A SURVEY ON THE USE OF BLADE TENDERIZERS BY BEEF FABRICATION PLANTS

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Summary

A questionnaire to determine the use of blade tenderizers in beef fabrication facilities was sent to 241 members of the North American Meat Processors Association (NAMP). Eighty-four percent of the 90 respondents used blade tenderizers. These subprimals were at least sometimes tenderized by the following percentages of respondents: tenderloins, 7.9; chuck cuts, 18; round cuts, 36; ribeyes, 38; strip loins, 56; and top sirloin butts, 62. If a processor blade-tenderized a particular cut, they tenderized a majority of their production for that cut, generally with multiple passes through the tenderizer. For example, the 62% of respondents who tenderized top sirloin butts tenderized 87% of their production of that cut with an average of 1.6 passes. Cuts were aged by 70.7% of respondents that used blade tenderizers. The average aging period was 20 days, and the range was 7 to 60 days. Our respondents fabricated 75.1% of their beef products for the hotel/restaurant industry, 13.3% for retail, and 6.0% for other markets such as export or warehouse distributors. Blade tenderization is used widely by NAMP members, most often on ribeyes, strip loins, and top sirloin butts, and often combined with aging.

(Key Words: Beef, Blade Tenderization.)

Introduction

Blade tenderizers, often used by meat purveyors to improve tenderness, pass small, thin blades vertically through subprimal cuts to sever connective tissue and muscle fibers. The extent of blade tenderization use in the industry has not been surveyed since 1975. The purpose of our survey was to determine the current use of blade tenderizers for beef by meat purveyors, which beef cuts are tenderized, and the extent of aging prior to tenderization.

Experimental Procedures

With cooperation of the North American Meat Processors Association (NAMP), a questionnaire was sent to their 241 members listed in the 1998 NAMP membership directory, along with a cover letter describing the purpose of the survey. Care was taken to ensure confidentiality among respondents. A pre-addressed, stamped envelope was provided to encourage response. The questionnaire consisted of the following five questions.

1. Which of the following does your company use to tenderize beef products? (Blade Tenderizer, Cuber, Dicer, Other (please specify), Do not use)

2. On which cuts/muscle systems do you use a mechanical blade tenderizer, how many passes through the system occur for each cut/muscle system, and what percentage of each cut/muscle system is subjected to mechanical blade tenderization? (Chuck muscles, Ribeye, Tenderloin, Strip Loin, Top Sirloin Butt, Round muscles, Do not use)

3. Is product aged prior to blade tenderization?

4. Which USDA quality grades do you blade tenderize? (Prime, Premium Choice, Lower Choice, Select, Standard, Other)

5. What percentage of your customer base is Hotel/Restaurant/Institution, Retail, Other?

Results and Discussion

Out of 241 questionnaires sent, 90 were returned for a 37.3% return rate. Of the processors that responded, 84% used blade tenderization. In addition, 87% of the respondents used other forms of tenderization, including dicers (16%) and cubers (61%).

Eighteen percent of the respondents blade tenderized 79.6% of their chuck cuts with an average of 2.1 passes (range, 1 to 5 passes) through the blade tenderizer (Table 1). Thirty eight percent blade tenderized 80.8% of their rib cuts with an average of 1.4 passes (range, 1 to 3 passes); 7.9% blade tenderized 80% of their tenderloins an average of 1.6 passes (range, 1 to 3 passes); and 56.2% blade tenderized 85.1% of their strip loins with an average of 1.3 passes (range, 1 to 3 passes). However, the majority blade tenderized strip loins with only 1 pass. Sixty two percent blade tenderized 86.9% of their top sirloin butts with an average of 1.6 passes (range, 1 to 3 passes); and 36% blade tenderized 69.6% of their round product with an average 1.9 passes (range, 1 to 8 passes).

Of respondents that blade tenderized beef, 71% aged product before it was tenderized for an average of 20 days (SD=5.8), (range, 7 to 60 days). Grade and percent blade tenderized were: Prime, 35; Upper Choice, 73.8; Lower 1/3 of Choice, 88.5; Select, 86.8; and Standard, 86.8. These responses often reflected the quality grades sold by a particular purveyor, but a higher percentage of their Select and Choice products was blade tenderized. For respondents, 75.1% of their product was processed for the hotel/restaurant/institution industry, 13.3% for the retail industry, and about 6.0% was directed toward other markets such as export or wholesale warehouses.

Blade tenderization and aging often are used to improve beef tenderness and consistency. Top sirloin butts and strip loins were the cuts most often blade tenderized because of customer expectation of tenderness. Because top sirloin butt steaks are common menu items in restaurants and are inherently less tender than steaks from the rib, loin, and tenderloin, blade tenderization logically was used more often for this subprimal. The number of blade tenderization passes used for different cuts varied greatly among plants. Research should establish the number of blade tenderization passes and aging periods needed to produce tender, uniform products from different subprimals and quality grades.

Table 1. Results of Blade Tenderization Survey[a]

	Cut/Muscle System											
	Chuck		Rib		Tender-loin		Strip Loin		Top Sirloin Butt		Round	
Item	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Respondents who use blade tenderization, %	17.9	-	38.2	-	7.9	-	56.2	-	61.8	-	36.0	-
Product processed, %[b]	79.6	31.0	80.8	29.7	80.0	31.0	85.1	27.3	86.9	25.1	69.6	37.3
Number of passes[b]	2.1	1.1	1.4	.6	1.6	.79	1.3	.5	1.6	.6	1.9	1.4
Maximum number of passes	5	-	3	-	3	-	3	-	3	-	8	-

[a]Responses from 90 returned questionnaires.

[b]Averages derived from respondents who blade tenderized this subprimal.