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Quality Standards for the Links of the Pork Chain

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Introduction. As the economic importance of pork quality, i.e., color, water holding capacity (WHC) and tenderness, becomes more evident to the various links of the pork chain, the establishment of objective standards is inevitable. Since post mortem storage time is believed to have an impact on the quality traits, the pork chain must comprehend the differences that exist in objective measurements taken by different links. Therefore, the objective of this study was to evaluate the loin quality traits of color, WHC and tenderness at the packer, domestic retail and international retail links of the pork chain.

Experimental Procedure. Thirty pork loins were used to provide boneless loin sections for meat quality evaluations at Day 2, Day 13 and Day 41 PM to represent evaluations that would be performed at the packer, domestic retail and international retail links of the pork chain, respectively. On Day 2, subjective color, firmness and marbling scores were recorded, as well as objective measurements of pH and color (CIELAB L*, a*, b*). Statistical blocking techniques were used to minimize variation in the quality differences due to loin section location. Purge loss was determined following vacuum packaged storage on Day 13 and Day 41. Retail color changes and drip loss were measured from Day 13 to 14 and Day 41 to 42. Cooking loss and Warner-Bratzler Shear values were measured on Day 14 and Day 42. Statistical analyses of the meat quality traits of color, WHC and tenderness on the different evaluation days were performed.

Results. The average weight, pH and intramuscular fat content of the 30 loins used in this trial were 18.0 lb, 5.67 and 1.36%, respectively. Purge loss increased ($P<.05$) from 2.85% to 4.96% as storage time increased. However, drip loss was not different between the domestic and international retail display times. Cooking loss decreased ($P<.05$) from 30.64% to 28.15% for domestic compared to international evaluations. Warner-Bratzler shear values were not different ($P>.05$) for the two evaluations conducted. Objective color measurements for the different times PM are presented in Table 1.

Summary. This trial indicates standard meat quality measurements of color, WHC and tenderness must be established for each link of the pork chain due to changes which occur during PM storage.

Table 1. CIELAB L* a* b* Values[a]

Storage Time					Display Time			
Pork Chain Link	Day PM	L*	a*	b*	Day PM	L*	a*	b*
Packer/processor	2	50.0^{k}	5.1^{j}	8.0^{k}				
Domestic Consumer	13	45.8^{j}	10.7^{l}	10.7^{l}	14	48.0^{x}	15.3^{x}	9.4
International Consumer	41	57.8^{l}	7.4^{k}	5.6^{j}	42	58.6	11.7^{x}	-1.4^{x}

[a] HunterLab MiniScan XE (D65, 10° observer, 25 mm aperture).
[jkl] Means differ within a column ($P<.01$).
[x] Means differ after display time for the same trait ($P<.01$).