

IMPROVEMENT OF FEED EFFICIENCY IN BEEF CATTLE THROUGH SELECTION UPON RESIDUAL FEED INTAKE (RFI)

Nicholas O. Minton

Dr. Monty S. Kerley

ABSTRACT

Selecting beef cattle which metabolically are more efficient at converting feed into gain or body weight maintenance is one way to reduce feed cost in beef production. Residual feed intake (RFI) is one trait used to identify animals which are metabolically feed efficient or inefficient. Trials in the current study investigated whether animal RFI varies between trials conducted at two different stages of maturity and the influence on progeny feed efficiency when sires and dams of known RFI phenotypes are mated. We further investigated whether RFI measured postweaning or later in maturity more accurately predicted progeny feed efficiency in addition to whether ribeye area and body composition varied between steers from either RFI- or RFI+ dams. Reranking in RFI of animals did occur between trials, however; RFI phenotype was correlated ($r_p = 0.54$; $P < 0.01$) between postweaning and mature trials indicating animals identified as feed efficient or inefficient remain feed efficient or inefficient further into maturity. More efficiently mated RFI- sires and dams produced heifer and steer progeny with higher feed efficiencies ($P < 0.05$; $P < 0.10$, respectively) with no difference in average daily gain ($P = 0.52$) in comparison to progeny from RFI+ sires and dams. Postweaning dam RFI phenotype showed stronger correlations to progeny RFI phenotype ($r_p = 0.60$; $P < 0.05$) while steers from RFI- dams tended ($P < 0.10$) to have larger developments in ribeye area with no variation ($P > 0.10$) in body composition to steers from RFI+ dams. Selection upon RFI is an accurate trait to select upon to improve herd feed efficiency as well as increase profitability in beef production.