

Faecal Egg Counting

Introduction

Faecal Egg Counting (FEC) is a simple diagnostic technique, which calculates the number of internal parasite eggs per gram (EPG) of faeces. A strong relationship exists between the number of eggs per gram and the parasite status of the animal tested. FEC information is critical to making informed parasite management and treatment decisions, as well as recording information for genetic evaluation purposes.

Faecal egg count (FEC)

Faecal egg counting and analysis is used in genetic evaluations of resistance to internal parasites. The following are the protocols for recording FEC, including **1. Faecal egg count monitoring test**, and **2. Faecal egg count testing for breeding value analysis**.

Faecal egg count monitoring test

The aim is to allow the parasite burden to build up in the lambs so that the average egg counts in the lambs reaches a minimum of 500 eggs per gram before FEC testing for genetic evaluation purposes is undertaken. Sampling of randomly selected animals can be done at any time to monitor the rise in egg counts if necessary.

- Collect FEC samples from 15 randomly selected lambs using the standard sampling method (outlined below) to establish the average egg counts in the lambs.

Guidelines for the standard sampling method for collection of faecal samples from lambs (random collection for FEC monitoring test)

Lamb faeces must be collected and can be pooled for analysis. Ensure that each FEC sample is from a lamb not a ewe.

Ensure that:

- Each sample collected is fresh and from a *different* faecal deposit
- The *same volume* of material is collected from each faecal deposit using scoop
- Samples are collected *about the same time of day* for duration of study

Collection of faecal material

1. Date and label the bag/ pottle required for sample collection.
2. Corner the sheep in the field/ holding pen, hold and allow defecating.
3. Walk in one direction through group and collect a scoop of fresh lamb faecal material, level the scoop using the back of a stick and place in the desired sample bag (lamb faecal material is easily discriminated from ewe faecal material by size (and colour) differences). Repeat this procedure from different fresh faecal deposits to obtain at least 30 samples in the one bag.
4. **Remove air from bag and seal.**

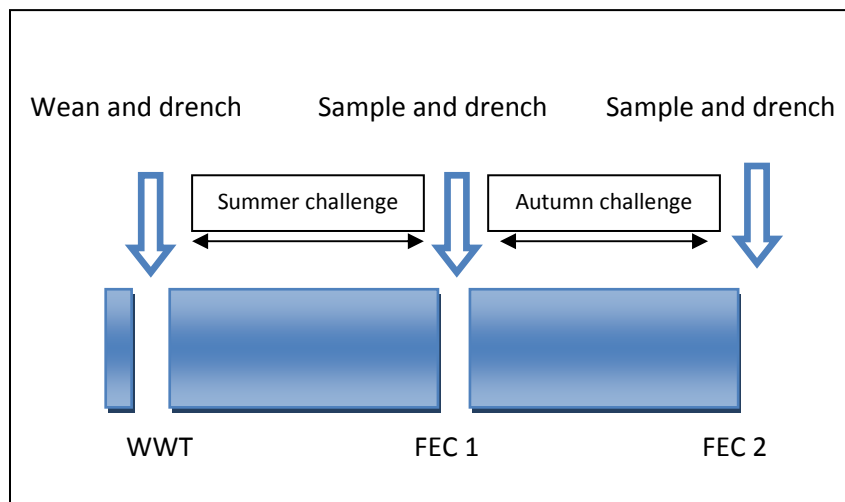
Do FEC test immediately if possible otherwise store in cool place preferably in fridge or surrounded by an ice pack.

Faecal egg count testing for breeding value analysis

At weaning, the first draft of lambs should be removed for first slaughter, and the remainder drenched. 6 to 8 weeks later **eight ewe lambs and eight ram lambs per sire from the remaining lambs should be FEC sampled at this point to give the FEC values used in the breeding value analysis.** To provide a more accurate estimate of an individual's genetic level of resistance, this can be followed by a further sampling 6 to 8 weeks later (the diagram below explains). However, any combination is possible, and collecting 2 samples several days apart is an option (i.e. both at the end of summer challenge).

In addition to the individual samples, ten repeat samples are collected for quality controls. These additional ten samples should be pooled. After splitting the pooled sample into two sets, one should be sent off with the original individual animal samples and the second pooled sample sent to an alternative laboratory for quality control testing.

FEC Challenge Protocol – ideal sampling points



Guidelines for the standard sampling method for the collection of faecal samples from lambs (collection for faecal egg count breeding value analysis)

Lamb faeces must be collected **separately**.

Ensure that:

- Each sample collected is fresh and from a *different* faecal deposit
- samples are collected *about the same time of day* for duration of study

Collection of faecal material

1. Date and label the required number of bags/ pottles for sample collection.

2. Corner the lamb in the race or holding pen, allow the lamb to defecate and collect the sample into the bag/ pottle. Extraction of faeces may be required.
3. **Ensure the bag/ pottle is labelled correctly and seal.**
4. Repeat the procedure for 8 ewe lambs and 8 ram lambs per sire

Do FEC test immediately if possible otherwise store in cool place preferably in fridge or surrounded by an ice pack.

FECPAK method for sheep faeces (assessment of FEC – eggs per gram)

For recording of FEC on individual animals the following protocol applies, when using the FECPAK kit. Alternatively the sample may be sent to a yet to be defined service provider.

1. Weigh fresh faeces less bag weight.
2. Add cold water to bag (three times the weight of the sample e.g. 10g of faeces then add 30ml of water).
3. Break up the sample in the bag to ensure an even suspension.
4. Add 30 ml of the sample to the FECPAK cylinder.
5. Add saturated saline up to the 230 ml mark.
6. Plug the FECPAK cylinder. Mix by inverting a number of times gently; avoid the introduction of air bubbles.
7. Wet the FECPAK filter with water prior to use, shake off the excess water and place the FECPAK filter on top of the jug.
8. Pass the mixed suspension through the sieve into the jug.
9. Mix the filtered material in the jug (figure of 8 motion with the 3ml Pasteur pipette).
10. Using the pipette aspirate a random sample of the solution and pipette (hold the pipette horizontally) the sample into the first chamber of the FECPAK slide. Repeat and fill second chamber of FECPAK slide.
11. Ensure no air bubbles are present in either chamber prior to counting. If bubbles are present, clean the slide, start afresh and refill the chamber as before.
12. Count eggs within the grids of chamber 1 and 2 (x 10 magnification). Total eggs counted in Chamber 1 + Chamber 2 x 30 = number of eggs per gram of faeces (epg).

When to collect data

For the faecal egg count monitoring test samples should be collected whenever required to assess worm burdens. This is generally done pre-weaning.

For faecal egg count testing for genetic evaluation purposes samples should be collected from individual animals 6-8 weeks post weaning, and 6-8 weeks after that time point (see diagram above).

You or the technician

It is expected that FEC sampling will be carried out by you as the breeder. Analysis may be conducted by you, if you have the tools, or samples may be sent to a lab (to be defined). For more information see <http://www.fecpak.com/pr-sheep.aspx>