Sensory and Tenderness Evaluation of a New Brand of Grass-Fed Beef Strip Loins

Andres S. Donoso[1]; Taylor M. Horton[2] ; Blake A. Foraker[2] , Jessica L. Sperber[2] ; Dale R. Woerner

1 (Sowar Scholar) Zamorano University, Food Science, Tegucigalpa, Honduras.
2 Texas Tech University, Department of Animal and Food Sciences.

INTRODUCTION

- Grass-fed beef has increased its commerce due to consumers tendencies. Consequently, the evaluation of beef attributes in this area has become important.
- Sensory panels is the best tool to measure flavor´s intensity for new products.
- In addition to sensory panels, Shear force evaluation is used to objectively measure tenderness. Previous studies determined tenderness to be the most influential factor, playing a major roll on product evaluation and acceptability.

OBJECTIVE

To establish a baseline for the sensory attributes and shear force values and to validate the acceptability of a new Grass Fed Brand compared to the National brand´s average.

MATERIALS AND METHODS

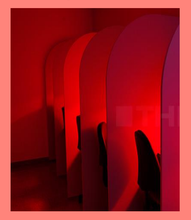
1. Fabrication

2. Cooking
(204°C)

3. Control
Temperature
71°C

4. Cutting
- Panels($1cm^2$)
- Shear Force (1 by 5 cm)

5. Sensory Panels
27 sessions
16 samples
06 panelists



5. Shear Force
Machine (500 mm/min)

RESULTS

Figure 1. Mechanical Shear Force Evaluation Results

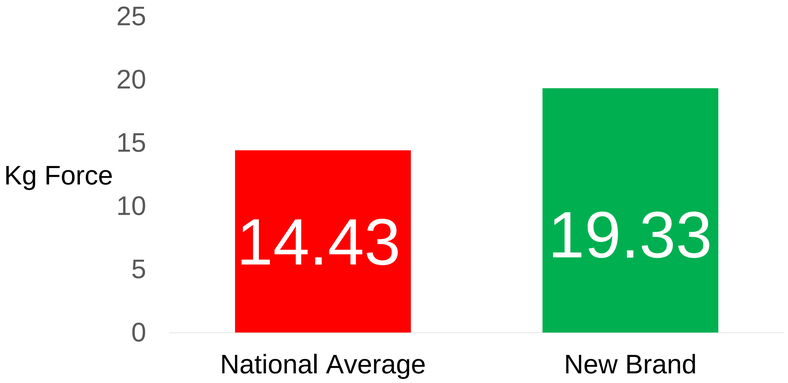


Figure 2. Comparison Between New and National Brands

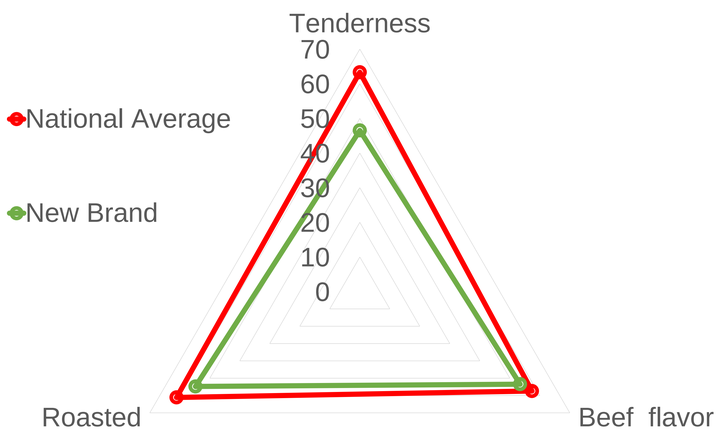
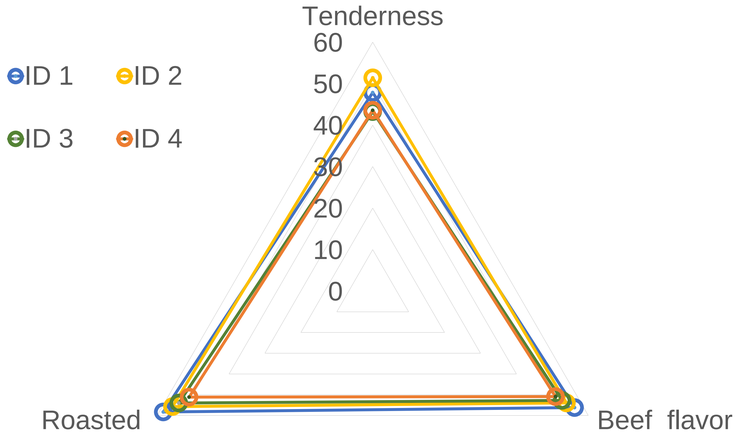


Figure 3. Comparison Between New Brand Strip Loin



DISCUSSION

Trained Panelists identify and quantify: overall tenderness, overall juiciness, beef flavor ID, browned/roasted, fat-like, grassy/hay-like, metallic, sour, oxidized, and liver-like. Using 100-point scale (0 = none present, 100 = extremely intense).

Comparison Between Brands

- The New Brand rated lower than the competitor average ($P < 0.01$) for overall tenderness, beef ID, and browned/roasted flavors.
- The New Brand is comparable ($P > 0.05$) to National Average for off-flavor notes.
- There were no differences ($P > 0.05$) found between treatments for overall juiciness, grassy/hay-like, metallic, or oxidized flavor attributes.

New Brand Differences

- Panelists found that ID 3 and 4 were less tender ($P<0.01$) than ID 1 and 2.
- ID 4 was the least intense ($P<0.01$) in flavor attributes.

CONCLUSIONS

- The results suggest that trained scores for "off-flavors", did not present statistical differences ($P > 0.01$) compared with the National Average. However, they detect differences among positively attributes.
- There are difference ($P < 0.01$) in tenderness and flavor in the New Brand, when compared to National Average. However, the New Product may perform lower in the market due to its tougher rating.

REFERENCES

- Adhikari, K. , Chambers IV, E. , Miller, R. , Vázquez-Araújo, L. , Bhumiratana, N. and Philip, C. (2011), Development of a lexicon for beef flavor in intact muscle. Journal of Sensory Studies, 26: 413-420. doi:10.1111/j.1745-459X.2011.00356.x
- C.L. Lorenzen, C.R. Calkins, M.D. Green, R.K. Miller, J.B. Morgan, B.E. Wasser, Efficacy of performing Warner–Bratzler and slice shear force on the same beef steak following rapid cooking, Meat Science,Volume 85, Issue 4, 2010, Pages 792-794, https://doi.org/10.1016/j.meatsci.2010.03.030.

ICFIE