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Carcass and Meat Traits with Increased Slaughter Weight of Spanish and Savannah-Spanish Crossbred Kid Buckling Goats

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Objectives

More than 50% of the goat meat consumed in the U.S. is imported due to the increased demand for goat meat. More meat from each animal could be made available by increasing the current slaughter weight of kid goats. The objective of this research was to compare live, carcass and goat meat properties of Spanish and Savannah-Spanish crossbred kid goats fed on concentrate and hay diets to 27, 36, and 45 kg live weight.

Materials and Methods

Spanish ($n = 30$) and Savannah-Spanish ($n = 30$) male kid goats (bucklings) were obtained from 2 commercial herds and assigned to 10 pens based on weight and breed with ad libitum access to concentrate feed and hay with 15.8 crude protein and 75.36 calculated total digestible nutrients on an as-fed basis. Goats were weighed weekly and linear dimensions were measured prior to overnight fasting and humane slaughter when goats reached 27 kg, 36 kg, or 45 kg. Temperature and pH of the *M. Semimembranosus* were measured after hide removal and 1 h, 3 h and 24 h after stunning. Carcasses were chilled overnight at 2°C before determination of carcass characteristics (McMillin and Pinkerton, 2008). Loin eye area and body wall thickness were measured on carcasses after ribbing at the 13th rib. After splitting carcasses into sides, L*, a*, and b* color were measured on the *Rectus abdominis* flank muscle. Right sides were fabricated into USDA IMPS food service style cuts with an additional transverse cut between the 4th and 5th ribs. The *Semimembranosus* and *Longissimus dorsi* muscles were vacuum packaged and held at 4°C for 7 d before grilling on a conveyor oven to an internal temperature of 75°C. Cook yield was determined as proportion of cooked weight and raw weight. Three 1.27-cm cores were

removed parallel to the muscle grain for Warner-Bratzler shear force. Data were analyzed with Statistical Analysis System 9.4 Proc Mixed procedures with separation of least squares means and significance set at $P < 0.05$.

Results

Spanish goats averaged 5.73 kg heavier at the start of the feeding trial, but with 0.09 kg/d average daily gain ($P = 0.001$) did not grow as rapidly as the Savannah-Spanish crossbred goats (0.13 kg/d). Carcass dressing percentage was higher ($P = 0.05$) at heavier weights. Percentage of carcass shrink from overnight chilling was 2.93% for carcasses from Spanish and 2.32% for Savannah-Spanish goats ($P > 0.05$). Carcasses at 27 kg slaughter weight had decreased ($P = 0.001$) external fat scores of 1.46 compared to the other 2 weights (2.27 and 2.10). Additionally, the Savannah goats had decreased actual kidney, pelvic and heart fat percentage ($P = 0.048$) of 2.91% when compared to the Spanish goats at 3.36%. Carcass conformation ($P = 0.0008$) and loin eye area increased ($P < 0.0001$) with increased weight. Boneless lean yield and *Semimembranosus* shear force did not vary ($P > 0.05$) with breed or weight at slaughter.

Conclusion

There were no major differences between the 2 breeds except for growth rate and length of feeding to reach one of the target slaughter weights. Weight at slaughter affected dressing percentage, fatness and muscling, but not boneless meat yields or shear force.

Reference

McMillin, K.W., and F. Pinkerton. 2008. Meat Goat Selection, Carcass Evaluation & Fabrication Guide. Louisiana State University Agricultural Center, Baton Rouge, LA. Publication 2951. 8 pp.