

Effect of two finishing systems on claw characteristics in beef steers

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ABSTRACT

The objective of this study was to evaluate the claw characteristics contributing to the shape and balance of the foot in growing steers. The evaluated parameters included dorsal wall growth, abrasion, length and sole surface area. After animal harvest, the sole horn thickness was measured. Seventy-two yearling Angus-crossbred steers (mean body weight 378 ± 6.2 kg) were allotted for the finishing period (133 days) to two systems (feedlot, pasture). The feedlot steers were fed a corn-grain/corn silage diet and were housed in pens with concrete floors. Steers assigned to the pasture were rotationally stocked on mixed grass-legume pastures. The claw measurements were obtained from medial and lateral claws of the left rear foot on days 0, 56 and 133. Sole thickness measurements were performed on both front feet. Data were analyzed with repeated measures analysis of variance using a mixed effects model. The horn growth of the dorsal wall was greater ($P < 0.01$) in the feedlot steers (29.5 ± 0.7 mm/finishing period) compared to the steers on pasture (21.28 ± 0.8 mm/ finishing period). Claw horn abrasion was also greater ($P < 0.001$) in feed lot steers (24.50 ± 0.92 mm/ finishing period) than in steers on pasture (9.3 ± 0.9 mm/ finishing period). Lateral and medial claws grew ($P < 0.001$) and wore ($P < 0.001$) at different rates in feedlot steers. In the pasture steers the lateral and medial claws did not differ in growth or abrasion. The change in length of the dorsal wall was different ($P < 0.05$) between feedlot and pasture steers. The difference between lateral and medial claw was significant only in the feedlot steers ($P < 0.001$). The final dorsal wall length, as a result of horn growth and abrasion, was different ($P < 0.05$) between finishing systems. Lateral and medial claw ($P < 0.001$) was different in the feedlot steers only. The change in the sole surface area was different ($P < 0.05$) between feedlot and pasture steers and between lateral and medial claw in both finishing systems. In both finishing systems, medial claws exhibited a smaller surface area than lateral claws. The feedlot steers had significantly thicker soles in all locations than steers on pasture. The

steers in confinement on concrete floors, fed a corn-grain/corn silage diet exhibited faster horn growth and abrasion rates, yet smaller sole surface area, shorter dorsal walls and thicker sole horn compared to the steers grazing pasture. The difference between lateral and medial claws for all measured parameters, except sole thickness, was significant in the feedlot steers.

Key Words: Cattle, Claw characteristics, Nutrition, Housing systems.

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