



## Tenderness and Juiciness of Beef Steaks from Varying Hot Carcass Weights

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### Objectives

Our objectives were to determine how hot carcass weights affected temperature decline and pH decline of carcasses, and subsequently shear force, juiciness and color of steaks.

### Materials and Methods

Carcasses ( $n = 59$ ) were selected at a commercial abattoir over five collection days at approximately 45 min after exsanguination and sorted by hot carcass weight. Carcasses were separated into light ( $< 363$  kg), medium (363 to 408 kg), or heavy ( $> 408$  kg) weight groups. Temperature decline was monitored with a data logger for 24 h with one probe inserted into the longissimus muscle at approximately the sixth rib and one probe inserted directly into the center of the semimembranosus muscle. Muscle pH was measured in the longissimus and semimembranosus muscle at 0, 4, and 24 h after carcasses were moved into chill coolers. After approximately 24 h of chilling, ribeye area, 12th rib fat, KPH, and USDA Quality and Yield Grades were collected. Ribeye rolls (IMPS 112A) and inside rounds (IMPS 160A) were transported to the North Dakota State University Meat Laboratory and aged in vacuum packaging for 14 d. Ribeye and rounds steaks were fabricated for Warner-Bratzler shear force and color analysis. Color analysis was determined on each steak

using a Minolta colorimeter after a 30-min bloom time. A 50-g sample was collected for drip loss analysis. Data were analyzed using the mixed procedure of SAS.

### Results

*Longissimus* muscle temperature at 4 h was less ( $P = 0.02$ ) in light carcasses compared with heavy weight carcasses and semimembranosus muscle temperature was less ( $P < 0.0001$ ) in light and medium weight carcasses compared with heavy weight carcasses. There were no differences in pH decline ( $P \geq 0.16$ ) among hot carcass weight groups. There were no differences in fat thickness, KPH or marbling score ( $P \geq 0.12$ ) among hot carcass weight groups. *Longissimus* area ( $P = 0.0002$ ) was larger and USDA final yield grade was greater ( $P = 0.04$ ) among hot carcass weight groups. There were no differences in drip loss, cook loss or WBSF in either longissimus or semimembranosus muscles ( $P \geq 0.10$ ) among carcass groups. Color data indicated that ribeye and round steaks from heavy weight carcasses were redder than steaks from light weight carcasses ( $P \leq 0.02$ ).

### Conclusion

Hot carcass weight did not have an influence on objective measures of meat palatability traits; however, carcass weight did have an effect on color.