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Effects of dressing procedures upon yield and quality of the beef tenderloin (1981)

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Effects of Dressing Procedures Upon Yield and Quality of the Beef Tenderloin

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Summary

Removing kidney fat at slaughter did not affect (P>.05) the chilled or chilled-and-aged weights of the tenderloin. But small differences in tenderness and color at the beginning of the display period favored the conventional dressing procedure.

Introduction

For beef to remain competitive, efficiency must be maximized at every level. Removing kidney, pelvic, heart, and cod or udder fat before chilling would reduce refrigeration and transportation costs, and removing the fat might improve the objectivity and accuracy of yield grading. Fat is most easily removed while hot and it is easily rendered into edible tallow before chilling.

Our experiment was designed to determine if fast chilling after the kidney fat was removed affected the yield and quality of the unprotected tenderloin.

Experimental Procedure

Sixteen beef carcass sides were subjected to one of the following treatments:

1. Conventional dressing (C). Kidney, pelvic, and cod fat left intact on the carcass.

2. Experimental dressing procedure (UP). Kidney fat removed on the slaughter floor, so tenderloin was chilled unprotected.

After 3 days in the cooler at 32 to 40 F, tenderloins were removed, trimmed of external fat, vacuum packaged, and aged for 3 days at 32 to 36 F. Fresh and aged weights of the major tenderloin muscle were recorded. Steaks were tested for color changes during display, for thaw plus cooking losses, and for tenderness. Temperature declines in the tenderloins were also recorded.

Results and Discussion

Temperature decline: The chilling rates soon after dressing (1 through 6 hours after slaughter) and during the subsequent period differed widely between the two treatments. By six hours after slaughter the tenderloin temperature in C carcasses was 88 F compared with 70 F in the UP tenderloins. And the difference tended to increase to 11 hours postmortem.

Tenderloin yields: As tenderloins from the two treatments weighed almost the same before and after aging, removing kidney fat did not increase shrinkage. The differences of 50 and 40 g, respectively, between C and UP treatment means were not significant ($P>.05$).

Color scores: Meat color upon display was slightly lighter (more acceptable) in the C than in the UP tenderloins at the beginning of the display period (days 0 and 1 of display). Then colors equalized through day 4. During display, color changed less in UP than in C tenderloins. A combination of high temperature and low pH during early stages of chilling may have caused the lighter appearance and lower color stability of the C tenderloins.

Tenderness: C tenderloins were slightly tenderer (lower Warner-Bratzler shear value) than UP tenderloins, with respective shear values of 2.26 and 2.49 kg. Since tenderloins had remained at a high temperature longer, they may have been more fully aged than UP counterparts. The Warner-Bratzler shear only indicates tenderness, so the small differences, although consistent, probably would not affect palatability.

Conclusions

Removing kidney fat on the slaughter floor will reduce refrigeration and transportation costs, and it may be desirable to remove pelvic and inguinal fat. Because the removal lowers both carcass dressing percentage and wholesale loin yields, a price adjustment would be necessary.

This report suggests that changes in cooling rate caused by removing fat do not greatly increase shrinkage or decrease the tenderloin's quality.

A Steer's Not All Steaks

A 1,000 lb. live animal yields a carcass of about 612 lbs. Of that 612 lbs., only about 402 lbs. is "edible product". There are about 73 lbs. of bone and about 137 lbs. of fat, which includes fat trim, kidney and pelvic fat, and cod fat. The more of these low-value byproducts we can process at central slaughter plants, the less product we must refrigerate and ship.