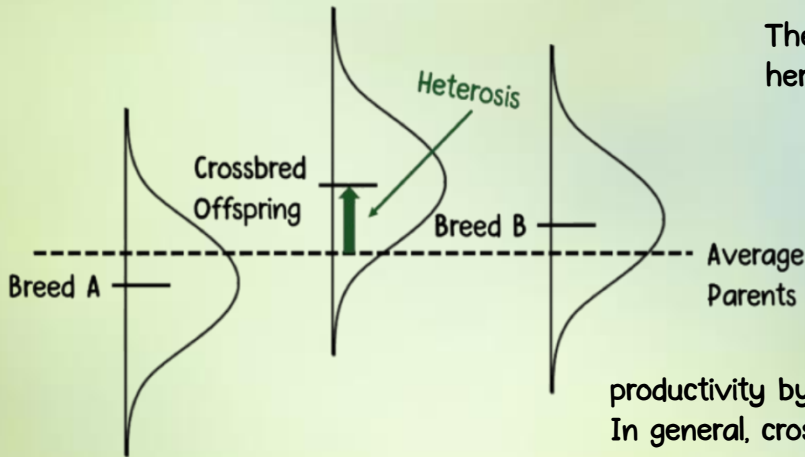


HYBRID VIGOR

Hybrid vigor (or heterosis) is a very important concept in animal breeding. It is the increased performance of crossbred offspring compared to the average of their purebred parents. It comes in three different forms (individual, maternal, and paternal) and is additive. Composite breeds (e.g., Polypay, Katahdin) retain a portion of heterosis.



There is an inverse relationship between heterosis and heritability. Heterosis is more pronounced for lowly heritable traits, such as reproduction and fitness, but usually smaller for traits that are more heritable (and responsive to selection), such as fleece and carcass characteristics.

Heterosis is a significant advantage to crossbreeding. It provides a "free boost" to productivity by combining the genetic strengths of different breeds. In general, crossbred animals tend to be more vigorous and fertile.

POTENTIAL HETEROSIS EFFECTS

CROSSBRED LAMB (INDIVIDUAL)		CROSSBRED EWE (MATERNAL)		CROSSBRED SIRE (PATERNAL)
Trait	% heterosis	Trait	% heterosis	→ Heterosis in the crossbred sire is less documented. → Crossbred males have better fertility, especially in sub-optimal breeding conditions. → Longevity may be greater for crossbred males. → Breeding F1 females to a male of a third breed may maximize heterosis. *per ewe exposed
Birth weight	+ 3.2	Fertility	+ 8.7	
Weaning weight	5.0	Prolificacy	3.2	
Pre-wean ADG	5.3	Body Wt.	5.0	
Post-wean ADG	6.6	Fleece Wt.	5.0	
Yearling Wt.	5.2	Lamb birth Wt.	5.1	
Survival	9.8	Lamb Wean Wt.	6.3	
Carcass	~0	Lamb survival	2.7	
Lambs born*	5.3	Lambs born*	11.5	
Lambs reared*	15.2	Lambs reared*	14.7	
Lbs. weaned*	17.8	Lbs. weaned*	18.0	

