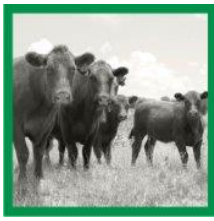

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Effects of USDA Quality Grade and Cooking on Water-Soluble Precursors of Beef Flavor

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Abstract

The objective of the current study was to determine the effects of three USDA quality grades and cooking on the water-soluble flavor precursors of beef *Longissimus* lumborum. Raw and cooked steaks from beef strip loins of USDA Prime (PR; *n* = 8), Low-Choice (LC; n = 8), and Standard (ST; n = 8) were analyzed for extractable free amino acids, reducing sugars, and other nitrogenous organic compounds (NOCs). Overall, two-way quality grade × cooking interactions were found for the contents of most water-soluble precursors ($P_{\text{quality grade} \times \text{cooking}} < 0.05$), which were greater in raw LC and ST and were changed more in ST and LC steaks by cooking. The magnitude of those changes suggested that cystine, a dimer of cysteine, glucose, and glucose 6-phosphate might play more important roles in beef flavor development than previously thought.

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