



Consumer Sensory Evaluation of Beef Top Sirloin Cap Steaks from Four USDA Quality Grades

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Objectives

The objective of this study was to evaluate the influence of quality grade on the palatability of beef top sirloin cap (*biceps femoris*) steaks.

Materials and Methods

Four quality treatments [Prime, Top Choice (Modest and Moderate marbling), Low Choice and Select] were equally represented ($n = 15/\text{treatment}$) from beef top sirloin caps (IMPS # 184D). Sirloin caps were fabricated into 2.5 cm steaks from posterior to anterior following a 28-d aging period and randomly assigned to one of 3 analysis methods: Warner-Bratzler shear force (WBSF), fat and moisture analysis, and consumer sensory analysis. Steaks were cooked on a clamshell grill (Cuisinart Gridler Deluxe, Model GR-150, East Windsor, NJ) to a peak medium (71°C) degree of doneness monitored using a thermometer (Super-Fast Thermopen, ThermoWorks, American Fork, UT). Consumers ($N = 118$) evaluated each sample for juiciness, tenderness, flavor liking, and overall liking on a 0 to 100-point continuous line scales. Additionally, consumers rated each trait as either acceptable or unacceptable and classified all samples as one of 4 quality levels: unsatisfactory, everyday quality, better than everyday quality, or premium quality. Data were analyzed as a completely randomized design with the fixed effect of quality treatment.

Results

Consumers rated Top Choice, Low Choice, and Select similar ($P < 0.05$) for overall like, however, Prime rated ($P < 0.05$) higher than all other treatments. Also,

Prime and Top Choice were similar ($P > 0.05$) for flavor liking, with Low Choice and Select also similar to Top Choice ($P > 0.05$). There was no difference ($P > 0.05$) among the quality treatments for tenderness and juiciness ratings. Similar to the rating results, when evaluating the percentage of samples rated acceptable for each palatability trait, no differences ($P > 0.05$) were found among quality treatments for tenderness, juiciness, and flavor, with all traits rated over 71.5% acceptable. However, a greater ($P < 0.05$) percentage of Prime samples were rated acceptable overall compared to Low Choice and Select. Additionally, there was no difference ($P > 0.05$) among the quality treatments for the percentage of samples classified as unsatisfactory. Consumers perceived a similar ($P > 0.05$) percentage of Top Choice and Low Choice samples at each quality level. Moreover, Prime had a greater percentage ($P < 0.05$) of samples perceived as Premium Quality than Select. For WBSF, there were no differences ($P > 0.05$) among treatments. Prime steaks had a similar ($P > 0.05$) moisture percentage as all other treatments, with Select having the greatest ($P < 0.05$) percentage of moisture compared to Top Choice and Low Choice. Furthermore, Top Choice and Low Choice had a similar ($P > 0.05$) percentage of fat, with Prime having the highest ($P < 0.05$) fat percentage and Select having the lowest (Prime > Top Choice = Low Choice > Select).

Conclusion

These results indicate that quality grade has minimal impact on the palatability of beef top sirloin cap steaks. Therefore, food service does not need to pay the extra premiums associated with a higher grading product, as consumers will experience the same eating experience as with lower quality grades.