

IMPACT OF PRODUCTION CLAIMS AND COLOR SCORING UNDER CONTROLLED LIGHTING ON PORK QUALITY TRAITS

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I. OBJECTIVES

The two objectives of this study were to (1) investigate whether center loin chops marketed with a production claim impacted retail pork quality and to (2) categorize chops by National Pork Board color scores under controlled lighting to determine impact on weight loss and slice shear force.

II. MATERIALS AND METHODS

A total of 1,289 center loin chops from 746 retail packages were purchased from 85 retail and wholesale/club stores in 15 cities, representing 7 different regions. Auditors purchased up to 10 retail packages of center loin pork chops per retail brand, per retailer. A mobile quality laboratory was set up in each city. All chops were weighed individually to calculate retail purge as compared with retail sale weight. Chops were individually evaluated for National Pork Board (NPB) color and marbling scores under controlled lighting prior to being vacuum sealed and frozen and shipped to University of Florida. Chops were weighed frozen, thawed at 4°C, then weighed prior to and after cooking on grills to an internal temperature of 65°C; they were then evaluated for tenderness using slice shear force protocol and recorded as KG of force. Total weight loss was calculated by summing retail, thaw, and cooking loss.

Impact of grouping pork loin chops by the presence of a production claim or by subjective NPB colors scores evaluated under controlled lighting on objective water-holding and slice shear force values

	With claim (n = 385)	Without claim (n = 904)	<i>P</i> value	Light (n = 850)	Dark (n = 435)	<i>P</i> value
Retail Purge, %	4.2 ± 0.3	5.1 ± 0.2	0.003	5.1 ± 0.2	4.5 ± 0.3	0.04
Thaw Loss, %	3.2 ± 0.2	2.6 ± 0.1	< 0.001	2.8 ± 0.1	2.7 ± 0.1	0.48
Cook Loss, %	18.0 ± 0.6	18.2 ± 0.4	0.73	18.5 ± 0.4	17.4 ± 0.5	0.02
Total Weight Loss, %	26.1 ± 0.9	26.8 ± 0.5	0.44	27.3 ± 0.5	24.8 ± 0.7	<0.001
Slice Shear Force, Kg	15.8 ± 0.4	16.1 ± 0.3	0.52	16.3 ± 0.3	15.6 ± 0.4	0.07

III. RESULTS

Seventy percent of purchased chops ($n=904$) contained no production claim on the label, which represented 427 different retail packages. The top 3 label claims were hormone or steroid free, antibiotic free, and vegetarian fed. The presence of a production claim did not affect ($P \geq 0.18$) NPB color or marbling score under controlled lighting (data not shown in table). Center loin chops with production claims had less retail purge ($P=0.003$) than chops without production claims. The opposite was found with thaw loss, where chops with production claims had a greater percentage ($P<0.001$) than chops without production claims. Production claim did not affect cooking loss, total weight loss, or slice shear force ($P \geq 0.44$). Chops determined to be light (NPB color score 1 or 2; $n=145$ and 705, respectively) under controlled lighting had more retail purge, cooking loss, and total weight loss ($P \leq 0.04$) than chops determined to be dark (NPB color score 3 or 4; $n=408$ and 27, respectively). Additionally, dark colored chops tended ($P=0.07$) to have lower slice shear force values than light colored chops.

IV. CONCLUSION

Grouping pork loins by the presence of a production claim had less influence over total post-packaging weight loss and slice shear force than evaluating subjective NPB color scores under controlled lighting. Subjective evaluation of color under controlled lighting can distinguish differences in weight loss and potentially objective tenderness, when chops are purchased from multiple retailers.

Keywords: color scoring, pork quality, production claim, retail benchmarking