2018 Reciprocal Meat Conference – Meat and Poultry Quality

Meat and Muscle Biology™

Is Blade Tenderization Still Needed for Inherently Tender Top Sirloin Steaks?

A. R. Murray, S. B. Tindel, A. N. Arnold*, R. K. Miller, D. B. Griffin, K. B. Gehring, and J. W. Savell

Animal Science, Texas A&M University, College Station, TX, 77843, USA
*Corresponding author. Email: a.arnold@tamu.edu (A. N. Arnold)

Objectives

Although blade tenderization has historically been used to enhance tenderness, it may create a food safety concern. Therefore, the objective of this study was to determine if consumer satisfaction improves by blade tenderizing today's inherently tender beef.

Materials and Methods

Paired USDA Choice top sirloin butts ($n = 20$ total pieces) were collected from 10 carcasses representative of the typical carcass in today's fed beef market. Carcasses from dairy-type cattle, *Bos indicus*-influenced cattle, and from cattle over 30 mo of age were not used. No selection preference was given to carcass sex class, weight, or presence or absence of black hide, but excessively heavy or light carcasses that would not yield a representative sample of what today's consumers call an "average steak" were not selected. Subprimals were subjected to a 28-day refrigerated wet aging period before treatments were administered, with "d 0" defined as the day of carcass fabrication. Top sirloins from the left side of the carcass were blade tenderized once before portioning into steaks, whereas top sirloins from the right side of the carcass received no treatment and served as the control. Paired top sirloin butts were subjected to Warner-Bratzler Shear (WBS) force testing as a measure of objective tenderness. Consumer sensory evaluation was used to determine if consumer liking of tenderness, flavor, juiciness, and overall liking differed for steaks from blade tenderized (BT) subprimals versus those from non-blade tenderized (NBT) subprimals. Steaks were cut into fourths after cooking, with each sample (one-fourth of a steak) presented on a plate along with a metal steak knife and a plastic fork. This serving style allowed panelists to cut into the product, which sometimes influences consumer acceptability. Data were analyzed with paired t-tests using the matched pairs function of JMP (Version 12, SAS Inst. Inc., Cary, NC), at an alpha of 5%.

Results

Consumers assigned BT steaks higher ($P < 0.05$; Table 1) ratings for tenderness liking rating, flavor liking rating, and overall liking rating compared to NBT steaks. No differences ($P > 0.05$) were seen for juiciness liking ratings or WBS force values.

Paired T-test and SEM for sensory panel ratings and Warner-Bratzler shear force values for top sirloin steaks from subprimals that were blade tenderized or not blade tenderized.

Treatment[1]	n[2]	Sensory panel ratings[3]				Warner-Bratzler shear force (N)
		Overall like/dislike	Tenderness like/dislike	Flavor like/dislike	Juiciness like/dislike	
BT	10	6.71	6.70	6.69	6.40	26.39
NBT	10	6.33	6.01	6.46	6.05	28.24
SEM		0.15	0.15	0.08	0.20	2.29
Prob > F		0.0293	0.0011	0.0198	0.1138	0.4395

[1] Treatment: BT = top sirloin butts were run once through a blade tenderizer before cutting into steaks; NBT = top sirloin butts were not blade tenderized before cutting into steaks.
[2] Number of subprimals per treatment
[3] Sensory panel ratings: 9 = like extremely; 1 = dislike extremely.

Conclusion

Although today's beef is inherently tender, these data show that blade tenderization improved consumer sensory panel ratings for tenderness, flavor, and overall likeability for beef top sirloin steaks. Therefore, discontinuing the use of blade tenderization could result in less favorable consumer eating experiences.