Understanding beef nutritional attributes contributes to consumers' willingness-to-pay for a healthier product

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Introduction

- Nutritional value impacts consumers' purchasing decisions of food products.
- Beef : nutrient rich foodstuff excelling in protein, vitamins, and minerals.
- There is growing controversy regarding fat content of beef and its healthfulness in the diet.
- Although much of the fatty acid (FA) content in beef is considered "healthy fats," many consumers are confused about the different classifications of fatty acids.

Objectives

The objective of this study is to determine:
- Consumers generally understanding about beef nutritional value
- How much consumers' knowledge of beef nutritional value improves as information is provided
- The importance of nutritional content of beef on consumers' purchasing decisions
- Consumers' willingness-to-pay for beef of improved nutritional value

Materials and Methods

- A national survey was administered online to over 1,000 respondents.
- Seven questions asking the respondent to choose between two strip steaks that varied by polyunsaturated and saturated fatty acid levels, iron content, and price (Figure 1).
- Respondents were asked to categorize "Trans Fat," "Saturated Fat," "Monounsaturated Fat," and "Polyunsaturated Fat," as either "Healthy Fats" or "Unhealthy Fats."
- After completing the initial set of questions, respondents were given information explaining the fatty acid classifications.
- Respondents were re-asked the seven steak choice questions and the fat-categorization question.
- Respondents were asked demographic questions along with questions regarding their normal fat consumption habits.

Figure 1: Example of a question included in the national survey designed to measure the willingness-to-pay for increased nutritional value of beef.

Shown below are two steaks. Imagine you were really shopping in the grocery store and had to pay the price associated with one of the steaks below. Which steak would you choose?

Polyunsaturated Fat: 50% more than a typical steak
Saturated Fat: 10% less than a typical steak
Iron: 70% more than a typical steak
Price: $13 per pound

Polyunsaturated Fat: 100% more than a typical steak
Saturated Fat: 20% less than a typical steak
Iron: 35% more than a typical steak
Price: $16 per pound

I would not choose either option

Table 1: The premiums/discounts in U.S. dollars respondents are willing-to-pay per pound of steak before and after the educational excerpt.

Nutritional Improvement	Premiums/discounts	
	Before information	After information
50% more favorable fat composition	-1.0	3.0
100% more favorable fat composition	-1.4	4.2
50% iron content increase	0.2	0.1
100% iron content increase	1.3	-0.5

References

[1]US Department of Agriculture, Agricultural Research Service, Nutrient Data Laboratory. USDA National Nutrient Database for Standard Reference, Release 28 (Slightly revised). Version Current: May 2016. Internet: http://www.ars.usda.gov/ba/bhnrc/ndl

Results

- Initially, only 66.40%, 69.05%, 79.14% and 79.24% of respondents correctly categorized the monounsaturated, polyunsaturated, saturated, and trans fat, respectively.
- However, a favorable shift occurred and more than 90% of respondents correctly categorized the various FA once provided the educational excerpt.
- Once respondents better understood the healthfulness of FA in beef, respondents were willing-to-pay a premium for a product of improved FA composition (Table 1).
- Prior to information regarding FA, respondents preferred more iron content, especially compared to better FA composition, but these preferences reversed after the informational excerpt was provided and respondents better understood that not all fat in beef is bad.

Conclusions

- The beef industry does an excellent job promoting the high protein content and essential nutrients within beef. There is a large effort to promote the recent years of findings regarding beneficial fats in beef.
- In the past, much controversy surrounding fat content of red meat and its role in the diet led to many health professionals recommending cutting such food from the diet.
- Recent research on different FA categories supports the idea that not all fat is bad. Our results indicate that relaying this information to consumers is extremely important to their purchasing decisions and willingness-to-pay for beef.
- About 50% of beef fat is monounsaturated FA[1] (healthy fats).
- UF research: there is variation among cattle for polyunsaturated and saturated fatty acids.
- This provides opportunity to identify cattle with a favorable FA composition and market such product to the increasing population of health-conscious consumers.

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Figure 2: Question in survey used to understand respondents' perceptions of fat classifications.

What fat types are healthy and which are unhealthy? Drag the types of fat below to the correct box.

Items
Monounsaturated Fat
Polyunsaturated Fat
Trans Fat
Saturated Fat

Healthy Fats

Unhealthy Fats

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Table 2: Percentage of respondents categorizing different classes of fatty acids correctly into healthy or unhealthy, before and after reading the educational excerpt.

Fatty acid class	Percentage of participants categorizing correctly	
	Before	After
Monounsaturated	66.40%	94.32%
Polyunsaturated	69.05%	93.54%
Saturated	79.14%	91.67%
Trans	79.24%	94.42%

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