



» Increasing Lamb Output via Crossbreeding

Most reproductive traits such as lambs born and pounds weaned are lowly heritable. This means that management and environment greatly impact number born and weaned within a breed. Crossbreeding increases output via beneficial effects of hybrid vigor. Hybrid vigor is the improved production of a crossbred individual compared to the average of its purebred parents.

Hybrid vigor improves performance of crossbred lambs as well as crossbred ewes. The greatest effects of hybrid vigor on crossbred lambs are to improve livability and weaning weight. Crossbred ewes have higher conception rates with fewer open ewes and also wean heavier lambs.

The objective of crossbreeding is to combine the attributes of two breeds to create a crossbred sheep that outperforms purebreds in a given production system. The simplest example is a Rambouillet ewe bred to a Hampshire or Suffolk ram. The crossbred embryo has improved survival so that a crossbred lamb increases number born per ewe lambing. A more complex but more productive system would be to mate crossbred ewes to rams of a terminal sire breed, taking advantage of beneficial effects of both lamb and ewe hybrid vigor.

Table 1 gives lambing rates of purebred flocks and the expected prolificacy of 11 types of crossbred ewes. Producers can choose a crossbred female that varies from about 1.6 to 2.7 lambs born. The sires used to create the crossbred females need to be selected on maternal traits to ensure that they will sire elite crossbred females. It is important that producers match their shepherding skills and feed resources with the appropriate crossbred female in terms of prolificacy.

Extensive systems can benefit from the crossing of two wool breeds to improve ewe output in terms of conception rate and lambs born per ewe lambing. More intensive operations with higher production goals will need to include more prolific genetics, which could be Polypay, Finn or Romanov. Crossbreeding is a simple technology that when implemented can generate 5 percent to 50 percent more pounds of lamb weaned per ewe exposed.

OTHER USEFUL REFERENCES | Kreg Leymaster's, Ph.D., article in the Sheep Production Handbook. 

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TABLE 1. LAMBING RATE OF PUREBRED EWES AND EXPECTED LAMBING RATE OF CROSSBRED EWES

Purebred Ewes		Breed Composition of 11 Types of Crossbred Ewes										
Breed	Lambing Rate	1	2	3	4	5	6	7	8	9	10	11
Targhee	1.6	1/2	1/2		1/2							
Columbia	1.6	1/2		1/2			1/2					
Rambouillet	1.7		1/2	1/2		1/2		1/2	1/2	1/2		
Dorset	1.8								1/4	1/4	1/2	1/2
Suffolk	1.9				1/2	1/2						
Polypay	2.1						1/2	1/2				
Finnsheep	2.6								1/4		1/2	
Romanov	3.4									1/4		1/2
Lambing Rate of Crossbred Ewes		1.65	1.70	1.70	1.80	1.85	1.90	1.96	2.01	2.21	2.27	2.68