

Faecal egg counts to improve worm control in organic sheep farming

Problem

Dewormers represent a contentious input in organic farming. Their synthetic residues enter animal products and the environment, and further contribute to the global spread of anthelmintic resistance.

Solution

Monitoring of faecal egg counts (FEC) is the most powerful tool available to determine levels of worm infections on farm. When done correctly, they can significantly improve parasite control strategies.

Outcome

FEC can reduce anthelmintic inputs by enabling:

- Strategic targeting of anthelmintic treatments
- Identification of worm resistant animals for selective breeding
- Detection of anthelmintic resistance in flocks

Practical recommendations

FEC reflect worm infection intensity based on the number of eggs passed out in sheep faeces.

Step 1: Collect fresh faecal sample

- Bring animals into a clean pen for 15 minutes and collect the faeces when they leave
- Collect faecal pellets from at least 10 different faecal samples, filling airtight container or bag with around 10 grams of faeces (approx. 10 pellets)
- Keep samples cool and examine within 48 hours
- In the absence of analysing equipment, send samples to a laboratory for analyses

Step 2: Process the faecal sample

- Add a measure of the sheep faeces (2-3 g) to a measure of floatation fluid (20-30 ml)
- You can make the floatation fluid by mixing 400g sodium chloride (kitchen salt) with 1000ml water
- Mix well the faeces and floatation fluid, then strain them through a standard sieve (same mesh size as the one in your kitchen)
- Stir the filtered solution before drawing off a small sample with a 1 mL pipette
- Place the sample into a counting slide
- Leave the sample for a couple of minutes to allow the eggs to float to the top
- Count the number of eggs under a microscope
- In the absence of a microscope, the FECPAKG2 system allows for digital images of the processed faecal sample to be sent to trained technicians for assessment

Applicability box

Input used

- | | |
|--------------------------------------|--------------------------------------|
| <input type="checkbox"/> Copper | x Anthelmintics |
| <input type="checkbox"/> Mineral oil | <input type="checkbox"/> Antibiotics |
| <input type="checkbox"/> Fertilisers | <input type="checkbox"/> Vitamins |

Geographical coverage

Global

Application time

Throughout the year

Required time

Processing and reading the FEC:

- approx. 2-3 hours (per 10 samples)
- FECPAK^{G2} would require less time

Period of impact

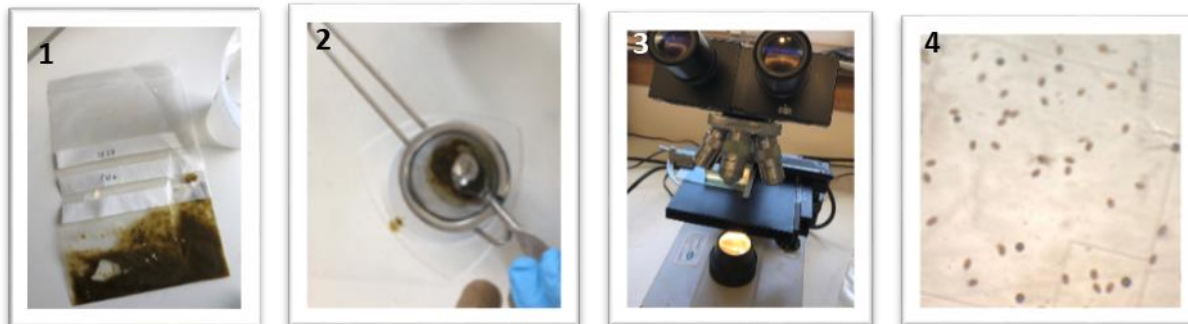
During periods of susceptibility (e.g. pre- and post-parturition, lactation) and when seasonal prevalence of parasites tends to be high

Equipment

Microscope, counting slide, flotation solution, sieve, pipette

Best in

Growing lambs and ewes in the final stages of gestation or lactating livestock



Picture 1: Mixed faeces and flotation fluid (Photo: Francesca Shepherd, SRUC)

Picture 2: Mixed faeces and flotation fluid strained through sieve (Photo: Francesca Shepherd, SRUC)

Picture 3: Microscope to read slide (Photo: Francesca Shepherd, SRUC)

Picture 4: View of gastrointestinal nematode eggs through microscope (Photo: Spiridoula Athanasiadou, SRUC)

On-farm application

Carrying out your own tests gives instant results and allows for greater flexibility in monitoring gastrointestinal nematode infections throughout the year. This may be especially important around lambing, when a greater number of transmission stages are on pasture. The costs of the test or equipment is quickly recouped from improved monitoring and management of parasites.

Further information

Further readings

Price, R. (2015). "10-step guide to taking a sheep faecal egg count", Farmers Weekly. Retrieved from <https://www.fwi.co.uk/livestock/health-welfare/step-step-guide-taking-sheep-faecal-egg-count>.

SCOPS. Helping sheep farmers to maximise productivity by sustainably controlling parasites, Sustainable Control of Parasites. Retrieved from <https://www.scops.org.uk/>.

Weblinks

Check the [Farm Knowledge Platform](#) for more practical recommendations.

Check the [FECPAK^{G2}](#) system for faecal egg count.

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RELACS: 'Replacement of Contentious Inputs in Organic Farming Systems' (RELACS) builds on results of previous research projects and takes far-advanced solutions forward. As a system approach to sustainable agriculture, organic farming aims to effectively manage ecological processes whilst lowering dependence on off-farm inputs. The RELACS partners will evaluate solutions to further reduce the use of external inputs and, if needed, develop and adopt cost-efficient and environmentally safe tools and technologies.

Project website: www.relacs-project.eu

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