



# Lewis and Harris training workshops for roundworm monitoring and diagnostics

Dave Bartley (Moredun) and Claire Hardy (Hutton)



The James  
**Hutton**  
**Institute**

## Summary

A collaborative group of researchers representing: The Moredun Research institute (RESAS B3); The James Hutton Institute (RESAS B3) and SRUC (A2 case study 4) visited Lewis and Harris to conduct workshops and provide training on roundworms diagnostic methods. Five training sessions were held engaging a total of thirty five crofters during the weeklong visit in October 2022. The engagement with the crofting communities was positive with information provided on biosecurity measures, disease awareness, treatments and methods of diagnosis. The participants were keen to engage and requested information on developing the facilities for themselves in their own communities and on an individual basis.

## Introduction

Roundworms are ubiquitous throughout the UK and diseases caused by these internal parasites are arguably the most important constraint to health, welfare and productivity of grazing livestock. Low level infections are generally well tolerated but even modest but sub-clinical infections can cause production losses of around 10% loss in weight gain of infected animal over a grazing season. Infections can cause a range of other production losses also. Roundworms have been estimated to cost the sheep industry between £50-120 million in lost production and treatment in the UK alone. Infections are commonly controlled using anthelmintics but the development and dissemination of resistance to these compounds, and variation in the epidemiology of roundworms resulting from changes in climate and farm management, are making the sustainable control of these parasites more challenging. Best-practice recommendations for roundworm control in sheep have been developed by the industry advice group “Sustainable Control Of Parasites in Sheep” ([SCOPS](#)), these are aimed at producers and are freely accessible online. Roundworm biosecurity practices have been designed to prevent the introduction of anthelmintic resistant worms with new and returning stock. Due to the prevalence of resistance within the UK national flock there is a clear guidance of assessment, treatment, isolation, testing and joining flock ([SCOPS guidelines](#); outline Figure 1 below). The “gold-standard” for roundworms is to treat animals with the new anthelmintic classes (4-AD [Zolvix™] and 5-SI [Startect™]) with an appropriate macrocyclic lactone if sheep scab is suspected and yard for 24-48 hours.

Producers are advised to isolate animals for 3 weeks and conduct a faecal egg count 10-14 days after treatment to check it was effective. Faecal egg counting is supplied as a service by various stakeholders e.g. veterinary investigation centres, specialized faecal egg counting companies, some vet practices and agricultural merchants but can also be done DIY on farm.



Figure 1: Quarantine advice for sheep ([SCOPS guidelines](#))

Understanding keepers’ knowledge and attitudes to roundworm risk and available control options and how treatments can target multiple disease causing agents is important and highlights where knowledge exchange efforts should be targeted.

## Methods

During the workshops participants were asked to provide their reflections on biosecurity, barriers to implementation and risks to their livestock. Presentations were provided on roundworms parasite control, including biosecurity guidelines, diagnostic methods, quarantine procedures and treatments available.

The Moredun bio-bus, which is equipped to provide remote training facilities (Figure 2), was set up at the workshops and participants were invited to visit the bus for training and information. The training offered covered; sample preparation, setting up the microscope, sample examination, identifying parasite eggs, counting and interpreting results.



Figure 2: Outside and inside of the Moredun bio-bus set up for faecal egg count training, inset image of roundworm eggs from sheep

## Results

Of the thirty-five participants that attended the workshops, five were female and the remaining thirty were males (Table 1), the workshops were offered as either day or evening sessions in various geographical locations to give a wide accessibility to townships. Some participants travelled to workshops to find a time more convenient for them, ensuring the workshops and training were open and inclusive.

*Table 1: Number and gender of participants attending training and workshop sessions on Lewis and Harris*

Region	Gender		Total
	Male	Female	
Harris	5	0	5
Balallan	7	0	7
Bragar	9	1	10
Ness	2	1	3
Stornoway	7	3	10

Knowledge of roundworm biology, treatment options and disease risk was variable. Diagnostics were not commonly used either as monitoring tool or for anthelmintic efficacy testing. Faecal egg counting is not readily available on the island and this was highlighted a source of frustration by some participants. Participants had limited awareness of the different anthelmintic drug classes, their ability to control both sheep scab and roundworms with macrocyclic lactone (3-ML) products and the potential impact that the use of these products might have on the development of resistance. Anthelmintic resistance was not widely considered and purchasing options were often dictated by availability within the single agricultural stockiest on the island, although some also bought products online.

## Conclusion

The crofters welcomed the training opportunity and were keen to understand the importance of using diagnostics methods in roundworm control, treatment assessment and monitoring. They asked about accessing similar facilities on the island, the cost of setting these up both on an individual basis or at a community level.

Although crofters were interested in their own diagnostic facilities it was felt that carrying out the procedure might be more successful if this could be accessed at a community level. Individuals commented that the support of other community members would be helpful in deciding identification. In addition a standardized approach, agreed and practiced together might be more helpful. The community groups could share the responsibility of identifying and counting eggs as a collective. The peer-to-peer support was identified, by community members, as an important part of the procedure. It was concluded that if funding could be accessed to provide the resources, for example: a microscope; sampling pots; measuring containers; scales; droppers/pipettes and a McMaster counting slide, this would be a good solution. Although the island vet would need to be supportive of any action, to ensure both his support and to ensure this was not an area he would seek to cover in the future. Researchers would look into opportunities and provide advice and guidance.

For further details please contact Dave Bartley ([Dave.bartley@moredun.ac.uk](mailto:Dave.bartley@moredun.ac.uk)) and Claire Hardy ([Claire.hardy@hutton.ac.uk](mailto:Claire.hardy@hutton.ac.uk))

*This research is funded by Scottish Government's Rural and Environmental Science and Analytical Services Division (RESAS) under Topic B3: Improving Agricultural Practice (2022-2027). The views expressed are those of the authors and do not necessarily reflect those of the Scottish Government.*

