



Fecal Egg Count EBVs

What They Do:

Estimated breeding values based on fecal egg counts (FEC EBVs) evaluate the genetic potential for resistance to parasitic worms (gastrointestinal nematodes). The weaning FEC (WFEC) evaluates early resistance in lambs at or around 60 days of age before their immune response has been stimulated, and is considered a measure of their innate resistance. The post-weaning FEC (PFEC) evaluates a lamb's worm load after weaning and represents acquired resistance over time. The FEC EBVs are important when lambs are raised on pasture, especially in warm and humid conditions. The WFEC and PFEC EBVs are strongly correlated and have moderate heritability. Unlike other EBVs, a negative value is preferred, with the most resistant animals having FEC EBVs approaching -100%.

How to Measure:

Fecal samples are collected on all lambs in a contemporary group on the same day at approximately 60-90 days of age and again a minimum of four weeks later. More important than age, however, is ensuring that lambs have had an equal and significant exposure to worms, often called a challenge. Lambs should be grazing during warm/humid conditions for four to six weeks before collection. Accuracy increases when the average FEC of the group is high and the range of values is wide (low to high). To ensure a sufficient challenge, the group's average FEC should be at least 500 eggs per gram of feces (epg) with over 1000 epg preferred. Fecal egg counts are conducted using the McMaster Technique most often by a commercial laboratory, although some farmers have training to count their own. A detailed procedure for collecting and processing fecal samples is available at <https://www.wormx.info>.

How They Are Applied:

Selecting for greater resistance to parasitic worms reduces the expense and labor associated with frequent deworming and greatly improves the overall health of your flock. The WFEC and PFEC EBVs are expressed as a percentage above (+) or below (-) the breed average ranging from -100 to positive infinity. The lower (smaller) the EBV, the more resistant the animal is expected to be. Because of the moderate heritability of this trait, selecting a breeding ram with excellent parasite resistance, (a low negative number), can have immediate benefits to the lamb crop. For instance, a ram with a -80 PFEC EBV will be predicted to reduce the FEC of his lambs by 40%, because half a lamb's genetics are provided by its sire.

Things to Consider:

Parasitic worm infections can cause poor weight gain, increased morbidity and mortality, and can reduce milk production in parasitized ewes. As resistance to dewormers increases, our industry needs other tools (e.g., genetics) to reduce risks of parasitism. Animals with lower FEC EBVs will possess lower worm burdens and shed fewer eggs in their manure resulting in less pasture contamination. Development of a lamb's immune system plays an important role in its response to parasite infections. Lambs that are older and heavier often have a more robust immune system and are better able to resist infection over younger, smaller lambs when first exposed to worm larvae. The FEC itself is relative: a count of 850 epg could be low in a flock with a 5000 epg average, or relatively high in a flock with a 550 epg average. Many NSIP animals have FEC EBVs based only on counts conducted on related animals, rather than the animal itself. These are considered "pedigree" or averaged EBVs and are less reliable. If an animal has a FEC EBV with less than 55% accuracy, that estimate is most likely based on pedigree information alone. Accuracy is greatly improved when an animal's FEC EBVs include at least one actual FEC and is further supported by actual counts from its relatives.