Title: Use of Carbon Monoxide Packaging for Improving the Shelf-Life of Pork
NPB # 00-153

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Date Received: 1/2/2002

Abstract:
Injected and uninjected pork chops were packaged with either aerobic overwrap, vacuum barrier bags, modified atmosphere (MAP) with 20% carbon dioxide/80% nitrogen or MAP with 0.5% carbon monoxide 70% carbon dioxide 29.5% nitrogen. Color, purge, rancidity, and microbial counts were monitored during refrigerated storage.

Redness of pork chops was dramatically increased by the carbon monoxide treatment over the other packaging systems. The redness by carbon monoxide was retained over the full 36 days of refrigerated storage, well after color decline in the other package environments. Rancidity development was also suppressed by the MAP system with carbon monoxide. Visual acceptability was similar for the MAP with carbon monoxide and the overwrapped (aerobic) chops prior to color losses in the aerobic packages. Both the MAP/carbon monoxide and aerobic packages were superior to vacuum or MAP with carbon dioxide for color and visual acceptability. Microbial counts suggested shelf life of 7 days for overwrapped chops, 23-24 days for vacuum, 28 days for MAP/carbon dioxide and 36+ days for MAP/carbon monoxide. Purge, however, was increased significantly in uninjected chops by the MAP/carbon monoxide treatment. Injected chops did not show a significant increase in purge for the carbon monoxide treatment.

The results of this study show that carbon monoxide packaging has numerous potential shelf-life advantages (color, rancidity, microbial control) for fresh pork. The observations on purge, however, need to be studied in more detail to determine the differential effects on purge between uninjected and injected chops.