

DEVELOPMENT OF A MEAT GOAT SELECTION, CARCASS EVALUATION AND FABRICATION GUIDE

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Introduction

Goats are an important food source, especially in technologically developing regions (Casey, 1992). Market value or price differentials are based on characteristics of quality (palatability) and quantity (cutability) through animal and carcass grading systems (Sims, 1985). Value of commodities or products can be increased by decreased costs or by higher relative final product values (McMillin and Brock, 2005). Recommended goat carcass evaluation procedures were proposed (Pinkerton and McMillin, 2000) to complement standard institutional goat meat cuts (USDA, 2001). The project objectives were to develop a printed manual and digital presentations for live goat and carcass conformation descriptions, meat goat carcass evaluation, and summarization of standardized fabrication of goat carcasses.

Materials and Methods

This project utilized data, pictures, and techniques from previous studies (McMillin et al., 1999). More than 600 electronic images and 700 slides (5.1 x 5.1 cm) of live meat goat front, rear, or side views were previewed to eliminate those that were blurry, depicted abnormal muscle tension, or did not allow clear distinction of the goat body. An expert panel of livestock judges familiar with different meat goat sizes, ages, and breeds reviewed the resulting 425 electronic images and 150 slides of kid meat goats against the three written selection classification descriptions (USDA, 2001) to reach a consensus selection class score for each image. Only images with the different views of an individual animal with selection scores within 20 points of one another were considered for inclusion in the manual. It was decided that images representative of the midpoints of the three selection classification groups would be desired for the manual and presentation materials. An expert panel of certified meat graders and meat scientists familiar with goat carcasses and cuts reviewed more than 120 electronic images of goat carcass conformation (rear and side views) and 40 images of flank colour score, kidney fat, and external fat cover scores that had been previously screened to eliminate blurry or incomplete images. A draft manual of the selected images and explanatory text and compact diskettes with presentations on the manual, goat and goat meat marketing, carcass fabrication, and value-added goat meat products were developed.

Results and Discussion

The manual was developed as a guide for the meat goat industry in evaluating live meat goats, measuring carcass traits, and standardizing cutting procedures for goat carcasses. There are no official USDA grades or standards for live meat goats or goat carcasses, but the terminology in this manual was been adapted from USDA Institutional Meat Purchase Specifications (IMPS) Selection Criteria (USDA, 2001). The manual can be revised as the meat goat industry produces kid goats with higher conformation and heavier muscling or needs additional or different cuts of goat meat. Live goat traits that influence meat yield are conformation, proportions of muscle to fat and bone, and relative body size. Selection 1 goats have a superior conformation that yields a high proportion of meat from the carcass, while Selection 2 goats have an average meat type conformation and Selection 3 goats have inferior conformation and a low ratio of meat to body components. External or subcutaneous fat is deposited on kid meat goats over the ribs and behind the shoulder, with minimal fat over the back muscle (*Longissimus dorsi*), except with high concentrate energy feeding. The distinctive hip and leg structure of goats changes during cooling of carcasses to give meat goat carcasses a more elongated and stretched appearance, even with heavy muscled carcasses, compared with other red meat species. The carcass evaluation system developed easily estimates the traits influencing lean meat yields and customer preferences with hot carcass weight; conformation (Selection 1, Selection 2, or Selection 3); external fat score (1= minimal/none, 2= fat over rib/shoulder, 3= excessive fat cover); kidney, heart, and pelvic internal fat as a percentage of hot carcass weight; and lean flank colour (A- pale red, B- dark red, C- very dark red). The five meat goat carcass fabrication styles (platter, roasting, barbeque, food service, hotel) for different weight and sizes of carcasses in the USDA Fresh Goat IMPS Series 11 (USDA, 2001) are described for shanks, neck, foresaddle, shoulder, outside shoulder, inside shoulder, rack, ribs, breast, back, loin, sirloin, and legs.

Conclusions

The goat manual integrated data and images from different goat, carcass, and goat meat projects with the detailed knowledge of goats and meat carcass evaluation of the expert panel. The manual provides visual images for use by goat producers, meat processors, and meat goat purchasers and standardizes communication among the different market channel segments.

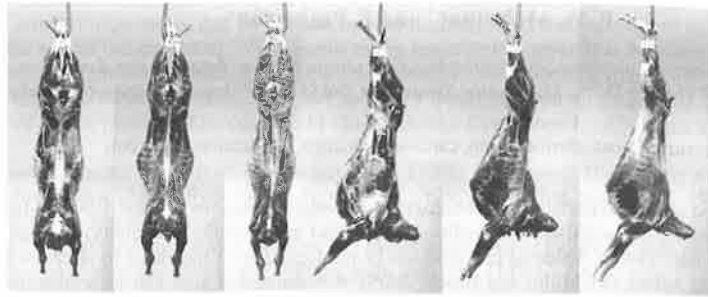


Figure 1: Comparisons of the three meat goat carcass selection classifications (1⁵⁰, 2⁵⁰, 3⁵⁰, left to right).

References

- Casey, N.H. (1992). Goat meat in human nutrition, In: Proceedings of the V International Conference on Goats, March, 1992, New Delhi.
- McMillin, K.W. and Brock, A.P. (2005). Production practices and processing for value-added goat meat. *Journal of Animal Science*, 83(E Suppl.): E57-E68.
- McMillin, K.W., Olson, S., Phelps, O., Pinkerton, F. and Michel, M. (1999). Goat meat carcass evaluation and IMPS cuts. *Reciprocal Meat Conference Proceedings*, 52: 79.
- Pinkerton, F. and McMillin, K.W. (2000). Evaluation of slaughter goat selection and goat meat classification systems. *Goat Rancher*, February: 7-10.
- Sim, D.W. 1985. Grading and classifying meat: An international view. *Reciprocal Meat Conference Proceedings*, 38: 57-61.
- USDA. (2001). Institutional Meat Purchase Specification for Fresh Goat Series 11. United States Department of Agriculture Agricultural Marketing Service Livestock and Seed Program, Washington, DC.