

41 Sensory, shear, and color evaluation of enhanced and non-enhanced beef strip loin steaks packaged in different environments and cooked to different degrees of doneness. J. D. Kellermeier*, J. C. Brooks, and M. F. Miller, *Texas Tech Univeristy, Lubbock.*

The objective of this study was to evaluate the effect of carbon monoxide modified atmosphere packaging (MAP), high oxygen MAP, and over-wrapped packaged beef strip loin steaks on cooked endpoint color for enhanced and non-enhanced steaks cooked to different degrees of doneness. Two experiments (Exp.) were conducted for this study. In Exp. 1, matched pairs of USDA Low Select strip loins (n = 7) were individually divided into two portions and randomly assigned to one of four packaging treatments. Treatments included enhanced high oxygen MAP, enhanced carbon monoxide (CO) MAP, non-enhanced CO MAP, and non-enhanced over-wrap (EHiOx, ECO, NECO, and NEOW, respectively). In Exp. 2 beef strip loins (n = 16) were divided into 1/3 portions and randomly assigned to one of three treatments; enhanced CO MAP, non-enhanced CO MAP, and non-enhanced over-wrap (ECO, NECO, and NEOW, respectively). Results of Exp. 1 showed no significant differences between ECO, NECO, and NEOW for Minolta colorimeter readings for each internal cooked temperature. Enhanced high oxygen MAP steaks had lower ($P < 0.05$) L*, a*, and b* values for all final endpoint temperatures compared to other treatments. These results indicate EHiOx steaks took on a brown color more rapidly at lower temperatures compared to steaks packaged in CO MAP and over-wrap. Therefore, the cooked meat pigments oxidized and denatured at lower temperatures in EHiOx steaks. Results of Exp. 2 indicated Warner-Bratzler shear force of ECO steaks were lower ($P < 0.05$) compared to NECO and NEOW steaks. Sensory panelists rated ECO steaks significantly more tender, higher in flavor intensity, more characteristic in beef flavor, and higher for beef-like mouthfeel than non-enhanced steaks packaged in either CO MAP or conventional over-wrap. Trained sensory panelists detected an off flavor for ECO steaks compared to NECO and NEOW ($P < 0.05$). Enhanced CO packaged steaks cooked to one degree of doneness more than conventional, non-enhanced over-wrapped steaks were not significantly different for tenderness or juiciness. Therefore, possible consumer cooking compensation for a more pink color in CO MAP steaks would not result in a decrease in palatability satisfaction.