Steak thickness, cook surface temperature and Quality grade affected top loin steak consumer and descriptive sensory attributes

Rhonda K. Miller, Christopher R. Kerth, Michael C. Berto, Hannah L. Laird, and Jeffery W. Savell
Texas A&M University, Department of Animal Science, College Station, TX 77843, USA

Abstract
Beef flavor attributes of USDA Top Choice and Select beef top loin steaks were evaluated that differed in thickness (1.3 cm or 3.8 cm) and grill surface temperature (177°C or 232°C) when cooked on a commercial flat top grill. A trained descriptive attribute panel and consumer sensory panels were used to evaluate steak flavor and texture. As thickness and temperature increased, beef identity and brown/roasted flavor aromatics increased ($P < 0.05$). Steaks cooked at 232°C and cut 3.8 cm thick had the highest ($P < 0.05$) levels of burnt flavor and bitter basic tastes. Thicker steaks cooked at 177°C had more intense umami basic taste and beef identity ($P < 0.05$). Steaks cut 1.3 cm had lower levels of beef identity and brown/roasted flavor aromatics and the thin cut steaks cooked at 177°C had more sour basic taste ($P < 0.05$). Consumers rated 232°C, 3.8 cm steaks lowest ($P < 0.05$) for overall, beef flavor, overall flavor, and grilled flavor liking; whereas, the 177°C, 3.8 cm steaks were highest ($P < 0.05$) in beef flavor liking. Beef identity, brown/roasted, bloody/serumy, fat-like, umami, sweet, salty, overall sweet, overall tenderness and muscle fiber tenderness were positive attributes, and metallic, bitter, and burnt were negative attributes in predicting consumer overall liking. Thick steaks cooked at low temperatures or thin steaks cooked at high temperatures resulted in more positive sensory panel traits and consumer liking scores.


*This peer-reviewed journal article was based in part on the following checkoff-funded Project Summary: Consumer Attitudes of Predicted Flavor Aromas in Steaks Created with Different Steak Thicknesses, Quality Grades and Cooking Surface Temperature.

Internal links within this document are funded and maintained by the Beef Checkoff. All other outgoing links are to websites maintained by third parties.