24 Postmortem aging and enhancement increases tenderness of longissimus steaks from fed cull cows. S. Hutchison*, J. A. Unruh, M. J. Daniel, M. C. Hunt, T. T. Marston, and J. J. Higgins, *Kansas State University*, *Manhattan*.

The meat industry, especially those involved with food service, commonly use several postmortem tenderization methods because they are efficient and economical. These include aging, blade tenderization and injection enhancement. However, while aging effectively improves tenderness of many muscles, it requires increased cooler space and delays return on investments. We speculate that aging may not be necessary when other postmortem tenderization methods are used. Therefore, the objective of this study was to determine the combined effects of postmortem aging and enhancement on tenderness of *longissimus lumborum* steaks from fed cull cows. Strip loins from both carcass sides were assigned randomly for aging periods of 7 or 28 d. After aging, strip loins were then divided in half and frozen. A half strip loin from each side (aging period) was assigned randomly to an enhancement treatment. Strip loins selected for enhancement were thawed for 36 h, blade tenderized, injection enhanced (0.5% NaCl, 0.35% phosphate, and 0.023% Bromelin) at a target of 10% of their weight, and frozen. Two 2.54-cm steaks were cut from near the center strip loin region for Warner-Bratzler shear force (WBSF) analysis and sensory panel evaluation. Sensory panelists found ($P < 0.05$) steaks aged for 7 d were juicier and firmer, but had more detectable connective tissue than steaks aged for 28 d. Panelists found ($P < 0.05$) enhanced steaks had less beef flavor, less detectable connective tissue, more off-flavors, and were less firm than non-enhanced steaks. Steaks aged for 28 d had ($P < 0.05$) lower WBSF (more tender) than those aged for 7 d. In addition, enhanced steaks had ($P < 0.05$) lower WBSF (more tender) than non-enhanced steaks. Aging × enhancement interactions for sensory panel myofibrillar tenderness, overall tenderness and off-flavor were observed ($P < 0.05$). Steaks aged for 7 d had ($P < 0.05$) more cooking loss than enhanced steaks aged for 7 or 28 d and steaks aged for 28 d. Enhanced steaks aged for 28 d had ($P < 0.05$) the highest myofibrillar tenderness scores and non-enhanced steaks aged for 7 d had the lowest ($P < 0.05$) tenderness scores. In addition, enhanced steaks aged 7 d had ($P < 0.05$) higher myofibrillar tenderness scores than non-enhanced steaks aged 28 d. Enhanced steaks aged for either 7 or 28 d were ($P < 0.05$) more tender overall than non-enhanced steaks aged for 7 or 28 d. Furthermore, the non-enhanced steaks aged for 28 d were ($P < 0.05$) more tender overall than non-enhanced steaks aged for 7 d. Even though, WBSF values were lower for steaks aged 28 d, all enhanced steaks were found to be very tender for both aging periods by sensory panelists and WBSF analysis. Therefore, when blade tenderization and the enhancement solution are used, aging for 28 d may not be necessary to improve tenderness. If processors use the present postmortem tenderization methodology, aging for 7 d is sufficient for production of a tender product.