MARKET OPPORTUNITIES FOR MISSOURI ARTISAN CHEESE
FY 2011

This project was designed to assist Missouri dairy producers and marketers assess niche market opportunities for artisan cheese. The study began with a comprehensive survey of Missouri consumers to determine preferences in terms of product characteristics, buying location options, and price. Demographic information was gathered from the respondents. The survey included both visual and multiple-selection questions which were used to determine attributes that consumers would like to see on product labels. In phase two of the project, researchers surveyed grocery store deli managers to learn about their interest in carrying local cheeses; preferences for types, pricing and mark-up; and preferences for specials and advertising.

FINAL REPORT

Contact:
Dr. Joe Parcell
University of Missouri-Columbia
573-882-0870
parcellj@missouri.edu

Federal State Marketing Improvement Program (FSMIP)

Final Report:
Market Opportunities for Missouri Artisan Cheese

Agreement Number: 12-25-G-1284

Developed by:

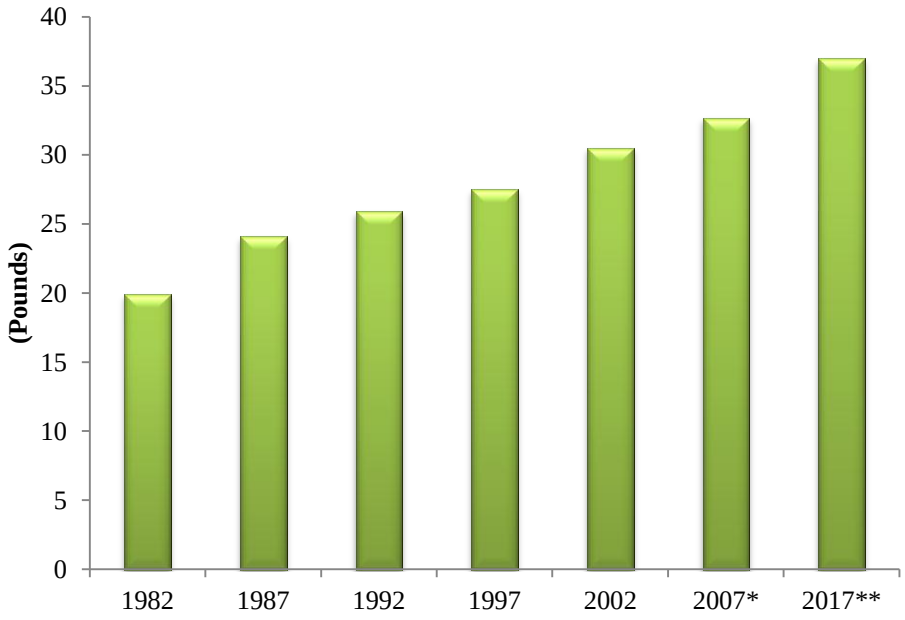
Dr. Joe Parcell
143 Mumford Hall
University of Missouri-Columbia
Phone: (573) 882-0870
E-mail: parcellj@missouri.edu

1. Project Importance

Missouri offers the right combination of demographics, population, and small-scale dairies to provide considerable opportunities for artisan cheese production and marketing. Already, many small-scale Missouri dairies are entering niche cheese production. The current economic stress in the dairy industry has hastened the pace of small-scale dairies to look for new value-added product opportunities. A lack of understanding about market needs and market opportunities limits many such dairies from pursuing value-added product processing. Providing current and emerging dairy producers with market opportunity information will assist these dairy entrepreneurs in brainstorming ideas and concepts to better meet consumer wants and needs.

Domestic cheese consumption has increased steadily during the past 30 years. Between 1997 and 2007, cheese consumption increased by 5.2 pounds per capita, according to the USDA. Because of the increased consumption, now 40 percent of U.S. milk production is utilized for cheese-making, according to the International Dairy Foods Association. Exhibit 1 shows U.S. per capita cheese consumption from 1982 to 2017. As seen, cheese consumption is projected to increase to 37 pounds per capita by 2017.

Exhibit 1: U.S. Per Capita Cheese Consumption, 1982-2017



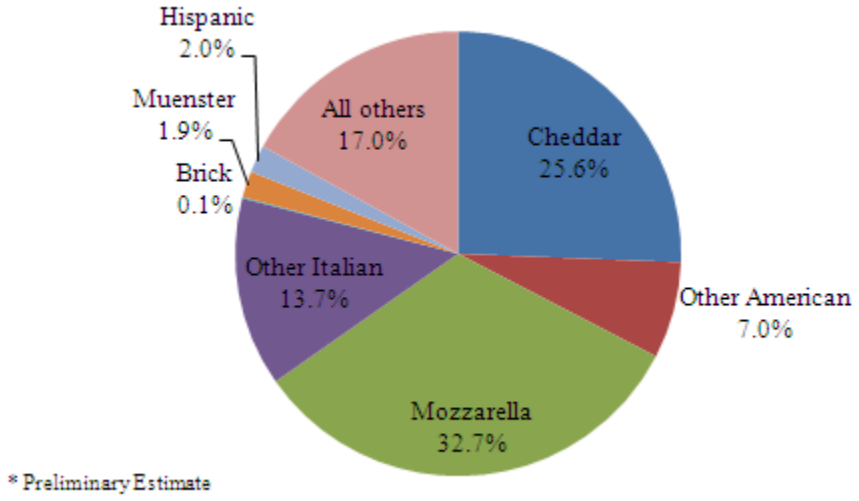
* Preliminary
** Projected

Source: USDA/ERS, Livestock, Dairy, and Poultry Outlook; FAPRI, 2008 Agricultural Outlook

Of all cheese produced, cheddar production and mozzarella production together constitute a 65 percent market share. See Exhibit 2 for a full view of U.S. cheese production by variety.

According to a 2008 study by the International Dairy-Deli-Bakery Association highlighted by *Food Processing* magazine, cheese trends include consumers favoring natural instead of processed and manufacturers connecting cheese to its geographic origin. Specialty cheeses build on these trends and have fueled a niche that grew more than 8 percent from 2006 to 2007, according to *Food Processing*.

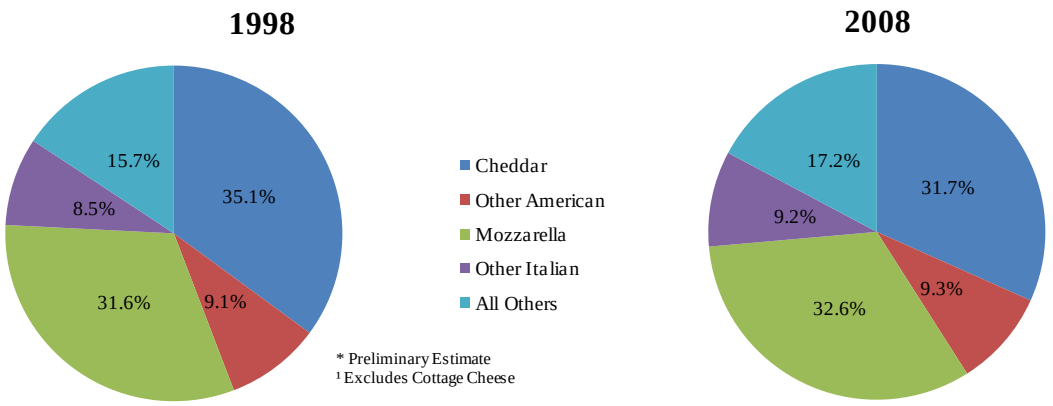
Exhibit 2. U.S. 2008* Cheese Production by Variety



Source: USDA, Dairy Products Annual Summary

Exhibit 3 illustrates the change in cheese production by variety in years 1998 and 2008. As seen, each variety's share of total production is relatively consistent during the 10-year period. Cheddar production decreased more than 3 percentage points from 1998 to 2008, but no single variety experienced marked increases in market share during the observed period.

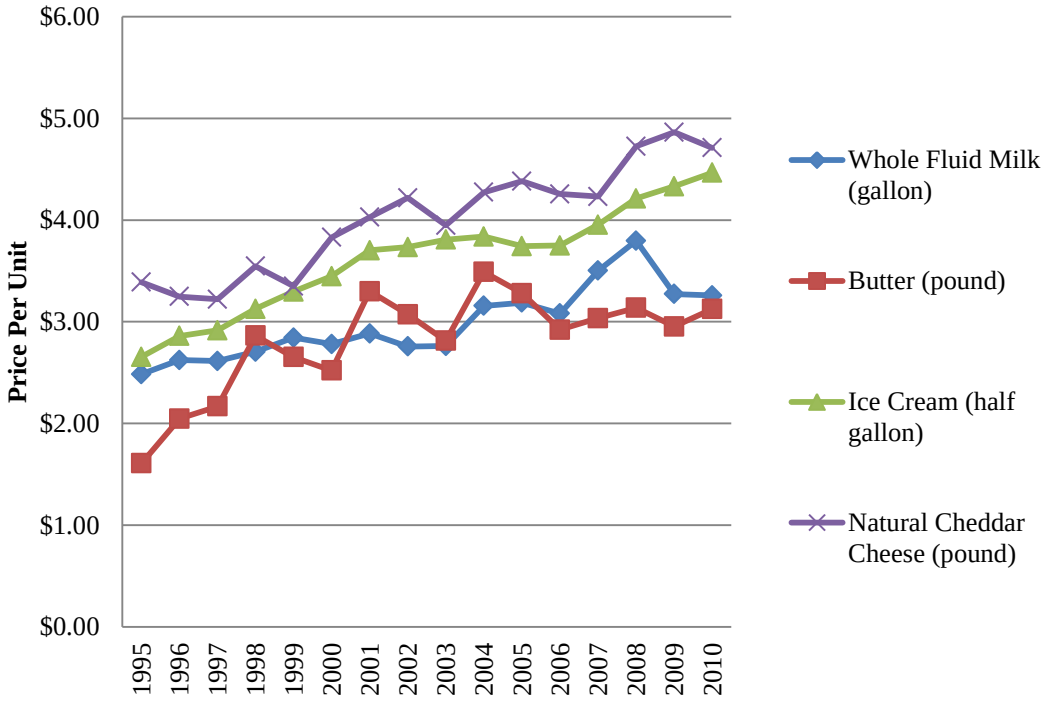
Exhibit 3. U.S. Cheese[1] Production by Variety



Source: USDA, Dairy Products Annual Summary

Exhibit 4 illustrates that U.S. retail dairy product prices experienced some fluctuation between 1995 and 2009, but they generally have followed an upward trend.

Exhibit 4. U.S. Retail Dairy Product Prices



Source: University of Wisconsin

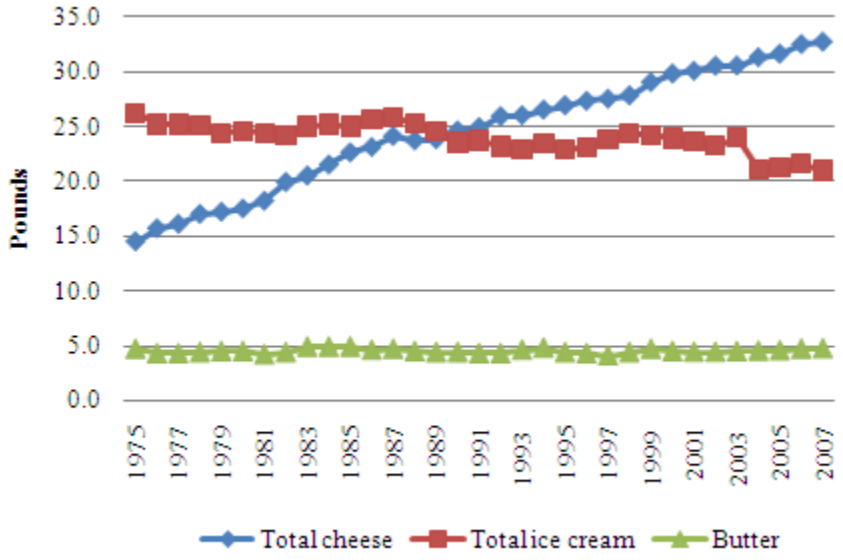
Forty percent of food retailers stock local dairy products, according to a 2006 Gourmet News survey featured in a Dairy Business Innovation Center newsletter. In a study by the FoodRoutes Network, consumers were less enthusiastic about locally produced products. However, these consumers showed more interest in product freshness; nearly 90 percent said that freshness was a factor that guided their food purchases. Farm-bottled milk and farmer-produced dairy products could be perceived as fresher, and further market research will show whether consumers in Missouri feel similarly.

According to an August 2010 news story in *Food Business News*, "local" product claims likely have further reach with consumers than "organic" product claims. A *Dairy Foods* report said that reducing the distance between the point of production and the point of consumption has been an important trend that's shaped the dairy category.

The University of Georgia studied whether consumers are interested in buying locally produced milk. The investigators found that 36 percent of consumers surveyed were "somewhat likely" to buy locally produced milk, and 28 percent were "very likely" to buy locally produced milk. The University of Georgia adjusted these responses to account for individuals who provide a more desirable response – in this case, that they're likely to buy locally produced milk – but don't follow through. To standardize the purchase intention research, the study assumes that 80 percent of those who were "likely" to purchase actually make a purchase, and 60 percent of those who were "somewhat likely" to purchase actually make a purchase. Given this, the researchers estimate that 22 percent of respondents were "very likely" to purchase locally produced milk, and 22 percent were "somewhat likely" to purchase locally produced milk.

Exhibit 5 illustrates the U.S. per capita consumption of butter, cheese, and ice cream from 1975 to 2007. Generally, consumers have altered their diets to include more cheese and less ice cream during this time period. Butter consumption has stayed relatively constant.

Exhibit 5. Per Capita Dairy Product Consumption Trend

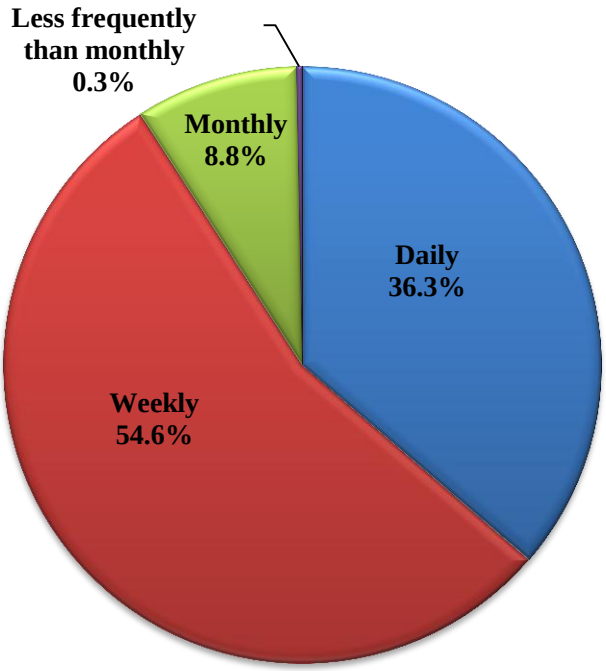


Source: USDA

In 2010, Value Ag, LLC – an agricultural consulting firm – surveyed consumers to identify food industry consumer preferences and unique purchasing trends. A total of 840 consumers who live in the Kansas City metropolitan area responded to the survey. The average household income of survey respondents was between $51,000 and $75,000. Fifty-seven percent were female, and 42 percent were male. All respondents were the primary shopper of the household and lived in the Kansas City metro area. Below are a series of figues that depict these trends as they relate to Missouri demographic factors. This information is used to evaluate the market opportunity for artisan cheese production in Missouri.

According to the survey, on average, Kansas City metro survey respondents consume cheese (cheese alone or cheese as a cooking ingredient) at least once per week. Thirty-six percent consume cheese daily. All respondents consume cheese at least once per year; no respondents indicated that they "never" consume cheese by itself or as a cooking ingredient.

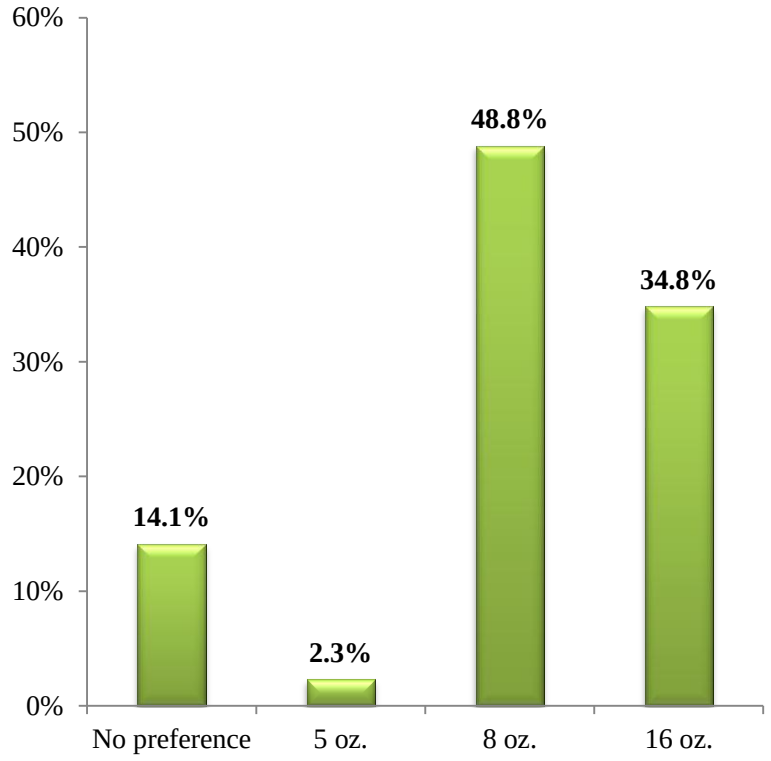
Exhibit 6. Frequency of Kansas City Metro Consumers' Cheese Consumption



Source: Value Ag, LLC

Exhibit 7 depicts the package size that consumers look for when purchasing cheese. Most consumers prefer an 8-ounce package versus a 5-ounce package or a 16-ounce package. Fourteen percent of respondents indicated that they had no preference for cheese package size.

Exhibit 7. Package Size Preferences



Source: Value Ag, LLC

Educating consumers about artisan cheese products will be key to successfully launching any new artisan cheese product. Exhibit 8 indicates consumers' knowledge of artisan cheese production practices. Seventy-five percent of respondents know that artisan cheese is made on a small scale, and 73 percent know that artisan cheese is made primarily by hand.

Exhibit 8. Respondents' Knowledge of Artisan Cheese Production Practices

Artisan cheese is made on a large scale.	4.5%
Artisan cheese is made on a small scale.	75.9%
Artisan cheese is made primarily by hand.	73.6%

According to census data, 5.9 million people lived in Missouri as of 2009. This number increased by 5.4 percent from 2005, and this indicates that the Missouri population followed the national population by increasing during the course of the four-year period (2005-2009). Of the 5.9 million people living in Missouri, 84.9 percent are Caucasian, and the majority are 35- to 44–year-olds. 51 percent of the total population is female, thus important due to the female population taking on responsibility for the majority of household grocery shopping.

The average Missouri household in 2008 had a household income of $46,847. The majority of households make between $50,000 and $74,999 annually. Nearly 24 percent of Missouri households have children under the age of 18. Cheese consumption might be especially important in these households because cheese is a calcium source, and calcium is key to children's growth and health.

2. Project Approach

The goal of the Marketing Opportunities for Missouri Artisan Cheese project was to assist Missouri dairy producers and marketers in promoting Missouri artisan cheese, to assess consumer willingness-to-pay for artisan cheese products and to look for artisan cheese niche market opportunities. The objectives included:

Objective 1: Conduct a comprehensive consumer survey to determine product wants, needs, buying location preferences, and pricing for Missouri artisan cheese.

A comprehensive consumer survey was developed and administered electronically in spring 2013.This survey helped to identify consumer willingness-to-pay for Missouri artisan cheese. Demographic information was gathered from the respondents. The survey included both visual and multiple-selection questions, which will be used to determine attributes that consumers would like to see on product labels. The goal of this survey was to assess the interest that consumers have in a cheese product made in Missouri and to determine their willingness to pay for such products.

Objective 2: Survey grocery store deli managers to learn about their interest in carrying local cheeses; preferences for types, pricing and mark-up; and preferences for specials and advertising.

A survey of deli managers at Missouri stores was assessed to identify interest and willingness-to-pay for Missouri cheese attributes. The attributes include "artisan," which is normally identified as cheese produced primarily by hand, in small batches, with particular attention paid to the tradition of the cheese maker's art, and by using as little mechanization as possible. Reaction and feedback from the professional respondents is included in the market study in addition to an Extension publication titled, "Retail Grocers' Perceptions".

Objective 3: Develop market study.
A market study was developed to include information obtained from objectives one and two. To view the complete market analysis, please visit the University of Missouri Extension (http://extension.missouri.edu/p/G3661) site.

3. Public and Private Contribution

The University of Missouri surveyed Missouri consumers and Missouri retail grocers to identify Missouri artisan cheese purchasing and marketing preferences. Information obtained through the survey is included in the market study and Extension publications.

Dr. Parcell of the University of Missouri collaborated with Dr. Gedikoglu from Lincoln University to develop a journal publication that was submitted to the *Journal of International Food and Agribusiness Marketing.*

4. Project Results/Conclusion

The potential for artisan cheese varieties appears promising. External factors such as the implementation of the Uruguay Round, which has brought down subsidies for European cheese exports, can further open markets both domestically and abroad. Already, U.S. cheese exports have seen tremendous growth. Its market share increased from 4 percent of global cheese exports in 2000 to 13 percent in 2010.

Domestic consumption of specialty cheese varieties is also on the uptrend. It has grown by 94 percent from 1993 to 2004 and is projected to increase more given the growing popularity of Hispanic and European cuisines in the American diet as well as the increase in easy-to-consume specialty cheese packages made accessible in retail channels.

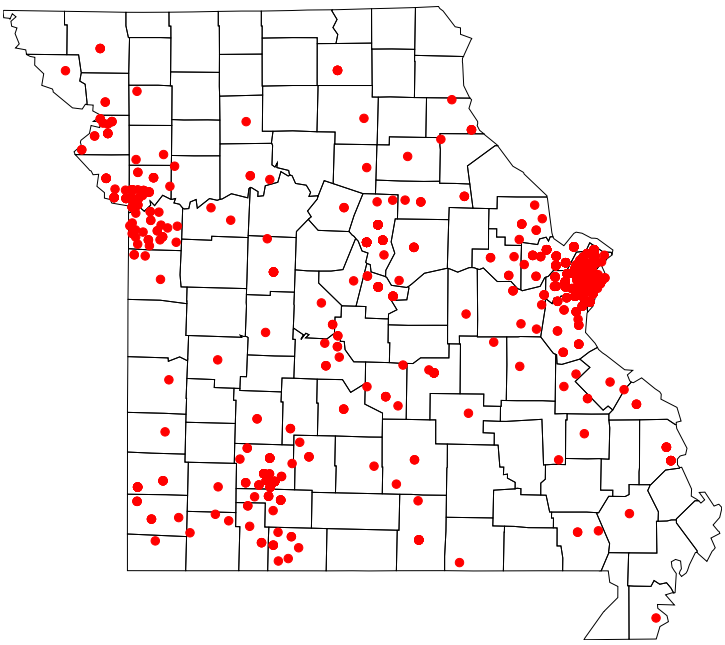
Missouri offers the right environment to take advantage of the growth in the industry. There are 1,530 licensed dairy herds in Missouri and is the 25th largest milk-producing state in the U.S. At least seven artisan cheese producers have established niche markets and are well on their way in sustaining and growing their businesses. The survey of grocery chain stores conducted for this study shows that if supply reliability issues can be addressed, then local producers can gain a stronger foothold on grocery chains to reach the end consumers.

Farmers markets and online retail do not seem to be preferred channels from which consumers source artisan cheese, but development of institutional support in more holistic marketing campaign for Missouri artisan cheeses, similar to the strategy adopted by Wisconsin and California, can boost familiarity and patronage for Missouri artisan cheeses.

Local markets appear ripe for artisan cheeses; almost a majority of consumers either already consume artisan cheese varieties or are interested to do so. The gap appears to be in educating consumers about which of the cheeses available today are artisan. Based on the consumer survey research conducted for this study, a majority does not know what artisan cheeses are, and some wonder where they can buy these products. Of those who already patronize the artisan varieties, many are cognizant of the price premium that these command. However, taste, not price, is one of the most important attributes.

The survey consumer survey collected responses from 1,079 Missouri residents. The map below displays that noticeable clusters of the respondents reside in the St. Louis and Kansas City areas, but other areas are also well-represented.

Exhibit 9. Survey Area



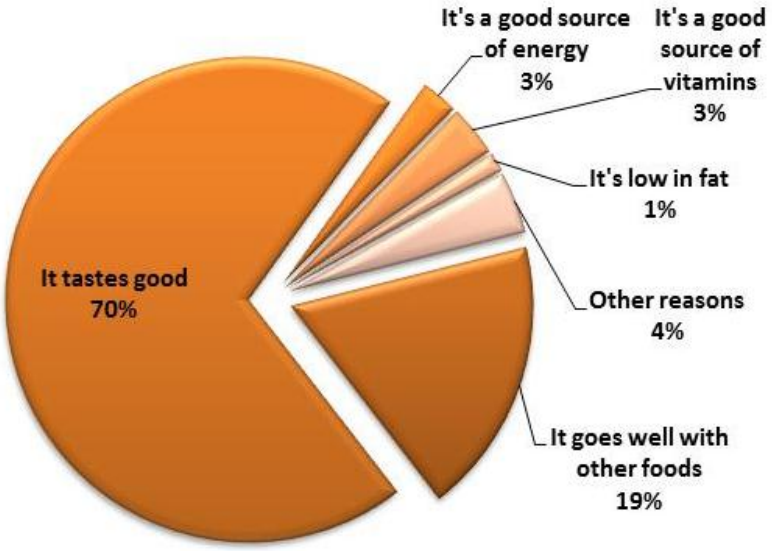
The respondent profile is summarized below:

- 54.4 percent were female, and 45.6 percent were male.
- Almost 60 percent of the participants were between the ages of 35 and 64.
- Ninety-three percent of respondents are white.
- Highest level of education is distributed as follows: 24 percent are high school graduates, 13.7 percent have associate degrees, 37.7 percent have bachelor's degrees, 16.9 percent have master's degrees, and 7 percent have doctoral degrees.
- Distribution according to income is as follows: 10.3 percent make $0 to $25,000, 21.1 percent make $26,000 to $50,000, 21.5 percent make $51,000 to $75,000, 19.2 percent make $76,000 to $100,000, and 27.9 percent make more than $100,000.

The consumer survey provided key findings to the research team that were included in the market study. Below represents the key marketing and production-related considerations for local cheesemakers.

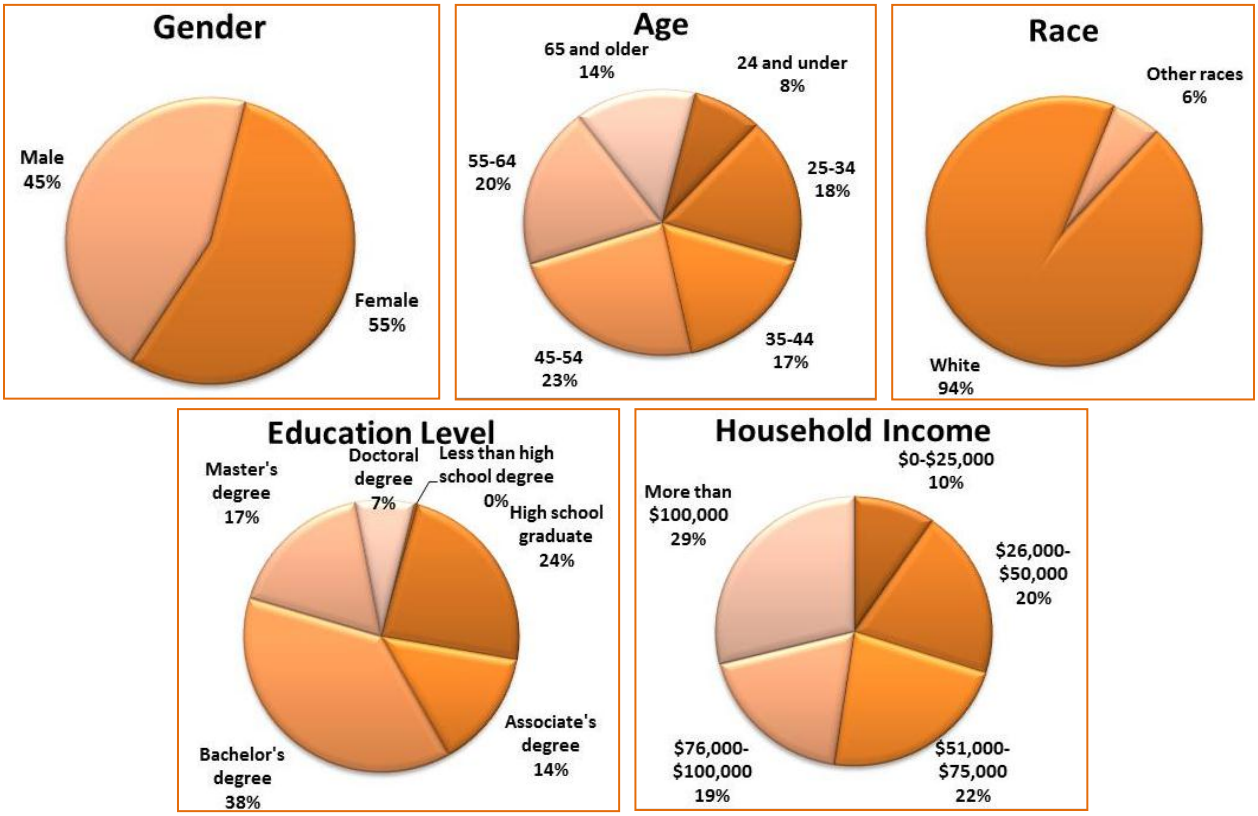
Most people (87 percent) eat cheese, and they do so mainly because they like the taste of it. Hence, flavor is important.

Exhibit 10. Reasons for Eating Cheese



A frequent cheese eater is typically white, is 25 years old to 64 years old, has an annual household income of at least $26,000 and has at least earned a high school degree.

Exhibit 11. Distribution of Respondents Who Consume Cheese "At Least Weekly"



Although most respondents were cheese eaters, many were unfamiliar with the "artisan" varieties. There is evidently a need for marketing or an information campaign that will help consumers identify and get familiar with artisan varieties. On top of this, availability of artisan cheese is also an issue.

Exhibit 12. Reasons for Not Consuming Artisan Cheese

Reasons	% of Total Who Do Not Buy Artisan Cheese
I don't know what artisan cheese is.	52%
It's too expensive.	27%
Artisan cheese is not available in my area.	15%
It's not an important product attribute.	14%
I don't like the taste of artisan cheese.	5%
It's not available in the varieties that I like.	3%

Those who buy artisan cheeses consume it at least monthly, and it's typically consumed as a snack or complement with other products such as wine. Hence, they would also typically prefer easy-to-consume product formats such as pre-packed bricks, curds, sliced, spreads, or snack-size.

Exhibit 13. Reasons for Consuming Artisan Cheese

Reasons	% of Total Artisan Cheese
Snack	34%
Used as complement with other product (i.e. wine)	19%
Appetizer	16%
Cooking ingredient	13%
Entertainment	13%
Family traditions	2%
Previous experience (travel, gift, restaurant courses)	2%
Recommendations (from friends or sales staff in store)	2%
TOTAL	**100%**

Important attributes of artisan cheese are taste, made with natural milk, price, package size, and health or fat content. Along with taste, cheese with special flavors such as smoked and herb varieties are popular, and consumers are generally inclined, if they haven't already done so, to try the flavored varieties.

Exhibit 14. Artisan Cheese Attributes

Degree of Importance	TASTE	Made with natural milk	Made with organic milk	Made with goat milk	Made with cow milk
Very important	90%	22%	8%	5%	10%
Quite important	8%	32%	15%	10%	16%
Fairly important	2%	24%	28%	19%	31%
Slightly important	0%	13%	21%	22%	19%
Not at all important	0%	10%	27%	44%	24%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**

Degree of Importance	Health attribute (fat content)	Price	Package size	Domestic cheese	Imported cheese
Very important	14%	22%	11%	11%	5%
Quite important	23%	36%	32%	19%	8%
Fairly important	27%	27%	35%	24%	26%
Slightly important	19%	11%	15%	20%	26%
Not at all important	17%	4%	7%	25%	35%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**

Most artisan cheese buyers buy cheese from the most convenient retail channel – grocery chain stores. Others buy from local specialty stores, albeit typically less than once per month. Only 11 percent indicated that they buy it directly from processors.

Exhibit 15. Retail Channel

Retail Channel	% of Total Artisan Cheese Buyers
Grocery chain stores	78%
Local specialty stores	50%
Health and organic food stores	25%
Direct from processors	11%
Other sources	7%
Online	4%

Most artisan cheese buyers recognize that these varieties are premium products. They will be willing to pay 20 percent more for those that are domestically produced.

Exhibit 16. Premium for Domestic vs. Imported Artisan Cheese

Percent Premium	% of Total Artisan Cheese Buyers
None	20%
Less than 20% more	38%
20% more	32%
30% more	5%
More than 50% more	3%
50% more	2%

Consumers define local products as those produced within state boundaries.

Exhibit 17. Definition of Local

Categories of "Local"	% of Total Cheese Eaters	% of Artisan Cheese Buyers	% of Artisan Cheese Buyers Willing to Pay More for Domestic Cheeses
From within my city or town	17%	14%	13%
From within my county or surrounding counties	36%	36%	36%
From within the state	35%	39%	41%
From surrounding states	9%	8%	8%
Other (please specify)	2%	3%	3%

In addition to the consumer survey, another primary research activity conducted for this study involved interviewing retail grocer representatives to learn about how local cheese producers can connect with Missouri grocery chains. The interviews aimed to better understand store preferences for cheese, pricing and mark-up, and special promotions and advertising.

Of the 10 mainstream grocery chains interviewed, six already carry artisan cheese varieties. Two have done so in the past but stopped carrying the product, and the others have never sold artisan cheeses. Both natural markets sell artisan cheeses. Of those the stores that have never carried or stopped carrying artisan cheeses, the respondents mainly cited poor supply availability – either supply is inconsistent, or no artisan cheese is available to be sourced.

Other factors that cause chains to not stock artisan cheese include artisan cheese being more expensive and incompatibility with the stores' customer bases (e.g., customers are bargain hunters, so specialized cheeses with higher prices will not sell).

Exhibit 18. Percent of Cheese Sold that is Artisan

Type of Store	% of Cheese Sold that is Artisan		
	Average	Min	Max
Grocery chain	25%	10%	60%
Natural market	10%	10%	10%

In the consumer survey, consumers define the word "local" as products originating within the state's boundaries. Retailers, on the other hand, have a wider perspective. A majority said that local products are produced on a farm within the region or in a state that borders the state where a store is located. Some interviewees specified that they consider local products to originate from Missouri, Illinois, Michigan, Iowa, and Wisconsin.

Exhibit 19. Interviewees' Perception of "Local"

"Local" Boundaries	% of Total Retailers Selling Artisan Cheeses
Produced in a farm within the region or bordering states that my store is located	75%
Produced in a farm within the state that my store is located	25%

More natural markets (33%), on the hand, procure their artisan cheeses elsewhere in the U.S. compared to "local" or "abroad".

Exhibit 20. Sources of Artisan Cheeses

Type of Store	Sources of Artisan Cheeses	% of Total
Grocery chain	Locally produced	83%
	Produced elsewhere in the US	83%
	Imported from abroad	50%
Natural market	Locally produced	17%
	Produced elsewhere in the US	33%
	Imported from abroad	17%

All respondents mentioned that cheese quality and supply dependability were important factors that would influence a store's purchasing decisions. Grocery chains tended to consider price and potential margin as important. Only one of the two natural markets agreed.

Exhibit 21. Supplier Attributes

Type of Store	Sources of Artisan Cheeses	% of Total
Grocery chain	Quality of cheese	100%
	Dependability of supply	100%
	Reputation	83%
	Price of the cheese and potential margin	100%
	Customers' familiarity with the brand	50%
Natural market	Quality of cheese	100%
	Dependability of supply	100%
	Reputation	50%
	Price of the cheese and potential margin	50%
	Customers' familiarity with the brand	0%

Retail grocers are sometimes faced with challenges while sometimes opportunities present themselves. Below outlines the challenges and opportunities that they have encountered in selling artisan cheese.

Exhibit 22. Summary of Challenges and Opportunities

Challenges	Opportunities
Consumer awareness/product familiarity	Consumers' preference for local products
Product seasonality, supply availability and taste consistency	Increased accessibility (grocery stores instead of seasonal farmers' market)
Higher price	Consumers' increasing preference for healthier food types

5. Current and Future Benefits

Opportunities are present for local dairies to market artisan cheese product as the consumer survey showed that consumers prefer local products in addition to those that promote health and are readily available. However, not all consumers are familiar with artisan cheeses nor want to pay a higher price for the handcrafted product.

By determining consumer willingness to pay for Missouri artisan cheese products, Missouri based cheesemakers are able to cater to consumer wants and needs. The information included in the market study will be made available online for both new and existing cheesemakers so they can better be informed of market opportunities for their artisan cheese product.

6. Future Research

Based on findings from this project, opportunities are present for future research of value-added dairy products. The University of Missouri Value Added Center submitted a FSMIP proposal in May 2013 to determine whether opportunities exist for Missouri dairy producers to market their value-added fluid milk products in three urban markets: St. Louis, Kansas City and Springfield. From a technical perspective, operating a value-added dairy that bottles and markets milk is technically feasible. A significant factor that influences the success of these dairies is access to markets that will demand and pay for milk products. This study will articulate demand potential for milk and milk product preferences that consumers in the three urban markets hold.

Since the mid-1990s, Missouri has had a milk deficit, meaning that the state's milk production hasn't met its milk demand. Over time, Missouri's milk demand has gradually increased, and production has decreased. In 2011, Missouri's milk deficit was about 2.2 billion pounds. The milk deficit signals a problem. Missouri can't fulfill its own milk demand, yet Missouri dairies have been closing. In total, about 44 percent fewer Missouri dairies operated in 2011 than in 1997. Milk price and production cost dynamics have played a role in the decline. Although milk prices reached all-time highs in 2011 and still are relatively high, costs challenge profitability. The small gap between milk price and feed costs leaves little room for dairy producers to cover expenses and earn profit.

These factors establish that Missouri dairy operations must improve their competitiveness and viability. Fluid milk bottling could allow Missouri dairies to capture more value for their milk and improve their financial viability. For such value-added dairies to operate successfully, they need access to markets that demand their products. This project will focus on identifying value-added fluid milk opportunities in three Missouri urban markets: St. Louis, Kansas City and Springfield. Urban markets were selected because they have the potential to demand the most volume. Administering a consumer survey will provide data that can be used to quantify fluid milk demand in these markets and identify fluid milk product preferences. A market study will share these survey data and summarize fluid milk marketing opportunities for Missouri dairies.

7. Project Beneficiaries

This project benefits Missouri artisan cheese consumers and producers alike.

A succinct overview of Missouri's dairy industry is presented in the figure below.

Exhibit 23. Missouri Dairy Production Statistics

Source: http://www.midwestdairy.com/0t253p205/dairy-stats/

Research indicates, that the well-advertised farmstead artisan cheese producers are scattered throughout the state of Missouri, indicating that cheesemaking can develop within any part of the state. There are seven farmstead cheese producers who are members of and featured in AgriMissouri, an online resource that promotes Missouri-made products through a variety of marketing efforts and promotional events. These include Baetje Farms, Goatsbeard Farm, Green Dirt Farm, Homestead Creamery, Lavy Dairy Farm/Golden L Creamery, Lorenae Dairy, and Shatto Milk Company. Most of these companies have websites. Because of this, information about their cheese products is easily found online. This study can benefit artisan cheese producers currently in production in addition to those who are interested in a value-added product or new artisan product for a new or existing dairy.

The information obtained from this study can potentially benefit any Missouri based dairy that's focused on value-added products in addition the informing consumers of the various artisan cheeses available and locations in which they can be purchased.

8. Publications and Presentations

a. Two University of Missouri Extension publications were created from the consumer and grocer survey data. The "Artisan Cheese in Missouri Retail Grocers' Perceptions" publication – G3661 - can be found at http://extension.missouri.edu/p/G3661: while the "Artisan Cheeses in Missouri

Consumer Buying Habits and preferences" publication –G3662 - can be found at: http://extension.missouri.edu/p/G3662.
A PowerPoint presentation was developed to accompany the Extension publications that include all tables and figures within the completed market study. The PowerPoint was provided to Federal-State Marketing Improvement Program of the Agriculture Marketing Service, U.S. Department of Agriculture.

Dr. Parcell collaborated with Dr. Haluk Gedikoglu – Lincoln University – to submit a publication titled, "Variation of Consumer Preferences between Domestic and Imported Food: The Case of Artisan Cheese" to the Journal of International Food and Agribusiness Marketing in 2013. Data was analyzed from the consumer artisan cheese survey and used within the paper submitted to the journal.

Parcell and Gedikoglu also presented at the 2012 Agricultural and Applied Economics annual meeting in Seattle, Washington. The title of their presentation was, "Consumer Preference Variation between Domestic and Imported Food". Information included in the presentation was derived from the surveys completed for this project.

9. Contact Information

a. Dr. Joe Parcell
Phone: 573-884-1756
E-mail: parcellj@missouri.edu

Missouri Artisan Cheese

Market Study

Prepared By

Missouri Value Added Center

University of Missouri

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Executive Summary

The potential for artisan cheese varieties appears promising. External factors such as the implementation of the Uruguay Round, which has brought down subsidies for European cheese exports, can further open markets both domestically and abroad. Already, U.S. cheese exports have seen tremendous growth. Its market share increased from 4 percent of global cheese exports in 2000 to 13 percent in 2010.

Domestic consumption of specialty cheese varieties is also on the uptrend. It has grown by 94 percent from 1993 to 2004 and is projected to increase more given the growing popularity of Hispanic and European cuisines in the American diet as well as the increase in easy-to-consume specialty cheese packages made accessible in retail channels.

Missouri offers the right environment to take advantage of the growth in the industry. There are 1,530 licensed dairy herds in Missouri and is the 25th largest milk-producing state in the U.S. At least seven artisan cheese producers have established niche markets and are well on their way in sustaining and growing their businesses. The survey of grocery chain stores conducted for this study shows that if supply reliability issues can be addressed, then local producers can gain a stronger foothold on grocery chains to reach the end consumers.

Farmers markets and online retail do not seem to be preferred channels from which consumers source artisan cheese, but development of institutional support in more holistic marketing campaign for Missouri artisan cheeses, similar to the strategy adopted by Wisconsin and California, can boost familiarity and patronage for Missouri artisan cheeses.

Local markets appear ripe for artisan cheeses; almost a majority of consumers either already consume artisan cheese varieties or are interested to do so. The gap appears to be in educating consumers about which of the cheeses available today are artisan. Based on the consumer survey research conducted for this study, a majority does not know what artisan cheeses are, and some wonder where they can buy these products. Of those who already patronize the artisan varieties, many are cognizant of the price premium that these command. However, taste, not price, is one of the most important attributes.

The rest of the insights contained in this market study should hopefully bridge the information gap and provide current and emerging dairy producers with market opportunity information that will help them brainstorm ideas and concepts to better meet consumer wants and needs.

1. Research Background and Justification

The U.S. cheese market has grown steadily in the past three decades. According to the U.S. Department of Agriculture (USDA), per capita cheese consumption between 1982 and 2012 averaged about 30 lbs. Consumption is projected to reach 37 pounds per capita by 2017. Consumer research firm Mintel, Inc., presents an equally robust outlook. In its 2012 report, Mintel estimates the value of this industry to be approximately $19 billion. It forecasts an average annual growth in sales of about 5 percent, making this a $24 billion market by 2016.

Missouri offers the right combination of demographics, population, and small-scale dairies to provide considerable opportunities to partake in this multi-billion dollar market. Although approximately 20 percent of the industry is currently dominated by brand leader Kraft, the potential to penetrate niche markets within increasingly differentiated product segments is an opportunity for small-scale artisan cheese producers.

Already, many small-scale Missouri dairies are entering niche cheese production. The recent financial crisis has hastened the pace of these dairies to look for new value-added product opportunities. However, lack of understanding about market needs and market opportunities limits many from pursuing value-added product processing. Providing current and emerging dairy producers with market opportunity information will assist these entrepreneurs in brainstorming ideas and concepts to better meet consumer wants and needs. This market study aims to bridge the information gap.

This report includes an introduction to the different cheese varieties, brief history of cheesemaking in the U.S., product supply chains, consumption trends, and market shares. This information provides the context within which market opportunities for Missouri artisan cheese are discussed.

Alongside the more general discussions on the cheese industry and cheesemaking business on a national scale, special attention is given to the results of a Missouri consumer survey and grocery chain deli manager interviews. These two primary data zero in on specific business questions for Missouri artisan cheeses.

The consumer survey sheds light on product wants, needs, buying location preferences, and pricing. The grocery chain survey delves into opportunities for local artisan cheese producers to connect with retail channels in the area.

2. Cheese Segments and Varieties

According to the International Dairy Foods Association, cheese is a "highly nutritious and palatable food that contains almost all of the protein and essential minerals, vitamins, and other nutrients of milk." Because cheese has a low glycemic index; is high in protein, vitamins, and minerals; and is available in different flavors and varieties, it is a highly sought ingredient in meals (National Dairy Council, 2005).

Not only is it highly nutritious and delicious, but cheese is also one of the most fascinating products. There are hundreds of types and varieties of cheeses from which to choose. The International Dairy Federation recognizes more than 500 varieties. Other institutions account for more. A study entitled "Cheese: Chemistry, Physics and Microbiology: Major Cheese Groups" provides a comprehensive discussion about categorizing cheese varieties (Fox et al., 2004). Some of these categorizations are discussed below. Others are left to cheese aficionados who would like to learn more and can sift through the more technical aspect of cheesemaking.

2.1. Common Categories

The more obvious categorization of cheese is associated with the dairy animal that produced the milk: cow, sheep, goat, moose, camel, reindeer, horse, or yak (cheese.com).

Cheese is also often broadly segmented into natural cheese and processed cheese. Natural cheeses can be unripened or ripened. Unripened cheeses are made by coagulating milk proteins (casein) with acid. Examples include soft cheeses like cream cheese, cottage cheese and Neufchatel. Ripened cheeses are made by coagulating milk proteins with enzymes (rennet) and culture acids. These cheeses are then ripened (aged) by bacteria or mold.

Natural cheeses are often categorized according to their moisture content or degree of softness or hardness. The most common texture categories are hard, pressed, uncooked, semi-hard, soft, flowered, washed, spotted, and ripened. *Figure 1* presents these categories, their description and some examples (www.eatwisconsincheese.com).

Categorizing cheese by moisture content is crucial to understanding product shelf life --the more moisture a cheese has or the softer it is, the shorter its shelf life. Shelf-life rapidly deteriorates once the cheese is removed from its packaging. Keeping the air out by tightly wrapping the cheese helps prevent spoiling. *Table 1* presents cheese shelf-life by moisture content.

Figure 1: Natural Cheese Varieties

Source: http://www.eatwisconsincheese.com

Table 1: Cheese Shelf-Life by Moisture Content

Cheese Type	Shelf Life
Soft unripened cheeses (ricotta, cottage cheese)	2 to 4 weeks
Soft-ripened cheeses (brie)	4 to 8 weeks
Semi-soft cheeses (muenster, Monterey Jack)	2 to 3 months
Firm cheeses (Swiss, Cheddar)	3 to 6 months
Hard cheeses (Parmesan, Romano)	7 to 9 months
Processed cheeses (American)	9 to 12 months

Source: http://www.dcicheeseco.com/about-cheese/faqs

Processed cheeses are cheeses made by blending one or more natural cheeses, heating, and adding emulsifying salts. Processed cheeses contain more moisture than natural cheeses. Pasteurized processed cheeses include American cheese, cheese spreads and cheese foods. Cold-pack cheese is a blend of natural cheeses processed without heat. Flavoring and seasonings are often added (Natural Dairy Council). It is inexpensive and consistent, and it melts smoothly. It is sold packaged and either pre-

sliced or unsliced in a number of varieties. It is also available in aerosol cans in some countries.

The above cheese varieties are often grouped into the following cheese types for reporting purposes: mozzarella, cheddar, other Italian, other American, cream/Neufchatel, Swiss cheese, Hispanic cheese, and other types of cheese (NASS).

Yet another way to segment the cheese industry is by manner of production. There are two main production categories for cheese: commodity cheese and specialty cheese. Commodity cheeses are found in the supermarket dairy case as pre-packaged and multi-sized products. They tend to be used more for cooking and baking. Examples of commodity cheese include cheddar, mozzarella, and Swiss cheeses that are produced in large quantities.

Specialty cheese on the other hand is a value-added product that has a high quality (flavor and appearance), is produced in much smaller quantities than commodity cheese, and demands a premium price from consumers. Specialty cheeses tend to be sold more in specialized shops such as delis. Specialty cheeses include Havarti, Italian varieties, Gouda, feta, Latin American, flavored, washed, or smear-ripened cheeses. They come from all types of milk (cow, sheep, goat) and may include flavorings, such as herbs, spices, fruits, and nuts.

Also related to manner of production, especially of natural cheese varieties, is another layer of segmentation: artisan cheeses and farmstead or homestead cheese. Artisans' dairy products are often handmade, or they're made using relatively small-scale specialty techniques in small batches. Artisan captures the uniqueness and special identity of each product as well as the artisan who makes it. Farmstead cheeses are those that are made on the farm from the milk produced on that farm.

Because artisan cheeses are made in "limited quantities using traditional methods with great attention to detail, and possessing unique taste and quality characteristics that differentiate them from other cheeses" (Reed etal, 2011), they are categorized as specialty cheeses.

Artisan cheeses are not necessarily farmstead, but the traditional technique and unique flavoring that characterize this cheese segment often make its production very vertically integrated. Hence, most, albeit not all, artisan cheeses are farmstead. "The Atlas of American Artisan Cheese" by Jeffrey P. Roberts features 345 artisan cheesemakers in the U.S. Seventy-three percent of artisan products inventoried in the book are homestead (*Appendix 1*).

The above categorization of cheeses, particularly the specialty cheese segment, is by no means clean cut. Compared with data gathering for commodity dairy products, data gathering for the specialty cheese category is a complex undertaking because information is fragmented. Government resources generally do not provide data broken down into the various cheese categories. This makes it challenging to track and analyze production and consumption of specialty cheeses, particularly the artisan and farmstead varieties. Categorization also varies by region. NASS field offices,

for instance, track 14 categories of specialty cheeses in Wisconsin but only seven in California (Ellerby, 2010).

The dynamic growth of the cheese industry makes categorizing complicated. For example, mozzarella used to be considered a specialty cheese, but that variety's massive growth as a pizza ingredient has firmly placed it in the commodity category (exempting "fresh" varieties that are water- or oil-packed and less than two weeks old). Various cheddar types also may or may not be considered "specialty," depending on their specific attributes (Ellerby, 2010).

2.2. Segment Market Share

The largest sector of the U.S. cheese market in 2011 was natural cheese, which generated 62.1 percent of the market's value. Natural cheeses encompass most of the more than 300 types of cheese available in the U.S. Cheddar is the leading type of cheese that consumers buy (among 89 percent as noted in the Household Cheese Usage section). *Table* 2 shows segment performance for 2009 and 2011.

Table 2: Cheese Segment Performance, 2011

Segments	2009		2011		Sales growth	Share change
	$Mn	% Market Share	$Mn	% Market Share	%	% Point
Natural cheese	11,031	61.5	11,732	62.1	6.4	0.6
Processed cheese	4,570	25.5	4,685	24.8	2.5	-0.7
Cream cheese/cream cheese spread	1,236	6.9	1,341	7.1	8.5	0.2
Cottage cheese	1,104	6.2	1,134	6.0	2.7	-0.2
Total	**17,941**	**100**	**18,893**	**100**	**5.3**	**-**

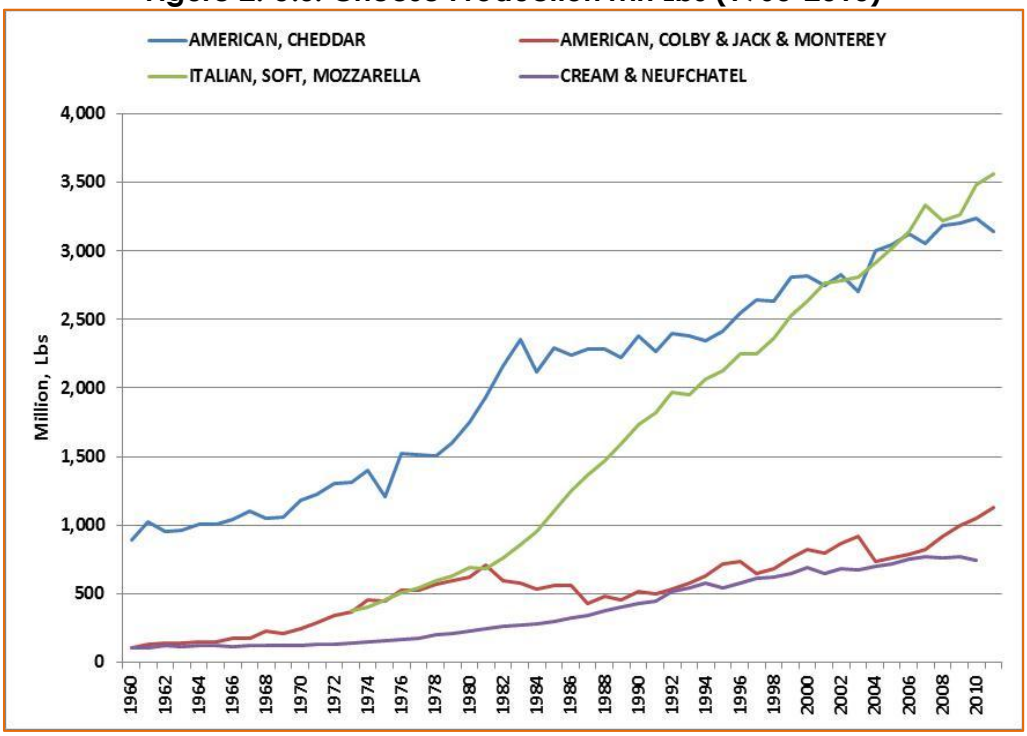
Source: Mintel/based on SymphonyIRI Group InfoScan® Reviews; U.S. Bureau of Labor Statistics, Consumer Expenditure Survey; USDA Economic Research

Figure 2 shows production of the top four cheese types from 1960 to 2010. These include cheddar, mozzarella, American, and cream and Neuchatel. Very notable in this chart is the sharp increase in the production of mozzarella; little was produced in the 1960s, but by 2010, more than 3.5 billion lbs were produced. Cheddar also showed an upward trend during the same period.

Production of other cheese types, graphed separately in *Figure* 3 and Figure 4 for clarity, also shows a generally increasing trend, especially for provolone, ricotta, and parmesan. Data for feta and Gouda are tracked separately by USDA starting in 2010 due to the significant increase in their production -- 78 million lbs and 19 million lbs, respectively, in 2010.

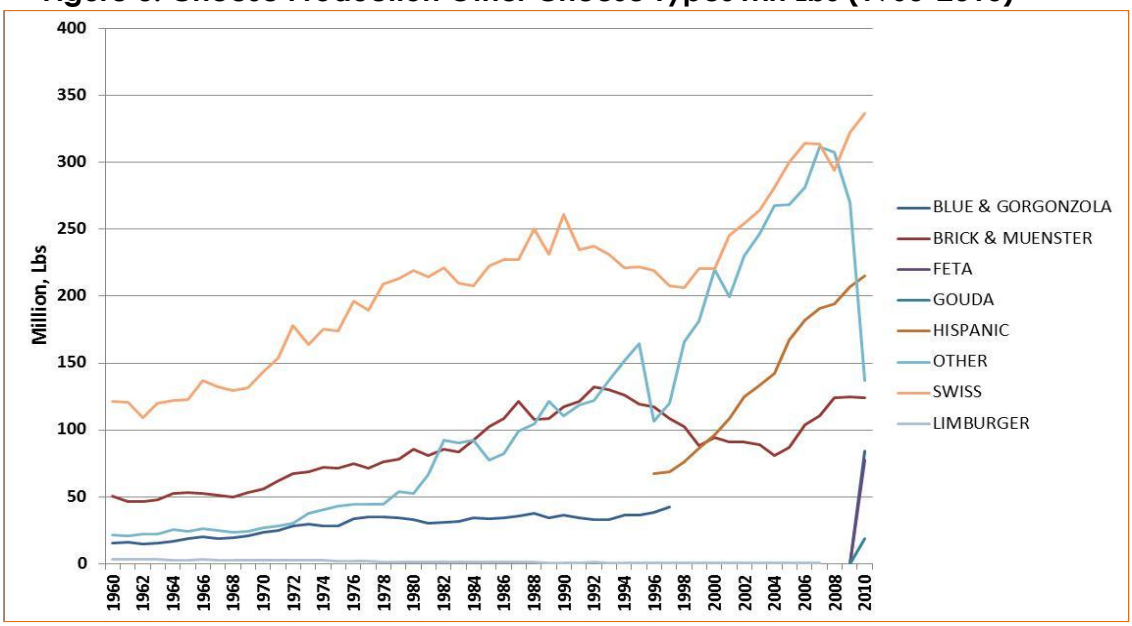
These trends help explain the overall growth in the U.S. cheese industry and reflect (i) consumers' preference for food consumed away from home; (ii) the introduction of new, convenient cheese products, such as re-sealable bags of shredded cheese; (iii) availability of specialty varieties; and (iv) the increasing prominence of foreign food such as Hispanic and Italian fares in the American diet (ERS, 2008).

Figure 2: U.S. Cheese Production Mn Lbs (1960-2010)



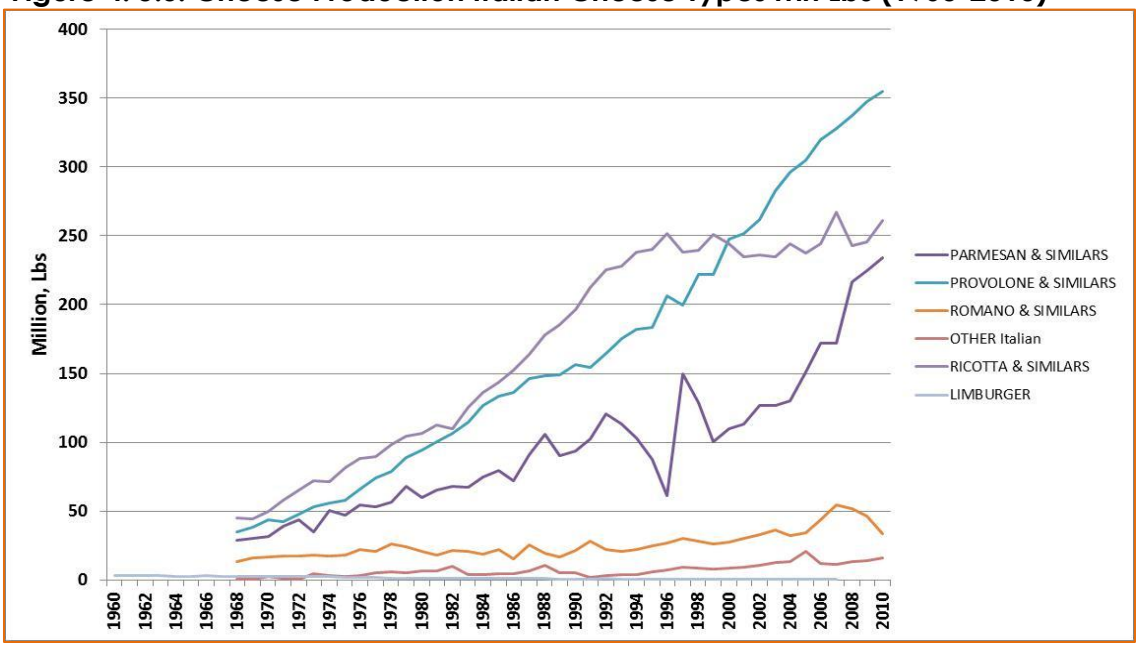
www.nass.usda.gov

Figure 3: Cheese Production Other Cheese Types Mn Lbs (1960-2010)



www.nass.usda.gov

Figure 4: U.S. Cheese Production Italian Cheese Types Mn Lbs (1960-2010)



www.nass.usda.gov

In spite of the data tracking issues related to specialty cheeses discussed above, there have been efforts to estimate its growth and market share. *Table 3* shows an estimate by the California Milk Advisory Board, which puts specialty cheese consumption at 9 percent of total cheese consumption in 2003 (Reed et al., 2011):

Table 3: Growth and Market Share of U.S. Farmstead and Artisan Cheeses

Type of Cheese Consumed	1994	2003	Growth
Total cheese consumption (Mn Lbs)	7,000	8,800	1,800 (+26%)
Specialty cheese consumption (Mn LBs)	420 (6% of total)	815 (9% of total)	395 (+94%)
Total cheese consumption per capita (Lbs)	26.6	30.6	4.0 (+15%)
Specialty cheese consumption per capita (Lbs)	1.6	2.8	1.2 (+75%)

Source: California Milk Advisory Board, 2004

For purposes of this study, specialty cheese was defined as a "natural cheese that commands a higher price than a commodity cheese because of its high quality limited production, and value-added production techniques or ingredients." This includes varieties commonly designated as specialty cheese; commodity-type cheese aged 12 months or longer (i.e., Cheddar, Jack); cheeses flavored with vegetables, fruits or herbs/spices; and Mozzarella packed in water or oil less than 2 weeks old.

2.3. Segment Price Points

Because of the wide array of cheese varieties available in various packaging, cheese prices are perhaps one of the most difficult commodity groups to aggregate, report, and analyze. NASS typically reports American and cheddar cheese prices in 40 lb blocks and 500 lb barrels. The USDA Agricultural Marketing Service (AMS), on the other hand, reports the Chicago Mercantile Exchange (CME) daily cash trading for cheese barrels and cheese 40 lb blocks, which respectively recorded a closing price of $1.64/lb and $1.69/lb on Jan. 18, 2013.

AMS also reports prices of some foreign and domestic cheeses.

Table 4 and *Table 5* show average prices of these cheese types in 2011 by region. In addition, AMS reports advertised prices for natural cheese varieties at major retail supermarket outlets. These are aggregated by region and pack sizes in *Table* 6 and are reported bi-weekly.

Table 4: Average Wholesale Price ($/lb) of Domestically Produced Cheeses (January 2012 – December 2012)

Domestic Cheese Types	MIDWEST (1)		NORTHEAST (2)		WEST (3)	
	Low Price	High Price	Low Price	High Price	Low Price	High Price
Blue 5lb	2.37	3.33				
Brick And/Or Muenster 5lb	2.11	2.64				
Mozzarella 5 - 6lb	1.95	3.15				
Process American 5lb loaf	1.88	2.54				
Grade A Swiss Cuts 6 - 9lb	2.89	3.12			3.01	3.44
Monterey Jack 10lb	2.08	3.05			2.01	2.17
Cheddar 40lb block	2.11	3.05	2.09	2.38	1.82	2.17
Grade A Swiss cuts 10 - 14lb			3.43	3.75		
Muenster			2.11	2.47		
Process 5lb sliced			1.87	1.99		
Cheddar 10lb cuts					2.00	2.22
Process 5lb loaf					1.78	2.04

Source: http://marketnews.usda.gov/

*(1) MIDWEST/CENTRAL: Alabama, Arkansas, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, **Missouri**, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, Tennessee, Texas, and Wisconsin.*

(2) NORTHEAST: Connecticut, Delaware, Massachusetts, Maryland, Maine, New Hampshire, New jersey, New York, Pennsylvania, Rhode Island, and Vermont

(3) WEST - Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Table 5: Average Weekly Wholesale Price ($/lb) of Foreign Cheese Types (January 2012 – December 2012)

Foreign Cheese Types	Domestic Price		Imported Price	
	Low	High	Low	High
Jarlsberg (Brand)			2.95	5.23
Reggianito (Argentine)			3.29	4.23
Sardo Romano (Argentine)			2.85	3.98
Swiss Cuts Finnish			2.59	2.85
Blue	2.23	3.72	2.64	5.22
Provolone (Italy)	2.27	2.43	3.44	6.04
Gorgonzola	2.73	3.05	3.69	6.33
Romano (cow's milk)	3.42	5.57		
Parmesan (Italy)	3.44	4.46		
Swiss cuts Switzerland	3.52	3.84		

Source: http://marketnews.usda.gov/

Table 6: Advertised Retail Price Ranges of Natural Cheeses in the U.S. ($/lb): 01/28/2013-02/08/2013

	South Central (1)	Southwest (2)	Northwest (3)	Northeast (4)	Southeast (5)	Midwest (6)
8oz block	1.67-3.00	1.88-2.50	1.99-2.50	1.99-3.59	1.67-2.79	1.33-2.99
1 LB block	5.00	3.29-5.49	3.88-5.49	2.99-3.99	2.99-5.00	3.99-4.99
2 LB block		5.00-8.99	4.69	5.00-8.99	5.00	
8oz shred	1.67-2.99	1.48-3.79	1.99-3.99	1.50-3.50	1.67-2.99	1.33-2.99
1 LB shred	2.99-5.00	3.29		3.99	2.99-5.00	2.99-4.99

Source: National Dairy Retail Report (http://marketnews.usda.gov/)

*(1) SOUTH CENTRAL U.S. Arkansas, Colorado, Kansas, Louisiana, **Missouri**, New Mexico, Oklahoma, and Texas*
(2) SOUTHWEST U.S. Arizona, California, Nevada, and Utah
(3) NORTHWEST U.S. Idaho, Montana, Oregon, Washington, and Wyoming
(4) NORTHEAST U.S. Connecticut, Delaware, Massachusetts, Maryland, Maine, New Hampshire, New jersey, New York, Pennsylvania, Rhode Island, and Vermont
(5) SOUTHEAST U.S. Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia
(6) MIDWEST U.S. Iowa, Illinois, Indiana, Kentucky, Michigan, Minnesota, North Dakota, Nebraska, Ohio, South Dakota, and Wisconsin

Artisan varieties command a substantial premium over the reported prices above. A market study of Vermont Farmstead Cheeses explains that higher cheese price is determined by (i) the aging method, (ii) the type of rind, and (iii) the market value of the label (Sakovitz-Dale, 2006).

A cursory look at U.S. artisan cheeses available for purchase online at Murray's prices a pound of the most expensive U.S.-made artisan cheese at $39.99/lb.

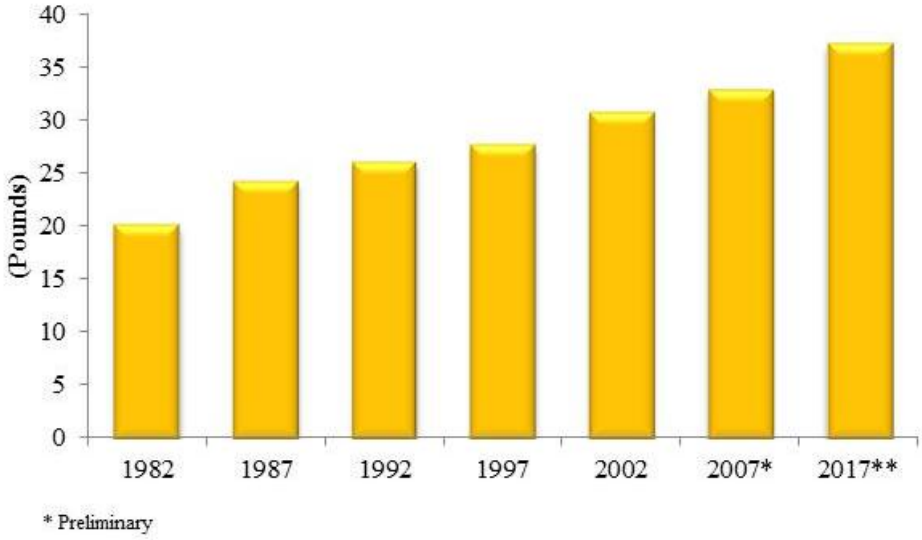
Appendix 2 provides a catalogue of Murray's U.S.-made artisan cheese as of Feb. 11, 2013. Murray's is a well-known cheese retailer founded in 1940 by Murray Greenberg. It prides itself for being "the oldest cheese shop in New York City" (http://www.murrayscheese.com). In 2008, Murray's partnered with grocery chain Kroger and launched the first Murray's-within-a-Kroger concept, a specialty cheese shop within a grocery store. By the end of 2012, Kroger had full-service Murray's cheese shops within 67 of its stores across the country (Harper, 2013). Grocery chains featuring specialty cheeses in their deli section is not unique to Kroger. This highlights the increasing prominence of specialty cheeses in regular shopping venues. In 2011, *The Fiscal Times* featured specialty cheeses as one of the "seven grocery items Americans are blowing money on" adding that "the fancy cheeses are even being added to once-budget friendly American classics like grilled cheese sandwiches and macaroni and cheese" (www.thefiscaltimes.com).

3. U.S. Cheese Consumption

According to the U.S. Department of Agriculture (USDA), per capita cheese consumption from 1982 to 2012 averaged about 30 lbs. This has increased annually by 2.6 percent and is projected to reach 37 lbs by 2017 (*Figure 5*). However, U.S. per capital consumption remains below that in traditional centers of cheese eaters like France, where per capita consumption currently averages about 54 lbs (Reed et al., 2011).

Factors driving higher domestic cheese consumption include: "(i) increased availability of cheese varieties, (ii) expanded cheese use by fast food and pizza restaurants, (iii) increased use of cheese as an ingredient by both food manufacturers and home cooks, (iv) increased consumption of 'cheese-rich' ethnic foods such as Italian and Mexican dishes (Manchester and Blayney, 1997), and (v) changes in consumer demographics. Emphasis on the nutritional benefits of milk and dairy products has also likely contributed to changes in cheese consumption. The National Dairy Council's 3-Every-Day program is an effort designed to encourage people to consume three servings of low-fat cheese, yogurt, or fluid milk a day in efforts to improve calcium and other nutritional intakes" (Davis et al., 2011).

Figure 5: U.S. Per Capita Cheese Consumption, 1982-2017



Source: USDA/ERS, Livestock, Dairy, and Poultry Outlook; F APRI, 2008 Agricultural Outlook

On a micro level, two main factors drive individual consumer demand: family income and demographic profile.

Mintel reports that "Households with an annual income of $75K-$99.9K are the most apt to purchase many of the common cheeses, though those from the highest-income households show a significantly higher likelihood of buying some of the less-common common cheeses. For example, more than half of those with an annual household income of $150K+ (52 percent) eat Gouda cheese compared to the 34

percent average, and 46 percent eat Brie cheese compared to the 30 percent average. They are the least likely to eat American cheese, which, all together, reflects an interest in quality and flavor with little concern for price." *Table 7* presents cheese preferences by income bracket.

Table 7: Cheese Consumption by Income Bracket

"Currently, do you or someone in your household eat any of the following types of cheese? Please select all that apply per option."

Cheese Type	All	<$25K	$25K-$49.9K	$50K-$74.9K	$75K-$99.9K	$100K-$149.9K	$150K+
Base: Internet users aged 18+	2,000	383	471	405	228	350	163
	%	%	%	%	%	%	%
Cheddar	89	87	89	86	93	91	85
Mozzarella	87	83	89	84	89	89	87
American	84	82	87	85	87	83	77
Parmesan or Romano	83	77	83	82	89	90	82
Cream cheese	78	73	77	77	85	84	79
Swiss	75	69	76	73	80	78	74
Monterey Jack	71	64	71	69	77	75	74
Provolone	67	58	66	63	74	76	72
Cottage cheese	63	60	63	65	69	64	57
Colby	60	57	61	58	65	62	57
Ricotta	52	42	49	52	61	59	57
Gouda	34	23	26	30	43	46	52
Brie	30	20	21	24	39	44	46
Edam	17	10	14	15	22	22	23

Source: Mintel

Age, gender of the household head, and presence of children are often reported as demographic factors driving consumers' preferences and propensity to buy cheese.

According to Mintel (2011):

- Ninety-four percent of women say they buy the cheese in their household compared to 89 percent of men.
- Ninety-seven percent of those aged 45-54 buy cheese for their household versus 74 percent of those aged 18-24.
- Those with three or more children are the most likely to be eating more cheese than they did a year ago and are most likely to buy cheese in nearly all forms that are available (shredded, chunks, string, spreadable, crumbled, and cubes).

When it comes to brand consciousness and specific preferences, Mintel reports that:

- Those with three or more children are at least 10 percentage points more likely than average to consider made locally, organic, and award winning as important claims.
- Consumers aged 18-34, or the so-called Millennials, are more likely to consider reduced fat, reduced calorie, and reduced lactose or lactose-free. Specifically, those aged 25-34 consider reduced lactose as important (26 percent compared to the 19 percent average), and they are the most interested in cheese that claims to be vegetarian. They are also 10 percentage points more likely than average to consider kosher as an important claim, and they're most likely to eat the less common cheeses like Gouda, Brie, and Edam as well as try new varieties.
- Most consumers consider the particular type of cheese as important (79 percent), followed by re-sealable packaging (72 percent).

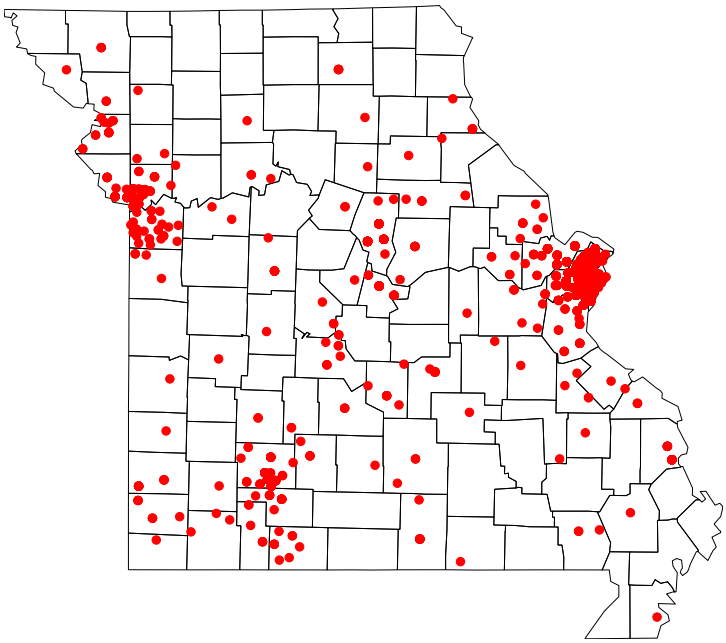
4. Missouri Cheese Consumption

While there are numerous references on factors that characterize cheese consumption, they focus on national aggregates and seem more applicable to established cheese-eating regions such as Wisconsin, California, and New York. This lack of secondary data for Missouri underscored the need for a survey that could identify marketing opportunities for locally produced cheeses. This section discusses the survey results and hopes to bridge the information gap on product wants, needs, buying location preferences, and pricing for Missouri artisan cheeses.

4.1. Survey Design and Methodology

The questionnaire used for this survey, which can be found in the appendix, was disseminated through e-Rewards, one of the world's leading opinion panels that rewards its members for taking surveys. Having worked with e-Rewards on previous projects, the authors of this market study are confident that the data gathered by e-Reward are reliable. Respondent selection was designed to ensure collection of valuable insights and reliable generalizations on artisan cheese consumption for the Missouri market.

The survey collected responses from 1,079 Missouri residents. The map below displays that noticeable clusters of the respondents reside in the St. Louis and Kansas City areas, but other areas are also well-represented.



The respondent profile is summarized below:

- 54.4 percent were female, and 45.6 percent were male.

- Almost 60 percent of the participants were between the ages of 35 and 64.
- Ninety-three percent of respondents are white.
- Highest level of education is distributed as follows: 24 percent are high school graduates, 13.7 percent have associate degrees, 37.7 percent have bachelor's degrees, 16.9 percent have master's degrees, and 7 percent have doctoral degrees.
- Distribution according to income is as follows: 10.3 percent make $0 to $25,000, 21.1 percent make $26,000 to $50,000, 21.5 percent make $51,000 to $75,000, 19.2 percent make $76,000 to $100,000, and 27.9 percent make more than $100,000.

4.2. Survey Results and Insights

4.2.1. Frequency of Cheese Consumption

Reflecting the increasing significance of cheese in local consumers' diets, 87 percent of respondents said they eat cheese at least weekly. Less than a percent said they "never" eat cheese and cited lactose intolerance and allergic to cheese products as reasons. The frequency of cheese consumption is broken down by demographic profile in *Table* 8. Across demographic characteristics, a majority of respondents are frequent cheese eaters, i.e., they eat cheese at least weekly.

Table 8: Frequency of Consumption by Demographic Profile

	Frequent (1)	Sometimes (2)	Never Eat Cheese
Gender			
Female	89%	11%	1%
Male	86%	13%	1%
Age			
24 and under	90%	7%	2%
25-34	87%	12%	1%
35-44	87%	13%	0%
45-54	89%	10%	1%
55-64	88%	11%	1%
65 and older	84%	15%	1%
Race			
White	88%	11%	1%
Other	70%	28%	1%
Education Level			
Less than high school Degree	57%	43%	0%
High school graduate	85%	13%	1%
Associate's degree	89%	11%	0%
Bachelor's degree	87%	12%	1%
Master's degree	91%	9%	1%
Doctoral degree	86%	9%	4%
Income			
$0-$25,000	83%	14%	3%
$26,000-$50,000	83%	16%	0%
$51,000-$75,000	91%	8%	1%
$76,000-$100,000	86%	14%	1%
More than $100,000	90%	9%	1%

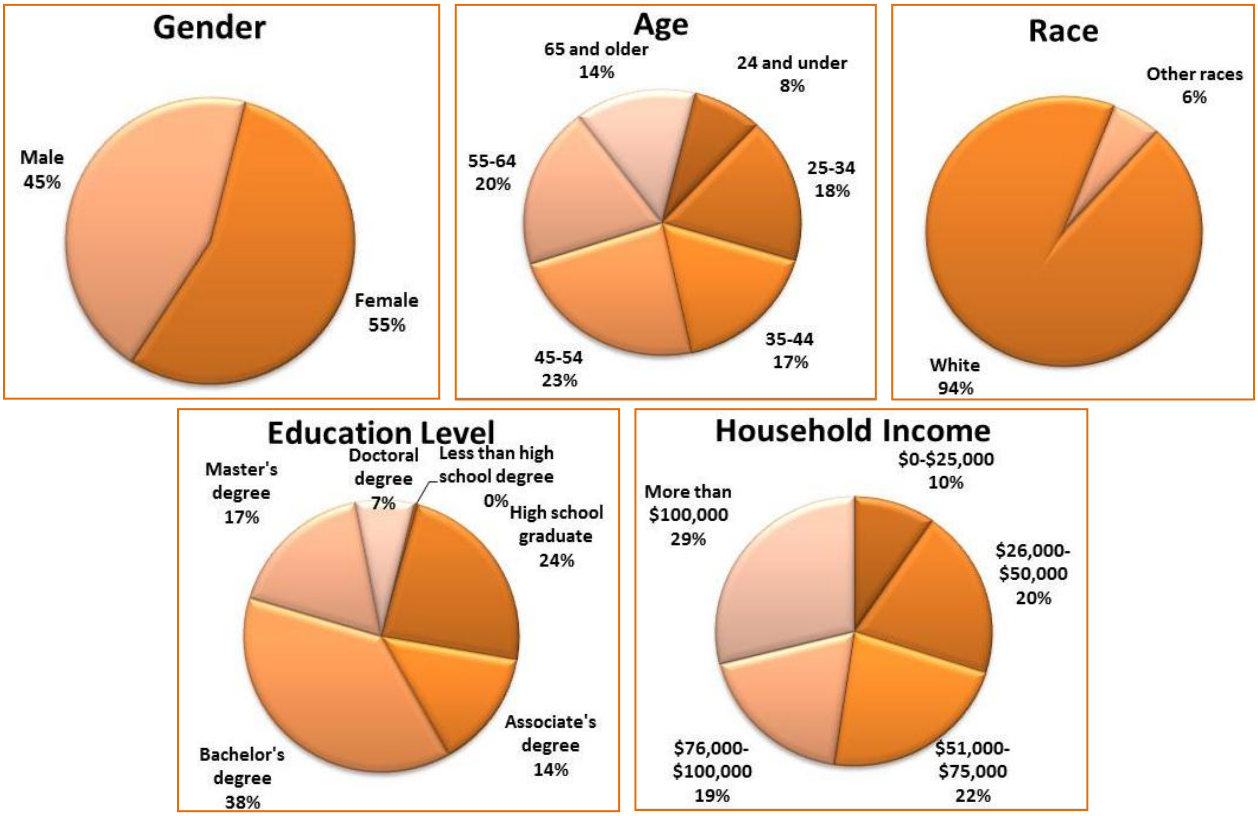
(1) Frequent: at least weekly
(2) Sometimes: once per month, twice per month or less than once per month

To shed light on which specific demographic segments to target, *Figure 6* further breaks down higher or more frequent cheese consumption according to their demographic characteristics. The charts show that:

- Females account for a higher percentage of those who eat cheese at least once a week (55 percent vs. 45 percent). However, there does not appear to be a significant distinction as males also account for 67 percent of those who eat cheese once per month.
- More than 90 percent are white.

- Higher educational attainment tends to be associated with frequency of consumption. Respondents who have less than a high school degree account for marginal (0.4 percent) of those who eat cheese at least weekly.

Figure 6: Distribution of Respondents Who Consume Cheese "At Least Weekly"

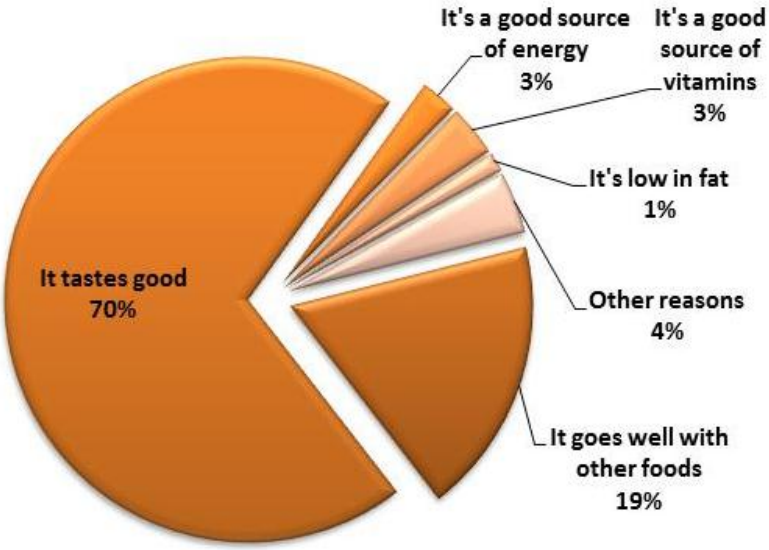


4.2.2. Reasons for Eating Cheese

Figure 7 shows that 70 percent of respondents eat cheese because they like the taste of cheese, which underscores the importance of flavor. This is consistent with industry reports that "continue to show that flavor … drives consumer sales of cheese in the United States" (Highbeam Industry Report).

Taste is followed by "It goes well with other food" (19 percent). Not shown in the graph but cited in other comments are good source of calcium, "I love cheese," and good substitute for meat.

Figure 7: Reasons for Eating Cheese



4.2.3. Well-Liked Cheeses

Table 9 shows the percentage distribution of cheese eaters with respect to the top three cheese types they enjoy the most.

Cheeses commonly used as sandwich stuffers as well cooking ingredients unsurprisingly ranked high in the list. According to industry reports, four-fifths of cheese is consumed on sandwiches or in foods that contain cheese. This explains the growing array of selection and availability of pre-sliced cheeses, both in the dairy aisle and at the deli counter (Highbeam Industry Report, 2010).

In addition, 2 percent of respondents also specifically identified provel, a white processed cheese that is known as a traditional topping for St. Louis-style pizza. Other types mentioned in the unaided recall list specified by a significant number of respondents are parmesan (3 percent), feta (3 percent), American (2 percent) and goat/chevre (2 percent). Also specified by some respondents are Harvarti, asiago, Pecorino, Edam, Monterey jack, Gorgonzola, Gruyere, Manchego, Camembert, Gouda, and Mexican cheeses.

Table 9: Top Three Popular Cheese Types
Question: "I enjoy the following types of cheeses: (Select the top three.)"

Type of Cheese	% of Total Cheese Eaters (N=1,040)
Mozzarella	69%
Sharp cheddar	67%
Mild cheddar	62%
Provolone	62%
Colby	62%
Swiss	60%
Pepper jack	50%
Gouda	31%
Blue	28%
Brie	24%
Muenster	23%

In terms of preferences for cheese texture or moisture content, it appears that hard cheeses are favored more than the other varieties. Eighty-two percent of respondents indicated that they prefer hard cheeses such as Swiss. *Table 10* presents the cheese texture preferences of respondents.

Table 10: Most Preferred Cheese Textures
Question: "I prefer…" (Please select all that apply.)

Texture	% of Total Cheese Eaters (N=1,040)
Hard - some have holes, e.g., Swiss	82%
Very hard - usually eaten ground, e.g., parmesan	49%
Semi-soft - often with streaks of blue mold that make a special flavor	43%
Soft - e.g., brie	39%

4.2.4. Consumption and Purchase of Artisan Cheeses

Zeroing-in on the artisan cheese category, Table 11 shows that though a significant percentage of cheeseeaters buy artisan cheese, a majority indicated that they do not buy artisan cheeses. For instance, of those who eat cheese at least weekly, 44 percent said that they buy artisan cheese. The remaining respondents (56 percent) said that they do not buy artisan cheese. This trend appears to be the case across all consumption frequency categories.

Table 11: Purchase of Artisan Cheese by Frequency of Cheese Consumption
Question: "Do you purchase artisan cheese?"

Frequency of Cheese Consumption	Purchase Artisan Cheese?	
	No (N=618)	Yes (N=440)
At least weekly	56%	44%
Twice per month	70%	30%
Once per month	73%	27%
Less than once per month	89%	11%
TOTAL	**58%**	**42%**

When prompted to select the reasons why they would not purchase artisan cheeses, 52 percent of the respondents chose "I don't know what artisan cheese is" followed by "It's too expensive" (27 percent). Unfamiliarity with artisan cheeses is further emphasized by respondents who explained why they would not buy the artisan varieties. Sixty-five percent of these unaided responses include variations of the "I don't know what artisan is" statement. Examples are "I don't know what it looks like or don't know if I had it," "I do not know where it is available", "I have not tried it," "I have not found samples," and "Maybe too expensive." These statements call attention to the need for marketing or an information campaign that will help introduce artisan cheeses to consumers to initiate patronage of this product category.

Interestingly, 15 percent of the respondents chose "it is not available in my area." This calls attention to the need to identify accessible retail channels within Missouri that can provide artisan cheese access to consumers already interested in artisan cheese. *Table 12* presents the other reasons along with the corresponding percentages.

Table 12: Reasons for Not Consuming Artisan Cheese
Question: "For what reasons do you not consume artisan cheese? (Select all that apply.)"

Reasons	% of Total Who Do Not Buy Artisan Cheese (N=618)
I don't know what artisan cheese is.	52%
It's too expensive.	27%
Artisan cheese is not available in my area.	15%
It's not an important product attribute.	14%
I don't like the taste of artisan cheese.	5%
It's not available in the varieties that I like.	3%

The table below shows that one-third of Missouri artisan cheese consumers consume artisan cheese as a snack. This is followed by "used as complement with other product (i.e., wine), which explains the proliferation of websites on wine and cheese pairings. *Appendix 4* shows a sample brochure displayed in

the deli section of Schnucks in Columbia, Mo., that promotes pairing Wisconsin cheeses with beer and wine.

Table 13: Reasons for Consuming Artisan Cheese
Question: "On what occasion do you consume artisan cheese?"

Reasons	% of Total Artisan Cheese Buyers (N=440)
Snack	34%
Used as complement with other product (i.e. wine)	19%
Appetizer	16%
Cooking ingredient	13%
Entertainment	13%
Family traditions	2%
Previous experience (travel, gift, restaurant courses)	2%
Recommendations (from friends or sales staff in store)	2%
TOTAL	**100%**

4.2.5. Consumption Frequency of Artisan Cheeses

Although 86 percent of respondents indicated that they consume cheese at least once a week, *Table 14* below shows that most artisan cheese buyers (75 percent) consume the artisan varieties at least monthly.

Table 14: Artisan Cheese Consumption Frequency
Question: "About how frequently do you consume artisan cheese?"

Consumption Frequency	% of Total Artisan Cheese buyers (N=440)
Weekly	26%
Monthly	49%
Less frequently than monthly	23%
Daily	2%
TOTAL	**100%**

4.2.6. Important Attributes of Artisan Cheeses

Table 15 below shows how artisan cheese buyers rate various product attributes. These attributes were chosen as prompts for the survey due to their importance in determining how best to produce and market artisan cheese products.

Respondents consider the following attributes as important: (i) taste, (ii) made with natural milk, (iii) price, (iv) package size, and (v) health or fat content.

The following, on the other hand, are deemed to be at most fairly important since approximately 60 percent of respondents rated on the lower end of the scale: (i) made with organic cheese and (ii) domestic cheese. The least important attributes appear to be (i) made with goat milk and (ii) imported cheese.

Some of more important attributes are discussed in detail in preceding sections of this report.

Table 15: Artisan Cheese Attributes (N=440 total cheese buyers)
Question: "How important to you are the following attributes of artisan cheese?"

Degree of Importance	TASTE	Made with natural milk	Made with organic milk	Made with goat milk	Made with cow milk
Very important	90%	22%	8%	5%	10%
Quite important	8%	32%	15%	10%	16%
Fairly important	2%	24%	28%	19%	31%
Slightly important	0%	13%	21%	22%	19%
Not at all important	0%	10%	27%	44%	24%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**

Degree of Importance	Health attribute (fat content)	Price	Package size	Domestic cheese	Imported cheese
Very important	14%	22%	11%	11%	5%
Quite important	23%	36%	32%	19%	8%
Fairly important	27%	27%	35%	24%	26%
Slightly important	19%	11%	15%	20%	26%
Not at all important	17%	4%	7%	25%	35%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**

4.2.7. Interest for Special Flavors

Table 16 shows that smoked and herb artisan cheeses appear popular. Forty-seven percent and 50 percent of respondents currently purchase smoked artisan cheeses and the artisan cheese herb varieties, respectively. Those who have not purchased flavored artisan cheese also indicated that they would be interested in buying cheeses with these flavors (39 percent and 42 percent for smoked and herb varieties, respectively). Cheeses with nuts and vegetables are not currently being bought by artisan cheese buyers, but a majority indicated interest to buy these cheese varieties as well (53 percent for cheeses with nuts and 50 percent for those with vegetables).

Table 16: Interest in Artisan Cheese with Special Flavors
Question: "Please indicate your willingness to purchase the flavored artisan cheese below."

Degree of Interest (N=440 Total Cheese Buyers)	Smoked	With herbs	With nuts	With vegetables
Currently purchase	47%	50%	22%	35%
Would be interested in purchasing	39%	42%	53%	50%
Neither	14%	8%	25%	15%
TOTAL	**100%**	**100%**	**100%**	**100%**

4.2.8. Preferred Forms and Packaging for Artisan Cheeses

Table 17 shows in what form artisan cheese buyers prefer to have their cheese. Consistent with the reasons for purchase (e.g. snack) and the fact that cheese, especially the softer varieties, are very perishable, buyers appear to want the extra convenience of having cheese in forms that they can easily and quickly consume.

Not surprisingly, 59 percent chose "It doesn't matter" when prompted to specify their preferred packaging (*Table 18*). If they are going to consume cheese immediately after they buy it, perishability and other issues like storage become a non-issue. Twenty-eight percent of the respondents, however, indicated that they would prefer plastic re-sealable bags.

Along with the consumers' unfamiliarity with the artisan cheese category, their preference for more convenient forms and their relative indifference on packaging imply that retailing this product in sampler sizes could be a good marketing strategy.

Table 17: Preference for Artisan Cheese Forms
Question: "I buy artisan cheese in the following forms: (Select all that apply.)"

Forms	% of Total Artisan Cheese Buyers (N=440)
Pre-packed bricks, curds, sliced, spreads, snack-size	79%
Sliced by weight	42%
Bricks cut for me from a wheel	35%

Table 18: Preference for Artisan Cheese Packaging
Question: "I prefer to buy artisan cheese in the following packaging:"

Packaging	% of Total Artisan Cheese Buyers (N=440)
It doesn't matter	59%
Plastic re-sealable bag	28%
Cellophane vacuum packs	9%
Plastic wrap	4%
TOTAL	**100%**

4.2.9. Preferred Retail Channels

Table 19 shows that among all artisan cheese buyers, most (78 percent) buy from grocery chain stores. This is followed by local specialty stores (50 percent) and health and organic food stores (25 percent). Direct from processors doesn't appear to be a preferred channel from which to buy artisan cheese despite the fact that a majority of known artisan cheese producers sell on site (refer to *Appendix 1*for the retail channels of some domestic artisan producers).

Table 19: Retail Channel
Question: "I buy artisan cheese from the following sources: (Select all that apply.)"

Retail Channel	% of Total Artisan Cheese Buyers (N=440)
Grocery chain stores	78%
Local specialty stores	50%
Health and organic food stores	25%
Direct from processors	11%
Other sources	7%
Online	4%

Because of the importance of farmers markets to small cheesemakers, respondents were also asked about how frequently they buy cheese from this particular channel. *Table 20* shows that 71 percent of those who said they do not buy artisan cheeses also never buy any kind of cheese from farmers markets.

Interestingly, an overwhelming majority of those who said they buy artisan cheeses (76 percent) either "never buy cheese from farmers market" or buy "less than once per month." A similar finding on preference for online channel is shown in *Table 21*. Both are consistent with the preference for grocery store chains shown in *Table 19*.

Table 20: Frequency of cheese purchase from Farmers Market
Question: "How frequently do you: Purchase cheese products from your local farmers market?"

Frequency of Cheese Purchase from Farmers Markets	Do you purchase artisan cheese?	
	No (N=618)	Yes (N=440)
At least weekly	0.8%	4.5%
Twice per month	1.6%	5.0%
Once per month	3.9%	16.6%
Less than once per month	23.5%	48.0%
Never	70.1%	25.9%
TOTAL	**100%**	**100%**

Table 21: Frequency of cheese purchase online or other media channels
Question: "How frequently do you: Purchase household groceries online or through other media sources?"

How frequently do you purchase household groceries online or through other media sources?	Do you purchase artisan cheese?	
	No (N=618)	Yes (N=440)
At least weekly	1.0%	1.8%
Twice per month	0.8%	1.4%
Once per month	1.3%	5.3%
Less than once per month	9.7%	22.7%
Never	87.2%	68.9%
TOTAL	**100%**	**100%**

4.2.10. Pricing for Imported Artisan vs. Local Artisan Cheeses

Consistent with the finding that "domestic artisan cheeses" are fairly important, *Table 22* shows that 20 percent of artisan cheese buyers are not at all willing to pay more for domestic artisan cheese than imported artisan cheese. However, 32 percent of artisan cheese buyers indicated that they will pay 20 percent more for those produced domestically, and 38 percent of artisan cheese buyers would pay a premium that's less than 20 percent. A premium of 30 percent or more appears to be too much with only 10 percent of respondents responding positively to these higher premium categories.

Table 22: Premium for Domestic vs. Imported Artisan Cheese
Question: "How much more would you be willing to pay for U.S. artisan cheese products than imported artisan cheese products?"

Percent Premium	% of Total Artisan Cheese Buyers (N=440)
None	20%
Less than 20% more	38%
20% more	32%
30% more	5%
More than 50% more	3%
50% more	2%
TOTAL	**100%**

4.2.11. Definition of "Local"

A Dairy Foods report said that reducing the distance between the point of production and the point of consumption has been an important trend that's shaped the dairy category. Because of this and because this study aims to determine the marketability of local cheeses, respondents were asked how they define "local." From the larger group of respondents who said they consume cheese to those who said that they are willing to pay a premium for domestic artisan cheeses, Table 23 shows "local" is consistently defined to represent products produced within state boundaries.

Table 23: Definition of Local
Question: "When purchasing a 'local' product, what do you consider local?"

Categories of "Local"	% of Total Cheese Eaters (N=1040)	% of Artisan Cheese Buyers (N=440)	% of Artisan Cheese Buyers Willing to Pay More for Domestic Cheeses (N=340)
From within my city or town	17%	14%	13%
From within my county or surrounding counties	36%	36%	36%
From within the state	35%	39%	41%
From surrounding states	9%	8%	8%
Other (please specify)	2%	3%	3%

4.2.12. Summary and Key Takeaways

The consumer survey findings described above highlight the following key marketing and production-related considerations for local cheesemakers:

- Most people (87 percent) eat cheese, and they do so mainly because they like the taste of it. Hence, flavor is important.
- A frequent cheese eater is typically white, is 25 years old to 64 years old, has an annual household income of at least $26,000 and has at least earned a high school degree.
- Cheeses are used as ingredients for cooking and sandwich complements. This goes along with why consumers would prefer the harder cheese varieties like Swiss and parmesan. However, consumers are starting to get acquainted with more exotic varieties (e.g., Havarti, Pecorino, Manchego, etc.).
- Although most respondents were cheese eaters, many (42 percent) were unfamiliar with the "artisan" varieties. There is evidently a need for marketing or an information campaign that will help consumers identify and get familiar with artisan varieties. On top of this, availability of artisan cheese is also an issue.
- Those who buy artisan cheeses consume it at least monthly (75 percent), and it's typically consumed as a snack or complement with other products such as wine. Hence, they would also typically prefer easy-to-consume product formats such as pre-packed bricks, curds, sliced, spreads, or snack-size.
- Important attributes of artisan cheese are (i) taste (consistent with why consumers would eat cheeses in general), (ii) made with natural milk, (iii) price, (iv) package size, and (v) health or fat content. Along with taste, cheese with special flavors such as smoked and herb varieties are popular, and consumers are generally inclined, if they haven't already done so, to try the flavored varieties.
- Most artisan cheese buyers (78 percent) buy cheese from the most convenient retail channel – grocery chain stores. Others (50 percent) buy from local specialty stores, albeit typically less than once per month. Only 11 percent indicated that they buy it directly from processors. Moreover, most (76 percent) never buy cheese from farmers markets. Interestingly, on-premise retailing and farmers markets are the most common channels used by artisan cheesemakers, indicating a mismatch between buyers and suppliers. It also, however, highlights untapped demand for artisan cheesemakers. If they can get their product more accessible, there is opportunity for higher sales.
- Most artisan cheese buyers recognize that these varieties are premium products. They will be willing to pay 20 percent more for those that are domestically produced.
- Consumers define local products as those produced within state boundaries.

5. U.S. Cheese Production

5.1. History

There are many different stories associated with the origin of cheese. The most common folktale describes an Arabian nomad who carried his milk across the hot desert in a camel's stomach. After stopping to rest at night, he noticed his milk had separated into what is now known as curds and whey. When the Arabian nomad became hungry, he decided to try them and discovered the curds were appetizing. This was the beginning of cheese production (Scheel and Picazo, 2008). Folktales aside, according to "The Specialty Cheese Market Report," cheese production dates back more than 4,000 years. There is no reliable evidence that reports the creation of cheese; however, common belief is that cheese production was invented as a way to preserve milk (Ray, N., and Ray, B., 2006).

Unlike in other regions of the world where cheesemaking has existed for thousands of years, U.S. cheese production evolved in just the past two and half centuries (Reed et al., 2011). It dates back to the early British settlements and began as an industry with the introduction of the factory system during the 1860s. Exports to the British market nurtured this infancy. However, "the desire for quick returns culminated… in the manufactured of skim and 'filled' cheese." (Babcock and Russell, 1897). American cheese became known as "Yankee Cheese" or "cheap cheddar."

By 1910, the popularization of processed cheese by James L. Kraft made American cheese synonymous with the processed variety. This marked large-scale cheese production eclipsed farmstead and artisan production. As a result, a great diversity of local cheeses was not developed to the same extent as in Europe or nations with a longer dairy foods history. From the 1950s to the 1990s, commodity production dominated the U.S. cheese market with a few exceptions. However, experts believe that like the wine industry – it had been known in the past for its cheap jug wines – cheese making in the U.S. has enormous opportunities to develop varieties equal or superior in quality to its European counterparts. The increasing number of U.S.-made cheeses in cheese competitions here and abroad is a great indication of this wonderful possibility. In 2009, for instance, the American Cheese Society competition had more than 1,300 entries from around the nation (Reed et al., 2011).

5.2. Factors behind the Development of a Cheese Industry

Two key ingredients have been crucial in developing cheese industries across the world: natural environment and social factors (Babcock and Russell, 1987).

Conditions favorable for producing milk include suitable grazing areas for dairy farm animals (i.e., the natural grasses supplemented by cultivated forage crops, especially corn). Presence of noxious plants such as those from the onion and mustard families in a certain region impairs the flavor of cheese and makes cheesemaking impractical.

What follows is an excerpt from Bobcock and Russell's 1897 treatise "The Cheese Industry: Its Development and Possibilities in Wisconsin" that explains the important factors that shape the development of a cheese industry. "The production of a proper and sufficient food supply to nourish dairy stock is largely dependent upon climatic surroundings. Abundant and well distributed rain fall is necessary," especially during feed-producing seasons. Prolonged periods of drought will not only adversely affect the amount of milk produced, but the percent of cheese producing solids would also be affected. Permanently wet areas such as marsh lands are also not suitable.

Hilly regions with springs not only produce flora appropriate for milk production but also the necessary colder climate for cheesemaking. Technological means to achieve the same effect are available, but cooler temperatures, which retard the development of noxious bacteria in milk and prevent proper curing and ripening of cheese products, remain to be a source of natural advantage for cheesemakers in areas such as Great Britain, Switzerland, and the mountainous part of Italy, Canada, New York, and Wisconsin (Bobcock and Russell, 1897).

Missouri, on the other hand, is farthest south of the western states and lay at what is known as the corn belt region. Osage plains which lie Southwest of the state have been home to beef and dairy cattle that graze on the plains' grasses (Roza, 2010). This area produces approximately 60 percent of the sales value of Missouri's dairy products (Refer to *Appendix 6* for a map of Missouri's agricultural districts).

Cognizant of the concept of *terroir* or "the interacting natural and human factors in a particular place, which contribute to the specificity and the unique tastes of a product" (Trubek and Bowen, 2008), some of the more established farmstead artisan cheesemakers of Missouri describe their farmstead in their websites as follows:

"…situated in the rolling hills of central Missouri, just north of the mighty Missouri River—about 30 minutes northwest of Columbia. Our 80 acre farm contains pastures, woods, ponds and Prairie Creek" (www.goatsbeardfarm.com).

"…set in the bluffs above the Missouri River Valley about 40 miles northwest of Kansas City, Missouri, the terrain of the farm is steep and rolling with beautiful views of the surrounding countryside. Our lovely high pastures receive cool breezes in the summer, and low areas offer dense shade and meandering streams for blistering summer days. In winter, the trees offer shelter from freezing winds, and the hills provide our sheep the opportunity to soak up the sun's warmth" (www.greendirtfarm.com).

"…located on 150 rolling acres in Northeast Missouri, between the fertile Mississippi river valley and the upland prairies, the Lavy small dairy farm has been part of the fabric of the heartland for almost 20 years" (www.lavydairyfarm.com).

While the status of an industry is largely predetermined by natural conditions, pursuit of profit and other factors such as tradition play equally important roles.

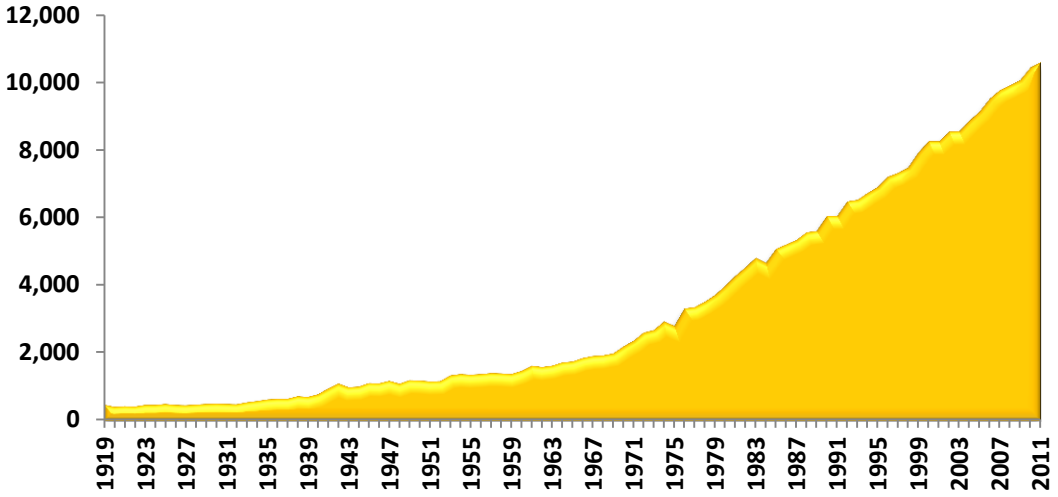
Part of the social force that shaped the U.S. cheese industry is European immigrants who brought cheesemaking with them. The English settlers brought over their cheddar system, and their descendants were the pioneer cheesemakers in New

York. From this method the cheddar method was spread by settlers to Canada and the west (of New York), particularly to Wisconsin. Cheesemaking in California, on the other hand, was brought by Spanish missionaries. In the case of Missouri, the French, who were responsible for the first permanent settlement of Ste. Genevieve in the mid-1730s, and German could have influenced some artisan cheesemakers such as Baetje Farms in Ste. Genevieve, which is currently producing French-style, award-winning goat cheeses.

5.3. Production Trends

From an average of about 500 Mn lbs in the early 1990s, U.S. cheese production has seen tremendous growth and registered 10.5 Bn lbs by 2011. Steeper increases in production started in the early 1980s, and it has averaged a 3 percent annual growth rate since then (*Figure 8*).

Figure 8: U.S. Cheese Production, Mn Lbs

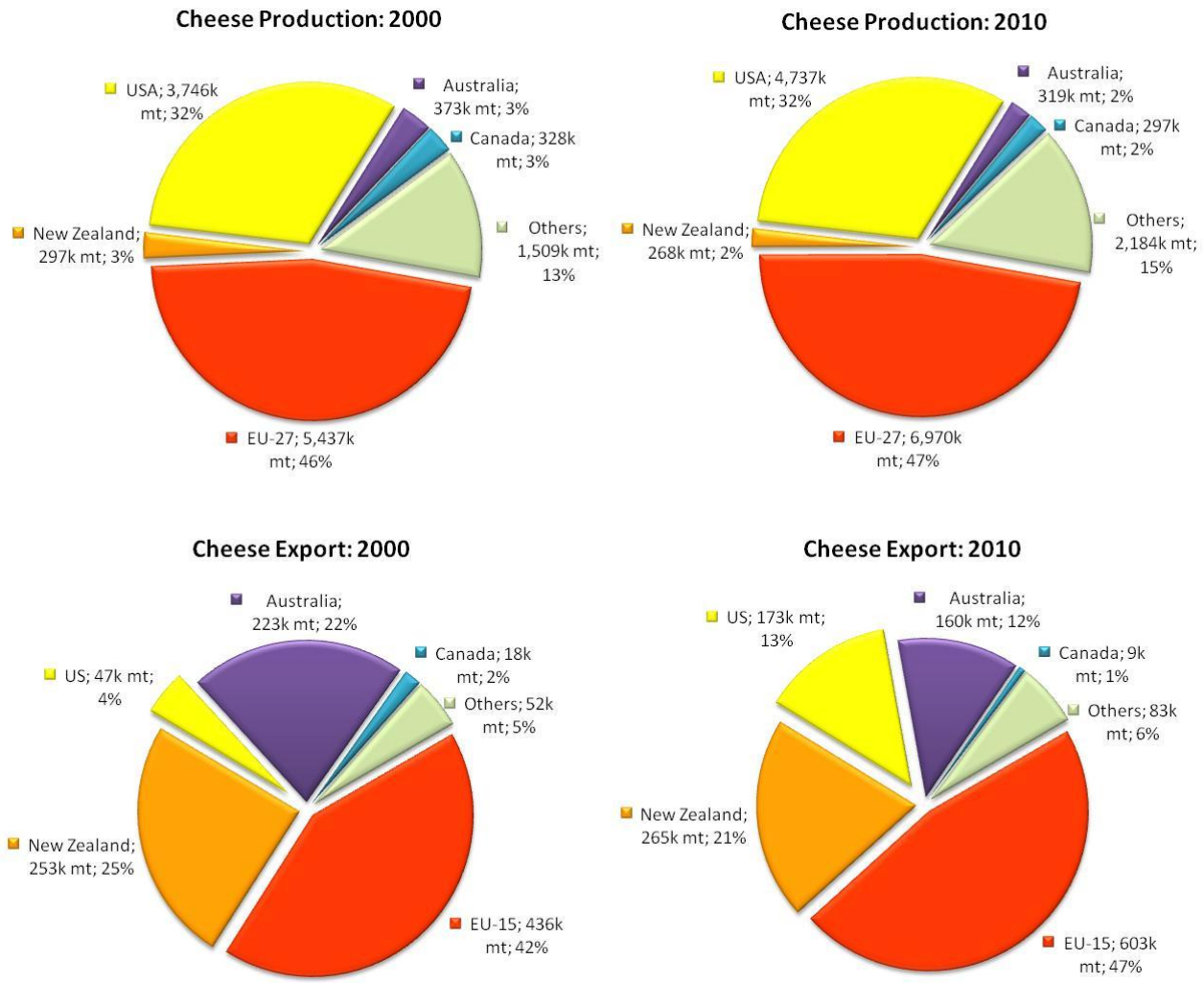


Source: www.nass.usda.gov

More than 30 percent of the world's cheese production is manufactured in 450 plants in the United States, making the U.S. the largest single-country cheese producer in the world. *Figure* 9 shows cheese production and exports by country of origin. The U.S. share in global cheese production appears relatively stable, but the increase in U.S. cheese exports as a percent of total global export is remarkable. U.S. share in total global exports increased to 13 percent in 2010 from 4 percent in 2000.

USDA cites the following as key factors helping the country achieve this market position: abundance of land, considerable investment in research and development, strict sanitary and quality standards, and eye toward the export market. Another factor driving this significant increase in U.S. exports is the reduction in export subsidies of the European Union to limit and reduce the quantity and budgetary outlay of export subsidies for four items as part of the Uruguay Round. These are cheese, butter, non-fat dry milk, and miscellaneous dairy products (Huan-Niemi and Niemi, 2002).

Figure 9: International Dairy Cheese Production and Exports: 2000 and 2010
Thousand Metric Tons (k mt)



Source: www.nass.usda.gov. Dairy World Markets and Trade

5.4. U.S. Regional Cheese Centers

With the first U.S. cheese plant built in 1851 in Rome, New York, the area became the bastion of U.S. cheese production in the United States until the early 1900s. The center of production began shifting west to Wisconsin in the early 1900s (Highbeam Industry Report, 2010).

Figure 10 shows how regional cheese production evolved in more recent years. There are three regions documented to have increases in production. The Western Region shows an increase of 31 percent for the five-year period and accounted for 42 percent of the U.S. cheese production in 2005. There have been many efficient and large-scale plants developed in California, New Mexico, and Idaho.

The East North Central Region shows an increase of 10 percent in the five-year

period and accounted for 31 percent of U.S. cheese production in 2005. While the South Central Region did show impressive increase (98 percent), it only accounted for 1 percent of total U.S. cheese production in 2005. The Atlantic and West Central Region have shown decreases in cheese production during the past five years.

Figure 10: Regional Cheese Production

Percent of 2005 total U.S. cheese production and percent change in production between 2005 and 2000

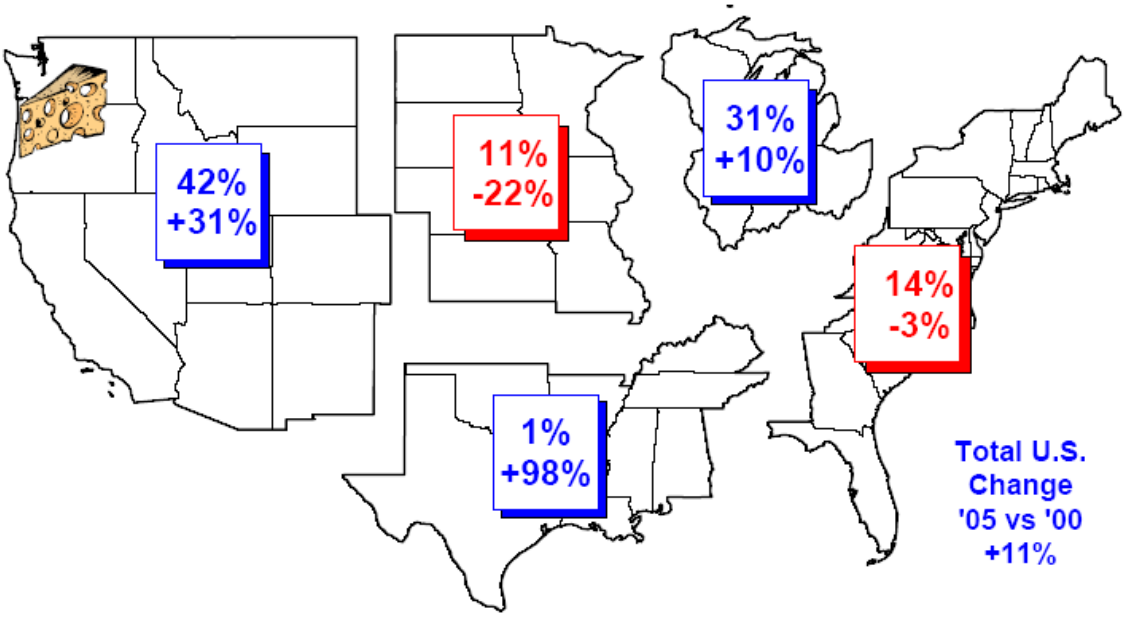


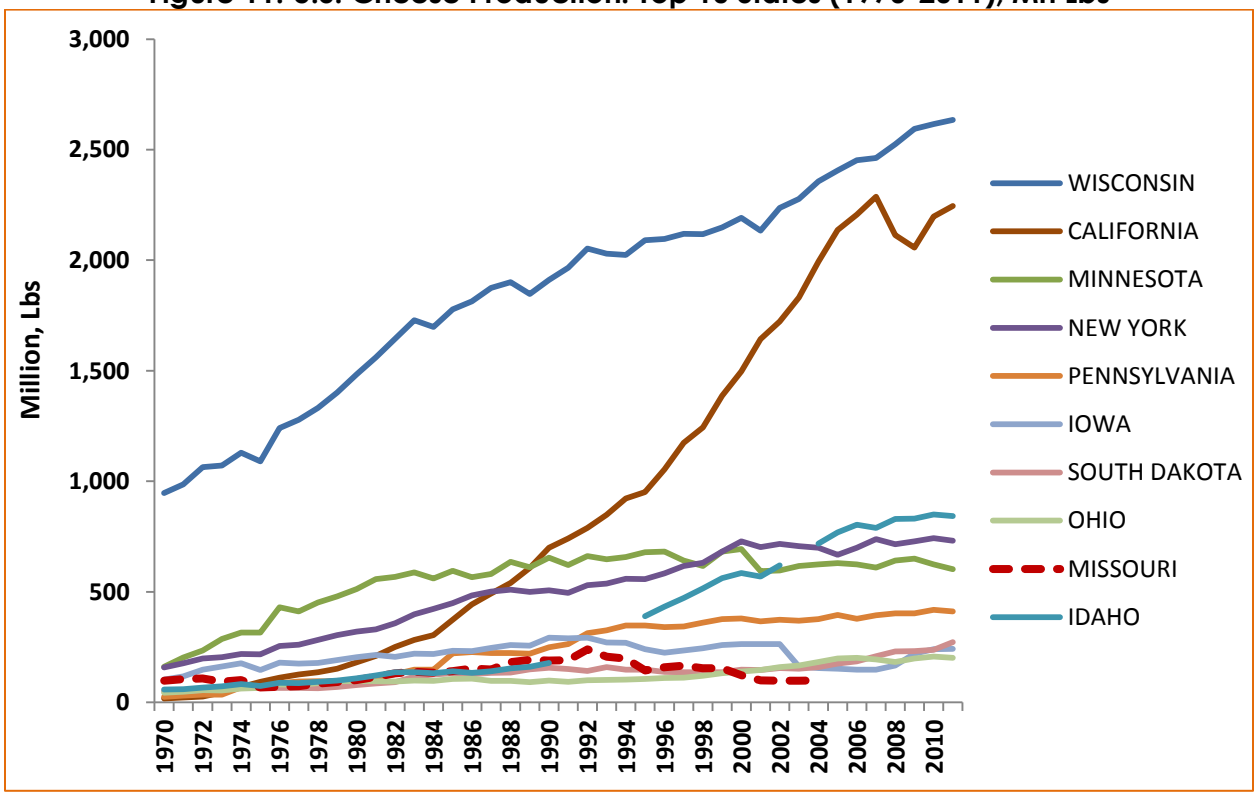
Figure 11 shows that Wisconsin remained to be the No. 1 producer. It churned 2.6 Bn lbs of cheese in 2011. California, the second largest producer, saw remarkable increase in production. It outpaced New York and Minnesota by the early 1990s and registered production of 2.2 Bn lbs in 2011.

Missouri's production, on the other hand, has been on the down trend after peaking to an average of 220 Mn lbs in 1992 and 1993. From 20 cheese plants in the 1970s producing an average of 4 Mn lbs in 1970, there were only three cheese processing plants reported in 2004, and those produced an average of 33 Mn lbs (NASS). This tremendous increase in production per plant indicates larger plant size and more efficient processing. Unfortunately, because NASS reports individual state data only for states with more than three processing plants, production data for Missouri is lumped into the "other states" category after 2004.

California currently has a total of 62 plants, and each plant size averages about 34 million pounds. Wisconsin has the most plants (115) in the U.S., but average plant size in Wisconsin is closer to 21 million pounds. California, Idaho, and Minnesota cheese plants are typically the newest, largest, and most efficient plants because they've been developed within the past 10 years.

The newest plants are being built in areas of surplus milk, where feedstock costs for cheese plants are the lowest. For example, the new Glanbia Southwest Cheese plant near Clovis, NM, has the capacity to process 250 million pounds of cheese annually. This plant is a joint venture between Glanbia Foods, Select Milk Producers (SMP), Dairy Farmers of America (DFA), and some dairy cooperative members of the Greater Southwest Agency (GSA) including Lone Star and Zia. This plant is on a completely different scale than the more traditional legacy cheese plants of the upper Midwest. Engineered for efficiency, these plants put downward pressure on processing margins of plants in older cheesemaking areas of the East and upper Midwest.

Figure 11: U.S. Cheese Production: Top 10 States (1970-2011), Mn Lbs



Source: www.nass.usda.gov
Rank is based on total cheese production from 1970 to 2011

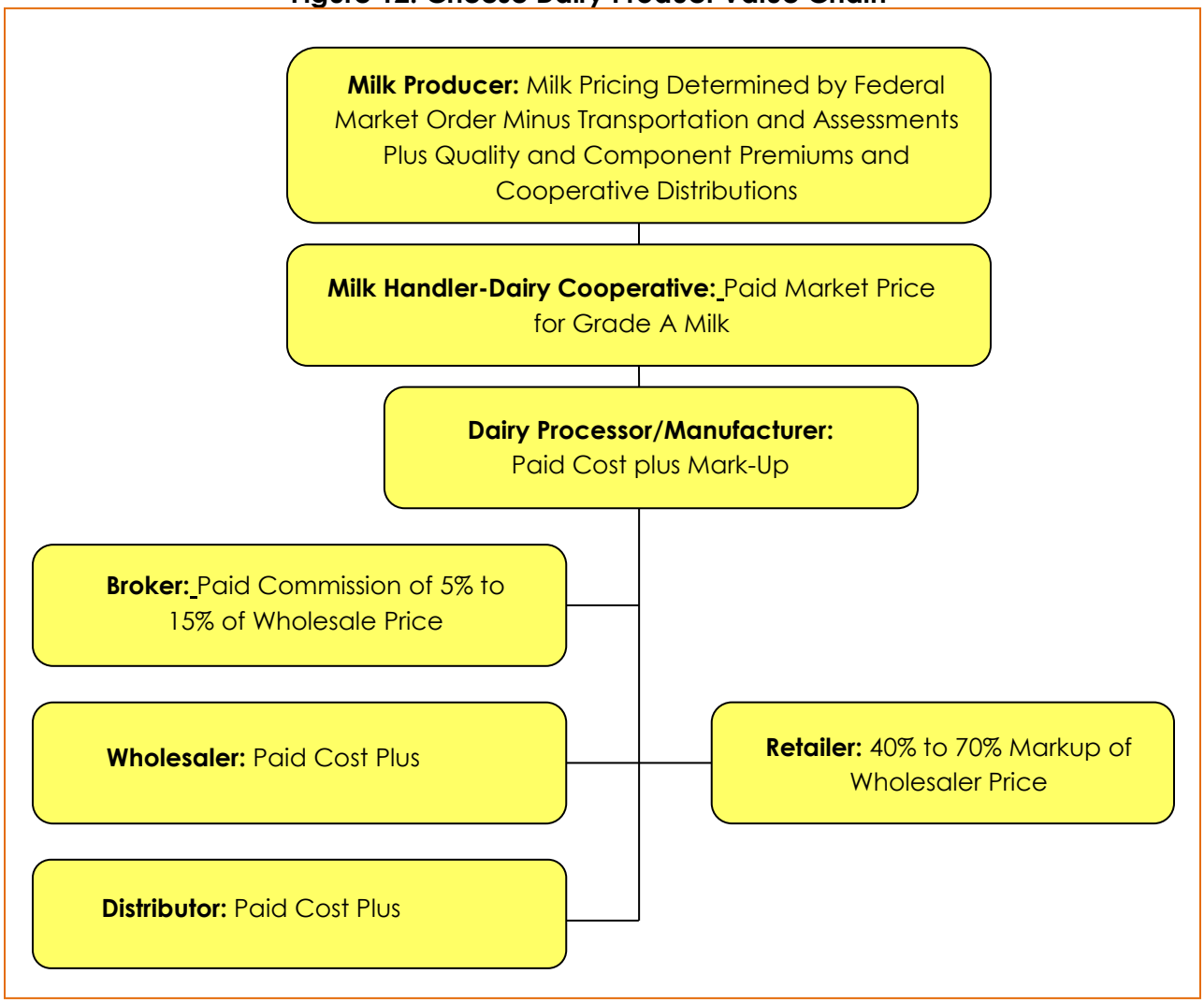
6. Supply Chain and Marketing Channels

The cheese production-to-consumption chain starts with the cheesemaker (cooperative or private companies) acquire milk either from farmers or through their own farms. Cheesemakers produce cheese and sell it either directly to (i) consumers, (ii) retailers, (iv) food service institutions, (v) a distributor, or (vi) a cut-and-wrap facility. A cut-and-wrap facility sells cheese to a distributor. Distributors then sell to retailers and foodservice institutions such as restaurants, hospitals, and schools.

Figure 12 presents a vertically integrated product supply chain for dairy products. Subsequent discussion in this section of the report follows this supply chain, provides

background on the Missouri dairy industry, and emphasizes the source of milk. Various retail channel options for cheeses are also discussed.

Figure 12: Cheese Dairy Product Value Chain



6.1. Missouri Dairy

A succinct overview of Missouri's dairy industry is presented in *Figure* 13 below.

Figure 13: Missouri Dairy Production Statistics

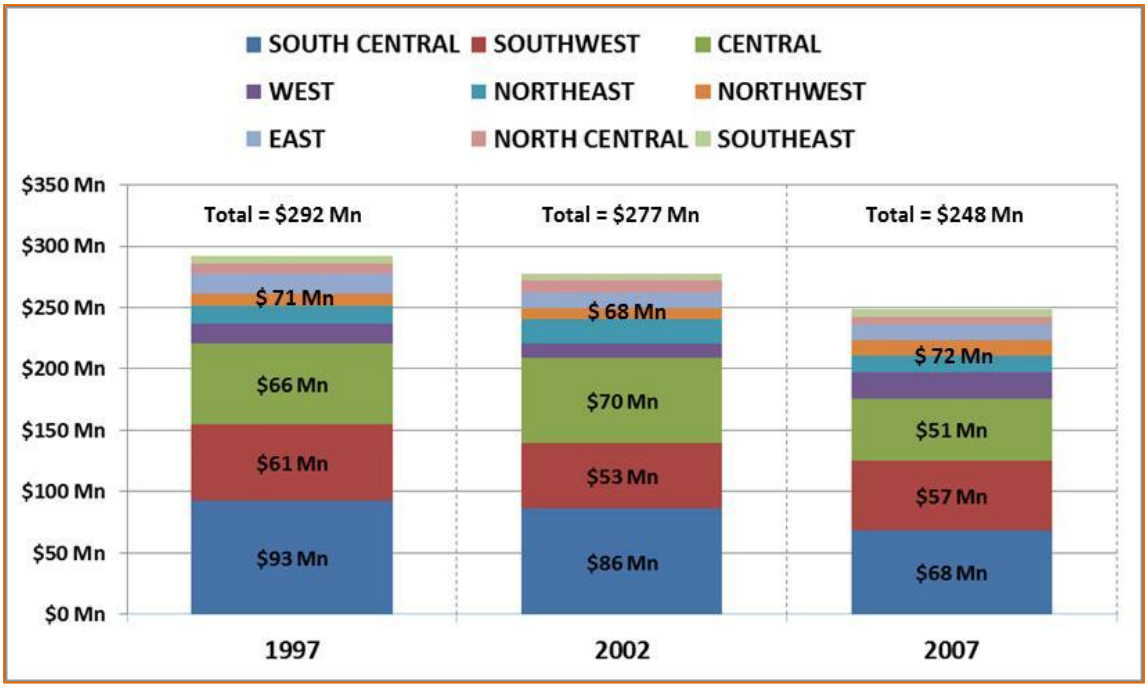
Source: http://www.midwestdairy.com/0t253p205/dairy-stats/

Figure 14 shows value of sales by agricultural districts for census years 1997, 2002, and 2007. All major producing districts – South Central, Southwest, and Central – have seen significant reduction in sales (27 percent, 8 percent and 23 percent, respectively) while other districts grew by 3 percent.

As of the latest available census data (2007), these agricultural districts account for approximately two thirds of sales values. *Appendix 6* provides a geographic map of these districts. It also shows the geographic location of the top 15 counties with the highest dairy sales values: Wright ($23 Mn), Webster ($19 Mn), Lawrence ($14 Mn), Polk ($14 Mn), Texas ($12 Mn), Laclede ($12 Mn), Newton ($10 Mn), Dallas ($9 Mn), Barry ($8 Mn), Jasper (8 Mn), Vernon ($8 Mn), Howell ($8 Mn), and Greene ($7 Mn). In addition, Scotland ($8 Mn) county in northeastern Missouri, Franklin ($7 Mn) in eastern Missouri, and Cape Girardeau ($7 Mn) in southeastern Missouri also ranks as counties with the highest dairy sales value.

Interestingly, except for Lorenae Dairy, which produces cheese curds, some of the well-advertised farmstead artisan cheese producers are not located in the Southwest, indicating that cheesemaking can develop in other parts of the state as well. Included in *Appendix 7*are seven farmstead cheese producers who are members of and featured in AgriMissouri, an online resource that promotes Missouri-made products through a variety of marketing efforts and promotional events. These include Baetje Farms, Goatsbeard Farm, Green Dirt Farm, Homestead Creamery, Lavy Dairy Farm/Golden L Creamery, Lorenae Dairy, and Shatto Milk Company. Most of these companies have websites. Because of this, information about their cheese products is easily found online. These are also summarized in *Appendix 7*.

Figure 14: Sales Value of Milk and Other Dairy Products in Missouri by Region ($ Mn)



Source: http://quickstats.nass.usda.gov/

6.2. Role of Brokers and Distributors

Brokers and distributors play an important role in expanding a producer's market from local to regional. Brokers typically do not take care of shipping, invoicing, or inventory control. They charge a 5 percent to 10 percent commission and sometimes charge a monthly fee (Reed B. et al., 2011).

Distributors, on the other hand, charge based on the product's wholesale price. They would typically buy the product in bulk at a price referred to as freight on board (FOB). Distributors eliminate multiple shipments and billing, however. This removes the producer's control over quality while the product is on its way to the retail shop. Examples of payment terms are: "30 days same as cash" or "10 percent discount on whole-pallet orders." So-called charge backs also figure into some distributor arrangements. This includes certain deductions in wholesale price to account for demos, ads, slotting fees, damaged or out-of-code products, and trade show payments (Reed B. et al., 2011).

6.3. Common Distribution Channels

6.3.1. Specialty Stores

Co-marketing specialty cheeses with wine and beer can be used to promote a particular origin locality or culinary setting. Specialty stores are those that offer specialized inventory. Specialty stores may provide a deep assortment of a given type of product. Prices charged by specialty retailers may be higher than those charged elsewhere because the merchandise available is unlike products found in other stores.

6.3.2. Farmers Markets

Farmers markets offer specialty dairy processors an opportunity to make a personal connection with their customers and position their products as locally based.

Farmers markets are an integral part of the urban/farm linkage. They allow farmers the opportunity to develop a personal relationship with their customers, and consumers may grow their loyalty as they interact with the farmers who grow or make the products available for sale. Directly marketing farm products through farmers markets continues to be an important sales outlet for agricultural producers nationwide. As of National Farmers Market Week, (the first full week in August), there were 7,864 farmers markets listed in USDA's National Farmers Market Directory. This is a 9.6 percent increase from 2011 (http://www.ams.usda.gov/AMSv1.0/farmersmarkets#S).

According to the USDA, 129 farmers markets operate in Missouri. In 26 of these, cheese was identified as one of the products being sold. Appendix 8 lists these markets as well as their schedule and website.

6.3.3. Direct/Online Marketing

The Internet has made the web another direct retail channel for producers. Maintaining a website for products also provides product exposure, especially among more tech-savvy urban food mavens.

6.3.4. Retail Grocery Outlets

The consumer survey findings shared in Section 4 (page 23) as well as various references on artisan cheese distribution channels underscore the dominance of grocery stores as the go-to location for cheese purchases. However, the channel is not easy to enter as shelves and deli cases are crowded with a variety of products sourced worldwide. Retailers can be reluctant to stock specialty product that may be inconsistent over time, even if overall product quality stays high. Because of this challenge, Section 2.4 on page 54 describes how local cheese producers can connect with area grocery chains.

Private-label production arrangements through store brands are an increasingly important channel for many foods, and they account for 40 percent of natural cheese retail sales in 2005. Private label arrangements are agreements where a producer's products are package under the store brand. Eighty percent of retail cheese is now sold through private labels. Some retailers have strengthened their private-label brands by marketing and packaging them as being sourced from a particular region or produced using a given technique. This "puts a face" on store-brand products. Sample brochures showing this marketing strategy are attached in *Appendix 4*. In these brochures, Wisconsin cheeses are co-marketed with Schnucks label. However, most private-label arrangements require relatively high volumes and product consistency. The retailer survey in Section 6.4.2 shows that volume and product consistency are significant concerns when partnering with local producers.

6.4. Distribution Channels for Missouri Cheeses

6.4.1. Survey of Deli Managers: Survey Design

In addition to the consumer survey discussed in Section 4, another primary research activity conducted for this study involved interviewing grocery representatives to learn about how local cheese producers can connect with Missouri grocery chains. The interviews aimed to better understand store preferences for cheese, pricing and mark-up, and special promotions and advertising.

Out of approximately 975 grocery store locations in Missouri, 12 locations were selected for an interview. These stores were selected to represent insights from two types of grocery stores: (i) mainstream grocery chains and (ii) natural markets. Stores were selected to represent the predominant grocery store options that consumers have in Missouri's population centers: St. Louis, Kansas City,

Springfield, and Columbia. *Table 24* presents the stores selected for an interview and the approximate number of locations these stores have. One location for each store was selected for an interview.

For purposes of this study, we adopted the following definition of natural market: a market for consumer-recognized needs and wants that is not currently being served by typical grocery stores. These stores carry more differentiated products, many of which are associated with the organic and "whole food" variety. Grocery chains, as the word implies, are stores that are part of a chain of stores ubiquitous either locally and nationally.

For this study, we classified stores such as Apple Market and Hen House as "chains" in spite of them operating few stores in Missouri. They do, however, have many more locations in neighboring states (e.g., Kansas). Similar criteria applied for Whole Foods. Whole Foods has many store locations in the U.S. and abroad and focuses on its brand image. This requires a more structured management structure. Because this study focuses on exploring opportunities for local farmers to establish business relationships with stores, it becomes more relevant to aggregate findings by complexity of management structure. Stores were split into two groups: mainstream chain-type grocery stores and natural markets.

During the interviews, the interviewer specifically asked to be connected to the person responsible for selecting cheese products that are sold in the store. To maintain the confidentiality of individual responses, findings are presented in aggregates only.

Table 24: List of Grocery Stores Selected for the Interview

Store	Approximate Number of Locations within Missouri
Apple Market	3
Clover's Natural Market	1
Country Mart	11
Dierbergs	22
Hen House	2
Hy-Vee	28
Price Chopper	19
Price Cutter	23
Schnucks	56
Shop N Save	27
Whole Foods	2
World Harvest	1

As expected, the functional titles of interviewees who work for grocery chain type stores reflect a chain's more structured operation. Titles included assistant manager, assistant to grocery manager, dairy manager, and deli manager. Natural markets, which typically have relatively smaller local operations, have more informal functional titles such as owner or team leader.

6.4.2. Survey Findings and Insights

Stores Selling Artisan Cheeses

Of the 10 mainstream grocery chains interviewed, six already carry artisan cheese varieties. Two have done so in the past but stopped carrying the product, and the others have never sold artisan cheeses. Both natural markets sell artisan cheeses. *Table 25* presents this finding.

When prompted to explain why the stores have never carried or stopped carrying artisan cheeses, the respondents mainly cited poor supply availability – either supply is inconsistent, or no artisan cheese is available to be sourced.

To quote some of the interviewees: "Looking into a place to purchase the product, but haven't found one" and "Store catalog we order from does not carry that as a product." This issue highlights the opportunity for local producers to fill the supply availability gap. Because this is an issue faced by grocery chains that operate locations throughout the state and that average approximately 20 locations per company, it raises a tremendous untapped opportunity for farmers. Institutional arrangements among farmers such as cooperative-type agreements where supply can be pooled to ensure consistent flow of supply into the store can be explored to address this issue.

Other factors that cause chains to not stock artisan cheese include artisan cheese being more expensive and incompatibility with the stores' customer bases (e.g., customers are bargain hunters, so specialized cheeses with higher prices will not sell).

Table 25: Stores Selling Artisan Cheeses
Question: "Are you currently selling artisan cheese in your store?"

Type of Store	Sell Artisan Cheeses?	Number of Interviewees	% of Total
Grocery chain	No, but we did in the past	2	20.0%
	Not at all	2	20.0%
	Yes	6	60.0%
Natural market	Yes	2	100.0%

Percent of Cheeses Sold that are Artisan

The supply availability issue raised above is further underscored by *Table 26*, which shows artisan cheese's share of total cheeses sold in the stores. In chain-type stores, artisan cheeses are a quarter of the total cheeses that they carry. For one particular store whose brand image relies on retailing natural products, as much as 60 percent of cheese inventory is artisan. The core of their operations involves more aggressively sourcing artisan varieties. However, it is very remarkable that even for natural markets that have more localized

operations, only 10 percent of the total cheeses that they sell are artisan, highlighting an apparent opportunity to penetrate this channel.

The apparent take-away from this finding is that stores are far from being saturated by the artisan cheese varieties. Supply availability issues coupled with apparent demand for artisan cheese varieties imply a significant market potential for artisan cheeses.

Table 26: Percent of Cheese Sold that is Artisan
Question: "What percentage of the cheeses that you sell are artisan? (Please ask for an estimated percentage.)"

Type of Store	% of Cheese Sold that is Artisan		
	Average	Min	Max
Grocery chain	25%	10%	60%
Natural market	10%	10%	10%

What is Local?

To ensure consistency of understanding among all parties across the supply chain, interviewees were asked about their definition of the word "local." In the consumer survey (Section 4.2.11, page 38), consumers define the word "local" as products originating within the state's boundaries. Retailers, on the other hand, have a wider perspective. A majority said that local products are produced on a farm within the region or in a state that borders the state where a store is located. Some interviewees specified that they consider local products to originate from Missouri, Illinois, Michigan, Iowa, and Wisconsin.

This explains that though some grocery chains in Missouri would say that they carry local cheeses, many of these local products are sourced from Wisconsin. This can be tied with unavailability of truly "local" supply, which most consumers would consider when they are looking for a "local" product.

Table 27: Interviewees' Perception of "Local"
Question: "To understand where you procure the artisan cheeses that you carry in your store, we would like to know what you consider to be a local product."

"Local" Boundaries	% of Total Retailers Selling Artisan Cheeses (N=8)
Produced in a farm within the region or bordering states that my store is located	75%
Produced in a farm within the state that my store is located	25%
TOTAL	100%

Sources of Artisan Cheeses Sold

Having clarified the word local, interviewers were asked what percent of the artisan cheese they carry are local, produced elsewhere in the U.S. or sourced from abroad. *Table 28* shows that it is a combination of all of these sources. Although a majority of grocery chains (83%) procure "locally," the same share (83%) also procures elsewhere in the U.S., and about half procures internationally. Given the retailers' definition of local, cheeses from California or New York could be considered "local."

More natural markets (33%), on the hand, procure their artisan cheeses elsewhere in the U.S. compared to "local" or "abroad".

Table 28: Sources of Artisan Cheeses
Question: "Are the artisan cheese products that you carry locally produced, produced elsewhere in the U.S. or imported?"

Type of Store	Sources of Artisan Cheeses	% of Total
Grocery chain (N=6)	Locally produced	83%
	Produced elsewhere in the US	83%
	Imported from abroad	50%
Natural market (N=2)	Locally produced	17%
	Produced elsewhere in the US	33%
	Imported from abroad	17%

Supplier Attributes

All respondents mentioned that cheese quality and supply dependability were important factors that would influence a store's purchasing decisions (*Table* 29). Grocery chains tended to consider price and potential margin as important. Only one of the two natural markets agreed.

Supplier reputation was also somewhat important. Customer familiarity with the brand wasn't as important. The insignificance of brand familiarity can be tied to prevalence of private label branding common to large grocery chains. In fact, one of the interviewees pointed out contract exclusivity. To quote: "all products [our store] carries are exclusively ours, so selling to other stores is not allowed."

Table 29: Supplier Attributes
Question: "What factors make you decide to buy from certain farmers and/or distributors? Select all that apply."

Type of Store	Sources of Artisan Cheeses	% of Total
Grocery chain (N=6)	Quality of cheese	100%
	Dependability of supply	100%
	Reputation	83%
	Price of the cheese and potential margin	100%
	Customers' familiarity with the brand	50%
Natural market (N=2)	Quality of cheese	100%
	Dependability of supply	100%
	Reputation	50%
	Price of the cheese and potential margin	50%
	Customers' familiarity with the brand	0%

Product Spoilage

Table 30 explains the product spoilage practices followed by those already carrying artisan cheeses. Although one of the interviewees said that his or her store or company assumes all of the losses, suppliers appear to bear a significant portion of the losses. Some of the interviewers generally indicated that they get rebate or store credit. Others specified that losses are split 50:50. Seven of eight respondents shared that the supplier must absorb at least some spoilage costs.

Table 30: Product Spoilage
Question: "How do you deal with losses due to product expiration, spoilage or damages?"

Type of Store	Accounting for Spoilage	Number of Interviewees who Agreed with or Cited These Statements
Grocery chain (N=6)	Full credit from supplier if product goes bad	1
	Our store/company assume all losses.	1
	Supplier is usually responsible.	1
	Shared 50:50	1
	We get rebate or store credit from our supplier/producer.	2
Natural market (N=2)	Shared 50:50	1
	We get rebate or store credit from our supplier/producer.	1

Margins

All retailers were asked about profit margins that they expect from selling artisan cheeses. Because there is a negotiation process involved in arriving at this number, most understandably decided not to answer. However, two interviewees cited 25 percent and 50 percent.

Some experts in the cheesemaking business estimate the retailer and distribution margin to be 70 percent to 80 percent of the cheese's retail price (Reed, B. et al., 2011).

Process to Follow

A very interesting insight related to the profile of interviewees discussed above is that stores follow different procedures when it comes to (i) establishing relationships with new suppliers and (ii) processing new business accounts.

One of the key questions asked during the interview was "If an artisan cheese-maker wants to supply artisan cheese to your store, what process should he or she follow?" Although eight of the 10 larger chain-type stores said that local cheesemakers would have to contact their corporate office, one has a more decentralized decision-making process.

Stores that have more structured management follow a more rigorous process of taste testing, product analysis (e.g., comparison with artisan cheeses already being sold in the store), and various consultation with relevant decision makers such as food chef and category managers. One of the interviewees explained that following such a process ensures that the store's brand image is upheld. An exception to this is when farmers can show proof that their products are aligned with store branding. For instance, if the products are certified organic, then these products can appear on store shelves more quickly.

The grocery chain that has a more decentralized decision-making process explained that suppliers need only visit with the deli manager. Individual stores carry different products, so the deli manager has the authority to decide cheese products that will be available. To quote the interviewee, "With a new product that the brand name is not known, a case might be purchased as a trial run so the customers can sample the item, and the demand for the product will be assessed … we are very interested in new companies and suppliers, so [starting a business relationship with them] is not a difficult process." The advantage of this decision making process can also be considered as a disadvantage as suppliers need to establish relationship with each store location.

All of the natural grocers that were interviewed identified having a store-level decision making process. These stores typically have fewer locations, and the operations are localized. *Table 31* presents these findings.

Table 31: Decision on New Supplier by Type of Store
Question: "If an artisan cheese-maker wants to supply artisan cheese to your store, what process should he or she follow?"

Type of Store	Decision Maker	Number of Interviewees	% of Total
Grocery chain	Corporate	8	80.0%
	Deli manager	1	10.0%
	Store	1	10.0%
Natural market		2	100.0%

Challenges and Opportunities

To wrap up the interview, retailers were asked about challenges and opportunities that they have encountered in selling artisan cheese.

Most of the statements emphasize the importance of educating consumers about artisan cheeses, pricing and ensuring consistency of supply. *Table 32* summarizes the points raised. The bullet-points below elaborate on these points and provide excerpts from interviewees' statements.

Table 32: Summary of Challenges and Opportunities
Question: "If an artisan cheese-maker wants to supply artisan cheese to your store, what process should he or she follow?"

Challenges	Opportunities
Consumer awareness/product familiarity	Consumers' preference for local products
Product seasonality, supply availability and taste consistency	Increased accessibility (grocery stores instead of seasonal farmers' market)
Higher price	Consumers' increasing preference for healthier food types

Challenges

- Consumer Awareness/Product Familiarity: Interviewees raised the issue of product familiarity (also highlighted in the consumer survey findings in Section 4.2 on page 24) as one of the key challenges, which underscores the need for an education/marketing campaign for artisan varieties. One interviewee explains: There is a need to "Inform the customer of what artisan cheese is. Why is it so expensive?" Another interviewee specifically cited confusion on product packaging. To wit, "People's perspective of the artisan and specialty cheeses that are sealed is incorrect. They feel that if they are sealed, then they are not

fresh, but actually it keeps the cheese fresher and allows for longer refrigerator time." Many of the extension services of U.S. cheese-producing regions are doing a great job with more holistic marketing of artisan cheese varieties. All artisan cheese producers benefit in some way from this information campaign, but local producers must soon find a way to differentiate and brand their products in the face of the strengthening brand identity of more well-known cheese-producing states. For instance, most Wisconsin cheeses come with a Wisconsin Cheese product seal (refer to Appendix 4). Availability of Wisconsin cheeses in the same geographic area that Missouri producers offer their product raises the need for a more holistic competitive strategy for local cheeses.

- Product seasonality, supply availability, and taste consistency: Although some consumers seek new product varieties and unique taste, it appears that product consistency is a concern. One grocery chain manager explains that one issue encountered is that the "taste isn't the same with every batch." On top of this, "Supply is not consistent." Another interviewee explains, "Because it is artisan, the taste varies, and customers don't like that. Samples will help this situation."
- Higher price: One interviewee points out the need to "get people used to buying a higher priced item." Consumers' unfamiliarity with the product coupled with unsteady supply disrupt the opportunity to create a steady buying pattern for artisan varieties

Opportunities

- Consumers' preference for local products: The following statements from the interviewees explains this opportunity: (i) "Local, home-grown and processed products are up and coming, especially in St. Louis." (ii) "Always room for more competition. And local producers are the number one choice [for our customer base]." (iii)"Having the ability to trace a product back to [the] farmer helps with the marketing side of the product. People are starting to understand why specialty cheeses are more expensive, and they are willing to pay for the added luxury of it being produced locally. If the product can be sampled, like in a farmers market, it enhances the profitability in the store," and (iv) "If the product is local, we can keep it on the shelf…we are constantly out of the product. We have over 500 different suppliers of local products in our store. We are always looking for new companies, and the process is not difficult."
- Increased accessibility (grocery stores instead of seasonal farmers markets): To quote from one of the interviewees: "Our customers look to us to have local products so they do not have to attend different farmers markets and road side stands. Convenience of selling local products in important."
- Consumers' increasing preference for healthier food types: This trend is explained by one of the interviewees as follow: "In the deli market, artisan cheese has a huge market to break into. [Artisan cheeses] will be marketed well because it is a rare product. People are looking for new things and new tastes. A niche product has the opportunity to reach high demands."
- "The product is marketed the best as a seasonal product. There is demand for artisan cheese in all areas, especially cities. There is market if the product is available."

7. Institutional Setting

7.1. Supporting Institutions

The renaissance of the cheese industry is due in part to the various institutions that help promote U.S. cheeses. This section is not intended to discuss all of these institutions but rather provide some backdrop and few examples of resources that cheesemakers can tap to help with their business.

7.1.1 Dairy Management, Inc. (www.dairyinfo.com)

DMI is an organization funded by "checkoff fees" dedicated to promoting the sale of American-made dairy products. Check-off fees are funds collected from producers of particular agricultural commodities for research and promotion of said commodities. This mechanism was made possible by the Commodity, Promotion, Research and Information Act of 1996 (http://en.wikipedia.org/wiki/Dairy_Management_Inc.) To this day, the cheese industry was benefiting from research work at five dairy research and technology centers that were part of Dairy Management Inc.'s (DMI) National Dairy Foods Research Center Program. These are the Dairy Products Technology Center at California Polytechnic State University, the Midwest Dairy Food Research Center, Southeast Dairy Foods Research Center, the Western Dairy Center at Utah State, and the Wisconsin Center for Dairy Research.

In 2009, DMI launched a research program that aimed to create better tasting and more versatile low-fat cheeses, both natural and processed. Other projects sponsored by DMI include (i) the development of methods to retard mold growth on cheese surfaces; (ii) "vatless" cheesemaking process, which produce a "zero" whey mozzarella-type cheese from a smaller quantity of microfiltered and concentrated skim milk; and (iii)more efficient slicing of cheese using lasers, which could eventually replace large commercial cutting machines that require high cleaning, sterilization, and maintenance and often produce work-related injuries.

7.1.2 Slow Food Movement (www.slowfoodusa.org)

Slow Food, established in 1989, is "an idea, a way of living and a way of eating." It is part of a global, grassroots movement with thousands of members in more than 150 countries. The movement links the pleasure of food with a commitment to community and the environment. Slow Food has a strong presence in the U.S. through Slow Food USA. Slow Food USA sponsors the American Raw Milk Cheese Presidium, and it helps promote unique and valuable U.S. cheeses (Caldwell, 2010). Slow Food USA has four local chapters in Missouri: Slow Food Kansas City, Slow Food Southwest, Slow Food Katy Trail Columbia, and Slow Food St. Louis. Member benefits of the Columbia chapter include "access to fun, delicious Columbia-area events that elevate and celebrate local farmers

and food. You also get the satisfaction of advocating for good, clean and fair food for everybody…" (http://www.slowfoodkatytrail.blogspot.com/). Slow Food has been instrumental in promoting the localvore movement and can serve as an great resource for promoting artisan cheeses as local products.

7.1.3 The American Cheese Society (www.cheesesociety.org)

According to its website, the American Cheese Society (ACS) is the "leader in promoting and supporting American cheeses." Its mission is to "provide the cheese community with educational resources and networking opportunities, while encouraging the highest standards of cheesemaking focused on safety and sustainability" through networking opportunities, educational resources, and sustainability programs. Membership in the American Cheese Society is available to anyone involved in the trade or simply passionate about American-made specialty and artisanal cheeses.

7.1.4 State Advisory Board and Cheese Guilds

Various advisory board and cheese guilds have been established in recent years to assist cheesemakers in each state. The California Milk Advisory Board (CMAB) for instance, has been instrumental in a highly successful promotional program for California cheeses. In 2004-2005, CMAB subsidized specialty cheesemakers' crossdocking fees by about $40 per pallet to help assist in opening up East Coast markets to California specialty cheese (Ellerby, 2010).

The Vermont Institute for Artisan Cheese at the University of Vermont is another example of state-based institutional support. The institute prides itself as being the "nation's first and only comprehensive center devoted to artisan cheese. By providing education, research, technical services, and public service to increase knowledge, appreciation, and expansion of artisan cheese," the institute supports artisan cheese producers in Vermont and throughout the U.S. (http://nutrition.uvm.edu/viac/).

There are also several cheese guilds throughout the U.S. These provide much needed support to producers. These include the California Artisan Cheese Guild, Southern Cheesemakers' Guild, New York State Farmstead & Artisan Cheese Makers Guild, Oregon Cheese Guild and Maine Cheese Guild among others. The Big Rivers Cheese Guild is being founded as the first organization to represent Missouri and lower Midwest cheesemakers bent to create a name for Missouri cheeses. Steve Baetje of Baetje Farms, a goat cheese producer in St. Genevieve County, serves as one of the guild's founding members (Gustin, 2010).

7.1.5 Dairy Cooperatives

Cooperatives' role in aggregating producer bargaining power against processors and in processing members' milk has long been important to their members' profitability. California Dairies Inc., Dairy Farmers of America, and Land

O' Lakes all have significant membership, processing facilities, and economic impact.

Other dairy cooperatives provide cases for comparison against the three co-ops mentioned above. Marketing-only dairy co-op CROPP/Organic Valley differs in its strategy of typically not investing in processing capacity and also in its emphasis on returning value to members in the form of higher regular pay prices instead of year-end patronage refunds (Ellerby, 2010).

7.1.6 Trade Publications

Another good resource, which proliferates partly as a reflection of the surge in artisan cheesemaking, are trade publications or magazines devoted to cheesemaking. These include "Say Cheese," "Cheese Connoisseur," and "Culture."

7.2. Regulatory environment

The dairy industry is known to be one of the most heavily regulated industries since the Great Depression. Most of these regulations emanate from the Agricultural Marketing Agreement Act of 1937 and the Agricultural Act of 1949, which mandated the Federal Milk Marketing Order (FMMO) and the price support system through the Commodity Credit Corporation. These institutionalized the dairy market for the remainder of the century. Today, federal dairy policy is based on five major programs: the (i) Dairy Product Price Support Program (DPPSP), (ii) the Milk Income Loss Contract (MILC) Program, (iii) Federal Milk Marketing Orders, (iv) Dairy Import Tariff Rate Quotas (TRQ), and the (v) Dairy Export Incentive Program. All these are designed to provide price and income support and market stability for dairy producers. In addition, several smaller programs aid the U.S. dairy sector with market promotion, research, price reporting, risk management, and disaster assistance (Schnepf, 2012).

DPPSP and MILC are price support mechanisms mandated by the Agricultural Act of 1949. These were subsequently renewed in various Farm Bills, the most recent of which is the 2008 Farm Bill. The former indirectly ensures a minimum price for milk by purchasing any cheddar cheese, nonfat dry milk, and butter offered to it by dairy processors at a price that allows them to at least pay $9.90 per hundredweight for milk. This would have expired on Dec. 31, 2012, but was renewed for another year by the American Taxpayer Relief Act of 2012 (Schnepf, 2012).

Milk Income Loss Contract (MILC) makes direct payments to participating dairy farmers whenever the minimum monthly market price for farm milk used for fluid consumption in Boston falls below $16.94 per hundredweight. The MILC program was reauthorized until Sept. 30, 2013, by the American Taxpayer Relief Act of 2012. By September, the payment cap will revert back to 2.985 million lbs (Schnepf, 2012).

TRQs protect higher-priced domestic dairy products by limiting the importation of lower priced foreign dairy products. Under-quota import volumes enter the United States at a zero or reduced duty, whereas above-quota volumes are charged a prohibitive duty. For dairy products subject to TRQs, an import license from USDA's Foreign Agricultural Service (FAS) is generally required to bring in items at the low-tier tariff rate (Schnepf, 2012).

An FMMO is a geographically defined fluid milk demand area. Established by federal law in the 1930s, the FMMO system regulates milk marketing across state lines but within explicitly defined and geographically aligned multi-state regions. Producers delivering milk to FMMOs are affected by two fundamental FMMO provisions: classified pricing of milk according to end use and pooling of receipts to pay all farmers within an FMMO a blended or weighted-average price (Schnepf, 2012).

On top of the complex regulations, albeit beneficial programs, discussed above, cheese manufacturers must comply with standards of identity (SID), which define product characteristics such as content levels of milk fat and manufacturing methods. Either Class I milk or milk of manufacturing grade may be used to make cheese. Class I fluid milk meets strict standards, which include regular inspections of the herd, herd housing facilities, and dairy equipment and milk storage units to ensure that they satisfy health and sanitation requirements (Highbeam Industry Report, 2011). Compliance with these particular regulations is quite significant. A market study of California cheeses estimates compliance costs to be $750 to $4,400 per cow for small dairies and $170 to $500 for larger operations. Because certain costs can be spread out as operations grow larger, smaller dairy operations bear higher per unit compliance costs (Ellerby, 2010).

Other regulations that established cheesemakers or those planning to engage in the business need to be familiar with include the following (Caldwell, 2010):

7.2.1 Zoning and Land Use Regulations

This specifies restrictions such as the maximum number of animals, urban growth boundaries, and selling agricultural products directly on the farm. Policies vary by state. Cheesemakers must also establish contact with a dairy inspector. Usually a representative of the Department of Agriculture, a dairy inspector, is responsible for licensing and regularly inspecting dairy facilities.

7.2.2 CAFO and the Dairy Wastewater Management Permit

Concentrated Animal Feeding Operations (CAFOs) are designated by the Environmental Protection Agency, which issues permits to protect water supplies from animal waste contamination by very large, confined livestock operations.

CAFOs are designated by size – for example, a small operation has 300 or fewer cows. Licensed dairies of any size may be required by their state agency to obtain a CAFO permit. To file a CAFO permit, an entity must develop an Animal Waste Management Plan (AWMP), which calculates the volume and nutrient content of all waste produced (including dead animals) and designates how these are going to be handled.

7.2.3 Federal Standards of Identity

This regulatory arm is particularly involved in the marketing of cheese products. The United States Code of Federal Regulation contains a list of just under 100 cheese and "related cheese products," and it legally defines product guidelines. Cheesemakers selling cheese included in the list must comply with the guidelines, especially when interstate cheese sales will be made. For example, according to the standards, Colby cheese must be made from cow's milk. Cheesemakers can solicit the help of their cheese inspector in determining whether they comply with such standards.

7.2.4 Product Packaging

The Fair Packaging and Labeling Act is a U.S. law that applies to labels on many consumer products. Packaged cheeses must have specific information on the label. This includes manufacturing plant number, ingredients, weight (in ounces and grams), address, and product standard of identity. Certification labels such as "certified organic" can also be included in packaging.

8. Major Market Players

The U.S. cheese market is dominated by Kraft Foods, which is the leader in both the natural and processed cheese sectors of the market. As Kraft goes, so goes the cheese market. It has the highest market share in four cheese categories: 63.1 percent in cream cheese/cream cheese spread, 48.3 percent share of processed cheese, 20.2 percent share of cottage cheese, 17.3 percent share of natural cheese. Kraft Foods' U.S. cheese net revenue for 2011 was $3.8 billion, up from $3.5 billion in 2010 and $3.6 billion in 2009 (Mintel Industry Report, 2012). In October 2012, the former Kraft Foods Inc. changed its name to Mondelēz International, Inc. and spun-off its North American grocery business into a new company called Kraft Foods Group, Inc. Kraft Foods Group focuses on the North American grocery business. Mondelēz International focuses on the global snacks business.

Sargento Foods is a family-owned company composed of three business divisions: consumer products, food service and food ingredients. The Consumer Products Division is a leading national packager and marketer of shredded, snack, and specialty cheeses sold under the Sargento brand; cheese and non-cheese snack food items; and ethnic sauces. The food service division produces custom cheese products

that are tailor-made to the specifications of many national restaurant chains. These products include natural sliced and shredded cheeses and breaded appetizers. The food ingredients division provides custom cheese products to meet the needs of other food manufacturers. These products include sliced, shredded, and diced cheeses; portion control packs; fillings; and sauces. Sargento prides itself for being the first cheese company to sell packaged shredded cheese and develop zippered packaging for its cheeses.

Land O' Lakes is the No. 3 dairy cooperative in the U.S. The company's self-named brand is the leading deli cheese available in the U.S. It accounts for nearly half of all domestic cheese sales in deli stores across the country. Net sales total $12.8 billion in 2011, up from $11.1 billion in 2010, with record high sales in the dairy goods, feed and crop inputs divisions.

Lactalis holds interests in both the natural and processed sectors of the market. The company is the No. 1 exporter of French dairy products with eight commercial divisions in France and 14 international subsidiaries. Cheese generates approximately half of the company's annual revenues with more than 500,000 tons of product manufactured each year for domestic and international consumption. The flagship Lactalis brand is President, which is sold in 128 countries and is present across six product categories (cheese, milk, butter, cream, processed cheese, ready meals/breaded cheese).

Co-ops that process the raw milk from their dairy farm membership are also strong contenders in the competitive cheese industry. Formed in the late 1990s through mergers, including the former Mid-America Dairymen, Inc., Kansas City, Missouri-based Dairy Farmers of America (DFA) had 17,000 members in 48 states and 3,000 employees in 2010. As one of the country's largest dairy co-ops, DFA produces cheese from the milk of its member farms and sells its cheese products under the Borden label through its American Dairy Brands division. Sales in 2009 reached $11.2 billion (Highbeam Industry Report, 2010).

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Appendices

Appendix 1: Artisan Cheesemakers in the U.S.

Company	Year Established	City/County	State	Types of Cheese	On Premise Retail	Mail Order	Farmers' Markets	Local, State or Regional Specialty Foods Stores	National Distribution	Food Co-Op	Restaurant Trade
Abbey of Regia Laudis	1947	Bethlehem	CT	farmstead	x						
Beltine Farm	1998	Lebanon	CT	farmstead	x	x	x	x			
Bush Meadw Farm	2004	Union	CT	farmstead	x						
Calabro Cheese	1953	East Haven	CT	pasteurized					x		
Cato Cornwe Farm	1997	Colchester	CT	farmstead		x	x	x			
Liuzzi Cheese Caseficio Moderno	1981	North Haven	CT	pasteurized	x						
Meadow Stone Farm	2006	Brooklyn	CT	farmstead	x						
Rustling Wind Creamery	1998	Falls Village	CT	farmstead	x	x					
Sankow's Beaver Brook Farm	1998	Lyme	CT	farmstead	x	x	x				
Woodbrige Farm	1997	Salem	CT	farmstead	x	x	x				
Appleton Creamery	1994	Appleton	ME	farmstead		x		x			
Hahn's End	2000	Phippsburg	ME	seasonal	x		x	x			
Kennebec Cheesery	2006	Sidney	ME	farmstead			x	x			
Liberty Fields Farm	2005	Saco	ME	farmstead	x		x				
Little Falls Farm	2007	Harrison	ME	farmstead	x		x				
Longfellow's Creamery	2007	Avon	ME	farmstead	x		x				
Monroe Cheese Studio	2004	Monroe	ME	farmstead	x		x				
Mystique Cheese	1979	Waldoboro	ME	farmstead	x		x				
Oak Leaf Creamery	2005	Kennebunkport	ME	pasteurized			x	x			
Penquis Valley Shepherds	2006	Milo	ME	pasteurized				x			
Pineland Farms	2006	New Gloucester	ME	farmstead	x						
Seal Cove Farm	1976	Lamoine	ME	farmstead	x	x		x			
Silver Moon Creamery	2003	Westbrook	ME	farmstead	x	x	x	x			
Sleighbell Farm	1980	Washington	ME	farmstead	x		x				
State of Maine Cheese Company	1983	Rockport	ME	pasteurized	x	x		x			
Sunset Acres Farm	1998	Brooksville	ME	farmstead	x		x	x			
Townhouse Farm	2005	Whitefeild	ME	farmstead	x			x			
Turner Center Creamery	1994	Turner	ME	farmstead	x			x			
Udder View Farm	2004	Columbia	ME	farmstead	x	x	x				
York Hill Farm	1984	New Sharon	ME	farmstead	x			x			
Berkshire Cheese Makers	1999	Great Barrington	MA	raw jearsey					x		

Company	Year Established	City/County	State	Types of Cheese	On Premise Retail	Mail Order	Farmers' Markets	Local, State or Regional Specialty Foods Stores	National Distribution	Food Co-Op	Restaurant Trade
Carlisle Farmstead Cheese	2005	Carlisle	MA	farmstead			x	x			
Chase Hill Farm	2001	Warwick	MA	farmstead	x	x	x	x			
Crystal Brook Farm	1998	Sterling	MA	farmstead			x	x			
Essex Cheese Company	1997	Topsfield	MA	farmstead			x	2			
Fiore Di Nonno	2006	Lincoln	MA	pasteurized	x		x				
Goat Rising Farm	2004	Charlemont	MA	farmstead	x	x		x			
Gould Farm	2001	Monterey	MA	farmstead	x			x			
Great Hill Dairy	1996	Marlon	MA	raw holstein		x	x		x		
Hillman Farm	1999	Colrain	MA	farmstead				x	x		
Julima Cheese at Manny's Dairy	1986	Lancaster	MA	farmstead				x			
Martin's Cheese Company	1927	Westpoint	MA	farmstead	x			x			
Rawson Brook Farm	1983	Monterey	MA	farmstead	x		x				
Smith's Country Cheese	1985	Winchendon	MA	farmstead	x	x	x	x			
Westfield Farm	1971	Hubbardston	MA	pasteurized	x	x			x		
Boggy Meadow Farm	1994	Walpole	NH	farmstead	x	x		x			
Full Moon Farm	1997	Rochester	NH	farmstead	x		x	x			
Heart Song farm	2000	Gilmanton Ironworks	NH	farmstead	x		x	x			
Sandwich Creamery	1995	North Sandwich	NH	pasteurized	x	x	x	x			
Via Lactea Farm	2001	Brookfield	NH	farmstead	x		x	x			
Blue Ledge Farm	2002	Saltsbury	VT	farmstead			x	x			
Blythedale Farm	1993	Cornith	VT	farmstead				x			
Bonnie View Farm	1999	Craftsbury Common	VT	farmstead				x			
Cabot Creamery	1919	Montpelier	VT	pasteurized	x	x			x		
Champlain Valley Creamery	2003	Vergennes	VT	pasteurized	x		x	x			
Cobb Hill Cheese	2000	Hartland	VT	farmstead				x			
Consider Bardwell Farm	2004	West Pawlet	VT	farmstead				x			
Crawford Family Farm	2006	Whiting	VT	farmstead			x	x			
Crowley Cheese Company	1882	Healdville	VT	raw holstein	x	x		x			
Dancing Cow Farmstead Cheese	2005	Bridport	VT	farmstead				x		x	
Doe's Leap Goat Farm	1999	East Fairfeild	VT	farmstead			x	x			
Frog City Cheese	2004	Plymouth Notch	VT	raw cow	x	x		x			

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Grafton Village Cheese Company	1967	Grafton	VT	heat-treated	x	x			x		
Green Mountain Blue Cheese	1999	Highgate Center	VT	farmstead	x	x	x	x	x		
Hope Farm Sheep Cheese	2002	East Charleston	VT	farmstead			x	x		x	
Jasper Hill Farm	2002	Greensboro	VT	farmstead				x	x		
Lake's End Cheese	1996	Alburg	VT	farmstead	x	x		x			
Lazy Lady Farm	1997	Westfield	VT	farmstead			x	x	x		
Maplebrook Farm	2003	Bennington	VT	pasteurized				x			
Neighborly Farms of Vermont	2001	Randolph Center	VT	farmstead	x	x		x	=		
Orb Weaver Farm	1982	New Haven	VT	farmstead		x	x	x	x		
Peaked Mountain Farm	1999	Townshend	VT	farmstead	x		x	x		x	
Shelburne Farms	1980	Shelburne	VT	farmstead	x	x			x		
Taylor Farm	1998	Londonderry	VT	farmstead	x	x		x			
Thistle Hill Farm	2002	North Pomfret	VT	farmstead		x		x			
Three Owls Sheep Dairy	2004	Granville	VT	farmstead	x						
Three Shepheds of the Mad River Valley	2000	Warren	VT	seasonal raw	x	x					
Twig Farm	2004	West Cornwall	VT	sesonal		x		x			
Vermont Butter and Cheese Company	1984	Websterville	VT	pasteurized					x		
Vermont Shepherd	1990	Putney	VT	farmstead	x	x			x		
West River Creamery	2003	Londonderry	VT	farmstead			x			x	
Willow Hill Farm	1997	Milton	VT	farmstead			x	x			
Woodcock Farm Cheese Company	1999	Weston	VT	farmstead	x	=	x	x			
WoodstockWater Buffalo Company	2003	South Woodstock	VT	pasteurized				x			
Chapel's Country Creamery	2004	Easton	MD	raw holstein	x	x	x				
Firefly Farms	2002	Bittinger	MD	pasteurized		x	x				
South Market Creamery	2001	Middletown	MD	farmstead	x	x					
Bobolink Dairy & Bakeyard	2002	Vernon	NJ	farmstead	x			x			
Fiore's House of Quality Deli	1913	Hoboken	NJ	pasteurized	x	x					
Valley Shepherd Creamry	1995	Long Valley	NJ	farmstead	x		x	x	x		
Vito's Deli	1986	Hoboken	NJ	pasteurized	x						
Alleva Dairy	1892	New York	NY	pasteurized	x	x					

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Berle Farm	1995	Hoosick	NY	farmstead	x		x			x	
Brovetto Dairy and Cheese House	2001	Jefferson	NY	farmstead	x		x	x			
Catapano Dairy	2003	Peconic	NY	farmstead	x						
Clover Mead Farm	2002	Keeseville	NY	farmstead	x	x	x	x			
Coach Farm	1983	Pine Plains	NY	pasteurized					x		
County Meadows	2002	Canton	NY	farmstead	x		x	x			
Cowlick Farm	2005	Lodi	NY	farmstead	x						
Dancing Lamb Farm and Sheep Dairy	2006	Earlton	NY	farmstead		x	x				
Di Palo Fine Goods	1910	New York	NY	pasteurized	x						
Evan's Farmhouse Creamery	2006	Norwich	NY	farmstead	x			x			
Finger Lakes Dexter Creamery	2006	King Ferry	NY	farmstead				x	x		
Finger Lakes Farmstead Cheese Company	2006	Trumansburg	NY	farmstead		x		x	x		
Gillis Acres Farm	2004	Greenwich	NY	farmstead	x	x	x	x			
Hawthorne Valley Farm	1979	Ghent	NY	farmstead	x		x				
Heamour Farm	2005	Madison	NY	farmstead		x		x			
Homestead Artisans Enterprises	2004	Fort Edward	NY	farmstead		x	x	x			
Joe's Dairy	1981	New York	NY	pasteurized	x						
Lively Run Goat Dairy	1982	Interlaken	NY	farmstead	x	x		2			
Meadowsweet Dairy	1999	Lodi	NY	farmstead	x		x				
Mecox Bay Dairy	2003	Bridgehampton	NY	farmstead			x	x			
Nettle Meadow Goat Farm	1992	Warrensburg	NY	farmstead				x			
Northland Sheep Dairy	1989	Marathon	NY	farmstead	x		x	x			
Old Catham Sheepherding Company	1993	Old Chatham	NY	farmstead					x		
Painted Goat Farm	2006	New Lisbon	NY	farmstead		x	x	x			
Popovich Provisions	2000	Catskill	NY	pasteurized		x	x	x			
Rainbeau Ridge Farm	2005	Bedford Hills	NY	farmstead				x			
Sherman Hill Farmstead	1993	Franklin	NY	farmstead				x			
Side Hill Acres	1994	Candor	NY	farmstead	x	x					
Spout Creek Farm	2001	Poughkeepsie	NY	farmstead	x		x	x			
Sweet Spring Farm	2006	Argyle	NY	farmstead			x				

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3-Corner Field Farm	2005	Shushan	NY	farmstead	x	x		x			
Tonjes Farm Dairy	2003	Callicoon	NY	farmstead			x				
Watson's Farm	2002	Livingston Manor	NY	farmstead	x			x			
Birchwood Farms	2006	Newtown	PA	farmstead	x						
Clover Creek Cheese Cellar	2005	Williamsburg	PA	seasonal	x	x	x	x			
Ely Pork Products	2006	Newtown	PA	seasonal	x	x		x			
Everview Farm	2005	Benton	PA	farmstead			x				
Grassy Edge Farm	2005	Thompsontown	PA	farmstead				x			
Green Valley Dairy	2003	Kirkwood	PA	seasonal			x				
Greystone Nubians	1972	Malvern	PA	pasteurized							x
Heather Ridge Creamery	2002	Wellsboro	PA	farmstead	x			x			
Hendricks Farms and Dairy	2001	Telford	PA	farmstead	x			x			
Hilltop Meadow Farm	2004	Pine Grove	PA	farmstead	x	x					
His Kids Dairy	2000	Wyalusing	PA	farmstead	x		x	x			
Inn to the Seasons	2004	Canton	PA	farmstead		x					
Keswick Creamery	2001	Newburg	PA	farmstead	x		x				
Klein Farms Dairy and Creamery	2003	Easton	PA	farmstead	x						
Le Raysville Cheese Factory	1992	Le Raysville	PA	pasteurized	x			x		x	9
Menhennett Farm Farm	1992	Cochranville	PA	farmstead			x				
Mountain Meadows Farm	2003	Richfield	PA	farmstead				x			
Otterbein Acres	2005	Newburg	PA	farmstead	x						
Painted Hand Farm	2006	Newburg	PA	farmstead			x	x		#REF!	
Patches of Star Dairy	2004	Nazareth	PA	farmstead			x				
Pipe Dreams Fromage	1994	Greencastle	PA	farmstead	x			x			
Shellbark Hollow Farm	2002	West Chester	PA	farmstead				x			
Shrenk's Foods	1929	Lancaster	PA	farmstead	x	x					
Stone Meadow Farm	2004	Woodward	PA	farmstead		x	x				
Travis Bountiful Acres	1995	Carlisle	PA	farmstead	x		x	x			
Wakefield Dairy	2002	Peach Bottom	PA	farmstead	x	x					
Wil-ar Farms	1999	Newville	PA	farmstead	x	x					
Blue Ridge Mountain Dairy	2000	Leesburg	VA	pasteurized			x				
Everona Dairy	1998	Rapidan	VA	farmstead			x		x		

Appendix 1: Artisan Cheesemakers in the U.S.

Company	Year Established	City/County	State	Types of Cheese	On Premise Retail	Mail Order	Farmers' Markets	Local, State or Regional Specialty Foods Stores	National Distribution	Food Co-Op	Restaurant Trade
Fields of Grace Farm	2005	Remington	VA	farmstead			x				
Goats-R-Us	2003	Blackstone	VA	farmstead			x		x		
Green Haven Farm Cheeses	2006	Woodstock	VA	farmstead			x				
Iron Rod Chevre	1997	Earlysville	VA	farmstead				x			
Marshall Farms Natural Cheese	2002	Unionville	VA	seasonal	x	x		x			
Meadow Creek Dairy	1998	Galax	VA	farmstead		x			x		
Middlebrook Cheese Company	2003	Middlebrook	VA	farmstead	x	x	x	x			
Oak Spring Dairy	2003	Upperville	VA	farmstead			x				
Our Lady of the Angels Monastery	1990	Crozet	VA	farmstead		x					
Sullivan's Pond Farm	2003	Wake	VA	farmstead				x			
Sunny Hill Farm	2005	Riner	VA	farmstead		x	x				
Walker Mountain Goat Cheese	2005	Pearisburg	VA	farmstead				x			
Blue Highland Dairy	2001	Berkeley	WV	farmstead			x	x			
Bulger Creek Farm	1998	Notasulga	AL	farmstead			x	x			
Fromagerie Belle Chevre	1989	Elkmont	AL	pasteurized					x		
Sweet Home Farm	1987	Elberta	AL	farmstead	x			x			
Sweet Grass Dairy	2000	Thomasville	GA	farmstead	x		x	x	x		
Gethsemani Farm	1945	Trappist	KY	farmstead	x	x					
Kenny's Farmhouse Cheese	1998	Austin	KY	farmstead	x	x	x				
Belle Ecorce Farms	2002	St. Martinville	LA	farmstead	x		x	x			
Bittersweet Plantation Dairy	2002	Gonzales	LA	pasteurized					x		
Dona Blanca House of Cheese & Dairy	2005	Saint Rose	LA	pasteurized	x		x				
Mauthe's Dairy	2001	Folsom	LA	farmstead			x				
Smith Creamery	2003	Mt. Hermon	LA	farmstead	x	x	x				
Haystack Dairy	2001	Carriere	MS	farmstead			x				
Celebrity Diary	1991	Siler City	NC	farmstead			x				
Chapel Hill Creamery	2000	Chapel Hill	NC	farmstead			x	x			
Elodie Farms	2003	Rougemont	NC	farmstead			x	x			
Goat Lady Dairy	1996	Climax	NC	farmstead	x		x				
Sleepygoat Cheese	2004	Pelham	NC	farmstead			x				
Spinning Spider Creamery	2003	Marshall	NC	farmstead			x	x			
Yellow Branch Farmstead Cheese	1986	Robbinsville	NC	farmstead	x	x		x			

Appendix 1: Artisan Cheesemakers in the U.S.

Company	Year Established	City/County	State	Types of Cheese	On Premise Retail	Mail Order	Farmers' Markets	Local, State or Regional Specialty Foods Stores	National Distribution	Food Co-Op	Restaurant Trade
Clemson University Blue Cheese	1941	Clemson	SC	pasteurized		x					
Split Creek Farm	1988	Anderson	SC	farmstead	x	x					
Bonnie Blue Farm	2006	Waynesboro	TN	farmstead	x	x	x				
Locust Grove Farm	2006	Knoxville	TN	farmstead	x	x	x	x			
Sweetwater Valley Cheese	1999	Philadelphia	TN	farmstead	x			x			
Nauvoo Cheese	2006	Nauvoo	IL	pasteurized	x			x			
Prairie Fruits Farm	2005	Champaign	IL	farmstead	x		x	x			
Prairie Pure Cheese	2004	Belvidere	IL	pasteurized				x			
Capriole Goat Cheese	1988	Greenville	IN	farmstead			x	x	x		
The Swiss Connection	2000	Clay City	IN	farmstead	x	x	x				
Traders Point Creamery	2002	Zionsville	IN	farmstead	x	x		x			
Leelanau Cheese Company	1995	Suttons Bay	MI	pasteurized	x	x					
Steve-N-Sons Grassfields Cheese	2002	Coopersville	MI	farmstead	x	x	x	x			
Zingerman's Creamery	2001	Ann Arbor	MI	pasteurized	x	x	x				
Donnay Diary Farm	2005	Kimball	MN	farmstead				x			
Faribault Dairy Company	2001	Faribault	MN	raw					x		
Green Pastures Dairy	2001	Carlton	MN	farmstead	x	x	x				
Pastureland	2000	Minneapolis	MN	pasteurized		x		x			
Shepherd's Way Farm	1994	Nerstrand	MN	farmstead				x	x		
Stickney Hill Dairy	1999	Kimball	MN	farmstead				x	x		
Buckeye Grove Farm Cheese	2004	Beallsville	OH	farmstead	x		x	x			
Cold Rain Dairy	2006	Pataskala	OH	farmstead		x	x	x			
Colonial Classics Farmstead Cheese	2004	Scio	OH	farmstead		x		x			
Oakville Farmstead Cheese	2003	London	OH	farmstead	x	x	x	x			
Bass Lake Cheese	1918	Somerset	WI	seasonal	x	x					
Bleu Mont Dairy	1988	Blue Mounds	WI	seasonal		x	x				
Brunkow Cheese	1899	Darlington	WI	pasteurized	x		x		x		
Butler Farms	1995	Whitehall	WI	farmstead			x				
Capri Organic Goat Cheese	2001	Blue River	WI	pasteurized	x				x		
Cedar Grove Cheese	1878	Plain	WI	pasteurized					x		
Chalet Cheese Co-op	1885	Monroe	WI	pasteurized					x		

Appendix 1: Artisan Cheesemakers in the U.S.

Company	Year Established	City/County	State	Types of Cheese	On Premise Retail	Mail Order	Farmers' Markets	Local, State or Regional Specialty Foods Stores	National Distribution	Food Co-Op	Restaurant Trade
Crave Brothers Farmstead Cheese	2002	Waterloo	WI	farmstead				x	x		
Dreamfarm	2005	Cross Plains	WI	farmstead			x				
Fantome Farm	1984	Ridgeway	WI	farmstead			x				
Fenceline	2004	Grantsburg	WI	pasteurized				x			
Henning's Cheese	1914	Kiel	WI	pasteurized	x	x		x			
Hidden Springs Creamery	2006	Westby	WI	farmstead		x		x			
Hook's Cheese Company	1976	Mineral Point	WI	seasonal	x		x	x			
Lovetree Farmstead Cheese	1997	Grantsburg	WI	farmstead		x	x				
Mt. Sterling Cheese Cooperative	1983	Mt. Sterling	WI	pasteurized	x	x			x		
Natural Valley Cheese	1999	Hustler	WI	pasteurized	x			x	x		
Roth Kase	1991	Monroe	WI	pasteurized	x	x			x		
Saxon Homestead Creamery	2007	Cleveland	WI	farmstead	x			x			
Uplands Cheese	2000	Dodgeville	WI	farmstead					x		
Widmer's Cheese Cellars	1922	Theresa	WI	pasteurized					x		
Farmers' All Natural Creamery	2004	Wellman	IA	seasonal				x			
Northern Prairie Chevre	2000	Woodward	IA	farmstead	x	x	x				
Jason Wiebe Dairy	2003	Durham	KS	farmstead	x	x		x			
Alpine Dairy Goats of St. Louis	1993	St. Louis	MO	farmstead	x						
Goatsbeard Farm	1999	Harrisburg	MO	farmstead			x	x			
Stoney Acres Sheep Dairy	1996	Competition	MO	farmstead			x				
Jisa's Farmstead Cheese	2005	Brainard	NE	farmstead		x		x			
Christian Cheese	1997	Kingfisher	OK	farmstead	x	x		x			
Haystack Mountain Goat Dairy	2007	Ada	OK	pasteurized					x		
Swan Brothers Dairy	1985	Claremore	OK	farmstead	x	x					
Watonga Cheese Facory	1940	Watonga	OK	pasteurized	x	x		x			
Chateu De Fromage	2005	Dallas	TX	pasteurized	x	x					
Deborah's Farmstead	2003	Fort Worth	TX	farmstead				x			
Full Quiver Farm	2002	Kemp	TX	farmstead			x	x			
La Cuesta Farm	2002	Clifton	TX	farmstead	x	x					
Leche De Tejas Goat Dairy	2004	Chandler	TX	farmstead	x	x	x				
"Maid" In the Shade	2005	Rosanky	TX	farmstead	x		x				

Appendix 1: Artisan Cheesemakers in the U.S.

Company	Year Established	City/County	State	Types of Cheese	On Premise Retail	Mail Order	Farmers' Markets	Local, State or Regional Specialty Foods Stores	National Distribution	Food Co-Op	Restaurant Trade
Mozzerella Company	1982	Dallas	TX	pasteurized	x	x		x			
Pure Luck Texas	1995	Dripping Springs	TX	farmstead	x		x				
Strykly Texas Cheese	2000	Schulenburg	TX	farmstead	x						
Texas Jersey Cheese Company	1996	La Grange	TX	farmstead	x	x		x			
Veldhuizen Family Farm	2003	Dublin	TX	farmstead	x	x		x			
Wateroak	1998	Bryan	TX	farmstead			x	x			
Black Mesa Ranch	2003	Snowflake	AZ	farmstead	x	x	x	x			
Fiore Di Capra	2006	Pomerene	AZ	farmstead			x				
Haystack Mountain Goat Dairy	1991	Longmont	CO	farmstead	x	x	x	x	x		
James Ranch Artisan Cheese	2002	Durango	CO	farmstead	x	x	x				
Mouco Cheese Company	2001	Fort Collins	CO	pasteurized					x		
Ballaed Family Dairy & Cheese	2004	Gooding	ID	farmstead			x	x			
Rollingstone Chevre	1988	Parma	ID	farmstead	x	x					
Amaltheia Dairy	2000	Belgrade	MT	farmstead		x		x	x		
Lifeline Farm	1984	Victor	MT	farmstead	x	x		x	x		
Oasis Farmstead Dairy	1999	Fallom	NV	farmstead			x				
Coonrige Organic Goat Cheese	1981	Pie Town	NW	farmstead	x	x					
Old Windmill Dairy	2007	Estancia	NM	farmstead		x	x	x		x	
Rocky Ridge Goat Dairy	2005	Gallup	NM	farmstead		x	x				
South Mountain Dairy	2005	Edgewood	NM	farmstead			x			x	
Sweetwoods Dairy	1991	Blanca	NM	farmstead			x				
Beehive Cheese Company	2005	Uintah	UT	pasteurized	x		x				
Drake Family Farms	2000	West Jordan	UT	farmstead	x		x	x			
Rockhill Creamery	2005	Richmond	UT	farmstead			x	x			
Cranberry Ridge Farm	2006	Wasilla	AK	farmstead	x			x			
Achadinha Cheese Company	2004	Petaluma	CA	farmstead		x	x				
Andante Dairy	2000	Petaluma	CA	pasteurized			x				
Belfiore Cheese Company	1987	Berkeley	CA	pasteurized					x		
Bellwether Farms	1990	Petaluma	CA	farmstead					x		
Bodega Goat Cheese	1984	Bodega	CA	farmstead			x	x			
Borrelli Latticini	2000	Fresno	CA	pasteurized				x			

Appendix 1: Artisan Cheesemakers in the U.S.

Company	Year Established	City/County	State	Types of Cheese	On Premise Retail	Mail Order	Farmers' Markets	Local, State or Regional Specialty Foods Stores	National Distribution	Food Co-Op	Restaurant Trade
Bravo Farms	1995	Traver	CA	raw jearsey				x			
Bubalus Bubaliss	1998	Gardena	CA	pasteurized				x			
Cowgirl Creamery	1997	Point Reyes Station	CA	pasteurized	x			x	x		
Cypress Grove Chevre	1983	Arcata	CA	pasteurized	x	x			x		
Fagundes Old-World Cheese	1999	Hanford	CA	farmstead	x	x		x			
Fiscalini Farmstead Cheese Company	2000	Modesto	CA	farmstead	x	x			x		
Gioia Cheese Company	1993	South El Monte	CA	pasteurized				x			
Goat's Leap Cheese	1992	St. Helena	CA	farmstead				x	x		
Harley Farms Goat Dairy	1991	Pescadero	CA	farmstead	x	x					
Kendall Cheese Company	1981	Atascadero	CA	pasteurized					x		
Laura Chenel's Chevre	1979	Sonoma	CA	pasteurized					x		
Loleta Cheese Company	1982	Loleta	CA	pasteurized	x	x		x			
Marin French Cheese	1865	Petaluma	CA	pasteurized	x	x			x		
Matos Cheese Factory	1979	Santa Rosa	CA	pasteurized	x	x			x		
Meyenberg Goat Milk Products	1934	Turlock	CA	pasteurized					x		
Mid-Coast Cheese Company	1917	San Luis Obispo	CA	pasteurized				x			
Oakdale Cheese & Specialties	1983	Oakdale	CA	pasteurized	x	x	x				
Pedrozo Dairy & Cheese	1999	Orland	CA	farmstead	x		x	x			
Point Reyes Farmstead Cheese	2000	Point Reyes Station	CA	farmstead				x			
Pug's Leap Farm	2004	Healdsburg	CA	farmstead			x	x			
Queso Bueno	2004	Pico Rivera	CA	pasteurized		x	x		x		
Redwood Hill Farm and Creamery	1988	Sebastopol	CA	pasteurized		x			x		
Rinconda Dairy	2002	Santa Margarita	CA	farmstead			x	x			
Sierra Nevada Cheese Company	1997	Willows	CA	pasteurized				x			
Skyhill Napa Valley Farms	1990	Napa	CA	farmstead					x		
Spring Hill Jersey Cheese	1998	Petaluma	CA	farmstead	x	x	x	x			
Three Sisters Farmstead Cheese	2000	Lindsay	CA	farmstead	x	x			x		
Vella Cheese Company	1931	Sonoma	CA	pasteurized	x				x		
Winchester Cheese Company	1996	Winchester	CA	farmstead			x		x		
Yerba Santa Dairy	1980	Lakeport	CA	farmstead	x	x					

Appendix 1: Artisan Cheesemakers in the U.S.

Company	Year Established	City/County	State	Types of Cheese	On Premise Retail	Mail Order	Farmers' Markets	Local, State or Regional Specialty Foods Stores	National Distribution	Food Co-Op	Restaurant Trade
Hawaii Island Goat Dairy	2001	Honokaa	HI	farmstead			x				
Surfing Goat Dairy	2000	Kula	HI	farmstead		x					
Alsea Acre Goat Cheese	1994	Alsea	OR	farmstead				x			
Ancient Heritage Dairy	2006	Scio	OR	farmstead			x				
Fraga Farm Goat Cheese	2000	Sweet Home	OR	farmstead				x			
Juniper Grove Farm	1987	Redmond	OR	farmstead	x			x			
Oregon Gourmet Cheeses	2001	Albany	OR	pasteurized				x			
Pholia Farm	2006	Rogue River	OR	farmstead	x	x					
Queseria Brands	2004	Woodburn	OR	farmstead				x			
River's Edge Chevre	2005	Logsden	OR	farmstead				x			
Rogue Creamery	1935	Central Point	OR	pasteurized	x				x		
Silver Falls Creamery	2004	Aumsville	OR	farmstead				x			
Tillamook County Creamery Association	1909	Tillamook	OR	pasteurized					x		
Tumalo Farms	2005	Bend	OR	farmstead				x			
Willamette Valley Cheese Company	2002	Salem	OR	farmstead			x	x			
Apple Farms	1985	Ferndale	WA	farmstead	x				x		
Beecher's Handmade Cheese	2003	Seattle	WA	pasteurized	x	x		x			
Black Sheep Creamery	2005	Adna	WA	farmstead			x				
Country Pride Farm	2004	Ridgefield	WA	farmstead			x	x			
Estrella Family Creamery	2003	Montesano	WA	farmstead	x	x	x	x			
Golden Glen Creamery	2004	Bow	WA	farmstead	x	x		x			
Gothberg Farms	2004	Bow	WA	farmstead			x				
Monteillet Fromagerie	2002	Dayton	WA	farmstead		x	x				
Mt. Townsend Creamery	2006	Port Townsend	WA	pasteurized	x			x			
Pleasant Valley Dairy	1976	Fenrdale	WA	farmstead	x	x		x			
Quillisacut Cheese Company	1987	Rice	WA	farmstead				x			
Rainhaven Farm	2006	Duvall	WA	farmstead				x			
Sally Jackson Cheese	1979	Oroville	WA	farmstead		x			x		
Samish Bay Cheese	1999	Bow	WA	farmstead	x	x	x	x			
Sea Breeze Farm	2002	Vashon Island	WA	farmstead	x		x	x			
Steamboat Island	2006	Olympia	WA	farmstead						x	

Appendix 1: Artisan Cheesemakers in the U.S.

Company	Year Established	City/County	State	Types of Cheese	On Premise Retail	Mail Order	Farmers' Markets	Local, State or Regional Specialty Foods Stores	National Distribution	Food Co-Op	Restaurant Trade
Goat Farm											
Washington State University Creamery	1948	Pullman	WA	farmstead	x	x					

Appendix 2: Murray's Cheese Catalogue
U.S. Specialty Cheese Varieties

http://www.murrayscheese.com

HERB GOAT LOG
$4.99/EA

VERMONT CREAMERY PEPPER LOG
$4.99/EA

PLAIN GOAT LOG
$4.99/EA

ELLSWORTH CREAMERY
CHEESE CURDS
$5.99/EA

NEW YORK STATE CHEDDAR
$7.99/LB

CHAMPLAIN VALLEY TRIPLE CREAM
$8.99/EA

VERMONT BUTTER AND CHEESE CREAMERY
TORUS
$8.99/EA

HUDSON VALLEY CAMEMBERT
$8.99/EA

RED WAX GOUDA
$8.99/LB

PLAIN GOAT LOG - 10 OUNCE
$9.99/EA

SMOKED LIONI MOZZARELLA
$9.99/EA

SMOKED GOUDA
$9.99/LB

BLACK RIVER BLUE
$9.99/LB

SALTED LIONI MOZZARELLA
$9.99/EA

BIJOU (2-PACK)
$9.99/EA

BONNE BOUCHE
$10.99/EA

CREMONT
$10.99/EA

UP IN SMOKE
~~$15.99/EA~~ $10.99/EA

FROMAGE BLANC - 3 PACK
$12.99/EA

BURRATA
$12.99/EA

CARR VALLEY
BREAD CHEESE

QUARK - 3 PACK
$12.99/EA

CAVEMASTER RESERVE
MURRAY'S CAVEMASTER RESERVE PEAR

GOAT LOG TRIO
$13.99/EA

HARBISON
~~$21.99/EA~~ $13.99/EA

HOJA SANTA
$13.99/EA

WESTFIELD FARM CAPRI
$14.99/LB

ANGEL FOOD
$14.99/EA

CREME FRAICHE - 3 PACK
$14.99/EA

EWE BLOOM
$15.99/EA

COUPOLE
$15.99/EA

KUNIK
$15.99/EA

BLACK SHEEP
$15.99/EA

MASCARPONE - 3 PACK
$16.99/EA

SOLE GRAN QUESO
$16.99/LB

PRAIRIE BREEZE CHEDDAR
$17.99/LB

GREEN HILL
$17.99/EA

VON TRAPP FARMSTEAD
OMA
$17.99/LB

MERIDIAN
$18.99/EA

GRAND CRU GRUYERE SURCHOIX
$18.99/LB

HAYSTACK PEAK
$18.99/EA

TUMBLEWEED
~~$22.99/LB~~ $19.99/LB

SARVECCHIO
$20.99/LB

OREGON BLUE
$21.99/LB

LANDAFF
$21.99/LB

CABOT CLOTHBOUND CHEDDAR
$22.99/LB

READING
$24.99/LB

BLUE LEDGE FARMS
MIDDLEBURY BLUE
$24.99/LB

GRAYSON
~~$28.99/LB~~ $24.99/LB

SMOKEY BLUE
$24.99/LB

TARENTAISE
$24.99/LB

CONSIDER BARDWELL
PAWLET
$25.99/LB

BAYLEY HAZEN BLUE
$26.99/LB

BARELY BUZZED
$27.99/LB

MOSES SLEEPER
$27.99/EA

DORSET
$27.99/LB

RUPERT
$29.99/LB

DUNBARTON BLUE
$29.99/LB

HUMBOLDT FOG
$29.99/LB

HUDSON FLOWER
$29.99/EA

HUDSON RED
$29.99/LB

SAN ANDREAS
$29.99/LB

MAJOR FARMS
QUESO INVIERNO
$31.99/LB

CONSIDER BARDWELL
MANCHESTER
$31.99/LB

TRUFFLE TREMOR
$32.99/LB

CONSIDER BARDWELL
CAVEMASTER RESERVE BARDEN BLUE
$32.99/LB

PLEASANT RIDGE RESERVE EXTRA AGED
$32.99/LB

ROGUE CREAMERY
CAVEMAN BLUE
$32.99/LB

UPLANDS CHEESE COMPANY
RUSH CREEK RESERVE
$33.99/EA

DANTE
$34.99/LB

CATO CORNER HOOLIGAN
$35.00/EA

BANDAGED CHEDDAR
$35.99/LB

ROGUE RIVER BLUE
$39.99/LB

Appendix 2: Mu

Appendix 3: Consumer Survey Questionnaire

***1. What state do you live in?**

- ◯ Arkansas
- ◯ Kansas
- ◯ Nebraska
- ◯ Iowa
- ◯ Missouri
- ◯ Oklahoma

***2. How frequently do you:**

	At least weekly	Twice per month	Once per month	Less than once per month	Never
Purchase household groceries in-store?	◯	◯	◯	◯	◯
Consume cheese products? (sliced, shredded, brick, etc.)	◯	◯	◯	◯	◯
Purchase household groceries online or through other media sources?	◯	◯	◯	◯	◯
Purchase cheese products from your local farmers market?	◯	◯	◯	◯	◯

***3. I enjoy the following types of cheeses (please select the top three):**

- ☐ Brie
- ☐ Sharp cheddar
- ☐ Mozzarella
- ☐ Swiss
- ☐ Mild cheddar
- ☐ Gouda
- ☐ Blue
- ☐ Colby
- ☐ Muenster
- ☐ Provolone
- ☐ Pepper jack
- ☐ Other (please specify)

***4. I prefer (please select all that apply):**

- ☐ Soft - e.g., brie
- ☐ Hard - some have holes, e.g., Swiss
- ☐ Semi-soft - often with streaks of blue mold that make a special flavor
- ☐ Very hard - usually eaten ground, e.g., parmesan

***5. I eat cheese because:**

- ◯ It's a good source of energy.
- ◯ It's low in fat.
- ◯ It's a good source of vitamins.
- ◯ It tastes good.
- ◯ It goes well with other foods.
- ◯ Other (please specify)

***6. When purchasing a "local" product, what do you consider local?**

- ◯ Firm within my city or town
- ◯ Firm within the state
- ◯ Firm within my county or surrounding counties
- ◯ From surrounding states
- ◯ Other (please specify)

***7. Do you purchase artisan cheese?**

- ◯ Yes
- ◯ No

***8. For what reasons do you not consume artisan cheese? (select all that apply)**

- ☐ It's too expensive.
- ☐ I don't know what artisan cheese is.
- ☐ Artisan cheese is not available in my area.
- ☐ It's not available in the varieties that I like.
- ☐ I don't like the taste of artisan cheese.
- ☐ I don't eat cheese.
- ☐ It's not an important product attribute.
- ☐ Other (please specify)

***9. I buy artisan cheese from the following sources: (select all that apply)**

- ☐ Grocery chain stores
- ☐ Health and organic food stores
- ☐ Local specialty stores
- ☐ Online
- ☐ Direct from processors
- ☐ Other sources

***10. I buy artisan cheese in the following forms: (select all that apply)**

- ☐ Pre-packed bricks, curds, sliced, spreads, snack-size
- ☐ Bricks cut for me from a wheel
- ☐ Sliced by weight

***11. I prefer to buy artisan cheese in the following packaging:**

- ◯ Plastic resealable bag
- ◯ Plastic wrap
- ◯ Cellophane vacuum packs
- ◯ It doesn't matter

***12. On what occasion do you consume artisan cheese?**

- ◯ Cooking ingredient
- ◯ Family traditions
- ◯ Snack
- ◯ Used as complement with other product (i.e. wine)
- ◯ Appetizer
- ◯ Recommendations (from friends or sales staff in store)
- ◯ Entertainment
- ◯ Previous experience (travel, gift, restaurant courses)

***13. About how frequently do you consume artisan cheese?**

- ◯ Daily
- ◯ Monthly
- ◯ Weekly
- ◯ Less frequently than monthly

***14. How important to you are the following attributes of artisan cheese?**

	Very important	Quite important	Fairly important	Slightly important	Not at all important
Taste	◯	◯	◯	◯	◯
Made with natural milk	◯	◯	◯	◯	◯
Made with organic milk	◯	◯	◯	◯	◯
Made with goat milk	◯	◯	◯	◯	◯
Made with cow milk	◯	◯	◯	◯	◯
Health attribute (fat content)	◯	◯	◯	◯	◯
Price	◯	◯	◯	◯	◯
Package size	◯	◯	◯	◯	◯
Domestic cheese	◯	◯	◯	◯	◯
Imported cheese	◯	◯	◯	◯	◯

***15. Please indicate your willingness to purchase the flavored artisan cheese below.**

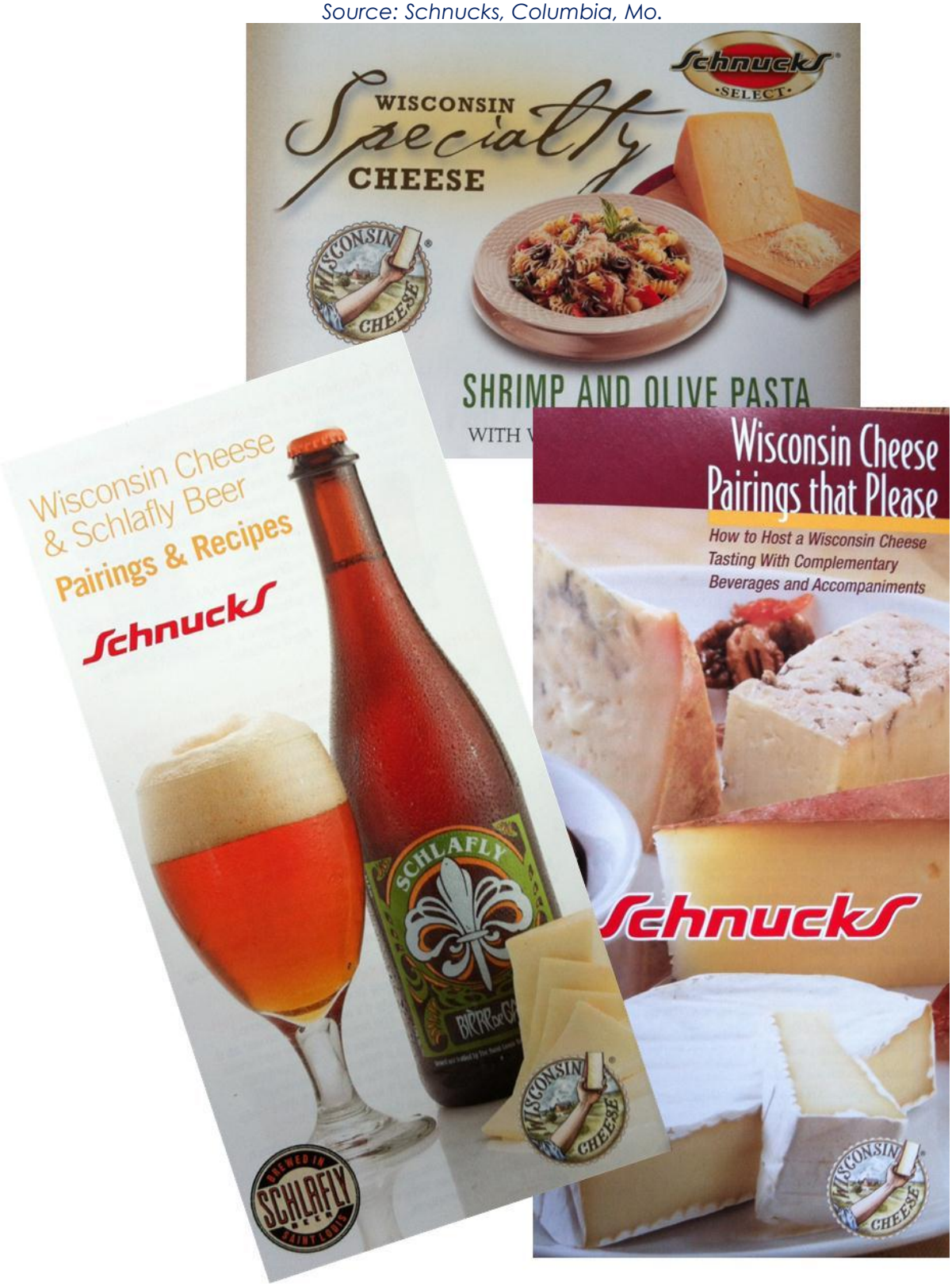
	Currently purchase	Would be interested in purchasing	Neither
Smoked	◯	◯	◯
With herb (dill, garlic, chives)	◯	◯	◯
With nuts (walnuts, almonds)	◯	◯	◯
With vegetables (onion, pepper)	◯	◯	◯

***16. How much more would you be willing to pay for U.S. artisan cheese products than imported artisan cheese products?**

- ◯ None
- ◯ Less than 20% more
- ◯ 20% more
- ◯ 30% more
- ◯ 50% more
- ◯ More than 50% more

Appendix 4: Sample Brochures

Source: Schnucks, Columbia, Mo.



Appendix 5: Survey of Grocery Chains: Interview Guide

Hi, may I please speak with the person who is responsible for determining which cheese products are sold in your store?

Researchers at the University of Missouri are currently studying the market potential for Missouri artisan cheeses. **We consider artisan cheese to be manufactured in small batches using traditional cheese craftsmanship with as little mechanization as possible.**

Would you be willing to answer a few questions about supplying artisan cheese? Your responses will be completely confidential. We anticipate that participating will take about 15 mins.

******Note: Words in red font are notes to interviewer.***

PART 1: Interest in Selling Artisan Cheeses

1. What is your Functional Title (e.g. Deli Manager, Store Manager, Procurement Manager):
   _____

2. Are you currently selling artisan cheese in your store?
   a) Yes
   b) No, but we did in the past
   c) Not at all

   If answer is (a): proceed with interview

   If answer in 2 is (b or c):
   1.1 Why doesn't your store sell artisan cheese?
   I don't know anything about artisan cheese
   Not aware of whether artisan cheese is available
   No artisan cheese available to source
   Supply of artisan cheese is inconsistent
   My patrons will not be able to afford artisan cheeses
   Others pls. specify: _____
   1.2 If an artisan cheese-maker wants to supply artisan cheese to your store, what process should he or she follow?
   _____
   _____

   (End of interview)

2. What percentage of the cheeses that you sell are artisan? _____ (Ask for estimated percentage)

PART 3: Procurement of Artisan Cheeses. ***Note: this section is specific to artisan cheeses and not to any other cheeses that the store carries.***

1. To understand where you procure the artisan cheeses that you carry in your store, we would like to know what you consider to be a local product:

Produced in a farm within the county that my store is located
Produced in a farm within the state that my store is located
Produced in a farm within the region or bordering states that my store is located
Produced anywhere in the USA
May not be produced locally but repackaged and distributed by a "local" company
a) Others pls. specify: _____

2. Are the artisan cheese products that you carry locally produced, produced elsewhere in the U.S. or imported?
Locally produced
Produced elsewhere in the U.S. ☐
Imported from abroad
a) Others pls. specify: _____

3. If an artisan cheese-maker wants to supply artisan cheese to your store, what process should he or she follow?
_____
_____
_____
_____

4. What factors make you decide to buy from certain farmers and/or distributors? Select all that apply.
Quality of cheese
Dependability of supply
Reputation
Price of the cheese and potential margin
Customer's familiarity with the brand
a) Others, pls. specify: _____

5. How do you deal with losses due to product expiration, spoilage or damages?
We get rebate or store credit from our supplier/producer
Our store/company assume all losses
Others, please specify: _____

PART 3: Demand, Marketing and Price points

1. What is the reasonable and acceptable margin that allows you to have steady and dependable supply of artisan cheese and make the product sell?
   a) _____% (ask for percentage) regardless of type, variety or source of cheese

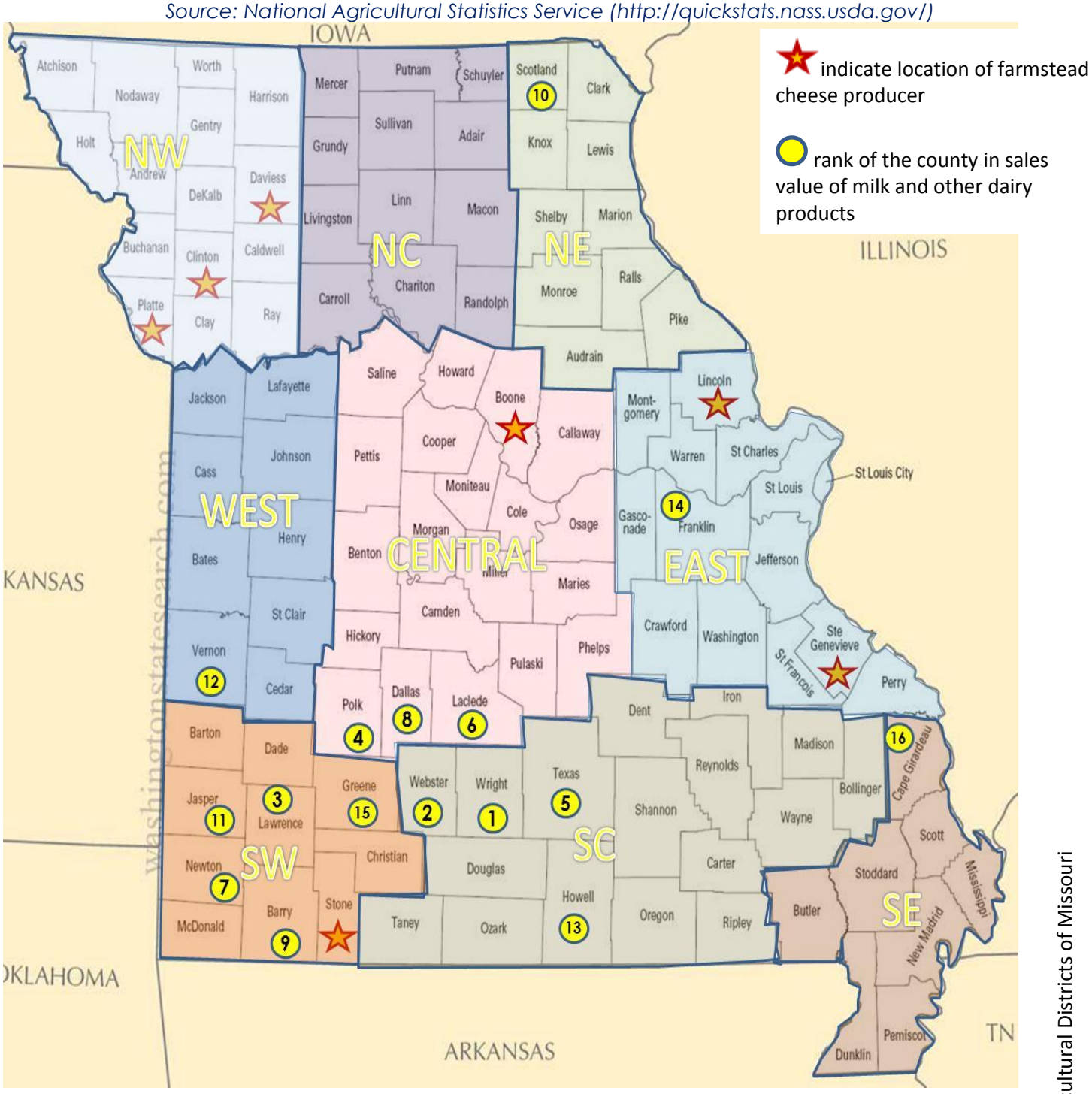
2. What challenges have you encountered in selling artisan cheese?
   _____
   _____
   _____
   _____

3. What opportunities do you think exist for Missouri-produced artisan cheese?
   _____
   _____
   _____
   _____

   (End of interview)

Appendix 6: Agricultural Districts of Missouri

Source: National Agricultural Statistics Service (http://quickstats.nass.usda.gov/)



Appendix 6: Agricultural Districts of Missouri

Appendix 7: Missouri Farmstead Cheese Producers

Source: http://agrimissouri.com/mo-made/

Name	County	General Background and Description	Cheese products	Retail Channel
Baetje Farms, LLC	Ste. Genevieve	Farmstead artisan goat cheese company	French style award-winning goat cheeses	On premise, grocery chains, farmers market, specialty store
Goatsbeard Farm	Boone	Farmstead artisan goat cheese company	Goat cheeses: fresh rounds, fresh tubs, soft-ripened cheese, feta.	On premise, farmers market
Green Dirt Farm	Platte	Sheep dairy farm and creamery that produces award-winning sheep's milk cheese, yogurt and 100% grass-fed lamb.	Award-winning wash rind, bloomy rind, and fresh cheeses	On premise, grocery chains, farmers market, specialty store, online
Homestead Creamery	Daviess	Wonderful little Amish creamery and cheese shop	Artisan European style cheeses which include sharp cheddar, creamy cheddar, and the tomato and garlic	Own store, on premise
Lavy Dairy Farm/Golden L Creamery	Lincoln	Three generations of dairy farmers involved in dairy farming since 1940	Limited edition Lillette cheese made from unpasteurized raw milk	On premise
Lorenae Dairy	Stone	Licensed Grade A Raw Dairy in MO	All Jersey full cream cheese curds	On premise, restaurants
Shatto Milk Company	Clinton	A small, family owned and operated, dairy farm who has been farming their land for 100 years. Cheese making started in 2003	Cheese curds	Own store, on premise, grocery chains

Appendix 8: Missouri Farmers Markets

Source: http://www.ams.usda.gov/AMSv1.0/farmersmarkets#S

Market Name	City	Schedule	Website
SELL CHEESE			
Arnold Farmers Market	Arnold	May - October Saturday 8:00 AM to 12:00 PM	
Belton Farmers Market	Belton	June - September Thursday 3:00 PM to 9:00 PM	http://BCPI@kc.rr.com
Byrne's Mill Farmers' Market	Byrne's Mill	May - July Friday 3:00 PM to 7:00 PM, (We are open rain or shine. Vender set up is at 2:00 PM) September Friday 3:00 PM to 7:00 PM, (We are open rain or shine. Vender set up is at 2:00 PM)	http://www.greenacres.com
Cape Riverfront Market	Cape Girardeau	May - October Saturday 8:00 AM to 12:00 PM, (Sorry, but nothing can be sold before 8 am)	
Clayton Farmer's Market	Clayton	May - November Saturday 8:30 AM to 12:30 PM	
Columbia Farmers Market	Columbia	(blank)	http://www.byrnesmill.org/farmersmarket
North Village Arts District Farmers and Artisans Market	Columbia	April - October Sunday 9:00 AM to 1:00 PM, (Rain or Shine)	http://www.caperiverfrontmarket.com
Ellisville Community Farmers' Market	Ellisville	May - October Thursday 4:00 PM to 7:30 PM	http://www.thecitymarket.org
Ferguson Farmers' Market	Ferguson	May - October Saturday 8:00 AM to 12:00 PM	http://www.thecitymarket.org
Jackson (MO) Farmer's Market	Jackson	May - September Tuesday 3:00 PM to 6:00 PM	http://www.claytonfarmersmarket.com
Briarcliff Farmers Market	Kansas City	May - September Thursday 3:00 PM to 7:00 PM	http://www.columbiafarmersmarket.org
City Market	Kansas City	January - December Saturday 6:00 AM to 3:00 PM, Sunday 8:00 AM to 3:00 PM, (The City Market Farmers' Market will only be open on Saturday, December through February. The hours of operation December through February are 8:00 a.m. to 3:00 p.m.)	http://www.itsalldowntown.com/cstreetmarket
City Market - Kansas City	Kansas City	January - February Saturday 8:00 AM to 3:00 PM March - October Sunday 8:00 AM to 3:00 PM November - December Saturday 8:00 AM to 3:00 PM	http://www.ellisvillefarmersmarket.org
KC Organics and Natural Market	Kansas City	May - October Saturday 8:00 AM to 12:30 PM, (We have a Holiday Market, Second Saturday in Dec, 9-2 INDOORS, at Notre Dame de Sion high school, 106th/Wornall Road.)	http://www.LoveYourFarmer.com
Schlafly Farmers Market	Maplewood	January - December Wednesday 4:00 PM to 7:00 PM, (Wednesdays 4-7pm April-October. One Saturday a month 9am-1pm November-March.	http://fergusonfarmersmarket.com

Market Name	City	Schedule	Website
Mountain Grove Farmers' Market Association	Mountain Grove	May - October Tuesday 2:00 PM to 6:00 PM, Thursday 2:00 AM to 6:00 AM, Saturday 7:00 AM to 12:00 PM, (Current by-laws are being reviewed to change days and time)	http://www.springfieldfarmersmarket.com
Shelby County Farmer's Market	Shelbina	May - October Saturday 7:00 AM to 11:00 AM, (Open Every Saturday.)	
C-Street Market	Springfield	May - October Saturday 8:00 AM to 1:00 PM, (Live acoustic music on many Saturdays between 10am and noon)	http://www.kcorganics.com
Farmers Market of the Ozarks	Springfield	January - December Thursday 4:00 PM to 7:30 PM, Saturday 7:30 AM to 1:00 PM	http://www.grovefarmersmarket.org
Greater Springfield Farmers Market	Springfield	January - March Saturday 8:00 AM to 1:00 PM, (Winter market schedule is 1st and 3rd Saturdays and a 5th Saturday if it occurs.) April - October Tuesday 8:00 AM to 12:00 PM, Thursday 8:00 AM to 6:30 PM, Saturday 8:00 AM to 1:00 PM November - December Saturday 8:00 AM to 1:00 PM, (Winter market schedule is 1st and 3rd Saturdays and a 5th Saturday if it occurs.)	http://www.farmandart.com
Tower Grove Farmers' Market	St Louis	January - December Saturday 8:30 AM to 12:30 PM	http://ponyexpressfarmersmarket.com
Pony Express Farmers' Market	St. Joseph	January - March Wednesday 8:00 AM to 1:00 PM, Saturday 8:00 AM to 1:00 PM, (Winter Market) April - October Wednesday 7:00 AM to 1:00 PM, Saturday 7:00 AM to 1:00 PM, (Open Air Market) November - December Wednesday 8:00 AM to 1:00 PM, Saturday 8:00 AM to 1:00 PM, (Winter Market)	http://schlaflyfarmersmarket.com/
Bringing Home Grown to U 1	St. Louis	January - December Saturday 8:00 am to 1:00 pm	http://www.shelbycountymo.com
Bringing Homegrown to U 2	St. Louis	January - December Thursday 3:00 PM to 7:00 PM, Saturday 8:00 AM to 5:00 PM	http://www.tgmarket.org
Webster Groves Farmers Market	Webster Groves	May - October Thursday 3:00 PM to 7:00 PM	http://webstergrovesfarmersmarket.com
Wildwood Farmers' Market	Wildwood	January - December Saturday 8:00 am to 1:30 pm	http://www.wildwoodfarmersmarket.com

Market Name	City	Schedule	Website
SELL CHEESE			
Arcadia Valley Farmers' Market	Ironton	May - October Saturday 7:00 AM to 12:00 PM, (Vendors may leave as they sell out.)	(blank)
Aurora Local Farmers' Market	Aurora	January - December Wednesday 8:00 AM to 1:00 PM, Thursday 5:00 PM to 7:00 PM, Saturday 7:00 AM to 12:00 PM, (Nov. Dec. Jan. Feb. sat. only till sellout)	(blank)
Aurora Local Farmer's Market - Summer Market	Aurora	May Wednesday 8:00 AM to 5:00 PM, Thursday 5:00 PM to 7:00 PM, (These hours are reserves for the sale of locally grown and produced goods only.) October Wednesday 8:00 AM to 5:00 PM, Thursday 5:00 PM to 7:00 PM, (These hours are reserves for the sale of locally grown and produced goods only.)	(blank)
Ava Growers' Market	Norwood	April - October Saturday 7:00 AM to 12:00 PM	(blank)
B2B (Back to Basics) Farmers' Market	Anderson	May - October Saturday 8:00 AM to 12:00 PM	(blank)
B2B (Back to Basics) Farmers' Market		May - October Thursday 9:00 AM to 2:00 PM	(blank)
B2B (Back to Basics) Farmers' Market	Jane	May - October Tuesday 3:00 PM to 6:00 PM	(blank)
Badseed "Funky" Farmers' Market	Kansas City	January - February Friday 4:00 PM to 8:00 PM May - November Friday 4:00 PM to 9:00 PM December Friday 4:00 PM to 8:00 PM	http://www.badseedfarm.com
Bagnell Dam Farmers' Market	Lake Ozark	May - October Friday 8:00 AM to 12:00 PM	(blank)
Bannister Federal Complex Farmer's Market	Kansas City	June - September Tuesday 10:00 AM to 1:30 PM	(blank)
Bee Hive Farmers' Market	Poplar Bluff	(blank)	(blank)
Bethany Farmers' Market	Bethany	May - October Tuesday 4:00 PM to 6:00 PM, Friday 10:00 AM to 3:00 PM, (Tues 4pm-6pm & Fri 10am-?, May-Oct)	(blank)
Better Lives Today Farmers' Market	Richland	May - August Saturday 8:00 AM to 12:00 PM	http://betterlivestoday.org
Bloomfield Farmers' Market	Bloomfield	May - October Thursday 4:00 PM to 6:00 PM	(blank)
Blue Springs Farmers Market	Blue Springs	May - October Saturday 7:00 AM to 12:00 PM	http://www.bluespringsfarmersmarket.com
Bollinger County Farmers' Market	Marble Hill	April - October Saturday 8:00 AM to 12:00 PM	(blank)
Boone County Farmers' Market	Columbia	April - October Saturday 8:00 AM to 12:00 PM	http://www.booneocountyfarmers.com
Boone County Farmers' Market		June - October Wednesday 4:00 PM to 6:00 PM	http://www.booneocountyfarmers.com

Market Name	City	Schedule	Website
Boonslick Farmers' Market	Boonville	April - October , (Every day 8am-sellout (Primarily Fri & Sat), Apr-Oct)	(blank)
Boonville Farmers Market	Boonville	April - October Saturday 8:00 AM to 1:00 PM	(blank)
Bourbon Farmers' Market	Bourbon	May - September Tuesday 7:00 AM to 5:00 PM, Thursday - Friday 7:00 AM to 5:00 PM	(blank)
Bowling Green Farmers' and Artists' Market	Bowling Green	May - October Friday 3:00 PM to 7:00 PM	(blank)
Branson Farmers' Market	Branson	May - October Saturday 7:00 AM to 12:00 PM	(blank)
Brookfield Farmers' Market	Brookfield	May - October Saturday 8:00 AM to 12:00 PM	(blank)
Brookside Farmers' Market	Kansas City	April - October Saturday 8:00 AM to 1:00 PM, (Open second to last Saturday in April through second to last Saturday in October)	http://www.brooksidefarmersmarket.com
Buffalo Farmers' Market	Buffalo	April - November Tuesday 3:00 PM to 7:00 PM, (Tues 3pm-7pm April-Nov, also 1st Sat of month 10am-3pm (starts in June))	(blank)
C Street Market	Springfield	April - October Saturday 8:00 AM to 1:00 PM	http://www.itsalldowntown.com/c-streetmarket
Cabool Area Farmers Market	Cabool	April - October Wednesday 11:00 AM to 4:30 PM	(blank)
Cape Alternative Farmers Market	Cape Girardeau	April - October Wednesday 8:00 AM to 12:00 PM	(blank)
Cape Girardeau Farmers' Market	Cape Girardeau	May - October Thursday 2:30 PM to 6:30 PM	(blank)
Carondelet Farmers' Market	St. Louis	June - October Saturday 8:00 AM to 12:00 PM	(blank)
Carthage Farmers' Market	Carthage	May - September Thursday 5:30 PM to 7:30 PM, Saturday 7:00 AM to 11:00 AM	(blank)
Cass County Farmers' Market	Adrian	May Saturday 7:30 AM to 12:00 PM June - October Wednesday 3:00 PM to 6:00 PM, Saturday 7:30 AM to 12:00 PM	http://www.cassfarmers.com
Chadler Hill Farmers Market	Defiance	June - October Sunday 11:00 am to 3:00 pm	http://www.chandlerhillvineyards.com
Chandler Hill Farmers Market (Defiance)	Defiance	May - October Sunday 12:00 PM to 4:00 PM	http://www.chandlerhillvineyards.com
Cherokee Street International Farmers Market	St. Louis	June - November Friday 4:00 PM to 7:00 PM	http://www.cherokeemarket.org
Chilhowee Main Street Farmers' Market	Chilhowee	May - November Saturday 8:00 AM to 12:00 PM	http://mainstreetfarmersmarket.webs.com
Chillicothe Farmers Market	Chillicothe	May - October Saturday 8:00 AM to 12:30 PM, (Vendors are free to leave as the Market sells out. Best selection is in the first hours of market.)	(blank)
Christian County Farmers' Market	Ozark	April - October Thursday 5:00 PM to 8:00 PM	(blank)

Market Name	City	Schedule	Website
City of Independence Farmers Market	Independence	May - October Wednesday 5:00 AM to 1:00 PM, Saturday 5:00 AM to 1:00 PM	http://joe@antoineseed.com
Clark Produce Auction LLC	Clark	(blank)	(blank)
Clinton Farmers Market	Clinton	(blank)	(blank)
Columbia Farmers Market	Columbia	April - October Thursday 3:00 PM to 6:00 PM, (This is a great Market to shop! There is plenty of parking & a covered shelter!)	http://www.columbiafarmersmarket.org
Columbia Farmers Market		May - October Friday 3:00 PM to 6:00 PM, (Live music! We plan to have a party some Friday evening once season is in full swing!)	http://www.columbiafarmersmarket.org
Coyote Farm and Home Market	Ashland	April - October Thursday 3:00 PM to 7:00 PM	(blank)
Crystal City Farmers' Market	Crystal City	May - October Wednesday 4:00 PM to 7:00 PM, (Closed July 4)	http://crystalcityfarmersmarket.blogspot.com
CUIVRE RIVER FARMERS MARKET	Troy	March - November Saturday 9:00 AM to 1:00 PM	http://www.cuivreriverfarmersmarket.org
Downtown Lee's Summit Farmers Market	Lee's Summit	April - November Wednesday 7:00 AM to sell out, Saturday 7:00 AM to sell out, (till sell out. The last day of the Market is November 24.)	http://www.downtownls.org
Downtown Sikeston Farmers' Market	Sikeston	January - December Saturday 8:00 am to 12:00 pm, (Open from 8am-sellout)	http://www.DowntownSikeston.org
Eastland Farmers Market	Springfield	(blank)	(blank)
F&R FARMS	Farmington	June - October	(blank)
Fair Grove Farmers' Market	Fair Grove	April - October Wednesday 3:00 PM to 6:30 PM	http://www.fairgrovefarmersmarket.com
Farmington Farmers Market	Farmington	April - October Wednesday 2:00 PM to 5:00 PM, Saturday 7:00 AM to 11:00 AM	(blank)
Fayette Area Farmers' Market	Gasalow	(blank)	(blank)
Greater Polk County Farmers Market	Bolivar	January - March Saturday 8:00 AM to 12:00 PM April - September Tuesday 3:30 PM to 6:30 PM, Saturday 8:00 AM to 12:00 PM October - December Saturday 8:00 AM to 12:00 PM	(blank)
Hannibal Farmers' Market	Hannibal	May - October Saturday 8:00 am to 12:00 am, (june/july/aug open tues evening 3pm-7pm (in addition to sat.))	(blank)
Hartman's Heritage Community Market	Independence	June - September Tuesday 3:00 PM to 7:00 PM, Sunday 10:00 AM to 3:00 PM	http://joe@antoineseed.com
Hermann Farmers' Market	Hermann	June - September Wednesday 3:00 PM to 6:00 PM, Saturday 8:00 AM to 1:00 PM	(blank)

Market Name	City	Schedule	Website
Historic Downtown Liberty Farmers' Market	Liberty	May - October Saturday 7:00 AM to 12:00 PM	http://historicdowntownliberty.org/community/farmers-market/
Ilus Davis Park Farmers' Market	Kansas City	(blank)	(blank)
Jackson Farmers Market	Jackson	January - December Saturday 9:00 am to 12:00 pm	http://www.jacksonfarmersmarket.org
Jackson Farmers Market		January - December Tuesday 4:30 pm to 7:00 pm	http://www.jacksonfarmersmarket.org
Jamesport Produce Auction	Jackson	(blank)	(blank)
Jefferson City Farmer's Market	Jefferson City	April Monday 12:00 PM to 4:00 PM	(blank)
Joplin Farmers Market	Joplin	May - September Wednesday 7:30 am to 1:00 pm, Saturday 7:30 am to 1:00 pm	http://joplinmemorialhall.com
Kennett Community Farmers Market	Kennett	January - December Saturday 7:00 AM to 12:00 PM	(blank)
Kirkwood Farmers' Market	Kirkwood	(blank)	http://www.downtownkirkwood.com
Lafayette County Famers Market (Concordia)	Concordia	(blank)	(blank)
Lathrop Farmers' Market	Turney	(blank)	(blank)
Lawson Farmers' Market	Lawson	(blank)	http://lawsonfarmersmarket@yahoo.com
Lebanon Farmers Market	Lebanon	April - October Wednesday 2:00 PM to 6:00 PM, Saturday 7:30 AM to 1:00 PM	http://LebanonFarmersMarket.weebly.com
Lincoln University Farmers Market	Jefferson City	May - October Saturday 9:00 AM to 12:00 PM, (The market may be also open on Thursday afternoon in September and October T.B.D)	http://www.facebook.com/pages/Lincoln-University-Community-Garden-and-Market
Madison County Farmers' Market	Fredericktown	(blank)	(blank)
Market in the Loop	University City	(blank)	http://www.themarketintheloop.com
Marshall Market on the Square	Marshall	May - September Saturday 7:30 AM to 12:00 PM	http://marshallmarketonthesquare.org
Marshfield Farmers' Market	Marshfield	May - October Friday 3:00 PM to 7:00 PM	(blank)
Mercer County Farmers' Market	Mercer	(blank)	(blank)
Moberly Farmers' Market	Moberly	(blank)	(blank)
Monett Farmers Market	Monett	(blank)	(blank)
Monroe County Farmers' Market	Paris	(blank)	(blank)
Neosho Farmers' Market	Neosho	January - December Saturday 8:00 AM to 12:00 PM	(blank)

Market Name	City	Schedule	Website
New Haven Farmers Market	New Haven	May - September Thursday 4:00 PM to 6:30 PM, (If rain, the market is held inside the building of the Riverfront Cultural Society.)	http://www.riverfrontsociety.com/farmersmarket.html/
Nixa Farmers Market Inc	Nixa	(blank)	(blank)
Nodaway County Farmers' Market	Maryville	(blank)	(blank)
North City Farmers' Market	St. Louis	June - October Saturday 9:00 AM to 12:00 PM, (Closing day for the market is October 13th.)	http://northcityfarmersmarket.blogspot.com/
North Kansas City Farmers Market	North Kansas City	May - October Friday 7:00 AM to 1:30 PM	http://www.nkcbusinesscouncil.com
Open Farmers' Market of Aurora	Aurora	May - October Wednesday 12:00 PM to 4:00 PM, Saturday 7:00 AM to 12:00 PM, (Wed 12noon-Sellout and Sat 7am-12noon, May-Oct)	(blank)
Osage Beach Farmers Market	Osage Beach	May - October Thursday 4:00 PM to 8:00 PM	http://www.osagebeachfarmersmarket.com
Overland Farmer's Market 63114	Overland	May - October Saturday 8:00 AM to 12:30 PM, (The market has music and special events)	http://www.overlandfarmersmarket.com
Parkville Farmers' Market	Parkville	(blank)	(blank)
Peculiar Farmers & Artisans Market	Peculiar	May - October	http://www.peculiarmarket.com
Platte City Farmers Market	Platte City	(blank)	(blank)
Pulaski County Farmers' Market, LLC	Waynesville	February Tuesday 4:00 pm to 7:00 pm March - April Tuesday 3:00 pm to 6:00 pm June - October Tuesday 4:00 pm to 7:00 pm December Tuesday 3:00 pm to 6:00 pm	http://www.facebook.com/?closeTheater=1#!/pages/Pulaski-County-Farmers-Market/126926763989161
Putnam County Farmers' Market	Unionville	(blank)	(blank)
Raytown City Center Market	Raytown	(blank)	(blank)
Republic Farmers' Market	Ozark	(blank)	(blank)
Ripley County Farmers' Market	Doniphan	(blank)	(blank)
River Hills Market - Silex	Clarksville	(blank)	(blank)

Market Name	City	Schedule	Website
River Hills Market - Troy	Troy	(blank)	(blank)
Rockaway Beach Farmers' Market	Rockaway Beach	(blank)	(blank)
Rt. 66 Farmers Market St. Clair	St. Clair	May - October Saturday 8:00 AM to 1:00 PM	http://www.stclairmo.com or on face book, Rt 66 Farmers Market
Salem Farmers Market	Salem	(blank)	(blank)
Schuyler County Farmers' Market	Lancaster	(blank)	(blank)
Scotland County Farmers Market	Memphis	May - August Thursday 3:00 PM to 6:00 PM, (Vendors may arrive up to a half hour early and close up to a half hour past closing. Easy parking available.)	(blank)
Sedalia Area Farmers' Market	Sedalia	May - October Tuesday 3:00 PM to 6:00 PM, Friday 3:00 PM to 7:00 PM, (Rain or shine!)	http://www.sedaliaareafarmersmarket.com
Small Farms Network Butler County Market	Poplar Bluff	May - October Tuesday 1:00 PM to 7:00 PM, Saturday 8:00 AM to 2:00 PM, (Tues 1pm-7pm, Sat 8am-2pm or until sold out; May-Oct)	http://www.sustainablecommunitiesozarks.org
Soulard Market	St Louis	(blank)	http://www.stlouis.missouri.org/citygov/soulardmarket
South Hampton Farmers' Market	St. Louis	(blank)	http://www.sohafarmersmarket.com
South Kansas City's Farmers' Market	Kansas City	(blank)	(blank)
Southside Farmers' Market	Macon	May - October Friday 8:00 AM to 6:00 PM, Saturday 8:00 AM to 12:00 PM, (occasionally market could be open other days--watch for open sign at location)	(blank)
St. Louis Community Farmers' Market	St. Louis	(blank)	http://tinyurl.com/stlcfm
Ste Genevieve County Farmers Market	Ste. Genevieve	(blank)	(blank)
Tenth Street Community Farmers' Market	Lamar	(blank)	(blank)
Thursday Nite Farmers' Market (Belton)	Belton	(blank)	http://www.mainstbelton.com
Trenton Farmers' Market	Trenton	(blank)	(blank)
Troostwood Youth Garden Market	Kansas City	January - December Friday 5:00 pm to 8:00 pm, Saturday 8:00 am to 2:00 pm, (Our Grand Opening for 2011 is on May 21st)	(blank)
Warren County Farmers Market	Wright City	May - October Thursday 3:30 PM to 6:30 PM	(blank)
Warsaw Farmer's Market	Warsaw	May - October Wednesday 3:00 PM to 7:00 PM, Saturday 7:00 AM to 12:00 PM	http://extension.missouri.edu/benton

Market Name	City	Schedule	Website
Washington County Farmers' Market	Potosi	(blank)	(blank)
Washington Farmers' Market	WASHINGTON	April - December Wednesday 3:00 PM to 6:00 PM, Saturday 8:00 AM to 2:00 PM	http://www.washmomarket.weebly.com
Webb City Farmers Market	Webb City	January - April Friday 11:00 AM to 2:00 PM November - December Friday 11:00 AM to 2:00 PM	http://www.webbcityfarmersmarket.com
Webb City Farmers Market		May - October Tuesday 11:00 AM to 2:00 PM, Friday 11:00 AM to 2:00 PM, Saturday 9:00 AM to 12:00 PM	http://www.webbcityfarmersmarket.com
Wentzville Farmers Market	Wentzville	(blank)	http://http;//www.wentzvillechamber.com
West Plains Area Farmers' Market	West Plains	January - December Wednesday 11:00 AM to 4:00 PM, Saturday 7:00 AM to 12:00 PM	(blank)
Westport Plaza Farmers' Market	Kansas City	May - October Wednesday 4:30 PM to 7:30 PM	http://www.farmersmarketkc.org
Willow Springs Farmers' Market	Willow Springs	(blank)	(blank)
Wilson's Creek Farmers Market	Battlefield	(blank)	http://wilsonscreekfarmersmarket.blogspot.com
Zona Rosa Farmers' Market	Kansas City	(blank)	(blank)

Missouri Artisan Cheese

Market Study

Prepared By

Missouri Value Added Center

University of Missouri

Natural Cheese Varieties

Blue
A characteristic of cheese varieties that develop blue or green streaks of harmless, flavor-producing mold throughout the interior. Generally, veining gives cheese an assertive and piquant flavor.

Hard
A descriptive term for cheeses, such as Parmesan, Romano and Asiago, that are well-aged, easily grated and primarily used in cooking.

Pasta Filata
Pasta Filata cheeses have curds that are heated and stretched or kneaded before being molded into shape. The cheese stretches when melted. Pasta Filata cheeses include Mozzarella, Provolone and String.

Semi-Hard
A classification of cheese based upon body. Cheddar, Colby, Edam and Gouda are examples of semi-hard cheese varieties.

Semi-Soft
A wide variety of cheeses made with whole milk. Cheeses in this category include Monterey Jack, Brick, Muenster, Fontina and Havarti, and melt well when cooked.

Soft and Fresh
Cheeses with high moisture content, typically direct set with the addition of lactic acid cultures. This category includes cheeses like Cottage cheese, Cream cheese, Feta, Mascarpone, Ricotta, and Queso Blanco.

Soft Ripened
A classification of cheese based upon body. Brie and Camembert are examples of soft-ripened cheese varieties.

Source: http://www.eatwisconsincheese.com

Cheese Shelf-Life by Moisture Content

Cheese Type	Shelf Life
Soft unripened cheeses (ricotta, cottage cheese)	2 to 4 weeks
Soft-ripened cheeses (brie)	4 to 8 weeks
Semi-soft cheeses (muenster, Monterey Jack)	2 to 3 months
Firm cheeses (Swiss, Cheddar)	3 to 6 months
Hard cheeses (Parmesan, Romano)	7 to 9 months
Processed cheeses (American)	9 to 12 months

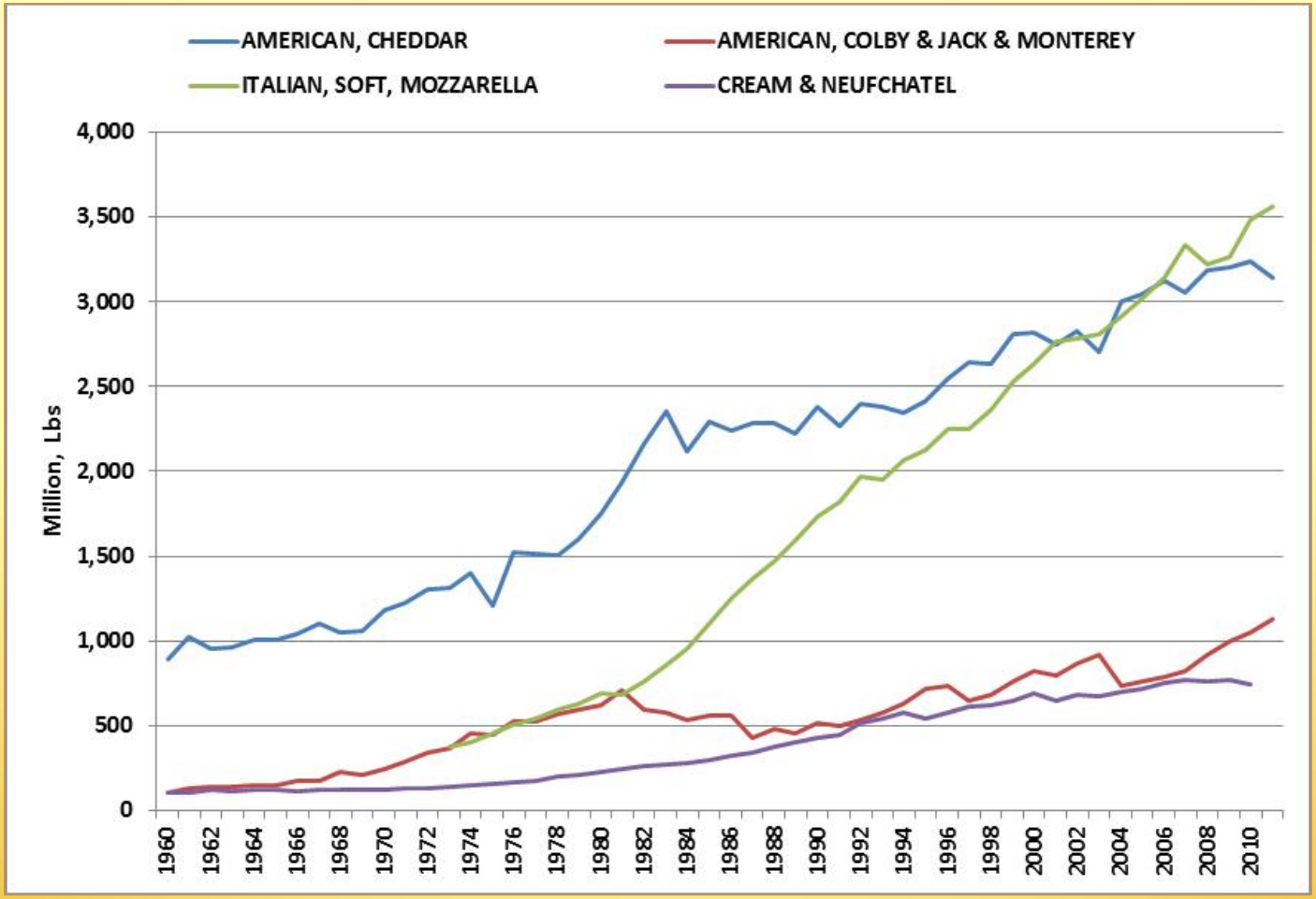
Source: http://www.dcicheeseco.com/about-cheese/faqs

Cheese Segment Performance, 2011

Segments	2009		2011		Sales growth	Share change
	$Mn	% Market Share	$Mn	% Market Share	%	% Point
Natural cheese	11,031	61.5	11,732	62.1	6.4	0.6
Processed cheese	4,570	25.5	4,685	24.8	2.5	-0.7
Cream cheese/cream cheese spread	1,236	6.9	1,341	7.1	8.5	0.2
Cottage cheese	1,104	6.2	1,134	6.0	2.7	-0.2
Total	**17,941**	**100**	**18,893**	**100**	**5.3**	**-**

Source: Mintel/based on SymphonyIRI Group InfoScan® Reviews; U.S. Bureau of Labor Statistics, Consumer Expenditure Survey; USDA Economic Research

U.S. Cheese Production Mn Lbs (1960-2010)



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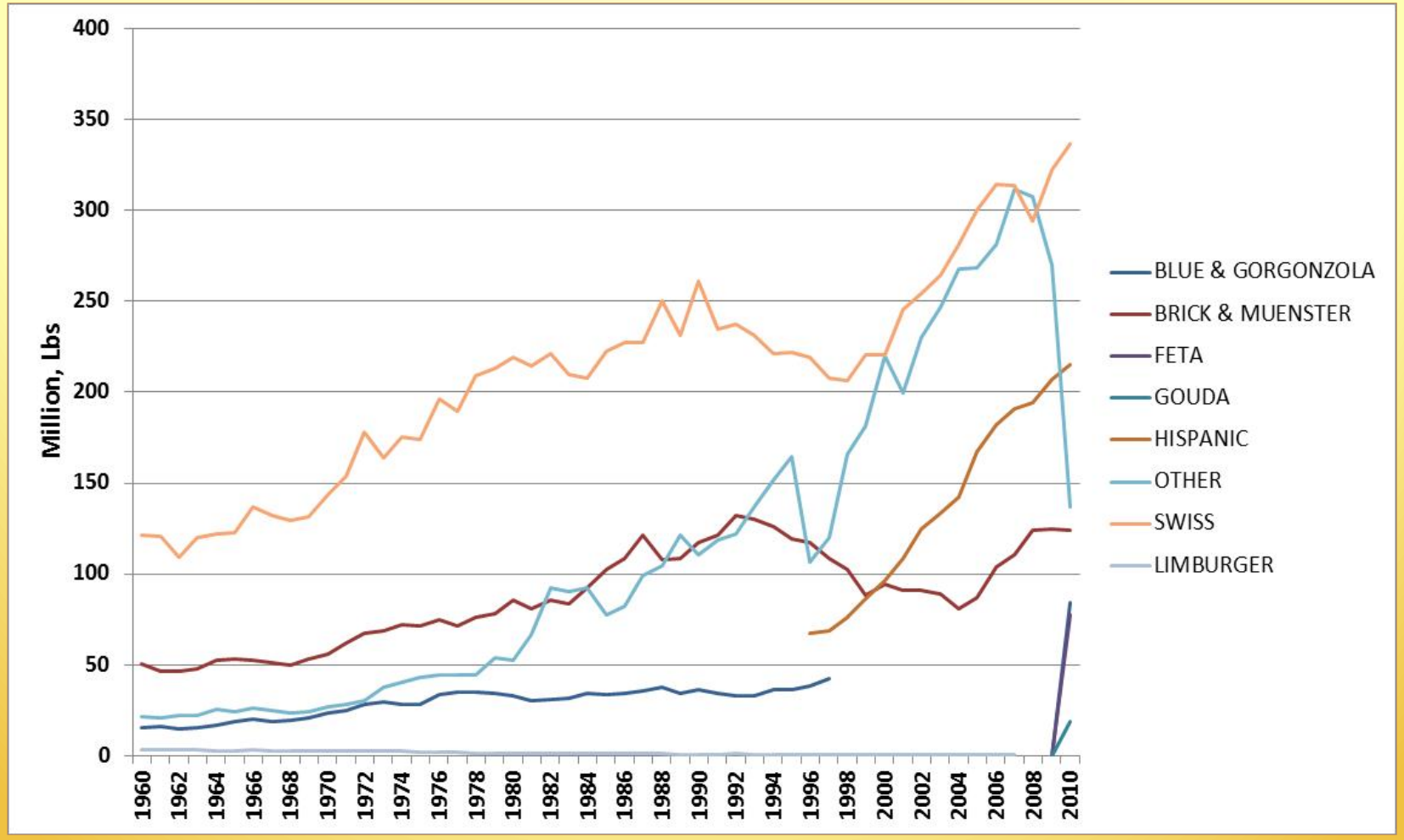
Cheese Production Other Cheese Types Mn Lbs (1960-2010)



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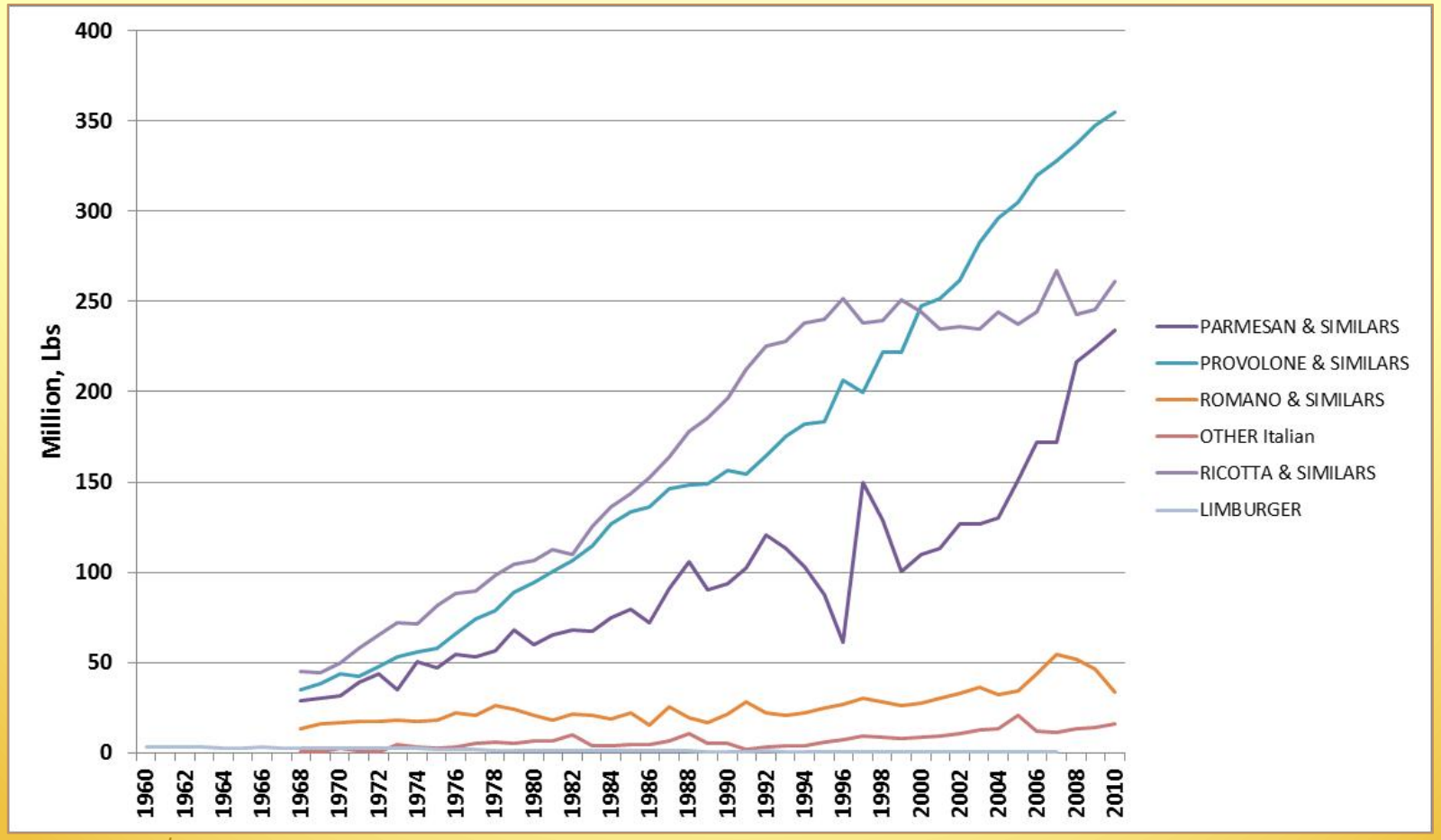
U.S. Cheese Production Italian Cheese Types Mn Lbs (1960-2010)



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Growth and Market Share of U.S. Farmstead and Artisan Cheeses

Type of Cheese Consumed	1994	2003	Growth
Total cheese consumption (Mn Lbs)	7,000	8,800	1,800 (+26%)
Specialty cheese consumption (Mn LBs)	420 (6% of total)	815 (9% of total)	395 (+94%)
Total cheese consumption per capita (Lbs)	26.6	30.6	4.0 (+15%)
Specialty cheese consumption per capita (Lbs)	1.6	2.8	1.2 (+75%)

Source: California Milk Advisory Board, 2004

Average Wholesale Price ($/lb) of Domestically Produced Cheeses (January 2012-December 2012)

Domestic Cheese Types	MIDWEST (1)		NORTHEAST (2)		WEST (3)	
	Low Price	High Price	Low Price	High Price	Low Price	High Price
Blue 5lb	2.37	3.33				
Brick And/Or Muenster 5lb	2.11	2.64				
Mozzarella 5 - 6lb	1.95	3.15				
Process American 5lb loaf	1.88	2.54				
Grade A Swiss Cuts 6 - 9lb	2.89	3.12			3.01	3.44
Monterey Jack 10lb	2.08	3.05			2.01	2.17
Cheddar 40lb block	2.11	3.05	2.09	2.38	1.82	2.17
Grade A Swiss cuts 10 - 14lb			3.43	3.75		
Muenster			2.11	2.47		
Process 5lb sliced			1.87	1.99		
Cheddar 10lb cuts					2.00	2.22
Process 5lb loaf					1.78	2.04

Source: http://marketnews.usda.gov/

Average Weekly Wholesale Price ($/lb) of Foreign Cheese Types (January 2012-December 2012)

Foreign Cheese Types	Domestic Price		Imported Price	
	Low	High	Low	High
Jarlsberg (Brand)			2.95	5.23
Reggianito (Argentine)			3.29	4.23
Sardo Romano (Argentine)			2.85	3.98
Swiss Cuts Finnish			2.59	2.85
Blue	2.23	3.72	2.64	5.22
Provolone (Italy)	2.27	2.43	3.44	6.04
Gorgonzola	2.73	3.05	3.69	6.33
Romano (cow's milk)	3.42	5.57		
Parmesan (Italy)	3.44	4.46		
Swiss cuts Switzerland	3.52	3.84		

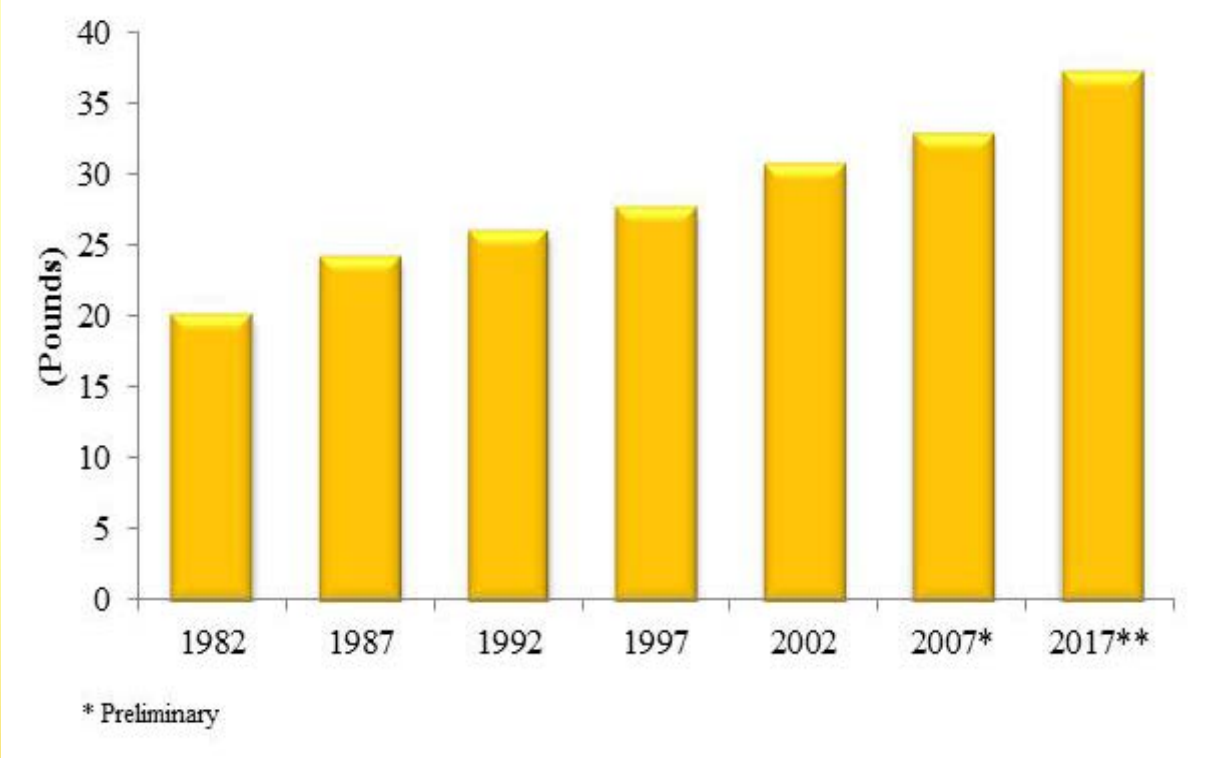
Source: http://marketnews.usda.gov/

Advertised Retail Price Ranges of Natural Cheeses in the U.S. ($/lb): 01/28/2013-02/08/2013

	South Central (1)	Southwest (2)	Northwest (3)	Northeast (4)	Southeast (5)	Midwest (6)
8oz block	1.67-3.00	1.88-2.50	1.99-2.50	1.99-3.59	1.67-2.79	1.33-2.99
1 LB block	5.00	3.29-5.49	3.88-5.49	2.99-3.99	2.99-5.00	3.99-4.99
2 LB block		5.00-8.99	4.69	5.00-8.99	5.00	
8oz shred	1.67-2.99	1.48-3.79	1.99-3.99	1.50-3.50	1.67-2.99	1.33-2.99
1 LB shred	2.99-5.00	3.29		3.99	2.99-5.00	2.99-4.99

Source: National Dairy Retail Report (http://marketnews.usda.gov/)

U.S. Per Capita Cheese Consumption, 1982-2017



Source: USDA/ERS, Livestock, Dairy, and Poultry Outlook; F APRI, 2008 Agricultural Outlook

Cheese Consumption by Income Bracket

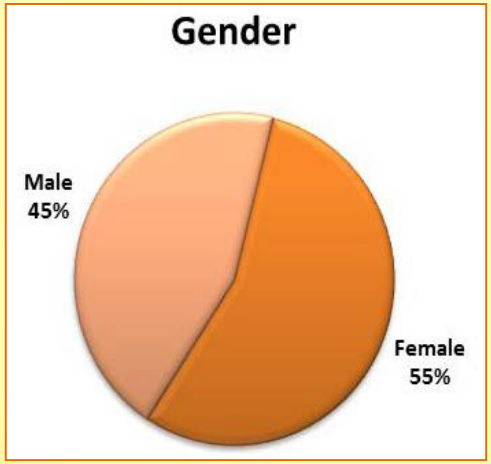
Cheese Type	All	<$25K	$25K-$49.9K	$50K-$74.9K	$75K-$99.9K	$100K-$149.9K	$150K+
Base: Internet users aged 18+	2,000	383	471	405	228	350	163
	%	%	%	%	%	%	%
Cheddar	89	87	89	86	93	91	85
Mozzarella	87	83	89	84	89	89	87
American	84	82	87	85	87	83	77
Parmesan or Romano	83	77	83	82	89	90	82
Cream cheese	78	73	77	77	85	84	79
Swiss	75	69	76	73	80	78	74
Monterey Jack	71	64	71	69	77	75	74
Provolone	67	58	66	63	74	76	72
Cottage cheese	63	60	63	65	69	64	57
Colby	60	57	61	58	65	62	57
Ricotta	52	42	49	52	61	59	57
Gouda	34	23	26	30	43	46	52
Brie	30	20	21	24	39	44	46
Edam	17	10	14	15	22	22	23

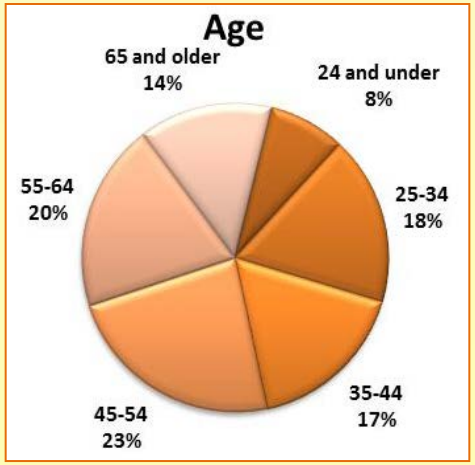
Source: Mintel

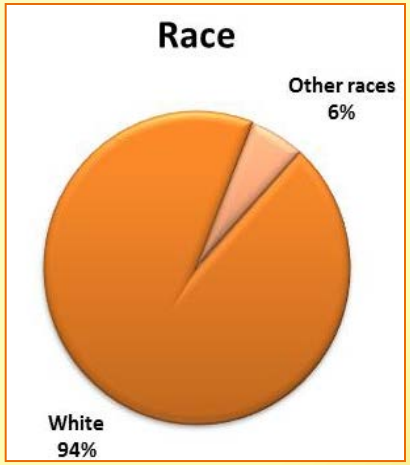
Frequency of Consumption by Demographic Profile

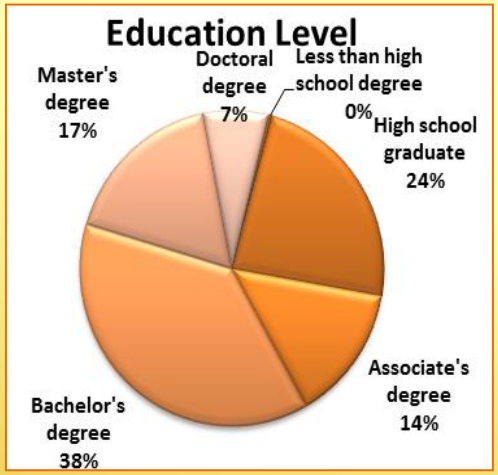
	Frequent (1)	Sometimes (2)	Never Eat Cheese
Gender			
Female	89%	11%	1%
Male	86%	13%	1%
Age			
24 and under	90%	7%	2%
25-34	87%	12%	1%
35-44	87%	13%	0%
45-54	89%	10%	1%
55-64	88%	11%	1%
65 and older	84%	15%	1%
Race			
White	88%	11%	1%
Other	70%	28%	1%
Education Level			
Less than high school Degree	57%	43%	0%
High school graduate	85%	13%	1%
Associate's degree	89%	11%	0%
Bachelor's degree	87%	12%	1%
Master's degree	91%	9%	1%
Doctoral degree	86%	9%	4%
Income			
$0-$25,000	83%	14%	3%
$26,000-$50,000	83%	16%	0%
$51,000-$75,000	91%	8%	1%
$76,000-$100,000	86%	14%	1%
More than $100,000	90%	9%	1%

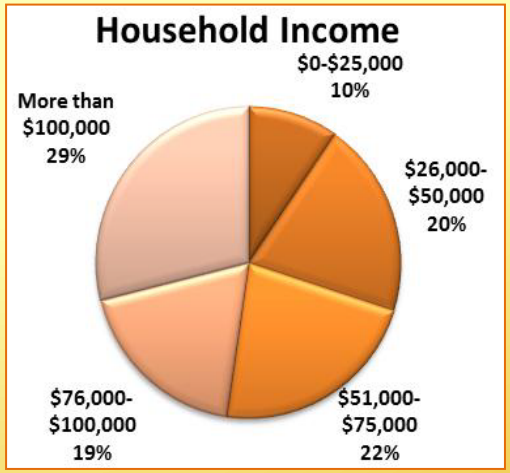
Distribution of Respondents Who Consume Cheese "At Least Weekly"



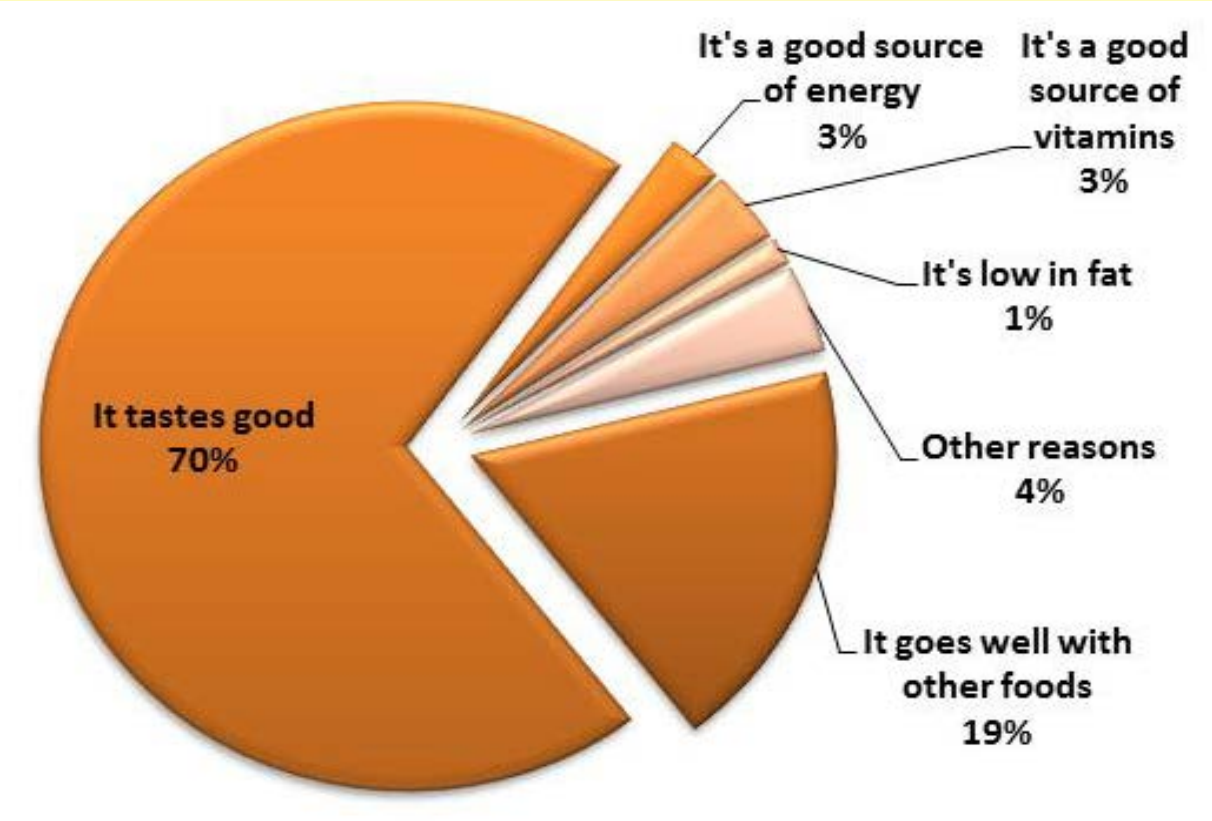








Reasons for Eating Cheese



Top Three Popular Cheese Types

Type of Cheese	% of Total Cheese Eaters (N=1,040)
Mozzarella	69%
Sharp cheddar	67%
Mild cheddar	62%
Provolone	62%
Colby	62%
Swiss	60%
Pepperjack	50%
Gouda	31%
Blue	28%
Brie	24%
Muenster	23%

Most Preferred Cheese Textures

Texture	% of Total Cheese Eaters (N=1,040)
Hard - some have holes, e.g., Swiss	82%
Very hard - usually eaten ground, e.g., parmesan	49%
Semi-soft - often with streaks of blue mold that make a special flavor	43%
Soft - e.g., brie	39%

Purchase of Artisan Cheese by Frequency of Cheese Consumption

Frequency of Cheese Consumption	Purchase Artisan Cheese?	
	No (N=618)	Yes (N=440)
At least weekly	56%	44%
Twice per month	70%	30%
Once per month	73%	27%
Less than once per month	89%	11%
TOTAL	**58%**	**42%**

Reasons for Not Consuming Artisan Cheese

Reasons	% of Total Who Do Not Buy Artisan Cheese (N=618)
I don't know what artisan cheese is.	52%
It's too expensive.	27%
Artisan cheese is not available in my area.	15%
It's not an important product attribute.	14%
I don't like the taste of artisan cheese.	5%
It's not available in the varieties that I like.	3%

Reasons for Consuming Artisan Cheese

Reasons	% of Total Artisan Cheese Buyers (N=440)
Snack	34%
Used as complement with other product (i.e. wine)	19%
Appetizer	16%
Cooking ingredient	13%
Entertainment	13%
Family traditions	2%
Previous experience (travel, gift, restaurant courses)	2%
Recommendations (from friends or sales staff in store)	2%
TOTAL	**100%**

Artisan Cheese Consumption Frequency.

Consumption Frequency	% of Total Artisan Cheese buyers (N=440)
Weekly	26%
Monthly	49%
Less frequently than monthly	23%
Daily	2%
TOTAL	**100%**

Artisan Cheese Attributes (N=440 total cheese buyers)

Degree of Importance	TASTE	Made with natural milk	Made with organic milk	Made with goat milk	Made with cow milk
Very important	90%	22%	8%	5%	10%
Quite important	8%	32%	15%	10%	16%
Fairly important	2%	24%	28%	19%	31%
Slightly important	0%	13%	21%	22%	19%
Not at all important	0%	10%	27%	44%	24%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**

Degree of Importance	Health attribute (fat content)	Price	Package size	Domestic cheese	Imported cheese
Very important	14%	22%	11%	11%	5%
Quite important	23%	36%	32%	19%	8%
Fairly important	27%	27%	35%	24%	26%
Slightly important	19%	11%	15%	20%	26%
Not at all important	17%	4%	7%	25%	35%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**

Interest in Artisan Cheese with Special Flavors

Degree of Interest (N=440 Total Cheese Buyers)	Smoked	With herbs	With nuts	With vegetables
Currently purchase	47%	50%	22%	35%
Would be interested in purchasing	39%	42%	53%	50%
Neither	14%	8%	25%	15%
TOTAL	**100%**	**100%**	**100%**	**100%**

Preference for Artisan Cheese Forms

Forms	% of Total Artisan Cheese Buyers (N=440)
Pre-packed bricks, curds, sliced, spreads, snack-size	79%
Sliced by weight	42%
Bricks cut for me from a wheel	35%

Preference for Artisan Cheese Packaging

Packaging	% of Total Artisan Cheese Buyers (N=440)
It doesn't matter	59%
Plastic re-sealable bag	28%
Cellophane vacuum packs	9%
Plastic wrap	4%
TOTAL	**100%**

Retail Channel

Retail Channel	% of Total Artisan Cheese Buyers (N=440)
Grocery chain stores	78%
Local specialty stores	50%
Health and organic food stores	25%
Direct from processors	11%
Other sources	7%
Online	4%

Frequency of Cheese Purchase from Farmers Market

Frequency of Cheese Purchase from Farmers Markets	Do you purchase artisan cheese?	
	No (N=618)	Yes (N=440)
At least weekly	0.8%	4.5%
Twice per month	1.6%	5.0%
Once per month	3.9%	16.6%
Less than once per month	23.5%	48.0%
Never	70.1%	25.9%
TOTAL	**100%**	**100%**

Frequency of Cheese Products Online or Other Media Channels

How frequently do you purchase household groceries online or through other media sources?	Do you purchase artisan cheese?	
	No (N=618)	Yes (N=440)
At least weekly	1.0%	1.8%
Twice per month	0.8%	1.4%
Once per month	1.3%	5.3%
Less than once per month	9.7%	22.7%
Never	87.2%	68.9%
TOTAL	**100%**	**100%**

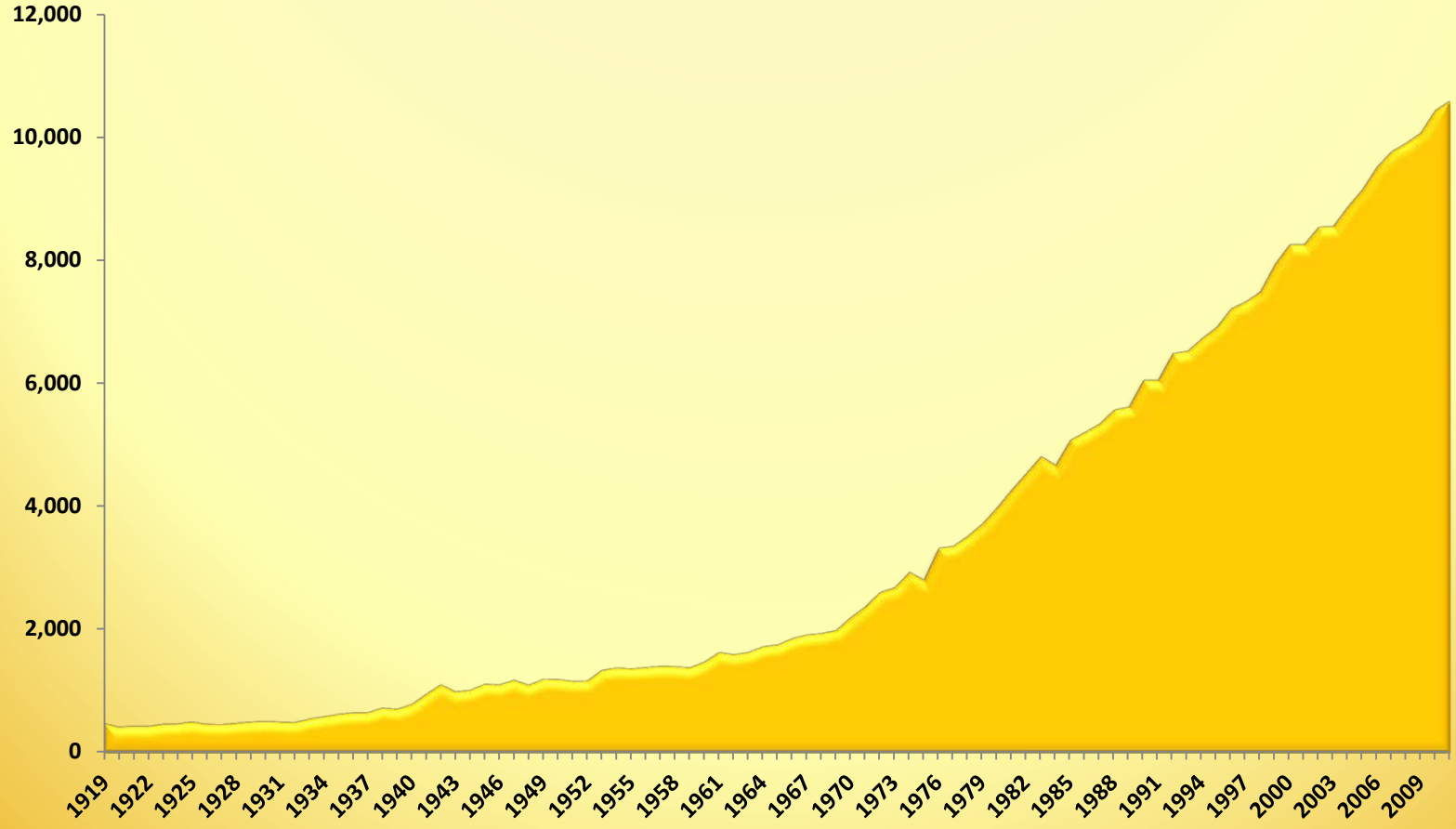
Premium for Domestic vs. Imported Artisan Cheese

Percent Premium	% of Total Artisan Cheese Buyers (N=440)
None	20%
Less than 20% more	38%
20% more	32%
30% more	5%
More than 50% more	3%
50% more	2%
TOTAL	**100%**

Definition of Local

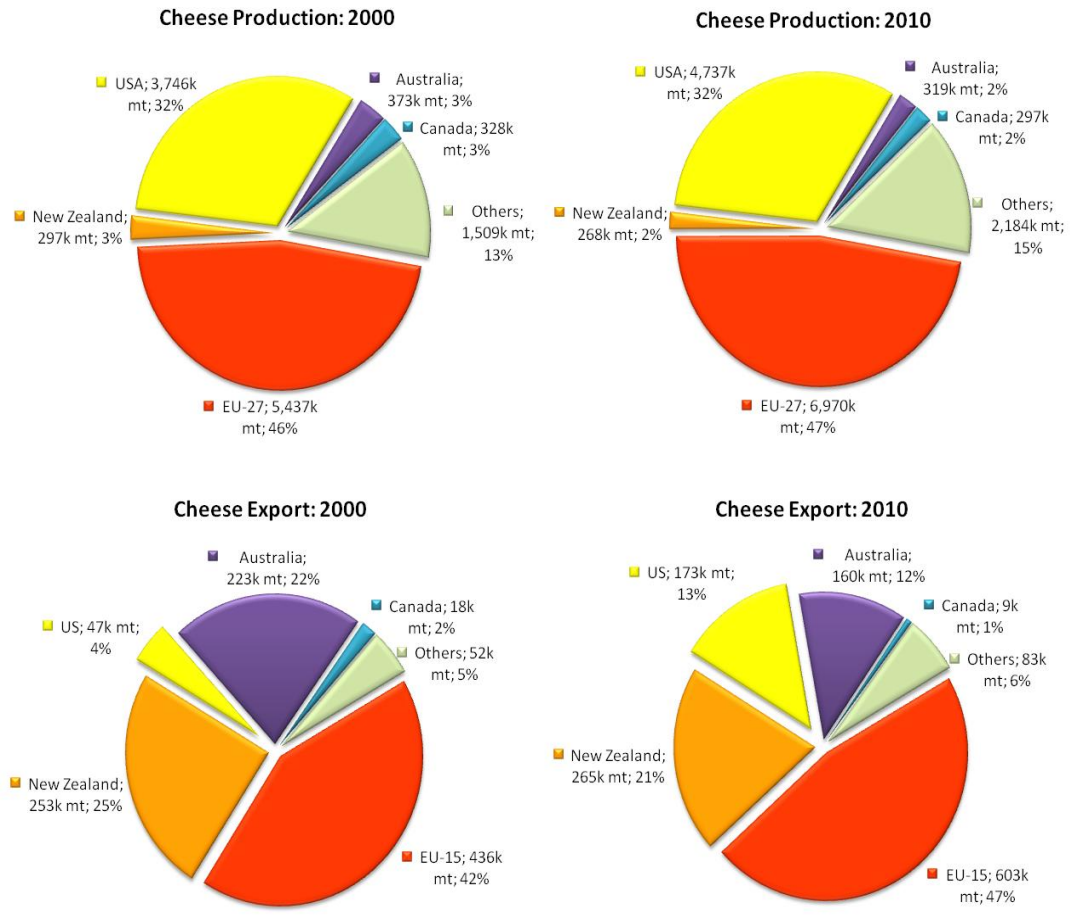
Categories of "Local"	% of Total Cheese Eaters (N=1040)	% of Artisan Cheese Buyers (N=440)	% of Artisan Cheese Buyers Willing to Pay More for Domestic Cheeses (N=340)
From within my city or town	17%	14%	13%
From within my county or surrounding counties	36%	36%	36%
From within the state	35%	39%	41%
From surrounding states	9%	8%	8%
Other (please specify)	2%	3%	3%

U.S. Cheese Production, Mn Lbs



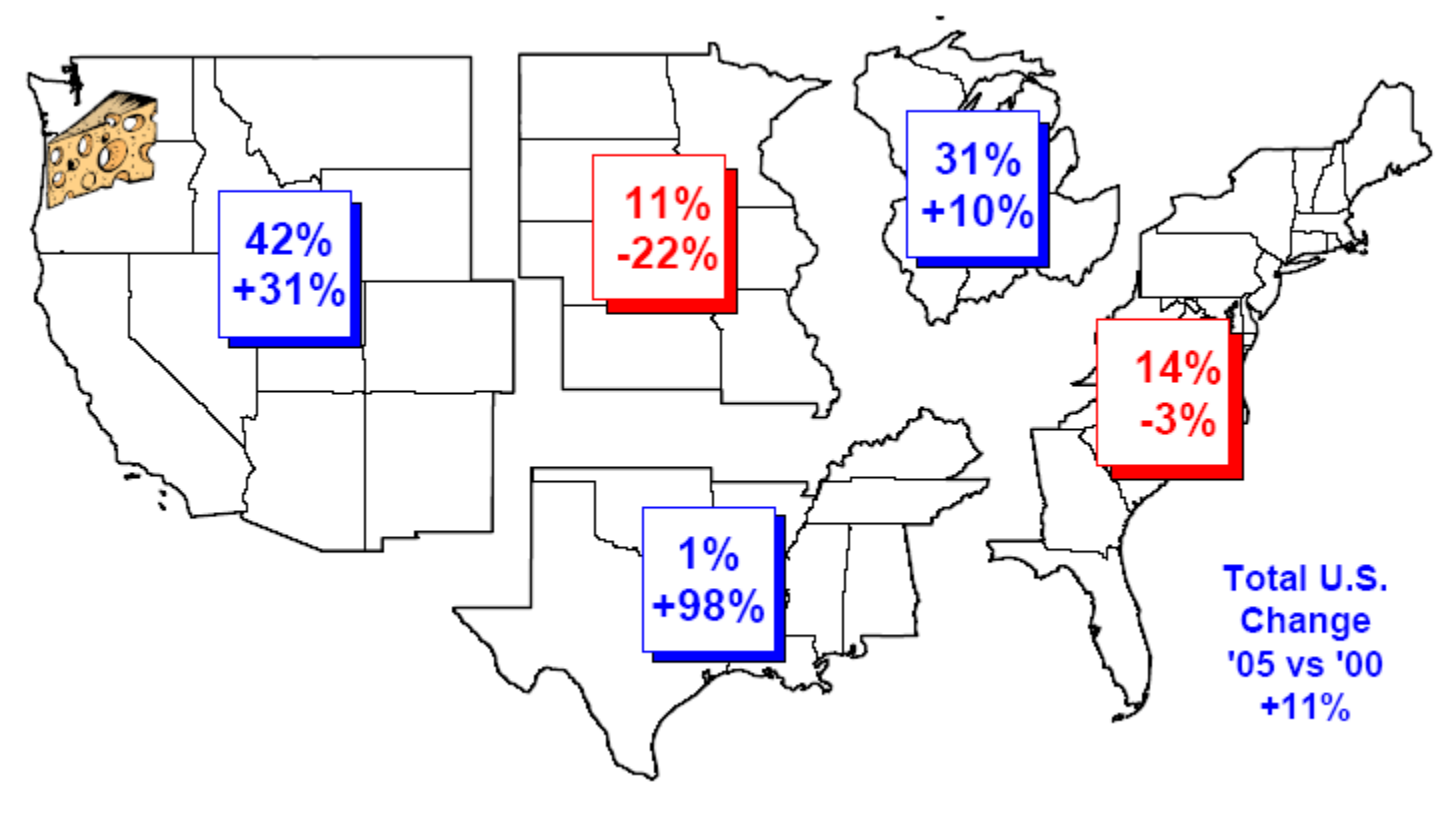
Source: www.nass.usda.gov

International Dairy Cheese Production and Exports: 2000 and 2010

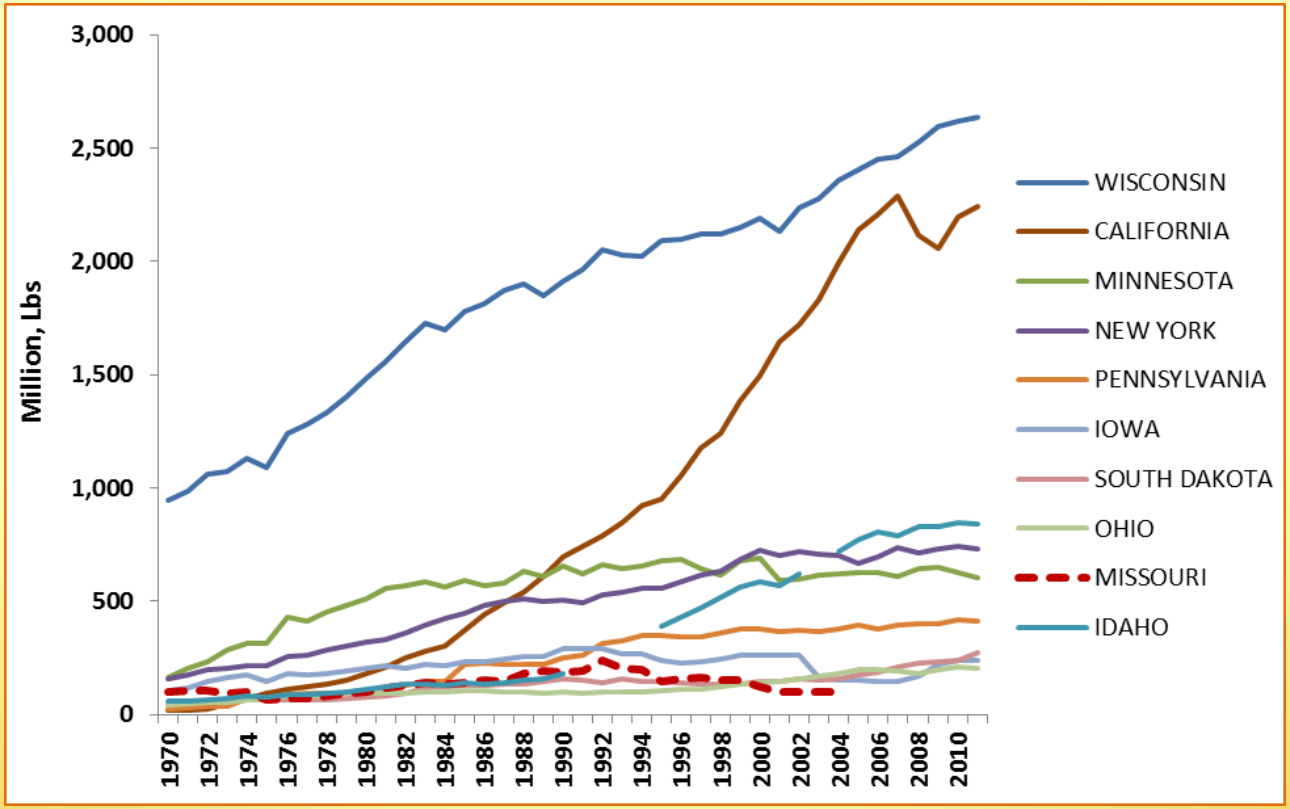


Source: www.nass.usda.gov. Dairy World Markets and Trade

Regional Cheese Production

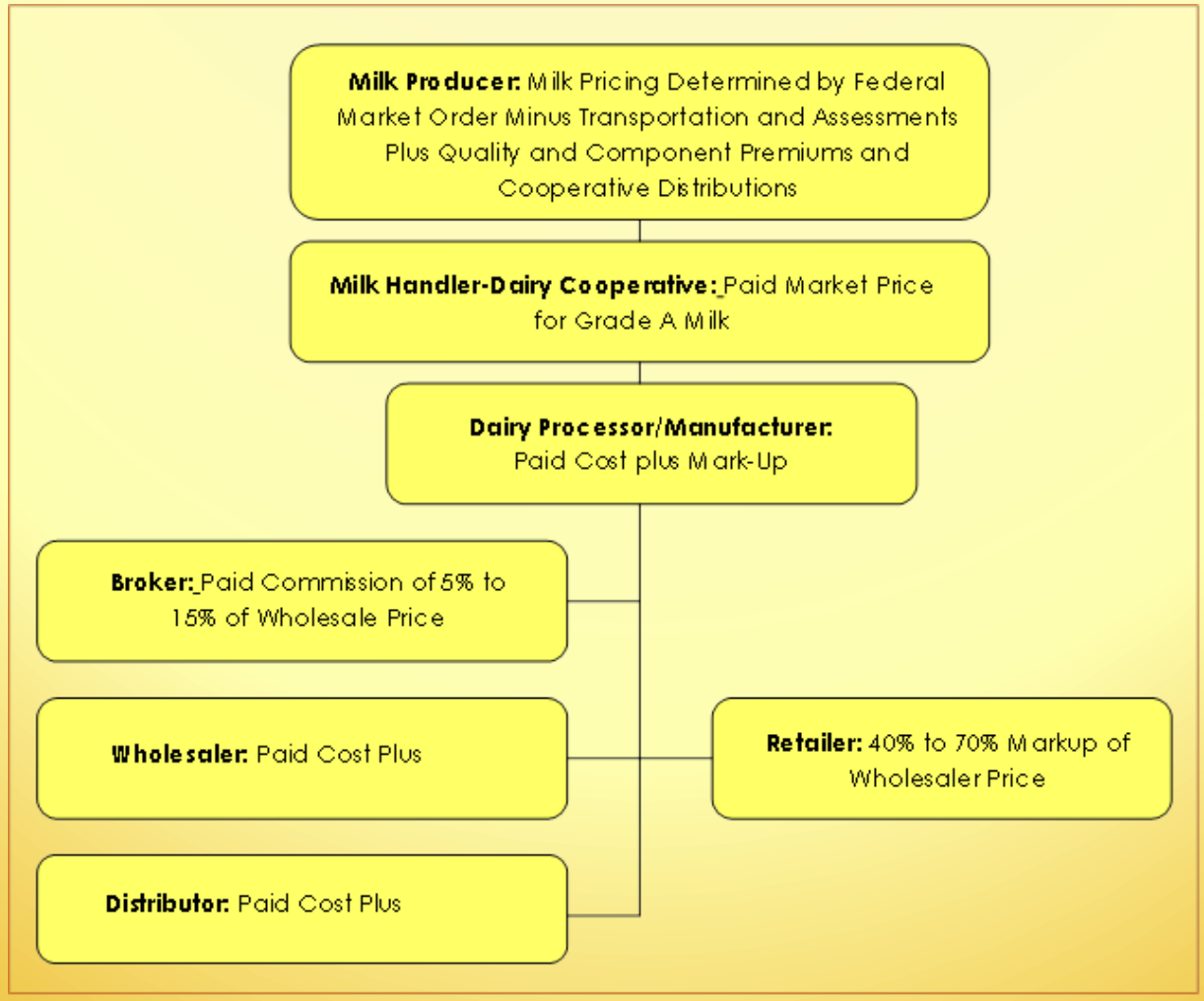


U.S. Cheese Production: Top 10 States (1970-2011), Mn Lbs



Source: www.nass.usda.gov

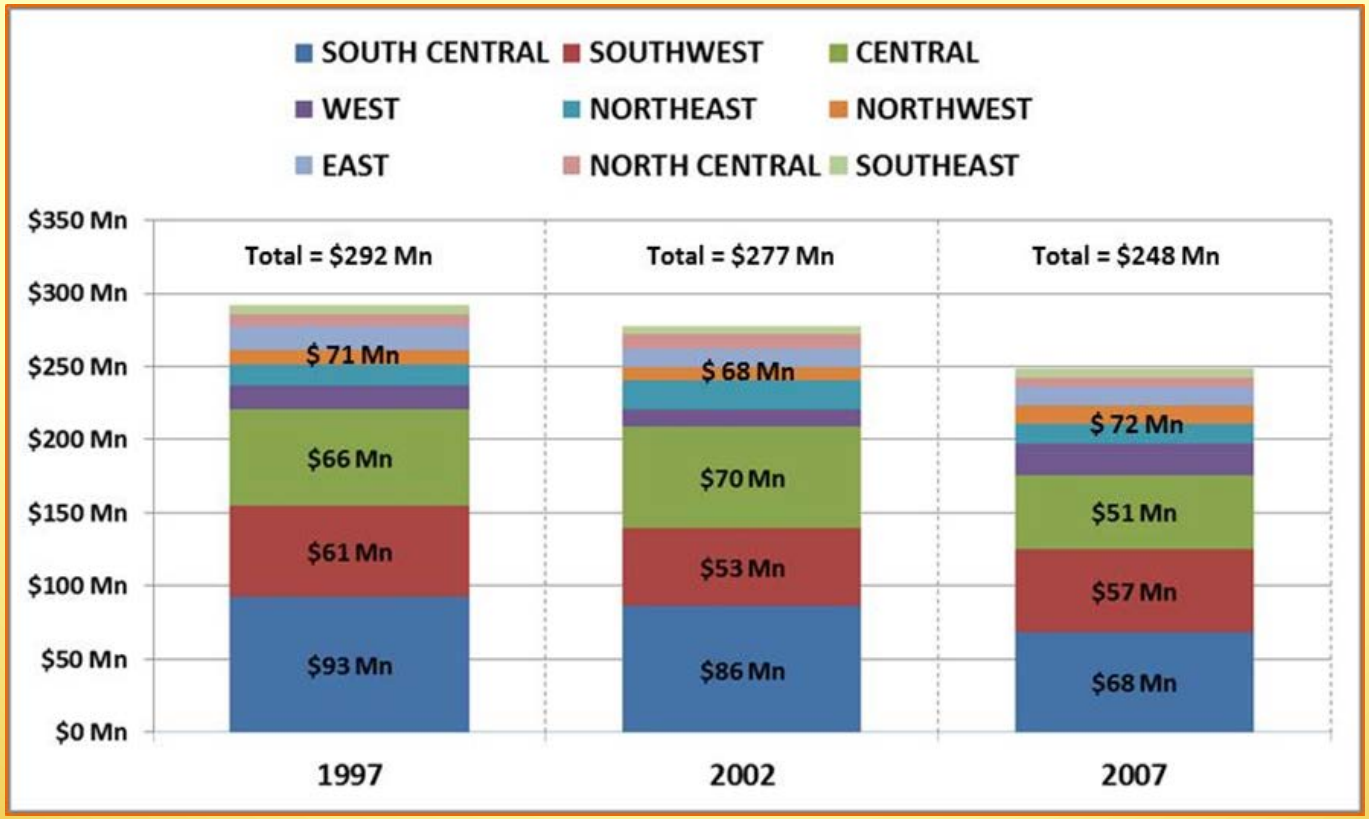
Cheese Dairy Product Value Chain



Missouri Dairy Production Statistics

Source: http://www.midwestdairy.com/0t253p205/dairy-stats/

Sales Value of Milk and Other Dairy Products in Missouri by Region ($ Mn)



Source: http://quickstats.nass.usda.gov/

Grocery Stores Selected for Interview

Store	Approximate Number of Locations within Missouri
Apple Market	3
Clover's Natural Market	1
Country Mart	11
Dierbergs	22
Hen House	2
Hy-Vee	28
Price Chopper	19
Price Cutter	23
Schnucks	56
Shop N Save	27
Whole Foods	2
World Harvest	1

Stores Selling Artisan Cheeses

Type of Store	Sell Artisan Cheeses?	Number of Interviewees	% of Total
Grocery chain	No, but we did in the past	2	20.0%
	Not at all	2	20.0%
	Yes	6	60.0%
Natural market	Yes	2	100.0%

Percent of Cheese Sold that is Artisan

Type of Store	% of Cheese Sold that is Artisan		
	Average	Min	Max
Grocery chain	25%	10%	60%
Natural market	10%	10%	10%

Interviewees 'Perception of Local'

"Local" Boundaries	% of Total Retailers Selling Artisan Cheeses (N=8)
Produced in a farm within the region or bordering states that my store is located	75%
Produced in a farm within the state that my store is located	25%
TOTAL	100%

Sources of Artisan Cheeses

Type of Store	Sources of Artisan Cheeses	% of Total
Grocery chain (N=6)	Locally produced	83%
	Produced elsewhere in the US	83%
	Imported from abroad	50%
Natural market (N=2)	Locally produced	17%
	Produced elsewhere in the US	33%
	Imported from abroad	17%

Supplier Attributes

Type of Store	Sources of Artisan Cheeses	% of Total
Grocery chain (N=6)	Quality of cheese	100%
	Dependability of supply	100%
	Reputation	83%
	Price of the cheese and potential margin	100%
	Customers' familiarity with the brand	50%
Natural market (N=2)	Quality of cheese	100%
	Dependability of supply	100%
	Reputation	50%
	Price of the cheese and potential margin	50%
	Customers' familiarity with the brand	0%

Product Spoilage

Type of Store	Accounting for Spoilage	Number of Interviewees who Agreed with or Cited These Statements
Grocery chain (N=6)	Full credit from supplier if product goes bad	1
	Our store/company assume all losses.	1
	Supplier is usually responsible.	1
	Shared 50:50	1
	We get rebate or store credit from our supplier/producer.	2
Natural market (N=2)	Shared 50:50	1
	We get rebate or store credit from our supplier/producer.	1

Decision on New Supplier by Type of Store

Type of Store	Decision Maker	Number of Interviewees	% of Total
Grocery chain	Corporate	8	80.0%
	Deli manager	1	10.0%
	Store	1	10.0%
Natural market		2	100.0%

Summary of Challenges and Opportunities

Challenges	Opportunities
Consumer awareness/product familiarity	Consumers' preference for local products
Product seasonality, supply availability and taste consistency	Increased accessibility (grocery stores instead of seasonal farmers' market)
Higher price	Consumers' increasing preference for healthier food types

Variation of Consumer Preferences between Domestic and Imported Food: The Case of Artisan Cheese

Haluk Gedikoglu

Assistant Professor
Cooperative Research Programs
Lincoln University of Missouri

and

Joe L. Parcell

Professor
Department of Agricultural and Applied Economics
University of Missouri

November, 2012

Abstract

Increasing concerns about a healthy diet, food safety and support for the local economy provide new opportunities for farmers to increase their farm income by selling their farm products locally. The major challenge for the farmers is to predict consumer preferences correctly and provide goods to the market accordingly. By analyzing a consumer survey conducted in the Midwest region of the US, the current study analyzes the consumer preferences for domestic and imported artisan cheese. The results of the econometric analysis show that consumer preferences vary between domestic and imported artisan cheese. The results also show that consumer preferences vary with location. Hence, producers of local artisan cheese might need to adopt different marketing and production strategies to match the local consumer demand.

Key Words: Artisan Cheese, Consumer Preferences, Ordered Probit, Willingness-to-Pay

Increasing concerns about a healthy diet, food safety and support for the local economy provide new opportunities for farmers to increase their farm income by selling their farm products locally (Ilbery and Maye, 2005). The major challenge for farmers is to predict consumer preferences correctly and provide goods to the market accordingly. For farmers selling their farm product locally, using direct marketing strategies has the advantage of cutting out the middle man and attracting consumers directly to their products (Morgan and Alipoe, 2001; Uva, 2002). On the other hand, if farmers fail to understand the consumer preferences correctly, they face financial losses due to capital and time. In response to consumer demand for locally produced farm products, supermarkets such as Wal-Mart have announced increased offerings of locally produced farm products (Monson, Mainville, and Kuminoff, 2008).

The existing literature has focused on the identification of consumer preferences for different food quality attributes (e.g., Brown, Gandee, and D'Souza, 2006; Monson, Mainville, and Kuminoff, 2008; Thilmany and Watson, 2004). There are multidimensions of food quality with certain dimensions, such as color and taste, readily discernible by consumers (Anderson and Anderson, 1991). These readily discernible dimensions are known as *search* and *experience* attributes (Nelson, 1974; Stigler, 1961). Specifically, the *search* attributes refer to visual attributes of products, such as size and color, for which consumers can seek pre-purchase information. On the other hand, experience attributes, such as taste, are the ones that are ascertained on the basis of consuming the product (Nelson, 1974; Stigler, 1961). *Credence* attributes of a food product refers to quality features, such as labeling with organic or locally grown, that cannot be ascertained by direct experience, so that consumers cannot know with certainty if a credence attribute is actually present within a product (Anderson and Anderson, 1991). *Credence* attributes cannot be evaluated by consumers before purchase or after

consumption without incurring information costs (Anderson and Anderson, 1991; Darby and Karni, 1973). Unless there is reliable and verified information, the consumer would not know if the product really has the credence attributes asserted.

Empirical studies that analyzed consumer preferences found different results in terms of the relative importance of *experience*, *search*, and *credence* attributes (Wirth et al., 2011; Dentoni et al.,2009). Some studies found that certain *credence* attributes impact consumers' purchase decisions positively and lead to the purchase of the food items (e.g., Dentoni et al., 2009; Wirth, Love, and Palma, 2007). Studies by Dentoni et al. (2009) and Mabiso et al. (2005) reported that certain segments of the population are willing to pay more for organic food products. However, there are other studies that did not find a statistically significant price premium for organic food products (e.g., Onken et al., 2011; Wirth et al., 2011). For other credence attributes, such as locally grown and naturally produced, some studies found a statistically significant price premium from consumers (e.g.,Wirth et al., 2011; Henneberry and Agustini, 2004), while other studies did not find a statistically significant price premium from consumers (e.g., Darby et al., 2008; Froehlich, Carlberg, and Ward, 2009). Hence, overall it is not known if producers should invest in producing organic food or if they should only focus on selling their products labeled as locally produced or naturally produced (Onken et al., 2011; Wirth et al., 2011). It is also not known if farmers should focus on the search and experience attributes or the credence attributes as their marketing strategy. The answers to these questions can help farmers to focus and invest more on the attributes that better match consumer demand and receive a higher price premium. One of the objectives of the current study is to analyze the relative importance of experience, search, and credence attributes.

Another important factor that impacts farmers' marketing strategy is consumer preferences for imported food versus domestic food. Previous research on analyzing consumer preferences for imported food focused mostly on credence attributes, specifically country of origin labeling. The majority of research focused on identifying consumers' willingness-to-pay (WTP) for imported food over domestic food and how country of origin labeling influences consumer preferences (Han et al., 2012; Xie, House, Hyeyoung, 2012; Xie et al., 2011; Peterson and Burbidge, 2012; Krystallis and Chryssochoidis, 2006). The results of these studies show that consumers are willing to pay a premium for purchasing domestic food over imported food and that the country of origin label is an important factor (Peterson and Burbidge, 2012; Xie, House, Hyeyoung, 2012; Han et al., 2012; Xie et al., 2011; Krystallis and Chryssochoidis, 2006). Although previous studies analyzed consumers' willingness-to-pay for imported food over domestic food, these studies did not provide a comprehensive analysis of how experience, search, and credence attributes vary between imported and domestic food, and which of these attributes most impact consumers' willingness-to-pay.

Even though the studies reviewed found higher willingness-to-pay for domestic food over imported food, imports into the US have been increasing for some food products, such as cheese. According to the Babcock Institute (2012), the US is currently experiencing a trade deficit for cheese. With respect to volume, in 2011 the US exported 224,000 MT of cheese and imported 142,000 MT of cheese. However, in dollar value, in 2011 the US exported $958 million worth of cheese and imported $1,072 million worth of cheese (Babcock Institute, 2012). This is primarily due to highly valued cheese imports from European countries such as France (accounted for 17% of US cheese imports in 2011) (Babcock Institute, 2012). On the other hand, most of US cheese exports are based on low value processed cheese. Hence, it is important to understand the factors

that impact consumer demand for imported cheese to better match the local demand by domestic production for high valued cheese. For producers who are aiming to provide food products to the market that will compete with imported food, it is important to understand the impact of experience, search, and credence attributes on consumer demand for the imported food item to better match domestic demand with domestic supply and also to create a successful marketing plan.

The first objective of the current study is to analyze the relative importance of experience, search, and credence attributes for consumers' willingness-to-pay for domestic artisan cheese (high-valued cheese) over domestic processed cheese.[1] The second objective of this study is to analyze the impact of experience, search, and credence attributes on consumers' willingness-to-pay for imported artisan cheese over domestic artisan cheese. By analyzing the US consumer preferences for imported artisan cheese, the current study will provide guidance to farmers who aim at providing domestic cheese to replace imported cheese. By including the consumers from different regions in the US, the current study will also show if consumer preferences change from one region to another within the same country, which will show if producers should adopt different marketing strategies in different regions within a country.

The paper proceeds as follows: In the next section we provide information on the consumer survey that was conducted to measure consumers' willingness-to-pay. Next, the empirical methods are provided, which includes both the econometric model and the factor analysis. The paper then continues with the results section. Next, the paper ends with conclusions.

[1] In the current study artisan cheese is defined as a specialty cheese. Artisan cheese is made primarily by hand and has been developed as a piece of art. It is made on small scale and unique characteristics. Artisan cheese also has creative labeling and brand naming.

Data

A consumer survey was conducted among consumers located in Missouri, Kansas, and Iowa. The survey was conducted through Survey Monkey®. To measure the consumers' willingness-to-pay for domestic artisan cheese over domestic processed cheese, consumers were specifically asked, "What is the maximum price above the price of processed cheddar cheese ($1.44/pound) that you would pay for artisan cheddar cheese?" For analyzing the consumers' willingness-to-pay for imported artisan cheese over domestic artisan cheese, the consumers' were asked, "What is the maximum amount above the price of the US artisan cheese that would you pay for imported French artisan cheese?" The consumers were provided with pictures of sample artisan cheeses and the explanation for the term "artisan cheese."

Table 1 provides the summary statistics and description of the variables. For the consumer demographics, 43 percent of the responders are male. The average for the age category is closest to the age category of 35 to 44. The average for the annual family income corresponds to the category $51,000 - $75,000. Hence, the respondent group is almost middle-aged with above average annual income. For the location of the responders, 16 percent are from Kansas, 22 percent are from Missouri, and the rest are from Iowa. Hence, consumers from Iowa are most represented.[2]

For consumers' preferences about the way cheese is produced, 25 percent of survey respondents prefer hand-made cheese and 10 percent of survey respondents prefer farmstead cheese. Although some consumers have a preference for the way cheese is produced, 50 percent of survey respondents reported that they do not have a preference. As far as artisan cheese consumption purposes, 67 percent of survey respondents indicated that they would consume

[2] This survey region was used to reflect regional demand for Missouri artisan cheese. Iowa was chosen because the state borders both Missouri and Wisconsin. Wisconsin has a strong artisan cheese manufacturing and production industry.

artisan cheese for entertainment and 64 percent of survey respondents indicated that they would consume artisan cheese as a snack. Cheese purchase point-of-sale indicates the frequency at which the responders purchase cheese from each source. The two highest frequencies in the sample are for supermarkets, such as Wal-Mart, and independent/ local grocery stores. Health/natural food stores and specialty cheese stores have relatively lower frequencies.

For consumers' ranking of the importance of artisan cheese attributes, the two highest ranked attributes are taste and enhancement of taste with other products, such as wine. Hence, the experience attributes received the highest importance in the sample. The shelf life of artisan cheese is also relatively more highly ranked than other search and credence attributes. Made from organic milk and natural milk are reported as somewhat important by the survey respondents and the same is valid for the search attribute color of the cheese. Location of origin within the US, which is a credence attribute, is not ranked with high importance. Hence, the survey sample shows some evidence that consumers rank differently the experience, search and credence attributes.

Table 2 shows the distribution of willingness-to-pay for domestic artisan cheese over domestic processed cheese and imported French artisan cheese over US artisan cheese. The survey data shows that 53 percent of the survey respondents are willing to pay 20 percent more to buy domestic artisan cheese over processed cheese, whereas only 30 percent of the respondents are willing to pay 20 percent more to buy imported French artisan cheese over US artisan cheese. Overall, 82 percent of the survey respondents are willing to pay a price premium to buy domestic artisan cheese over processed cheese and 44 percent of the respondents are willing to pay a price premium to buy artisan cheese that is imported from France over US

artisan cheese. Hence, there is opportunity for artisan cheese producers to obtain a price premium over processed cheese, but there is also significant demand for imported artisan cheese.

Empirical Model

The two dependent variables: Willingness-to-pay for domestic artisan cheese over domestic processed cheese and willingness-to-pay for imported French artisan cheese over US artisan cheese can be analyzed using an ordered probit model, as these variables are ordered from 0 to 3 (Greene, 2008). Ordered probit models have been used in the literature for analyzing multinomial choice variables that are inherently ordered, e.g. consumer surveys for demand analysis (Kasteridis, Munkin, and Yen, 2007; Hill et al., 2011; Pope et al., 2011). Similar to other discrete choice models, the ordered probit model can also be derived from a latent variable (Greene, 2008). The special case of the current study is instead, that two dependent variables are determined jointly. Following Geene and Hensher (2008), the latent variables $y_{1i}*$ and $y_{2i}*$, which represent the random utility from consuming domestic artisan cheese and imported French artisan cheese respectively, can be represented as;

$$\begin{aligned} y_{1i}* &= \mathbf{x}_{1i}\boldsymbol{\beta}_1' + \varepsilon_{1i} \\ y_{2i}* &= \mathbf{x}_{2i}\boldsymbol{\beta}_2' + \varepsilon_{2i} \end{aligned} \qquad \begin{pmatrix} \varepsilon_{1i} \\ \varepsilon_{2i} \end{pmatrix} \sim \mathrm{N}\left[\begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} 1 & \rho \\ \rho & 1 \end{pmatrix}\right]$$

where $\mathbf{x}_{1i}$ and $\mathbf{x}_{2i}$ are the vectors that include the values for the variables of the deterministic part of the latent variable for observation *i*. $\boldsymbol{\beta}_1$ and $\boldsymbol{\beta}_2$ are the vectors that include the coefficients to be estimated. ε_{1i} and ε_{2i} are the error terms for corresponding equations. The error terms ε_{1i} and ε_{2i} are assumed to have a bivariate standard normal distribution with correlation . The

latent variables $y_{1i}*$ and $y_{2i}*$ are unobservable. However, what is observed is the willingness-to-pay for domestic artisan cheese and imported French artisan cheese:

$$y_{1i} = \begin{cases} 0 & \text{if WTP Artisan Cheese = 0} \\ 1 & \text{if WTP Artisan Cheese = 20\% Premium} \\ 2 & \text{if WTP Artisan Cheese = 30\% Premium} \\ 3 & \text{if WTP Artisan Cheese = 50\% Premium} \end{cases} \qquad y_{2i} = \begin{cases} 0 & \text{if WTP French Cheese = 0} \\ 1 & \text{if WTP French Cheese = 20\% Premium} \\ 2 & \text{if WTP French Cheese = 30\% Premium} \\ 3 & \text{if WTP French Cheese = 50\% Premium} \end{cases}$$

Using the dependent variable definition, WTP values can be represented in terms of latent variables as:

$$\text{WTP}_{1i} = y_{1i} = \begin{cases} 0 & \text{if } y_{1i}* \le \mu_{11} \\ 1 & \text{if } \mu_{11} < y_{1i}* \le \mu_{12} \\ 2 & \text{if } \mu_{12} < y_{1i}* \le \mu_{13} \\ 3 & \text{if } \mu_{13} < y_{1i}* \end{cases} \qquad \text{WTP}_{2i} = y_{2i} = \begin{cases} 0 & \text{if } y_{2i}* \le \mu_{21} \\ 1 & \text{if } \mu_{21} < y_{2i}* \le \mu_{22} \\ 2 & \text{if } \mu_{22} < y_{2i}* \le \mu_{23} \\ 3 & \text{if } \mu_{23} < y_{2i}* \end{cases}$$

where μ values represent the unknown cutoff parameters to be estimated using $\boldsymbol{\beta}_1$ and $\boldsymbol{\beta}_2$. The cutoff values satisfy the condition that $\mu_{11} < \mu_{12} < \mu_{13}$ and $\mu_{21} < \mu_{22} < \mu_{23}$. As the error terms ε_{1i} and ε_{2i} have bivariate standard normal distribution, the probability of each pair of outcomes can be represented as (Geene and Hensher, 2008):

$$\begin{aligned} \Pr\left(y_{1i} = j, y_{2i} = k \,|\, \mathbf{x}_{1i}, \mathbf{x}_{2i}\right) = {} & \Phi_2\left(\left(\mu_{1j} - \mathbf{x}_{1i}\boldsymbol{\beta}_1'\right), \left(\mu_{2k} - \mathbf{x}_{2i}\boldsymbol{\beta}_i'\right), \rho\right) \\ & - \Phi_2\left(\left(\mu_{1j-1} - \mathbf{x}_{1i}\boldsymbol{\beta}_1'\right), \left(\mu_{2k} - \mathbf{x}_{2i}\boldsymbol{\beta}_i'\right), \rho\right) \\ & - \Phi_2\left(\left(\mu_{1j} - \mathbf{x}_{1i}\boldsymbol{\beta}_1'\right), \left(\mu_{2k-1} - \mathbf{x}_{2i}\boldsymbol{\beta}_i'\right), \rho\right) \\ & + \Phi_2\left(\left(\mu_{1j-1} - \mathbf{x}_{1i}\boldsymbol{\beta}_1'\right), \left(\mu_{2k-1} - \mathbf{x}_{2i}\boldsymbol{\beta}_i'\right), \rho\right) \end{aligned}$$

where $\Phi_2(.)$ is the bivariate standard normal cumulative distribution function (Greene, 2008). These probabilities enter the log-likelihood function for a maximum likelihood estimator of the parameters. The log-likelihood function for the entire sample of size *N* can be obtained as:

$$\ln\ \mathrm{L} = \sum_{i=1}^{N}\sum_{j=1}^{4}\sum_{k=1}^{4} \mathrm{I}(y_{1i} = j, y_{2i} = k) \ln \Pr(y_{1i} = j, y_{2i} = k)$$

The maximum likelihood estimation of the coefficients $\boldsymbol{\beta}_1$ and $\boldsymbol{\beta}_2$ are obtained by taking the derivative of the log-likelihood function with respect to each coefficient included in $\boldsymbol{\beta}_1$ and $\boldsymbol{\beta}_2$ (Greene, 2008; Geene and Hensher, 2008).

Marginal Effects

The marginal effects are calculated based on the derivate of $\Pr\left(y_{1i} = j, y_{2i} = k \middle| \mathbf{x}_{1i}, \mathbf{x}_{2i}\right)$ with respect to variables of interest. To proceed further, we define the following variables (Geene and Hensher, 2008):

$$\mathrm{A_L} = \mu_{1,j-1} - \mathbf{x}_{1i}\boldsymbol{\beta}_1'$$
$$\mathrm{A_U} = \mu_{1,j} - \mathbf{x}_{1i}\boldsymbol{\beta}_1'$$
$$\mathrm{A_L} = \mu_{2,k-1} - \mathbf{x}_{2i}\boldsymbol{\beta}_2'$$
$$\mathrm{B_U} = \mu_{2,k} - \mathbf{x}_{2i}\boldsymbol{\beta}_2'$$

Using these variables $\Pr\left(y_{1i} = j, y_{2i} = k \middle| \mathbf{x}_{1i}, \mathbf{x}_{2i}\right)$ can be written as (Geene and Hensher, 2008):

$$\Pr\left(y_{1i} = j, y_{2i} = k \middle| \mathbf{x}_{1i}, \mathbf{x}_{2i}\right) = \Phi_2\left(\mathrm{A_U}, \mathrm{B_U}, \rho\right) - \Phi_2\left(\mathrm{A_L}, \mathrm{B_U}, \rho\right) - \Phi_2\left(\mathrm{A_U}, \mathrm{B_L}, \rho\right) + \Phi_2\left(\mathrm{A_L}, \mathrm{B_L}, \rho\right)$$

and marginal effects are calculated as:

$$\frac{\partial \Pr\left(y_1 = j, y_2 = k \middle| \mathbf{X}_1, \mathbf{X}_2\right)}{\partial \mathbf{X}_1} = (-\boldsymbol{\beta}_1)\begin{bmatrix} \phi\left(A_U\right)\Phi_2\left(\frac{B_U - \rho A_U}{\sqrt{1-\rho^2}}\right) - \phi\left(A_L\right)\Phi_2\left(\frac{B_U - \rho A_L}{\sqrt{1-\rho^2}}\right) \\ \phi\left(A_U\right)\Phi_2\left(\frac{B_L - \rho A_U}{\sqrt{1-\rho^2}}\right) - \phi\left(A_L\right)\Phi_2\left(\frac{B_L - \rho A_L}{\sqrt{1-\rho^2}}\right) \end{bmatrix}$$

$$\frac{\partial \Pr\left(y_1 = j, y_2 = k \middle| \mathbf{X}_1, \mathbf{X}_2\right)}{\partial \mathbf{X}_2} = (-\boldsymbol{\beta}_2)\begin{bmatrix} \phi\left(B_U\right)\Phi_2\left(\frac{A_U - \rho B_U}{\sqrt{1-\rho^2}}\right) - \phi\left(B_L\right)\Phi_2\left(\frac{A_U - \rho B_L}{\sqrt{1-\rho^2}}\right) \\ \phi\left(B_L\right)\Phi_2\left(\frac{A_U - \rho B_L}{\sqrt{1-\rho^2}}\right) - \phi\left(B_L\right)\Phi_2\left(\frac{A_L - \rho B_L}{\sqrt{1-\rho^2}}\right) \end{bmatrix}$$

where $\frac{\partial \Phi_2(A, B, \rho)}{\partial A} = \phi\left(A\right)\Phi_2\left(\frac{B - \rho A}{\sqrt{1-\rho^2}}\right)$. Marginal effects are added for the independent variables that appear in both regression equations (Geene and Hensher, 2008).

Sample Selection

An alternative specification for the econometric model uses Heckman's selection model (Lusk et al., 2001; Greene, 2008). The advantage of this model is to account for the sample selection problem, which is causing regression estimates to be biased, seen in demand analysis (Lusk et al., 2001). However, the disadvantage of this model is not accounting for the correlation among the error terms for the two dependent variables, which can also cause biased estimates (Greene, 2008). Another disadvantage of this model is not accounting for the ordered structure of the dependent variables. In the current study, the sample selection can be a potential problem, as some consumers might not be consuming cheese. For example, when willingness-to-pay for domestic artisan cheese is observed as zero, it could be that the consumer does not purchase cheese or that the consumer purchases cheese but does not prefer domestic artisan cheese over domestic processed cheese. To test for the existence of the sample selection problem, a selection

equation is estimated for cheese purchases. Following Greene (2008), the selection equation is a probit model, specified as:

$$z^*_i = \mathbf{w}_i\boldsymbol{\gamma}' + u_i$$
$$z_i = 1 \quad \text{if } z^*_i > 0, \text{ the consumer purchases cheese}$$
$$z_i = 0 \quad \text{if } z^*_i = 0, \text{ the consumer does not purchase cheese}$$

where $\mathbf{w}_i$ is the vector of independent variables: consumer attributes and the attributes of the cheese product. The vector $\boldsymbol{\gamma}'$ refers to the coefficients to be estimated and u_i is the error term. The willingness-to-pay equations are represented as:

$$y_{1i} = \mathbf{x}_{1i}\boldsymbol{\beta}'_1 + \varepsilon_{1i} \quad \text{observed if } z^*_i > 0$$

$$y_{2i} = \mathbf{x}_{2i}\boldsymbol{\beta}'_2 + \varepsilon_{2i} \quad \text{observed if } z^*_i > 0$$

where y_i, $\mathbf{x}_i$, $\boldsymbol{\beta}$ and ε_i are defined as same as in the bivariate ordered probit model above. The error terms ε_{1i} and ε_{2i} are independent and have univariate standard normal distributions. The results of this regression show that the selection equation is not significant at the 10 percent significance level[3]. Hence, there is no statistical evidence for the existence of the sample selection problem in the current study, as all the consumers in the dataset indicated that they purchase cheese at some frequency. For this reason, we continue the empirical analysis using the bivariate ordered probit regression.

Factor Analysis

In addition to the regression analysis, statistical factor analysis is also conducted to identify the group of artisan cheese attributes for a focused and successful marketing plan. Factor analysis can be used for market segmentation and for targeted marketing (Sharma and Kumar, 2006). Following Johnson and Wichern (2002), the observed values of consumer preferences for

[3] The regression results for this model are available upon request.

artisan cheese attributes can be represented by the observable random vector $\boldsymbol{Z}$ with p components, has mean $\boldsymbol{\mu}$ and covariance matrix $\boldsymbol{\Sigma}$. The factor model imposes that $\boldsymbol{Z}$ is linearly dependent on a few unobservable random variables $F_1, F_2, \ldots, F_m$, which are called common factors, and p additional sources of variation $\varepsilon_1, \varepsilon_2, \ldots, \varepsilon_p$, which are called errors. The factor analysis model is represented in matrix notation as:

$$\boldsymbol{Z} - \boldsymbol{\mu}_{\,p \text{ x } 1} = \mathbf{L}_{p \text{ x } m}\mathbf{F}_{m \text{ x } 1} + \boldsymbol{\varepsilon}_{p \text{ x } 1}$$

where $\mathbf{L}$ is the matrix of factor loadings, which includes the loading of j th variable of the k th factor l_{jk}. Hence the model represents the p deviations $X_1 - \mu_1, X_2 - \mu_2, \ldots, X_p - \mu_p$ in terms of random variables $F_1, F_2, \ldots, F_m$ and $\varepsilon_1, \varepsilon_2, \ldots, \varepsilon_p$, which are unobservable (Johnson and Wichern, 2002). The covariance structure for the factor model can be represented as: $\text{cov}(\boldsymbol{\varepsilon}) = \boldsymbol{\xi}$ and $\text{cov}(\boldsymbol{Z}) = \boldsymbol{\Sigma} = \mathbf{L}\mathbf{L}' + \boldsymbol{\xi}$. The factor loading matrix can be represented as $\text{cov}(\boldsymbol{Z}, \mathbf{F}) = \mathbf{L}$. The estimates of factor loadings are then found using the principal component method as:

$$\hat{\mathbf{L}} = \left[\sqrt{\widehat{\lambda_1}}\widehat{\mathbf{e}_1} \vdots \sqrt{\widehat{\lambda_2}}\widehat{\mathbf{e}_2} \vdots \cdots \vdots \sqrt{\widehat{\lambda_m}}\widehat{\mathbf{e}_m}\right]$$

where $\widehat{\lambda_k}$ and $\widehat{\mathbf{e}_k}$ are the estimates of the eigenvalue-eigenvector pairs for $\boldsymbol{\Sigma}$ (Johnson and Wichern, 2002). The eigenvalue estimates $\widehat{\lambda_k}$ represents the contribution of the k th factor to the total sample variance. In the current study both p and m are 17.

Results

The regression results from the bivariate-ordered regression are reported in Table 3. Multi-collinearity for the regression variables is assessed using the variance inflation factor (VIF). The rule of thumb is to further investigate variables for which the VIF is greater than 10 (Chen et al., 2003). None of the variables had a VIF value that was greater than 10. Hence, there is no evidence of multi-collinearity in the data. The Wald Chi-square test is used to test the

overall significance of the regression model. The hypothesis that all the regression coefficients, except the constant terms, are zero is rejected with a p-value of 0.000. Hence, the bivariate ordered probit regression is significant at the 1 percent significance level. The estimate for the correlation coefficient for the error terms is 0.38, which is statistically significant at the 1 percent significance level. This justifies the use of a bivariate model over two separate univariate models, which would have resulted in biased coefficient estimates. McFadden's pseudo R^2 is calculated to be 0.25 for the current model.

Overall, the regression results show differences between the factors that impact WTP for domestic artisan cheese over domestic processed cheese and WTP for imported French artisan cheese over US artisan cheese. For the demographics, only the age variable is significant for both equations. For WTP for domestic artisan cheese over domestic processed cheese, the older the respondents are the higher price premium they are willing to pay. However, younger respondents are more willing to pay a price premium for imported French artisan cheese over US artisan cheese. On the other hand, annual family income, gender, and location are not found statistically significant for either equation. We would expect higher annual family income to have a positive impact on artisan cheese consumption. It could be that consumers do not observe artisan cheese as a luxury food item, which has been determined to have an inelastic income elasticity (Davis et al., 2010).

For the way cheese is produced, respondents who prefer hand-made cheese are more willing to pay a price premium for domestic artisan cheese over processed cheese than consumers who do not have any preferences. However, the preference for farmstead (farm sourced) artisan cheese did not have a statistically significant impact on the price premium that consumers are willing to pay for artisan cheese. Survey respondents who would consume artisan

cheese as a snack and for entertainment purposes are more willing to pay a price premium for domestic artisan cheese over processed cheese than respondents who did not specify the consumption purpose. Similarly, respondents who would consumer artisan cheese as an appetizer and for entertainment purposes are more willing to pay a price premium for imported French artisan cheese over US artisan cheese. These results show that consumers who are willing to pay a price premium for either cheese would use them on certain occasions. This might indicate that consumers might not purchase artisan cheese in big quantities or too frequently.

Point of sale also had some influence on respondents' WTP for both equations. The more frequently the responders shop at health/natural food stores, the more they are willing to pay a price premium for domestic artisan cheese over domestic processed cheese and for imported French artisan cheese over US artisan cheese. On the other hand, shopping at independent / local grocery stores had a negative impact on respondents' WTP for domestic artisan cheese over domestic processed cheese. These results indicate that the marketing channel that farmers use to sell their products might impact sales. Farmers might consider health/natural food stores to sell their farm products locally, if available, instead of selling their products directly to consumers.

With respect to artisan cheese attributes, the two experience attributes- taste and enhancements of taste with other products- are found to be positively impacting the price premium for domestic artisan cheese over domestic processed cheese. These results are statistically significant. However, only enhancement of taste with other products is found to be positive and statistically significant for WTP for imported French artisan cheese over US artisan cheese. Mostly emphasized credence attributes: made from organic milk, made from natural milk, and location of origin within the US are not found to be statistically significant for either equations. On the other hand, health attribute (fat content) has negative and statistically

significant impact for WTP for domestic artisan cheese over domestic processed cheese. Search attributes such as cut and color of the cheese are also found to be statistically significant only for the domestic artisan cheese equation. On the other hand, package size, which is also a search attribute, has negative and statistically significant impact for both equations.

For the relative importance of experience, search, and credence attributes, all of the experience attributes are found to be statistically significant for WTP for the domestic artisan cheese equation. On the other hand, not all of the search and credence attributes are found to be statistically significant, even for the domestic artisan cheese equation. Overall, experience, search, and experience attributes are found to be more influential on the price premium for domestic artisan cheese over domestic processed cheese than on the price premium for imported French artisan cheese over US artisan cheese.

Marginal Effects

Marginal effects are also calculated to determine which factors have a large impact on consumers' willingness-to-pay a price premium for domestic artisan cheese over domestic processed cheese and French artisan cheese over US artisan cheese. Table 4 represents the marginal effects for both dependent variables. Since a bivariate model is used, the marginal effects are reported based on the outcome for each dependent variable. Also, since willingness-to-pay levels are ordered from 0 to 3, four marginal effects are calculated. The sign of a variable is expected to change across different levels of willingness-to-pay. For example, having enhancement of taste with other products is found to be statistically significant for both dependent variables. Hence, this variable is expected to have negative marginal effects for low levels of the dependent variables (e.g., WTP=0) and have a positive effect on higher levels of dependent variables (e.g., WTP=3).

Overall, experience attributes, taste, enhancement of taste, and being aged have a high negative impact on not willing to pay a price premium, which translates into a positive impact on willingness-to-pay for both domestic artisan cheese over domestic processed cheese and for imported French artisan cheese over US artisan cheese. Hence, producers who improve experience attributes of their artisan cheese product can increase the chance of getting a positive price premium from consumers. Search attributes, such as color of cheese and package size, have relatively large negative impact on the willingness-to-pay. Health attribute, which is a credence attributes, also has a relatively high marginal effect on willingness-to-pay. However, other credence attributes, such as whether or not the cheese is made with organic milk and location of origin do not have statistically significant marginal effects. Overall, if the farmers focus on experience attributes instead of other costly credence attributes, they might increase the probability of obtaining a positive price premium from the consumers.

State-Wise Regression Results

In addition to the pooled regression across different states, we also analyzed each state separately to account for the state-wise differences in consumer preferences. We again use the bivariate-ordered probit regression model for willingness-to-pay for domestic artisan cheese over domestic processed cheese and for willingness-to-pay for imported French artisan cheese over US artisan cheese. The regression results are reported in Table 5. The R^2 for individual state-wise regressions are higher than that for the pooled regression, the highest being 0.45 for Kansas. The Chow test is used to test that the regressions coefficients are, as a whole, different among the three states. The hypothesis that all the regression coefficients are the same among the three states is rejected at the 1 percent significance level.

For willingness-to-pay for artisan cheese over processed cheese, we see differences among three states. Only three variables- cheese is aged, color of cheese, and health attribute- are statistically significant for all three states. Other variables, such as consumer preferences for the way cheese is produced, mechanically processed and farmstead are statistically significant only for one state. There are also variables that are statistically significant for two of the states, but not for the third state. For example, for point of sale, health / natural food stores is statistically significant for Iowa and Kansas, but not significant for Missouri. Results also vary between states for experience, search and credence attributes. The taste variable, which is an experience attribute, is statistically significant for Iowa and Kansas, but it is not significant for Missouri. On the other hand, another experience attribute, whether cheese is aged, is statistically significant for all three states. The credence attributes- made from organic milk and made from natural milk- are statistically significant only for one state each. Overall, the results of the current study suggest that willingness-to-pay or consumer preferences in general should not be generalized across different locations. As willingness-to-pay results are fluctuant relative to geographic location, instead of just focusing on the national trends, producers should analyze the local consumer preferences closely to increase sales.

Factors Analysis

The results of the factor analysis for the artisan cheese attributes are reported in Table 6, in the Kaiser rotated form, which makes the interpretation easy and keeps the model structure unchanged (Johnson and Wichern, 2002). We report the factors for the pooled data and for each state separately. As a rule of thumb, we only report the factors with eigenvalues equal to or bigger than one (Johnson and Wichern, 2002; Sharma and Kumar, 2006). The results of the factor analysis show that location of origin within the U.S. and unique label have the highest two

loadings for the factor 1, which has the highest eigenvalue for the pooled and state-wise data. Factor loadings higher than 0.6 are used to name a factor (Sharma and Kumar, 2006). If a factor has high loading of all factors, it is called a general factor (Sharma and Kumar, 2006). The factor 1 then can be called consumers' concerns about the source of a food product. Factor 1 also differentiates between the taste variable and the rest of the variables for both pooled and state-wise data. Factor 2 for each state has different variables with the highest factor loadings, which confirms state-wise differences in consumer preferences.

Conclusions

The current study analyzed the consumer preferences for domestic artisan cheese over domestic processed cheese and imported French artisan cheese over US artisan cheese. The results of the current study show that consumer preferences vary between domestic and imported artisan cheese. The impact of various experience, search, and credence attributes on willingness-to-pay for domestic and imported artisan cheese were different. Overall, experience attributes had the most impact on the price premium for domestic artisan cheese over domestic processed cheese. Domestic producers will want to use different marketing and production strategies to compete with imported artisan cheese. The results of the current study show that some of the consumer preferences might vary among different geographical locations. Hence, instead of using national trends, producers can benefit from analyzing the local consumer preferences when producing and marketing cheese products.

Besides the artisan cheese attributes, the results of the current study also showed point of sale and purpose of consumption to be important. These factors are even more influential for state-wise regressions, and these factors showed variation across location. Hence, different points of sale might be needed based on the location to increase the price premium from consumers. For

example, health / natural food stores might be better marketing channels for producers in Iowa and Kansas than in Missouri. Future research is needed to further analyze consumer preferences for imported foods. Consumer preferences in regions other than the Midwest should be analyzed by a future study. Future research also should include different food bundles, such as cheese and wine, to identify the variation in consumer preferences for different food products in combination.

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Table 1. Variable Names, Description, Means and Standard Deviations

Variable	Description	Mean	Standard Deviation
Age	Range: 1 = 24 and under; 2 = 25–34; 3 = 35-44; 4= 45-54; 5=55-64; 6=65 and older	3.23	1.410
Annual Family Income	Range: 1 = $0-$25,000; 2 =$26,000-$50,000; 3=$51,000-$75,000; 4 =$76,000-$100,000; 5=More than $100,000	3.25	1.220
Male	1 if Male, 0 if Female	0.43	0.496
Iowa (*Base Category*)	1 if located in, 0 otherwise	0.62	0.596
Kansas	1 if located in, 0 otherwise	0.16	0.369
Missouri	1 if located in, 0 otherwise	0.22	0.838
Cheese Production Type			
No Preference (*Base Category)*	1 if no preference, 0 otherwise	0.50	0.259
Mechanically Processed	1 if preferred, 0 otherwise	0.15	0.359
Hand-made	1 if preferred, 0 otherwise	0.25	0.431
Farmstead	1 if preferred, 0 otherwise	0.10	0.304
Artisan Cheese Consumption Purpose			
Cooking Ingredient	1 if chosen, 0 otherwise	0.46	0.499
Snack	1 if chosen, 0 otherwise	0.56	0.497
Appetizer	1 if chosen, 0 otherwise	0.64	0.480
Entertainment	1 if chosen, 0 otherwise	0.67	0.470
Family Traditions	1 if chosen, 0 otherwise	0.18	0.381
Complement (i.e. with wine)	1 if chosen, 0 otherwise	0.50	0.500
Recommendations (from others)	1 if chosen, 0 otherwise	0.40	0.490
Previous Experience (restaurant)	1 if chosen, 0 otherwise	0.34	0.475
Point of Sale			
Supermarkets[1]	Range: 1 =Never; 2=Seldom; 3=Occasionally;4=Frequently	3.46	0.922
Health/Natural Food Stores		1.51	0.791
Specialty Cheese Stores		1.54	0.722
Independent Grocery Stores		3.09	1.039
Directly from Cheese Makers		1.29	0.585
Mail/Online Orders		1.24	0.517
Artisan Cheese Attributes			
Taste [2]	Range: 1=Not Important; 2=Somewhat Important; 3=Very important	2.89	0.369
Enhancement of taste (with other products)		2.21	0.688
Shelf-life		2.19	0.651
Cheese is aged		1.99	0.726
Color of cheese		1.94	0.673
Made with natural milk		1.99	0.725
Made with organic milk		2.09	0.290
Type of milk (goat or cow)		1.92	0.748
Health Attribute (fat content)		2.01	0.719
Package size		2.01	0.622
Package design (resealable)		1.82	0.718
Cut of cheese		1.69	0.644

Table 1. Continued

Variable	Description	Mean	Standard Deviation
Unique label image		1.36	0.584
Location of origin in the US		1.55	0.650
Supporting small local farmers		1.91	0.676
Dependent Variables			
Willingness-to-pay a price premium for domestic artisan cheese over domestic processed cheese	Range: 0=None; 1=20% more, 2=30% more 3=50% more	1.22	0.837
Willingness-to-pay a price premium for imported French artisan cheese over US artisan cheese	Range: 0=None; 1=20% more, 2=30% more 3=50% more	0.64	0.794

Notes: [1]The range is same for all the variables under "Point of Sale."
[2] The range is same for all the variables under "Artisan Cheese Attributes."

Table 2. Distribution of Willingness-to-Pay (WTP) Values

Variable	None	20% More	30% More	50% More
WTP for Domestic Artisan Cheese[1]	18%	53%	21%	8%
WTP for Imported French Cheese[2]	56%	30%	11%	3%

Notes: [1]Indicates WTP a price premium for domestic artisan cheese over domestic processed cheese.
[2] Indicates WTP a price premium for imported French artisan cheese over US artisan cheese.

Table 3. Results for Bivariate Ordered Probit Regression

Variable	WTP for Domestic Artisan Cheese[1]		WTP for Imported French Cheese[2]	
	Coefficient	Std. Error	Coefficient	Std. Error
Age	0.08*	0.043	-0.10**	0.045
Annual Family Income	0.03	0.045	0.01	0.047
Male	-0.04	0.110	0.03	0.150
Kansas (*Base is Iowa*)	-0.22	0.147	-0.04	0.068
Missouri	0.01	0.064	-0.12	0.115
Cheese Production Type				
(*Base is No Preference*)				
Mechanically Processed	-0.23	0.160	-0.06	0.169
Hand-made	0.29**	0.136	-0.11	0.140
Farmstead	0.13	0.187	-0.11	0.191
Consumption Purpose				
(Base is No Specific Purpose)				
Cooking Ingredient	0.05	0.110	0.06	0.114
Snack	0.24**	0.120	0.14	0.124
Appetizer	0.13	0.123	0.27**	0.130
Entertainment	0.26**	0.124	0.28**	0.131
Family Traditions	0.06	0.141	-0.02	0.145
Complement	0.02	0.118	-0.10	0.124
Recommendations	0.04	0.121	-0.06	0.128
Previous Experience	0.02	0.122	-0.12	0.129
Point of Sale				
Supermarkets	0.03	0.063	-0.05	0.065
Health/Natural	0.32***	0.078	0.18**	0.078
Specialty Cheese Stores	0.09	0.095	0.08	0.096
Independent Grocery	-0.10*	0.056	0.00	0.059
Directly from Makers	0.02	0.107	-0.08	0.113
Mail/Online Orders	0.12	0.109	0.29***	0.111
Artisan Cheese Attributes				
Taste	0.53***	0.163	0.09	0.169
Enhancement of taste	0.21**	0.094	0.21**	0.097
Shelf-life	-0.13	0.096	-0.13	0.101
Cheese is aged	0.41***	0.099	0.05	0.103
Color of cheese	-0.26**	0.105	0.09	0.108
Made with natural milk	0.15	0.094	0.01	0.098
Made with organic milk	0.27	0.200	0.14	0.201
Type of milk	-0.15**	0.084	-0.14	0.089
Health Attribute	-0.24***	0.092	0.05	0.095
Package size	-0.18*	0.106	-0.26**	0.112
Package design	-0.06	0.093	0.02	0.098
Cut of cheese	0.21**	0.110	-0.01	0.114
Unique label image	0.03	0.124	0.03	0.126
Location of origin	-0.18	0.119	0.02	0.123
Supporting local farmers	0.06	0.102	0.05	0.107
N	507			
Pseudo R-squared (McFadden's)	0.25			
Wald Chi-square(38)	201			
p-value for Wald chi-square	0.00			
ρ	0.38***			

Notes: [1]Indicates willingness-to-pay a price premium for domestic artisan cheese over domestic processed cheese.
[2] Indicates willingness-to-pay a price premium for imported French artisan cheese over US artisan cheese.
Three asterisks (***) indicate significance at 1% level, two asterisks (**) at the 5% level, and one asterisk (*) at the 10% level.

Table 4. Marginal Effects for Bivariate-Ordered Probit Regression

Variable	WTPA[1]=0 WTPF[2]=0	WTPA=1 WTPF=1	WTPA=2 WTPF=2	WTPA=3 WTPF=3
Age	-0.007	-0.022***	-0.004	0.000
Annual Family Income	-0.005	-0.001	0.001	0.000
Male	0.009	-0.015	-0.007	-0.001
Kansas	0.030	0.021	-0.004	-0.001
Missouri	0.000	-0.006	-0.002	0.000
Cheese Production Type				
Mechanically Processed	0.035	0.007	-0.009	-0.001
Hand-made	-0.034**	-0.044**	0.000	0.000
Farmstead	-0.016	-0.014	0.002	0.000
Consumption Purpose				
Cooking Ingredient	-0.009	0.004	0.004	0.000
Snack	-0.039**	0.006	0.015**	0.002*
Appetizer	-0.028	0.030	0.017**	0.002*
Entertainment	-0.047**	0.023	0.020***	0.002**
Family Traditions	-0.007	-0.008	0.001	0.000
Complement	0.000	-0.017	-0.005	0.000
Recommendations	-0.003	-0.013	-0.002	0.000
Previous Experience	0.002	-0.020	-0.006	-0.001
Point of Sale				
Supermarkets	-0.003	-0.010	-0.002	0.000
Health/Natural	-0.049	-0.001	0.017***	0.002**
Specialty Cheese Stores	-0.015	0.004	0.006	0.001
Independent Grocery	0.013	0.008	-0.003	0.000
Directly from Makers	0.001	-0.013	-0.004	0.000
Mail/Online Orders	-0.026	0.033**	0.018***	0.002**
Artisan Cheese Attributes				
Taste	-0.075***	-0.032	0.018*	0.002*
Enhancement of taste	-0.035***	0.013	0.016***	0.002**
Shelf-life	0.022	-0.008	-0.010	-0.001
Cheese is aged	-0.057***	-0.028*	0.013**	0.002*
Color of cheese	0.032**	0.035**	-0.002	0.000
Made with natural milk	-0.020	-0.011	0.004	0.001
Made with organic milk	-0.040	-0.002	0.014	0.002
Type of milk	0.025**	-0.008	-0.011**	-0.001*
Health Attribute	0.031**	0.028**	-0.003	-0.001
Package size	0.032**	-0.025	-0.018***	-0.002**
Package design	0.008	0.008	0.000	0.000
Cut of cheese	-0.028*	-0.020	0.005	0.001
Unique label image	-0.006	0.002	0.002	0.000
Location of origin	0.023	0.018	-0.003	-0.001
Supporting local farmers	-0.010	0.002	0.004	0.000

Notes: [1]WTPA indicates willingness-to-pay a premium for domestic artisan cheese over domestic processed cheese. [2]WTPF indicates for willingness-to-pay a premium for imported French artisan cheese over US artisan cheese. Three asterisks (***) indicate significance at 1% level, two asterisks (**) at the 5% level, and one asterisk (*) at the 10% level.

Table 5. Results for Bivariate Ordered Probit Regression for State-Wise Data

Variable	WTP for Domestic Artisan Cheese[1]			WTP for Imported French Cheese[2]		
	Iowa	Kansas	Missouri	Iowa	Kansas	Missouri
Age	0.06	0.10	0.14	-0.13**	0.00	-0.09
Annual Family Income	0.03	0.00	0.15	0.01	0.01	-0.05
Male	-0.01	0.24	-0.30	-0.37**	-0.04	0.27
Cheese Production Type						
Mechanically Processed	-0.02	-0.92	-1.02**	-0.38*	-0.69	0.63
Hand-made	0.37**	-0.76	0.78**	-0.12	-1.63***	-0.01
Farmstead	-0.14	0.81	0.93**	-0.05	-0.61	0.39
Consumption Purpose						
Cooking Ingredient	0.11	-0.90**	-0.27	0.17	-0.48	0.16
Snack	0.07	0.60	0.82***	0.23	0.25	0.31
Appetizer	0.09	1.17**	0.06	0.24	2.38***	0.00
Entertainment	0.36**	0.56	-0.36	0.21	0.51	0.61*
Family Traditions	0.11	-0.44	0.60	0.06	-0.20	-0.03
Complement	-0.07	-0.42	-0.18	-0.25	-1.66***	0.14
Recommendations	-0.09	0.97**	0.70**	-0.11	1.52***	-0.02
Previous Experience	0.17	-0.10	0.07	-0.31*	-0.14	0.25
Point of Sale						
Supermarkets	0.04	0.10	0.00	0.00	-0.52*	0.05
Health/Natural	0.37***	0.72***	0.02	0.22	0.43*	0.15
Specialty Cheese Stores	0.00	0.08	0.41*	0.04	-1.16***	0.64***
Independent Grocery	-0.10	-0.07	-0.22	0.09	-0.27	-0.03
Directly from Makers	0.02	0.31	-0.06	0.01	0.81*	-0.58**
Mail/Online Orders	0.18	-0.05	0.18	0.41***	-0.25	0.15
Artisan Cheese Attributes						
Taste	0.62***	1.63**	-0.08	0.03	0.26	0.30
Enhancement of taste	0.24**	-0.28	0.72***	0.28**	-0.06	-0.13
Shelf-life	-0.12	-0.85*	-0.18	-0.12	-1.55***	0.08
Cheese is aged	0.38***	1.21***	0.51*	0.15	0.60	0.04
Color of cheese	-0.27**	-1.19***	-0.53*	0.17	-0.06	-0.41
Made with natural milk	0.18	0.07	0.49*	0.04	-0.05	0.14
Made with organic milk	0.67**	-0.73	-0.19	0.36	-0.33	-0.23
Type of milk	-0.03	0.14	-0.51**	-0.20*	0.15	-0.16
Health Attribute	-0.28**	-0.54*	-0.40*	0.02	0.68**	-0.30**
Package size	-0.17	-0.29	-0.67**	-0.11	-1.00**	-0.68*
Package design	-0.09	0.65*	0.08	-0.06	0.48	0.47
Cut of cheese	0.09	1.06***	0.31	-0.22	1.20***	0.40***
Unique label image	0.12	-0.86**	0.07	0.03	-0.51	0.28
Location of origin	-0.12	-1.10**	-0.40	0.01	-0.26	-0.37
Supporting local farmers	-0.05	0.59	0.21	0.07	-0.42	0.03
N	310	82	115	310	82	115
Pseudo R-squared	0.26	0.45	0.37	0.26	0.45	0.37
Wald Chi-square(36)	122	41	62	122	41	62
p-value for Wald chi-square	0.000	0.000	0.000	0.000	0.000	0.000
ρ	0.40***	0.58***	0.50***	0.40***	0.58***	0.50***
Chow (72)		132			110	
p-value for Chow		0.000			0.000	

Notes: [1]Indicates willingness-to-pay a price premium for domestic artisan cheese over domestic processed cheese.
[2] Indicates willingness-to-pay a price premium for imported French artisan cheese over US artisan cheese.
Three asterisks (***) indicate significance at 1% level, two asterisks (**) at the 5% level, and one asterisk (*) at the 10% level.

Table 6. Factor Analysis (Rotated Factor Loadings)

Variables	**Pooled** Factor λ=4.65	**Iowa** Factor 1 λ=4.51	**Iowa** Factor 2 λ=1	**Kansas** Factor 1 λ=4.49	**Kansas** Factor 2 λ=1.37	**Kansas** Factor 3 λ=1.02	**Missouri** Factor 1 λ=5.42	**Missouri** Factor 2 λ=1.10
Taste	-0.05	-0.05	0.18	-0.02	-0.11	-0.13	-0.09	0.17
Enhancement of taste	0.21	0.18	0.14	0.20	0.39	0.22	0.25	0.17
Shelf-life	0.09	0.10	0.31	0.00	-0.08	0.59	0.17	0.09
Cheese is aged	0.30	0.35	0.31	0.21	0.67	-0.03	0.23	0.73
Color of cheese	0.32	0.32	0.16	0.16	0.72	0.20	0.40	0.24
Made with natural milk	0.21	0.17	0.67	0.20	0.23	0.08	0.32	0.48
Made with organic milk	0.19	0.06	0.35	0.34	0.15	-0.01	0.27	0.31
Type of milk	0.20	0.19	0.54	0.18	0.17	0.10	0.20	0.50
Health Attribute	0.15	0.12	0.51	0.08	0.12	0.26	0.27	0.52
Package size	0.15	0.13	0.06	0.18	0.31	0.56	0.11	0.03
Package design	0.23	0.20	0.05	0.23	0.13	0.72	0.29	0.08
Cut of cheese	0.51	0.50	0.13	0.61	0.31	0.08	0.61	0.20
Unique label image	0.66	0.60	0.07	0.80	0.12	0.20	0.68	0.04
Location of origin	0.67	0.64	0.37	0.73	0.00	0.08	0.78	0.32
Supporting local farmers	0.40	0.31	0.59	0.59	0.07	0.10	0.41	0.57

Notes: Estimation method is principal component and rotation method is Kaiser.
Factors with eigenvales equal to or bigger than one are reported.