

Evaluation of four summer annuals for southeastern forage finished beef production systems: Animal performance, carcass traits, and valuation

A.M. Stelzleni^{1*}, R.L. Stewart, Jr¹, and D. Hancock²
University of Georgia, ¹Department of Animal and Dairy Science and ²Crop and Soil Sciences
Athens, 30602

The objective of this research was to evaluate and compare the suitability of four warm-season annual forages for Southeastern forage-finished beef production systems. Sixteen 0.81-ha pastures were blocked by previous land management strategy and randomly assigned to one of four forage treatments including: Brown mid-rib sorghum sudangrass (BMR), sorghum sudangrass (SS), pearl millet (PM), or pearl millet plus crabgrass (PMCG). Additionally, 32, previously stockered, British-cross beef steers (437 ± 20 kg) were blocked by weight and randomly assigned to one of the sixteen pastures for forage finishing. Pastures were split into two paddocks and rotationally grazed utilizing put and take heifers, as need, to manage forage growth. Weight and body composition (via ultrasound) were measured on d 0, 34, and 70. At a target BW of 499-kg steers were slaughtered under Federal Inspection. Twenty-four hours post-mortem carcass quality and yield data were collected and used to determine final value and break-even pricing. Data were analyzed using Proc Mixed (SAS v9.4). Pasture was considered the experimental unit and steer was considered the observational unit with steer within pasture by block as the random term. When applicable the forage type by day interaction was evaluated. Forage type did not influence ($P > 0.05$) ADG, BW, or ultrasound traits for LM area, i.m. fat, 12th-rib fat thickness, or rump fat thickness; however, BW and all ultrasound traits increased ($P < 0.03$) as time on forage increased. Evaluating carcasses, forage type was not a significant factor ($P > 0.05$) for shrunk BW, HCW, dressing percent, LM area, LM area/100 kg BW, KPH, 12th-rib fat thickness, or calculated USDA yield grade. Additionally, carcass quality traits of marbling score, overall maturity, subjective lean and fat color, and objective L* and a* were not different

($P > 0.05$) between treatments. However, marbling scores for PM and SS were numerically higher (small degree) than BMR and PMCG (slight degree). There was no difference in starting value, carcass value, carcass value difference, premium required, percent premium required, or carcass breakeven pricing; however, PM and SS numerically had greater carcass value, lower premiums required for breakeven and lower breakeven pricing. This data show that BMR, SS, PM, or PMCG can be used in summer beef forage finishing systems in the Southeast, but, economic incentives could favor forage finishing beef on PM or SS.