What is an EBV worth?

When selecting a breeding ram, the focus of any shepherd should be how that ram will increase profitability to the operation. Profitability stems from different factors depending on the type of sheep operation. Typically, for commercial sheep producers, profitability is driven by pounds of lamb weaned per ewe exposed. Logically, the more pounds of lamb sold per ewe increases revenue and return per ewe. Therefore, rams should be selected that will increase this figure.

Several factors contribute to the pounds of lamb weaned per ewe calculation and it begins with the ewe flock. A profitable ewe flock is built on a foundation of sound maternal genetics. The two traits to start with for maternal genetics are the number of lambs born and number of lambs weaned per ewe. Obviously, the more lambs a ewe has the greater potential to wean more pounds of lamb. A ewe that weans two lambs weighing 70 pounds at 60 days of age brings in more revenue than a ewe that weans one, 85 pound lamb at the same age. With the current feeder lamb price of $200.00/cwt, that equates to an increase of $110 by having twins over a single. Nutrition and environment play a role in the ability of a ewe to raise her lambs but there is also a genetic component. Some ewes are genetically predisposed to have better maternal characteristics including greater ovulation rates, mothering ability and milk production.

To improve these characteristics, producers can use the number of lambs born (NLB) and number of lambs weaned (NLW) estimated breeding values (EBV) provided through the National Sheep Improvement Program (NSIP). The EBVs for NLB and NLW are expressed as a percentage. For example, if a ram has an EBV for NLW of +5.0, he is expected to produce daughters that will have an increase of 0.05 more lambs per lambing relative to the average or 5 more lambs per 100 lambings. This may not sound like much of an increase but if a ram sires 100 daughters who each have .05 more lambs per lambing, that equates to 5 extra lambs available to sell. If each lamb brings in $140 (70 pound lamb at $200/cwt), then the producer makes an additional $700 off those 100 ewe lambs just because of the ram that was chosen to be their sire.

Another set of genetic traits that can increase profitability are the growth traits of weaning weight (WWT) and post weaning weight (PWWT). Some lambs have the genetic potential to grow faster than others from birth to weaning and from weaning to slaughter. This genetic potential can be measured and expressed as EBVs. The EBV for WWT and PWWT are expressed in kilograms of live weight at weaning and then after weaning between either 90-150 days or 150-305 days of age. For example, if a ram has a WWT EBV of +5.0, he is expected to be 5 kg (11 pounds) heavier than the average. If that ram then sires 100 lambs, each lamb contains roughly half of the genes of that sire. We would then expect each one of these lambs to be 2.5 kg (5.5 pounds) heavier than average at weaning. That equates to an additional 550 pounds or $1100 just based on the genetics of the ram used!

With this information, it is logical for a commercial producer to breed their top 30% of their ewe flock to maternal rams that are selected for positive NLB and NLW EBVs to produce prolific replacement females. The remaining 70% of the flock could be bred to terminal sires that are selected for positive WWT and PWWT EBVs to have faster growing lambs that will reach a saleable weight sooner. In subsequent years, by placing selection pressure on NLB and NLW, the producer has a flock of highly prolific ewes that produce ample milk to raise multiple lambs and those lambs she has will grow quickly and reach market weight at a faster rate. If selling on a value based contract system, EBVs for carcass characteristics can also be selected for, further enhancing the value of genetic selection.

The National Sheep Improvement Program is the genetic foundation for a profitable U.S. sheep industry. Without genetic data from NSIP, ram selection is a gamble. The ram you pick may or may not increase the genetic potential of your flock. Production data such as body weights and carcass scans are useful but are very limited in value; they only apply to that individual sheep in that particular production system and do not indicate the genetic potential of the animal. When selecting rams for the coming fall breeding season, you can take the guesswork out of ram selection by asking for the genetic analysis from NSIP to make to most informed decision possible.