

Predicting Carcass Dressing Percentage in Feedlot Bulls and Heifers

¹N.Torrentera and ²R.A Zinn

¹Instituto de Ciencias Agrícolas. UABC, Baja California, México

²Department of Animal Science, Dessert Research and Extension Center,
University of California, El Centro, 92243, California, USA

Abstract: The objective of this study was to evaluate commercial feedlot growth performance factors that contribute to the variation in DP of bulls and heifers. Feedlot growth-performance data involving 878 pens of bulls and 784 pens of heifers were used to develop models for predicting Dressing Percentage (DP, 100* hot carcass weight/ final slaughter weight). Dressing percentage was similar for bulls and heifers, averaging 61.7±0.9%. Final Slaughter Weight (FSW, kg) explained 92% of the variation in Empty Body Weight (EBW, kg=15.941+0.877FSW; $r^2=0.921$) and 89% of the variation in hot carcass weight (HCW, kg=27.827+0.554FSW; $r^2 = 0.893$). However, FSW, alone, explained much less ($r^2 = 0.10$) of the variation in DP. Digestive tract fill averaged 11.4% with a range of 7.8 to 15.6%. Dressing percentage of bulls and heifers was inversely associated with DMI (DP = 68.061 - .874 DMI, kg; $r^2 = 0.32$). Initial weight of cattle when entering the feedlot (IW, kg) was a better single predictor of DP than DMI, explaining 46% of the variation. However, IW was also a good predictor of DMI ($r^2 = 0.66$): DMI = 4.6346 + .01422 IW. Based on stepwise regression analysis, factors that best described variation in DP were IW, FSW and DMI: DP = 62.277 - 0.0131 IW + 0.00920 FSW - 0.212 DMI ($r^2 = 0.49$). However, because of the close association between IW and DMI (lack of independence), the contribution of DMI to the prediction was small. Removing DMI from the equation, the model becomes: DP = 61.857 - 0.148 IW + 0.00759 FSW ($r^2 = 0.48$). We conclude that the effect of gender on DP is small and nonappreciable. Initial weight and FSW are useful linear predictors of DP, explaining 48% of the variation. Dressing percentage decreases with increasing IW. For a given IW, DP increases with increasing FSW.

Key words: Dressing percentage, beef carcass, live weight

INTRODUCTION

Dressing Percentage (DP, hot carcass weight as a proportion of final slaughter weight) is the carcass measurement of greatest apparent economic importance in merchandizing livestock on a live-weight basis. However, very little quantitative information has been published regarding factors that influence DP. Williams *et al.*^[1] observed that although Final Slaughter Weight (FSW) and carcass weight were closely associated, FSW explained less than 2% of the variation in DP. Dressing percentage has been associated with fat and protein deposition^[2]. The proportion of fat and protein in gain is directly related to rate of gain, live weight and mature FSW^[3,4].

MATERIALS AND METHODS

Feedlot growth-performance data involving 878 pens of bulls and 784 pens of heifers were used to develop an equation for predicting dressing percentage. The trial was conducted at a commercial feedlot, located in Culiacan,

Sinaloa, Mexico. Data collection began in March, 2001 and ended in February, 2003. Pen means (representing 70±34 bulls or heifers) were used as experimental units. Cattle were predominantly Zebu crosses, originating from the states of Sinaloa, Nayarit, Chiapas, Jalisco and Veracruz, Mexico. Upon arrival into the feedlot, animals were processed (hot-iron branding, vaccinated, treated for parasites and injected with Vitamin A). Cattle were allowed ad libitum access to feed and water. Fresh was provided twice daily, 40% of daily allocation in the morning feeding and 60% in the afternoon feeding. Cattle were transitioned onto a finishing diet consisting of 62.5% steam-flaked corn, 13% corn stubble, 8.5 % protein supplement, 3.7% tallow, 9.3 % cane molasses and 3% mineral supplement. The NEm and NEg values (DM basis) of the finishing diet were 2.21 and 1.52 Mcal kg⁻¹, respectively. The finishing diet was fed during the final 83±18d before commercial slaughter. Zilpaterol clorhidrate (Zilmax ®; Intervet, Boxmeer, The Netherlands) was added (6 mg kg⁻¹) to the diet 33 d., before slaughter. Zilpaterol was withdrawn from the diet 3 d before slaughter. Bulls weighing less than 250 kg upon arrival

