

EVALUATION OF RECIPROCAL CROSSBRED EWES AND TERMINAL SIRE BREEDS

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Efficiency of lamb production is optimized by use of terminal crossbreeding systems. These systems let strengths of the sire breed offset weaknesses of the dam breed and strengths of the dam breed counter weaknesses of the sire breed. Terminal crossbreeding systems use specialized sire and dam breeds to complement each other. Dam breeds excel in adaptability and reproductive traits, and have moderate feed requirements associated with intermediate size. Sire breeds should excel for fertility and longevity of rams and survival, growth, and carcass traits of crossbred lambs. The sheep industry should emphasize specialized sire and dam breeds and encourage their broad use and further development based on roles in terminal crossbreeding systems.

The primary experimental objective is to compare survival, growth, and reproductive traits of reciprocal crosses between the Romanov and Rambouillet breeds. A large-scale experiment at MARC documented the superior performance of Romanov for important traits such as percentage of ewes that lamb, number born per ewe lambing, length of seasonal fertility, and lamb survival. Profitability of commercial production could be improved markedly by greater use of Romanov crossbred ewes as maternal seed stock in terminal crossbreeding systems. Rambouillet is the most common breed in the United States and thus is included as an industry standard. An important practical issue is the relative performance of crossbred ewes produced by Romanov sires and Rambouillet dams, compared to crossbred ewes by Rambouillet sires and Romanov dams, that is, comparison of reciprocal

crosses. Performance of these reciprocal crosses may differ because mature Romanov ewes average about 3.7 lambs born per ewe lambing, whereas Rambouillet average about 1.7 lambs.

A secondary objective is to compare two terminal-sire breeds. Suffolk is included as the traditional terminal-sire breed and provides a standard for evaluation of MARC Composite sheep. MARC Composites were formed in 1980 by mating Columbia rams to Hampshire-Suffolk crossbred ewes. Industry interest in Composite sheep is growing and a direct comparison of Suffolk and Composite as terminal-sire breeds is justified.

The goal is to produce about 200 ewes of each reciprocal cross. About 120 mature Romanov ewes will be single-sire mated to 10 Rambouillet rams in 2004 and a different set of 10 Rambouillet rams in 2005. Likewise, about 240 Rambouillet ewes will be mated to 10 Romanov rams each year. Resulting crossbred lambs will be weighed at 0 (birth), 8 (weaning), 10, and 20 weeks of age. After 20-week weights are recorded, replacement ewe lambs will be designated. These reciprocal crossbred ewes will be evaluated for reproductive traits at one, two, and three years of age. Crossbred ewes will be multi-sire mated to either Suffolk or Composite rams to evaluate effects of sire breed on survival and growth of market lambs. Ewes will lamb in a barn and be limited to naturally rearing two lambs, with additional lambs artificially reared in a nursery. All terminally-sired lambs will be weighed at 0 (birth), 8 (weaning), 10, and 20 weeks of age.