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Evaluation of an Alternative Skin-On Goat Harvesting Method on Meat Yield and Processing Time

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Objectives

Many Asian cultures such as Taiwanese, Korean and Chinese enjoy bone-in goat meat cubes with skin attached because of the skin's unique texture. With the growing Asian population in the U.S., there is potential to grow the goat meat market to meet the new demand. The high demand for skin-on goat meat is currently not met domestically because of the absence of cultural knowledge of the niche market and the technological knowledge to produce a high-quality skin-on goat meat product. The objective of this study was to develop a standard procedure for the alternative skin-on goat harvest and fabrication process, along with comparing the processing yields and time efficiency between the alternative skin-on and traditional skin-off harvest and fabrication processes.

Materials and Methods

A total of 17 Boer/dairy crossbred goats averaging 26.28 kg and 4 mo of age were harvested in 2 different harvesting techniques: 9 with skin left on the carcasses (skin-on) and 8 with skin removed (skin-off). In skin-on harvest group, carcasses were scalded and dehaired at 61°C for 3 min to remove most of the hair after stunning and exsanguination. The skin-off harvest group was harvested the same as the traditional lamb harvest, using the fisting technique. All carcasses were fabricated using a bandsaw and cut into 2 in. × 2 in. cubes after 24 h of postmortem chilling at 2°C. Cubes from each carcass were placed in individual lug and assessed for consistent quality. Any cube with excessive fat or

bones was removed from the batch. Live weight, hot carcass weight, dressing %, chilled carcass weight, and final retail product weight were recorded throughout the harvest and fabrication processes. The harvest time (time spent from stunning to entering the cooler) and the fabrication time (time spent on the bandsaw and removal of inedible products) were also recorded.

Results

The skin-on treatment group had greater dressing % (61.00 vs. 48.38%; $P < 0.01$), % chilling loss (6.53 vs. 3.15%; $P = 0.01$) and % total yield (50.16 vs. 41.36%; $P < 0.01$) compared to the skin-off treatment group. It is interesting to note that the skin-off treatment tended to have greater % retail product yield ($P = 0.07$). This is likely due to the skin-on retail product tended to have more cubes with just skin and fat, which were removed from the batch during the quality check. There were no differences between treatments for harvest time ($P = 0.79$), fabrication time ($P = 0.27$), and total processing time ($P = 0.55$).

Conclusion

The results are encouraging to goat producers and processors who are interested in this ethnic niche of the goat market as the skin-on process requires similar inputs, but generates additional outputs in comparison to the traditional skin-off harvesting. Additional research on consumers' willingness-to-pay and economic analysis for domestic skin-on goat meat product is needed to confirm the sustainability of this product.