

NATURE OR NURTURE?

Heritability is the percent phenotypic variation due to genetics. It is the degree to which a trait is passed down from parents to offspring. Environment accounts for the rest of the differences. In sheep and goat breeding, heritability helps us know how much a trait can be improved via selection. Traits with high heritability respond more readily to selection than traits with low heritability.

Traits	Heritability*	Genetics	Environment
Reproductive	Low	5-20%	85-95%
Health	Low to moderate	10-50%	50-90%
Carcass	Moderate	10-45%	55-90%
Lactation	Moderate	15-35%	65-85%
Growth	Moderate	10-50%	50-90%
Fleece	Moderate to high	25-55%	45-75%
Conformation	Moderate to high	40-50%	50-60%

This table reflects generalities and is not accurate for all sheep and goat traits.

* Heritability estimates can vary due to both genetic and environmental influences. For example, heritability estimates for parasite resistance (fecal egg count) in sheep vary from 10 to 50%, according to the scientific literature.

Traits with low heritability usually respond better to crossbreeding (hybrid vigor).

In sheep, tail length is the most heritable trait. In goats, the most heritable trait is stature (height). Both are about 70%.

EBVs (estimated breeding values) incorporate heritability to estimate the genetic merit of an animal for a specific trait.

