EVALUATION OF WOOL AND HAIR BREEDS UNDER INTENSIVE AND EXTENSIVE PRODUCTION SYSTEMS

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The sheep industry needs to improve reproductive efficiency and to reduce labor requirements so that large commercial flocks are both practical and profitable. Traits contributing to reproductive efficiency include seasonality, fertility, prolificacy, maternal ability, and lamb vigor. Easy-care traits that affect labor requirements include adaptation, hardiness, internal and external parasite tolerance, and shedding of hair and wool to avoid shearing. Hair breeds of sheep evolved under extensive production systems and may have the potential to decrease labor requirements and to contribute to easy-care production systems.

The experimental objective is to evaluate production efficiency under both intensive and easy-care production systems of four types of crossbred ewes. Varying levels of reproductive efficiency and easy-care attributes were created by mating Romanov ewes to Rambouillet, Dorset, Dorper, and Katahdin rams. Purebred and crossbred Romanov ewes excel in all aspects of reproduction and therefore make up one-half of each crossbred. Wool (Rambouillet and Dorset) and hair (Dorper and Katahdin) breeds are included for comparative purposes as the long-term value of wool is unknown. Rambouillet and Dorper provide a wool-hair comparison for breeds developed under extensive, arid conditions, while Dorset and Katahdin offer a similar contrast for breeds adapted to more favorable production conditions.

About 360 Romanov ewes were single-sire mated to Rambouillet, Dorset, Dorper, and Katahdin rams each of three years (2000, 2001, and 2002). Half of the ewes were exposed during October and half during December. Breed associations were contacted to request information relevant to the experiment and to seek advice on sources of seedstock. A total of 18 rams, all by different sires, were sampled from each breed over three years. Six rams of each breed were used in both breeding seasons of a single year.

The goal was to produce about 100 crossbred ewes of each type for each production system, a total of roughly 800 ewes over the three-year period. Ewes conceived in October went into an intensive production system, whereas ewes conceived in December went into an easy-care (pasture) production system. Ewes of each type are multi-sire mated to Suffolk and Texel rams to evaluate effects of sire breed on survival and growth of market lambs. In the intensive system, ewes are limited to rearing two lambs with additional lambs artificially reared. Ewes in the easy-care production system are completely responsible for rearing of all lambs. The four types of crossbred ewes will be evaluated over three parities with each ewe remaining in a single production system. After lambing at three years of age, ewes will be switched to May breeding to measure conception rate of each type during spring breeding at four and five years of age.