_____ ABSTRACT _____

Evaluation of Wagyu for residual feed intake: Optimizing feed efficiency, growth, and marbling in Wagyu cattle

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Ninety-two yearling Wagyu bulls were evaluated for residual feed intake (RFI) and other performance variables during a 70-d testing period. Bulls were fed a diet in which ingredients were formulated to match the nutritional equivalent of the diet fed to finishing Wagyu cattle. After RFI testing, bulls were classified into the following groups: efficient (RFI > 0.5 SD below the mean; n = 32), marginal (RFI ± 0.5 SD of the mean; n = 34), and inefficient (RFI > 0.5 SD above the mean; n = 26). Residual feed intake was positively correlated with DMI (r = 0.56; P < 0.01) but was not correlated (r = 0.01; P = 0.91) with ADG. Metabolic BW was not correlated (r = − 0.10; P = 0.33) with RFI. Intramuscular fat percentage tended to be negatively correlated with RFI (r = − 0.17; P = 0.11). Efficient, marginal, and inefficient groups showed differences in G:F (P < 0.01) and DMI (P < 0.01), but no differences were observed for metabolic BW or ADG (P = 0.71 and P = 0.96, respectively). Inefficient bulls had greater DMI (P < 0.01) than did efficient bulls. Marginal bulls also had greater DMI (P < 0.01) than did efficient bulls. All groups did not differ (P > 0.05) in ultrasound measures for rib fat, LM area, and intramuscular fat. No differences (P > 0.05) were observed between groups for the other performance variables tested. Observations from the current study suggest that Wagyu sires that are superior for both feed efficiency and marbling can be identified with assistance from RFI analysis.

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