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Palatability of Beef Top Loin Steaks Sourced From 3 Quality Grade Groups from Texas and Northern Establishments

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Objectives

There is a long-held perception by some in the food-service and retail sectors that beef produced in Texas is not of the same quality or does not have the same palatability characteristics as beef from northern (Kansas, Nebraska, and Colorado) establishments. The objectives of this study were to: 1) assess the palatability traits of Texas beef, and 2) compare the palatability traits of Texas beef against similar grades of beef sourced from northern establishments.

Materials and Methods

Beef loin, strip loin steaks were collected from food-service distribution centers to represent 4 Texas and 7 northern commercial beef harvest and processing facilities. USDA Top Choice ($n = 174$ Texas; $n = 180$ northern), USDA Choice ($n = 180$ Texas; $n = 156$ northern), and USDA Select ($n = 176$ Texas; $n = 174$ northern) steaks were evaluated using Warner-Bratzler shear (WBS) force and consumer sensory panel ratings. Consumer panelists ($n = 335$) were recruited from the Bryan/College Station area using an existing database and email list serves. Data were analyzed using JMP, Version 13.1.0 (SAS Institute

Inc., Cary, NC), where main effects and significant 2-way interactions were included in the model. Least squares means were calculated and where appropriate, means were separated using the PDIF procedure and an $\alpha < 0.05$.

Results

Top Choice steaks from Texas were found to have a higher ($P < 0.05$) average WBS force value than Top Choice steaks sourced from states other than Texas. Furthermore, Texas Top Choice steaks had lower ($P < 0.05$) juiciness and tenderness liking values than northern Top Choice steaks. There were no differences ($P > 0.05$) in average WBS force values or consumer panel ratings for Texas Choice and northern Choice, or Texas Select and northern Select.

Conclusion

The reasons Top Choice steaks from Texas received lower consumer panel ratings than northern Top Choice steaks are unknown. These results indicate that Texas beef should not be a concern for those who purchase Choice or Select striploins.

Least squares means of consumer panelist scores^a for beef palatability and Warner-Bratzler shear force values stratified by source x quality grade group.

| Source | Quality Grade | Overall Liking | Flavor Liking | Tenderness | | WBS (N) |
|-----------------|---------------|----------------|---------------|------------|--------------|---------|
| | | | | Liking | Juicy Liking | |
| Texas plants | Top Choice | 6.2 | 6.3 | 6.1c | 6.1b | 23.2a |
| Northern plants | Top Choice | 6.7 | 6.5 | 6.8a | 6.5a | 20.2b |
| Texas plants | Choice | 6.6 | 6.4 | 6.7ab | 6.3ab | 20.3b |
| Northern plants | Choice | 6.5 | 6.3 | 6.7a | 6.0b | 18.9b |
| Texas plants | Select | 6.3 | 6.2 | 6.4abc | 6.0b | 22.6a |
| Northern plants | Select | 6.2 | 6.2 | 6.3bc | 6.1b | 22.5a |
| <i>P</i> -value | | 0.0533 | 0.3079 | 0.0070 | 0.0478 | 0.0324 |

Means within a column and lacking a common letter (a, b, c) differ ($P < 0.05$).

^a Consumers used the following 9-point scales: overall liking (1=dislike extremely; 9=like extremely), flavor liking (1=dislike extremely; 9=like extremely), juiciness liking (1=dislike extremely; 9=like extremely), and tenderness liking (1=dislike extremely; 9=like extremely)