Influence of carcass chilling system on chuck, loin, and round temperature decline, carcass characteristics, and tenderness

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Objective
Determine the effect of chilling systems on beef carcass temperature decline, carcass characteristics, and tenderness.

Study Description
Ten beef animals were slaughtered. Hot weight of each side was recorded prior to chilling. The left side of each carcass was chilled by air movement only and the right side was chilled by spray chilling. The air treatment had an ambient temperature of 38°F and air movement of 37,674 ft²/min. The spray treatment was chilled similarly to the air treatment with the addition of a timed spray of chilled water. Temperature loggers were placed in the round, loin, and chuck of each side at 60 minutes postmortem, prior to chilling, and recorded temperature every 30 minutes. Following chilling, a 1-inch steak was removed from the longissimus dorsi and divided to be utilized for analyzing changes in tenderness over time. Samples were vacuum packaged and aged for 1-, 3-, 5-, 7-, 14-, or 21-days postmortem at 39.2°F then frozen at -4°F.

Take Home Points
Spray chilling systems utilized on beef carcasses have the capabilities to decrease temperature and improve yields during chilling. Comparing the use of spray and air chilling on beef sides can help predict the impact on beef quality and carcass chilling rates.

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