

# NSIP Concept #1: **Balanced Trait Selection**



## Overview

Producers employ a variety of strategies to advance production within their flocks and using EBVs provides a quantitative method to do so. Many producers seek to apply selection pressure across multiple traits simultaneously. Results of this multi-trait approach are often referred to as **Balanced Trait Selection**. This strategy results in animals that are at or above the breed average for all or most traits. Balanced trait selection helps prevent overemphasis on individual traits and is appropriate for both experienced and inexperienced NSIP producers.

## Assessing Balance

The EBVs for a specific trait are expressed as a value above (+) or below (-) the current base average for the breed. Although there is no formal definition of a balanced set of EBVs, many producers consider animals whose EBVs are at or above average across all (or nearly all) traits to be balanced. NSIP provides breed-specific percentile rankings (updated bi-annually) to producers as a means to compare EBVs of an animal to a breed-specific benchmark. A lamb with an EBV in the 90<sup>th</sup> percentile is in the top 10% of the breed for that particular trait, or 90% of the other lambs in that cohort, across all flocks in NSIP, have values equal to or lower than the EBV of that animal. The **Katahdin Percentile Report** gives percentiles for EBVs in various increments (bands) with the 50<sup>th</sup> percentile being average for flocks enrolled in NSIP. This report can be found at <http://nsip.org/usa-hair-reports/>.

## Additional Considerations

Balanced trait selection may not be right for every flock or perhaps not even for every ewe within a flock. Finding a ram with EBVs in the top 5% for every trait is rare and may not be warranted. The challenge for the producer who wishes to advance genetically is to identify the traits within the ewe flock that are below desired levels and focus selection on improving those traits while not losing ground on other traits. Achieving balance across multiple traits can be a long process, so genetic improvement within your flock is often slower than focusing on single traits. In contrast, selection for a single trait, like PWWT, will rapidly advance performance in that trait, but may leave undesirable weaknesses elsewhere. Consistent single-trait selection may lead to unintended consequences. For example, increasing NLB without regard for NLW or MWWT could lead to large numbers of triplet litters, or even quads, born to ewes without the milk or maternal skills to raise them. A balanced approach also dampens the effects of using a sire who excels at a few, but not all traits. Once your ewe flock is well balanced, acquiring a ram that excels at a single trait, but average for other traits, won't set you back generations. For producers new to NSIP, where little genetic information is known on previous generations, purchasing animals that are in the upper percentiles for the breed in several traits should lead to offspring that are superior in several traits over time.