



Investigation Of Beef Brisket Palatability from Three USDA Quality Grades

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Objectives

Barbecuing and smoked meat continues to grow in popularity for food service and consumers at home. However, little research has examined the eating quality differences of point (*pectoralis superficialis*) and flat (*pectoralis profundus*) muscles across USDA quality grade. The objective of this study was to investigate differences in smoked beef brisket palatability from three USDA quality grades.

Materials and Methods

Beef briskets from the USDA Prime, Average Choice, and Select quality grades ($n = 54$; 18 per treatment) were collected at a commercial abattoir in Omaha, NE. Briskets were trimmed to 6 mm of external fat, seasoned with a blend of 1:1 coarse kosher salt/coarse black pepper by hand (0.05% of the brisket raw weight), and were held at 2–4° for 12 h prior to cooking. Briskets were cooked in an electric pellet smoker utilizing Gold Blend Hardwood Pellets (red oak, hickory, and maple wood) for ~4 h to an internal temperature of 63°C; wrapped in aluminum foil, placed back in the smoker for ~4 h, and cooked to 93°C, then held in an insulated cooler until slicing. Approximately 90 min prior to serving, briskets were separated in point and flat portions, and then sliced (6 mm × 50 mm × cooked depth) perpendicular to the muscle fiber for consumer evaluation and held in warmers at (~50°C) until serving. Each consumer ($n = 360$) received six test samples representing all quality grade × muscle combinations to evaluate tenderness, juiciness, flavor liking, overall liking, as well as the acceptability of these traits. Additionally, willingness to pay (WTP) was collected on an individual sample basis.

Results

An interaction between quality grade and muscle was observed ($P \leq 0.03$) for all palatability traits, pro-

portion of acceptable samples, and WTP. Consumers could not distinguish between quality grades of the point portions for tenderness, juiciness, flavor and overall liking ($P > 0.05$). Point samples, regardless of quality grade were scored greater than Prime flat samples, which were intermediate ($P < 0.05$). Consumers similarly ($P > 0.05$) scored Choice and Select flat samples lower for all palatability traits compared to all other treatment combinations. In alignment with palatability traits, consumers were willing to pay the most for point portions, regardless of quality grade ($P < 0.05$). Consumers WTP of the Prime flat portion was intermediate, and consumers were willing to pay the least for Choice and Select flat portions ($P < 0.05$).

Consumer acceptability followed similar trends as palatability scores. However, a greater proportion of consumers classified Choice and Select point samples as acceptable than that of Prime point samples in all categories of acceptability ($P < 0.05$). Consumers struggled to distinguish differences in acceptability for Choice and Select flat portions ($P > 0.05$) in all factors except juiciness acceptability.

Conclusion

Quality grade had no effect on the eating quality of the point portions of smoked briskets, and point portions received superior palatability scores to flat portions. Briskets from the Prime flat portions had greater eating quality than Choice and Select briskets from the flat portion, and consumers were willing to pay more for what they perceived as superior eating quality. This data suggests that unless consumers prefer the flat portion of the brisket there is no benefit to paying the premium for a prime brisket from a palatability standpoint.