Evaluation of Differences in Body Composition and Carcass Characteristics in Lambs Divergent in Residual Feed Intake

K.A. Perz, Department of Animal & Range Sciences, MSU, Bozeman MT 59717

M.R. Whitmore, Department of Animal & Range Sciences, MSU, Bozeman MT 59717

A.F. Williams, Department of Animal & Range Sciences, MSU, Bozeman MT 59717

A.R. Hicks-Lynch, Department of Animal & Range Sciences, MSU, Bozeman MT 59717

M. R. Herrygers, Department of Animal & Range Sciences, MSU, Bozeman MT 59717

J.A. Boles, Department of Animal & Range Sciences, MSU, Bozeman MT 59717

J.G. Berardinelli, Department of Animal & Range Sciences, MSU, Bozeman MT 59717

J.M. Thomson, Department of Animal & Range Sciences, MSU, Bozeman MT 59717

The objective of this study was to evaluate differences in growth performance, carcass characteristics and quality, and body composition in lambs selected for divergent residual feed intake (RFI). Mixed-breed 4-mo-old wether lambs (n = 65) were placed on a 47 d feeding trial in September, 2014 to obtain an estimate of individual intake. Residual feed intake, an efficiency measurement based upon the difference in actual and expected feed intake, was calculated for each lamb. Wethers with an RFI of one standard deviation greater (HIGH; less efficient; n = 6) or lower (LOW; more efficient; n = 6) than the mean RFI (approximately 0) of the 65 wethers were used in the present study. Lambs were processed, and organ weights and carcass data were collected in December, 2014. Performance measures were not affected (P > 0.05) by RFI class. Back fat thickness (BF) and yield grade (YG) were greater (P < 0.03) in HIGH lamb carcasses, while rumen weight (P<0.005), total GIT and viscera weights (P<0.03), and lung and trachea weights (P<0.03) were greater in LOW lamb carcasses. Regression of lung weight on hot carcass weight (HCW) indicated that lighter carcasses had

heavier lungs ($P < 0.02$, $R2=0.45$); this relationship was observed in both RFI classes (HIGH: $P < 0.04$; $R2 = 0.68$; LOW: $P < 0.04$; $R2 = 0.68$). In growing lambs, selection for RFI seems to affect fat deposition and visceral organ weights, although more research is necessary to understand the relationship between lung weight, RFI, and HCW.