

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

PREDICTING CARCASS WEIGHT ON FEEDLOT CATTLE THROUGH A META-ANALYSIS APPROACH

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The prediction of carcass yield is very important to define the profitability of feedlot cattle, nonetheless equation to predict carcass yield under different conditions are still needed. The aim of this study was to develop equations to predict carcass yield as affected by production system, genotype and sex condition. A dataset of 1112 animals from 30 studies, containing individual data of shrunk body weight and cold carcass weights, obtained from commercial or experimental slaughter plants, was gathered and coded for genotype (Nellore, Nellore crosses with beef breeds, and Nellore crosses with dairy breeds) and sex condition (Heifer, Steer or Bulls). A mixed model, assuming fixed effects of slaughter condition (commercial or experimental slaughter plant), genotype and sex condition, and random effects of study was tested under difference variance(co)variance structures (VC, UN, AR(1)) to determine the model with best fit, based on Akaike's Information Criteria. There were significant effects ($P < 0.001$) of slaughter condition on the intercept and significant effects of sex ($P < 0.003$) and genotype ($P < 0.001$) on the slope of the regression of the cold carcass weight (CCW, kg) on the shrunk body weight, (SBW, kg); Carcass weight can be predicted from the equation:

$CCW = -11.03 + P + [(0.6094 + S + G) * SBW]$, $R^2 = 0.981$,

where P is the Slaughter plant effect, if commercial = -10.98, if experimental = 0; S is the sex condition effect, if steer=0, if bull = 0.008169 and if heifer = - 0.00612; and G is the genotype effect, if Nellore = 0, if Nellore crosses with Dairy = -0.03301 and if Nellore crosses with Beef breeds = -0.01595.

We conclude that genotype and sex condition influence the prediction of carcass weight and should be considered in predictive models. We also detected that slaughter under experimental conditions generate a lesser carcass weight loss, due to the absence of toilet procedure and removal of the rump muscle in commercial slaughter plants.

Keywords: Body Weight, Bulls, Steer, Heifer

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