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US Consumer Assessment of Lamb Loin and Leg Chops From Australia, New Zealand, and United States

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Objectives

Although lamb is consumed in low volumes in the U.S., especially when compared to high lamb consumption countries such as Australia (AUS) and New Zealand (NZ), U.S. consumers have 3 main options when choosing lamb in the U.S.: domestic, imported from AUS, or imported from NZ. Based on previous research with beef, palatability differences in lamb are expected when comparing country origins and muscle types. The objective of this study was to evaluate the effects of country-of-origin and muscle type on palatability of lamb loin and leg chops as determined by U.S. consumers.

Materials and Methods

The U.S. lamb ($n = 70$ carcasses) was obtained from a commercial lamb processor in Colorado; full lamb loins (IMPS 232; 1×1) and paired lamb legs (IMPS 233A) were retained from those carcasses, vacuum packaged and shipped to Texas. Full lamb loins and lamb legs from AUS and NZ were procured from food distributors. Loins were fabricated to obtain only the *longissimus lumborum*, by removing tenderloins, bone, flank and all other secondary muscles. Legs were fabricated to obtain the *semimembranosus* with *adductor*. Loins and legs were trimmed of any visible external fat and connective tissue, manually fabricated into 2.5 cm thick chops, vacuum packaged, stored at 2°C, and frozen at 21d postmortem. Untrained consumers ($n = 360$) from Lubbock, TX; State College, PA; Gainesville, FL; Fort Collins, CO; and Fresno, CA rated tenderness, juiciness, flavor liking and overall liking on 100 mm line scales. Data for sensory attributes were analyzed as a 2×3 factorial design using the GLIMMIX procedure

SAS (Version 9.4; SAS Inst. Inc., Cary, NC) with fixed effects of country, muscle and their interaction. Location and consumer within testing night were included as random effects. Treatment least squares means were separated with the PDIF option of SAS at a significance level of $P < 0.05$.

Results

The interaction between country and muscle was detected for tenderness, flavor, and overall liking ($P < 0.05$). U.S. loins were more tender ($P < 0.05$) than all other treatments, followed by AUS and NZ loins, which did not differ ($P > 0.05$). Next, U.S. legs were more tender than legs from AUS or NZ, which did not differ ($P > 0.05$). Consumers preferred the flavor of U.S. loins more ($P < 0.05$) than all other treatments. Next, U.S. legs and AUS loins were similarly liked more than NZ loins, but consumers liked the flavor of legs from NZ and AUS less than any other treatment. Overall liking followed the exact same trend as flavor liking. Both country and muscle impacted ($P < 0.01$) juiciness scores. U.S. loin chops were juicier than AUS or NZ loin chops, regardless of muscle, and consumers rated loin chops juicier than legs chops, regardless of country ($P < 0.05$).

Conclusion

Consumers found palatability differences in lamb between country origins and muscle types. U.S. consumers prefer domestically sourced lamb over AUS and NZ when comparing tenderness, juiciness, flavor and overall liking. Loin chops were preferred over leg chops for all palatability traits. It is recommended that U.S. consumers purchase U.S. lamb and lamb loin for a better eating experience.