

# Feed Efficiency, Carcass Characteristics, and Sensory Quality of Lambs, With or Without Prolific Ancestry, Fed Diets with Different Protein Supplements<sup>1</sup>

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**ABSTRACT:** Data were collected on 130 intact male lambs fed diets based on roughages supplemented with fish meal, soybean meal, or corn gluten-blood meal and slaughtered at 43 kg live weight. A nonsupplemented group served as a control. The lambs represented Romanov (R), Finnsheep (F), a new breed developed in Canada (DLS), Coopworth (C), and Suffolk (S), three first crosses of DLS with R, F, and Booroola Merino (B), and their backcrosses to DLS. Supplemented lambs consumed 16 to 22% less ( $P < .05$ ) silage than control lambs. Average daily gains of lambs fed fish meal (226 g) and corn gluten-blood meal (217 g) were higher and feed conversion ratio (4.99 and 5.11) lower than that of lambs fed soybean meal (189 g and 5.48) or control (186 g and 5.76) diets ( $P < .05$ ). The cost of feed per kilogram of gain or per kilogram of lean produced was similar in the four treatments but was between C\$.23 and .65 cheaper in the protein-supplemented groups when the number of days to reach slaughter weight was considered. The effect of diet on

carcass traits and meat quality were minimal. Meat of lambs fed the three protein supplements was less juicy than that of control lambs. With a few exceptions, most of the significant differences among genetic groups in growth, carcass, and sensory traits were mainly between prolific (R and F) and meat-type breeds (C, S, and DLS). Gain in weight was highest in S lambs (199 g/d), but F and R first crosses were the youngest at slaughter (196 and 198 d). The F lambs had higher dressing and kidney fat percentages than meat-type breeds. The DLS lambs had the largest longissimus muscle area (14.0 cm<sup>2</sup>), whereas C had the smallest (10.7 cm<sup>2</sup>). The B crosses had larger longissimus muscle area than R and F crosses. The R lambs had more lean and less fat in the 12th rib, whereas C lambs had the lowest lean and a high bone percentage. The toughest and the most tender roasts were those of R and B crossbred lambs, respectively. Roasts from F lambs had the most intense lamb flavor.

Key Words: Protein Supplements, Growth, Feed Conversion Efficiency, Carcass, Sensory Evaluation, Sheep

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