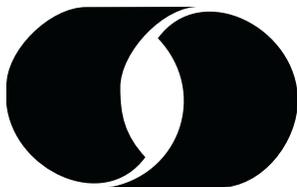


# Consumer Perceptions of Pasture-raised Beef and Dairy Products: An Internet Consumer Study



A report of market research conducted and prepared by  
the Leopold Center for Sustainable Agriculture and the  
Iowa State University Business Analysis Laboratory

LEOPOLD CENTER

209 Curtiss Hall  
Ames, Iowa 50011

515.294.1854  
rspirog@iastate.edu

February 2004

IOWA STATE UNIVERSITY





### **ISU Business Analysis Lab Team**

**Left to Right:** Ben Bergherr, Kristyn Arnold, Beth Hoewing, Lisa Helland, Andrea Rheinart, Kate Megraw, Rich Pirog (Leopold Center for Sustainable Agriculture), Cole Kopacek, Tom DeCarlo (faculty scholar)



Patricia Ann Jaranilla-Sanchez

Special thanks go to Patricia Ann Jaranilla-Sanchez, ISU graduate student in Ag and Biosystems Engineering, for the data analysis and preparation of charts.



---

# Acknowledgements

Author: Rich Pirog, Marketing and Food Systems Research Program  
Leader, Leopold Center

Technical Editor: Mary Adams, Leopold Center  
Assistants: Patricia Ann Jaranilla, Jesse Schradle, and Zach Paskiet  
Reviewer: Sue Futrell

**Special note:** The ISU Business Analysis students in this project were all undergraduates. The market research conducted in this project was not intended to meet the standards for graduate academic research.

## Contact

Rich Pirog  
Leopold Center  
Iowa State University  
rspirog@iastate.edu  
515.294.1854  
Fax: 515.294.9696



This publication was produced by *IDEA: Information Development ~ Expanding Awareness*. *IDEA* is a communication service for land-grant institutions and their partners. *IDEA* staff manages the development of written, visual and electronic information to describe impacts of educational or research programs. *IDEA* is affiliated with Iowa State University Extension under Continuing Education and Communication Services (CECS). [www.idea.iastate.edu](http://www.idea.iastate.edu), 515-294-8802

justice statement . . .

Iowa State University does not discriminate on the basis of race, color, age, religion, national origin, sexual orientation, sex, marital status, disability, or status as a U.S. Vietnam Era veteran. Any persons having inquiries concerning this may contact the Director of Affirmative Action, 1350 Beardshear Hall, (515) 294-7612.

Copyright 2004 Leopold Center for Sustainable Agriculture



---

# Table of Contents

Executive Summary	8
Introduction	11
Methodology	14
Beef and Dairy Survey Demographics	15
Shopping Behavior of Survey Participants	17
Survey Analysis	18
Pasture-raised Beef	18
Pasture-raised Dairy Products	22
Conclusions	31
Appendices	35
The Leopold Center for Sustainable Agriculture	
ISU Business Analysis Laboratory	
Beef and Dairy Survey Questions	

---

# Executive Summary

A number of small to midsize farmers in Iowa and across the United States have been raising beef and dairy cows on a pasture-based system. They supplement hay or grass silage on a seasonal basis so that the animals have a readily available source of feed in the winter months or under serious drought conditions. These animals are not fed grain or any animal by-products. According to recent media interviews with farmers raising livestock in pasture-based systems, a growing number of consumers are demanding pasture-raised beef and dairy products. The reasons cited for consumer interest in these products included perceived health benefits, a concern about where and how their beef and dairy products are being raised, an interest in supporting small and midsize family farms, and a belief that pasture-based farms that raise ruminant livestock will do a good job of protecting soil and water resources.

In fall 2003, the Leopold Center and the ISU Business Analysis Laboratory cooperated to design and conduct a small Internet-based study focusing on pasture-raised beef and dairy products. The objectives for this study were to:

- Study perceptions that Iowa consumers have regarding pasture-raised beef and dairy products,
- Gauge the level of awareness Iowa consumers have regarding a set of perceived benefits of pasture-raised beef and dairy products, and
- Determine the level of interest Iowa consumers have in receiving information about how and where their food products are raised.

The Leopold Center for Sustainable Agriculture formulated the study objectives and worked with the ISU Business Analysis Lab to design the survey questions. In addition to Iowa residents, Nebraska and Illinois residents in and around Omaha, Nebraska and the Quad Cities (Iowa/Illinois) also were included in the survey.

Ten to 11 percent of respondents purchased organic beef or dairy products raised without antibiotics or hormones, or milk and dairy products from cows not injected with growth hormones. A majority of those that did purchase these beef products and identified the term "natural" beef explained that this term meant beef raised without antibiotics or hormones. Only a few specifically indicated that they had purchased pasture-raised beef. Most of those respondents who said they had purchased milk and dairy products from cows raised without antibiotics or added hormones noted that they had purchased organic or "natural" milk.

A majority of respondents understood that pasture-raised beef and dairy products refer to cows that were raised and/or grazed in pastures. On a relative basis, respondents were more likely to have some understanding of the term pasture-raised beef than the term pasture-raised dairy. The overall acceptance and understanding of the term “pasture-raised,” as used in this study, supports a preference that was observed in consumer focus groups conducted in fall 2002 in Iowa, Minnesota, and Wisconsin. These groups preferred the term “pasture-raised” compared to other terms such as “grass-fed,” “meadow-raised,” or “free-range” to describe ruminant animals grazing in open pastures. Thus, it appears that Iowa farmers who are marketing beef and dairy products that were raised on pasture systems should have a good deal of confidence that the term “pasture-raised” will be an understandable term to most of their potential customers.

A majority of respondents (50 percent or greater) were aware or somewhat aware of a set of perceived benefits of pasture-raised beef and dairy products. Respondents were less aware of perceived water quality benefits or a reduced need to use antibiotics in beef or dairy production than they were about perceived consumer health benefits or more humane treatment of the cows. It is unclear whether their level of awareness would translate into increased motivation to purchase such products. Only 14 percent of respondents cited “how and where beef and dairy cows were raised” in the category of attributes they consider “very important” when they purchase beef or dairy products.

More than 42 percent of respondents were somewhat to very interested in local delivery of milk and dairy products to their door. Iowa and Nebraska residents were more interested in local delivery than the Illinois respondents. The highest potential for direct-delivery of locally-produced dairy products appears to be in small and midsize cities (between 5,000 to 50,000 people). Approximately 10 percent of respondents were willing to pay 30 percent or more for locally-produced natural milk from pasture-raised dairies. Using a \$2.00 wholesale price for a gallon of conventional 2 percent milk, an estimated consumption of 24 gallons per person in Iowa (the 2002 estimated national per capita average), and assuming that this data sample was indeed representative of the Iowa population, there would be a potential for niche dairy farmers to capture approximately \$5 million dollars in premiums above conventional milk by selling to this segment of Iowans through retail stores. This estimate is also based on the assumption the dairy farmers are doing their own processing.

The overall acceptance and understanding of the term “pasture-raised,” as used in this study, supports a preference that was observed in consumer focus groups conducted in fall 2002 in Iowa, Minnesota, and Wisconsin.



A majority of respondents (50 percent or greater) were aware or somewhat aware of a set of perceived benefits of pasture-raised beef and dairy products.



More than 42 percent of respondents were somewhat to very interested in local delivery of milk and dairy products to their door.



Approximately 10 percent of respondents were willing to pay 30 percent or more for locally-produced natural milk from pasture-raised dairies.

---

Consumer respondents placed considerable importance on selecting food products where the food safety record of the processor and the presence of additives in the food were clearly known. The respondents did not place as much importance – on a relative basis – on where and how the food was grown, how big the farm is where it was grown, how big the company is that produced the food product, and whether or not the product was organically grown. The majority of respondents, however, wanted better access to information that would tell them the complete “story” of their food product – only 20 percent of respondents were not interested in accessing such information. The majority desiring this information wanted to see it appear on labels and in grocery store signage, and to a lesser extent, on a web site or via mass media such as radio and television. Farmers and universities were the most trusted sources for information about the respondent’s food choices, followed by state and federal governments. Respondents did not place much confidence in food processors, food stores, or advocacy groups as reliable sources of information.

## **MARKETING PERCEPTIONS – BEEF AND DAIRY PRODUCTS**

In marketing terms, the freshness, taste, quality, appearance, and value of the food products are part of the core product to consumers interested in beef and dairy products, whether or not they are pasture-raised. The perceived health benefits appear to be more pronounced for beef than dairy products according to respondents (whether or not they are pasture-raised). Respondents secondarily looked at the health benefits of the product, environmental stewardship of the farm, appearance of the product, brand, and to some extent where and how the products are raised. Although many respondents may understand and value the health, safety, and environmental benefits that pasture-raised beef and dairy products may offer, these consumers are not likely to purchase these products regularly unless the taste, freshness, quality, and value of the products are consistently assured.

On December 23, 2003, the U. S. Department of Agriculture (USDA) confirmed the first case of a dairy cow raised in the United States with “mad cow” disease, also known as bovine spongiform encephalopathy (BSE). The public’s consciousness of BSE has been raised since the confirmation, with feature articles in all major news magazines as well as segments on the Cable News Network (CNN) and all other major networks. BSE is believed to be a threat to humans because some of those who have consumed meat from infected animals have contracted a human version of the BSE disease (Creutzfeldt-Jakob disease).

Since the BSE confirmation there have been a number of reports from livestock producers citing an increase in demand for pasture-raised beef products. This survey did not pose any questions regarding BSE. It is postulated that if the same survey questions had been asked following the BSE confirmation, the relative importance of the health-related and product safety attributes of pasture-raised beef and dairy products would increase. Follow-up research would be needed to confirm this hypothesis.

---

# Introduction

The Leopold Center for Sustainable Agriculture is a research and education center with statewide programs to develop sustainable agricultural practices that are both profitable and conserve natural resources. It was established under the Groundwater Protection Act of 1987 with a three-fold mission: (1) to conduct research into the negative impacts of agricultural practices; (2) to assist in developing alternative practices; and (3) to work with ISU Extension to inform the public of Leopold Center findings. The Center is administered through the Agriculture and Home Economics Experiment Station at Iowa State University. Additional information about the Leopold Center can be found in Appendix 1.

Within the Center's Marketing and Food Systems Initiative, a major focus is developing food and fiber value chains that support farmers and rural communities. A value chain is a network of collaborating players who work together to satisfy market demand for a specific product or set of services. There are simple value chains, such as a farmer selling produce to an urban consumer at a farmers market. There also are value chains where farmers do not market directly to consumers, but share in the risks and rewards with other value chain partners to produce a quality product for consumers. An example is an organic dairy farmer who belongs to a cooperative. His milk is picked up by a tanker, brought to a processing plant, pasteurized, homogenized, and bottled, and then sent to the warehouse of a large natural food grocery store for eventual distribution to a store in a major city 350 miles from the farm.

The ISU Business Analysis Laboratory provides a unique learning experience at Iowa State University. Graduate and undergraduate students from the Colleges of Business, Education, and Engineering work together in cross-functional teams to solve real business and manufacturing problems. The Laboratory is designed to provide a setting within which students may apply their education to real world business situations. It serves as the academic equivalent of a technology business incubator with students as tenants. Students work part-time in the Laboratory in multidisciplinary teams, progressing to leadership positions with superior performance over the course of a semester. Faculty members - one each from the Colleges of Business, Education (Industrial Technology), and Engineering - provide support to students during their work in the Laboratory. Additional information on the ISU Business Analysis Laboratory can be found in Appendix 2.

---

## What are pasture-raised beef and dairy products?

Ruminant animals such as cattle typically are raised on some form of grass or grass/legume pasture the first few months of their lives. After reaching a certain weight, many beef animals are transported to feedlots where they reach their market sale weight by consuming a grain-based diet. A number of small to midsize farmers in Iowa and across the United States have been raising beef and dairy cows in a pasture-based system, supplementing hay or grass silage on a seasonal basis so that the animals have a readily available source of feed in the winter months or under serious drought conditions. These animals are not fed grain or any animal by-products.

According to media interviews with farmers raising livestock in pasture systems, more consumers are demanding pasture-raised beef and dairy products. The reasons cited include:

- *Perceived health benefits:* pasture-raised beef and dairy products are lower in fat and cholesterol than conventionally-raised grain-fed beef. The pasture-raised beef and dairy products are higher in Omega-3 fatty acids and conjugated linoleic acid (CLA). Appropriate levels of Omega-3s and CLA in the human diet are believed to lower the risk of heart disease and some types of cancers.<sup>1</sup>
- *Supporting small and midsize family farms* and the rural communities of which they are a part.
- *Concern for where and how their beef and dairy products are raised.* Were the beef or dairy animals fed animal by-products or given antibiotics? Were the animals raised humanely?
- A belief that pasture-based farms that raise ruminant livestock will do an excellent job of *protecting soil and water resources on the farm.*

In fall 2002, the Leopold Center cosponsored a series of six consumer focus groups on perceptions of pasture-raised meat and dairy products. These sessions were conducted in Iowa, Minnesota, and Wisconsin. Other sponsors included the Food Routes Network, the Midwest Food Alliance, the Minnesota Institute for Sustainable Agriculture (at the University of Minnesota), the Center for Integrated Agricultural Systems (at the University of Wisconsin), Practical Farmers of Iowa, and Iowa State University Extension.

Questions were asked about general food buying habits; issues related to meat; poultry, and dairy products, and appropriate production terms for use in marketing the benefits of these products to consumers. A complete report from this focus group study can be found at <http://www.leopold.iastate.edu> (*Pasture-Raised Products Message and Strategy – Fall 2002*).

Analysis of the focus group discussions revealed that, in general, the most favorable term to use when talking to consumers about these meat and dairy products was “pasture-raised.” The participants indicated that there were a number of opportunities and challenges to marketing pasture-raised products. Among the opportunities were the participants’ interest in supporting local family farms that take great care to protect the environment and the rural communities they are connected with as they raise high-quality products. Among the challenges were the need for such products to be safe and readily available, and the claims (whether environmental, social, or health-related) to be verified and authenticated.

---

<sup>1</sup> To find more information on scientific studies that examine health attributes in pasture-raised and grain-fed ruminant animals, go to the web site <http://www.eatwild.com>.

---

In fall 2003, the Leopold Center and the ISU Business Analysis Laboratory worked cooperatively to conduct a second phase of consumer market research on food ecolabel prototypes, as well as perceptions and importance of local foods in their food purchasing decisions. Phase one of this work, *“Ecolabel Value Assessment: Consumer and Food Business Perceptions of Local Foods,”* is available on the Leopold Center’s web site <http://www.leopold.iastate.edu>. As part of this body of work, a small, separate study focusing on pasture-raised beef and dairy products was designed and conducted. The objectives for this study were to:

- Study perceptions that Iowa consumers have regarding pasture-raised beef and dairy products,
- Gauge the level of awareness Iowa consumers have regarding a set of perceived benefits of pasture-raised beef and dairy products, and
- Determine the level of interest Iowa consumers have in receiving information about how and where their food products are raised.

---

# Methodology

The Leopold Center for Sustainable Agriculture formulated the objectives of the study and worked with the ISU Business Analysis Lab to design the survey questions. In addition to Iowa residents, Nebraska and Illinois residents in and around Omaha, Nebraska and the Quad Cities (Iowa/Illinois) also were included in the survey. Readers should note that the survey respondents *were not* representative of a random statistical sample for each of the three states, but rather a random sample of e-mail addresses per state that have agreed to participate in surveys. The survey was designed and developed using an online survey software platform provided by SurveyMonkey.com (<http://www.surveymonkey.com/>). A copy of the survey document can be found in Appendix 3.

The survey began with a set of introductory comments and instructions for completing the survey. The consumers could click “next” to go to the next page or “back” to go to the previous page at any point in the survey. The survey questions asked about food shopping habits. The terms “pasture-raised beef” and “pasture-raised dairy products” were used to describe ruminant animals grazing in open pastures, because this term was preferred over other terms such as “grass-fed” and “free-range” in the fall 2002 focus group study described in the Introduction section. **It is important to note, however, that the respondents were not offered a definition of the term “pasture-raised.”**

Next, consumers answered questions regarding their purchases of fresh and frozen beef. Then they were asked about their perceptions of the term “pasture-raised beef.” Following this section, consumers responded to questions about their purchases of dairy products and about their perceptions of the term “pasture-raised” dairy products. The next survey questions asked whom they trusted to provide information about their food, and how they would like to receive that information. Several demographic and psychographic questions were asked to determine the backgrounds of the respondents.

The online survey was administered to respondents by a third-party company, PostMasterDirect (<http://www.postmasterdirect.com/>), which manages the world’s largest database of e-mail addresses. This database has been compiled using a double opt-in process whereby individuals who initially visit the company’s web site and subscribe to one of its response lists must revisit the site in order to confirm the subscription prior to the delivery of any surveys or other forms of commercial contact. From this database, a random selection process was employed by PostMasterDirect in order to develop a sample

of 1,500 e-mail addresses to which the online survey instrument was sent. Sixty percent were sent to Iowa and 20 percent each to Nebraska and Illinois residents. The last step in the survey process was the collection of data by SurveyMonkey.com which allowed for review of individual responses to each question. More than 315 completed surveys were received, for a response rate of approximately 21 percent.

## **BEEF AND DAIRY SURVEY DEMOGRAPHICS**

Tables 1 through 9 show the survey demographic information for age, number of adults per household, number of children, gender, ethnicity, household income, level of education, state of residence, and community type (metropolitan area, small town, etc.). More than 50 percent of the households did not have children (18 years and under) while more than 75 percent of respondents were females. More than 92 percent of the sample identified themselves as Caucasian-American, thus the survey results do not provide significant insights into ethnic market segments. Nearly two-thirds of respondents resided in Iowa, with approximately one-quarter from Illinois and the remainder from Nebraska. The survey sample was fairly well distributed among metropolitan-area, small city, small town, and rural residents, although nearly 38 percent of respondents resided in metropolitan areas.

Table 1. Age of respondents

What is your age?	% Responses
27 and Under	16.9
28-47	47.1
48-70	34.2
71 and over	1.8

Table 2. Number of adults per household

How many adults (19 and over) live in your household?	% Responses
1	21.6
2	61.2
3	12.2
4 or more	5.0

Table 3. Number of children per household

How many children (18 and under) live in your household?	% Responses
0	51.4
1	17.6
2	17.3
3	7.9
4	3.6
5 or more	2.2

Table 4. Gender

Are you male or female?	% Responses
Male	23.4
Female	76.6

Table 5. Ethnicity

What is your ethnicity?	% Responses
Caucasian-American (Non-Hispanic)	92.4
African American	1.8
Hispanic or Latino American	1.1
Asian American	1.1
Native American	0.4
Other	1.8
Choose not to disclose	1.4

Table 6. Annual household income

What is your annual household income?	% Responses
Under \$40,000	58.7
\$40,000-\$70,000	30.4
\$71,000-\$100,000	7.6
Over \$100,000	3.3

Table 7. Level of formal education

What is your highest level of education completed?	% Responses
Some High School or High School Diploma	27.7
Some College	52.2
Bachelor's Degree	14.4
Master's Degree	5.4
Doctorate Degree	0.4

Table 8. State of residence

What state do you live in?	% Responses
Iowa	64.0
Nebraska	11.5
Illinois	24.5

Table 9. Type of community

Where do you live?	% Responses
city with at least 50,000 people or metropolitan area	37.8
small city with 5,000 to less than 50,000 people	28.1
small town with less than 5,000 people	18.7
rural area or a farm	15.5

## SHOPPING BEHAVIOR OF SURVEY PARTICIPANTS

The majority of respondents – more than 84 percent – were identified as the primary shopper for the household. Nearly 70 percent of respondents were responsible for 76 to 100 percent of the grocery shopping for the household (Table 10). Only 4 percent of the sample were responsible for less than 25 percent of the grocery shopping for the household.

Table 10. Percent of grocery shopping done for household

Categories	% Responses
0-25%	4.1
26-50%	9.1
51-75%	17.0
76-100%	69.7

# Survey Analysis

## PASTURE-RAISED BEEF

### Satisfaction level of fresh and frozen beef available for purchase

Nearly 18 percent of respondents were somewhat to very unsatisfied with the fresh and frozen beef products available for purchase (Figure 1). Approximately 76 percent of respondents were somewhat to very satisfied with their beef purchases, while less than 22 percent indicated they were very satisfied. Fewer than 6 percent of the respondents did not purchase any beef products.

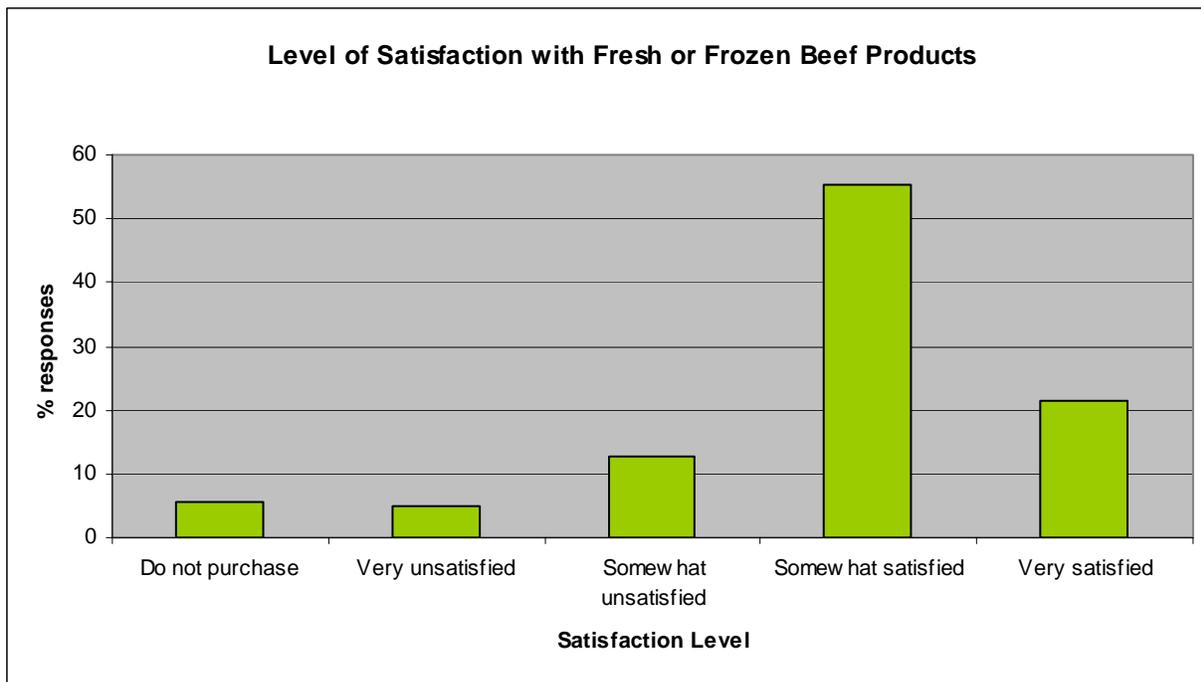


Figure 1. Level of satisfaction with fresh or frozen beef products.

## Most important attributes when purchasing fresh or frozen beef

Respondents were asked to rate several attributes (from not important to most important) when purchasing fresh or frozen beef products. As shown in Figure 2, freshness and taste received the highest number (73 percent) of “most important” responses. Tenderness, price, and appearance followed freshness and taste in receiving a high percent of “most important” responses, with 52, 47, and 42 percent, respectively. Only 10 percent of consumers rated how it was raised in the “most important” category, and 6 percent rated where it was raised as “most important.” Attributes that fell in the “other” category for a very important rating included fat content, packaging, and expiration date.

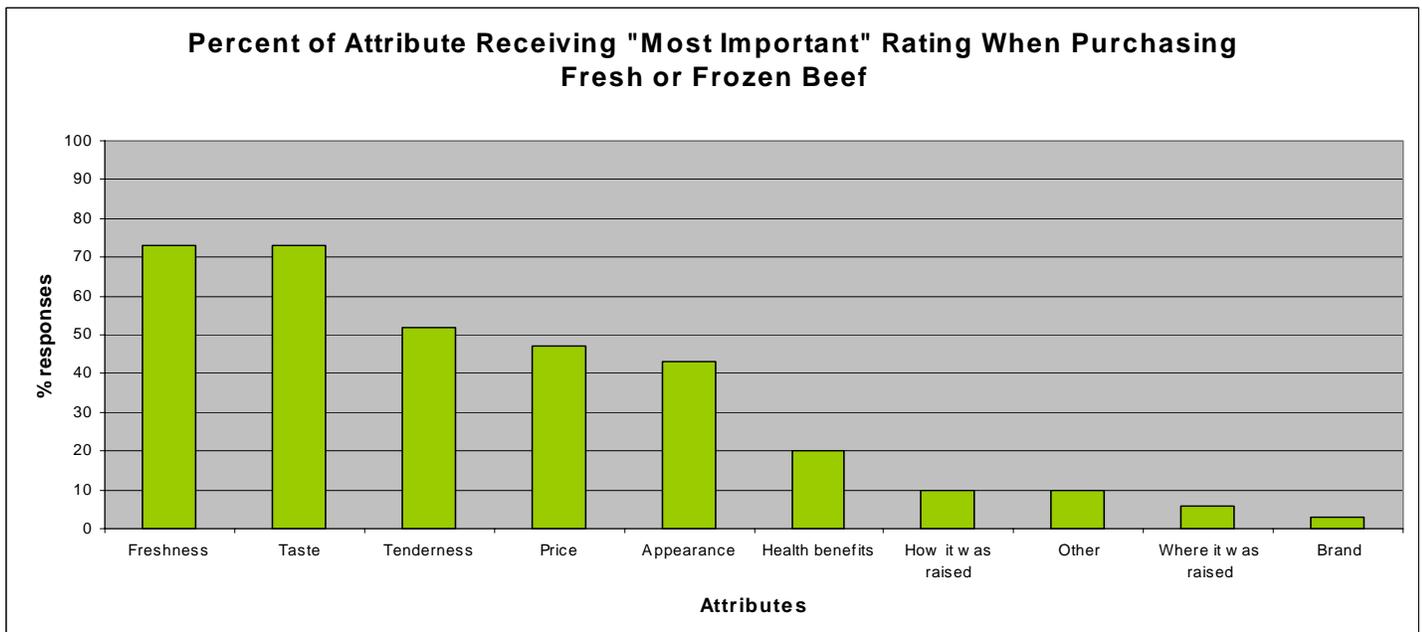


Figure 2. Percent of attribute receiving “most important” rating when purchasing fresh or frozen beef.

## Purchases of “natural” or organic beef

Approximately 10 percent of survey respondents had purchased organic beef or natural beef raised without antibiotics or hormones (Figure 3). Of those who did make such purchases, more than 80 percent had purchased some type of “natural” beef. The most common explanation of what “natural” meant to them was beef raised without antibiotics or hormones. A smaller subset of these respondents identified “halal” (foods that meet Islamic dietary requirements) or “local” beef as their choice, while very few of this subset specifically identified that they had purchased pasture-raised beef.

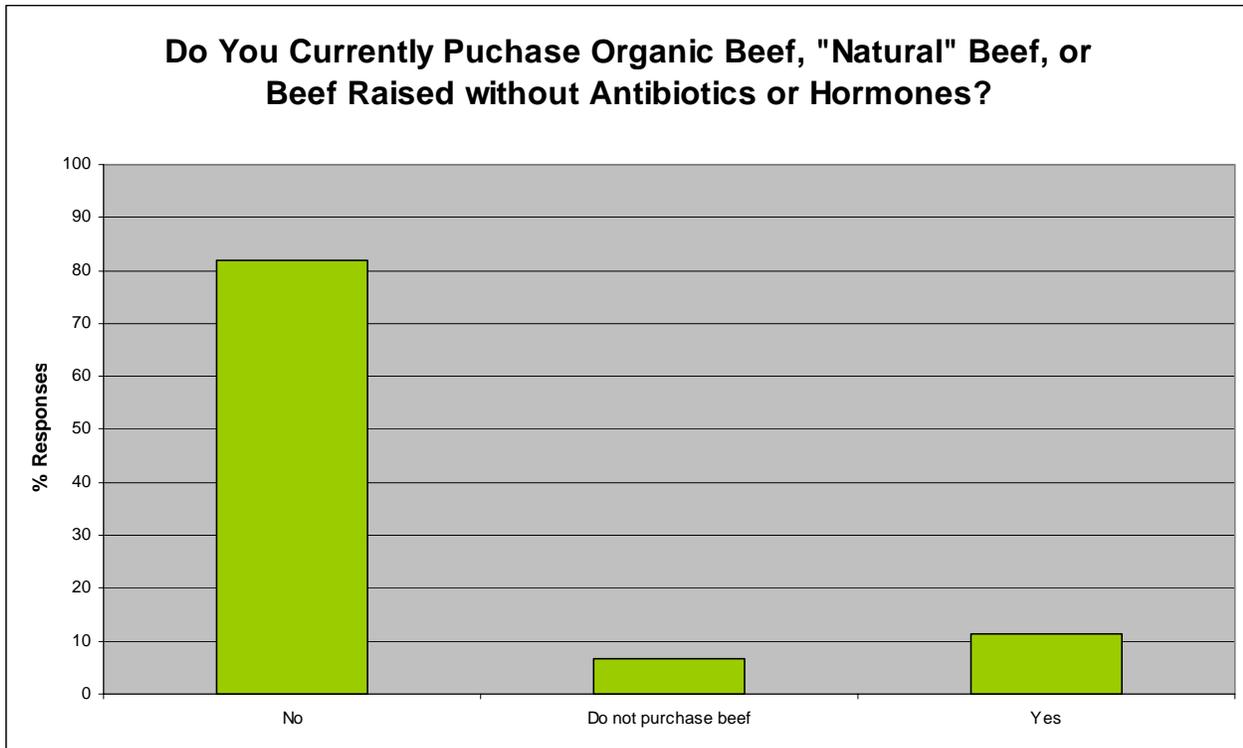


Figure 3. Do you currently purchase organic beef, “natural” beef, or beef raised without antibiotics or hormones?

## Perceptions of the term “pasture-raised beef”

When asked about the term “pasture-raised beef,” more than 15 percent of survey respondents indicated the term had no meaning to them (Table 11). However, more than 57 percent of respondents interpreted the term to mean “raised and grazed on open pasture,” (41.3 percent) or “grass-fed” (16.4 percent).

Table 11. What does the term “pasture-raised beef mean to you?

	% Responses
raised and grazed in open pasture	41.3
grass-fed	16.4
nothing	15.1
natural grown	8.2
raised in a farm	7.3
others	5.4
grain and grass fed	2.8
pasture raised that eats grass,grain and naturally fed	2.8
grain-fed	0.6

## Level of awareness of perceived benefits of pasture-raised beef

Respondents were asked to indicate their level of awareness of a set of perceived benefits of purchasing pasture-raised beef. Of the four choices, respondents were slightly more aware of a perceived benefit of more humane treatment of cows (Figure 4). More than 45 percent of respondents were unaware of the perceived benefits of protecting water quality and reducing the need for antibiotic use in beef cows. A small percent (2-3 percent) of respondents were aware of the perceived benefits but disagreed with the perception.

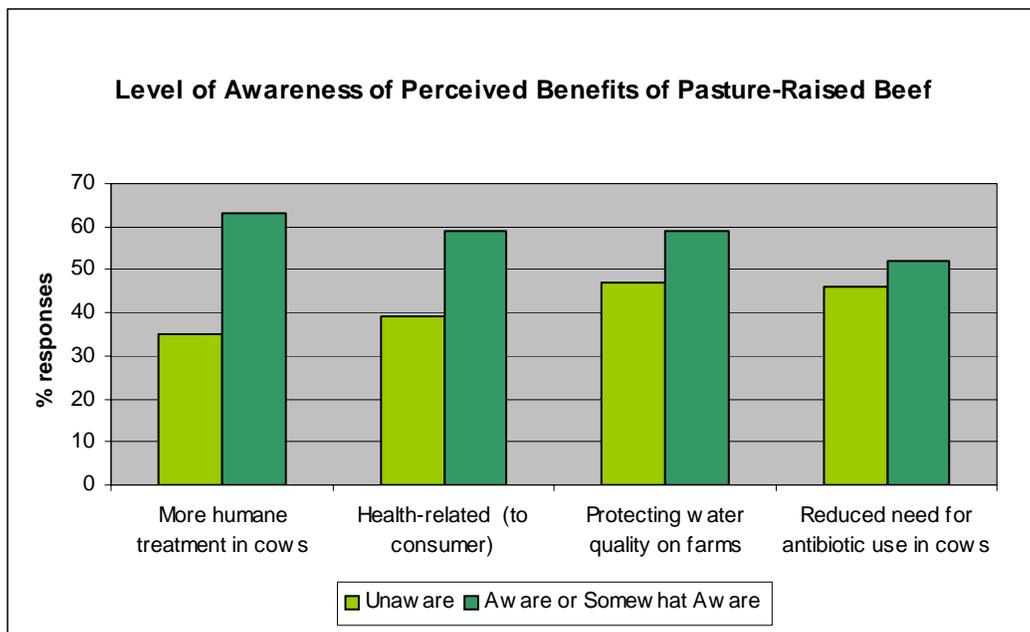


Figure 4. Level of awareness of the perceived benefits of pasture-raised beef.

---

## PASTURE-RAISED DAIRY PRODUCTS

### *Level of satisfaction with milk and dairy products*

More than 80 percent of respondents were somewhat to very satisfied with the milk and dairy products they had available for purchase, with nearly 43 percent indicating they were very satisfied (Figure 5). Only 9 percent of respondents were very unsatisfied with their dairy purchases. Less than 2 percent of respondents did not purchase milk and dairy products.

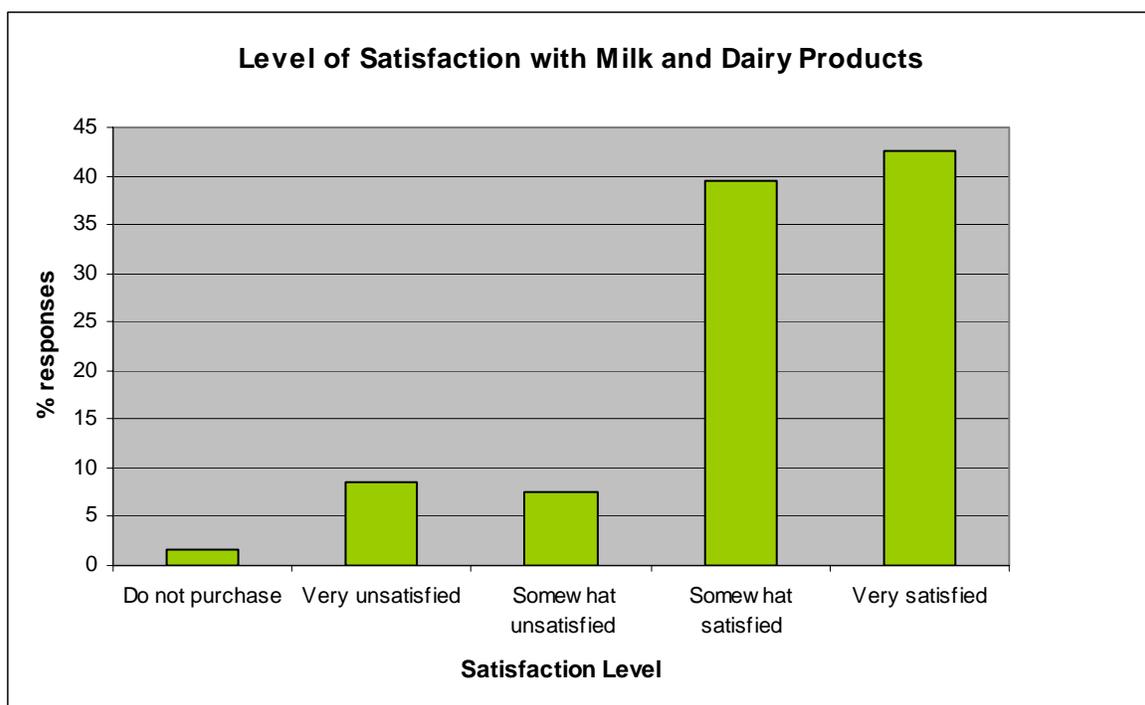


Figure 5. Level of satisfaction with milk and dairy products.

### *Most important attributes when purchasing milk and dairy products*

Respondents were asked to rate several attributes (from not important to most important) when purchasing milk or dairy products. Freshness and taste received the highest percentages of “most important” ratings; 85 and 73 percent, respectively (Figure 6). Price, appearance, and health benefits followed freshness and taste in receiving a significant percent of “most important” responses; 44, 38, and 36 percent, respectively.

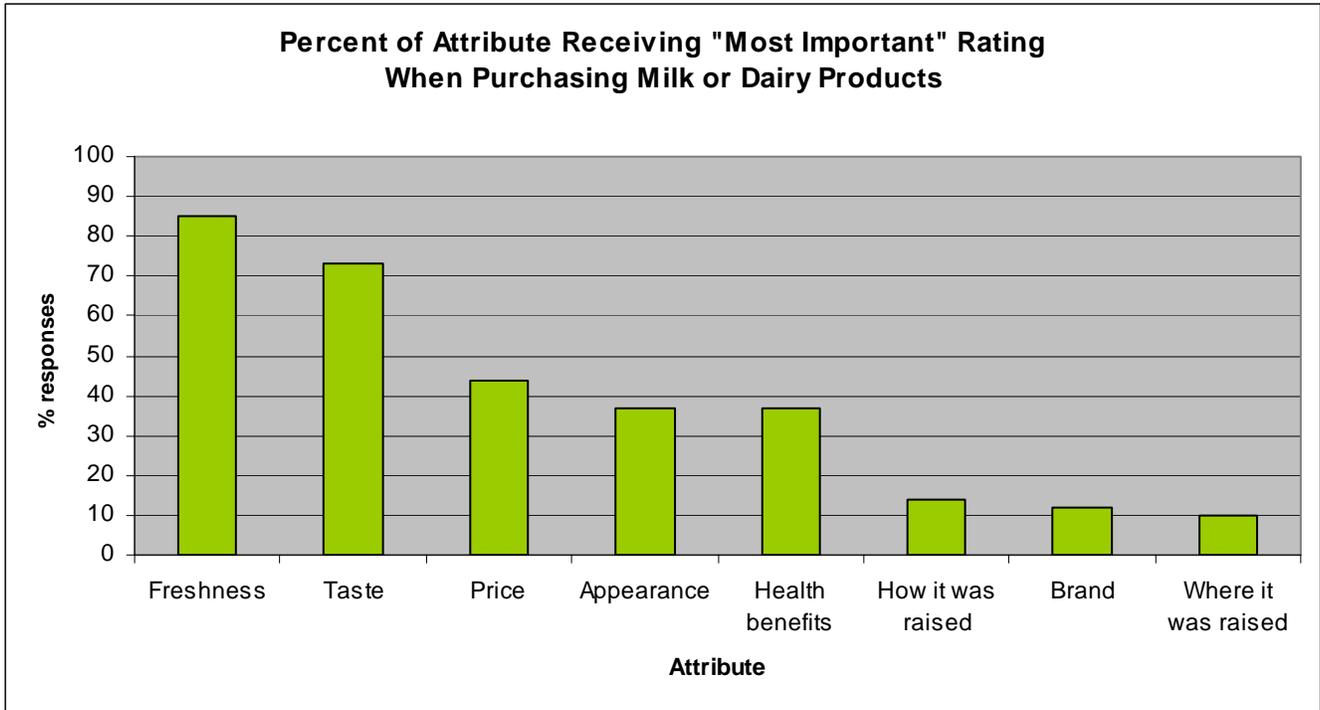


Figure 6. Percent of attribute receiving “most important” rating when purchasing milk or dairy products.

### ***Purchase of “natural” or organic dairy products***

Figure 7 shows that 10 percent of survey respondents had purchased organic or natural dairy products. Of those who had purchased these products, “natural” and organic milk were cited as most likely choices, with “other” mentions of local or antibiotic-free milk.

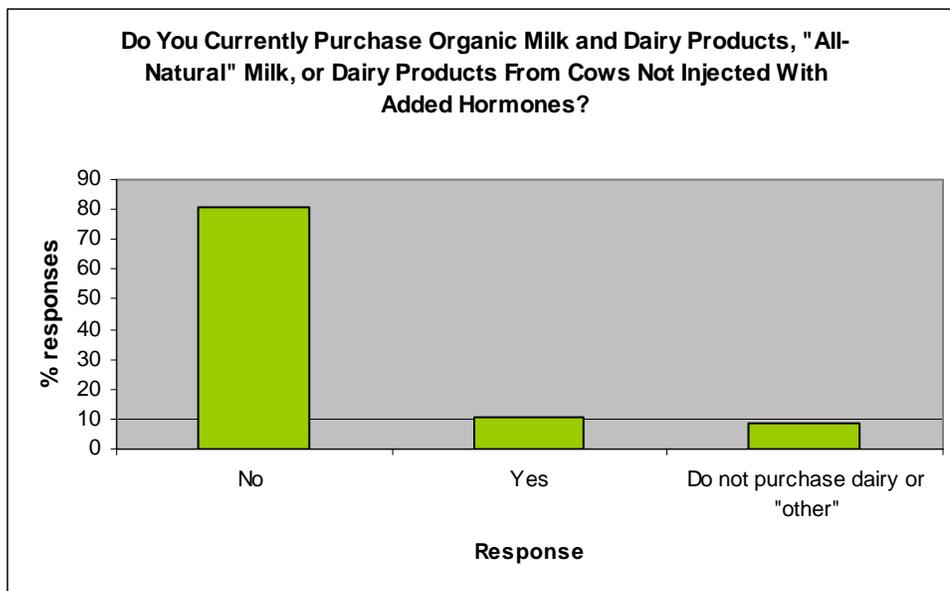


Figure 7. Do you currently purchase organic milk or dairy products, “all-natural milk,” or milk and dairy products from cows not injected with added hormones?

## Perception of the term “pasture-raised dairy products”

When asked about the term “pasture-raised dairy products,” 24 percent of respondents indicated the term had no meaning to them (Table 12). More than 45 percent, however, believed that the dairy cows were either “raised or grazed on open pasture” (35.3 percent) or “grass-fed” (10.2 percent).

Table 12. What does the term “pasture-raised dairy” mean to you?

	% Responses
raised and grazed in open pasture	35.3
nothing	24.0
natural grown	13.2
grass-fed	10.4
raised in a farm	6.9
others	5.4
pasture-raised that eats grass, grain and naturally fed	2.8
grain- and grass-fed	1.3
fed on grass and natural	0.6

## Level of awareness of perceived benefits of pasture-raised milk and dairy products

Respondents were asked to indicate their level of awareness (ranging from aware to unaware) of a set of perceived benefits to pasture-raised dairy products. Figure 8 indicates that more than 60 percent of consumer respondents were aware or somewhat aware that there were perceived health-related benefits to the consumer and more humane treatment of cows in pasture-raised dairy systems. However, at least 50 percent of respondents were unaware of the perception that pasture-raised dairy systems offered water quality protection on farms.

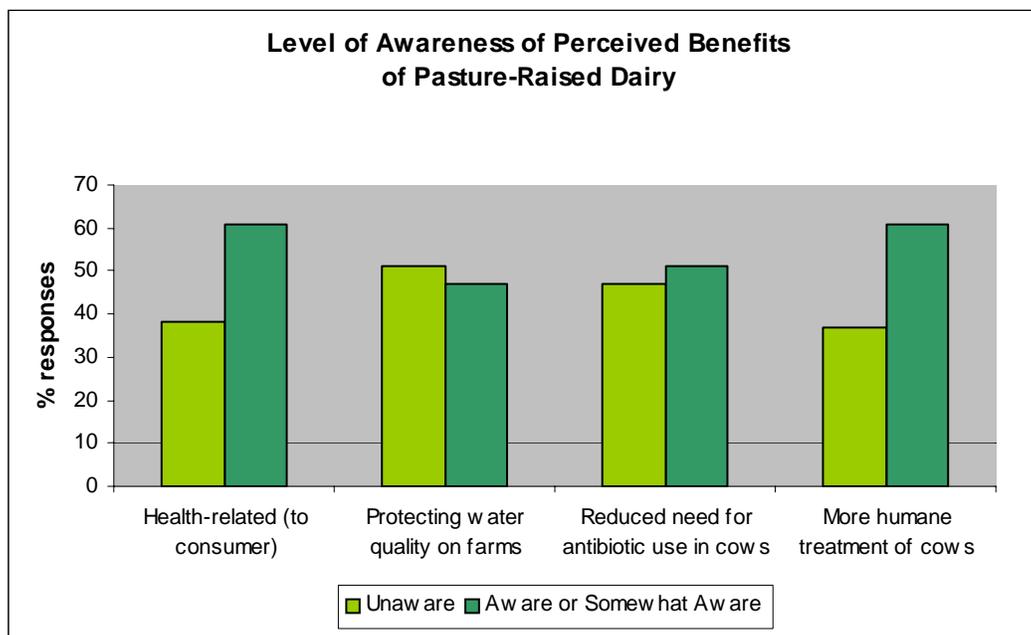


Figure 8. Level of awareness of the perceived benefits of pasture-raised dairy.

## Interest in direct delivery of locally-produced milk and dairy products

When asked whether they would be interested in direct delivery (to your door) of locally-produced milk and dairy products, more than 18 percent of respondents indicated they were very interested and 24 percent were somewhat interested, while more than 35 percent indicated they were not interested. Iowa and Nebraska residents were more likely to be interested in local delivery than the Illinois respondents (Figure 9).

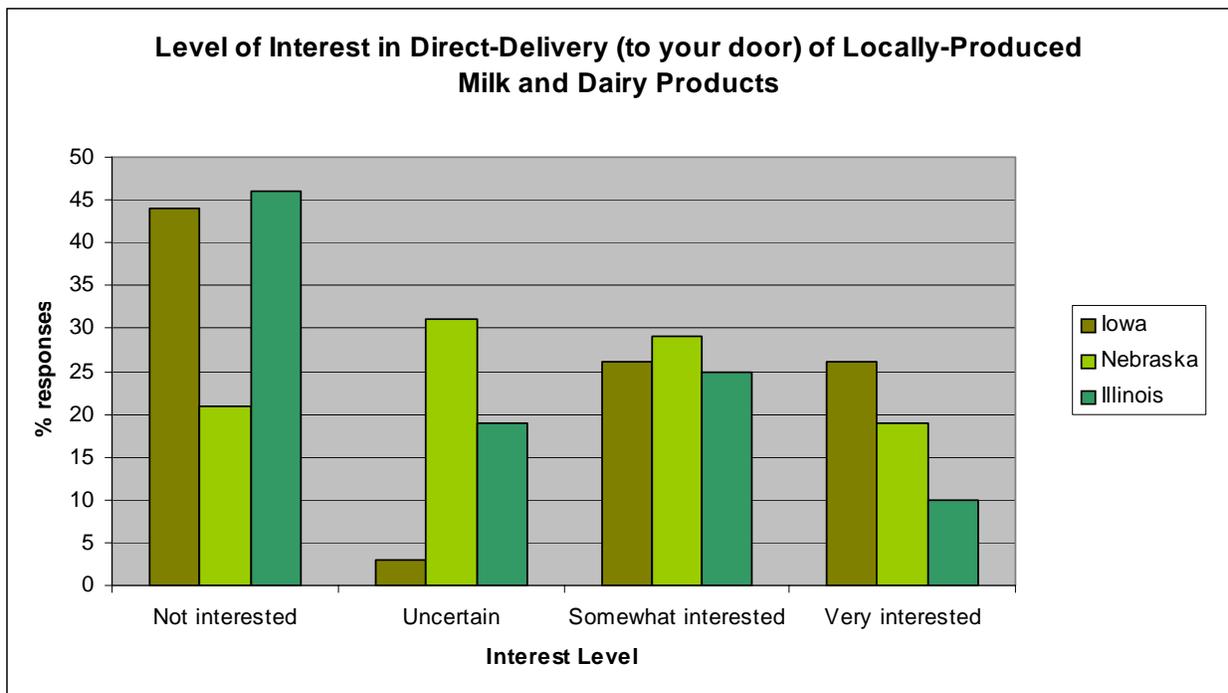


Figure 9. Level of interest in direct-delivery (to your door) of locally-produced milk and dairy products.

Responses to the direct-delivery question also were cross-tabulated based on the type of community in which the respondents lived (Table 13). The highest potential for direct-delivery of locally-produced dairy products appears to be in small and midsize cities between (5,000 to 50,000 people).

Table 13. How interested are you in direct delivery (to your door) of locally-produced milk and dairy products?

Level of Interest	% Responses			
	metro area	5-50,000	less than 5,000	rural or farm
Not interested	35.8	26.6	42.3	48.8
Uncertain	22.6	20.3	19.2	16.3
Somewhat interested	19.8	36.7	21.2	11.6
Very interested	20.8	13.9	17.3	23.3
Do not purchase milk and dairy	0.9	2.5	0.0	0.0

## Willingness to pay for locally produced natural milk from pasture-raised dairies

When asked how much above conventional price they would be willing to pay for locally produced natural milk from pasture-based dairies, nearly 10 percent of respondents indicated they would be willing to pay 30 percent or more above conventional price (Figure 10). Examining the data across income categories and moving from lower to higher income categories, there was no clear trend in increased percentage above conventional price in willingness to pay (Table 14).

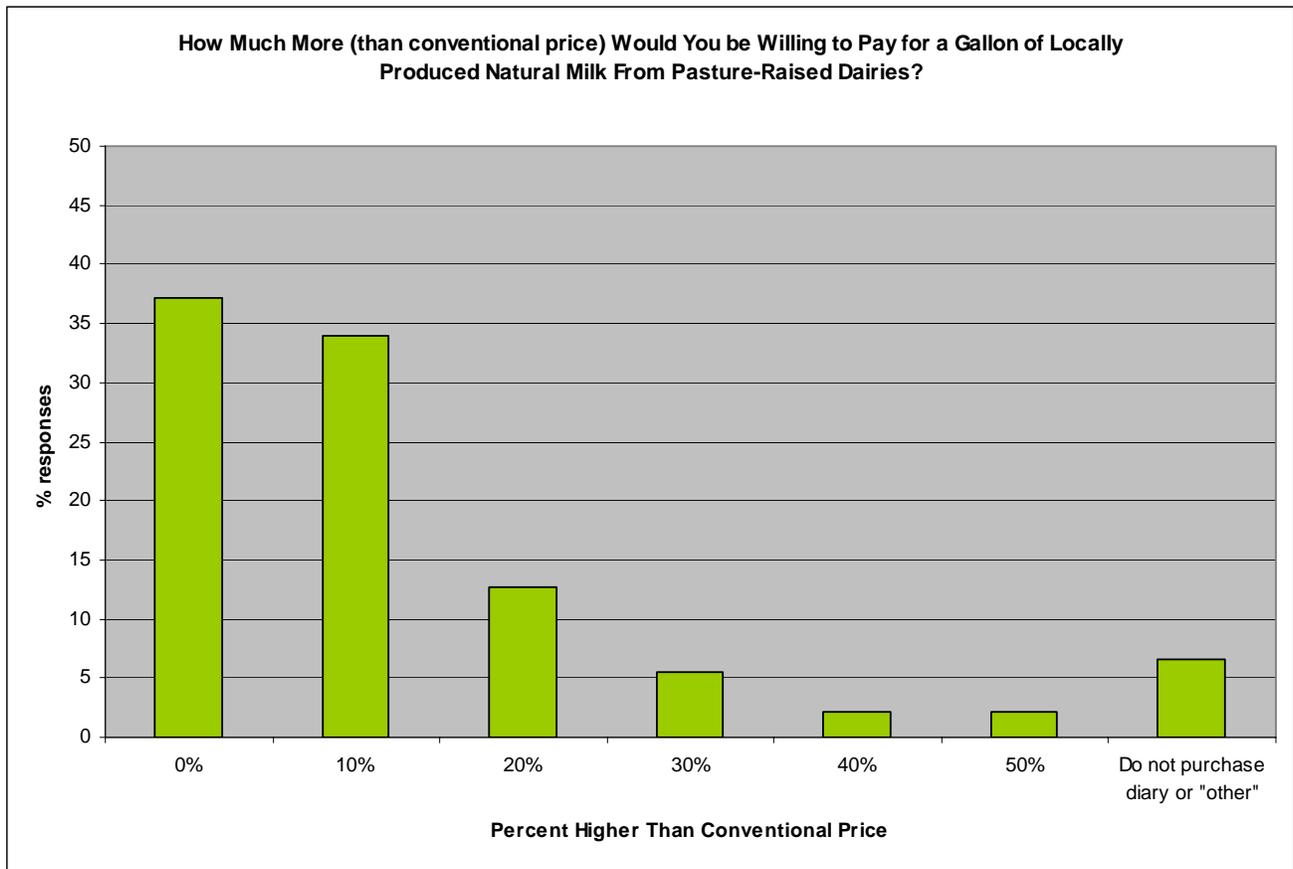


Figure 10. How much more (than conventional price) would you be willing to pay for a gallon of locally produced natural milk from pasture-raised dairies?

Table 14. How much more than conventional price would you be willing to pay for a gallon of locally produced natural milk from pasture-raised dairies?

Price above conventional	% Responses			
	Under \$40,000	\$40,000-\$70,000	\$71,000-\$100,000	Over \$100,000
0%	38.3	32.1	42.9	20.0
10%	32.1	38.1	38.1	30.0
20%	13.6	11.9	9.5	20.0
30%	5.6	3.6	9.5	20.0
40%	0.0	4.8	0.0	0.0
50%	1.2	4.8	0.0	0.0
do not purchase dairy or "other"	9.3	4.8	0.0	10.0

### Level of importance of information on how and where food is grown

Respondents were asked to rate (from not important to very important) a series of attributes that provided various pieces of information as to how, where, and by whom food products were grown. Figure 11 shows the percentage of respondents who rated each attribute as very important in their food purchasing decisions. Of all the attribute choices, the food safety record of the food processor received the highest percent of “very important” responses, while the size of the farm and the size of the company that processes the food received the lowest percent of “most important” responses. The issue of whether a meat product was raised on pasture was rated as “very important” for 13 percent of respondents.

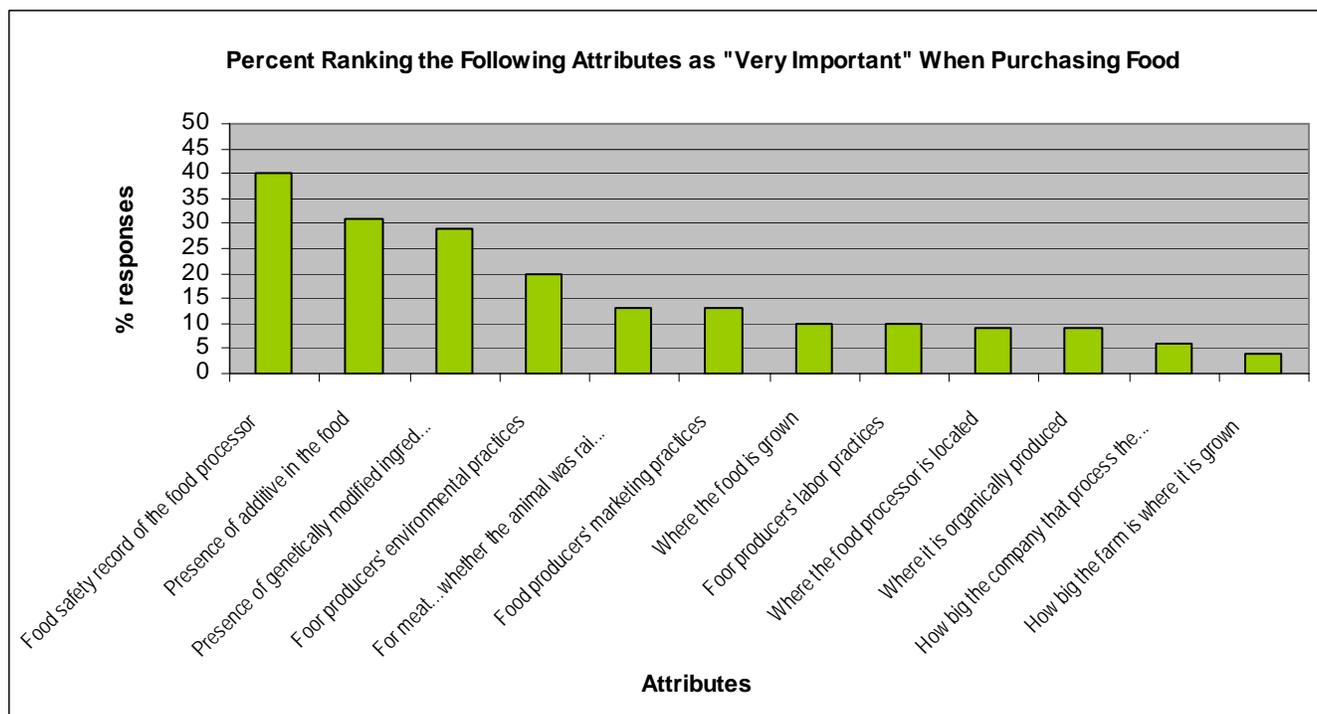


Figure 11. Percent ranking attributes as “very important” when purchasing food.

When the “very important” and “important” response categories for attributes are combined, the following attributes received 50 percent or more of responses:

- Food producer’s environmental practices
- Presence of additives in the food
- Presence of genetically modified ingredients
- Food safety record of the processor

**Access to adequate information in order to make food purchase decisions**

Respondents were asked if they had adequate information to make food purchase decisions based on the above-cited attributes. More than 55 percent of respondents said they did not have access to this information, while 24 percent indicated they did have access (Figure 12). Nearly 20 percent of respondents said they were not interested in such information.

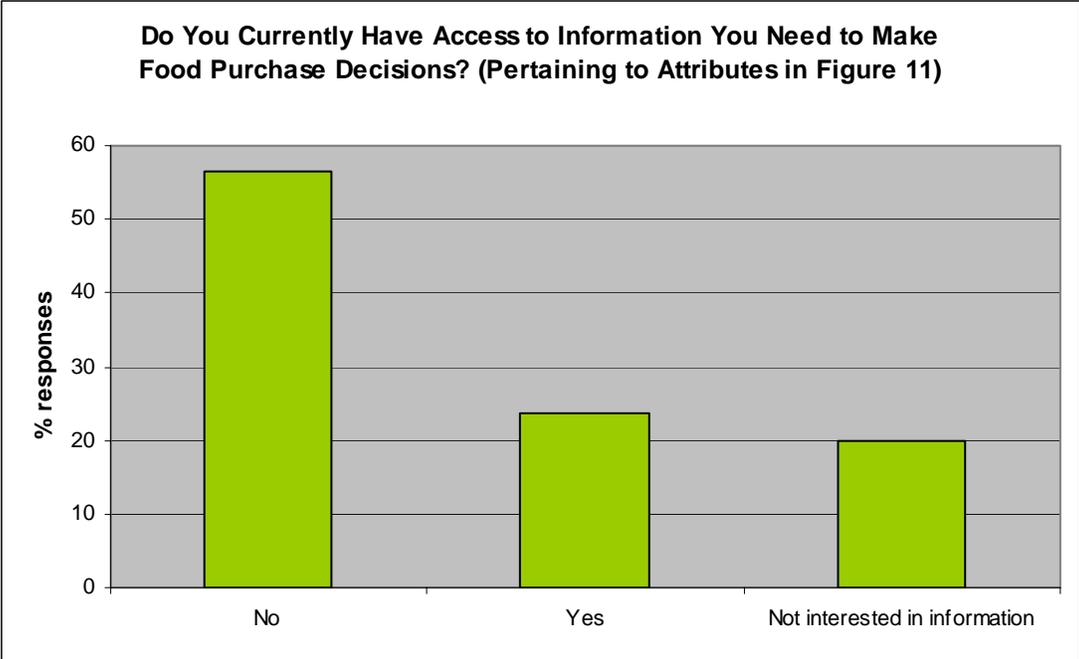


Figure 12. Do you currently have access to information you need to make food purchase decisions?

## Preferred forms for attribute information on food products

When questioned as to how they would access information on the aforementioned food product attributes (assuming they were interested), 60 percent of respondents indicated that label information is what they would use frequently, while 44 percent said they would frequently use grocery store signage (Figure 13). When combining the “would use frequently” and “would use sometimes” response categories, the following information forms received more than 80 percent of responses (from most to least):

- Product label
- Grocery store signage
- Web site
- Mass media

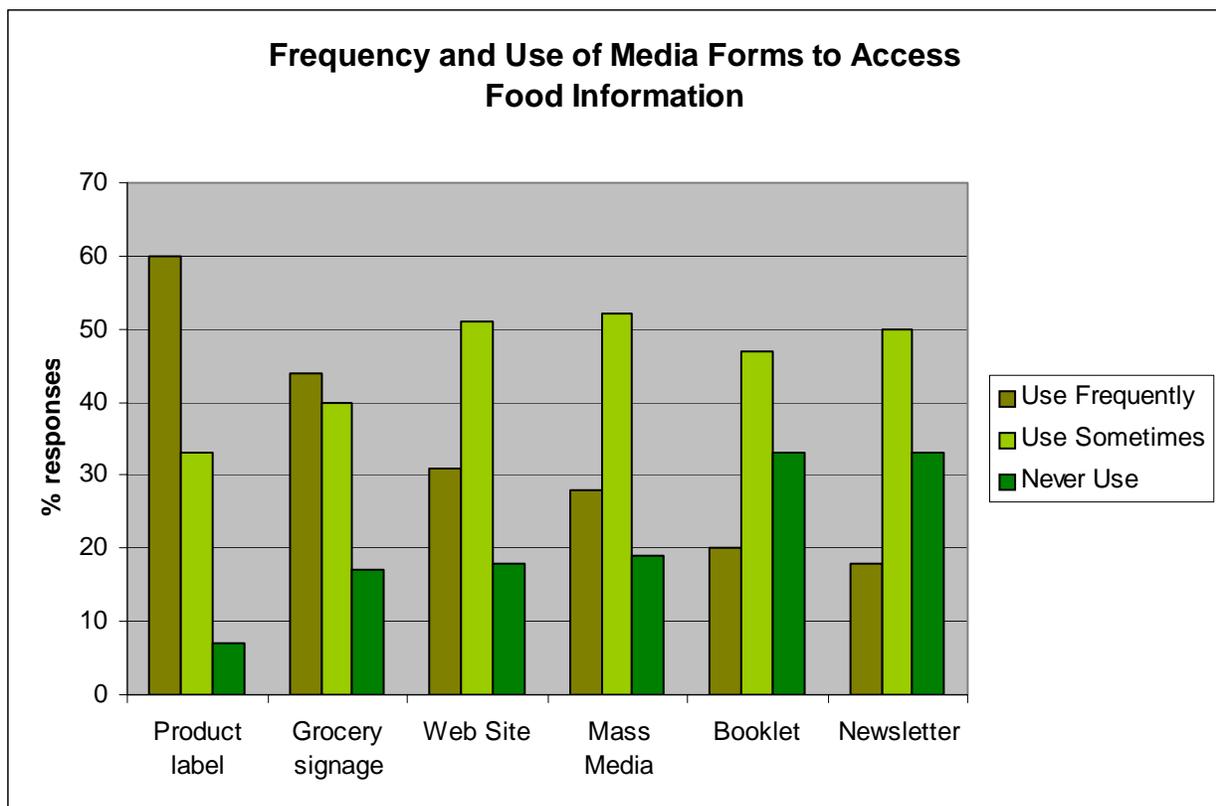


Figure 13. Frequency and use of media forms to access food information.

### **Level of trust in sources of information about food products**

Respondents were asked to indicate how much they trusted various sources for information about the food they purchased. Selections ranged from “A lot” to “Not at all.” Farmers and universities received the highest percent of responses in the “A lot” category (Figure 14). Food processors and manufacturers, food stores, and advocacy organizations received the lowest percent of responses in the “A lot” category.

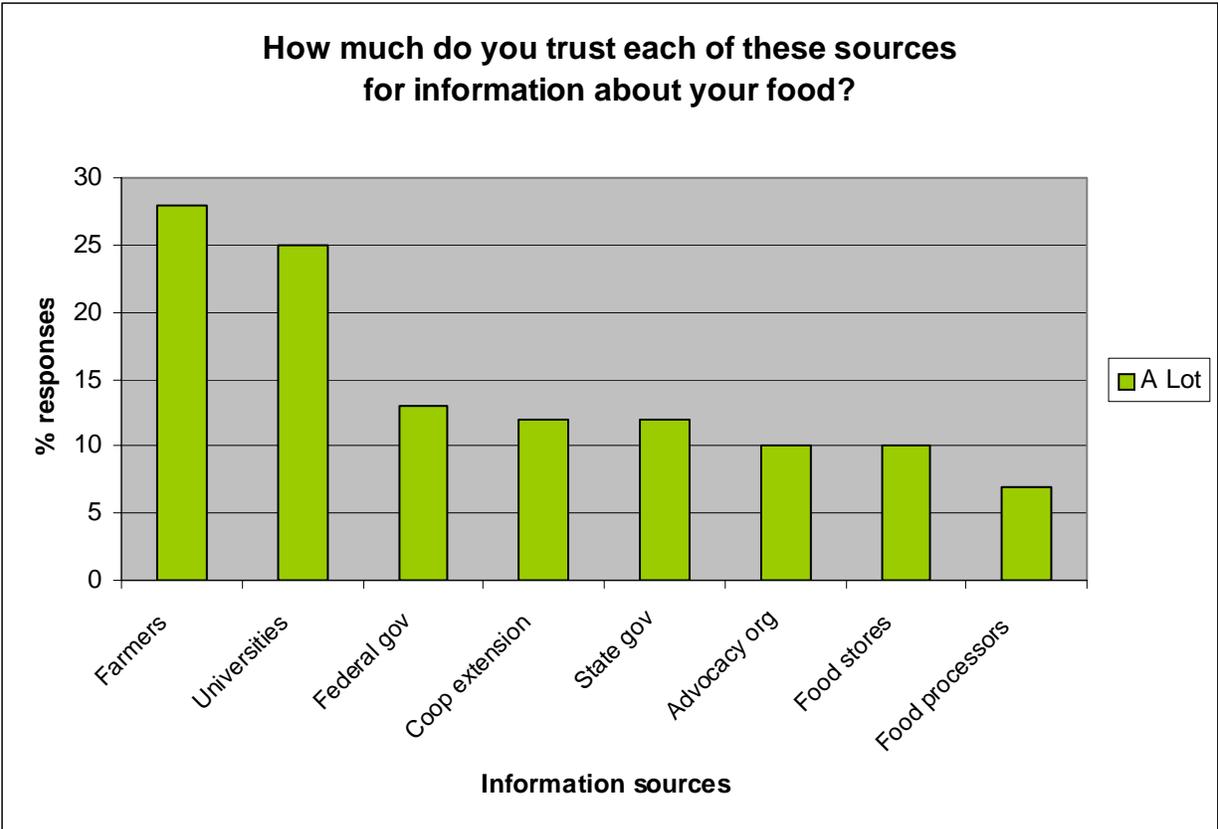


Figure 14. How much do you trust each of these sources for information about your food?

---

# Conclusions

Nearly 43 percent of survey respondents were very satisfied with the milk and dairy products currently available for purchase, while only 21 percent of respondents indicated they were very satisfied with available beef products. **Freshness and taste** were the two attributes that received the highest percent of “most important” ratings by respondents when purchasing fresh/frozen beef or milk and dairy products. A higher percent of respondents viewed the health benefits of their milk and dairy products as “very important” compared to the fresh or frozen beef products they purchased.

Approximately 80 percent of respondents did not purchase organic beef or dairy products raised without antibiotics or hormones, or milk and dairy products from cows not injected with growth hormones. Those that did purchase these beef products specified that they purchased “natural” beef, with many of them explaining that this meant beef raised without antibiotics or hormones.

A majority of respondents understood that the designation of pasture-raised beef and dairy products meant that the cows were raised and/or grazed in pastures. On a relative basis, respondents were more likely to have some understanding of the term pasture-raised beef than the term pasture-raised dairy products. This is noteworthy, since the term pasture-raised beef and other beef-related questions appeared before the dairy questions in the survey. The overall acceptance and understanding of the term “pasture-raised” as used in this study supports a preference for the term “pasture-raised” compared to other terms such as “grass-fed” or “free-range” to describe ruminant animals grazing in open pastures. This same preference was observed in the consumer focus groups conducted in fall 2002. Thus, it appears that Iowa farmers who are marketing beef and dairy products that were raised on pasture systems should have a good deal of confidence that the term “pasture-raised” will be an understandable term to the majority of their potential customers.

A majority of respondents (50 percent or greater) were aware or somewhat aware of the perceived benefits of pasture-raised beef and dairy products. Respondents were less aware of perceived water quality benefits or a reduced need for antibiotic treatment of beef and dairy cows than they were about perceived consumer health benefits or more humane treatment of the cows.

---

Respondents were most aware of the perceived value of health benefits to consumers and more humane treatment to cows for both beef and dairy products. It is unclear whether this awareness would translate into increased motivation to purchase such products. Only 14 percent of respondents cited “how and where beef and dairy cows were raised” in the category of attributes they consider “very important” when they purchase beef or dairy products.

More than 42 percent of respondents were somewhat to very interested in local delivery of milk and dairy products to their door. Approximately 10 percent of respondents were willing to pay 30 percent or more for locally-produced natural milk from pasture-raised dairies. Assume that we could interpolate from this data sample that 10 percent of Iowans would be willing to pay, on average, 36 percent above conventional price for locally produced natural milk from pasture-raised dairies. Using a \$2.00 wholesale price for a gallon of conventional 2 percent milk, an estimated consumption of 24 gallons per person in Iowa (the 2002 estimated national per capita average), and assuming that this data sample was indeed representative of the population, there would be a potential for niche dairy farmers to capture approximately \$5 million dollars in premiums above conventional milk by selling to this segment of Iowans. This estimate is also based on the assumption that these dairy farmers are doing their own processing. It is uncertain which of the attributes, locally produced, natural, or pasture-raised, has the most influence in reaching this price point above the conventional price.

Consumer respondents placed a lot of importance on selecting food products where the food safety record of the processor and the presence of additives in the food were clearly known. The respondents did not place as much importance, on a relative basis, on where and how the food was grown, the size of the farm where it was grown, the size of the company that produced the food product, and whether or not the product was organically grown. The majority of respondents, however, wanted better access to information that would tell them the complete “story” of their food product—only 20 percent of respondents were not interested in accessing such information. The majority desiring this information wanted to see it appear on labels and in grocery store signage, and to a lesser extent, on a web site or mass media via radio and television.

Farmers and universities were the most trusted sources for information about the respondents’ food choices, followed by state and federal governments. Respondents did not place much confidence in food processors, food stores, or advocacy groups as reliable sources of information.

## Marketing perceptions of beef and dairy products

In marketing terms, the freshness, taste, safety, quality, appearance, and value of the food products are part of the core product to consumers (Figure 15) interested in beef and dairy products, whether or not they are pasture-raised. It is unclear whether the perceived reduction in need for antibiotics for these pastured products is construed as a health or safety benefit; perhaps it is both to many of the respondents. Partly for this reason, the health benefits and safety attributes are shown as bridging across the core and augmented product attribute sectors. These consumer respondents secondarily look at the brand, environmental stewardship of the farm, appearance and, to some extent, where and how the products are raised. The survey results indicate that although many consumers may understand and value these augmented product benefits, they are not likely to be regular purchasers of these products unless the taste, freshness, quality, appearance, and value of the products are consistently assured.

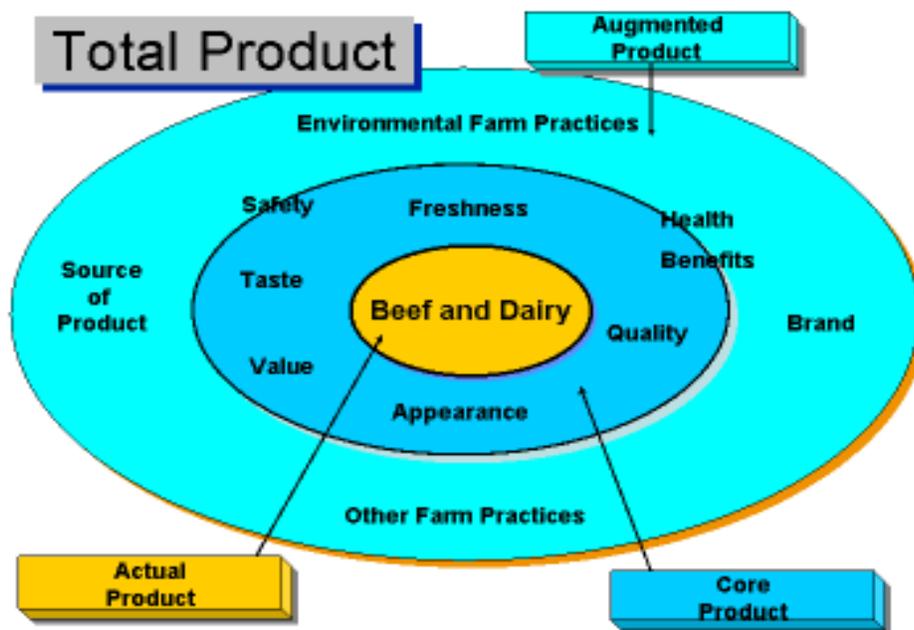


Figure 15. Freshness, taste, safety, quality, appearance, and value of the food products are part of the core product to consumers interested in beef and dairy products, whether or not they are pasture-raised.

---

## **FUTURE RESEARCH**

On December 23, 2003, the U. S. Department of Agriculture (USDA) confirmed the first case of a dairy cow raised in the United States with “mad cow” disease, also known as bovine spongiform encephalopathy (BSE). The public’s consciousness of BSE has been raised since the confirmation, with feature articles in all major news magazines as well as segments on the Cable News Network (CNN) and all other major television networks. BSE is believed to be a threat to humans because some of those who have consumed meat from infected animals have contracted a human version of the BSE disease (Creutzfeldt-Jakob disease).

Since the BSE confirmation there have been a number of reports from livestock producers citing an increase in demand for pasture-raised beef products. This survey did not pose any questions regarding BSE. It is postulated that if the same survey questions had been asked following the BSE confirmation, the relative importance of the health-related and product safety attributes of pasture-raised beef and dairy products would increase. Follow-up research would be needed to confirm this hypothesis.

## **LEOPOLD CENTER AND ISU BUSINESS ANALYSIS LAB COLLABORATION**

The fall 2003 collaboration between the ISU Business Analysis Laboratory and the Leopold Center is a continuation of the relationship founded in summer 2003 through the Ecolabel Value Assessment project, which published a report in November 2003. For this survey on consumer perceptions of pasture-raised beef and dairy products, the ISU Business Analysis Lab students collected the data, but did not perform any analysis; the Leopold Center worked with the raw and summary data to develop the charts used in this report. More information on the Leopold Center and ISU Business Analysis Lab collaboration will appear in an upcoming report of the Phase II Ecolabel Value Assessment study.

---

# Appendices

## **APPENDIX I. THE LEOPOLD CENTER FOR SUSTAINABLE AGRICULTURE**

The Leopold Center is a research and education center with statewide programs to develop sustainable agricultural practices that are both profitable and conserve natural resources. It was established under the Groundwater Protection Act of 1987 with a three-fold mission: (1) to conduct research into the negative impacts of agricultural practices; (2) to assist in developing alternative practices; (3) to work with ISU Extension to inform the public of Leopold Center findings. The Center is administered through the Agriculture and Home Economics Experiment Station at Iowa State University.

In late 2002, a vision statement was adopted: The Leopold Center for Sustainable Agriculture explores and cultivates alternatives that secure healthier people and landscapes in Iowa and the nation. As part of the Center's new orientation, three research initiatives have replaced the more general competitive grants research program. Each of the three research programs—marketing and food systems, ecology, and policy—are responsible for its own projects and educational events. This report is coordinated by the marketing and food system initiative.

A 17-member advisory board, established in the 1987 legislation, advises the director on funding of research proposals, policies and procedures, budget development, and program review. In 1994, four *ex-officio* members active in farming and agribusiness were added to the board. They received full voting privileges in 1999.

State fees on nitrogen fertilizer and pesticides provide an estimated \$1,100,000 annually to support research, education, and administration of Center programs. A state appropriation of approximately \$500,000 supports many of the Center's competitive grants.

As of July 1, 2002, the Leopold Center has awarded more than 250 competitive grants totaling more than \$10 million. Leopold Center competitive grants are available to researchers and educators at all Iowa colleges and universities, and to investigators at private nonprofit agencies and foundations in the state. These awards often act as seed money to initiate work for which other larger sources of funding then become available.

---

The Center's mission includes an educational component of informing the agricultural community and the general public about its research findings. The Center collaborates with ISU Extension and other university, state, and local organizations to communicate research findings. It also supports conferences, seminars, and special events related to the three research initiatives.

For additional information, contact the Leopold Center for Sustainable Agriculture, 209 Curtiss Hall, Iowa State University, Ames, IA 50011-1050; (515) 294-3711, fax (515) 294-9696, e-mail [leocenter@iastate.edu](mailto:leocenter@iastate.edu), and web site <http://www.leopold.iastate.edu/>

---

## **APPENDIX 2. ISU BUSINESS ANALYSIS LABORATORY**



The Business Analysis Laboratory is a unique learning experience at Iowa State University. Graduate and undergraduate students from the Colleges of Business, Education, and Engineering work together in cross-functional teams to solve real business and manufacturing problems, many involving the 3M Corporation.

### **Our Purpose and Mission**

The Laboratory is designed to provide a setting within which students may apply their education to real world business situations. It is essentially the academic equivalent of a technology business incubator with students as tenants. Students work part-time in the Laboratory in multidisciplinary teams, progressing to leadership positions with superior performance over the course of a semester. Faculty members - one each from the Colleges of Business, Education (Industrial Technology), and Engineering - provide support to students during their work in the Laboratory.

### **Instructional Components**

Faculty team-teach an undergraduate Business Administration course (BusAd 392x) associated with the Lab experience. The course is offered in seminar format and is comprised of instructional components designed to provide students with some of the skills they require for technological problem solving, innovation, and integration.

### **History**

The ISU Business Analysis Laboratory is an outgrowth of 3M efforts during the early 1990s to investigate innovative ways of partnering with academic institutions. The Lab was opened at Iowa State University in 1997.

### **Goals & Objectives**

- Provide students with practical business experience that benefits both the students and the corporate partners.
- Expose students to the cross-functional nature of real projects.
- Put students in situations that require them to move outside of their academic comfort zones.
- Present semester projects to key members of their sponsoring organizations.

---

## **APPENDIX 3. DAIRY AND BEEF SURVEY QUESTIONS – LEOPOLD CENTER AND ISU BUSINESS ANALYSIS LABORATORY (FALL 2003)**

**1. Are you the primary shopper for your household?**

- A. No
- B. Yes

**2. What percentage of grocery shopping do you do for *your household*:**

- A. 0-25%
- B. 26-50%
- C. 51-75%
- D. 76-100%

**3. Overall, how satisfied are you with the fresh or frozen beef currently available for purchase?**

- A. Do Not Purchase
- B. Very Unsatisfied
- C. Somewhat Satisfied
- D. Very Satisfied

**4. Please rate each attribute in terms of importance when purchasing fresh or frozen beef products. (If marked “Do not purchase” in question #3, please mark Non-Applicable for the following items.)**

- |                      | Most<br>Important | Neutral | Of Little<br>Importance | Not<br>Important |
|----------------------|-------------------|---------|-------------------------|------------------|
| A. Freshness         |                   |         |                         |                  |
| B. Brand             |                   |         |                         |                  |
| C. Appearance        |                   |         |                         |                  |
| D. Taste             |                   |         |                         |                  |
| E. Tenderness        |                   |         |                         |                  |
| F. Price             |                   |         |                         |                  |
| G. How it was raised |                   |         |                         |                  |
| H. Health Benefits   |                   |         |                         |                  |
| I. Other             |                   |         |                         |                  |

---

**5. From question #4, please define “Other” category if needed: [Open-ended response]**

**6. Do you currently purchase organic beef, “natural” beef, or beef raised without antibiotics or hormones?**

- A. No
- B. Do Not Purchase Beef
- C. Yes

**If “Yes”, please indicate which types of beef mentioned above.**

- A. Natural Beef
- B. Without Antibiotics/Hormones
- C. Other

**7. What does the term “pasture-raised beef” mean to you? [Open-ended response]**

**8. Please indicate your level of awareness of the following perceived benefits of pasture-raised beef.**

Unaware	Somewhat Aware	Aware	Aware But Disagree With Perception
---------	-------------------	-------	--

Health-related (to consumer)  
Protecting water quality on farms  
Reduced need for antibiotic use in cows  
More humane treatment of cows

**9. Overall, how satisfied are you with the milk and dairy products currently available for purchase**

- A. Do Not Purchase
- B. Very Unsatisfied
- C. Somewhat Unsatisfied
- D. Somewhat Satisfied
- E. Very Satisfied

**10. Please rate each attribute in terms of importance when purchasing milk and dairy products. (If marked “Do not purchase” in question #9, please mark Non-Applicable for the following items.)**

Most Important	Important	Neutral	Of Little Importance	Not Important
-------------------	-----------	---------	-------------------------	------------------

- A. Taste
- B. Where it was raised
- C. Freshness
- D. Price
- E. Health Benefits
- F. How it was raised
- G. Brand
- H. Appearance

**11. Do you currently purchase organic milk or dairy products, “all natural milk”, or milk and dairy products from cows that are not injected with growth hormone?**

- A. No
- B. Do Not Purchase Dairy or “Other”
- C. Yes

**If “Yes”, please indicate which types of milk and dairy mentioned above.**

**12. What does the term “pasture-raised dairy products” mean to you?  
[open-ended response]**

**13. Please indicate your level of awareness of the following perceived benefits of pasture-raised dairy.**

Unaware	Somewhat Aware	Aware	Aware But Disagree With Perception
---------	-------------------	-------	--

- Health-related (to consumer)
- Protecting Water Quality on Farms
- Reduced Need for Antibiotic Use in Cows
- More Humane Treatment for Cows

---

**14. How interested are you in direct delivery (to your door) of locally-produced milk and dairy products?**

- A. Not Interested
- B. Uncertain
- C. Somewhat Interested
- D. Very Interested
- E. Do Not Purchase Milk and Dairy

**15. How much more (than conventional price) would you be willing to pay for a gallon of locally produced natural milk from grass-based dairies?**

- A. 0%
- B. 10%
- C. 20%
- D. 30%
- E. 40%
- F. 50%
- G. Do Not Purchase Dairy or “Other”

**16. When you purchase food, how important is it for you to know:**

Very Important	Important	Somewhat Important	Not Important
----------------	-----------	--------------------	---------------

- Where the food is grown
- Where the food processor is located
- How big the farm is where it is grown
- How big the company is that processes the product
- Whether it is organically produced
- For meat, where the animal was raised on pasture
- Food producers’ environmental practices
- Food producers’ labor practices
- Food producers’ marketing practices

(continued)

- Presence of additives in the food
- Presence of genetically modified ingredients
- Food safety record of the food processor

**17. Do you currently have access to the information you would like to have to make food purchase choices in light of the above-cited issues?**

- A. No
- B. Yes
- C. I'm not interested in accessing that information

**18. In what forms would you access this information? (Assuming you are interested in info)**

- |                          | Would Use<br>Frequently | Would Use<br>Sometimes | Would Never<br>Use |
|--------------------------|-------------------------|------------------------|--------------------|
| A. Web site              |                         |                        |                    |
| B. Booklet               |                         |                        |                    |
| C. Newsletter            |                         |                        |                    |
| D. Mass Media            |                         |                        |                    |
| E. Grocery store signage |                         |                        |                    |
| F. Product label         |                         |                        |                    |

**19. How much do you trust each of these sources on information about your food?**

- |                                   | A Lot | Most of<br>The Time | A Little | Not at All |
|-----------------------------------|-------|---------------------|----------|------------|
| Farmers                           |       |                     |          |            |
| Universities                      |       |                     |          |            |
| Cooperative Extension             |       |                     |          |            |
| Advocacy Organizations            |       |                     |          |            |
| Food Stores                       |       |                     |          |            |
| Food Processors and Manufacturers |       |                     |          |            |
| Federal Government                |       |                     |          |            |
| State Government                  |       |                     |          |            |

- 
- 20. What is your age?**
- 21. How many adults (19 and over) live in your household?**
- 22. How many children (18 and under) live in your household?**
- 23. Are you male or female?**
- 24. What is your ethnicity?**
- 25. What is your annual household income?**
- 27. What state do you live in?**
- 28. Where do you live?**
- A. City with at least 50,000 people or metropolitan area
  - B. Small city with 5,000 to less than 50,000 people
  - C. Small town with less than 5,000 people