

Collecting Fecal Egg Counts for Estimated Breeding Values: Standard Operating Procedure

The appropriate collection of Fecal Egg Counts is crucial for an accurate estimation of an animal's genetic resistance to internal parasites. Any data analysis is only as sound as the raw phenotypic data being collected and submitted. Therefore, the following procedures have been outlined as a resource so you may get the most out of your genetic evaluation.

What Data to Collect:

There are 2 different Estimated Breeding Values (EBVs) for parasite resistance offered to members of NSIP: Weaning Fecal Egg Count (**WFEC**) and Post Weaning Fecal Egg Count (**PFEC**). These EBVs are reported as a *percent reduction* in fecal egg count relative to the base average of the respective breed at the particular time period. Therefore, the phenotypic data points being entered into the analysis should be a weaning (**42-90 days of age**) and/or post weaning (**91-304 days of age**) fecal egg counts reported in **eggs per gram** as determined by McMaster Method.

Which Animals to Sample:

Fecal egg counts should be collected on all of the lambs within a contemporary group during the respective age categories. A contemporary group or management group is a group of lambs that have been managed as 1 group in a similar manner. If lambs are managed in a different fashion (if 1 group was creep fed and 1 wasn't or if one grazed a particular pasture species than another group) those animals should be denoted as separate contemporary groups.

How to Sample:

Samples can be collected in a variety of ways as long as they are done with minimal stress on the sheep and individual fecal samples can be identified to individual sheep accurately. The most common method is to restrain the sheep and using a gloved hand with sterile lubricant, insert 2 fingers into the anus of the sheep gently separate your fingers. This will introduce a small amount of air into the rectum of the sheep and stimulate them to defecate into your hand. If the animal does not defecate, you can gently remove slightly more than 2 grams of fecal material using your fingers (3-4 pellets). Once you've obtained the sample, you can remove the glove by turning it inside out over the fecal sample containing the sample in the "inside-out" glove. You can then use an address label to seal the opening of the glove closed and identify the sample with the identification of the sheep using a permanent marker. You could also tie the glove closed and place it in a plastic sandwich bag with a paper label with the ID of the sheep.

Another method, which is slightly more time consuming, is to individually pen sheep on a clean, impervious surface such as concrete and simply waiting for the animals to defecate. You can set up a small number of pens and re-use those pens for multiple sheep if you clean them between each use so you can assure which samples

came from which sheep. This method is less invasive to the sheep but requires more time and the pen space to individually pen animals for a short period of time.

These samples can then be sent to a testing laboratory, veterinarian or analyzed at home if the sampler has received adequate training in the McMaster Method for quantifying fecal egg counts.

When to Sample:

In order to determine an inherited ability to combat internal parasites, we need to assure each lamb received an adequate challenge from internal parasites. If lambs were never exposed to parasites, differences in ability to fight internal parasites cannot be determined. Therefore, sampling should occur only after a significant challenge and the average FEC of the contemporary group must be at least 500 eggs/gram in order for the analysis to be conducted.

Further, if an animal or subset of animals have been dewormed (chemical or other types of anthelmintic), it is important to place those animals in a different contemporary group as those animals have been managed differently than lambs that have not been dewormed. Also, if animals are dewormed, producers should wait a recommended 30 days before sampling for FEC for the genetic evaluation so the response to dewormers is not artificially skewing the results.

If you have any questions, feel free to contact Rusty Burgett, NSIP Program Director at info@nsip.org or by phone at 515-708-8850. You can also contact your NSIP Board of Directors Breed Representative for more information: <http://nsip.org/nsip-about/board-of-directors/>

Additional resources

YouTube video of Why and How to do Sheep Fecal Egg Counting
https://www.youtube.com/watch?v=ZZQymZKe_hs

Article on using EPDs for parasite resistance
https://www.katahdins.org/wp-content/uploads/2016/02/notter_etal_historicepdforpr_2007.pdf

American Consortium for Small Ruminant Parasite Control
<https://www.wormx.info>