving them a drench will fix all their problems or that their animals need routine drenching to be healthy and we know this is simply not the case. With the mass of misinformation available to clients and non-veterinary retailers selling these medications over the counter with no advice on appropriate use, veterinary professionals are on the back foot when it comes to reducing the country's reliance on these medications as a first line defence for the management of worm burdens in sheep and goats.

The round worm lifecycle

When making a parasite management plan it is important to understand the how these parasites reproduce as most alternative management strategies rely on manipulation of one or more phases of the lifecycle.

Figure 1. Round worm lifecycle (Wormboss website, 2024)



For more information on the most common worms found in sheep and goats, follow the QR code.

Monitoring of worm burdens

Monitoring worm burdens is crucial for reducing our reliance on drench. There are a number of ways that we can monitor these burdens and catch resistance early.

Faecal egg counting (FECs)

Faecal egg counts (FECs) use a sample of fresh faeces to estimate the number, type and size of the worm eggs present in the host animal and are the gold standard for monitoring ongoing worm burdens on lifestyle blocks.

Samples can be pooled in larger flocks/herds, but individual sampling is ideal in smaller populations as it allows us to assess individual animal burdens which in conjunction with clinical signs can be used to make drenching decisions.

In a perfect world FECs should be done every month, but when owner compliance is low or in times of cost constraints, once a baseline has been established following routine testing, the frequency of FECs can be spaced out if need be.

Other benefits of faecal egg counts include:

- Less unnecessary use of drench.
- Promotes refugia.
- Can be more targeted with our drench selection based on the types of worms present.
- Promotes clinic-client interaction.
- Catch resistance early – when post drench checks are used.

Post drench checks

Post drench checks are a good way to monitor the effectiveness of any drench you have administered. Simply collect a fresh faecal sample 7 to 10 days post drench for FEC analysis.

The presence of eggs in a post drench sample may indicate the presence of resist worms or an issue with administration and further investigation will need to occur to determine which.

If samples are taken greater than 14 days post drench, reinfection may have occurred.

Larval cultures and faecal egg count reduction tests (FECRT)

In cases where resistance is suspected, it is commonplace in a commercial farm system to perform a faecal egg count reduction tests (FECRT). This involves using single active drenches on small groups to evaluate the efficacy of different drench families on the worm population on that property.

This is not always possible, practical or financially viable in small populations on lifestyle blocks.

Where full FECRT are not practical, larval cultures pre and post drench can be a good way of seeing what species of worms are present, to promote more targeted drenching. If resistance is suspected, the post drench larval cultures will often show only one or two species present. In cases of incorrect administration or reinfection the larval cultures would show a similar profile of worms to the pre drench cultures.

Drenching

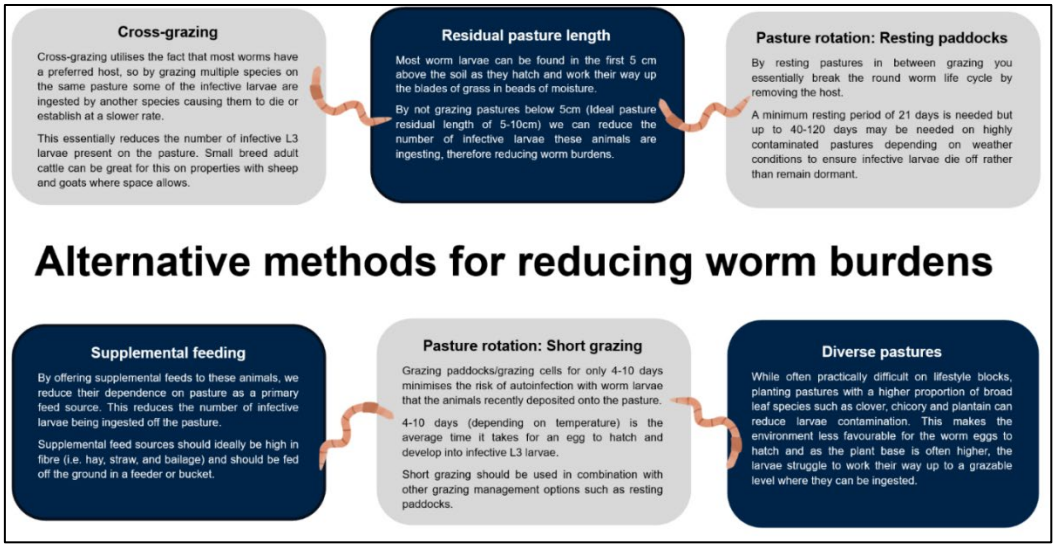
Anthelmintic medications (drench) should be treated as critically important as widespread resistance poses a significant animal welfare problem.

When making the decision to drench, a few basic principles should be followed:

- Always use drenches with two or three active ingredients – if a worm is resistant to one active it will likely be susceptible to another.
- Make the decision to drench based on FEC data in conjunction with clinical signs. A one size fits all approach is not appropriate on lifestyle blocks. By only drenching individuals that need it, we can promote refugia and reduce the risk of widespread resistance on that property.
- Drenching should not be the primary (or only) method of parasite management on the property.
- Do not treat drenches as an over-the-counter product even though they are unrestricted.
- Make it part of any preventative health plan that you weigh animals on the property at least yearly so that when drenching is required, we can dose appropriately rather than guessing.
- Remember that goats and camelids often require a higher dose than sheep, but conversely can be very sensitive to certain medications, so ensure you work with your vet team to choose appropriate dose rates for them.

Alternative methods for reducing worm burdens

Most alternative methods of reducing worm burdens focus on pasture management. Below are some of the simplest methods for reducing worm burdens without relying on drenches.



Client education

It is important that we educate our clients on best practice parasite management in the interest of animal welfare. Ultimately “You don’t know what you don’t know” and most clients want to do what is best for their animals but due to a mass of misinformation often do not know where to start. This is a space where techs and nurses can play a vital role in building these relationships, creating value for the business and our clients and improving outcomes for our patients.

Key topics to provide education on include:

- Clinical signs of high worm burden – when to call the veterinarian
- Risks of inappropriate drench use

- The lifecycle of round worms
- The principles of refugia
- The importance of prevention over cure and monitoring worm burdens over time
- How to use pasture management to reduce worm burdens without drench
- How to FAMACHA score
- How to safely and correctly administer drench.

Any education we provide to clients should be provided in multiple forms (handouts, newsletters, client seminars, lifestyle health plans, consults, on farm visits). The goal is to promote both understanding and retention of information as when clients understand why we do things they are more likely to be compliant.

We as veterinary professionals also want to place ourselves as the people that have the reliable information and advice that works, so that clients see that value and come to us with their concerns and questions in the first instance rather than going to the internet or the neighbour further perpetuating the cycle of misinformation.

Ensure when dealing with clients and trying to fix problems that we are not patronizing as no one likes being told they are wrong, and this is an easy way to get clients offside. Our approach to fixing these issues should be solution focused and client centric to ensure the best outcomes for our patients.

References

Bath GF. Practical implementation of holistic internal parasite management in sheep, *Small Ruminant Research* 62(1-2), 13-18

Beef + Lamb NZ. N. Worms in Refugia: A Tool To Delay Drench Resistance. *Beef and Lamb NZ*, 2017. Retrieved from: https://beeflambnz.com/sites/default/files/2023-06/fact-sheet-151-worms-in-refugia.pdf. Accessed April 2024

Wormboss. *Parasites in sheep and goats.* 2023.Retrieved from: https://wormboss.com.au/. Accessed 17 May 2024

Tapia-Escárate D.*et al.* Evaluation of cross-grazing deer with sheep or cattle, as means to reduces anthelmintic usage to control gastrointestinal and pulmonary nematodes in farmed red deer (cervus elaphus) in New Zealand, *Veterinary Parasitology* 298: 109534, 2021

Thamsborg SM, *et al.* Alternative approaches to control of parasites in livestock: Nordic and Baltic perspectives, *Acta Veterinaria Scandinavica* 52(S1), 2010