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Consumer valuation of steaks with different quality attributes

Abstract

Determining needs and wants of consumers is important for the beef industry to reverse the downward trend in beef demand during the last two decades. This study used experimental auctions in conjunction with a survey to determine consumer preferences for beef steaks. Four experimental auctions were used to elicit consumers' maximum willingness to pay for five steak types: generic, guaranteed tender, "natural"?, USDA Choice, and Certified Angus Beef (CAB). Consumers indicated flavor and tenderness were the most important factors when eating steaks, but they believed there was only about a 50% chance a generic steak would adequately meet these criteria. Though some concern was shown for the safety of meat produced with growth hormones and oral antibiotics, less than half of the consumers in this study were willing to pay more for a "natural" steak than a generic steak. Participants were willing to pay substantially more for guaranteed tender, USDA Choice, and CAB steaks.

Keywords

Cattlemen's Day, 2003; Kansas Agricultural Experiment Station contribution; no. 03-272-S; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 908; Beef; CAB steaks; USDA choice; Quality

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CONSUMER VALUATION OF STEAKS WITH DIFFERENT QUALITY ATTRIBUTES

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Summary

Determining needs and wants of consumers is important for the beef industry to reverse the downward trend in beef demand during the last two decades. This study used experimental auctions in conjunction with a survey to determine consumer preferences for beef steaks. Four experimental auctions were used to elicit consumers' maximum willingness to pay for five steak types: generic, guaranteed tender, "natural", USDA Choice, and Certified Angus Beef (CAB). Consumers indicated flavor and tenderness were the most important factors when eating steaks, but they believed there was only about a 50% chance a generic steak would adequately meet these criteria. Though some concern was shown for the safety of meat produced with growth hormones and oral antibiotics, less than half of the consumers in this study were willing to pay more for a "natural" steak than a generic steak. Participants were willing to pay substantially more for guaranteed tender, USDA Choice, and CAB steaks.

Introduction

Demand for beef declined precipitously from 1980 through 1998, with only recent modest increases. To reverse this trend, beef industry participants must offer consumers beef products that are appealing. Indeed, determining wants and needs of consumers is the

first and most critical step towards revamping beef demand. Subsequent measures can then be taken to produce products that fulfill these desires.

Determining the needs and wants of consumers can be as simple as conducting a survey. However, past research has shown that surveys alone do not provide sufficient incentives to elicit responses consistent with actual behavior. Experimental auctions force consumers to "put their money where their mouth is," demanding real money from winners in exchange for auctioned goods. Because the research method uses real money, experiment participants tend to reveal their preferences more truthfully.

This study provides the beef industry with enhanced knowledge of consumers' needs and wants when consuming steaks. This knowledge will help in deciding appropriate strategies for producing and marketing beef to consumers.

Experimental Procedures

A series of steak auction experiments were conducted in the spring of 2002 in the meat lab at Kansas State University. Four different auction mechanisms were used to determine how much consumers value various ribeye steak attributes. A total of 258 randomly recruited Riley County residents completed the

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experiment. Participants were evenly split by gender and approximately 40% of them were college students.

Five different steaks were sold to participants using an auction: generic, “guaranteed tender”, “natural”, USDA Choice, and Certified Angus Beef (CAB). All steaks were fresh three-quarter pound ribeyes. Each steak was wrapped in clear plastic, backed with a styrofoam tray, and affixed with a plain white label displaying only its respective steak type. Each steak also displayed the USDA Federal Inspection sticker. The generic steak did not have a label, and participants were informed it was an unbranded and ungraded steak. The “guaranteed tender” steak had been tested using a shear-force test and was deemed to be tender. The “natural” steak was produced by an animal that was not fed antibiotics or given growth hormones. The USDA Choice steak met the requirements for that particular grade. The CAB steak was described as meeting standards for that branded program and the CAB specifications were provided to participants.

All participants completed a survey prior to bidding on steaks. The survey collected data on consumers’ knowledge, perceptions, and preferences for beef. Steaks were sold in exchange for real money during the auctions and consumers were encouraged to examine the steaks beforehand, making the experience similar to everyday steak purchases in a grocery store.

Results and Discussion

Table 1 shows a summary of survey responses to particular buying, eating, and perception issues. Consumers indicated that they consider price, color, marbling, and external fat as important attributes when they buy beef steak. They indicated less concern with brands or labels. This stated preference is particularly interesting because when these

same consumers used actual money to purchase steaks, they bid more for steak with a brand they were familiar with relative to others. Consistent with a large body of research, consumers rated flavor and tenderness most highly in their beef eating preferences. Overall, consumers did not feel particularly knowledgeable about beef production or slaughter practices. When asked about their perceptions regarding generic and USDA Choice and Certified Angus Beef steaks, consumers placed more trust and have higher expectations regarding labeled beef products.

Consumers were generally not concerned about safety of meat produced with growth hormones and subtherapeutic antibiotics. On average, respondents believed there was a 17% chance that they would become ill at some point in the future from consuming meat produced in this manner. Less than half of the consumers in this study were willing to pay a premium for a “natural” steak produced without the use of hormones over a generic steak (Figure 1).

The Certified Angus Beef program contends that meat from Angus cattle is inherently more tender and flavorful than other steaks due to the breed’s high degree of marbling. Though consumers do not perceive a much greater chance the CAB steak would be tender compared to a USDA Choice steak, half of them were willing to pay a premium of \$0.73 per pound or more for a CAB steak relative to a Choice steak (Figure 2). This indicates the CAB program has developed brand recognition and is able to command a higher price for its product.

Consumer perceptions about generic beef steaks are not encouraging, as they believe there is only about a 50% chance generic steak will provide a pleasant eating experience. When more information about steak is available, consumer perceptions improve markedly. Consumers in this study were willing to

pay about \$1.60 per pound more for a USDA Choice steak than a generic steak. However, 55% of participants either did not know what grade of steak they buy or routinely purchased steak of less quality. Thus, a trusted brand will likely garner a consistent premium for its steak over generic steak if consumers are satisfied with its performance. Branding or la-

beling of beef products can improve consumer confidence and consumer demand, as evidenced by the Certified Angus Beef program. However, care should be taken to produce a consistent product that meets consumer requirements of adequate flavor, juiciness, and tenderness at a competitive price.

Table 1. Preferences, Perceptions, and Knowledge of Beef Consumers

Survey Topic	Average	Standard Deviation	Min	Max	Responses
Importance of Beef Buying Factors^a					
Color	5.62	1.33	1	7	258
Brand (label)	3.41	1.55	1	7	258
USDA quality grade	5.05	1.50	1	7	258
External fat	5.36	1.47	1	7	258
Internal Fat (marbling)	5.48	1.25	1	7	258
Price	5.74	1.37	2	7	258
Importance of Beef Eating Factors^a					
Safety	5.57	1.66	1	7	257
Juiciness	6.02	0.93	3	7	257
Flavor	6.44	0.79	3	7	257
Tenderness	6.37	0.82	2	7	257
Consistency	5.46	1.14	2	7	257
Doneness	5.52	1.34	1	7	257
Beef Production & Processing Knowledge^b					
Beef production practices	3.25	1.78	1	7	256
USDA beef quality grading system	3.08	1.74	1	7	256
Beef slaughter practices	3.01	1.80	1	7	256
Food safety	4.31	1.71	1	7	256
Quality Perceptions					
Chance generic would be tender	45%	20%	0%	100%	255
Chance generic would be tasty ^c	50%	21%	0%	100%	253
Chance generic would cause illness ^d	17%	23%	0%	90%	233
Chance USDA Choice would be tender	77%	15%	20%	100%	233
Chance CAB would be tender	80%	16%	15%	100%	233

^aScale: 1=not important to 7=very important.

^bScale: 1=no knowledge to 7=very knowledgeable.

^cOf adequate juiciness and flavor.

^dIllness sometime in the future possibly due to added hormones and antibiotics.

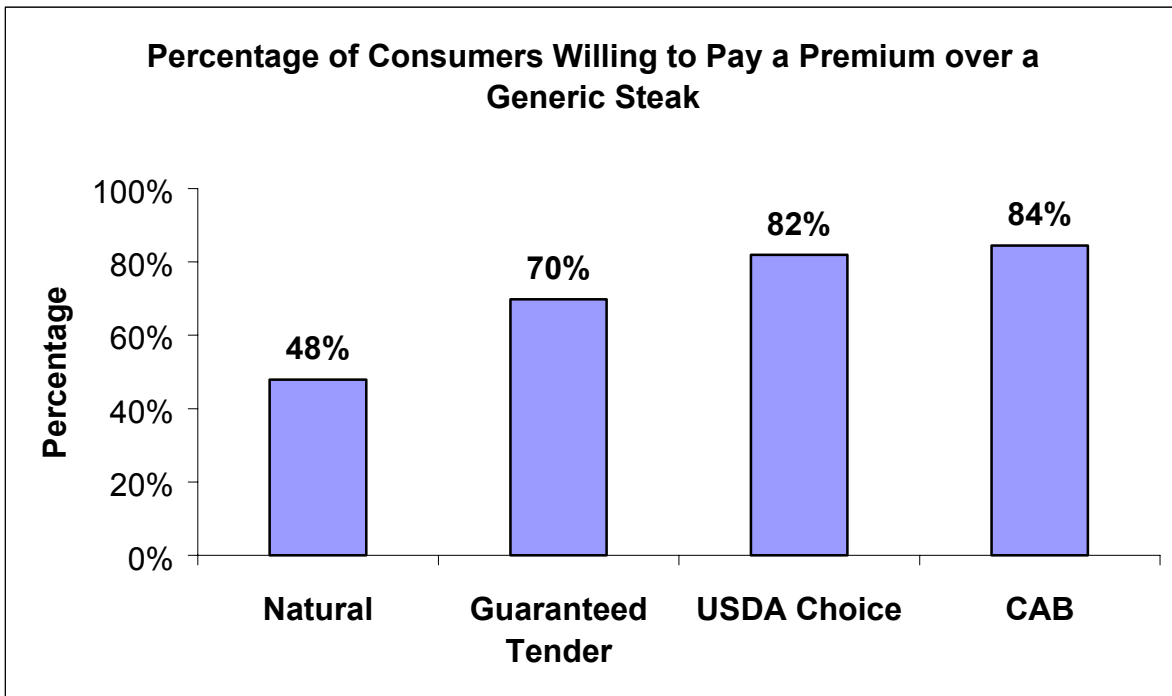


Figure 1. Steak Preference Rankings.

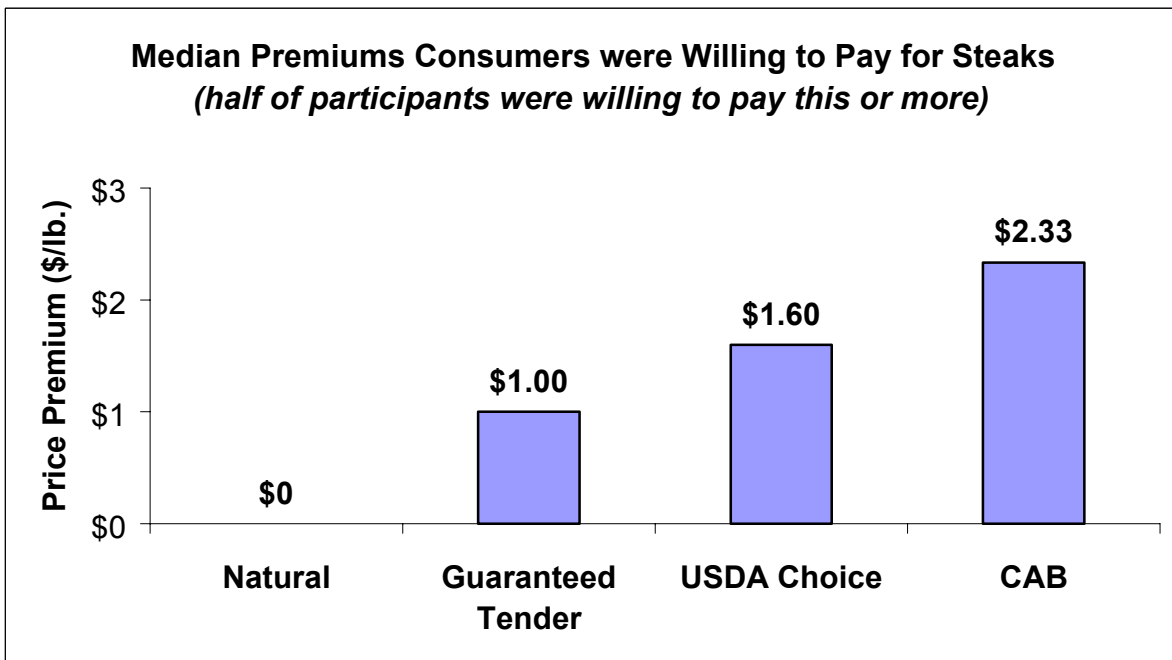


Figure 2. Median Steak Premium Estimates (Relative to the Generic Steak).