EVALUATION OF BREEDS FOR CARCASS COMPOSITION AND MEAT QUALITY

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The sheep industry competes against beef, pork, poultry, and fish for food dollars of consumers who have many choices of high-quality meats. In this competitive environment, the sheep industry must monitor and react to changing preferences of consumers. A consumer-responsive goal of our industry is consistent production of uniform, safe, nutritious, lean lamb that results in an enjoyable and pleasant eating experience. It is likely that important differences exist between breeds of sheep for traits that affect consumer perceptions of lamb quality. Such breed effects have a genetic basis and can be exploited by sheep producers. Therefore, an efficient method to improve lamb quality is to evaluate breed effects and then to systematically use the most appropriate breeds in crossbreeding programs that produce market lambs.

The experimental objective is to evaluate nine breeds of sheep for carcass and meat quality traits. Breeds were chosen to represent wide ranges of performance and use in production of market lambs. Breeds can be classified as general purpose (Dorset), maternal (Rambouillet, Finnsheep, and Romanov), paternal (Composite, Suffolk, and Texel), and hair (Dorper and Katahdin). The Composite flock was formed at the Research Center in the early 1980's by mating Columbia rams to Hampshire-Suffolk crossbred ewes. Carcass traits to be measured include kidney-pelvic fat weight, carcass weight, loin eye area, 12th-rib fat thickness, and composition (leanness) of the loin eye muscle and one side of the carcass. Meat quality (sensory) traits recorded will include tenderness, juiciness, and flavor.

In September of 2001, 2002, and 2003, rams of each breed were single-sire mated to a common flock of ewes. Five rams per breed were used each year and then replaced by a new set of rams the following year. A total of 15 rams per breed and 135 rams overall contributed to the experiment. Breed associations were contacted to request information relevant to the experiment and to seek advice on sources of seed stock. The goal is to collect carcass and meat quality information on six crossbred lambs per ram, three ewes and three wethers. Effects of each breed for carcass and meat quality traits therefore will be estimated from information collected on about 90 lambs per breed. Each year, about 270 lambs will be slaughtered at weekly intervals in 10 groups of 27 lambs. This approach allows breed comparisons to be estimated at various endpoints such as 60 pound carcass weight or 0.15 inches of 12th-rib fat depth.

Experimental results will provide critical information required to address a high-priority problem of the sheep industry.