

PORK SAFETY

Title: Improvement of Retail Case Life of Pork – **NPB# 98-105**

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Abstract

A 3 temperature (30, 34, 38°F or -1.1, 1.1, and 3.3°C) x 2 case type (single-level, multi-level) x 2 defrost cycle (2 cycles/24 h, or 4 cycles/24h) factorial arrangement of treatments was used to assess the quality of retail pork. Baseline information was conducted for 2-wk prior to data collection. Cases functioned for 2-wk at the treatment combination. Upon treatment changes, a 1-wk “warm-up” period was allowed before the next 2-wk treatment period began. Product temperature (using and infrared thermometer), L* a* b* values (Minolta 2002), and visual color was recorded for center loin chops in the case. Pork products pulled from the case the morning of data collection were also evaluated for the same information. Data collection began 1-h before defrost and lasted through 1-h after defrost, with readings taken every 15 min. The temperature treatment of 38°F was discontinued 3 d into the treatment period by the retailer because it resulted in an unacceptably high number of pork products being pulled from the case for poor color development. Therefore, no retail case should be set so that the airflow temperature surrounding pork packages is at 38°F. A single-level case at 30°F allowed for less product temperature gain, than did setting at 34°F, but in the multi-level case, the opposite was true. Because pork products were removed from the retail case for poor color reasons (turning gray or green), a setting which decreased the L* value would be desired such as a single-level at 30°F and 2 defrost cycles or a multi-level at 30°F and 2 defrost cycles. A single-level, 2 cycle setting caused no significant change in a* value, but the 4 cycle and the multi-level at either cycle increased the a* value. A 2-cycle defrost case set at 30°F caused little change in the b* readings of the products, however, the 2-cycle at 34°F, 4-cycle at 30° and 34°F all increased the b* value (P < .05), but were not different from each other. For the single-level cases with 2 defrost cycles, set at 30°F or 34°F, and for 4 defrost cycles set at 30°F, no products were pulled from the retail case for rework or disposal. For cases set at 4 defrost cycles and at 34°F, one case samples had no pulls, while the other had 2 packages removed because of poor color. For multi-level cases with 2 defrost cycles set at 30°F, no products were pulled. For cases with 2 defrost cycles set at 34°F, one case had no pulls, while the other had 2 packages removed because of poor color. As for cases set at 4 defrost cycles, both the 30°F case had 3 products removed, and the 34°F cases had 3 products and 6 products removed for poor color reasons. A single-level case averages 385 BTU/ft³. A multi-level averages of 177 BTU/ft³. The cost/benefit would need to be assessed by each retail store, as energy costs and incoming product costs differ across the country.

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