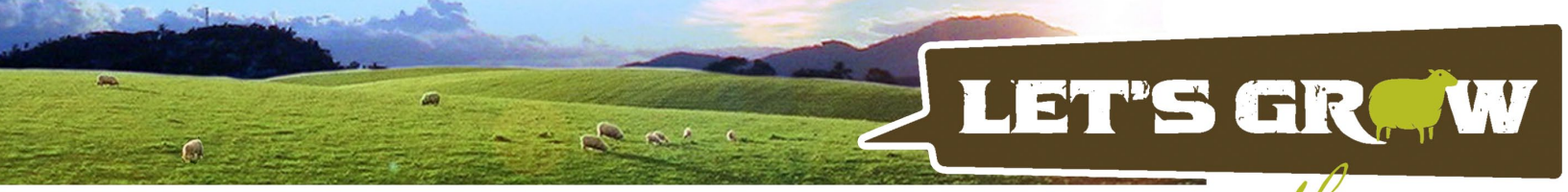

LET'S GROW with twoPLUS

Use Genetics to Increase Lambing Percentage

Lambing percentage (prolificacy, number born, lambs born per ewe lambing) is one of the most important factors affecting profitability of a sheep enterprise, regardless of geographic location or production system.

Generally, lambing percentage tends to be lowly heritable (10 percent). Consequently, differences among ewes in litter size (single, twin, triplet) are due largely to non-genetic factors, such as management and nutrition. On the other hand, genetics should not be overlooked as a way to improve lambing percentage and profitability. Genetic change is permanent, whereas nutrition and management can vary from year to year.

Crossbreeding and selection (both within and across-flock) strategies exist to favorably impact genetics for lambing rate. Research has demonstrated substantial genetic differences among U.S. sheep breeds for reproduction.

The two most prolific breeds are Finn and Romanov, and incorporation of these breeds through a structured crossbreeding program will enhance flock lambing rate. Ewes that are 25 percent Finn or Romanov can be expected to produce 200-percent lamb crops. Larger litter sizes can be achieved with higher percentages of these prolific breeds, but more intensive management is usually required to properly care for the additional lambs born. Therefore, it is critical that prolificacy of the flock be matched with available labor and nutritional resources, along with balanced selection for growth and other traits important to the specific marketplace.

The other strategy for increasing lambing percentage via genetic means is to select ewes that are more likely to produce multiple births or rams that are more likely to sire prolific daughters. This can be accomplished through simple selection based on birth type or by selecting for a composite trait, such as pounds of lamb weaned.

In the absence of any other information, it is best to select rams and replacement ewe lambs that are born as multiples from young ewes. Selection for reproductive rate requires basic record keeping and individual sheep identification and requires long-term commitment due to slow rate of response to selection using individual animal records. Selecting replacements from ewes who have demonstrated a lifetime of multiple births improves the accuracy of selection. Selecting multiple-born replacements ignores livability and maternal qualities of the female and may not lead to a net increase in lambs produced.

Genetic progress in lambing percentage (and other traits) can be accelerated by using a more advanced selection tool provided by Estimated Breeding Values* (EBV). EBVs estimate the genetic value for an individual (for specific trait) compared to an EBV of zero for an average animal. EBVs are the most powerful information on which to base selection as they are calculated from information on the animal itself and its relatives.

As an example, a ram with a Number Born EBV of +10 would be expected to produce daughters that give birth to 5-percent more lambs compared to daughters of a ram with a Number Born EBV of +0 or average animal.

Producers can have EBVs calculated on their sheep by enrolling their flocks in the National Sheep Improvement Program (NSIP). Specific traits for which EBVs are estimated vary between breeds; however, all breeds estimate genetic merit for prolificacy. Producers with commercial flocks can utilize EBVs to improve their lambing percentage by selecting rams with strong EBVs for both lambing percentage (number born) and ewe productivity (composite trait). Producers who want to improve their commercial flock from within using flock selection need to use a record system such as Lambplan to provide EBVs on which to base selection decisions.

For more information about the National Sheep Improvement Program (NSIP), visit www.nsip.org.

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*Estimated Breeding Value (EBV) is an estimate of the animals genetic value for that specific trait. Expected progeny difference (EPD) is half the value of an EBV since it is the genetic value that an animal passes on to its offspring. NSIP has changed from EPD to EBV.