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Carcass Traits of Steers Finished on Legume and Grass Pasture and in Feedlot System

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Objectives

Mixed pastures containing grass and legumes provide higher nutritional values to steers when compared to grass only. Additionally, cattle finished on pasture with grain supplementation show improved growth performance and better carcass traits when compared to grass-fed finished cattle. In this study we evaluated the effects of finishing diets based on legume and grass mixed pasture, mixed pasture and corn supplementation, and only corn on carcass traits of steers.

Materials and Methods

A total of 18 British and Zebu cross steers were randomly assigned to 1 of 3 dietary treatments consisting of grazing in pasture of oats, ryegrass, white and red clover (PAST); grazing in PAST plus whole corn grain supplementation (1.4% of body weight, SUPP); and feedlot-finishing with whole corn grain (2.8% of body weight, whereas 85% was corn and 15% protein-mineral-vitamin supplement, GRAIN). Steers finished on PAST and SUPP were individually allocated in 12 paddocks whereas steers finished on GRAIN were assigned to 6 individual pens. Steers were fed for 91 d before harvesting at a commercial abattoir. Data collected in this experiment included body weight at slaughter (kg), hot carcass weight (kg), carcass shrink (%), dressing percentage (%), KPH (%), fat thickness between the 12th and 13th ribs (mm), ribeye area (cm^2), and marbling score (1 = devoid and 10 = abundant). Carcass sides were fabricated into 3 primals including the forequarter with 5 ribs (FOR), pistola hindquarter, which included the round and loin (PIH), and a combination of cuts (FRNB) including flank, lateral portion ribs, end portion of the navel, and brisket. Data was analyzed as CRD by using PROC GLM of SAS (SAS Inst. Inc., Cary, NC).

Results

Dietary treatments did not affect body weight at slaughter ($P = 0.165$), hot carcass weight ($P = 0.169$), carcass shrink ($P = 0.329$), dressing percentage ($P = 0.730$) and ribeye area ($P = 0.630$). Values of fat thickness and KPH were significant higher in carcasses from steers finished on GRAIN when compared to steers finished on PAST (5.95 mm and 4.11 mm; and 2.32 and 1.53%, for GRAIN and PAST, respectively). Treatments GRAIN and SUPP provided better marbling deposition on the ribeye when compared to PAST ($P = 0.023$). No significant differences were observed for yields of FOR and PIH ($P = 0.654$ and $P = 0.476$, respectively). However, carcasses from steers fed GRAIN showed higher yield values for FRNB when compared to carcasses from steers fed PAST (16.71 and 14.92%, respectively; $P = 0.017$).

Conclusion

Finishing steers on legume and grass pastures with corn supplementation (SUPP) leads to similar marbling deposition on ribeyes when compared to feedlot finishing with corn (GRAIN). Overall, finishing steers on legume and grass pastures (PAST) led to similar yields of end and middle cuts when compared to SUPP and GRAIN. Although SUPP and GRAIN diets provided better marbling deposition, finishing steers on legume and grass pastures still provide carcass yields that are acceptable for the Brazilian market.